

MEMORANDUM

DATE: January 19, 2024
TO: Mark Chow, County of San Mateo
FROM: Ben Shick, PE
SUBJECT: Crystal Springs County Sanitation District – Pipe
and Manhole Assessment and Recommendations



Introduction

The County of San Mateo contracted Schaaf & Wheeler to inspect and assess the condition of the existing gravity sewer mains and manholes within the San Mateo County's Crystal Springs County Sanitation (District) sewer system. The limits of the Sanitary District are shown in Figure 1 below. Schaaf & Wheeler's subconsultant, Presidio Systems Inc., performed CCTV inspections and manhole inspections from May through October of 2022. In addition, the County of San Mateo consulted with ADS Environmental Services to complete smoke testing throughout the system. The results from the smoke testing were provided to Schaaf and Wheeler and the noted deficiencies and associated repairs are included herein. The smoke testing report is included as Attachment 7.

Schaaf & Wheeler's assessment of the CCTV and manhole inspection data and recommendations for repairs and replacement of the sanitary sewer system is summarized in this memorandum.



Figure 1. Crystal Springs County Sanitation District Limits

Manhole and Pipe Segments Analysis

The County of San Mateo provided maps and shapefiles of the sanitary sewer system within Crystal Springs County Sanitation District. After completion of CCTV inspections and manhole inspections, Schaaf & Wheeler cross referenced the shapefiles and CCTV inspection data to ensure all pipes and manholes were inspected. Several structures (manholes, flushing inlets and cleanouts) could not be located in the field during the initial inspections. Additional field investigations were performed with District staff to locate manholes, flushing inlets and cleanouts where feasible. Following completion of the field work a total of 11 structures could not be located and 11 pipe segments that were not inspected. A list of the structures that could not be located and pipes that were not inspected are included as Attachment 6.

A total of 95,508 linear feet of sanitary sewer CCTV inspection data was reviewed and assessed as part of this project. A summary of the pipe length per diameter is included in Table 1. The pipe inspection was performed in accordance with National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) standards version 6 or higher.

Table 1. Summary of Pipe Length by Diameter

Pipe Diameter (inches)	Length (ft)	Percentage of Length (%)
4	44	0.0
5	844	0.9
6	77,545	81.2
8	9,379	9.8
10	643	0.7
12	5,323	5.6
15	1,730	1.8
Total	95,508	100

Topographic surveying was performed to accurately locate the existing manholes, cleanouts and flushing inlets. Manhole rim to invert distances recorded during manhole inspections were used to calculate the invert elevations of the manholes. The survey data was used to update the District's GIS shapefiles for the sanitary sewer nodes and pipes, updated shapefiles were provided to the district.

Summary of Manhole Inspection

A total of 532 manholes within the project area were inspected per NASSCO Manhole Assessment Certification Program (MACP) standards using surface inspection (Level 1 Inspection). Schaaf & Wheeler reviewed the manhole inspection data from Presidio Systems Inc. and developed prioritized recommendations for repair and rehabilitation. Repairs range from repairing minor cracks to replacing the manhole. Additional information about the recommended manhole repairs is discussed herein.

Summary of Smoke Testing Study

A smoke testing study of the existing sanitary sewer system was completed by ADS Environmental Services to determine sources of inflow and infiltration. The smoke testing report is included as Attachment 7, which states that a total of one hundred seventy-two defects were identified during the investigation. A breakdown of the defects is provided in Table 2 below.

Table 2. Defects Identified

Defect Type	Number
Area Drain	10
Cleanout	134
Downspout	1
Main Sewer	3
Service Lateral	15
Sewer Main	1
Sewer Manhole	3
Source Unknown	5
TOTAL	172
TOTAL MAINLINE DEFECTS	7

This report and the assessment that Schaaf and Wheeler completed was related to the sewer mains and manholes; therefore, defects related to area drains, cleanouts, downspouts, service laterals, and source unknowns were not included in the review.

Schaaf and Wheeler reviewed all the mainline defects to determine if any of the defects corresponded with the locations proposed for rehabilitation as part of the CCTV assessment. A list of the sewer main and manhole defects identified in the smoke testing report and the associated repairs/rehabilitation are included as Attachment 8.

Condition Evaluation Methodology

Schaaf & Wheeler's subconsultant, Presidio Systems Inc., completed CCTV inspections of the pipe segments to assess the structural conditions and to identify operational and maintenance issues. Inspections and assessments were conducted based on PACP standards. Each pipe segment inspected was assigned a Pipeline Assessment Certification Program (PACP) rating by the CCTV inspection operator.

Resulting videos and reports were provided to Schaaf & Wheeler for further review and assessment. Schaaf & Wheeler coupled the PACP rating for each pipe and reviewed the inspection footage to assign a Schaaf & Wheeler score to be used for prioritizing the recommended improvements. The Schaaf & Wheeler (S&W) score is primarily based on the structural integrity of the sewer and is intended to minimize the risk of sanitary sewer overflows (SSO's). Schaaf & Wheeler's score is based on decimal system from 1 to 5 to better differentiate construction priorities. A summary of the scoring system is provided in Table 3 and a summary of the total pipe length for each score is included in Table 4.

Table 3. Schaaf & Wheeler Scoring System

S&W Score	Pipe Condition	Priority
5	Failed Structurally, Significant Infiltration, Compromised by Another Utility	Urgent Priority
4 to 4.9	Significant structural and/or operational defects	High Priority
3 to 3.9	Several Cracks, Fractures, Roots, Etc.	Moderate Priority
2 to 2.9	Fair Pipe Condition	Low Priority
1 to 1.9	Relatively New, PVC Pipe	

Table 4. Pipe Length per Score/Priority

S&W Score	Priority	Length (ft)	Percentage of Length (%)
5	Urgent Priority	1,492	1.6
4-4.9	High Priority	21,811	22.8
3-3.9	Moderate Priority	32,923	34.5
2-2.9	Low Priority	16,849	17.6
0-1.9	Low Priority	22,433	23.5
TOTAL		95,508	100

Schaaf & Wheeler’s scoring system prioritizes significant structural issues, such as collapses, breaks, and significant fractures, and other defects that are considered pipe failures or will likely fail in a short period of time, as well as potential for significant inflow/infiltration into the pipe.

Some sewer segments received high initial PACP ratings due to operational and maintenance issues like grease build up or root intrusion throughout the segment. Root intrusion should not be discredited, as it is a source of infiltration and greatly increases the maintenance requirements. Likewise significant grease build up can reduce the overall capacity of the sewer segment, potentially causing surcharging and overflows. Significant root intrusion throughout the segment and grease buildup can typically be addressed with additional routine maintenance. Root intrusion can be addressed with root cutting and foaming on a routine basis. Pipe segments with severe root intrusion issues are typically recommended for rehabilitation. Grease buildup can be addressed with jetting and cleaning the pipe. Pipe rehabilitation and replacement will not typically alleviate grease buildup unless it is being caused by a sag in the pipe. In Schaaf & Wheeler’s scoring system, operation and maintenance issues typically have a lower emphasis in the overall score compared to the PACP rating system since these issues can typically be fixed with maintenance and/or difficult to fix with repairing or rehabilitating the pipe.

Per the County’s sewer lateral ordinance, the individual property owners are responsible for the sewer laterals and lateral connections. Therefore, observed issues with the laterals and lateral connections (poor connections, roots, etc.) are not recommended for repair unless the issue affects or has a potential to impact the condition of the sewer main. If there is a sewer main

defect that requires repair at a lateral connection, the repair will include replacement of the wye connection.

Schaaf & Wheeler scoring groups are described below.

Urgent Priority

Urgent priority score of 5 was assigned to pipe segments with structural and/or operational defects that impact the capacity of the pipe or that have the potential to cause a sanitary sewer overflow (SSO). The defects for urgent priority score include but are not limited to broken pipes, collapsed pipes, large deformations, large defective joints, large root mass, and defective lateral connections that significantly obstruct the flow in the sewer main.

High Priority

Sewer pipes that contain some structural and operational defects received a score between 4 and 4.9. These defects are a high priority to be repaired. The structural defects include but are not limited to cracks, fractures, small holes and breaks, medium deformations, medium defective joints, and some aggregate exposure. The operational defects include, but are not limited to medium root mass, signs of significant infiltration, and sags where the pipe is significantly surcharged (approximately 70% or more).

Moderate Priority

Sewer pipes that contain minor structural and operational defects receive a score between 3 and 3.9. These defects are a moderate priority to be repaired. The structural defects include but are not limited to cracks, fractures, defective joints, minor aggregate exposure, or corrosion. The operational defects include but are not limited to medium roots and medium sags leading to the pipe being surcharged by 30% - 70% full.

Low Priority

Sewer pipes that are in fair condition receive a score between 2 and 2.9. Sewer pipes that are new or nearly new and contain no structural defects received a score between 1 and 1.9. These pipes are low priority; therefore, no improvements are recommended at this time. The structural defects include but are not limited to cracks, small fractures, and/or minor defective joints. The operational defects include but are not limited to fine roots and small sags leading to the pipe being 0% -30% full.

Rehabilitation and Replacement Methods

There are several methods available to rehabilitate and replace existing sewer pipes. For this analysis, five main types of sewer rehabilitation were reviewed; cured-in place pipe (CIPP), spot repair, open trench repair, open trench replacement, and pipe bursting. Full length rehabilitation/replacement typically addresses multiple defects with various levels of severity. Manhole repairs and rehabilitation include removing ladder rungs, repairing cracks/holes, reforming invert, replacing frame/lid, raise manhole, and rehabilitate manhole. The rehabilitation and replacement methods are discussed further herein.

CIPP Rehabilitation

Cured-In Place Pipe (CIPP) is a rehabilitation method that consists of a resin impregnated liner, cured with hot water or steam, which then forms a new pipe within the existing pipe. The liner is forced through the existing pipe and the impregnated resin liner cures, creating a new pipe

within the existing pipe. Intruding laterals may require spot repairs prior to lining. Active laterals without significant defects can be reinstated after the liner has been cured with a robotic cutter from inside of the sewer main. Laterals with significant defects will need to be open cut replaced prior to CIPP installation.

CIPP is a good option when excavation is not feasible or will cause significant impacts. CIPP is also an economical rehab method when a pipe segment has several material changes from old spot repairs, if the pipe has significant root intrusion, if the segment contains significant surface damage like corrosion, or infiltration stains throughout. CIPP creates a monolithic pipe and reduces the potential for infiltration.

Spot Repair

A spot repair is performed by excavating to the existing sewer, removing, and replacing a short section of pipe (typically 6' or less), installing couplings to connect to the existing sewer, backfilling the excavation, and returning the surface improvements to pre-construction conditions.

Spot repairs address structural defects such as fractures, breaks, holes, collapsed pipes, joint deformation, joint offsets, and joint separations. Spot repairs can also address intruding laterals and obstacles/obstructions. Lateral connections that intrude into the sewer main will need to be repaired in locations where the pipe is recommended for CIPP lining. Spot repairs are also recommended in locations where significant infiltration is observed in an isolated location.

Open Trench Repair

An open trench repair is a pipe replacement via open trench construction that is longer than a spot repair, but shorter than replacing the entire manhole to manhole pipe segment. Typically, open trench repairs are proposed to address multiple pipe defects in proximity, or to repair significant isolated sags. Typically, open trench repairs are recommended in locations where defects are within 15 feet from each other. Defects found to be more than 15 feet from each other were maintained as Spot Repairs.

Open Trench Replacement

An open trench replacement consists of replacing an entire manhole to manhole pipe segment. Typically, open trench replacement is proposed to address multiple pipe defects and/or to repair significant sags. All lateral connections will be replaced, and the laterals will be reconnected within the trench of the new sewer main.

Pipe Bursting

Pipe bursting is a trenchless pipe replacement method completed by forcing a new pipe through the existing pipe. This type of rehabilitation is effective when there are significant structural defects; however, pipe bursting does not typically eliminate sags in the pipeline. Pipe bursting can also address segments with significant root intrusion and segments with multiple points of infiltration. Excavations are required for the entrance and exit pits, crossing of close utilities, and to replace lateral connections.

Manhole Rehabilitation

Manhole rehabilitation should be considered for all manholes connecting to the pipes being included as part of the recommended rehabilitation project. Manhole repairs and rehabilitation

are based on the manhole inspections completed by Presidio Systems Inc, and are discussed herein:

- **Rehabilitate Manhole:** Manhole rehabilitation consists of applying a mortar-based coating system to the interior surfaces of the manhole to repair corrosion, cracks, holes, and other manhole defects.
- **Replace Frame and Cover:** Replacement of the manhole frame and cover is recommended in locations where the existing frame and cover is observed to be in poor condition.
- **Repair Pipe Connection:** Repairing the manhole to pipe connection consists of chipping out the concrete/mortar around the pipe connection and installing a water stop and grout. This is recommended in locations where a poor pipe connection was observed, or in locations where infiltration was observed at the pipe connection.
- **Reform Bench and Invert:** Reforming the bench and invert of the manhole is recommended in locations where poor flow conditions within the manhole were observed due to deformations and in locations where a formed channel does not exist.
- **Grout Grade Rings:** Grouting of the manhole grade rings is recommended in locations where there are significant voids and gaps in the grade rings which may lead to infiltration and soil migration.
- **Raise Manhole:** Raising the manhole frame and lid is recommended in locations where the frame and lid are lower than the surrounding ground, or in locations where the manhole is buried.
- **Remove Ladder Rungs:** Ladder rungs within sanitary sewer manholes may present a safety hazard as they age and become corroded. Removal of ladder rungs is recommended in manholes where other manhole rehabilitations are being performed.
- **Replace Rodding Inlet:** Rodding inlet replacement consists of removing the existing rodding inlet structure. Replacement of the rodding inlet is typically recommended in locations where the connecting pipe is being replaced or rehabilitated. Additionally, rodding inlet replacement is identified in locations where their significant defects are observed.

The priority ranking of pipe segments and manholes provide the ability to adjust the recommended repairs in relation to the construction methods and budget available. Pipe segments and manholes with a score of 4 or greater are in poor condition and are likely to fail and/or have significant infiltration and are recommended for rehabilitation in the near future. Pipe segments and manholes with a score of less than 4 are less likely to have catastrophic failure or cause SSO's in the near future due to the pipe condition.

Table 5 summarizes the quantities of each rehabilitation/replacement method for pipe segments and manholes with a Schaaf & Wheeler score of 4 or greater. Summary tables of the pipe

segments and manholes with a Schaaf & Wheeler Score of 4 or greater are included in Attachment 1.

Table 5. Pipe Rehabilitation Quantities (S&W Score of 4 to 5)

Rehabilitation Method	Schaaf & Wheeler Score	Length (ft) / # of Repair Locations
CIPP	4 to 5	4,203 LF
Spot Repair	4 to 5	139
Open Trench Repair	4 to 5	10 LF
Pipe Burst	4 to 5	9,263 LF
Replace Sewer	4 to 5	0 LF
Manhole Rehabilitation	4 to 5	17

Many pipe segments that have a S&W score of less than 4 have minor to moderate defects like cracks, sags, root intrusions, build up and deposits like calcium, grease, and concrete. It is recommended that pipe segments be regularly cleaned and inspected to identify changes in conditions, remove roots and grease/calcium buildup and tell when future improvements will be needed. Roots coming through into the pipe can be dealt with by root cutting or foaming when necessary to prevent large roots and root balls from forming.

Figures showing the Schaaf & Wheeler score for each pipe segment and manhole are included in Attachment 3. Figures identifying the recommended rehabilitation method for each pipe segment with a Schaaf & Wheeler score of 4 and greater are included in Attachment 4.

Repairs Completed by the County

The County completed several urgent repairs during the pipe assessment process to address condition-related issues that were flagged and reported during the inspection and assessment process. A summary of the repairs that were completed by the County is included in Table 6. These repairs have been removed from the recommended improvements; however, additional improvements may be necessary on these pipe segments.

Table 6. Pipe Repairs and Replacements

Pipe ID	Type of Repair	Date
299-306	1 - 4ft x 6in patch	9/26
416-409	1 – 4ft x 6in patch	9/22
597-604	1ft of VCP pipe and 6in x 4in wye connection	9/21
385-377	1 – 8in x 24in patch	11/21
272-275	1 – 6in x 48in patch	11/14
274-287	2 – 6in x 48in patch	11/16
5848-5847	1 – 6in x 48in patch and 1 – 8in x 48in patch	12/5

Cost Estimates

The preliminary estimate of probable construction costs to address pipes and manholes that received a Schaaf & Wheeler score from 4 to 5 is summarized in Table 7. Unit costs are based on recent bid prices for similar projects throughout the Bay Area. A detailed estimate is included in Attachment 2 to this memorandum.

Table 7. Cost Estimate Summary

Repair Type	Estimated Total Cost (\$)
Spot Repair	\$980,000
CIPP Rehabilitation	\$280,000
Open Trench Repair	\$4,000
Pipe Burst	\$2,820,000
Open Trench Replacement	\$0
Manhole Rehabilitation	\$110,000
Subtotal	\$4,200,000
Construction Contingency (20%)	\$840,000
Mobilization/Traffic Control/Shoring/Etc. (30%)	\$1,260,000
Total	\$6,300,000

ATTACHMENTS

Attachment 1: Summary of CCTV Assessment

Attachment 2: Estimate of Probable Construction Costs

Attachment 3: Schaaf & Wheeler Rating/Score Figures

Attachment 4: Rehabilitation Summary Figures

Attachment 5: Examples of Typical Pipe Defects

Attachment 6: Manholes and Pipes Not Inspected

Attachment 7: Smoke Testing Study, County of San Mateo Sanitation District

Attachment 8: Smoke Testing Defects and Associated Rehabilitation

ATTACHMENT 1: Summary of CCTV Assessment

SUMMARY OF CCTV INSPECTION DATA	
Number of Sewer Segments Televised	545
Total Length of Televised Sewers (feet)	95,508
Number of Sewer Segments with a Score of 5	8
Number of Sewer Segments with a Score of 4-4.9	123
Number of Sewer Segments with a Score of 3-3.9	179
Number of Sewer Segments with a Score of 2-2.9	98
Number of Sewer Segments with a Score Less than 2	137

The table below includes a list of pipe segments with a Schaaf & Wheeler score of 4 and greater that are proposed for CIPP lining.

SEWER SEGMENTS PROPOSED FOR CIPP LINING				
UPSTREAM MH	DOWNSTREAM MH	SIZE (IN)	LENGTH (FT)	RATING
732	731	6	187	4.5
406	405	6	152	4.4
752	755	6	368	4.4
398	378	6	301	4.4
576	565	6	283	4.3
417	408	6	206	4.3
371	370	6	303	4.3
482	494	6	369	4.3
501	499	6	75	4.3
291	272	6	123	4.3
410	411	6	203	4.2
737	739	6	180	4.2
437A	437	8	149	4.2
564	561	6	131	4.2
516	472	6	150	4.2
446	443	6	171	4.2
711	713	6	217	4.2
664	663	6	110	4.1
283	284	15	24	4.1
396	394	6	194	4
604	595	10	307	4
TOTAL LENGTH OF CIPP LINING			4,203	Feet

The table below includes a list of pipe segments with a Schaaf & Wheeler score of 4 and greater that are proposed for spot repairs.

SEWER SEGMENTS PROPOSED FOR SPOT REPAIR				
UPSTREAM MH	DOWNSTREAM MH	SIZE (IN)	NUMBER OF REPAIRS	RATING
270	268	6	2	4.3
264	265	6	2	4
342	306	6	1	5
591	625	6	4	5
268	269	6	2	5
269	275	6	2	5
365	358	6	1	5
751	752	6	1	5
358	326	6	2	4.9
747	749	6	1	4.9
781	788	6	1	4.9
366	405	6	1	4.9
520	518	6	3	4.9
748	750	6	1	4.9
361	362	6	2	4.8
724	728	6	2	4.7
658	660	6	4	4.5
272	275	6	3	4.5
369	410	6	3	4.5
348	352	6	3	4.5
296	298	6	2	4.5
286A	286	6	2	4.5
557	547	6	1	4.5
462	458	6	2	4.4
522	520	6	2	4.4
394	392	6	2	4.4
485	483	6	2	4.4
421	413	6	1	4.4
419	420	6	1	4.4
406	405	6	2	4.4
752	755	6	4	4.4
304	302	6	1	4.4
398	378	6	2	4.4
740	6251	6	1	4.3
632	633	6	1	4.3

623	674	6	2	4.3
727	730	6	1	4.3
445	437	6	3	4.3
397	396	6	1	4.3
735	733	6	1	4.3
524	523	6	2	4.3
618A	618	6	3	4.3
455	453	6	1	4.3
799	798	6	2	4.3
377	379	6	2	4.3
291	272	6	3	4.3
423	413	6	1	4.2
638	640	6	2	4.2
806	5832	6	2	4.2
577	573	6	3	4.2
480	6032	12	1	4.2
663	667	6	2	4.2
737	739	6	2	4.2
437A	437	8	1	4.2
564	561	6	3	4.2
340	345	6	2	4.2
441	445	6	3	4.2
458	443	6	3	4.2
385	377	6	1	4.2
373	376	6	2	4.2
446	443	6	1	4.2
534	537	6	1	4.2
711	713	6	1	4.2
536	541	6	1	4.1
664	663	6	1	4.1
538	541	6	1	4.1
283	284	15	1	4.1
518	516	6	2	4.1
572	577	6	2	4.1
464	462	6	1	4.1
712	715	6	4	4
782	780	6	2	4
604	595	10	2	4
261	264	6	1	4
346	343	6	1	4

613	605	12	1	4
TOTAL NUMBER OF SPOT REPAIRS			139	Each

The table below includes a list of pipe segments with a Schaaf & Wheeler score of 4 and greater that are proposed for open trench repairs.

SEWER SEGMENTS RECOMMENDED FOR OPEN TRENCH REPAIR				
UPSTREAM MH	DOWNSTREAM MH	SIZE (IN)	REPAIR LENGTH (FT)	RATING
286A	286	6	10	4.5
TOTAL LENGTH OF OPEN TRENCH REPAIRS			10	Feet

The table below includes a list of pipe segments with a Schaaf & Wheeler score of 4 and greater that are proposed for pipe bursting.

CSCSD - SEWER SEGMENTS RECOMMENDED FOR PIPE BURSTING				
UPSTREAM MH	DOWNSTREAM MH	SIZE (IN)	LENGTH (FT)	RATING
5848	5847	6	148	4.9
271	270	6	91	5
701	702	8	222	5
751	752	6	224	5
757	759	6	145	4.9
472	470	6	212	4.9
756	768	6	121	4.8
755	756	6	317	4.8
695	701	8	131	4.8
761	764	6	150	4.8
723	722	6	182	4.8
262	263	6	47	4.8
5896	598	6	156	4.8
298	299	6	154	4.8
660	669	6	263	4.8
274	287	6	242	4.7
639	638	6	187	4.7
759	760	6	124	4.7
442	426	6	226	4.7
476	475	8	201	4.7
656	689	6	304	4.6
404	400	6	165	4.6

551	544	6	207	4.6
633	630	6	169	4.6
275	274	6	100	4.6
612	614	6	91	4.5
559	553	6	305	4.5
430	427	6	306	4.5
558	546	6	229	4.5
642	644	8	240	4.5
569	567	6	305	4.5
608	569	6	229	4.5
566	564	6	233	4.5
661	665	6	139	4.5
439	476	8	178	4.5
798	797	6	182	4.5
603	599	6	140	4.5
437	438	8	206	4.4
567	561	6	306	4.4
573	580	6	286	4.4
733	734	6	268	4.3
599	598	6	46	4.3
444	442	6	180	4.3
546	544	6	227	4.2
595	593	10	132	4.2
722	744	6	296	4.1
262	261	6	47	4
451	6203	8	204	4
TOTAL LENGTH OF PIPE BURSTING			9,263	Feet

Note: There are no pipe segments that are recommended for open trench replacement that have a Schaaf and Wheeler score of 4 or greater.

The table below includes a list of manholes with a Schaaf & Wheeler score of 4 and greater that are proposed for rehabilitation.

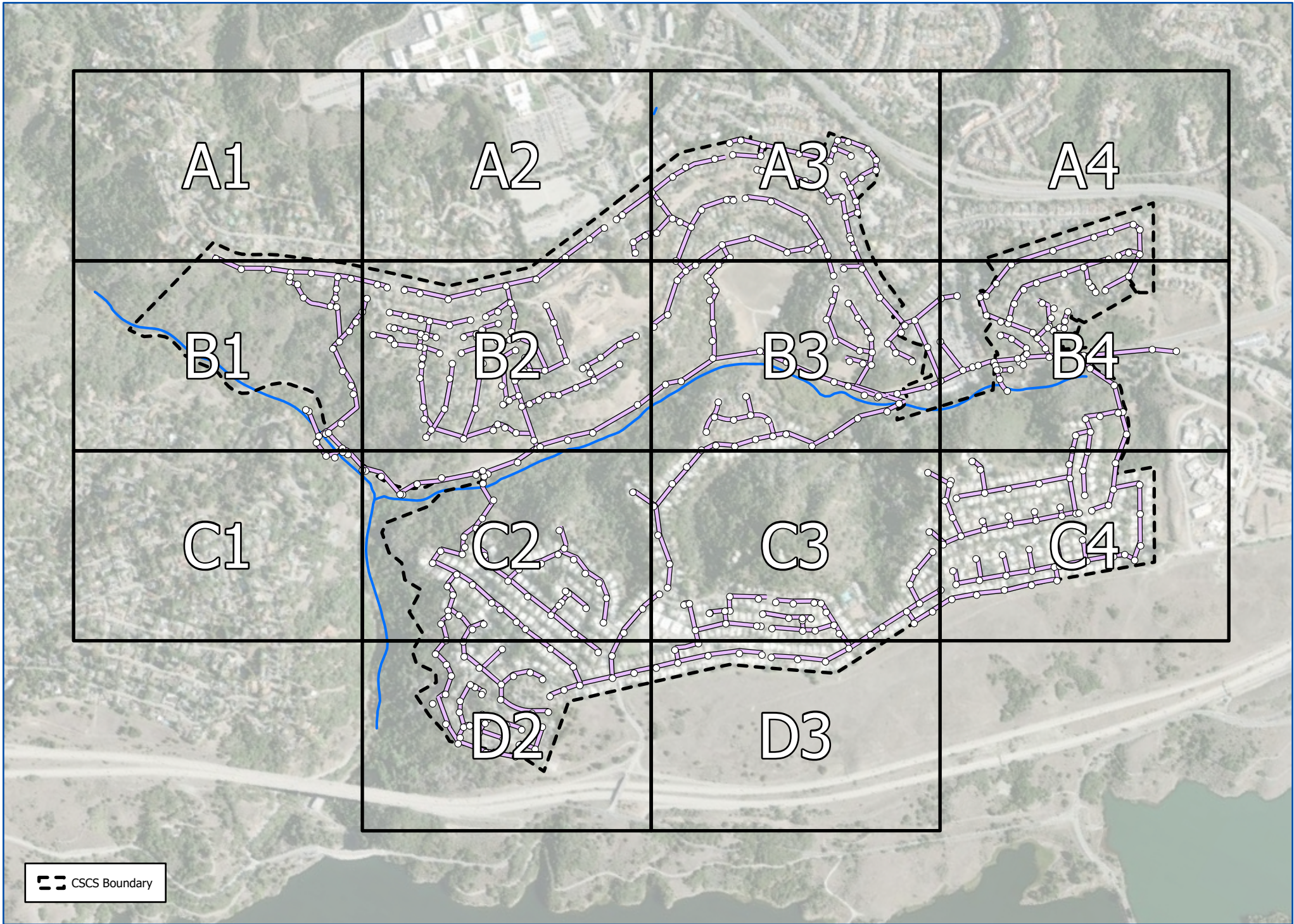
CSCSD – MANHOLES RECOMMENDED FOR REHABILITATION		
MANHOLE ID	S&W RATING	RECOMMENDED REPAIRS
268	4	REPAIR/REFORM BENCH & INVERT, REPLACE FRAME & LID
299	4	REPAIR/REFORM BENCH & INVERT, MORTAR COATING AND REPLACE FRAME & LID

305	5	REPLACE FRAME & LID, RAISE MANHOLE, REMOVE & REPLACE MANHOLE
306	4	REPAIR/REFORM BENCH & INVERT, MORTAR COATING, RAISE MANHOLE
372	4	REPAIR/REFORM BENCH & INVERT AND REPLACE MANHOLE FRAME & LID
433	4	REPAIR/REFORM BENCH & INVERT, MORTAR COATING
475	4	REPAIR/REFORM BENCH & INVERT, MORTAR COATING, RAISE MANHOLE
541	5	REMOVE AND REPLACE MANHOLE
554	4	REPLACE FRAME & LID
574	4	REPLACE FRAME & LID
577	4	MORTAR COATING
580	4	REPAIR/REFORM BENCH & INVERT, MORTAR COATING
622	4	REPAIR/REFORM BENCH & INVERT, MORTAR COATING
659	4	REPAIR/REFORM BENCH & INVERT, MORTAR COATING
725	4	REMOVE & REPLACE RODDING INLET/CLEANOUT
781	4	REPLACE FRAME & LID, REMOVE & REPLACE RODDING INLET/CLEANOUT
788	4	REPAIR/REFORM BENCH & INVERT, MORTAR COATING

ATTACHMENT 2: Estimate of Probable Construction Cost**ESTIMATE OF PROBABLE CONSTRUCTION COST (SCHAAF & WHEELER SCORE OF 4-5)**

ITEM DESCRIPTION		UNIT	UNIT COST	QUANTITY	TOTAL
SPOT REPAIR					
1	6" SPOT REPAIR	EA	\$7,000	133	\$ 980,000
2	8" SPOT REPAIR	EA	\$7,500	1	\$7,500
3	10" SPOT REPAIR	EA	\$8,000	2	\$16,000
4	12" SPOT REPAIR	EA	\$8,500	2	\$17,000
5	15" SPOT REPAIR	EA	\$8,500	1	\$8,500
SUBTOTAL					\$980,000
CIPP REHABILITATION					
6	6" CIPP	LF	\$65	3723	\$241,995
7	8" CIPP	LF	\$70	149	\$10,430
8	10" CIPP	LF	\$80	307	\$24,560
9	15" CIPP	LF	\$90	24	\$2,160
SUBTOTAL					\$280,000
OPEN TRENCH REPAIR					
10	6" OPEN TRENCH REPAIR	LF	\$350	10	\$3,500
SUBTOTAL					\$4,000
PIPE BURST					
11	6" PIPE BURSTING	LF	\$300	7749	\$2,324,700
12	8" PIPE BURSTING	LF	\$325	1382	\$449,150
13	10" PIPE BURSTING	LF	\$350	132	\$46,200
SUBTOTAL					\$2,820,000
MANHOLE REHABILITATION					
14	MORTAR COATING (MORE THAN 5' DEEP)	EA	\$4,000	8	\$32,000
15	REPAIR BENCH/INVERT	EA	\$2,500	10	\$25,000
16	RAISE MANHOLE	EA	\$3,500	3	\$10,500
17	REMOVE MANHOLE LADDER RUNGS	EA	\$1,000	14	\$14,000
18	REPLACE MANHOLE FRAME AND LID	EA	\$2,500	6	\$15,000
19	REMOVE AND REPLACE MANHOLE	EA	\$9,000	1	\$9,000
SUBTOTAL					\$110,000
PROJECT SUBTOTAL					\$4,200,000
CONSTRUCTION CONTINGENCY (20%)					\$840,000
MOBILIZATION/TRAFFIC CONTROL/SHORING/ETC. (30%)					\$1,260,000
TOTAL					\$6,300,000

ATTACHMENT 3: Schaaf & Wheeler Rating/Score Figures



 CSDS Boundary



Sewer Nodes

S&W Rating

- < 4
- 4-4.9
- 5
- Non-County

Sewer Lines

S&W Rating

- 0-1.9
- 2-3.9
- 4-4.9
- 5
- Non-County

- - - Not Inspected - Recently Replaced

— Streams

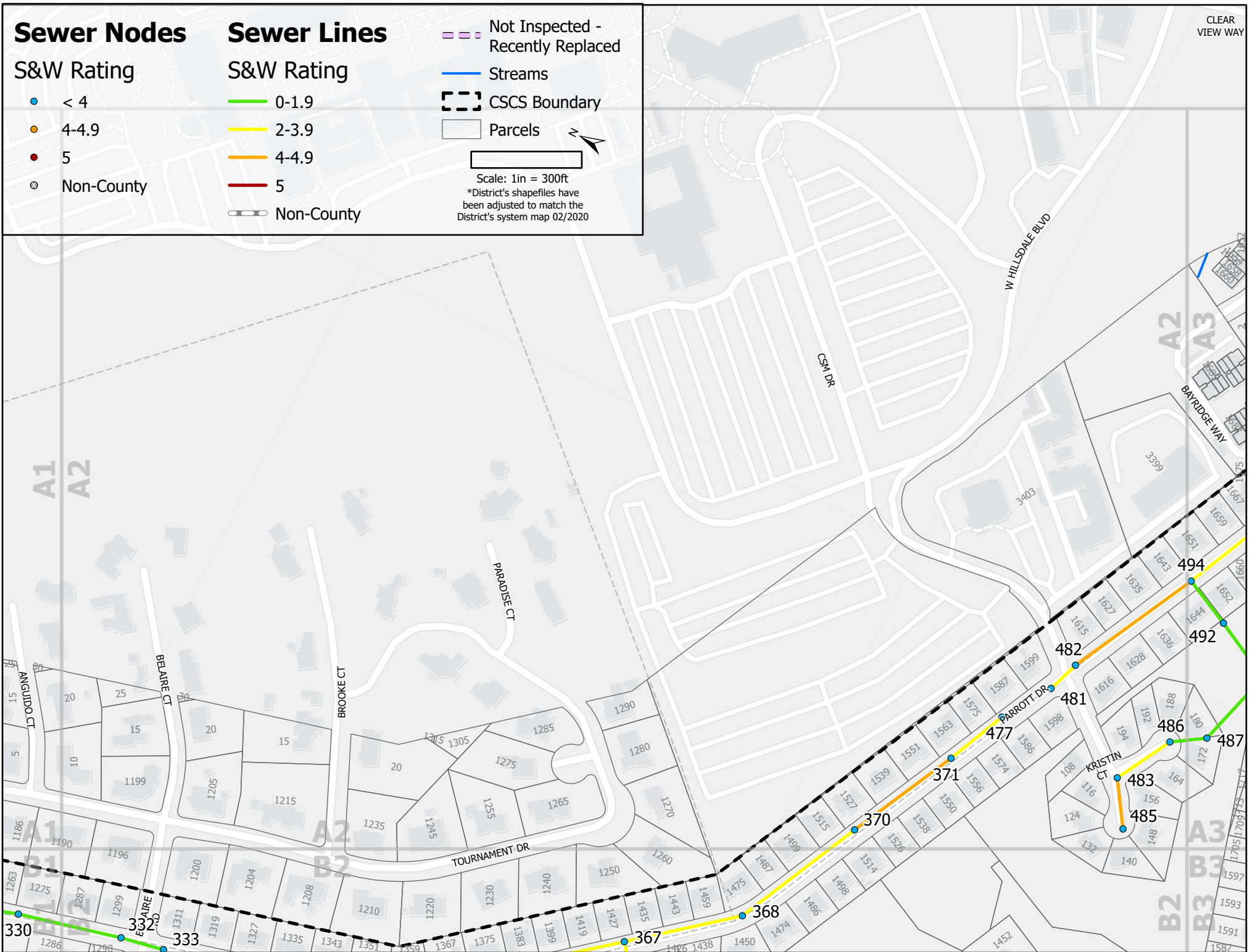
CSCS Boundary

Parcels

Scale: 1in = 300ft

*District's shapefiles have been adjusted to match the District's system map 02/2020

CLEAR VIEW WAY



Sewer Nodes

S&W Rating

- < 4
- 4-4.9
- 5
- Non-County

Sewer Lines

S&W Rating

- 0-1.9
- 2-3.9
- 4-4.9
- 5
- Non-County

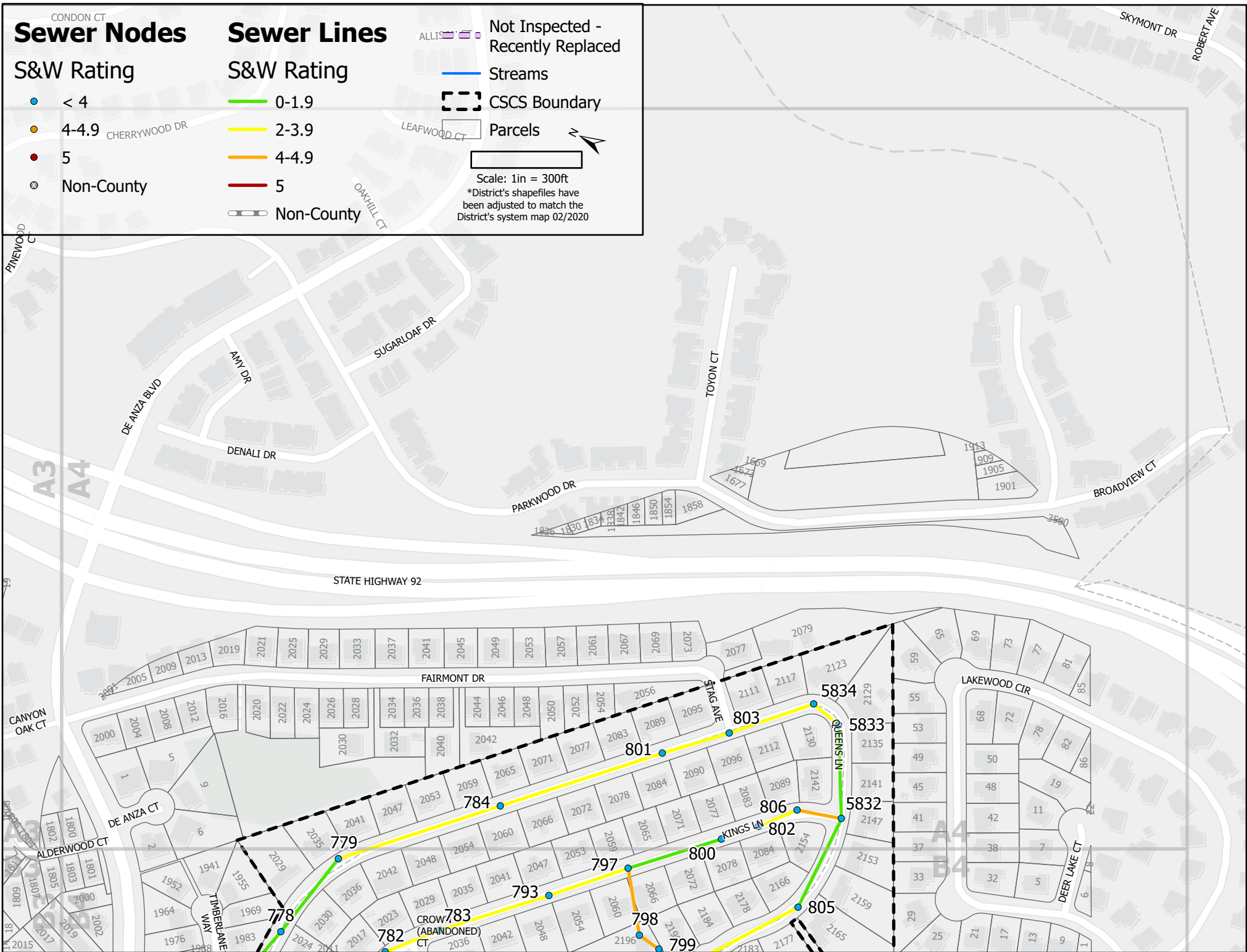
— Allis - Recently Replaced

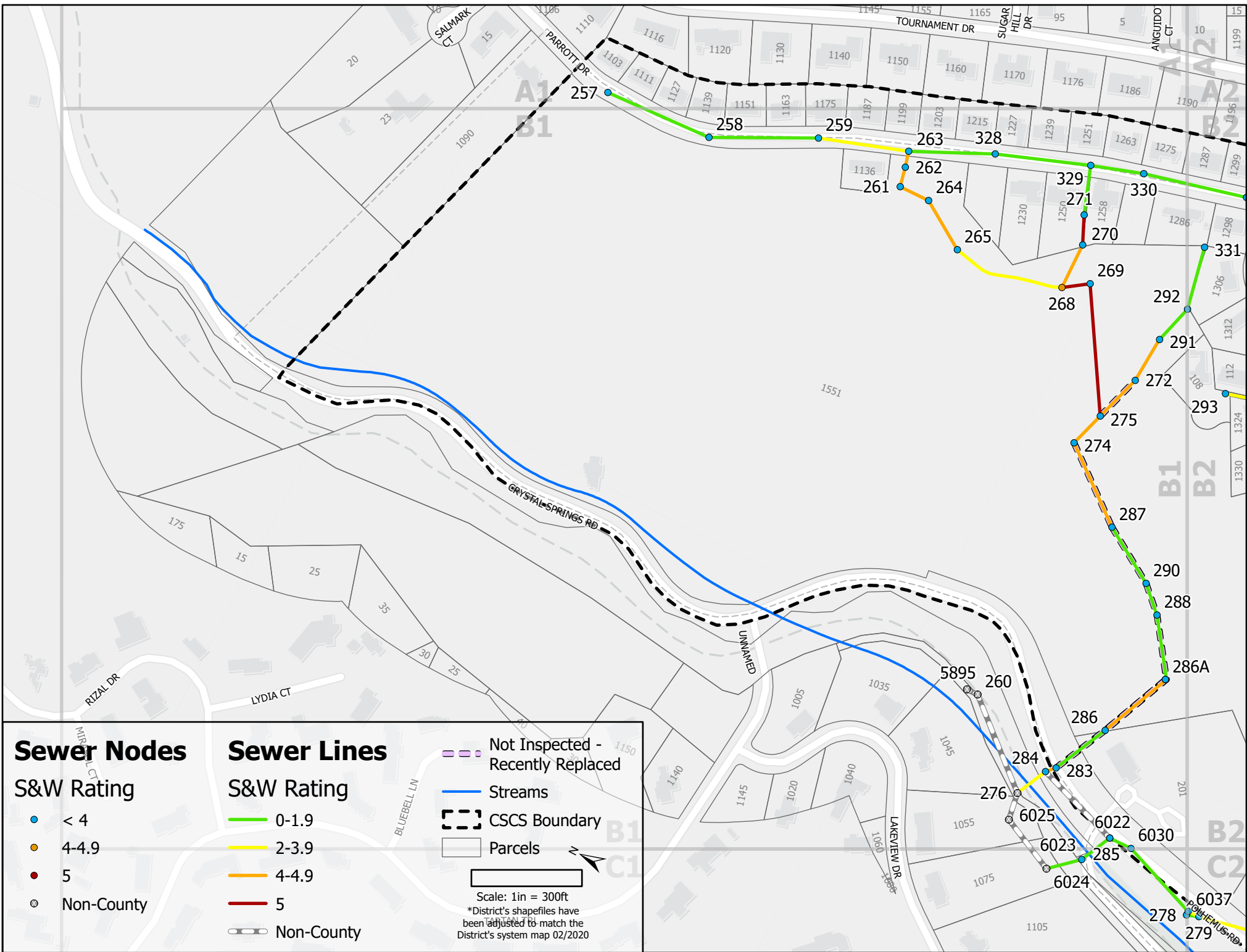
— Streams

CSCS Boundary

Parcels

Scale: 1in = 300ft
 *District's shapefiles have been adjusted to match the District's system map 02/2020





Sewer Nodes

S&W Rating

- < 4
- 4-4.9
- 5
- Non-County

Sewer Lines

S&W Rating

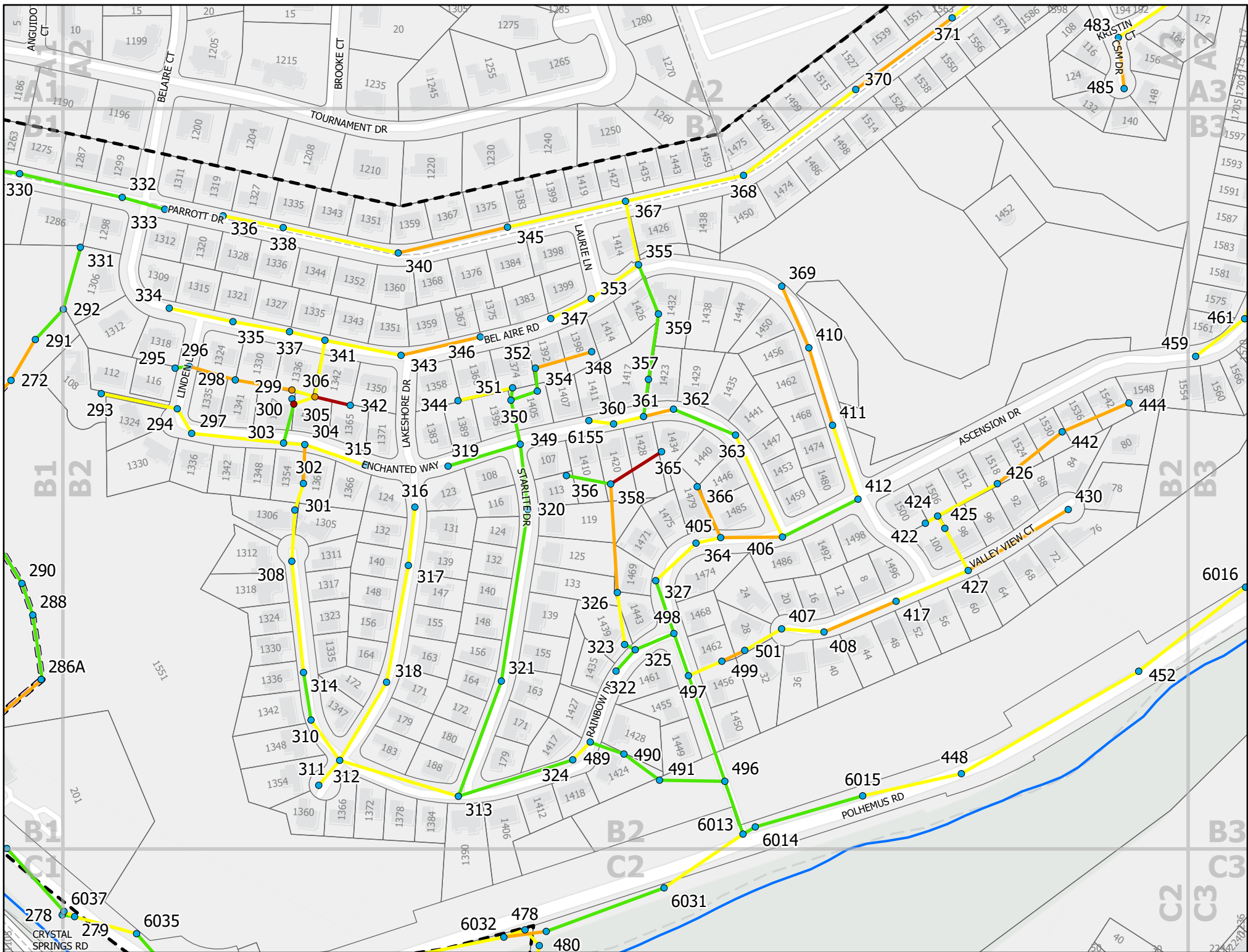
- 0-1.9
- 2-3.9
- 4-4.9
- 5
- Non-County

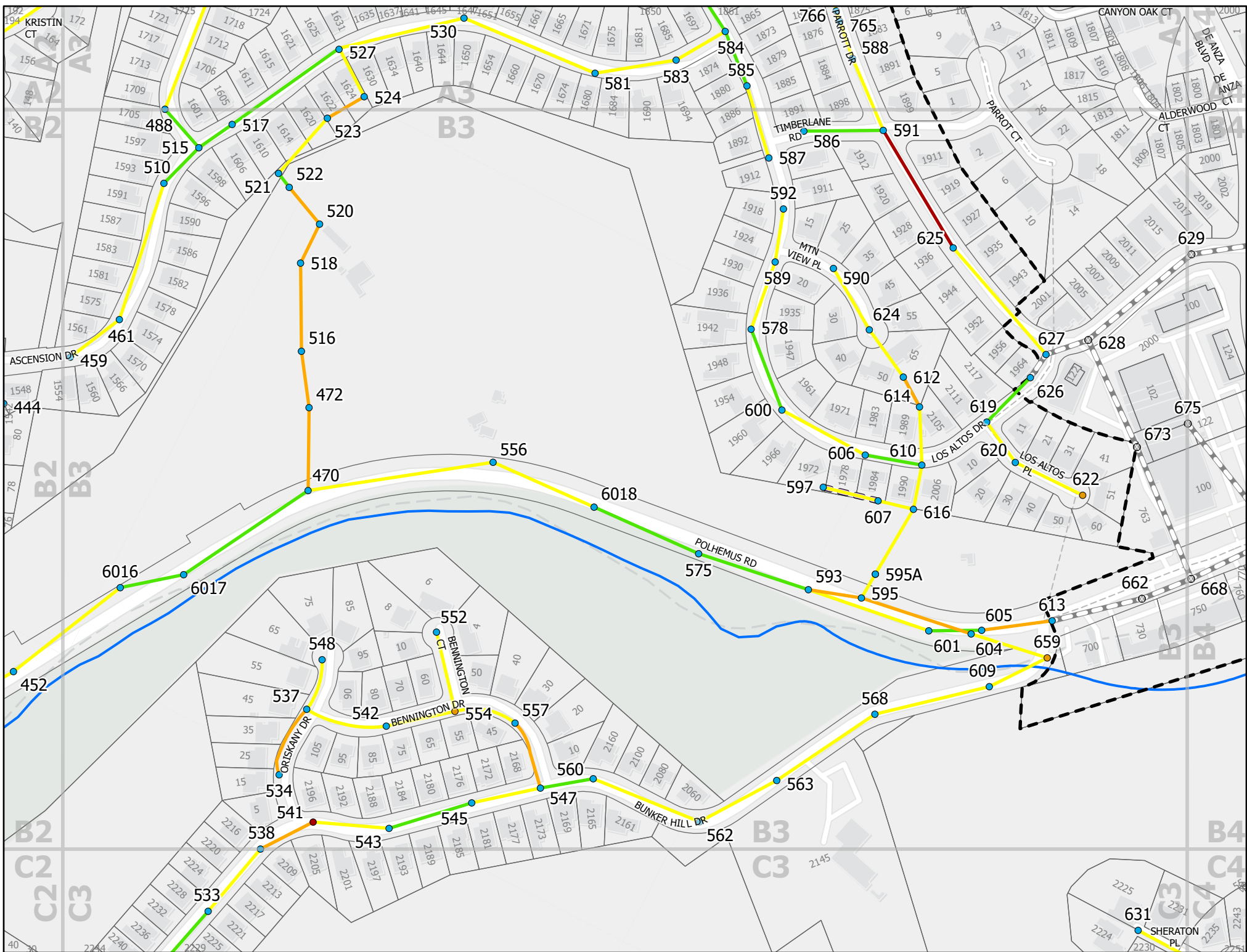
- Not Inspected - Recently Replaced
- Streams
- CSCS Boundary
- Parcels

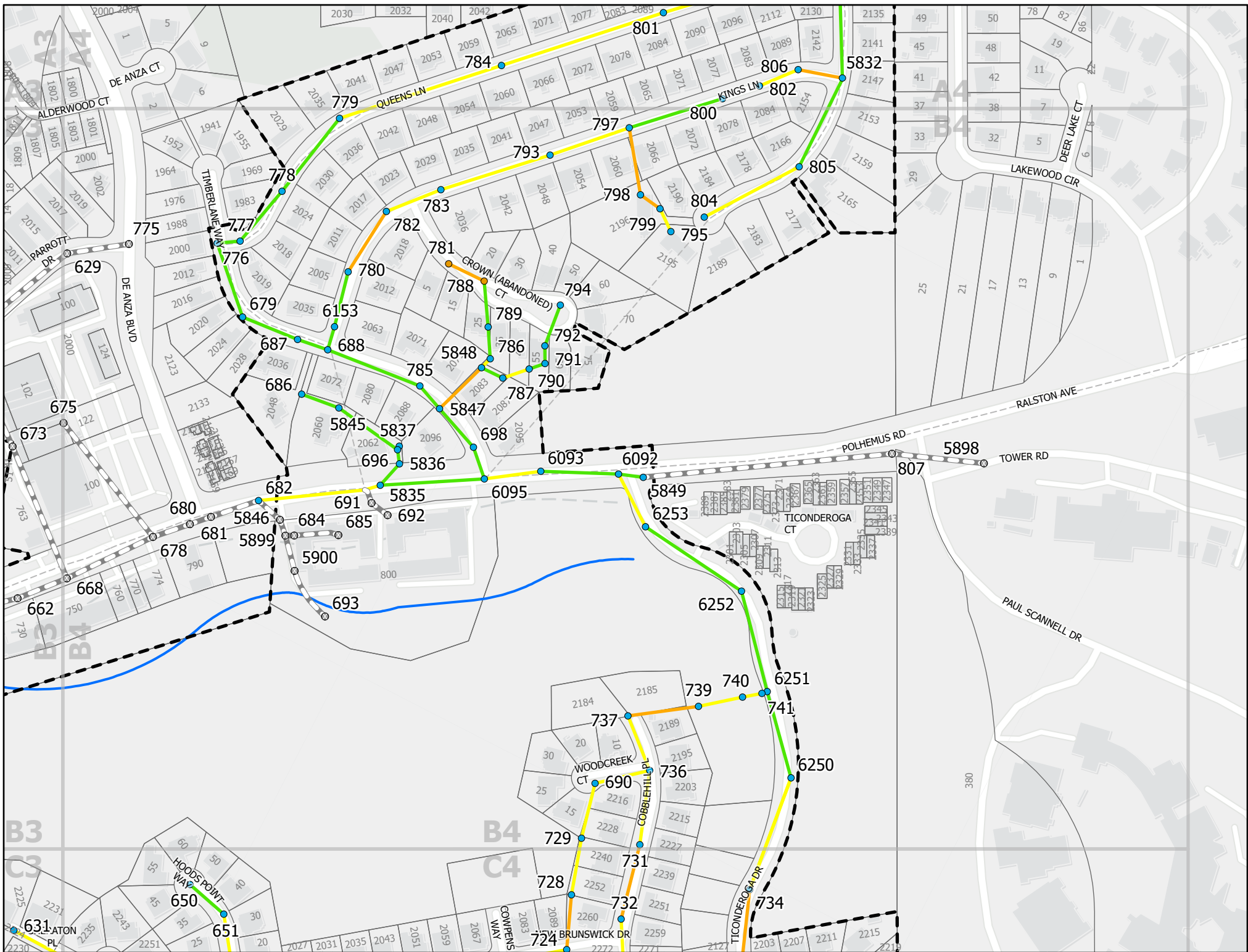
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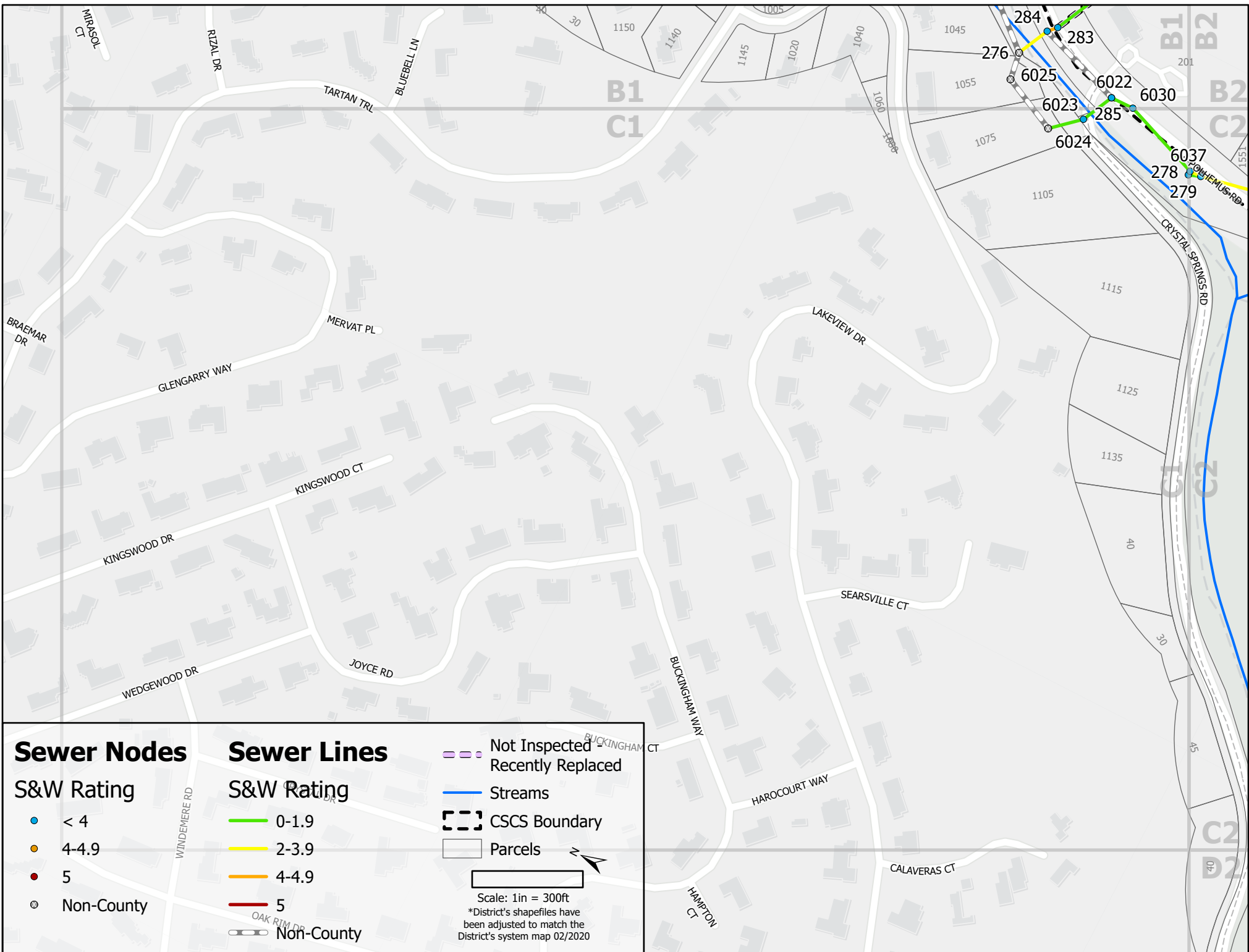
*District's shapefiles have been adjusted to match the District's system map 02/2020

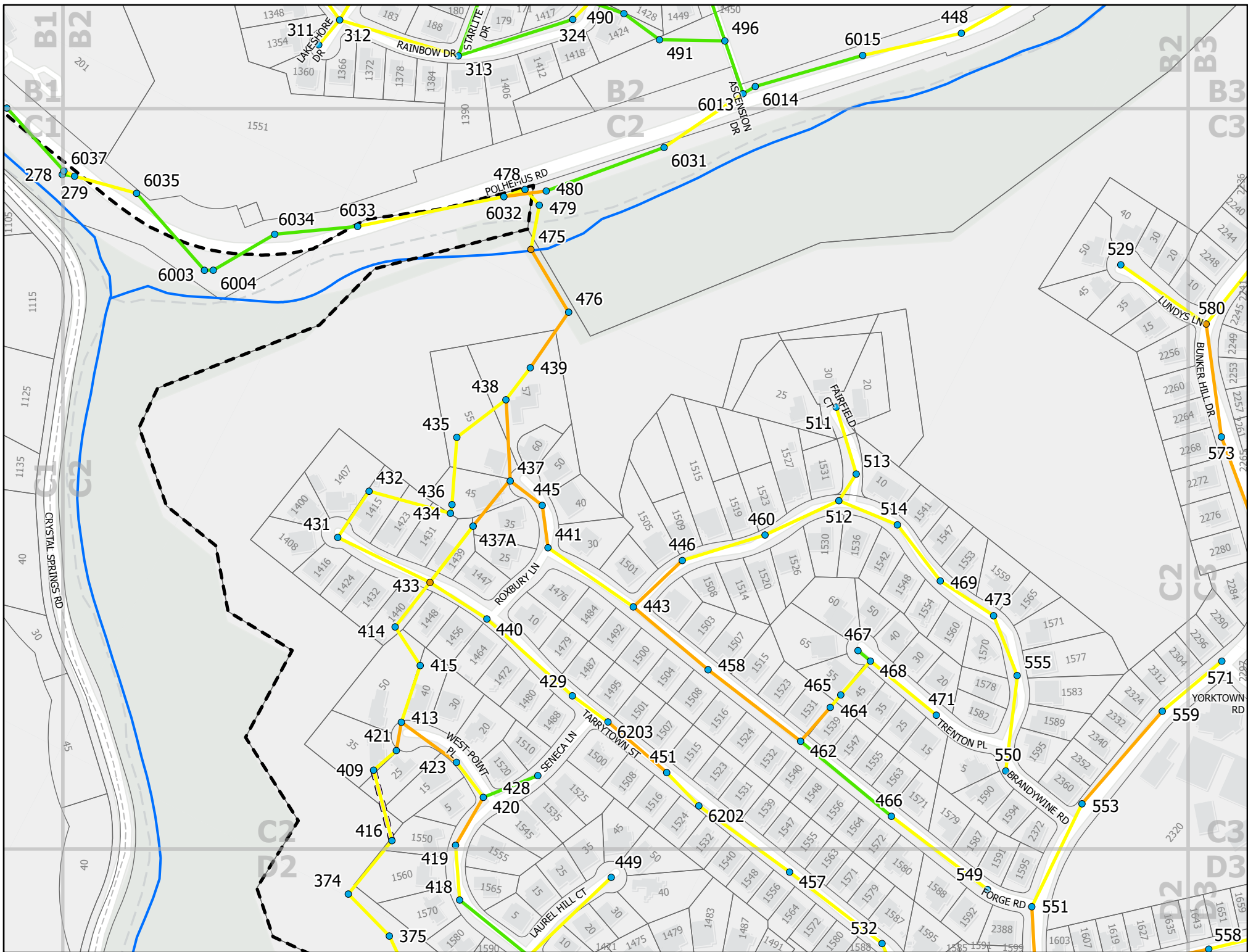


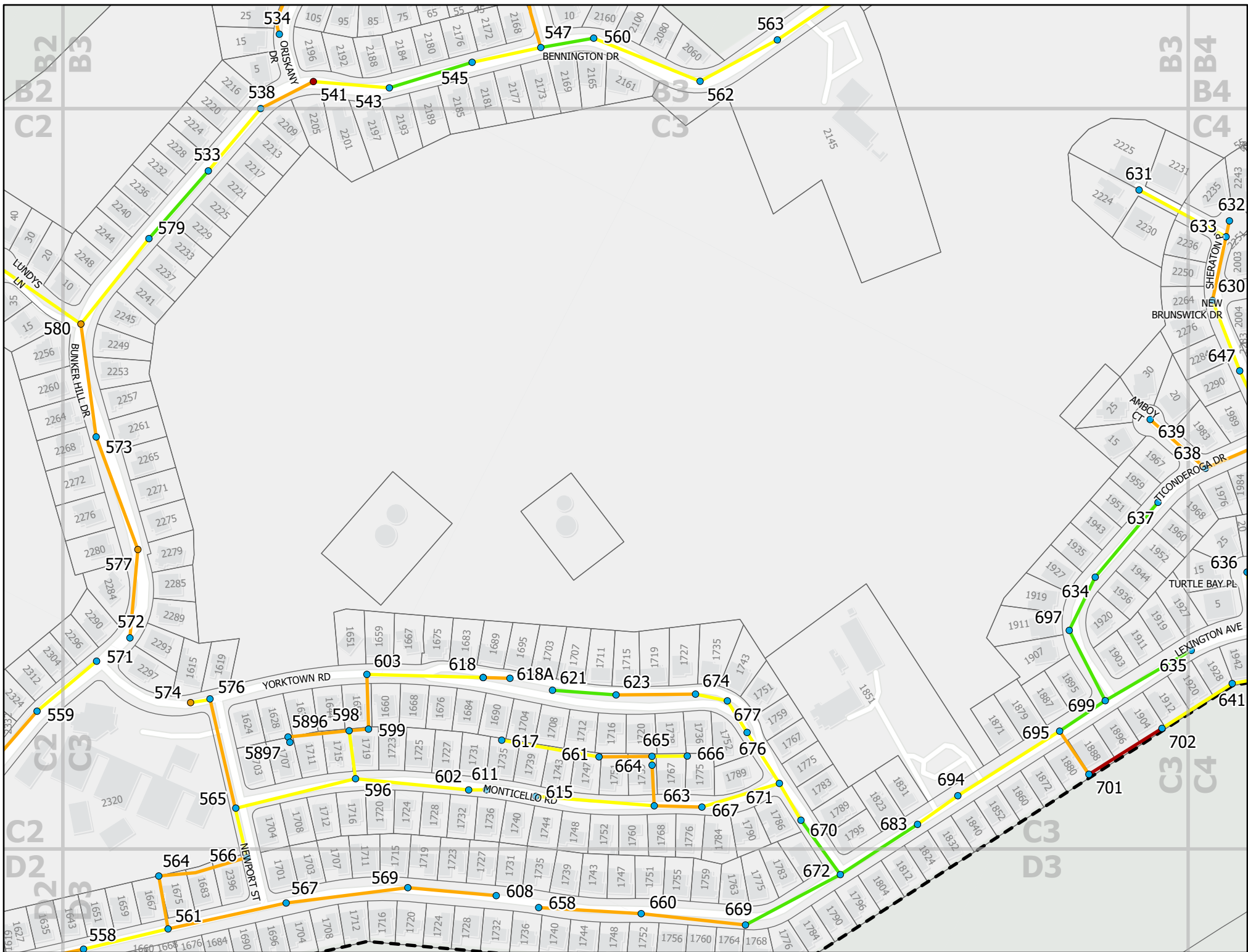


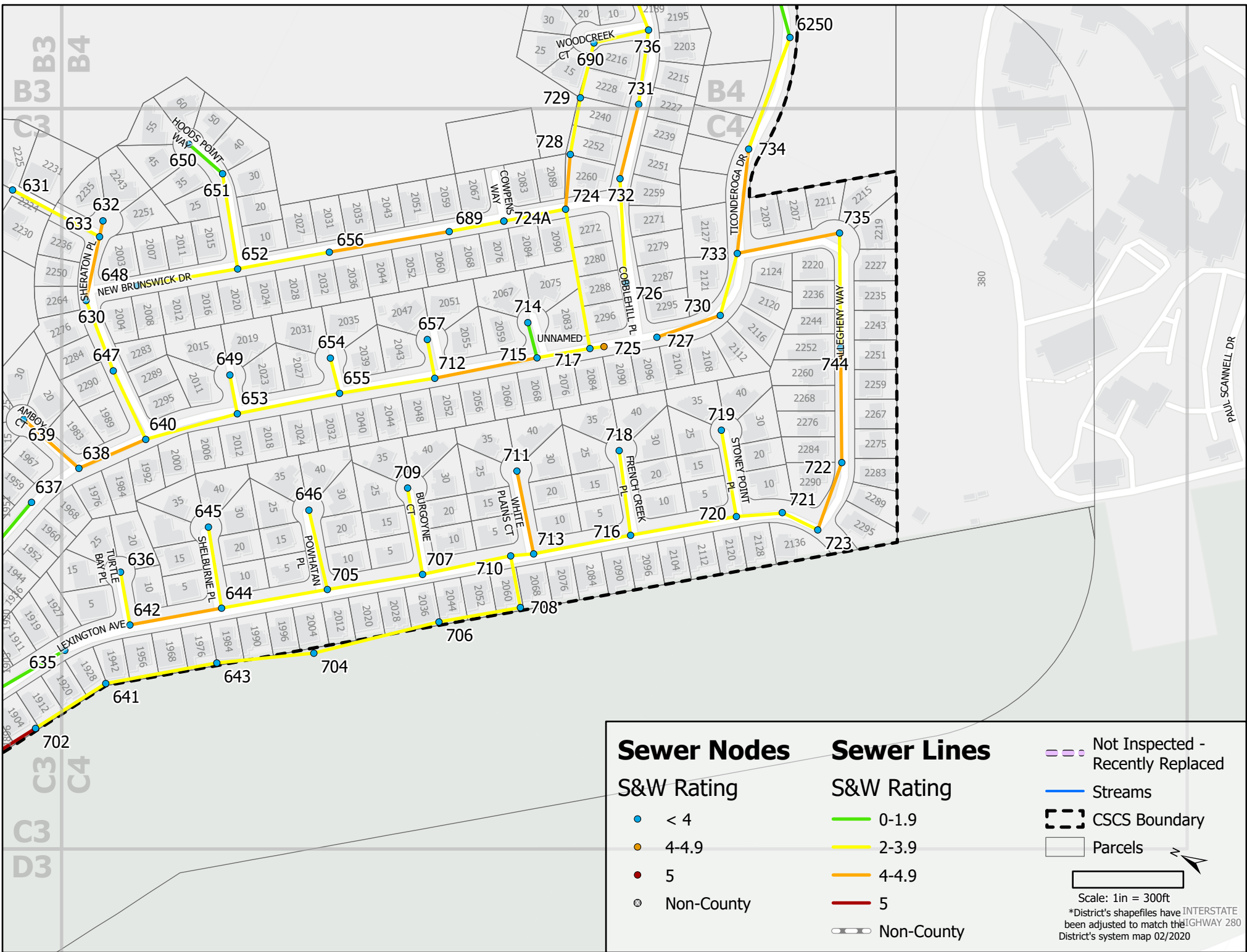


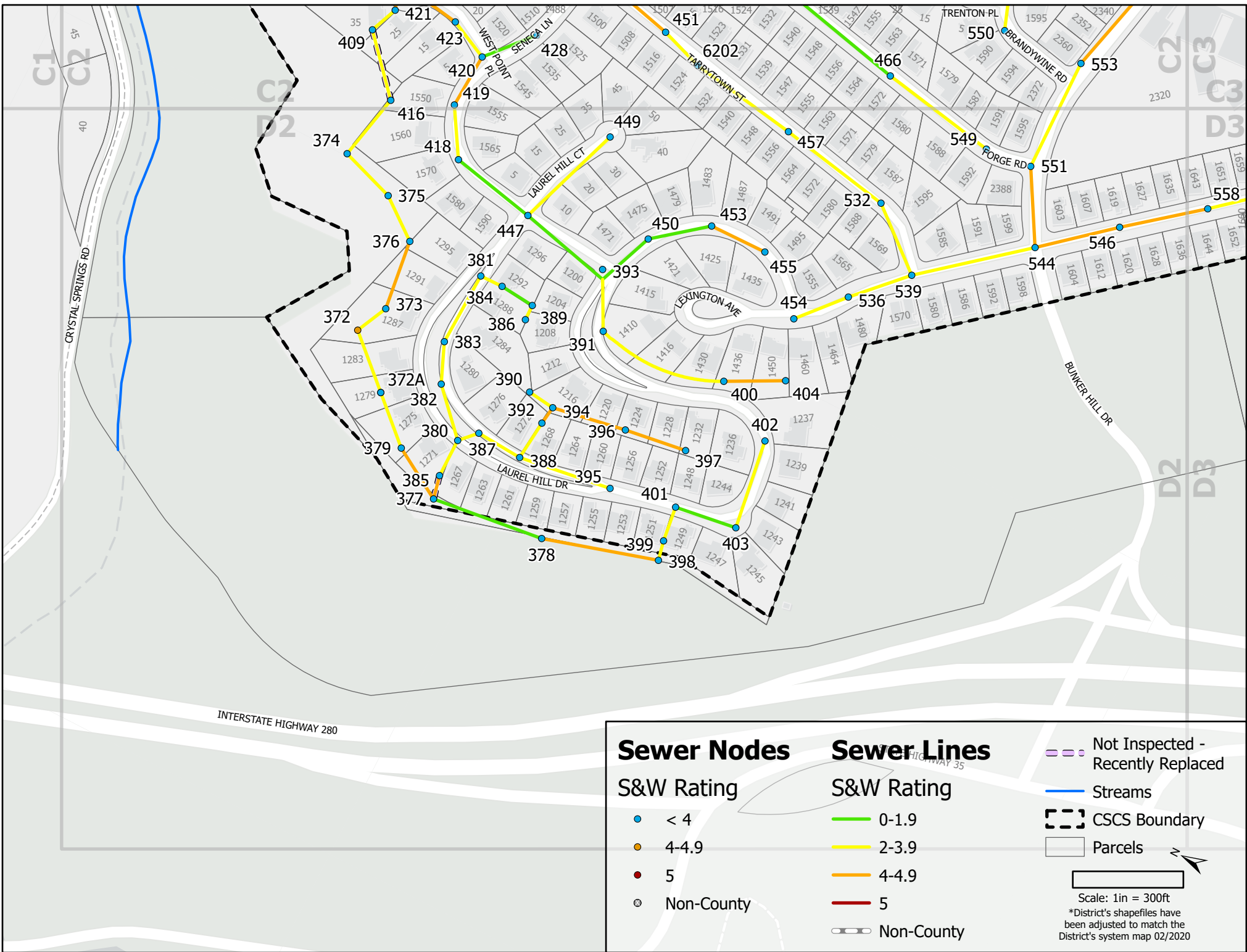












Sewer Nodes

S&W Rating

- < 4
- 4-4.9
- 5
- Non-County

Sewer Lines

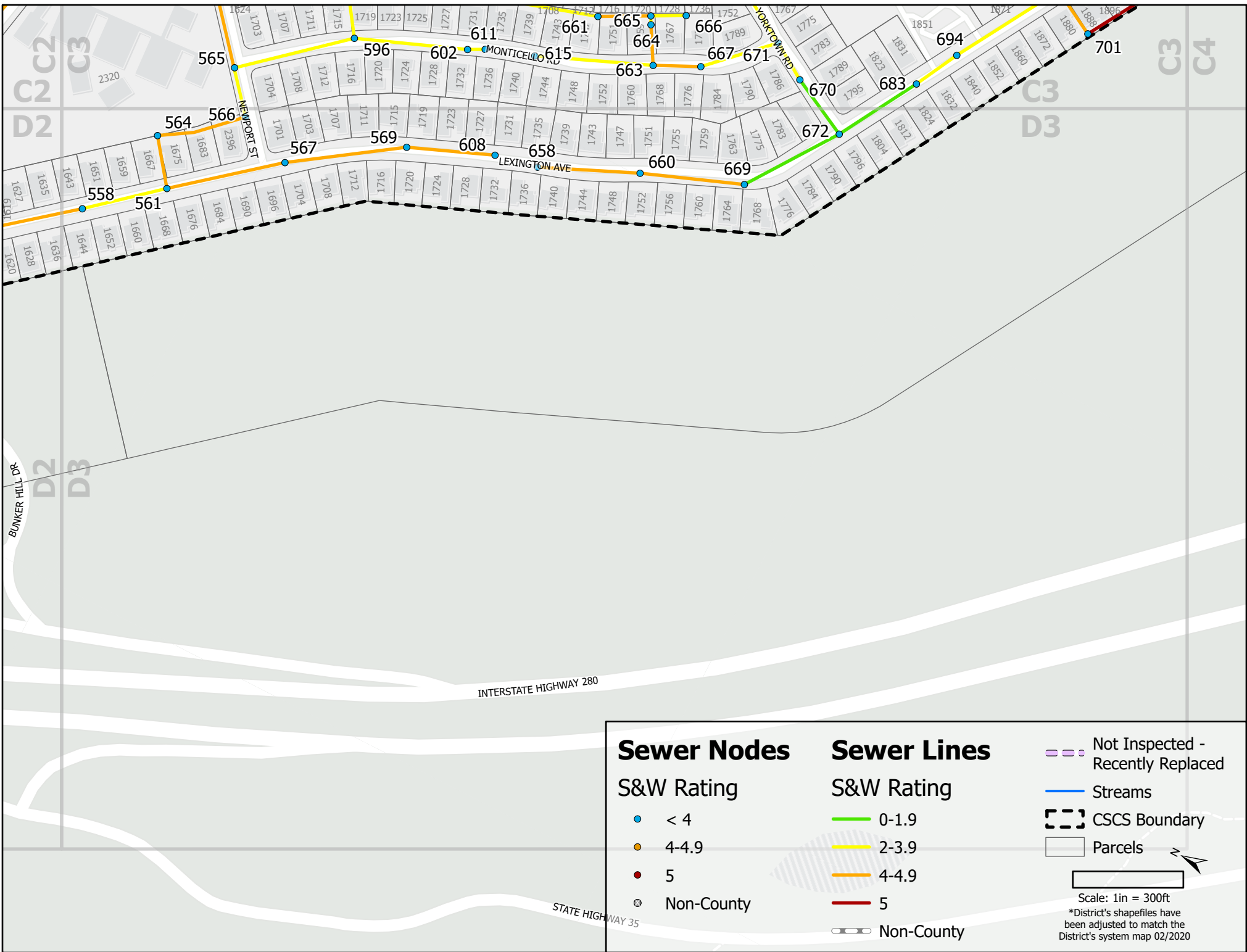
S&W Rating

- 0-1.9
- 2-3.9
- 4-4.9
- 5
- Non-County

- Not Inspected - Recently Replaced
- Streams
- CSCS Boundary
- Parcels

Scale: 1in = 300ft

*District's shapefiles have been adjusted to match the District's system map 02/2020



Sewer Nodes

S&W Rating

- < 4
- 4-4.9
- 5
- Non-County

Sewer Lines

S&W Rating

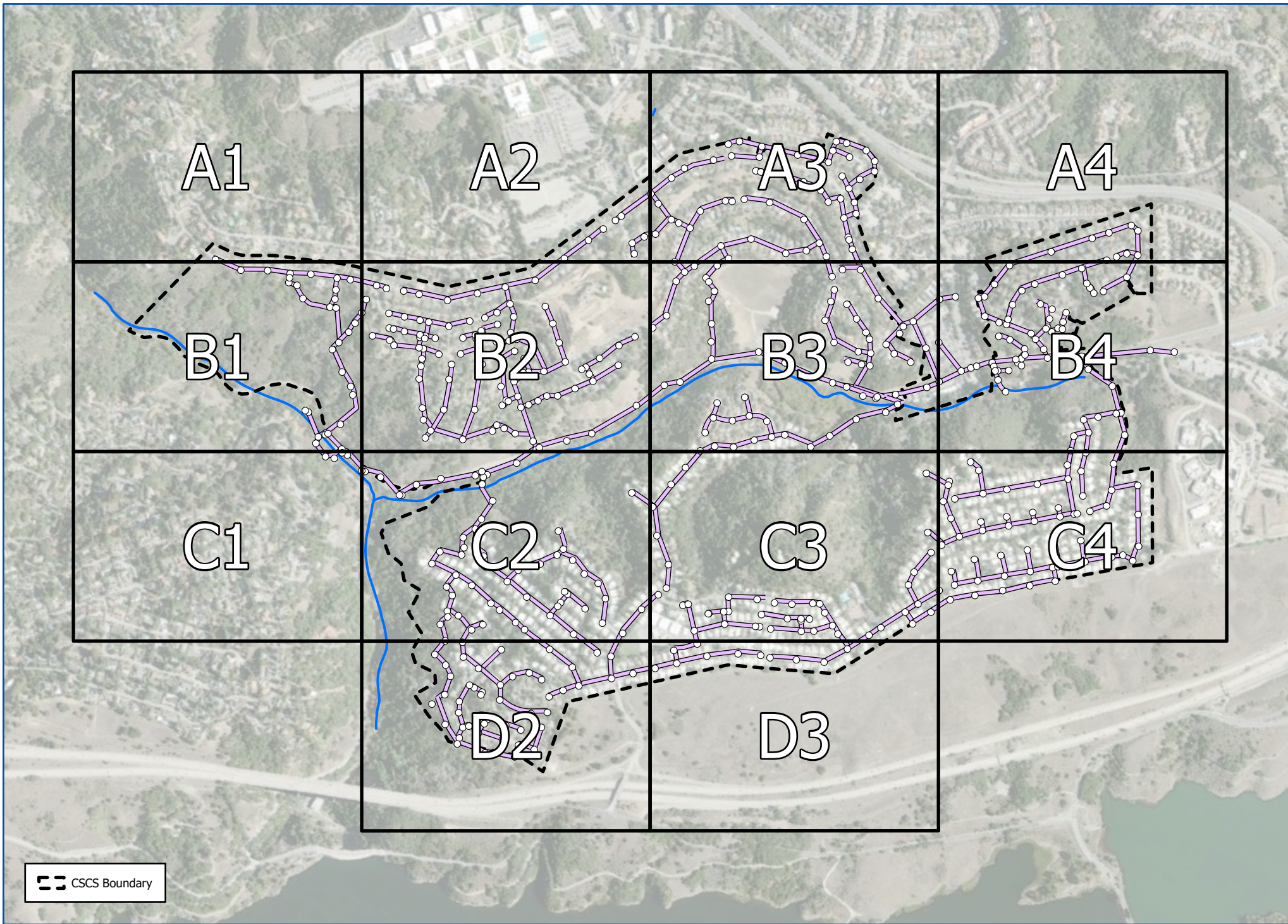
- 0-1.9
- 2-3.9
- 4-4.9
- 5
- Non-County

- Not Inspected - Recently Replaced
- Streams
- CSCS Boundary
- Parcels



Scale: 1in = 300ft
 *District's shapefiles have been adjusted to match the District's system map 02/2020

ATTACHMENT 4: Rehabilitation Summary Figures



Sewer Lines

Repair Type

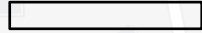
- █ CIPP
- █ OPEN TRENCH
- █ PIPE BURST
- █ REPLACE SEWER
- █ SPOT REPAIR
- █ SPOT REPAIR,CIPP
- █ SPOT REPAIR,OPEN TRENCH
- █ SPOT REPAIR,PIPE BURST
- █ OPEN TRENCH,CIPP
- █ S&W Rating <4
- █ Inspected
- █ Non-County
- █ Not Inspected -
- █ Recently Replaced
- █ Streams
- CSCS Boundary
- Parcels

Repair Type

- No Repair
- Manhole Repair
- Non-County

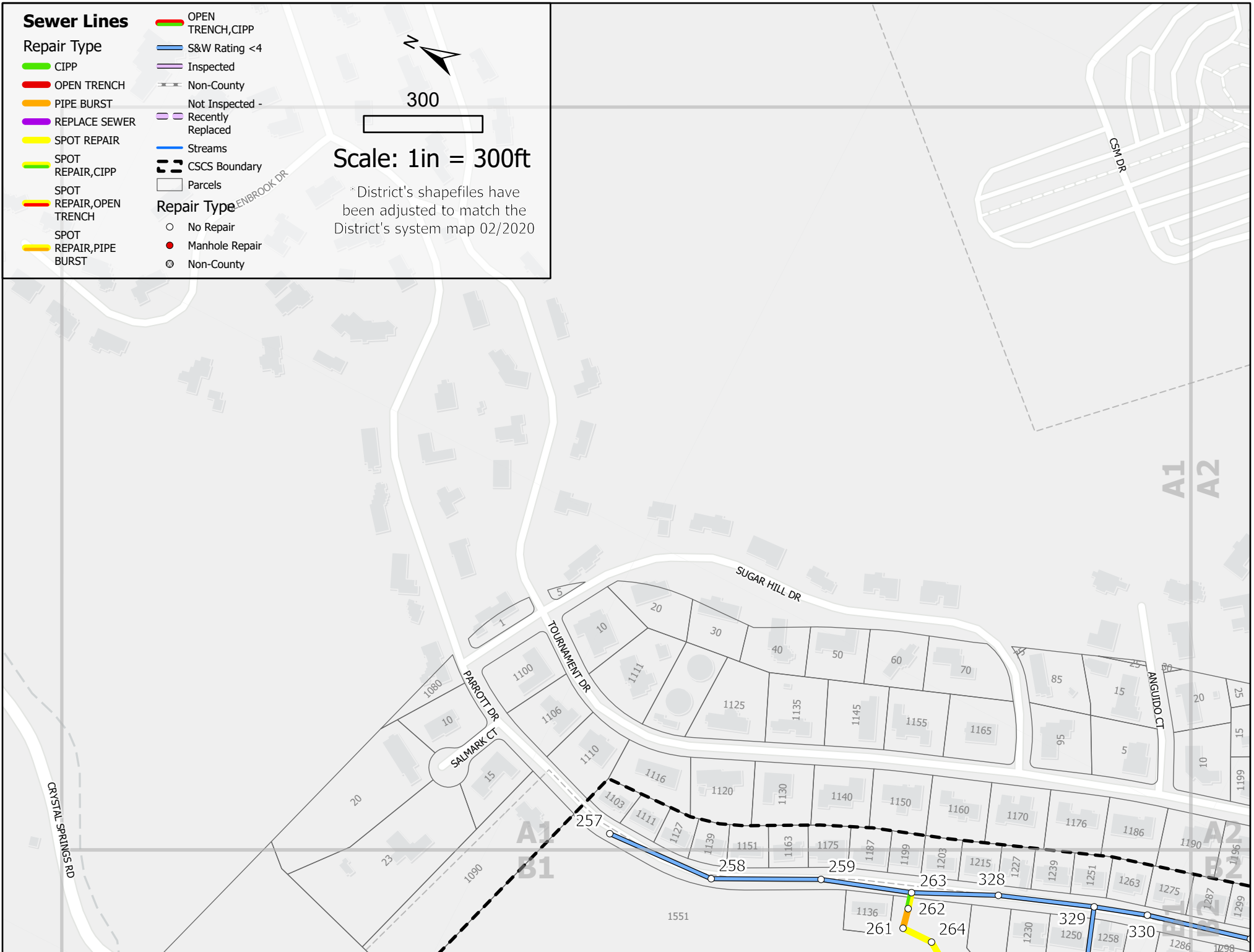


300



Scale: 1in = 300ft

* District's shapefiles have been adjusted to match the District's system map 02/2020



Sewer Lines

Repair Type

- █ CIPP
- █ OPEN TRENCH
- █ PIPE BURST
- █ REPLACE SEWER
- █ SPOT REPAIR
- █ SPOT REPAIR, CIPP
- █ SPOT REPAIR, OPEN TRENCH
- █ SPOT REPAIR, PIPE BURST
- █ OPEN TRENCH, CIPP
- █ S&W Rating <4
- █ Inspected
- █ Non-County
- █ Not Inspected
- █ Recently Replaced
- █ Streams
- CSCS Boundary
- Parcels
- No Repair
- Manhole Repair
- Non-County

Repair Type

- No Repair
- Manhole Repair
- Non-County



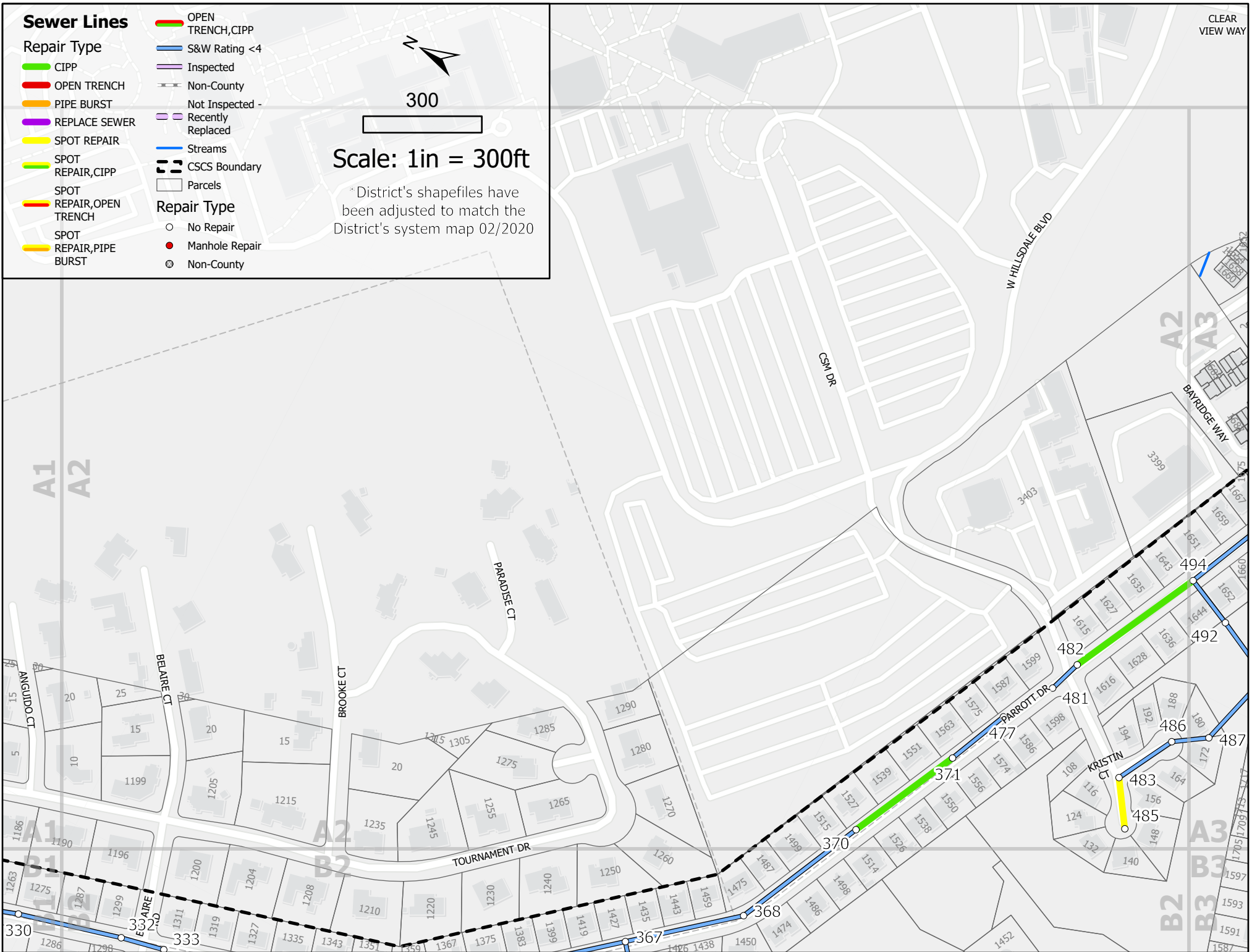
300

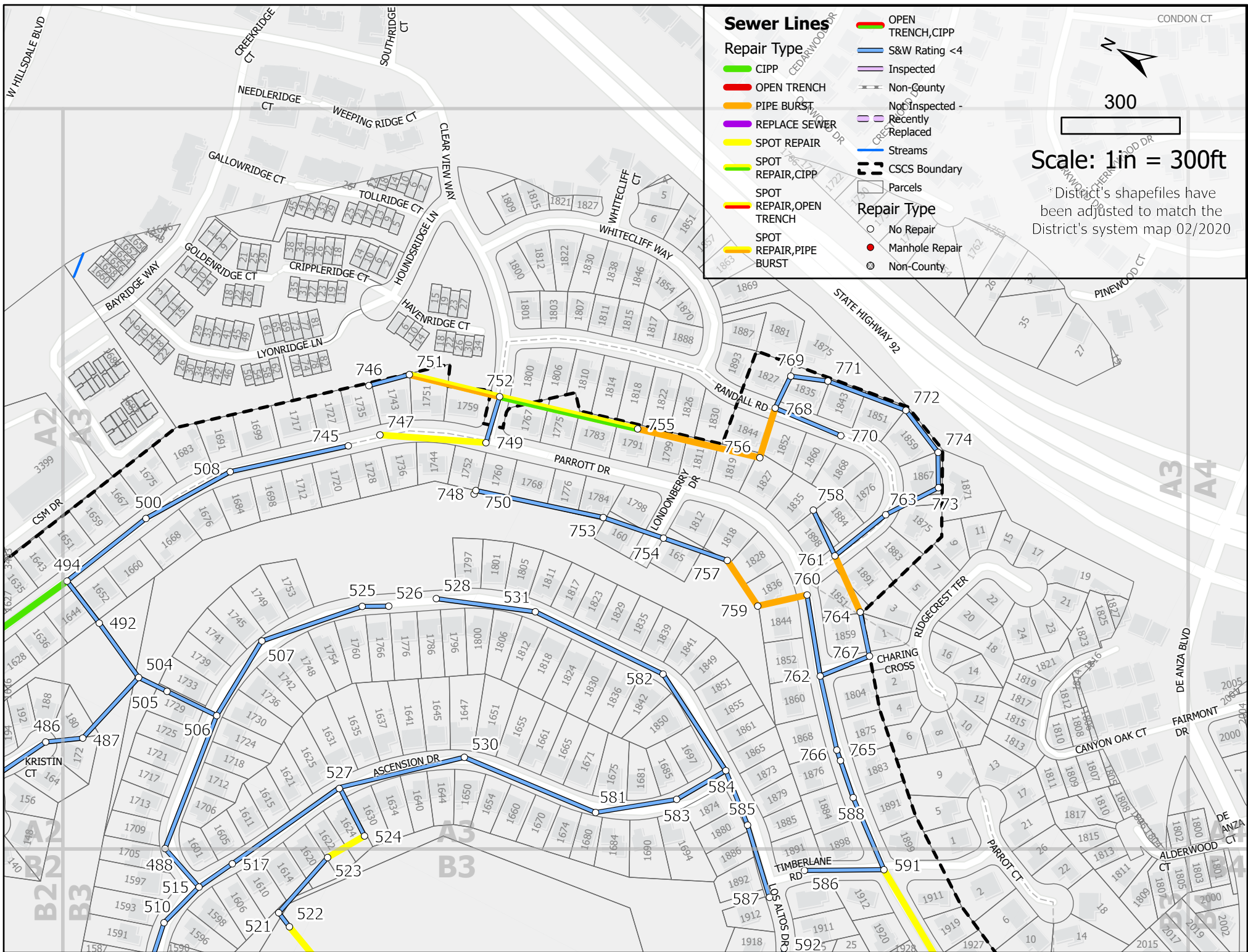


Scale: 1in = 300ft

*District's shapefiles have been adjusted to match the District's system map 02/2020

CLEAR VIEW WAY





W HILLSDALE BLVD

NEEDLERIDGE CT

WEEPING RIDGE CT

SOUTHRIDGE CT

GALLOWRIDGE CT

GOLDENRIDGE CT

CRIPPLERIDGE CT

HOUNDSRIDGE LN

HAVENRIDGE CT

LYONRIDGE LN

WHITECLIFF WAY

PARROTT DR

PARROTT DR

LONDONBERRY DR

ASCENSION DR

TIMBERLANE RD

STATE HIGHWAY 92

RANDALL RD

CHARING CROSS

CANYON OAK CT

FAIRMONT DR

ALDERWOOD CT

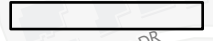
DE ANZA BLVD

DE ANZA CT

CONDON CT



300



Scale: 1 in = 300ft

District's shapefiles have been adjusted to match the District's system map 02/2020

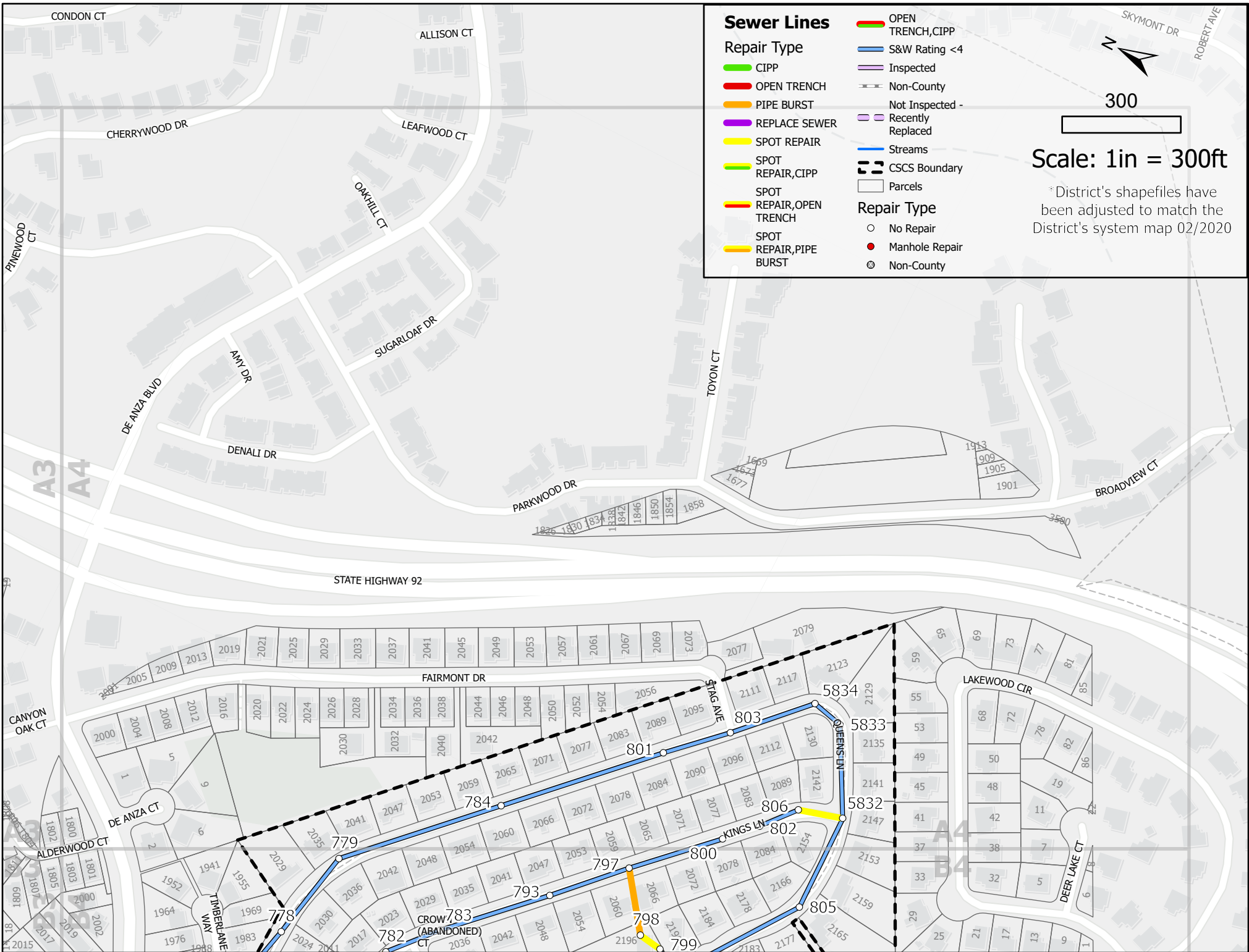
A2 A3

A3 A4

B2 B3

B3

B3 B4



Sewer Lines

Repair Type

- █ CIPP
- █ OPEN TRENCH
- █ PIPE BURST
- █ REPLACE SEWER
- █ SPOT REPAIR
- █ SPOT REPAIR, CIPP
- █ SPOT REPAIR, OPEN TRENCH
- █ SPOT REPAIR, PIPE BURST

- █ OPEN TRENCH, CIPP
- █ S&W Rating <4
- █ Inspected
- █ Non-County
- █ Not Inspected -
- █ Recently Replaced
- █ Streams
- █ CSCS Boundary
- █ Parcels
- No Repair
- Manhole Repair
- ⊙ Non-County

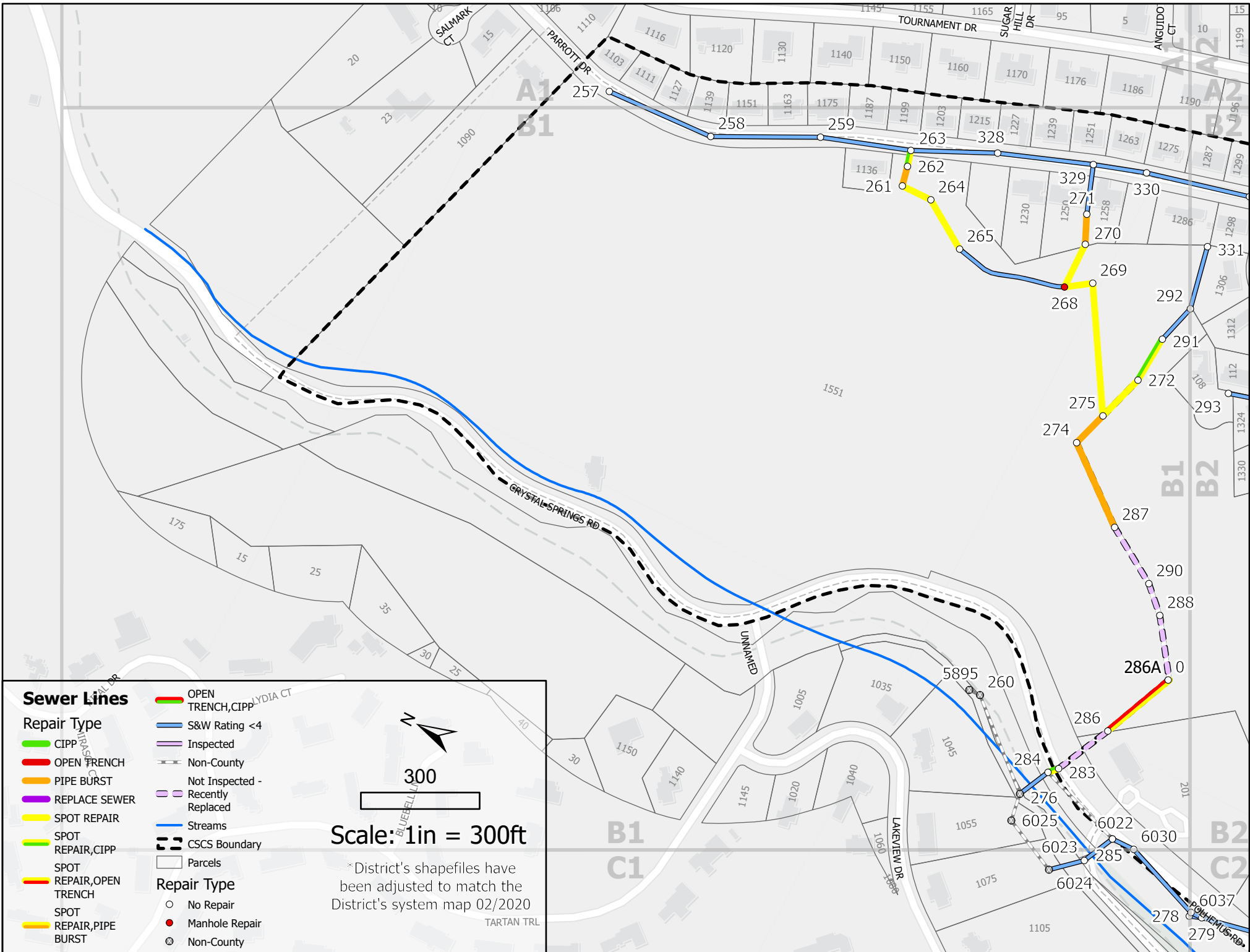


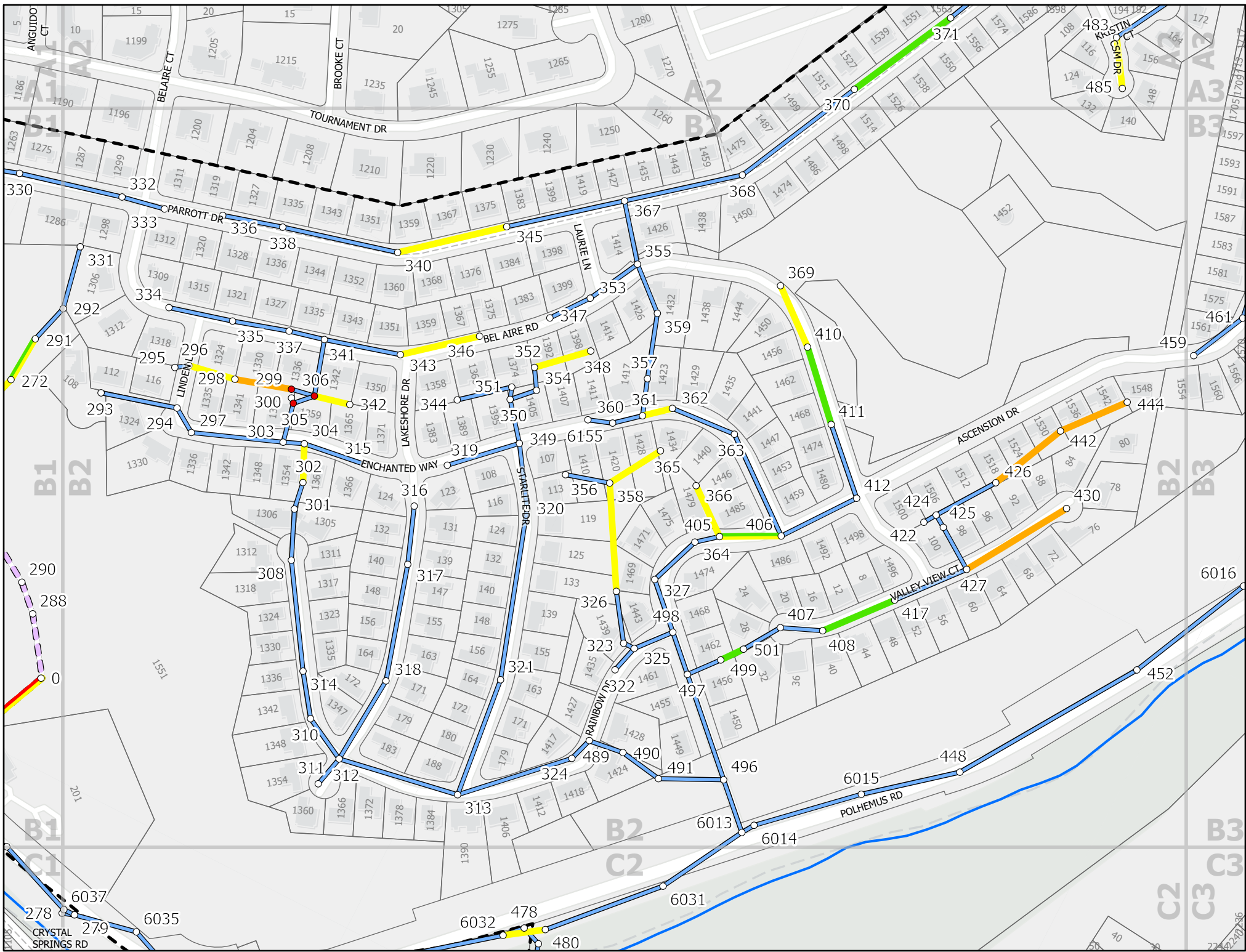
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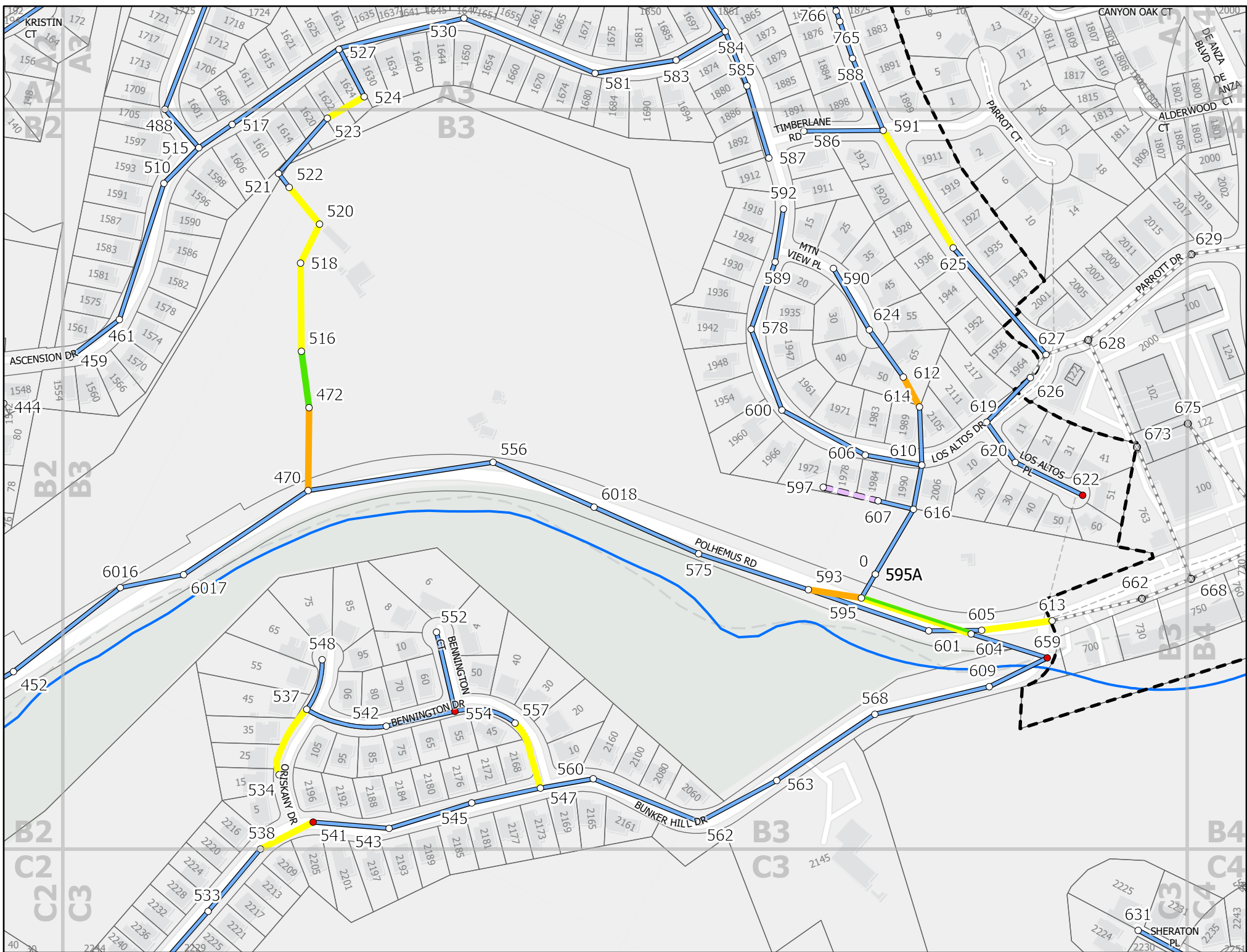


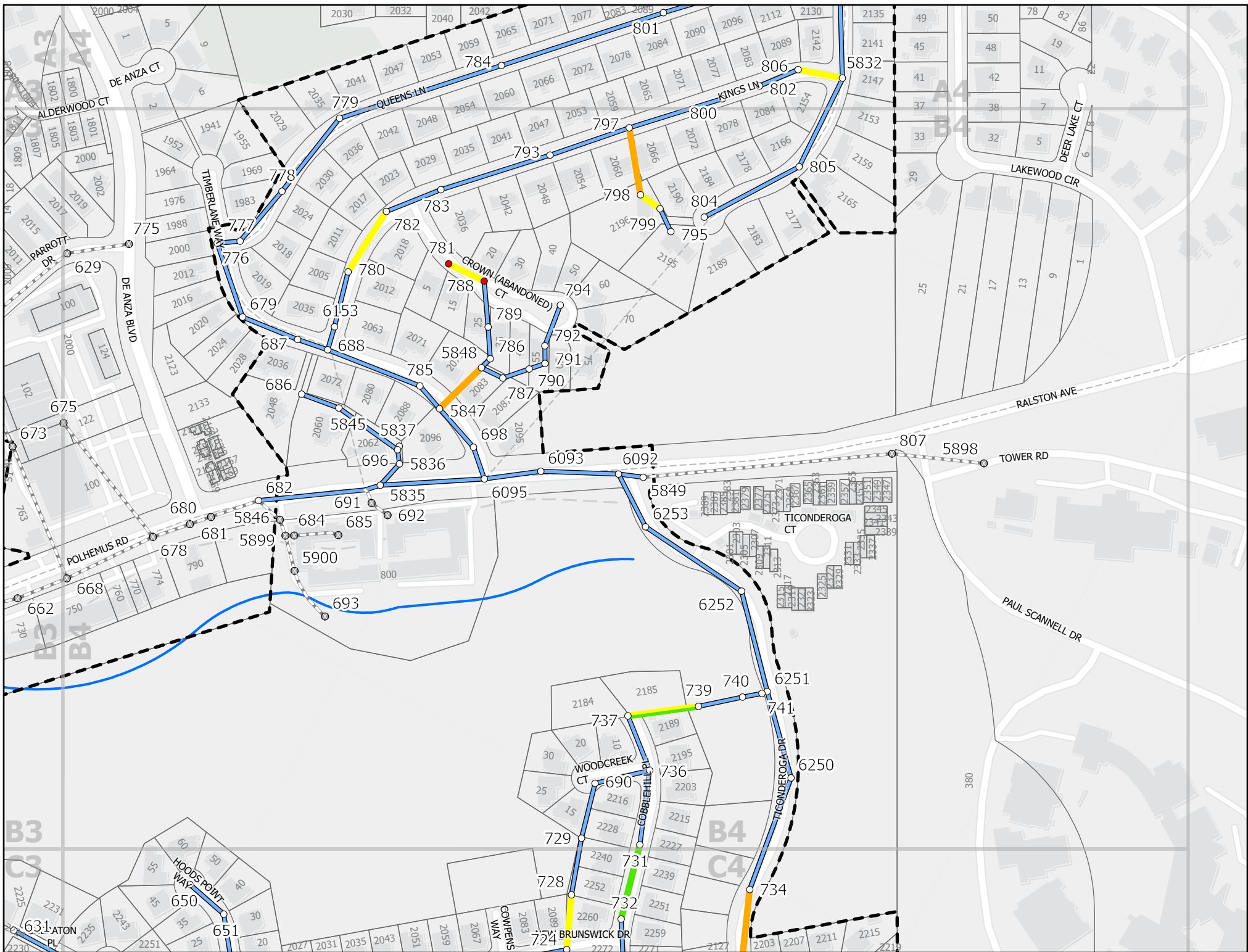
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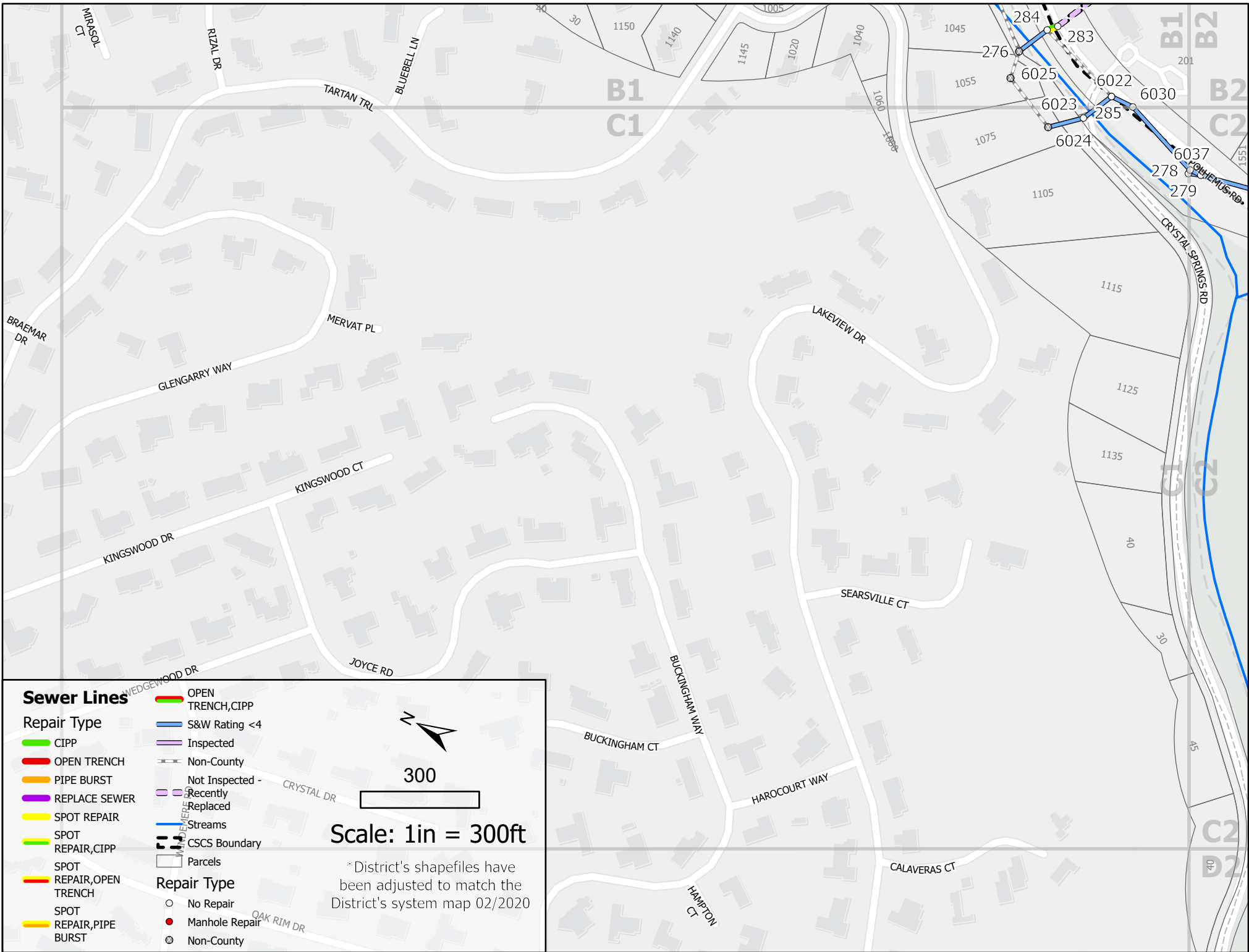
*District's shapefiles have been adjusted to match the District's system map 02/2020











Sewer Lines

Repair Type

- █ CIPP
- █ OPEN TRENCH
- █ PIPE BURST
- █ REPLACE SEWER
- █ SPOT REPAIR
- █ SPOT REPAIR, CIPP
- █ SPOT REPAIR, OPEN TRENCH
- █ SPOT REPAIR, PIPE BURST

- █ OPEN TRENCH, CIPP
- █ S&W Rating <4
- █ Inspected
- █ Non-County
- █ Not Inspected - Recently Replaced
- █ Streams
- CSCS Boundary
- Parcels

Repair Type

- No Repair
- Manhole Repair
- ⊙ Non-County

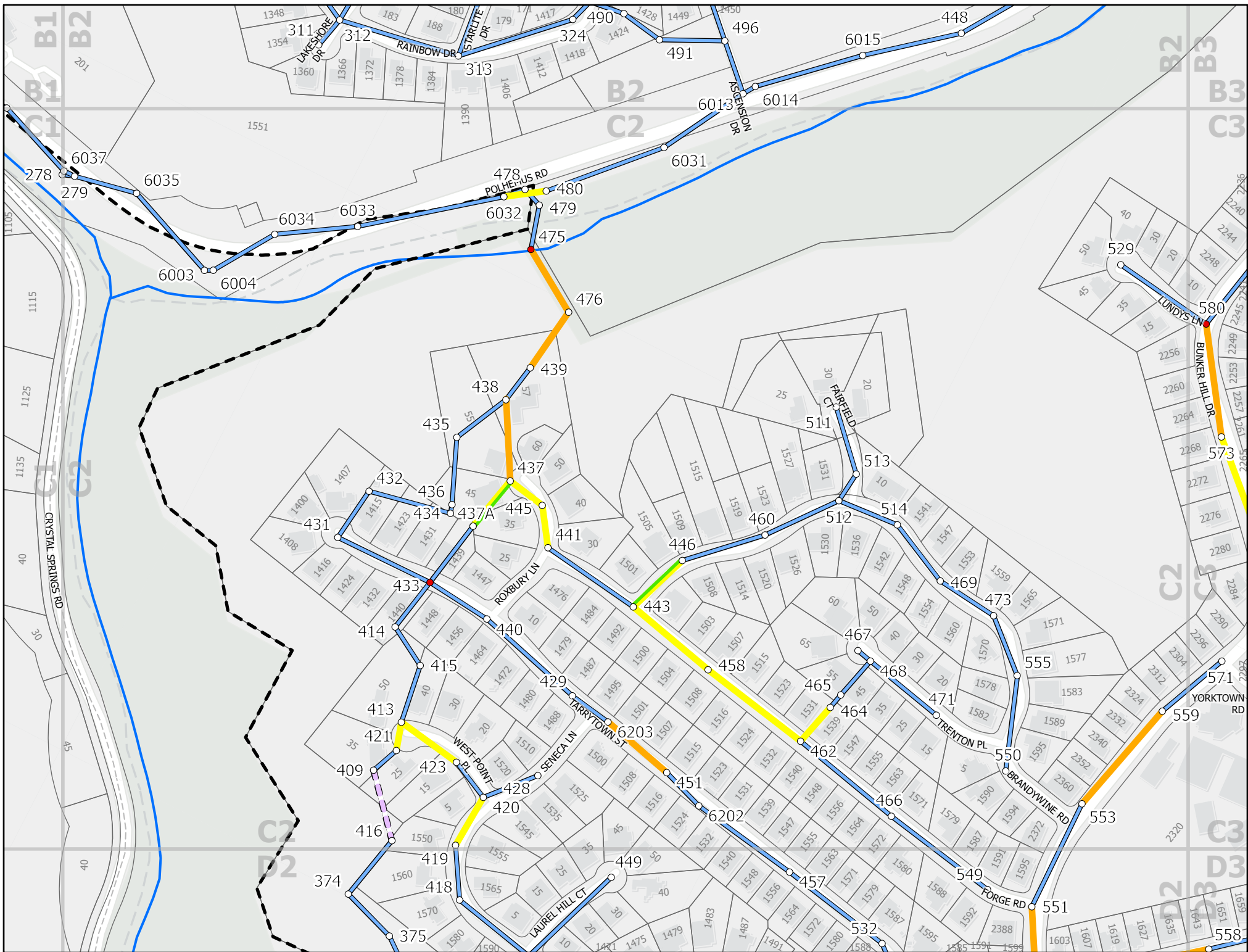


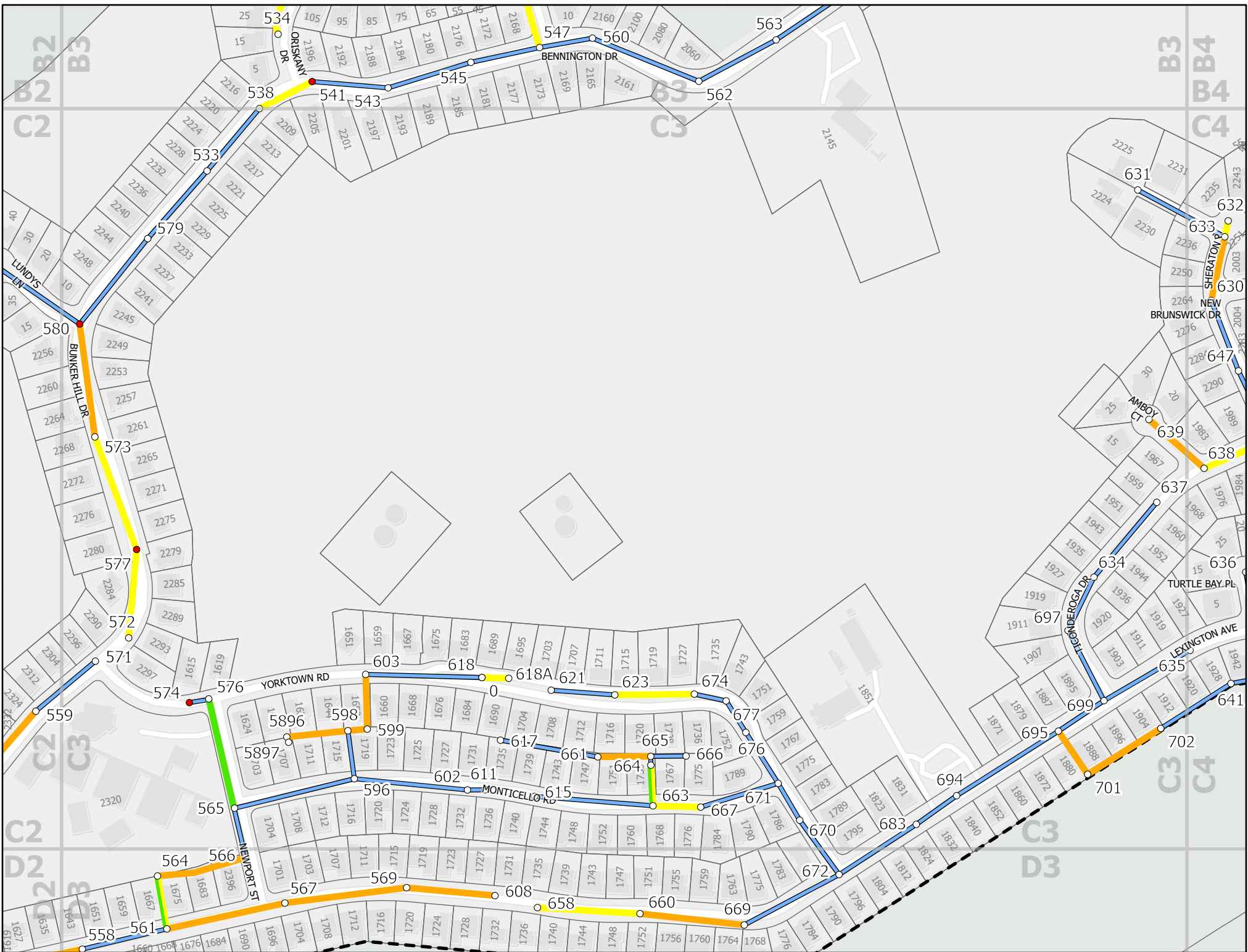
300



Scale: 1 in = 300ft

* District's shapefiles have been adjusted to match the District's system map 02/2020







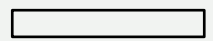
Sewer Lines

Repair Type

- OPEN TRENCH, CIPP
- S&W Rating <4
- Inspected
- - - Non-County
- - - Not Inspected - Recently Replaced
- Streams
- CSCS Boundary
- Parcels
- CIPP
- OPEN TRENCH
- PIPE BURST
- REPLACE SEWER
- SPOT REPAIR
- SPOT REPAIR, CIPP
- SPOT REPAIR, OPEN TRENCH
- SPOT REPAIR, PIPE BURST
- OPEN TRENCH, CIPP
- S&W Rating <4
- Inspected
- - - Non-County
- - - Not Inspected - Recently Replaced
- Streams
- CSCS Boundary
- Parcels
- CIPP
- OPEN TRENCH
- PIPE BURST
- REPLACE SEWER
- SPOT REPAIR
- SPOT REPAIR, CIPP
- SPOT REPAIR, OPEN TRENCH
- SPOT REPAIR, PIPE BURST
- No Repair
- Manhole Repair
- ⊙ Non-County



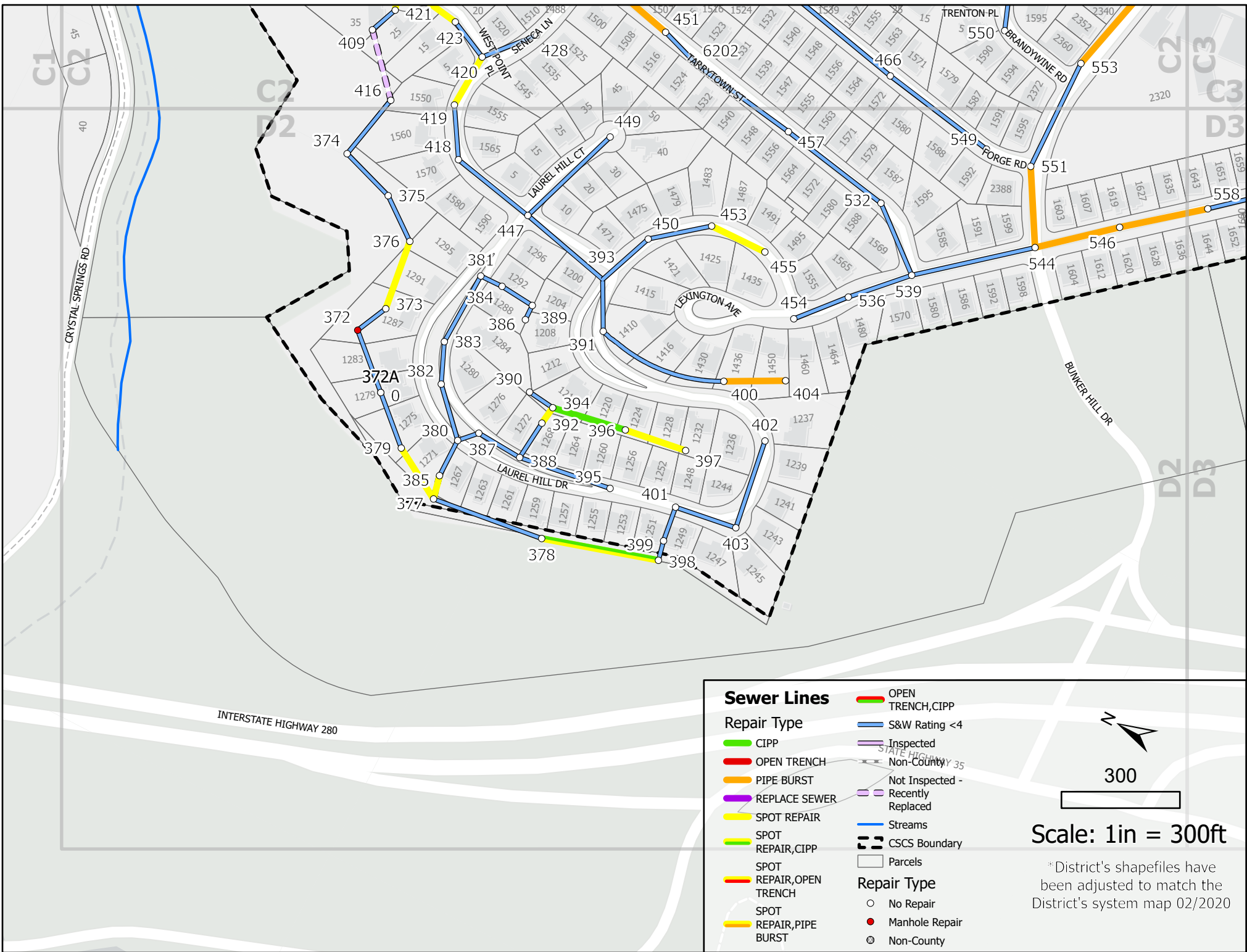
300



Scale: 1in = 300ft

*District's shapefiles have been adjusted to match the District's system map 02/2020

INTERSTATE HIGHWAY 280



Sewer Lines

- OPEN TRENCH, CIPP
 - S&W Rating <4
 - Inspected
 - Not Inspected - Recently Replaced
 - Streams
 - CSCS Boundary
 - Parcels
- Repair Type**
- CIPP
 - OPEN TRENCH
 - PIPE BURST
 - REPLACE SEWER
 - SPOT REPAIR
 - SPOT REPAIR, CIPP
 - SPOT REPAIR, OPEN TRENCH
 - SPOT REPAIR, PIPE BURST
 - No Repair
 - Manhole Repair
 - Non-County



300



Scale: 1in = 300ft

*District's shapefiles have been adjusted to match the District's system map 02/2020



ATTACHMENT 5: Examples of Typical Pipe Defects



Example 1: Spiral Crack



Example 2: Calcium Deposits



Example 3: Encrustation Deposits/Infiltration Stain



Example 4: Spiral Crack



Example 5: Medium Offset Joint



Example 6: Multiple Fractures



Example 7: Broken Pipe



Example 8: Large Offset Joint



Example 9: Pipe Sag



Example 10: Broken Pipe Soil Visible

ATTACHMENT 6: Manholes and Pipes Not Inspected

Summary of Manholes and Pipes that were Not Inspected

The table below provides details on all structures that were not inspected and/or surveyed.

Manholes and Flushing Inlets Not Inspected

ITEMS	TYPE	LATITUDE	LONGITUDE	RIM ELEVATION	ITEMS NOT INSPECTED	ITEMS NOT SURVEYED	NOTES
285	MANHOLE	#N/A	#N/A	#N/A	X	X	DOES NOT EXIST PER DISTRICT PERSONNEL
292	MANHOLE	#N/A	#N/A	#N/A	X	X	SEARCHED FOR NOT FOUND
331	FLUSHING INLET	#N/A	#N/A	#N/A		X	ABANDONED/CLEANOUT BYPASSED BY 4" LINE ABOVE GROUND
366	FLUSHING INLET	#N/A	#N/A	#N/A	X	X	SEARCHED FOR NOT FOUND, LIKELY BURIED UNDER A RETAINING WALL
481	FLUSHING INLET	#N/A	#N/A	#N/A	X	X	UNDER PAVEMENT
491	MANHOLE	#N/A	#N/A	#N/A	X	X	SEARCHED FOR NOT FOUND
493	MANHOLE	#N/A	#N/A	#N/A	X	X	DOES NOT EXIST
798	MANHOLE	#N/A	#N/A	#N/A	X	X	SEARCHED FOR NOT FOUND
5837	WYE	#N/A	#N/A	#N/A	X		SHOT AS #1203?
5897	CLEANOUT	#N/A	#N/A	#N/A	X	X	SEARCHED FOR NOT FOUND
6202	MANHOLE	#N/A	#N/A	#N/A	X	X	SEARCHED FOR NOT FOUND, COVERED WITH ASPHALT PATCH

The pipe segments that were not CCTV inspected are summarized in the table below. Seven pipe segments were not inspected because the pipe segments does not exist on the District’s base map; however, they were included in the GIS shapefiles. It is assumed that these pipe segments do not exist.

Pipe Segments Not Inspected

PIPE SEGMENTS NOT INSPECTED	LENGTH	NOTES	
5850	6092	144	PIPE SEGMENT DOES NOT EXIST ON BASEMAP
5898	807	238	PIPE SEGMENT DOES NOT EXIST ON BASEMAP
5901	765	133	PIPE SEGMENT DOES NOT EXIST ON BASEMAP
734	743	#N/A	PIPE SEGMENT DOES NOT EXIST ON BASEMAP
738	5850	#N/A	PIPE SEGMENT DOES NOT EXIST ON BASEMAP
742	738	#N/A	PIPE SEGMENT DOES NOT EXIST ON BASEMAP
743	742	#N/A	PIPE SEGMENT DOES NOT EXIST ON BASEMAP
279	278	30	SIPHON LINE WITH VALVE NO CCTV DONE
292	291	122	4" ABOVE GROUND PIPE
331	292	139	4" ABOVE GROUND PIPE
493	496	119	MAP SHOWS LINE SEGMENT AS 491_493 BUT IT IS ACTUALLY 491_496 . MUST CORRECT MAPS & GIS , NEW CORRECT LINE SEGMENT REFERENCE IS 491_496. 493 DOES NOT EXIST.

**ATTACHMENT 7: Smoke Testing Study, Crystal Springs County Sanitation District,
Sewer Basins CS-2, CS-6, CS-7, and CS-10, ADS Environmental Services, August 2019**

Smoke Testing Study Crystal Springs County Sanitation District

Sewer Basins CS-2, CS-6, CS-7, and CS-10



August 2019

Prepared for:
County of San Mateo
Department of Public Works
555 County Center, 5th Floor
Redwood City, CA 94063



Prepared by:

ADS ENVIRONMENTAL SERVICES®

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Background 2

Data Collection and Entry 3

Smoke Testing 3

Procedure 3

 Smoke Testing Notifications 8

 Defect Location Methodology 8

 Analysis 8

Smoke Testing Results 10

Conclusions and Recommendations 15

Appendix A 16

Appendix B 17

INTRODUCTION

ADS Environmental Services (ADS) was contracted by The County of San Mateo to perform approximately 50,000 lineal feet of smoke testing in four sewer basins within the Crystal Springs County Sanitation District sanitary sewer system. These basins were chosen for evaluation since they were the highest Rainfall Dependent Inflow and Infiltration (RDII) producing basins in terms of either percent rainfall intrusion (R-value) or unusually high peak excess flows during the 2018 flow monitoring study.

The purpose of the SSES (Sanitary Sewer Evaluation Surveys) work described herein was to locate sources of excess rainwater intrusion or Inflow and to determine the location of any such defects in the selected areas of the sanitary sewer system.

The identified inflow sources are listed in tabular format herein along with graphical maps depicting the locations of all the potential sources discovered during smoke testing. Conclusions and recommendations for follow up investigation or actions by the District are included.

BACKGROUND

The areas in which smoke testing was conducted include the sewerage areas tributary to the District's sanitary sewer basins CS-2, CS-6, CS-7, and CS-10. The associated areas are predominantly residential. The basin areas comprise approximately 306 acres.

Flow monitoring was conducted by ADS Environmental Services from December 2017 through March 2018. During this study, there was evidence of sharp responses in these basins during more intense episodes of rainfall. This implied there are possible inflow sources in these areas; thus, prompting this smoke testing study.

The basins comprising the smoke tested areas are depicted in the overview defect maps (Figures 1 through 4) included herein.

DATA COLLECTION AND ENTRY

ADS logged smoke testing results on standard forms and documented defects using digital photographs and schematic diagrams are included in Appendix A. The defects found were also transcribed onto the overview maps included herein as Figures 1-4 on which each specific defect is shown as a blue star (smoke testing form pages 1 & 2 completed) or red star (Standard cleanout. Smoke testing form page 2 completed) with its respective defect number indicated. A red star defect denotes an issue with a standard cleanout.

SMOKE TESTING

Smoke testing identifies defects that allow groundwater and rainwater to enter into the sewer system or odors to escape to the atmosphere. Smoke testing is intended to detect potential points of inflow due to direct connections to the sanitary sewer such as storm sewer cross-connections and point source leaks in drainage paths or ponding areas, roof leaders, cellars, yard or area drains, fountain drains, abandoned building sewers, and faulty service connections.

PROCEDURE

Smoke testing was conducted primarily with a four-person crew using 4,000 cfm (Cubic Feet Per Minute) Ripcord™ or equivalent blowers and non-toxic Liquid Smoke™ exhaust heat smoke generating fluid. This system emanates a very thick visible cloud of smoke directly into the sanitary sewer main line being tested. This drives smoke laden air back through mains and up lateral connections to any openings to the atmosphere, including designed openings such as rooftop plumbing vents and also unintended openings or “defects” as described previously (e.g. storm connections, roof leaders, etc.). Typically, smoke testing was limited to not more than four line segments or about 1000 lineal feet per test.



All observations regarding each identified defect or potential rainwater leak location were documented on field Smoke Testing Forms. Information includes location, personnel, date, and a schematic layout of the manhole and sewer line under testing. The following defect or leak point information is included on page 1 of the Smoke Testing Forms:

- Digital photo,
- Description of leak
- Address and GPS coordinates
- Magnitude of smoke emanating from the defect,
- Approximate Area and type of surface drained by the defect.

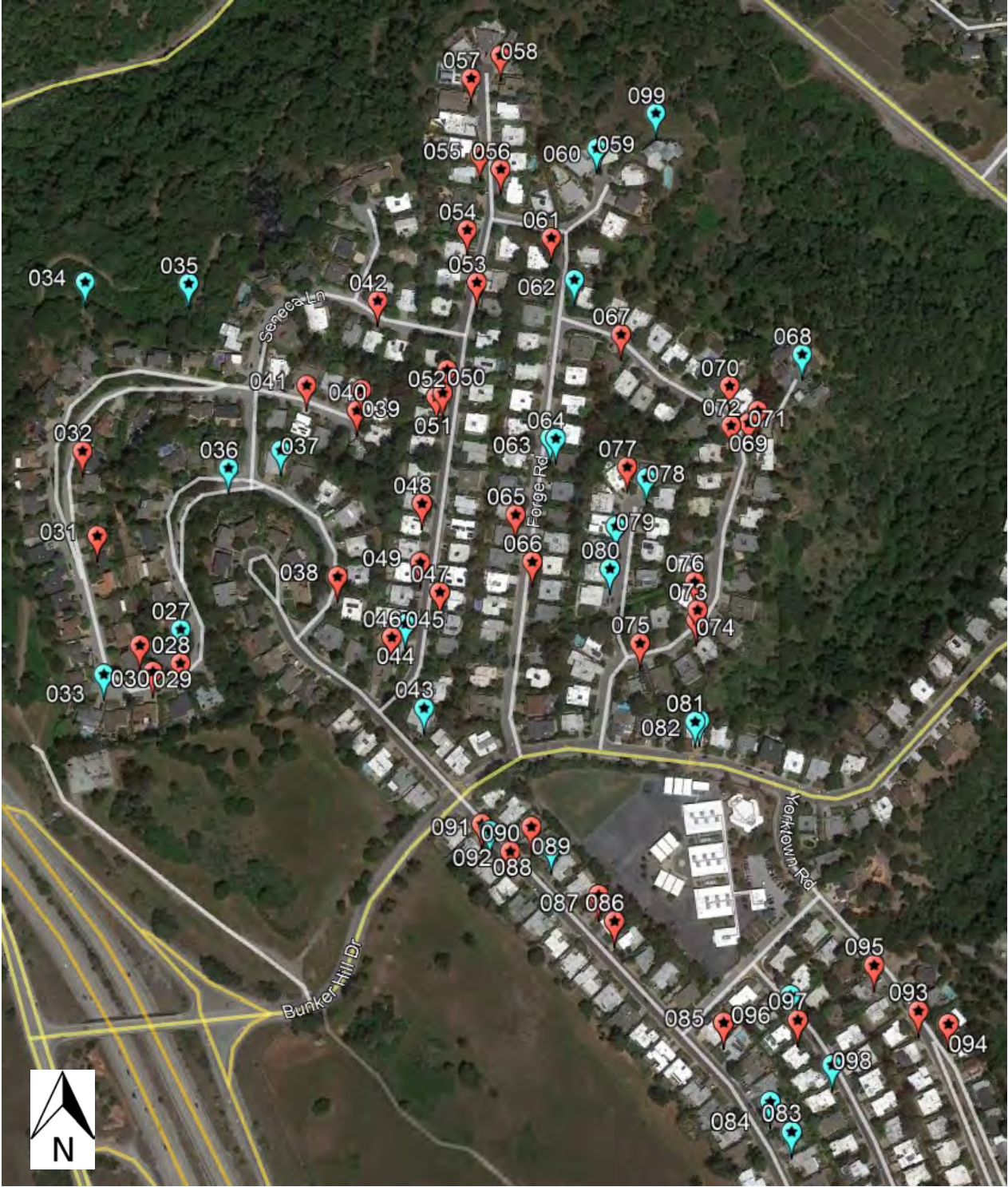


Figure 1: Basin CS-2 Area Defects
(Blue star: Smoke testing form pages 1 & 2 completed. Red star: Standard cleanout.
Smoke testing form page 2 completed)

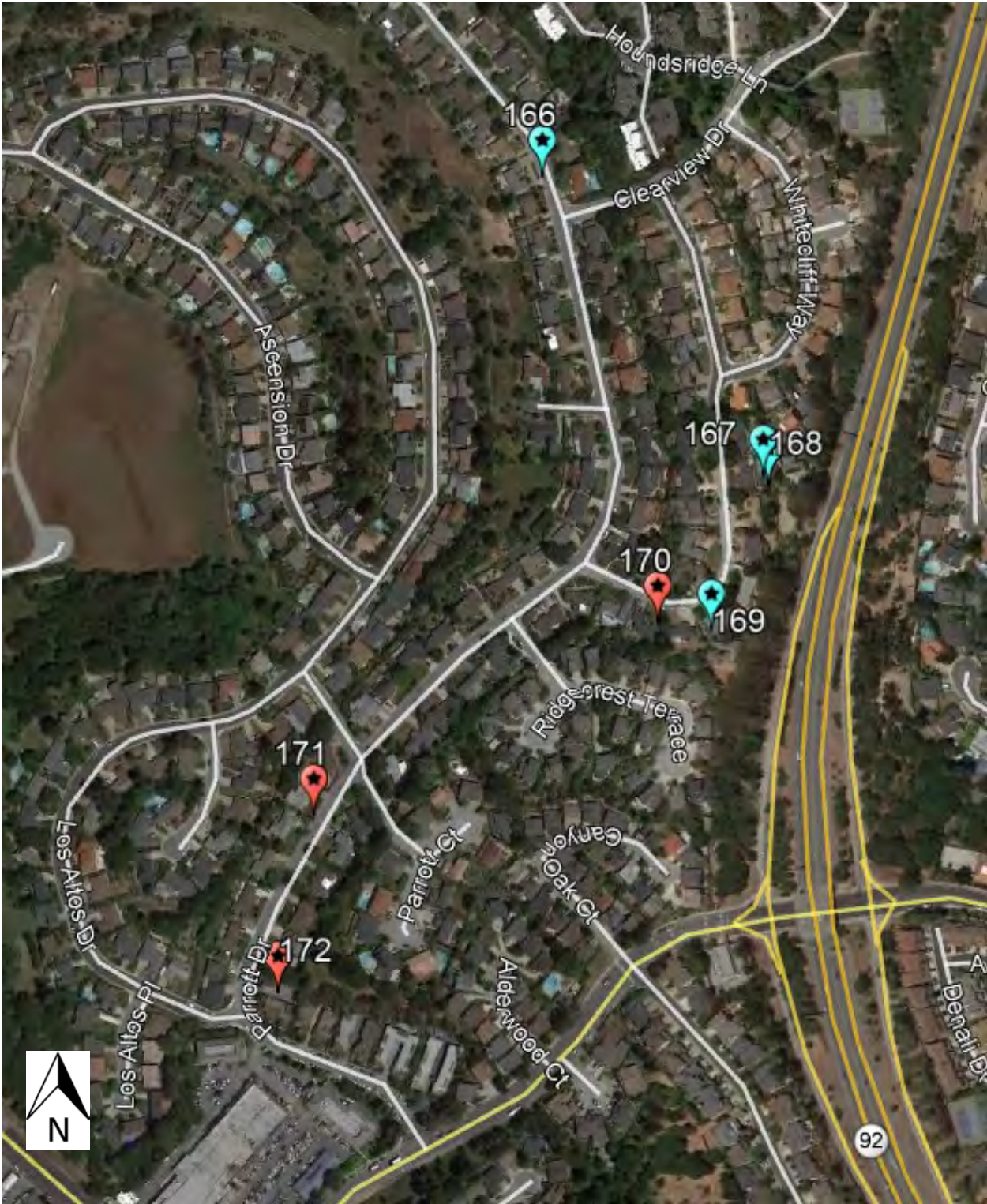


Figure 2: Basin CS-6 Area Defects
(Blue star: Smoke testing form pages 1 & 2 completed. Red star: Standard cleanout. Smoke testing form page 2 completed)



Figure 3: Basin CS-7 Area Defects
(Blue star: Smoke testing form pages 1 & 2 completed. Red star: Standard cleanout. Smoke testing form page 2 completed)



Figure 4: Basin CS-10 Area Defects
(Blue star: Smoke testing form pages 1 & 2 completed. Red star: Standard cleanout. Smoke testing form page 2 completed)

Digital photographs of all smoke leaks discovered were taken to document the leak location. The digital photographs are associated with the respective defects.

The photographs were taken of actual smoke emanating from the defect where possible during the testing. The photographs were identified by the location of the smoke with reference to some recognizable topographic feature (e.g., corner of house, fire plug, mail box, etc.).

SMOKE TESTING NOTIFICATIONS

Approximately 2 to 7 days prior to smoke testing, ADS personnel distributed Smoke Testing Notices to all potentially affected residents. The notices were delivered to individual residences and commercial establishments within the zones to be tested. Each notice was placed and attached to the door or entryway of the entrance of each location. A copy of the notification form is included in Appendix B.

The ADS Field Manager maintained communication with the local fire departments as well as a list of pre-determined contacts established at the job onset on a daily basis to ensure the proper authorities were aware of the smoke testing activities.

DEFECT LOCATION METHODOLOGY

ADS utilized a GPS camera and Google Earth to record actual Latitude and Longitude coordinates associated with each photograph taken. Defects were also assigned a unique number and located based on physical street address.

This field data collected during the smoke testing were utilized to produce the pictures on each defect's standardized Smoke Testing Form in Appendix A. Each form identifies the type of defect (manhole, mainline, service lateral), leak location (grass, pavement, etc.), and severity of the leak (smoke severity and drainage area).

ANALYSIS

The severity of each potential inflow defect logged during this portion of the collection system study was estimated using the Rational Formula:

$$Q = C \times I \times A$$

Where,

Q = flow rate (L³/T)

C = runoff coefficient based on surface type (--)

I = rainfall intensity (L/T)

A = surface area (L²)

A rainfall intensity (I) was assumed of 1.0 inch per hour, allowing theoretical defect inflow rates to be listed in units of flow rate per inch of rain. To calculate the surface area, field crews estimated the extent of the area that would drain into the defect during a rain event. The coefficient "C" is set equal to 1 assuming all of the flow from the associated drainage area entered the defect.

It is noted that the severity of potential nuisance odors associated with the defects discovered are most likely attributable to degree or density of smoke observed and relative proximity to residential inhabitants.

SMOKE TESTING RESULTS

A total of one hundred seventy two (172) defects were identified during the smoke testing process. Basin CS-2 contained the highest number of defects with seventy-four (74). Basin CS-7 contained the second highest number of defects with sixty-five (65). Basins CS-10 and CS-6 contained twenty-five (25) and seven (7) identified defects, respectively.

The majority of these defects (134) were found to be associated with cleanouts. The remaining defects were found in private laterals, area drain, potential mainline leak points, and others. A summary of defects is presented in Table 1. Inflow rates (gallons per inch of rain) into each defect were estimated based on the Rational Formula and indicated in Table 1. Table 2 lists the inflow rates sorted by basin and severity. It also gives the total inflow rates by basin and the grand total for the project. Inflow rates less than 1.0 gallons per inch of rain were hidden from view on Table 2 but were included in the grand total.

In some cases, actual effective drainage areas or inflow rates may be significantly higher than those estimated using the Rational Formula. For example, locations where severely dilapidated street pavement and manhole surface seals (or the presence of vented manholes) may allow in varying order of magnitude higher inflow rates than estimated for defects during periods of significant sheet runoff or street flooding.

In order to assist in identifying the locations, smoke test forms showing the defect with addresses and digital photographs of the defects are included in Appendix A. Defects that have both pages of the smoke test forms completed are highlighted in blue on Figures 1-4 and defects that were associated with standard cleanouts are in red and these do not have the first page of the smoke test forms completed.

Table 1: Smoke Testing Defect Summary (pg. 1)

Defect ID	Basin	Longitude	Latitude	Defect Type	Smoke Density	Address	Defect Drainage Area (sq. ft.)	Run Off	Notes	Inflow (gal./in. rain)	
001	CS-10	-122.348539 ^s	37.524490 ⁿ	Source Unknown	Light	2285 Bunker Hill Dr		16	1	May be lateral or Cleanout	10.0
002	CS-10	-122.348436 ^s	37.524907 ⁿ	Cleanout	Heavy	2280 Bunker Hill Dr		0.25	1	Surcharge evidence. Cap removed	0.2
003	CS-10	-122.348220 ^s	37.524775 ⁿ	Cleanout	Light	2275 Bunker Hill Dr		0.25	5		0.2
004	CS-10	-122.346553 ^s	37.526420 ⁿ	Service Lateral	Light	30 Lundys Ln		9	3		5.6
005	CS-10	-122.346953 ^s	37.526211 ⁿ	Cleanout	Heavy	35 Lundys Ln		0.25	5		0.2
006	CS-10	-122.346893 ^s	37.526197 ⁿ	Cleanout	Light	35 Lundys Ln		0.25	5		0.2
007	CS-10	-122.346961 ^s	37.525961 ⁿ	Cleanout	Medium	15 Lundys Ln		0.25	5	No Cap	0.2
008	CS-10	-122.347148 ^s	37.525820 ⁿ	Cleanout	Medium	2256 Bunker Hill Dr		0.25	5	No Cap	0.2
009	CS-10	-122.347146 ^s	37.525553 ⁿ	Service Lateral	Heavy	2253 Bunker Hill Dr		96	2	Could be cleanout but could not locate	59.8
010	CS-10	-122.345837 ^s	37.525685 ⁿ	Cleanout	Heavy	2240 Bunker Hill Dr		60	5	No Cap	37.4
011	CS-10	-122.346078 ^s	37.525789 ⁿ	Cleanout	Heavy	2244 Bunker Hill Dr		0.25	2	No Cap	0.2
012	CS-10	-122.345372 ^s	37.525611 ⁿ	Cleanout	Heavy	2232 Bunker Hill Dr		1	2	Rusty/Deteriorated Cap	0.6
013	CS-10	-122.345324 ^s	37.525383 ⁿ	Cleanout	Light	2225 Bunker Hill Dr		0.25	5	Rusty/Deteriorated Cap	0.2
014	CS-10	-122.344722 ^s	37.525247 ⁿ	Service Lateral	Medium	2213 Bunker Hill Dr		64	3	Cracked lateral near downspout	39.9
015	CS-10	-122.344714 ^s	37.525272 ⁿ	Service Lateral	Medium	2213 Bunker Hill Dr		21	5	Smoke coming from edge of concrete	13.1
016	CS-10	-122.344652 ^s	37.525472 ⁿ	Cleanout	Medium	2220 Bunker Hill Dr		0.25	5	Rusty/Deteriorated Cap	0.2
017	CS-10	-122.344697 ^s	37.525522 ⁿ	Cleanout	Light	2220 Bunker Hill Dr		0.25	2	Could not access but property owner said it was a cleanout	0.2
018	CS-10	-122.342693 ^s	37.525436 ⁿ	Cleanout	Heavy	95 Oriskany Dr		0.25	5	Could not access	0.2
019	CS-10	-122.342603 ^s	37.525656 ⁿ	Cleanout	Heavy	75 Oriskany Dr		0.25	5	No Cap	0.2
020	CS-10	-122.343665 ^s	37.525546 ⁿ	Cleanout	Heavy	25 Oriskany Dr		0.25	5	Rusty/Deteriorated Cap	0.2
021	CS-10	-122.343713 ^s	37.525604 ⁿ	Cleanout	Heavy	25 Oriskany Dr		0.25	5	Rusty/Deteriorated Cap	0.2
022	CS-10	-122.343169 ^s	37.524983 ⁿ	Cleanout	Light	85 Bennington Dr		0.25	5	Rusty/Deteriorated Cap	0.2
023	CS-10	-122.342760 ^s	37.524886 ⁿ	Cleanout	Heavy	70 Bennington Dr		0.25	5	Cap Removed	0.2
024	CS-10	-122.342410 ^s	37.524449 ⁿ	Cleanout	Heavy	50 Bennington Dr		0.25	5	Rusty/Deteriorated Cap	0.2
025	CS-10	-122.343833 ^s	37.524509 ⁿ	Cleanout	Medium	2193 Bunker Hill Dr		0.25	5	Rusty/Deteriorated Cap	0.2
026	CS-2	-122.343019 ^s	37.524076 ⁿ	Cleanout	Light	2172 Bunker Hill Dr		0.25	5	Could not access	0.2
027	CS-2	-122.355357 ^s	37.525932 ⁿ	Area Drain	Medium	1236 Laurel Hill Dr		12	5	Area drain not lowest point	7.5
028	CS-2	-122.355375 ^s	37.525668 ⁿ	Cleanout	Heavy	1239 Laurel Hill Dr		1	5	Could not access	0.6
029	CS-2	-122.355650 ^s	37.525616 ⁿ	Cleanout	Heavy	1241 Laurel Hill Dr		0.25	5	No Cap	0.2
030	CS-2	-122.355766 ^s	37.525829 ⁿ	Cleanout	Heavy	1244 Laurel Hill Dr		0.25	5	Vented Cap	0.2
031	CS-2	-122.356138 ^s	37.526711 ⁿ	Cleanout	Light	1260 Laurel Hill Dr		0.25	3	Vented Cap	0.2
032	CS-2	-122.356248 ^s	37.527393 ⁿ	Cleanout	Medium	1272 Laurel Hill Dr		0.25	2	Rusty/Deteriorated Cap	0.2
033	CS-2	-122.356134 ^s	37.525620 ⁿ	Cleanout	Light	1245 Laurel Hill Dr		12	5	Rusty/Deteriorated Cap	7.5
034	CS-2	-122.356146 ^s	37.528756 ⁿ	Main Sewer	Light	1287 Laurel Hill Dr		15	1	Smoke coming from next to manhole lid	9.4
035	CS-2	-122.355106 ^s	37.528609 ⁿ	Main Sewer		1285 Laurel Hill Dr			1	Surcharged pipe. Smoke cannot enter manhole.	0.0
036	CS-2	-122.354802 ^s	37.527183 ⁿ	Cleanout	Heavy	1415 Laurel Hill Dr		40	1	Missing cap; low spot, Backside of property	24.9
037	CS-2	-122.354271 ^s	37.527297 ⁿ	Cleanout	Heavy	1416 Laurel Hill Dr		9	5	No cap	5.6
038	CS-2	-122.353778 ^s	37.526266 ⁿ	Cleanout	Light	1417 Laurel Hill Dr		0.25	4	Rusty/Deteriorated Cap	0.2
039	CS-2	-122.353430 ^s	37.527738 ⁿ	Cleanout	Heavy	45 Laurel Hill Ct		0.25	5	No Cap	0.2
040	CS-2	-122.353490 ^s	37.527575 ⁿ	Cleanout	Light	40 Laurel Hill Ct		0.25	3	Rusty/Deteriorated Cap	0.2
041	CS-2	-122.353978 ^s	37.527803 ⁿ	Cleanout	Light	20 Laurel Hill Ct		0.25	5	Could not access	0.2
042	CS-2	-122.353216 ^s	37.528450 ⁿ	Cleanout	Medium	1535 Seneca Ln		0.25	2	No Cap	0.2
043	CS-2	-122.353003 ^s	37.525194 ⁿ	Downspout	Medium	1585 Lexington Ave		144	3	Downspout draining into cleanout.	89.8
044	CS-2	-122.353137 ^s	37.525870 ⁿ	Cleanout	Heavy	1588 Tarrytown St		0.25	2	Cap Removed/ off the joint	0.2
045	CS-2	-122.353135 ^s	37.525880 ⁿ	Service Lateral	Medium	1588 Tarrytown St		15	2	Cleanout is off the joint and the smoke is spreading into the area or crack lateral.	9.4
046	CS-2	-122.353278 ^s	37.525761 ⁿ	Cleanout	Heavy	1569 Tarrytown St		0.25	3	Could not access	0.2
047	CS-2	-122.352776 ^s	37.526091 ⁿ	Cleanout	Heavy	1579 Tarrytown St		0.25	5	No Cap	0.2
048	CS-2	-122.352897 ^s	37.526799 ⁿ	Cleanout	Light	1548 Tarrytown St		0.25	2	No Cap	0.2
049	CS-2	-122.352952 ^s	37.526335 ⁿ	Cleanout	Light	1572 Tarrytown St		0.25	2	Loose Cap	0.2
050	CS-2	-122.352563 ^s	37.527855 ⁿ	Cleanout	Heavy	1508 Tarrytown St		0.25	1	Rusty/Deteriorated Cap	0.2
051	CS-2	-122.352621 ^s	37.527672 ⁿ	Cleanout	Medium	1516 Tarrytown St		0.25	1	Loose Cap	0.2
052	CS-2	-122.352688 ^s	37.527643 ⁿ	Cleanout	Medium	1516 Tarrytown St		0.25	1	Loose Cap	0.2
053	CS-2	-122.352207 ^s	37.528547 ⁿ	Cleanout	Medium	1487 Tarrytown St		0.25	2	Owner said it is a cleanout	0.2
054	CS-2	-122.352269 ^s	37.528980 ⁿ	Cleanout	Medium	1472 Tarrytown St		0.25	2	Cap Loose	0.2
055	CS-2	-122.352091 ^s	37.529584 ⁿ	Cleanout	Heavy	1448 Tarrytown St		0.25	1	No Cap	0.2
056	CS-2	-122.351899 ^s	37.529460 ⁿ	Cleanout	Light	1447 Tarrytown St		0.25	3	Cap off	0.2
057	CS-2	-122.352128 ^s	37.530228 ⁿ	Cleanout	Light	1424 Tarrytown St		0.25	3	Cap off	0.2
058	CS-2	-122.351813 ^s	37.530404 ⁿ	Cleanout	Medium	1415 Tarrytown St		0.25	1	Rusty/Deteriorated Cap	0.2
059	CS-2	-122.350901 ^s	37.529561 ⁿ	Service Lateral	Heavy	45 Roxbury Ln		144	5	Smoke coming from concrete joints in driveway. Water should drain into crack	89.8
060	CS-2	-122.350874 ^s	37.529595 ⁿ	Service Lateral	Light	45 Roxbury Ln		36	3	Smoke coming from concrete and dirt edge. Water should drain into this edge	22.4
061	CS-2	-122.351427 ^s	37.528872 ⁿ	Cleanout	Light	1476 Forge Rd		0.25	5		0.2

Table 1: Smoke Testing Defect Summary (pg. 2)

Defect ID	Basin	Longitude	Latitude	Defect Type	Smoke Density	Address	Defect Drainage Area (sq. ft.)	Run Off	Notes	Inflow (gal./in. rain)
062	CS-2	-122.351224 ^s	37.528517 ⁿ	Area Drain	Light	1501 Brandywine Rd	40	4	Area drain	24.9
063	CS-2	-122.351579 ^s	37.527257 ⁿ	Cleanout	Light	1523 Forge Rd	4	2	Could not access. A low area.	2.5
064	CS-2	-122.351523 ^s	37.527248 ⁿ	Cleanout	Light	1523 Forge Rd	1	1	No cap	0.6
065	CS-2	-122.351975 ^s	37.526663 ⁿ	Cleanout	Light	1548 Forge Rd	0.25	1	Rusty/Deteriorated Cap	0.2
066	CS-2	-122.351841 ^s	37.526282 ⁿ	Cleanout	Light	1549 Forge Rd	0.25	2	Cap off	0.2
067	CS-2	-122.350796 ^s	37.528049 ⁿ	Cleanout	Light	1508 Brandywine Rd	0.25	2	Rusty/Deteriorated Cap	0.2
068	CS-2	-122.348997 ^s	37.527794 ⁿ	Sewer Manhole	Heavy	30 Fairfield Ct	1	5	Sewer vent not cleanout. Not an actual deficiency.	0.6
069	CS-2	-122.348487 ^s	37.527365 ⁿ	Cleanout	Light	10 Fairfield Ct	4	2	Rusty/Deteriorated Cap	2.5
070	CS-2	-122.348748 ^s	37.527578 ⁿ	Cleanout	Light	1531 Branywine Rd	0.25	3	Rusty/Deteriorated Cap	0.2
071	CS-2	-122.349589 ^s	37.527273 ⁿ	Cleanout	Heavy	10 Fairfield Ct	0.25	2	No cap. On east side of property across from 1536 Branywine Rd	0.2
072	CS-2	-122.349765 ^s	37.527260 ⁿ	Cleanout	Heavy	1536 Branywine Rd	0.25	3	Rusty/Deteriorated Cap	0.2
073	CS-2	-122.350241 ^s	37.525817 ⁿ	Cleanout	Heavy	1577 Brandywine Rd	0.25	5	No cap	0.2
074	CS-2	-122.350262 ^s	37.525742 ⁿ	Cleanout	Light	1577 Brandywine Rd	0.25	1	Rusty/Deteriorated Cap	0.2
075	CS-2	-122.350834 ^s	37.525587 ⁿ	Cleanout	Heavy	1595 Brandywine Rd	0.25	4	No cap	0.2
076	CS-2	-122.350249 ^s	37.526041 ⁿ	Cleanout	Light	1570 Brandywine Rd	0.25	2	Cap on backwards	0.2
077	CS-2	-122.350831 ^s	37.526984 ⁿ	Cleanout	Light	65 Trenton Pl	0.25	3	Could not access	0.2
078	CS-2	-122.350648 ^s	37.526887 ⁿ	Cleanout	Light	50 Trenton Pl	60	5	Water flows over and will drain into cleanout	37.4
079	CS-2	-122.350987 ^s	37.526519 ⁿ	Cleanout	Light	35 Trenton Pl	16	2	Cap off. Low point could drain into cleanout	10.0
080	CS-2	-122.351077 ^s	37.526188 ⁿ	Area Drain	Light	15 Trenton Pl	72	5	Not lowest point but does funnel here.	44.9
081	CS-2	-122.350349 ^s	37.524949 ⁿ	Area Drain	Light	2332 Bunker Hill Dr	192	4	area drain low point of driveway	119.7
082	CS-2	-122.350306 ^s	37.524959 ⁿ	Area Drain	Light	2332 Bunker Hill Dr	192	3	Gutters feed to these drains.	119.7
083	CS-2	-122.349726 ^s	37.521796 ⁿ	Area Drain	Medium	1723 Lexington Ave	600	3	Main area drain of entire driveway and gutters also drain here	374.0
084	CS-2	-122.349908 ^s	37.522030 ⁿ	Area Drain	Light	1715 Lexington Ave	80	5	Not lowest point but does funnel here through pavement groove	49.9
085	CS-2	-122.350297 ^s	37.522643 ⁿ	Cleanout	Light	1703 Lexington Ave	0.25	2	Cap off	0.2
086	CS-2	-122.351282 ^s	37.523463 ⁿ	Cleanout	Light	1704 Lexington Ave	0.25	5	Cap Loose	0.2
087	CS-2	-122.351418 ^s	37.523669 ⁿ	Cleanout	Light	1659 Lexington Ave	0.25	2	No cap	0.2
088	CS-2	-122.351846 ^s	37.524054 ⁿ	Cleanout	Light	1635 Lexington Ave	24	4	low spot; cap loose	15.0
089	CS-2	-122.352027 ^s	37.524225 ⁿ	Cleanout	Medium	1627 Lexington Ave	0.25	4	Loose fitting cap	0.2
090	CS-2	-122.352250 ^s	37.524046 ⁿ	Cleanout	Heavy	1662 Lexington Ave	0.25	2	Holes drilled into cap	0.2
091	CS-2	-122.352436 ^s	37.524212 ⁿ	Source Unknown	Light	1620 Lexington Ave	24	3	Area drain or lateral	15.0
092	CS-2	-122.352510 ^s	37.524271 ⁿ	Cleanout	Medium	1632 Lexington Ave	0.25	1	Holes drilled into cap	0.2
093	CS-2	-122.348407 ^s	37.522633 ⁿ	Cleanout	Heavy	1668 Yorktown Rd	0.25	1	Think it is a cleanout. Difficult to access	0.2
094	CS-2	-122.348128 ^s	37.522519 ⁿ	Cleanout	Heavy	1675 Yorktown Rd	0.25	2	No cap	0.2
095	CS-2	-122.348797 ^s	37.522999 ⁿ	Cleanout	Light	1652 Yorktown Rd	0.25	5	Inside garage	0.2
096	CS-2	-122.349632 ^s	37.522814 ⁿ	Cleanout	Heavy	1712 Monticello Rd	9	1	Rusty/Deteriorated Cap. Low point	5.6
097	CS-2	-122.349580 ^s	37.522625 ⁿ	Cleanout	Medium	1716 Monticello Rd	0.25	1	Loose fitting cap	0.2
098	CS-2	-122.349282 ^s	37.522272 ⁿ	Service Lateral	Light	1724 Monticello Rd	18	3	low point near walkway	11.2
099	CS-2	-122.350276 ^s	37.529840 ⁿ	Sewer Manhole	Heavy	57 Roxbury Ln	1000	1	Sewer manhole lid low point on hill; infiltration disk recommended	623.3
100	CS-7	-122.347565 ^s	37.521307 ⁿ	Service Lateral	Medium	1715 Yorktown Rd	14	3	Smoke coming from edge of pavement	8.7
101	CS-7	-122.347582 ^s	37.521306 ⁿ	Area Drain	Heavy	1715 Yorktown Rd	50	2	should be drain maybe cleanout	31.2
102	CS-7	-122.347176 ^s	37.520419 ⁿ	Cleanout	Light	1751 Yorktown Rd	0.25	5	Cap loose	0.2
103	CS-7	-122.348020 ^s	37.520813 ⁿ	Sewer Manhole	Heavy	1759 Monticello Rd	90	1	Sewer manhole lid low point on hill; infiltration disk recommended	56.1
104	CS-7	-122.348319 ^s	37.520876 ⁿ	Cleanout	Heavy	1759 Monticello Rd	1	1	Rusty/ deteriorated cap	0.6
105	CS-7	-122.348461 ^s	37.521039 ⁿ	Service Lateral	Light	1751 Monticello Rd	450	4	Smoke coming from cracks in driveway and cleanout. Downspout drains here.	280.5
106	CS-7	-122.347881 ^s	37.519846 ⁿ	Cleanout	Medium	1786 Yorktown Rd	0.25	3	Rusty/ deteriorated cap	0.2
107	CS-7	-122.349137 ^s	37.520073 ⁿ	Cleanout	Heavy	1760 Lexington Ave	0.25	5	Cannot access	0.2
108	CS-7	-122.348940 ^s	37.519961 ⁿ	Source Unknown	Light	1763 Lexington Ave	0.25	4	Cannot open cover	0.2
109	CS-7	-122.348816 ^s	37.519968 ⁿ	Area Drain	Light	1763 Lexington Ave	200	4	Downspouts drain to here. Low point	124.7
110	CS-7	-122.348496 ^s	37.519345 ⁿ	Cleanout	Light	1790 Lexington Ave	0.25	2	Rusty/ deteriorated cap	0.2
111	CS-7	-122.348079 ^s	37.519145 ⁿ	Cleanout	Medium	1804 Lexington Ave	0.25	1	Cannot access	0.2
112	CS-7	-122.347585 ^s	37.519180 ⁿ	Service Lateral	Heavy	1823 Lexington Ave	112	1	Most likely a lateral	69.8
113	CS-7	-122.347560 ^s	37.519212 ⁿ	Cleanout	Heavy	1823 Lexington Ave	1	1	Grated cleanouts with caps off	0.6
114	CS-7	-122.345058 ^s	37.517800 ⁿ	Cleanout	Light	1928 Lexington Ave	0.25	2	Rusty/ deteriorated cap	0.2
115	CS-7	-122.345788 ^s	37.518151 ⁿ	Cleanout	Medium	1896 Lexington Ave	0.25	3	Rusty/ deteriorated cap	0.2
116	CS-7	-122.345473 ^s	37.518718 ⁿ	Cleanout	Heavy	1907 Ticonderoga Dr	0.25	1	Cap off. Evidence of surcharge	0.2
117	CS-7	-122.345358 ^s	37.518532 ⁿ	Cleanout	Medium	1908 Ticonderoga Dr	0.25	3	Cap has hole in it	0.2
118	CS-7	-122.344776 ^s	37.518807 ⁿ	Cleanout	Medium	1935 Ticonderoga Dr	0.25	1	Cap off. Evidence of surcharge	0.2
119	CS-7	-122.344747 ^s	37.518588 ⁿ	Cleanout	Light	1936 Ticonderoga Dr	0.25	5	Cannot access	0.2
120	CS-7	-122.344417 ^s	37.518514 ⁿ	Cleanout	Light	1952 Ticonderoga Dr	0.25	5	Cap off	0.2
121	CS-7	-122.344295 ^s	37.518676 ⁿ	Service Lateral	Light	1951 Ticonderoga Dr	48	3	No cleanout present. Probably lateral	29.9
122	CS-7	-122.344672 ^s	37.517515 ⁿ	Service Lateral	Heavy	1956 Lexington Ave	80	1	Work being done to lateral line	49.9

Table 1: Smoke Testing Defect Summary (pg. 3)

Defect ID	Basin	Longitude	Latitude	Defect Type	Smoke Density	Address	Defect Drainage Area (sq. ft.)	Run Off	Notes	Inflow (gal./in. rain)
123	CS-7	-122.342360 ^s	37.517763 ⁿ	Cleanout	Light	5 Turtle Bay Pl	0.25	5	No cap	0.2
124	CS-7	-122.343995 ^s	37.517214 ⁿ	Cleanout	Light	5 Shelburne Pl	0.25	2	Cap off. Another pipe is being draining into the line from here. Surcharge evidence	0.2
125	CS-7	-122.343844 ^s	37.517021 ⁿ	Cleanout	Light	10 Shelburne Pl	0.25	3	Cap loose	0.2
126	CS-7	-122.343128 ^s	37.516794 ⁿ	Cleanout	Light	15 Powhatan Pl	0.25	3	Cap off	0.2
127	CS-7	-122.343441 ^s	37.516636 ⁿ	Cleanout	Light	5 Powhatan Pl	16	2	Cap off. Low point could drain into cleanout	10.0
128	CS-7	-122.342631 ^s	37.515938 ⁿ	Cleanout	Light	10 Burgoyne Ct	0.25	5	Cap loose	0.2
129	CS-7	-122.342579 ^s	37.516013 ⁿ	Cleanout	Light	20 Burgoyne Ct	0.25	5	Rusty/ deteriorated cap	0.2
130	CS-7	-122.342163 ^s	37.516242 ⁿ	Cleanout	Light	40 Burgoyne Ct	0.25	2	Rusty/ deteriorated cap	0.2
131	CS-7	-122.342388 ^s	37.515128 ⁿ	Cleanout	Heavy	2076 Lexington Ave	0.25	1	Cannot access	0.2
132	CS-7	-122.340946 ^s	37.514450 ⁿ	Source Unknown	Light	15 Stoney Point Pl	16	3	Cannot access due to debris. most likely cleanout.	10.0
133	CS-7	-122.340692 ^s	37.513445 ⁿ	Cleanout	Light	2089 Allegheny Way	0.25	3	Rusty/ deteriorated cap	0.2
134	CS-7	-122.340549 ^s	37.513713 ⁿ	Cleanout	Light	2090 Allegheny Way	0.25	5	Rusty/ deteriorated cap	0.2
135	CS-7	-122.340076 ^s	37.513640 ⁿ	Cleanout	Heavy	2275 Allegheny Way	0.25	4	No cap	0.2
136	CS-7	-122.339634 ^s	37.513885 ⁿ	Cleanout	Light	2251 Allegheny Way	0.25	5	Cannot access	0.2
137	CS-7	-122.339616 ^s	37.513859 ⁿ	Cleanout	Light	2251 Allegheny Way	0.25	5	Cap loose	0.2
138	CS-7	-122.338927 ^s	37.514109 ⁿ	Cleanout	Light	2227 Allegheny Way	0.25	5	No cap	0.2
139	CS-7	-122.341349 ^s	37.518861 ⁿ	Service Lateral	Medium	2251 Sheraton Pl	12	1	Cannot see cleanout. Most likely lateral	7.5
140	CS-7	-122.342427 ^s	37.518753 ⁿ	Cleanout	Heavy	2276 Sheraton Pl	0.25	5	No Cap	0.2
141	CS-7	-122.342507 ^s	37.518445 ⁿ	Cleanout	Heavy	2283 Sheraton Pl	0.25	4	No cap	0.2
142	CS-7	-122.342401 ^s	37.518426 ⁿ	Cleanout	Light	2283 Sheraton Pl	0.25	2	Cap loose	0.2
143	CS-7	-122.342698 ^s	37.518247 ⁿ	Cleanout	Medium	2289 Sheraton Pl	32	1	No cap. Damaged pipe?	19.9
144	CS-7	-122.343167 ^s	37.517955 ⁿ	Cleanout	Heavy	1992 Ticonderoga Dr	0.25	5	No cap	0.2
145	CS-7	-122.343100 ^s	37.518232 ⁿ	Cleanout	Medium	1989 Ticonderoga Dr	0.25	5	No cap	0.2
146	CS-7	-122.343258 ^s	37.518732 ⁿ	Cleanout	Light	20 Amboy Ct	0.25	5	Cap loose	0.2
147	CS-7	-122.343348 ^s	37.518967 ⁿ	Source Unknown	Medium	25 Amboy Ct	96	5	Could not tell source. Under container car	59.8
148	CS-7	-122.342253 ^s	37.517205 ⁿ	Cleanout	Medium	2024 Ticonderoga Dr	1	5	Cannot access	0.6
149	CS-7	-122.342030 ^s	37.517661 ⁿ	Cleanout	Medium	2019 Ticonderoga Dr	4	1	No cap	2.5
150	CS-7	-122.341476 ^s	37.516394 ⁿ	Cleanout	Light	2052 Ticonderoga Dr	0.25	5	Rusty/ deteriorated cap	0.2
151	CS-7	-122.341547 ^s	37.516382 ⁿ	Area Drain	Heavy	2052 Ticonderoga Dr	160	3	Drain lowest point	99.7
152	CS-7	-122.341326 ^s	37.516233 ⁿ	Cleanout	Medium	2056 Ticonderoga Dr	0.25	5	Cannot access	0.2
153	CS-7	-122.341343 ^s	37.516184 ⁿ	Cleanout	Medium	2056 Ticonderoga Dr	0.25	3	Cap loose	0.2
154	CS-7	-122.340717 ^s	37.515595 ⁿ	Cleanout	Heavy	2084 Ticonderoga Dr	12	5	Cap off	7.5
155	CS-7	-122.341757 ^s	37.518554 ⁿ	Cleanout	Heavy	2007 New Brunswick Dr	1	2	No cap	0.6
156	CS-7	-122.341015 ^s	37.518043 ⁿ	Cleanout	Heavy	10 Hoods Point Way	9	1	Low point. No cap	5.6
157	CS-7	-122.341258 ^s	37.517790 ⁿ	Cleanout	Light	2024 New Brunswick Dr	0.25	5	cannot access	0.2
158	CS-7	-122.340910 ^s	37.517731 ⁿ	Cleanout	Medium	2027 New Brunswick Dr	0.25	5	Cannot access	0.2
159	CS-7	-122.340950 ^s	37.517468 ⁿ	Cleanout	Medium	2032 New Brunswick Dr	1	1	Cap off	0.6
160	CS-7	-122.340505 ^s	37.517000 ⁿ	Cleanout	Medium	2052 New Brunswick Dr	0.25	2	No cap	0.2
161	CS-7	-122.340248 ^s	37.516748 ⁿ	Cleanout	Light	2068 New Brunswick Dr	0.25	4	No cap	0.2
162	CS-7	-122.339929 ^s	37.516320 ⁿ	Cleanout	Heavy	2084 New Brunswick Dr	80	2	No cap. Downspout drains here	49.9
163	CS-7	-122.340032 ^s	37.516459 ⁿ	Cleanout	Light	2076 New Brunswick Dr	0.25	1	Rusty/ deteriorated cap	0.2
164	CS-7	-122.339550 ^s	37.516306 ⁿ	Cleanout	Light	2089 New Brunswick Dr	0.25	5	Cap Loose	0.2
165	CS-7	-122.338359 ^s	37.515981 ⁿ	Cleanout	Medium	2227 Cobble Hill Pl	12	4	Cap loose. Water flows over top.	7.5
166	CS-6	-122.334820 ^s	37.527849 ⁿ	Main Sewer	Medium	1744 Parrott Dr	1000	5	Crack in road/ sidewalk. On hill and flow will drain over crack.	623.3
167	CS-6	-122.332880 ^s	37.525768 ⁿ	Cleanout	Light	1585 Randell Rd	1	1	Cannot access	0.6
168	CS-6	-122.332832 ^s	37.525702 ⁿ	Sewer Manhole	Heavy	1585 Randell Rd	25	1	Smoke coming from cracks in dirt around manhole	15.6
169	CS-6	-122.333335 ^s	37.524693 ⁿ	Service Lateral	Light	1867 Randell Rd	8	3	Smoke from small crack in walkway	5.0
170	CS-6	-122.333806 ^s	37.524750 ⁿ	Cleanout	Heavy	1883 Randell Rd	0.25	1	Cap loose	0.2
171	CS-6	-122.336828 ^s	37.523408 ⁿ	Cleanout	Medium	1920 Parrott Dr	0.25	3	Cap loose	0.2
172	CS-6	-122.337143 ^s	37.522176 ⁿ	Cleanout	Medium	2003 Parrott Dr	0.25	3	No cap	0.2

Table 2: Inflow Rates Sorted by Basin and Severity (Inflow Rates Less Than 1.0 gal/in. Hidden)

Defect ID	Longitude	Latitude	Defect Type	Smoke Density	Address	Defect Drainage Area (sq. ft.)	Run Off	Notes	Inflow (gal./in.)
009	-122.347146°	37.525553°	Service Lateral	Heavy	2253 Bunker Hill Dr	96	2	Could be cleanout but could not locate	59.8
014	-122.344722°	37.525247°	Service Lateral	Medium	2213 Bunker Hill Dr	64	3	Cracked lateral near downspout	39.9
010	-122.345837°	37.525685°	Cleanout	Heavy	2240 Bunker Hill Dr	60	5	No Cap	37.4
015	-122.344714°	37.525272°	Service Lateral	Medium	2213 Bunker Hill Dr	21	5	Smoke coming from edge of concrete	13.1
001	-122.348539°	37.524490°	Unable to Determine Source	Light	2285 Bunker Hill Dr	16	1	May be lateral or Cleanout	10.0
004	-122.346553°	37.526420°	Service Lateral	Light	30 Lundys Ln	9	3		5.6
Basin CS-10 Total									169.2
099	-122.350276°	37.529840°	Sewer Manhole	Heavy	57 Roxbury Ln	1000	1	Sewer manhole lid low point on hill; infiltration disk recommended	623.3
083	-122.349726°	37.521796°	Area Drain	Medium	1723 Lexington Ave	600	3	Main area drain of entire driveway and gutters also drain here	374.0
081	-122.350349°	37.524949°	Area Drain	Light	2332 Bunker Hill Dr	192	4	area drain low point of driveway	119.7
082	-122.350306°	37.524959°	Area Drain	Light	2332 Bunker Hill Dr	192	3	Gutters feed to these drains.	119.7
043	-122.353003°	37.525194°	Downspout	Medium	1585 Lexington Ave	144	3	Downspout draining into cleanout.	89.8
059	-122.350901°	37.529581°	Service Lateral	Heavy	45 Roxbury Ln	144	5	Smoke coming from concrete joints in driveway. Water should drain into crack	89.8
084	-122.349908°	37.522030°	Area Drain	Light	1715 Lexington Ave	80	5	Not lowest point but does funnel here through pavement groove	49.9
080	-122.351077°	37.526188°	Area Drain	Light	15 Trenton Pl	72	5	Not lowest point but does funnel here.	44.9
078	-122.350648°	37.526887°	Cleanout	Light	50 Trenton Pl	60	5	Water flows over and will drain into cleanout	37.4
036	-122.354802°	37.527182°	Cleanout	Heavy	1415 Laurel Hill Dr	40	1	Missing cap, low spot; Backside of property	24.9
062	-122.351224°	37.528517°	Area Drain	Light	1501 Brandywine Rd	40	4	Area drain	24.9
060	-122.350874°	37.529595°	Service Lateral	Light	45 Roxbury Ln	36	3	Smoke coming from concrete and dirt edge. Water should drain into this edge	22.4
088	-122.351846°	37.524054°	Cleanout	Light	1635 Lexington Ave	24	4	low spot; cap loose	15.0
091	-122.352436°	37.524212°	Unable to Determine Source	Light	1620 Lexington Ave	24	3	Area drain or lateral	15.0
098	-122.349282°	37.522272°	Service Lateral	Light	1724 Monticello Rd	18	3	low point near walkway	11.2
079	-122.350987°	37.526519°	Cleanout	Light	35 Trenton Pl	16	2	Cap off. Low point could drain into cleanout	10.0
034	-122.356146°	37.528756°	Main Sewer	Light	1287 Laurel Hill Dr	15	1	Smoke coming from next to manhole lid	9.4
045	-122.353135°	37.525860°	Service Lateral	Medium	1588 Tarrytown St	15	2	May have cracked lateral or the cleanout is just off the joint and the smoke is spreading into the area.	9.4
027	-122.355357°	37.525932°	Area Drain	Medium	1236 Laurel Hill Dr	12	5	Area drain not lowest point	7.5
033	-122.356134°	37.525620°	Cleanout	Light	1245 Laurel Hill Dr	12	5	Rusty/Deteriorated Cap	7.5
037	-122.354271°	37.527297°	Cleanout	Heavy	1416 Laurel Hill Dr	9	5	No cap	5.6
096	-122.349632°	37.522814°	Cleanout	Heavy	1712 Monticello Rd	9	1	Rusty/Deteriorated Cap. Low point	5.6
063	-122.351579°	37.527257°	Cleanout	Light	1523 Forge Rd	4	2	Could not access. A low area.	2.5
069	-122.349487°	37.527365°	Cleanout	Light	10 Fairfield Ct	4	2	Rusty/Deteriorated Cap	2.5
Basin CS-2 Total									1730.7
105	-122.348461°	37.521039°	Service Lateral	Light	1751 Monticello Rd	450	4	Smoke coming from cracks in driveway and cleanout. Included part of the roof since downspout drains here.	280.5
109	-122.348816°	37.519968°	Area Drain	Light	1763 Lexington Ave	200	4	Downspouts drain to here. Low point	124.7
151	-122.341547°	37.516382°	Area Drain	Heavy	2052 Ticonderoga Dr	160	3	Drain lowest point	99.7
112	-122.347585°	37.519180°	Service Lateral	Heavy	1823 Lexington Ave	112	1	Most likely a lateral	69.8
147	-122.343348°	37.518967°	Unable to Determine Source	Medium	25 Amboy Ct	96	5	Could not tell source. Under container car	59.8
103	-122.348020°	37.520813°	Sewer Manhole	Heavy	1759 Monticello Rd	90	1	Sewer manhole lid low point on hill; infiltration disk recommended	56.1
122	-122.344672°	37.517515°	Service Lateral	Heavy	1956 Lexington Ave	80	1	Work being done to lateral line	49.9
162	-122.339929°	37.516320°	Cleanout	Heavy	2084 New Brunswick Dr	80	2	No cap. Downspout drains here	49.9
101	-122.347582°	37.521306°	Area Drain	Heavy	1715 Yorktown Rd	50	2	should be drain maybe cleanout	31.2
121	-122.344295°	37.518676°	Service Lateral	Light	1951 Ticonderoga Dr	48	3	No cleanout present. Probably lateral	29.9
143	-122.342698°	37.518247°	Cleanout	Medium	2289 Sheraton Pl	32	1	No cap. Damaged pipe?	19.9
127	-122.343441°	37.516636°	Cleanout	Light	5 Powhatan Pl	16	2	Cap off. Low point could drain into cleanout	10.0
132	-122.340946°	37.514450°	Unable to Determine Source	Light	15 Stoney Point Pl	16	3	Cannot access due to debris. most likely cleanout.	10.0
100	-122.347565°	37.521307°	Service Lateral	Medium	1715 Yorktown Rd	14	3	Smoke coming from edge of pavement	8.7
139	-122.341349°	37.518861°	Service Lateral	Medium	2251 Sheraton Pl	12	1	Cannot see cleanout. Most likely lateral	7.5
154	-122.340717°	37.515955°	Cleanout	Heavy	2084 Ticonderoga Dr	12	5	Cap off	7.5
165	-122.338359°	37.515981°	Cleanout	Medium	2227 Cobble Hill Pl	12	4	Cap loose. Water flows over top.	7.5
156	-122.341015°	37.518043°	Cleanout	Heavy	10 Hoods Point Way	9	1	Low point. No cap	5.6
149	-122.342030°	37.517661°	Cleanout	Medium	2019 Ticonderoga Dr	4	1	No cap	2.5
Basin CS-7 Total									940.3
166	-122.334820°	37.527849°	Main Sewer	Medium	1744 Parrott Dr	1000	5	Crack in road/ sidewalk. Could be lateral or main sewer line. On hill and flow will drain over crack. Might be re	623.3
168	-122.332832°	37.525702°	Sewer Manhole	Heavy	1585 Randell Rd	25	1	Smoke coming from cracks in dirt around manhole	15.6
169	-122.333335°	37.524693°	Service Lateral	Light	1867 Randell Rd	8	3	Smoke from small crack in walkway	5.0
Basin CS-6 Total									645.0
Grand Total Inflow Rate									3485.2

CONCLUSIONS AND RECOMMENDATIONS

The defects identified through smoke testing typically represent some of the most significant inflow sources to the sewer collection system and are often easily remediated. ADS recommends the District conduct the following actions:

- 1) Address all of the direct-connect type (such as cleanouts, laterals, drainage areas) defects such as those identified herein by permanently sealing these sources after first providing the associated residences with appropriate notices and reasonable time to correct these defects.
- 2) Evaluate street flooding records, if available, to determine potential manholes that could be inundated during such events and consider sealing any such manholes from water intrusion.

The smoke testing conducted for this project attempted to locate sewer line direct connection defects that can cause inflow (and sometimes odor problems) within the study area. It should be noted that this study can only be used as a guide to rank the defects that should provide the largest amount of inflow reduction per rehabilitation dollar spent. It is difficult to give precise estimates of the effects of rehabilitating a particular defect because of the complex and dynamic nature of the defect's response to rainfall. In some cases, addressing a defect in one area can transfer the problem to another area (e.g. disallowing street or other area drainage in one defect location may cause flooding to worsen and enter a new defect location).

APPENDIX A

DEFECT MAP
SMOKE TEST FORMS, DIGITAL PHOTOGRAPHS



Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 001

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
001	2285 Bunker Hill Dr	1	1	1/16	1	4'	4'	1	

GPS Coordinates

Lat: 37.524490° Long: -122.348539°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

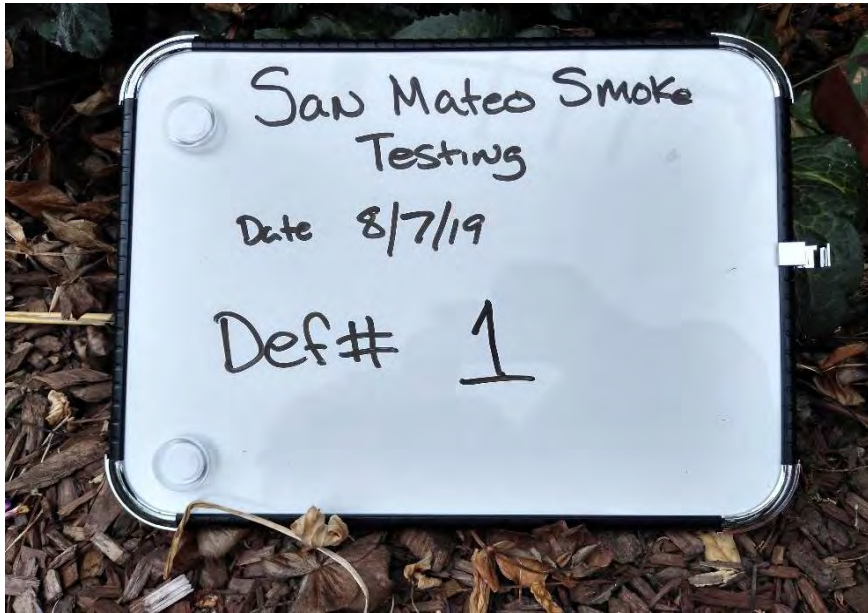
- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: May be lateral or burried cleanout



ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 001





Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 002

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
002	2280 Bunker Hill Dr	1	1	16	3	4"	4"	1	

GPS Coordinates

Lat: 37.524907°

Long: -122.348436°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

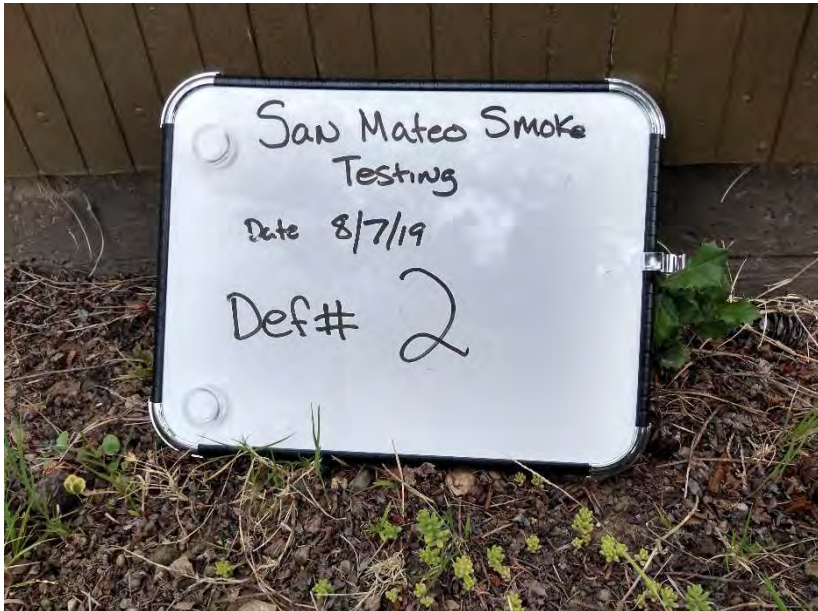
- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Surcharge evidence. Cap removed



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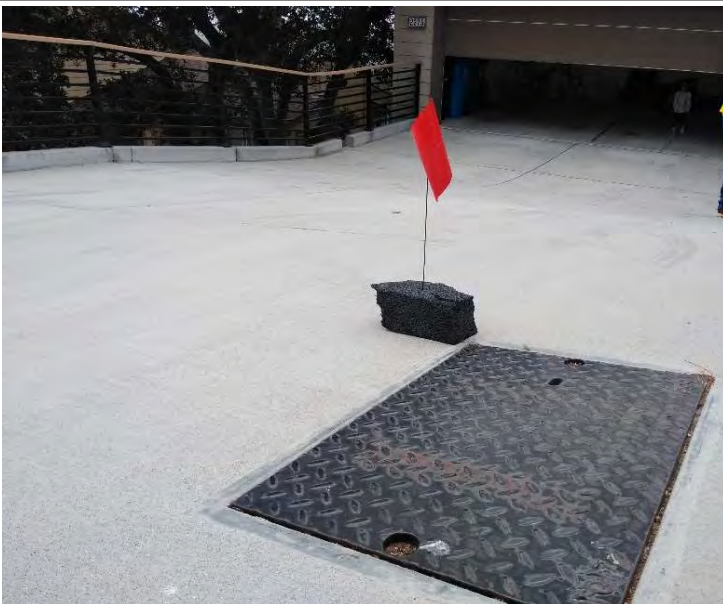
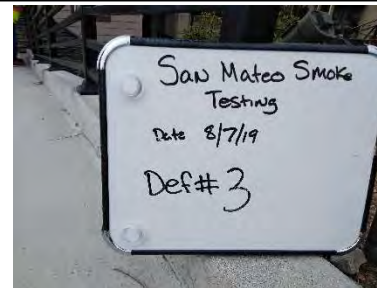
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 002





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Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 003
Address: 2275 Bunker Hill Dr
Lat: 37.524775° Long: -122.348220°





Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 004

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
004	30 Lundys Ln	1	1	1	1	3'	3'	3	

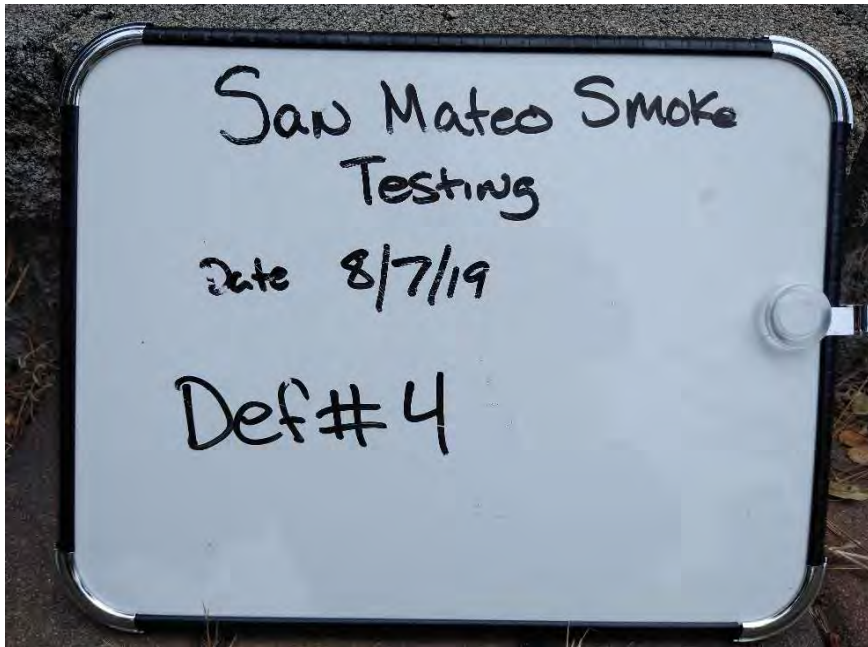
GPS Coordinates

Lat: 37.526420° Long: -122.346553°

- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments:



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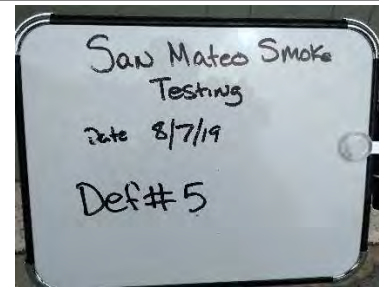
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 004





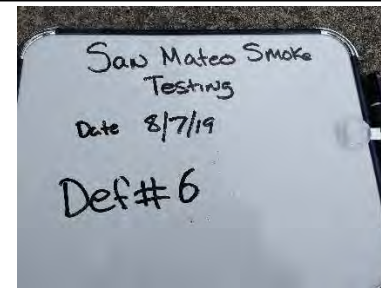
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 005
Address: 35 Lundys Ln
Lat: 37.526211° Long: -122.346953°



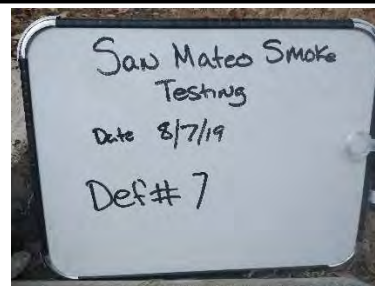


Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 006
Address: 35 Lundys Ln
Lat: 37.526197° Long: -122.346893°





Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 007
Address: 15 Lundys Ln
Lat: 37.525961° Long: -122.346961°





Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 008

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
008	2256 Bunker Hill Dr	1	1	16	2	4"	4"	5	

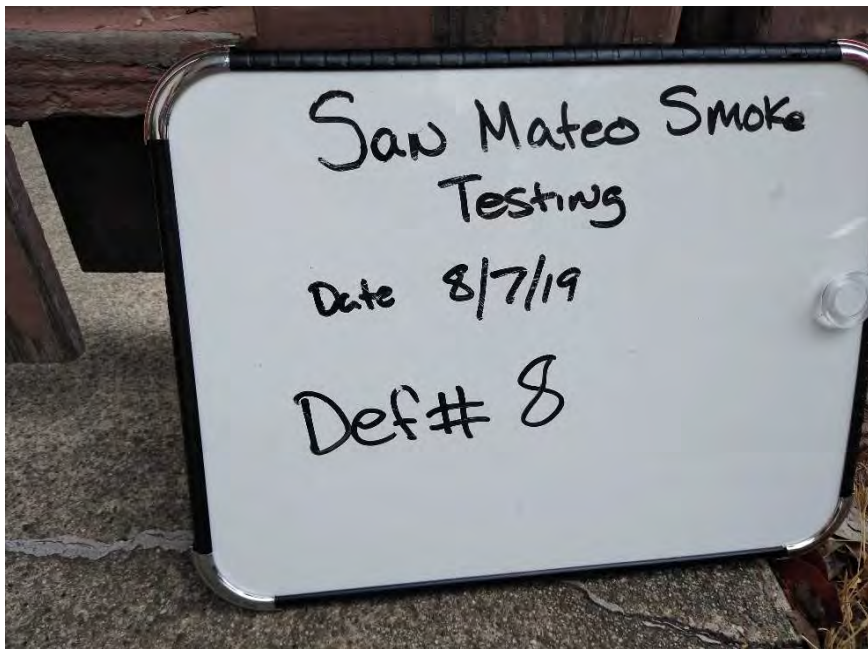
GPS Coordinates

Lat: 37.525820° Long: -122.347148°

- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: No Cap



ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 008





Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 009

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
009	2253 Bunker Hill Dr	1	1	1	3	12'	8'	2	

GPS Coordinates

Lat: 37.525553° Long: -122.347146°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

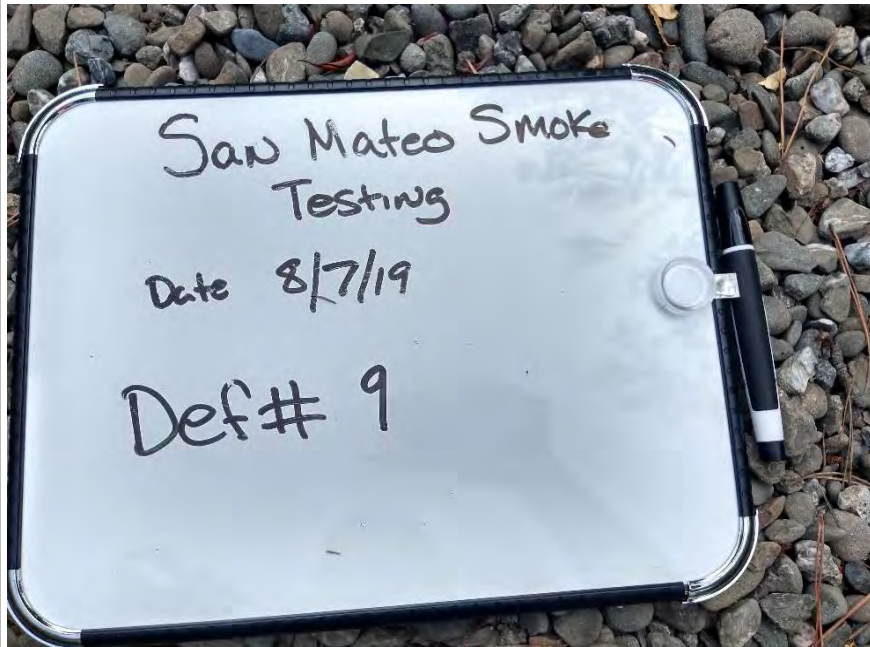
- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Could be burried cleanout but could not locate



ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 009





Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 010

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
010	2240 Bunker Hill Dr	1	1	16	3	10'	6'	5	

GPS Coordinates

Lat: 37.525685° Long: -122.345837°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

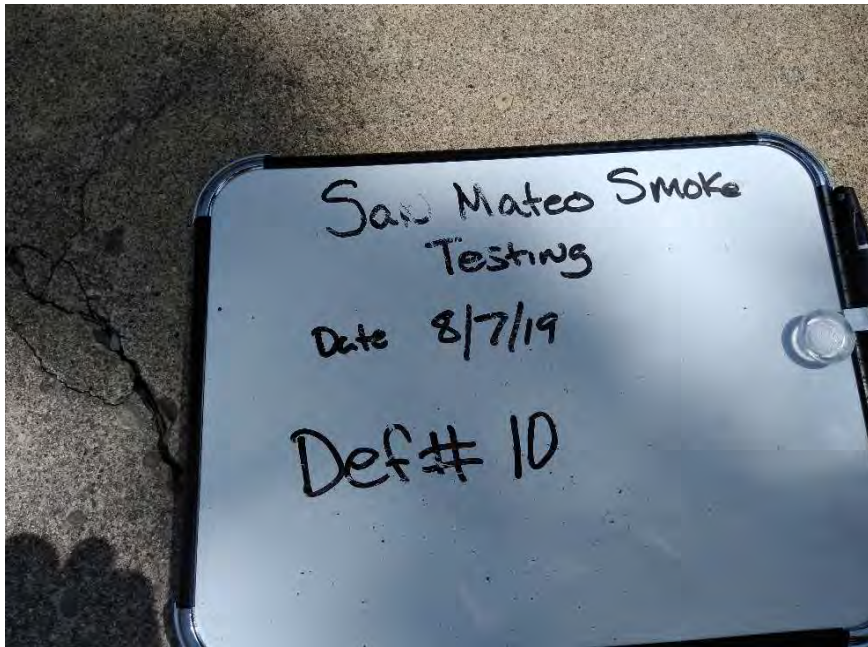
- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



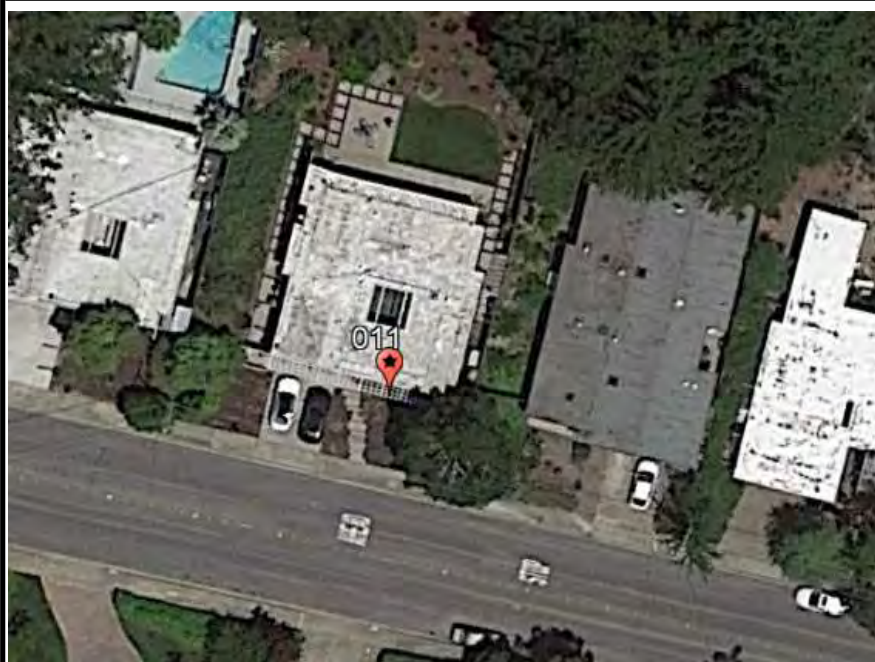
Comments: No cap



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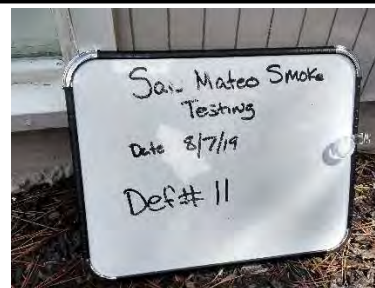
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 010





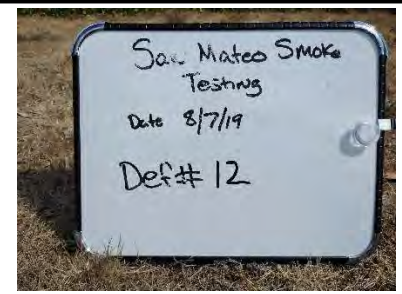
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 011
Address: 2244 Bunker Hill Dr
Lat: 37.525789° Long:-122.346078°



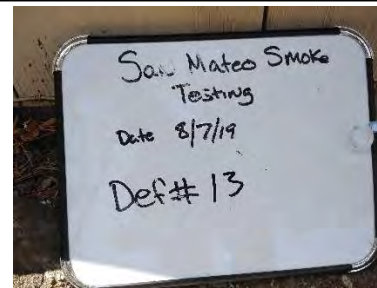
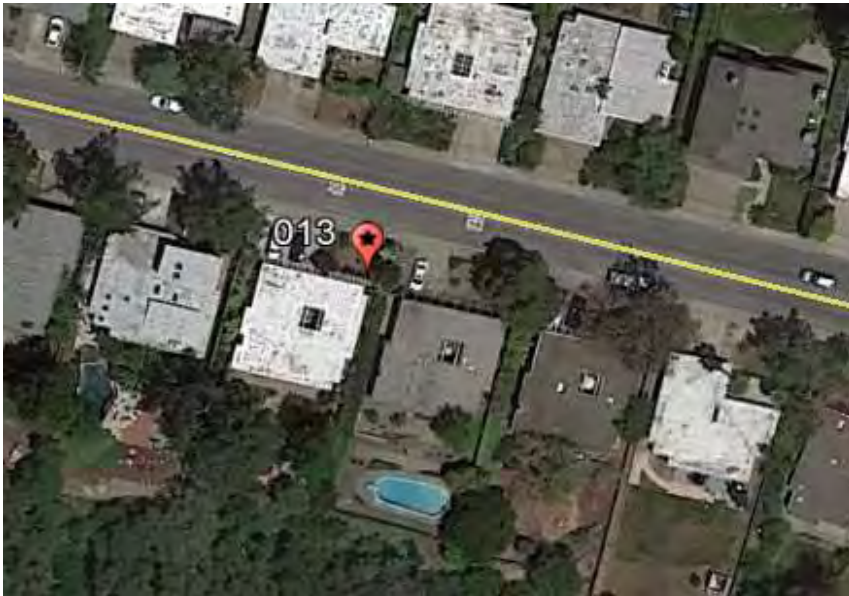


Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 012
Address: 2232 Bunker Hill Dr
Lat: 37.525611° Long:-122.345372°





Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 013
Address: 2225 Bunker Hill Dr
Lat: 37.525383° Long:-122.345324°





Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 014-015

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
014	2213 Bunker Hill Dr	1	1	1	2	8'	8'	3	
	Lat: 37.525247°								
	Long: -122.344722°								
015	2213 Bunker Hill Dr	1	1	1	2	7'	3'	5	
	Lat: 37.525272°								
	Long: -122.344714°								

GPS Coordinates

Lat: 37.525247° Long: -122.344722°

Results Code

1. Positive
2. Suspect
3. Negative
4. Cannot Test

Status Code

1. Private
2. Public

Source Type Code

1. Service Laterals
2. Transition Joint
3. Driveway Drain
4. Window Well Drain
5. Stairwell Drain
6. Area Drain
7. Downspout
8. Downspout Connection
9. Foundation Drain
10. Building Inside
11. Catch Basin
12. Storm Drain
13. Storm Manhole
14. Main Sewer
15. Upstream Manhole
16. Cleanout
17. Other (Need to Investigate)

Smoke Code

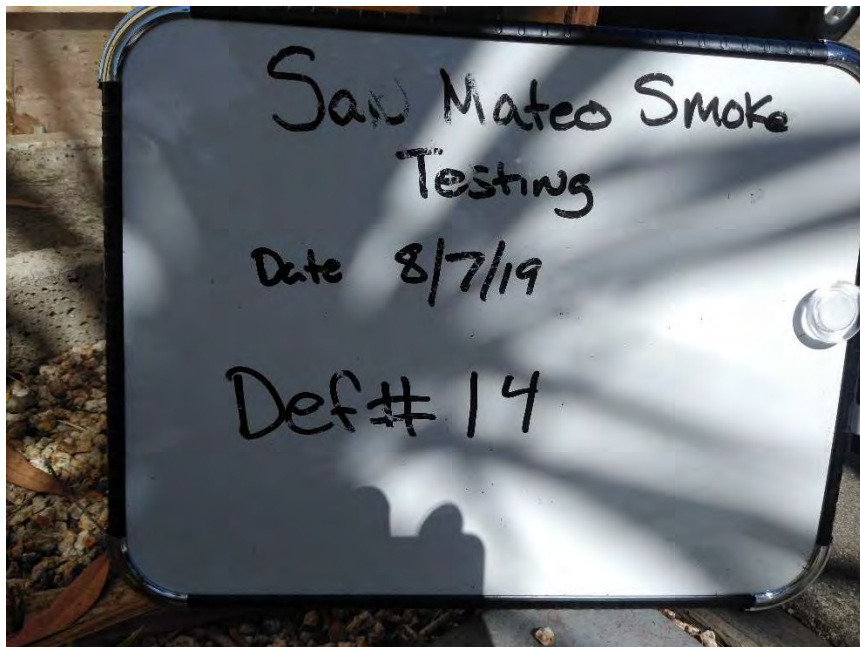
1. Light
2. Medium
3. Heavy

Runoff Code

1. 0% Paved
2. 25% Paved
3. 50% Paved
4. 75% Paved
5. 100% Paved



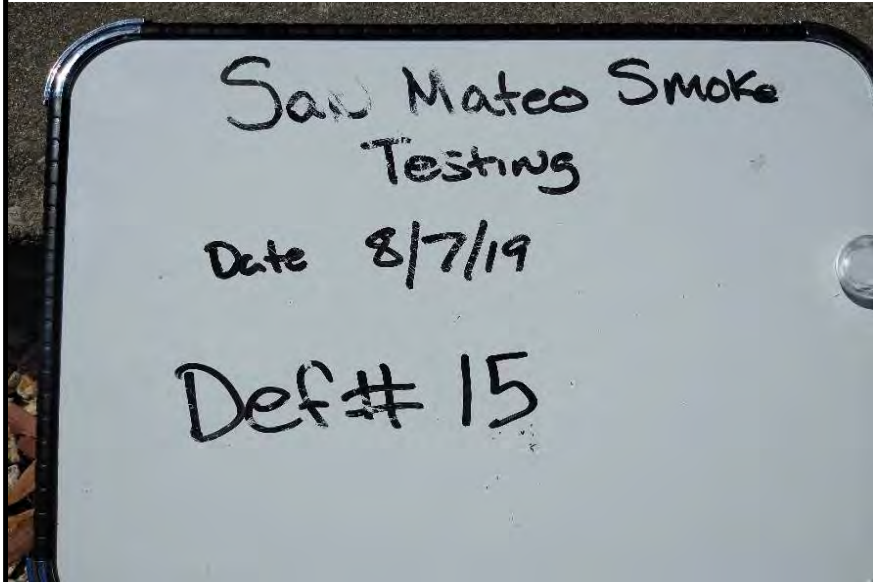
Comments: 014: Cracked lateral near downspout 015: Smoke coming from edge of concrete



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Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 014

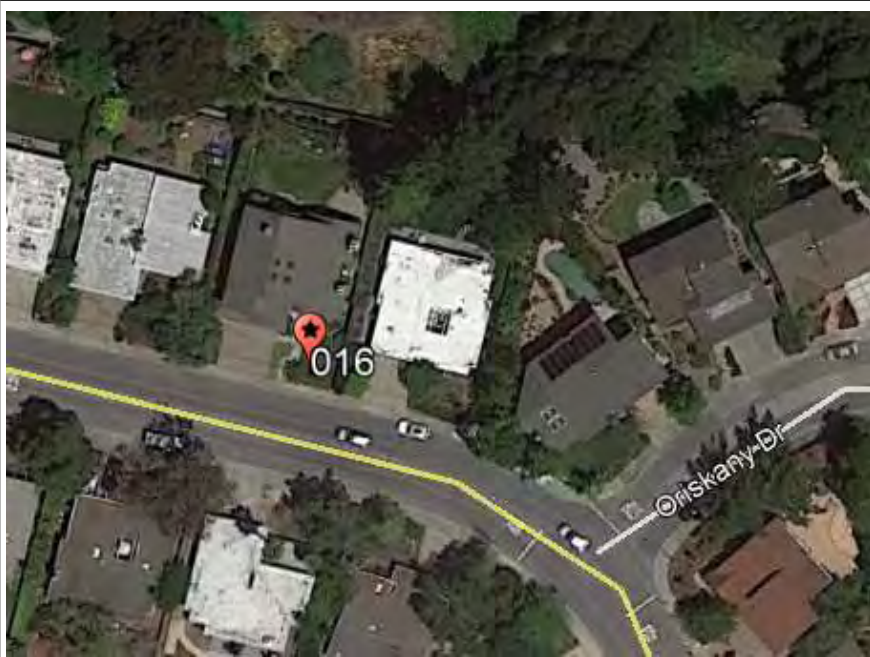




ADS ENVIRONMENTAL SERVICES®

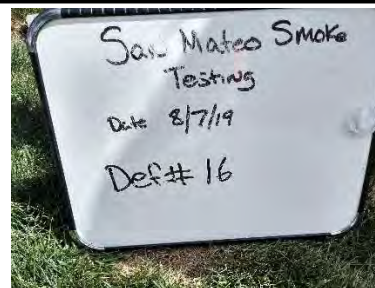
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 015

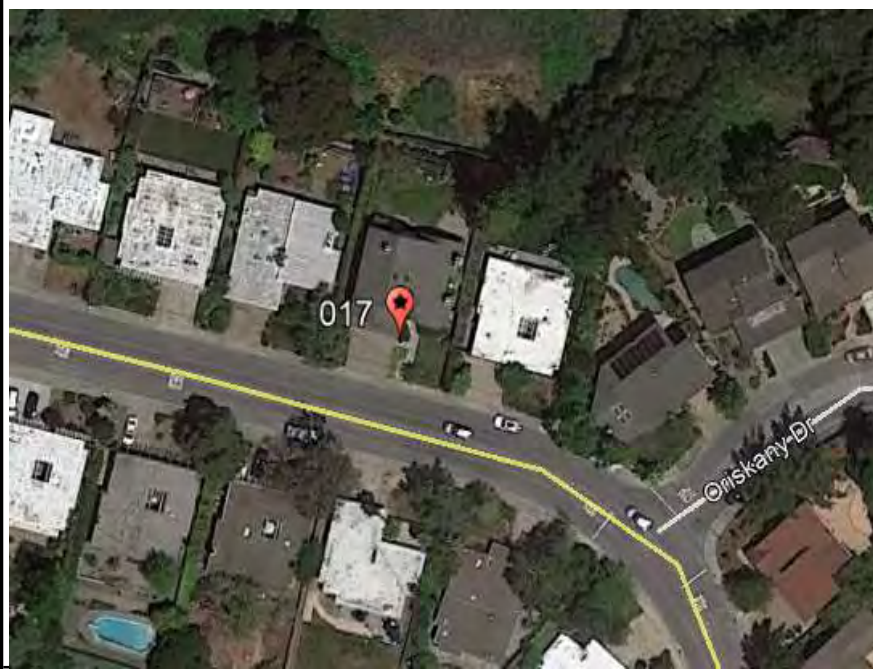




ADS ENVIRONMENTAL SERVICES®

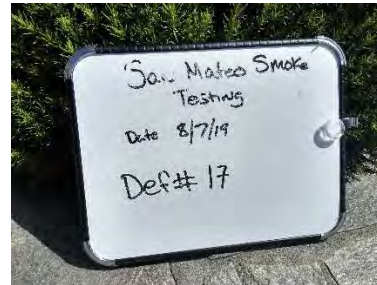
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 016
Address: 2220 Bunker Hill Dr
Lat: 37.525272° Long:-122.344714°





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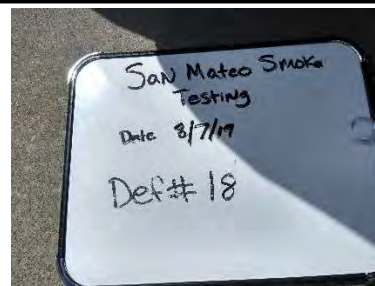
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 017
Address: 2220 Bunker Hill Dr
Lat: 37.525522° Long:-122.344697°





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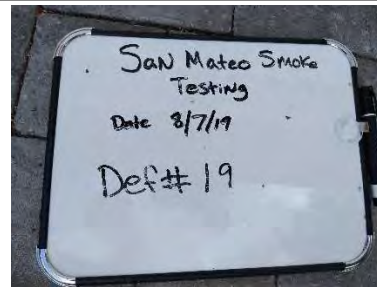
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 018
Address: 95 Oriskany Dr
Lat: 37.525436° Long:-122.342693°





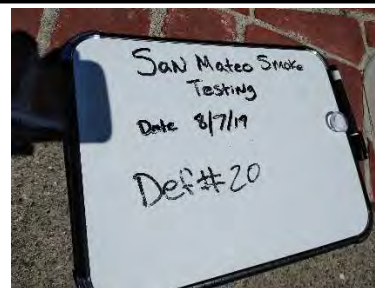
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 019
Address: 75 Oriskany Dr
Lat: 37.525656° Long:-122.342603°



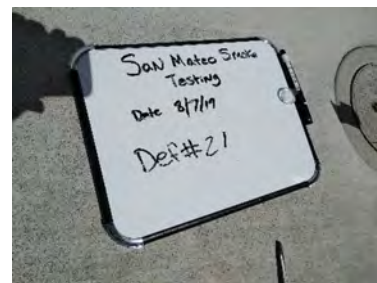


Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 020
Address: 25 Oriskany Dr
Lat: 37.525546° Long:-122.343665°





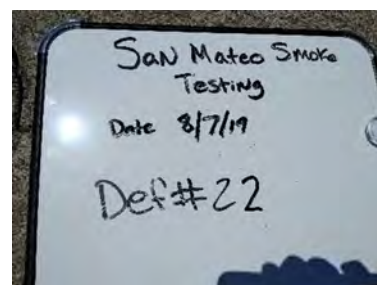
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 021
Address: 25 Oriskany Dr
Lat: 37.525604° Long:-122.343713°





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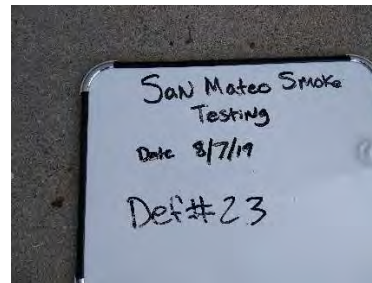
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 022
Address: 85 Bennington Dr
Lat: 37.524983° Long:-122.343169°





ADS ENVIRONMENTAL SERVICES®

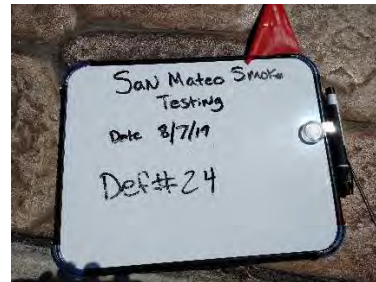
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 023
Address: 70 Bennington Dr
Lat: 37.524886° Long:-122.342760°





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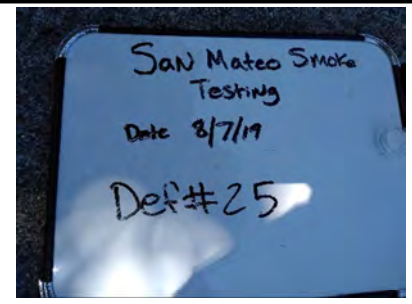
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 024
Address: 50 Bennington Dr
Lat: 37.524449° Long:-122.342410°





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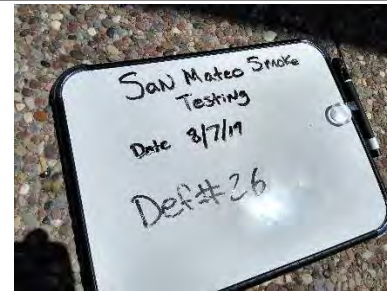
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 025
Address: 2193 Bunker Hill Dr
Lat: 37.524509° Long:-122.343833°





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Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 026
Address: 2172 Bunker Hill Dr
Lat: 37.524076° Long:-122.343019°





Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 027

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
027	1236 Laurel Hill Dr	1	1	6	1	3'	4'	5	

GPS Coordinates

Lat: 37.525932° Long: -122.355357°

- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved

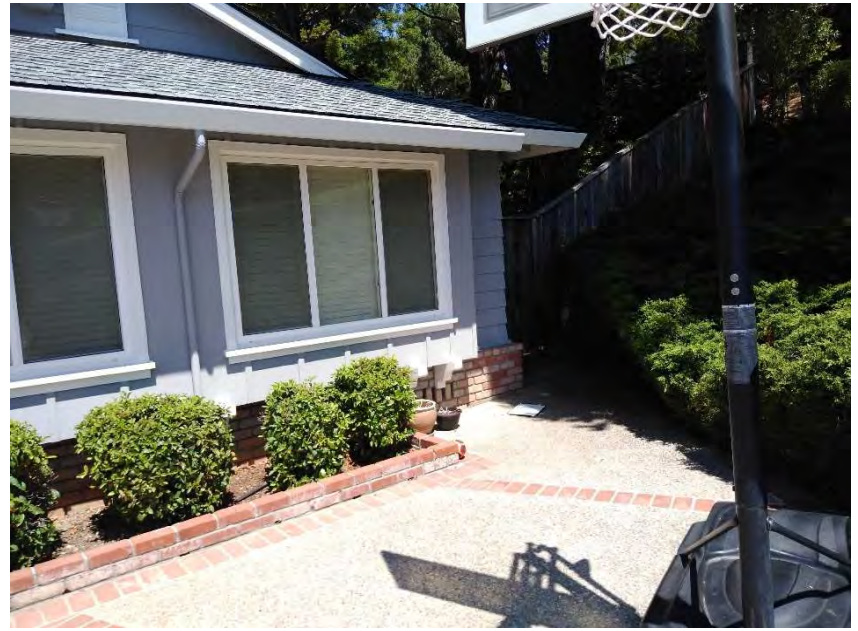


Comments: Area drain not lowest point



ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 027





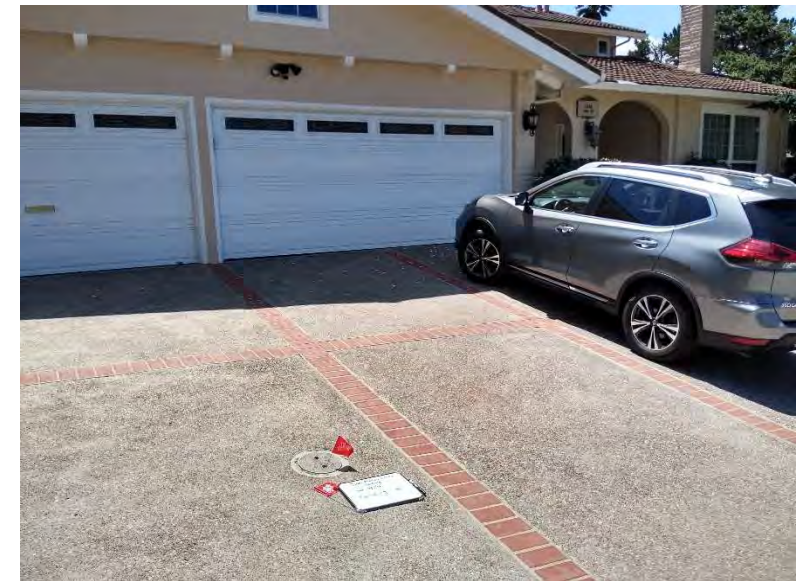
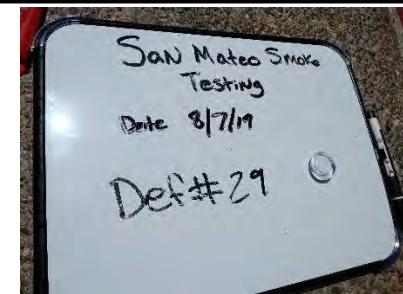
ADS ENVIRONMENTAL SERVICES®

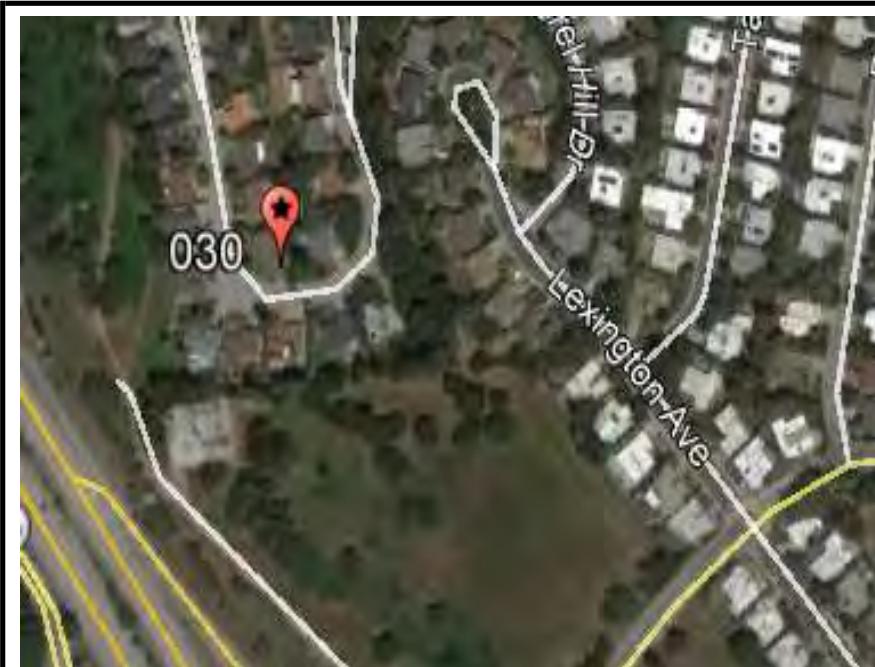
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 028
Address: 1239 Laurel Hill Dr
Lat: 37.525668° Long:-122.355375°





Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 029
Address: 1241 Laurel Hill Dr
Lat: 37.525616° Long:-122.355650°





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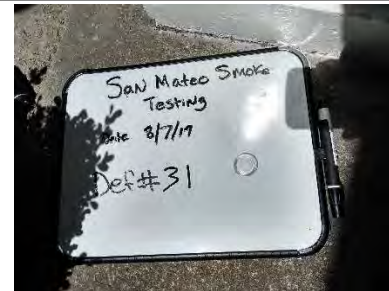
Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 030
Address: 1244 Laurel Hill Dr
Lat: 37.525829° Long:-122.355766°





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Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 031
Address: 1260 Laurel Hill Dr
Lat: 37.526711° Long-122.356138°





ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 032
Address: 1272 Laurel Hill Dr
Lat: 37.527393° Long-122.356248°





Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 033

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
033	1245 Laurel Hill Dr	1	1	16	1	3'	4'	5	

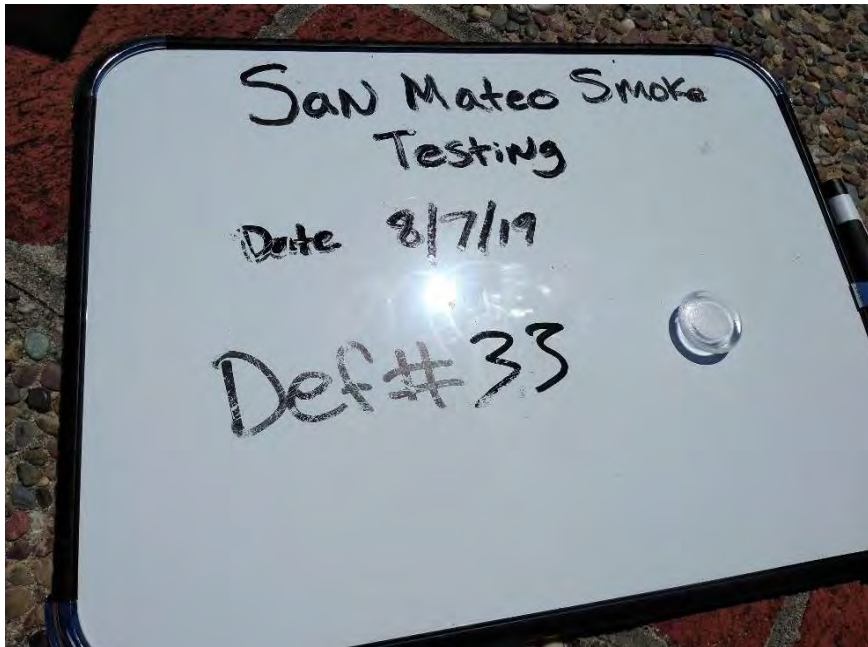
GPS Coordinates

Lat: 37.525620° Long: -122.356134°

- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Rusty/Deteriorated Cap



ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 033





Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019

Results Positive

Inspection Crew Aby Takanohara/ Rickey Bradley

Defect# 034

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
034	1287 Laurel Hill Dr	1	1	14	1	3'	5'	1	

GPS Coordinates

Lat: 37.528756° Long: -122.356146°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Smoke coming from next to manhole lid



ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 034





Smoke Testing Form

Date 08/07/2019

Project San Mateo Smoke Testing 2019 **Results** Suspect

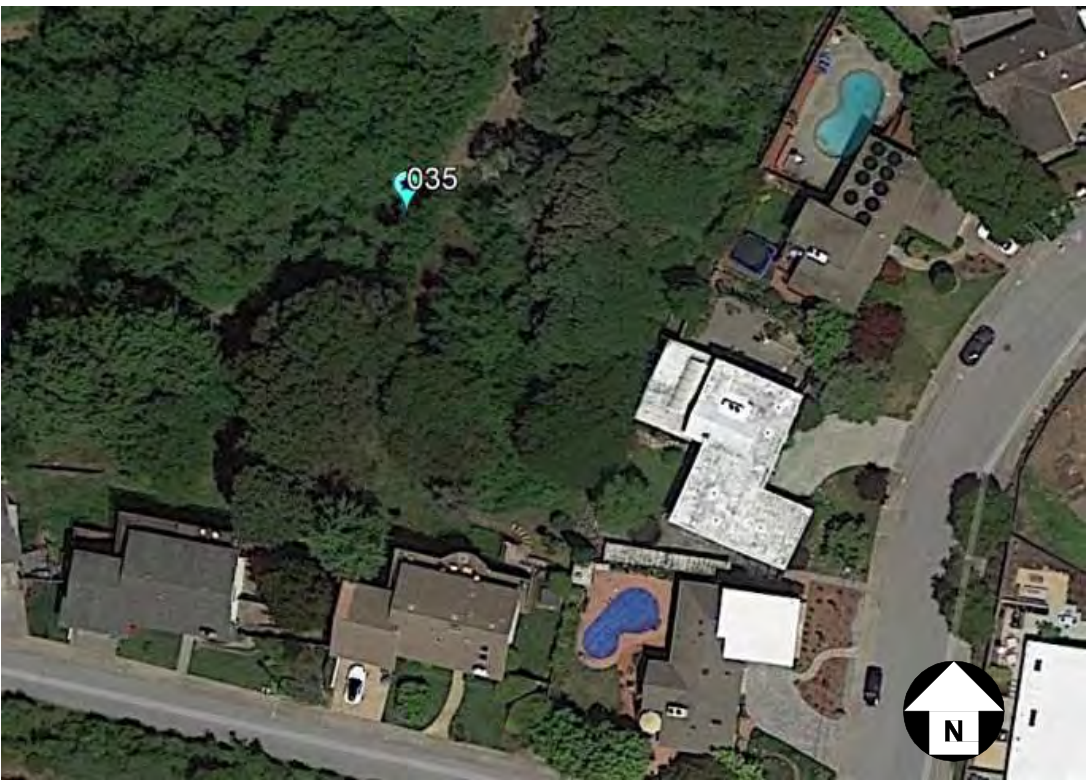
Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 035

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
035	1295 Laurel Hill Dr	2	2	14				1	

GPS Coordinates

Lat: 37.528689° Long: -122.355106°

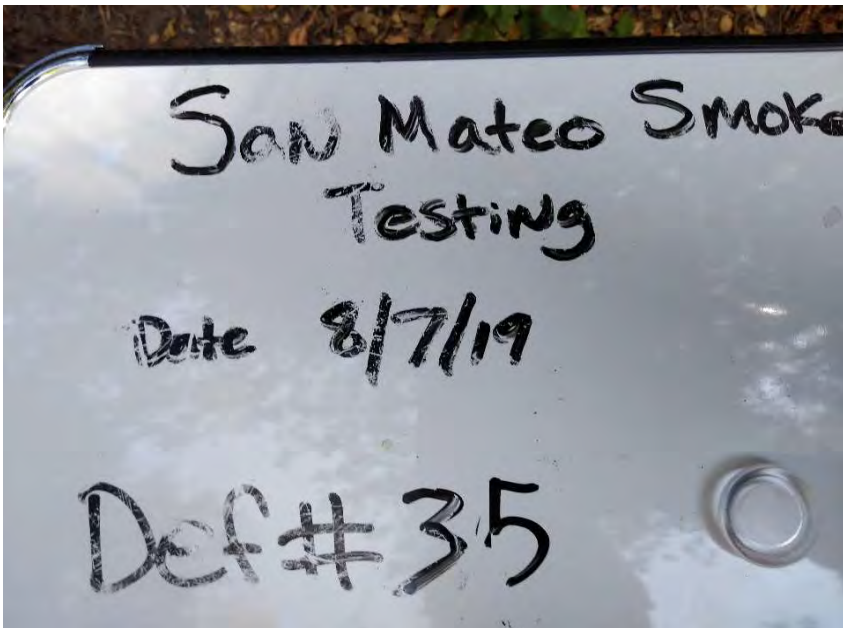
- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Pipe surcharged. Smoke cannot enter this area.



Project: San Mateo Smoke Testing 2019
Date: 8/7/2019
Defect: 035



Smoke Testing Form

Date 08/08/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 036

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
036	1415 Laurel Hill Dr	1	2	16	3	4'	10'	1	

GPS Coordinates

Lat: 37.527182° Long: -122.354802°

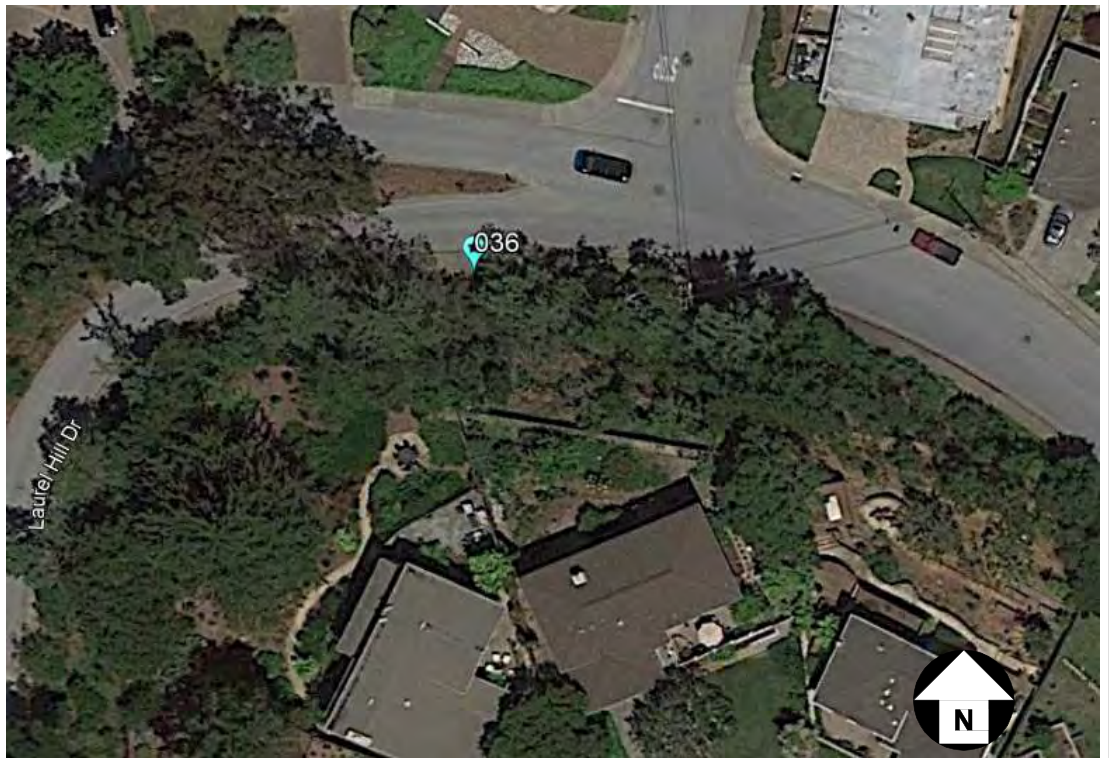
- Results Code**
- 1. Positive
 - 2. Suspect
 - 3. Negative
 - 4. Cannot Test

- Status Code**
- 1. Private
 - 2. Public

- Source Type Code**
- 1. Service Laterals
 - 2. Transition Joint
 - 3. Driveway Drain
 - 4. Window Well Drain
 - 5. Stairwell Drain
 - 6. Area Drain
 - 7. Downspout
 - 8. Downspout Connection
 - 9. Foundation Drain
 - 10. Building Inside
 - 11. Catch Basin
 - 12. Storm Drain
 - 13. Storm Manhole
 - 14. Main Sewer
 - 15. Upstream Manhole
 - 16. Cleanout
 - 17. Other (Need to Investigate)

- Smoke Code**
- 1. Light
 - 2. Medium
 - 3. Heavy

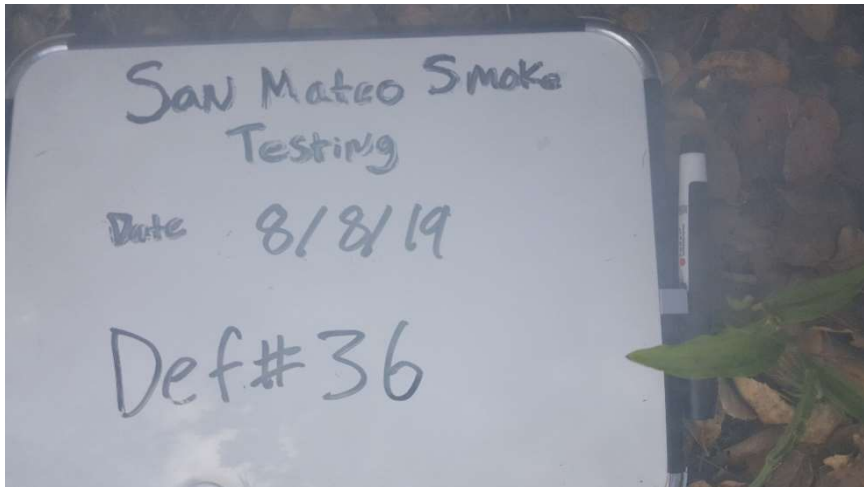
- Runoff Code**
- 1. 0% Paved
 - 2. 25% Paved
 - 3. 50% Paved
 - 4. 75% Paved
 - 5. 100% Paved



Comments: Missing cap; low spot; Backside of property



Project: San Mateo Smoke Testi
Date: 8/8/2019
Defect: 036





Smoke Testing Form

Date 08/08/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

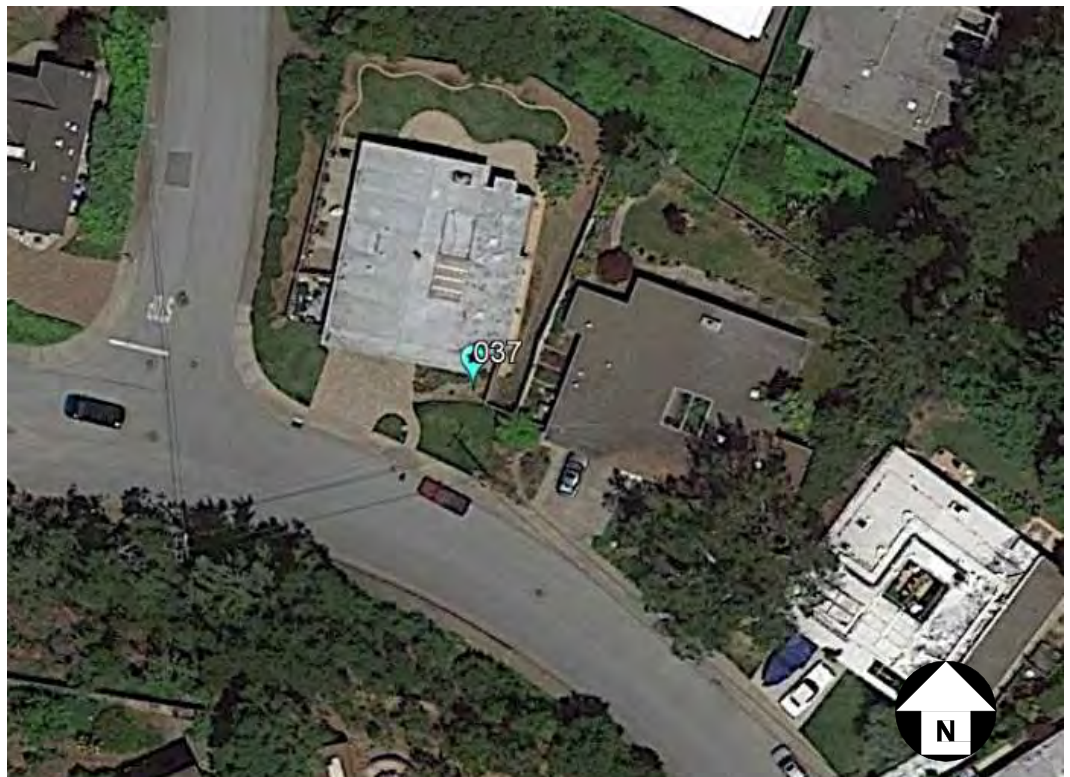
Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 037

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
037	1471 Laurel Hill Dr	1	1	16	3	3'	3'	5	

GPS Coordinates

Lat: 37.527297° Long: -122.354271°

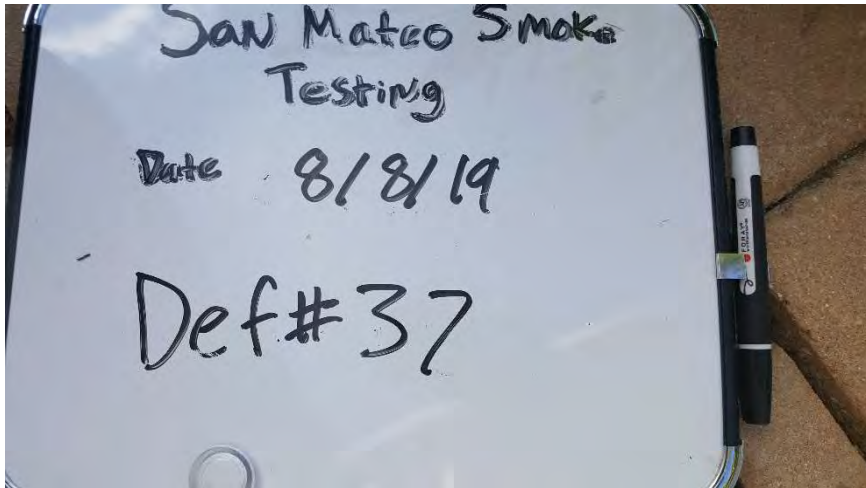
- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Missing cap; low spot;



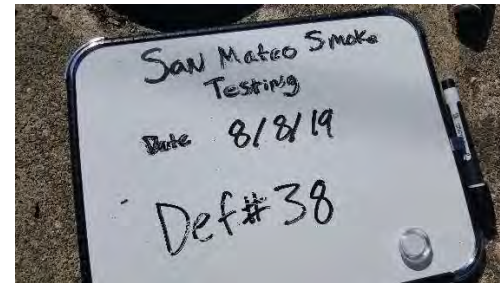
Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 037





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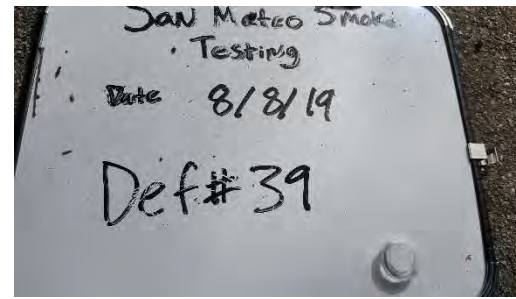
Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 038
Address: 1495 Laurel Hill Dr
Lat: 37.526266° Long-122.353778°





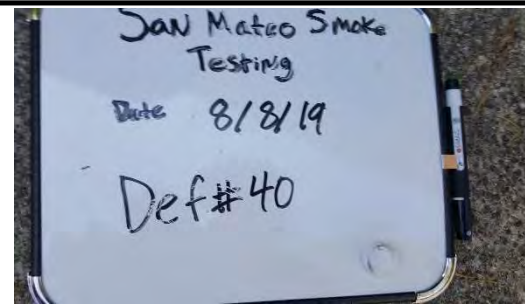
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 039
Address: 45 Laurel Hill Ct
Lat: 37.527738° Long: -122.353430°





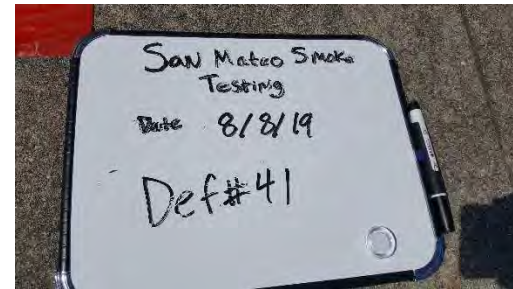
Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 040
Address: 40 Laurel Hill Ct
Lat: 37.527575° Long: -122.353490°





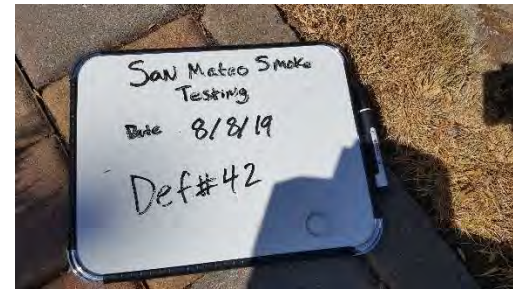
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 041
Address: 20 Laurel Hill Ct
Lat: 37.527803° Long: -122.353978°





Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 042
Address: 1535 Seneca Ln
Lat: 37.528450° Long: -122.353216°





Smoke Testing Form

Date 08/08/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 043

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
043	1585 Lexington Ave	1	1	16/7	2	12'	12'	3	

GPS Coordinates

Lat: 37.525194° Long: -122.353003°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

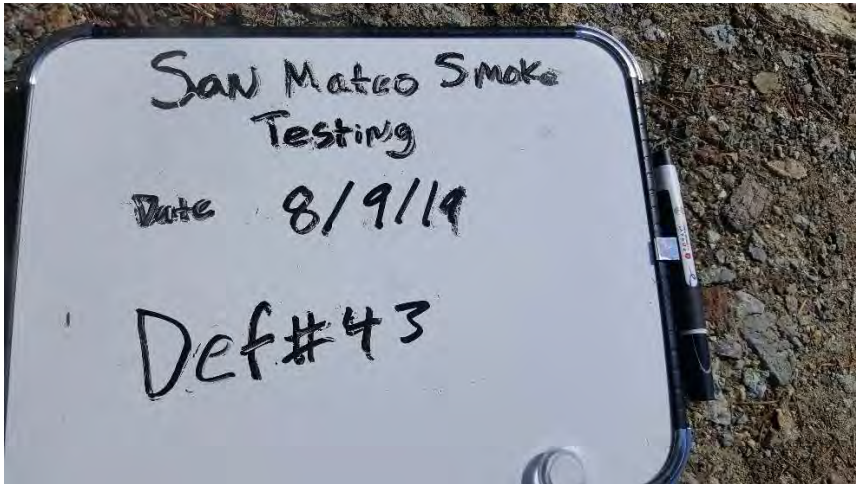
Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Downspout draining into cleanout.

Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 043



Smoke Testing Form

Date 08/08/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 044-045

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
044	1588 Tarrytown St	1	1	16	3	4"	4"	2	
	Lat: 37.525870°								
	Long: -122.353137°								
045	1588 Tarrytown St	1	2	1	2	5'	3'	2	
	Lat: 37.525860°								
	Long: -122.353135°								

GPS Coordinates

Lat: 37.525870° Long: -122.353137°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

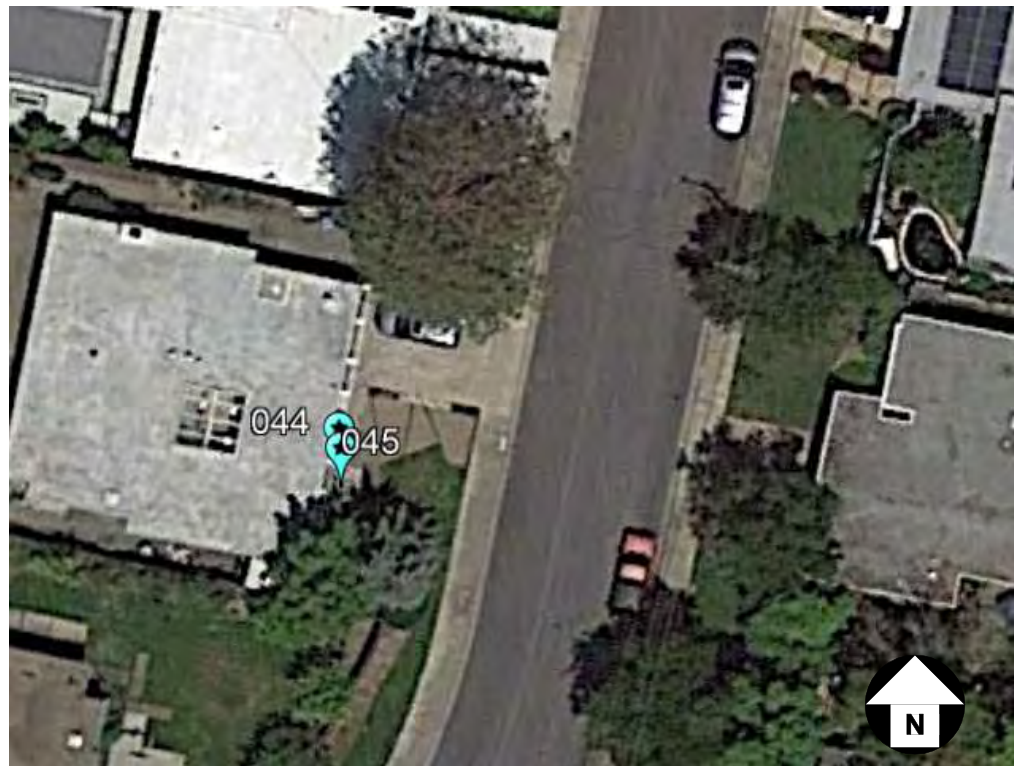
- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved

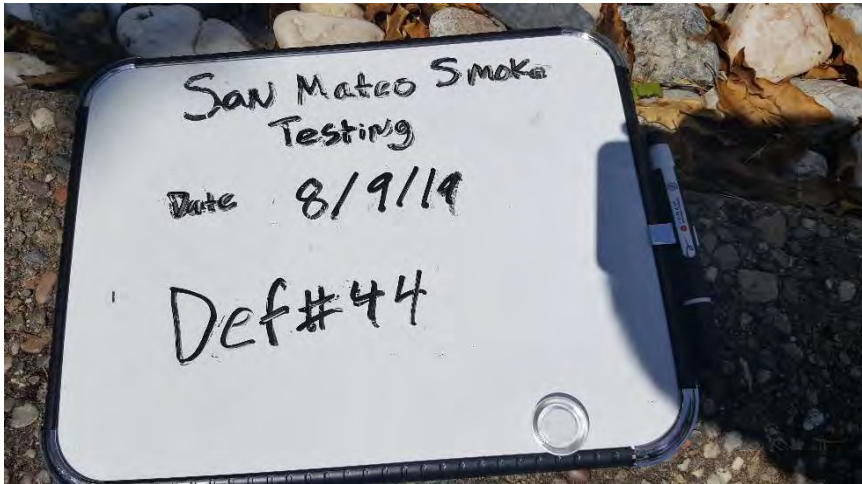


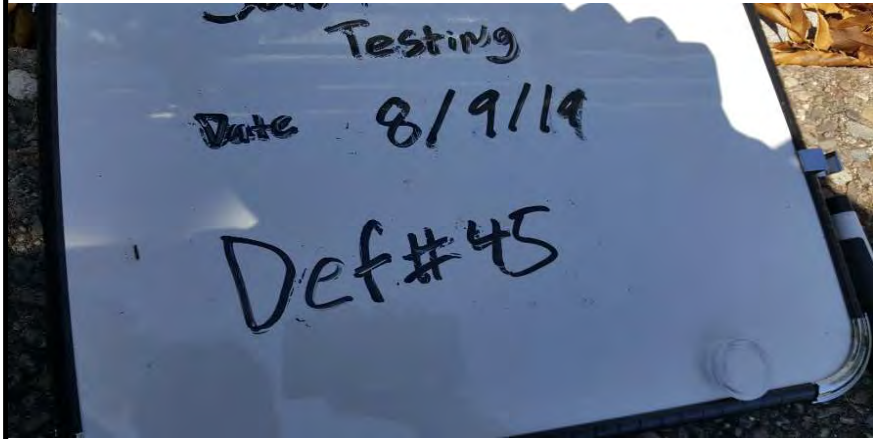
Comments: 044: Cap off/ cleanout box shifted joint and the smoke is spreading into the area.

045: May have cracked lateral or the cleanout is just off the



Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 044





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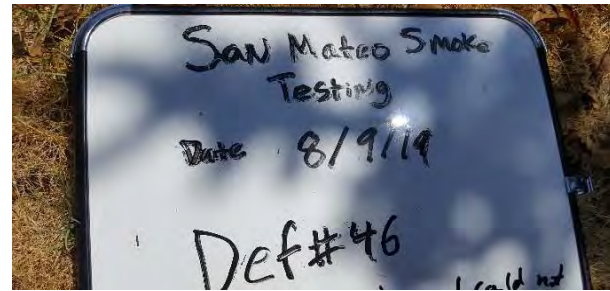
Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 045





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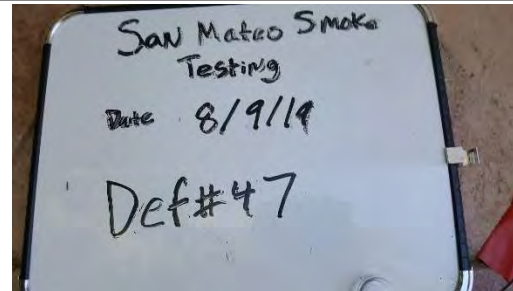
Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 046
Address: 1569 Tarrytown St
Lat: 37.525761° Long: -122.353278°





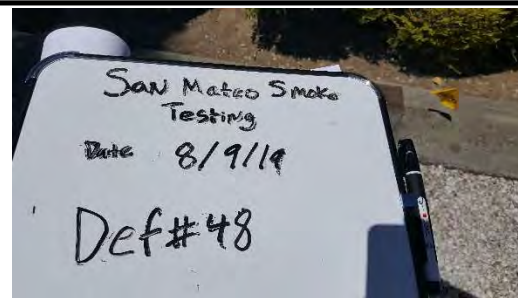
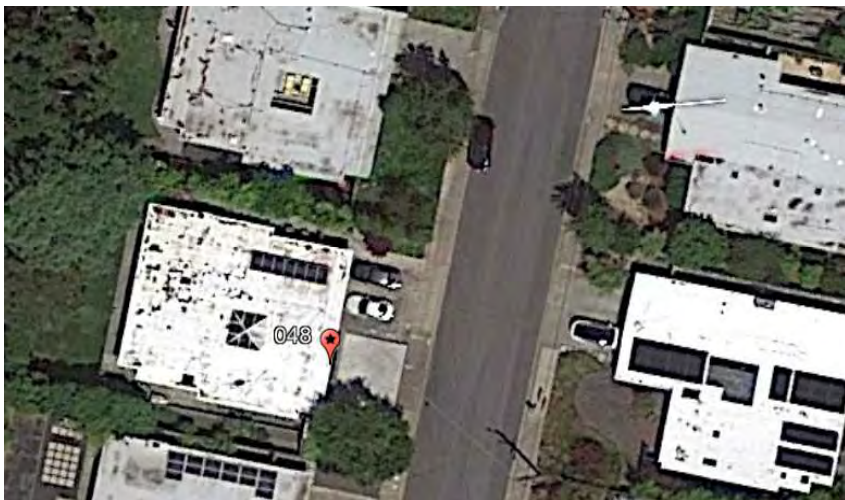
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 047
Address: 1579 Tarrytown St
Lat: 37.526091° Long: -122.352776°



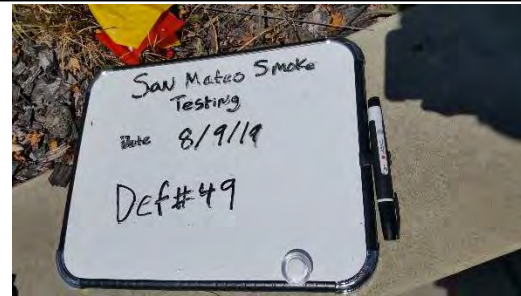
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 048
Address: 1548 Tarrytown St
Lat: 37.526799° Long: -122.352897°





Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 049
Address: 1572 Tarrytown St
Lat: 37.526335° Long: -122.352952°



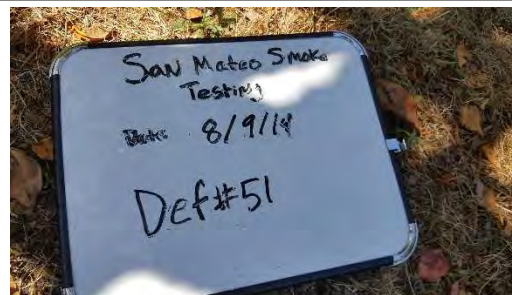


Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 050
Address: 1508 Tarrytown St
Lat: 37.527855° Long: -122.352563°



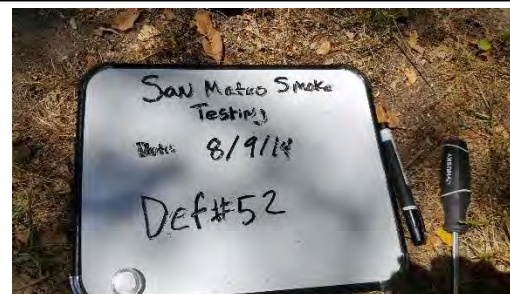


Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 051
Address: 1516 Tarrytown St
Lat: 37.527672° Long: -122.352621°



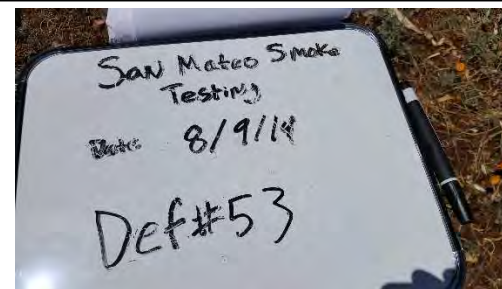
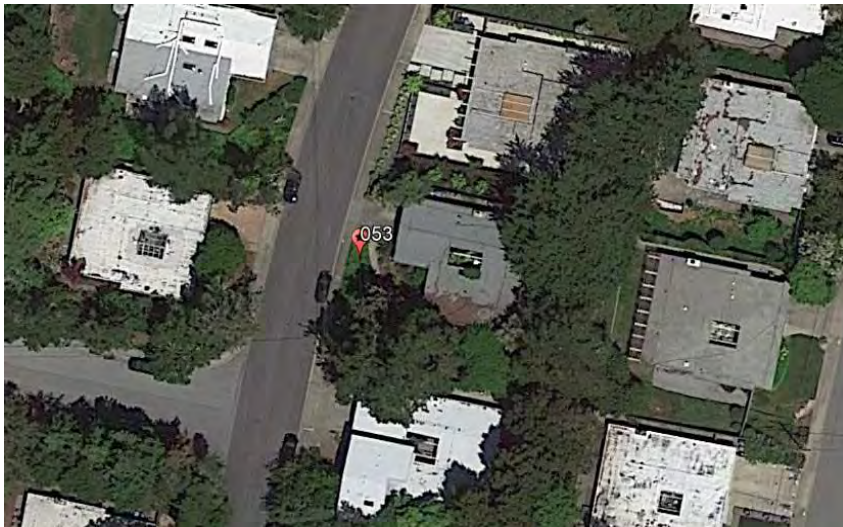


Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 052
Address: 1516 Tarrytown St
Lat: 37.527643° Long: -122.352688°



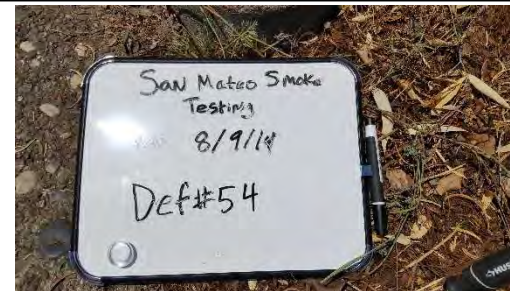


Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 053
Address: 1487 Tarrytown St
Lat: 37.528547° Long: -122.352207°





Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 054
Address: 1472 Tarrytown St
Lat: 37.528980° Long: -122.352269°





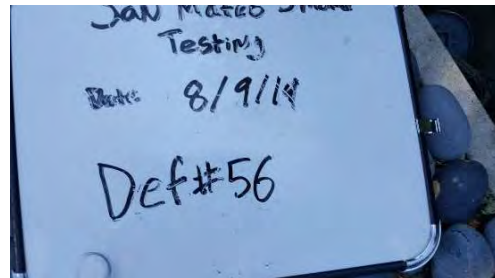
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 055
Address: 1448 Tarrytown St
Lat: 37.529584° Long: -122.352091°

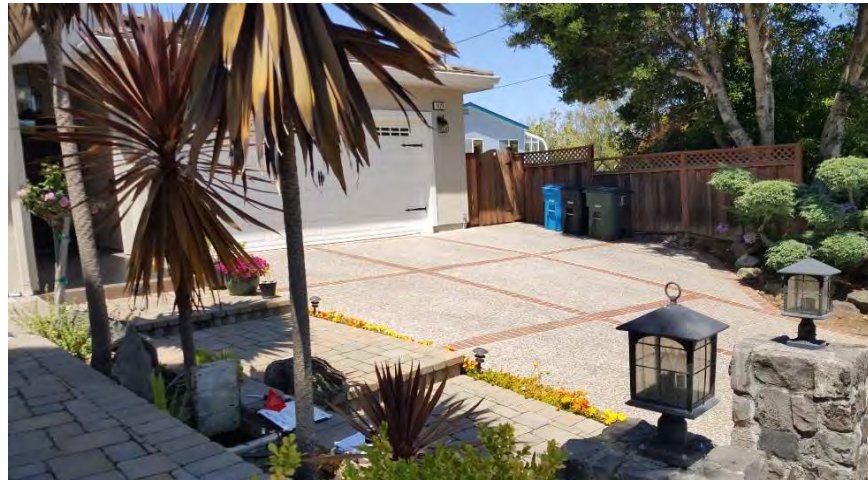
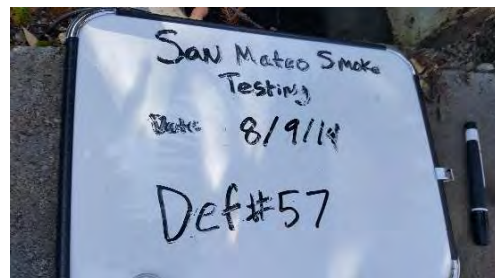




Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 056
Address: 1447 Tarrytown St
Lat: 37.529460° Long: -122.351889°



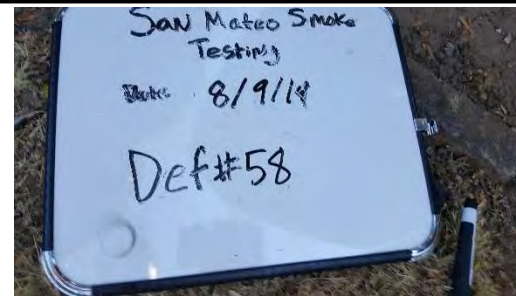
Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 057
Address: 1424 Tarrytown St
Lat: 37.530229° Long: -122.352128°





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Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 058
Address: 1415 Tarrytown St
Lat: 37.530404° Long: -122.351813°





Smoke Testing Form

Date 08/08/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 059-060

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
059	45 Roxbury Ln	1	1	1	3	12'	12'	5	
	Lat: 37.529581°								
	Long: -122.350901°								
060	45 Roxbury Ln	1	1	1	1	4'	9'	3	
	Lat: 37.529595°								
	Long: -122.350874°								

GPS Coordinates

Lat: 37.529581° Long: -122.350901°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

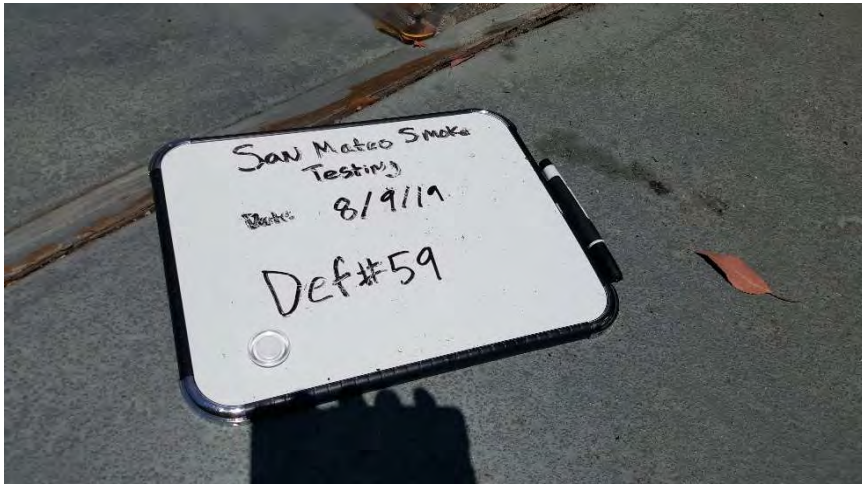
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



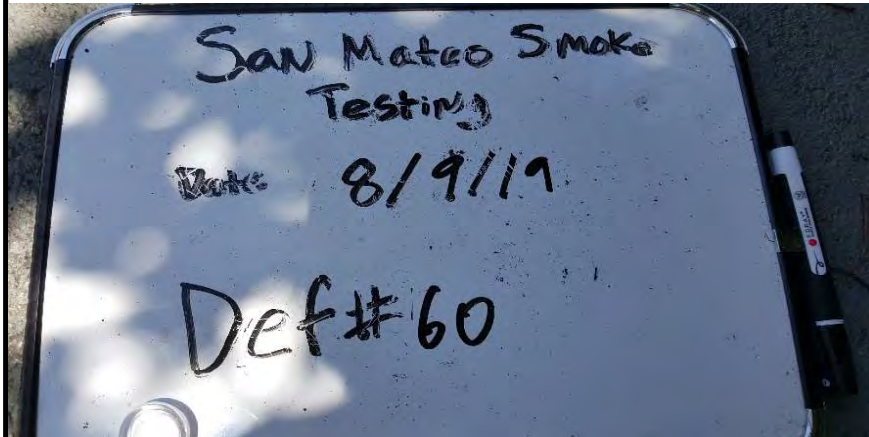
Comments: 059: Smoke coming from concrete joints in driveway. Water should drain into crack
 060: Smoke coming from edge of concrete and dirt. Water should drain into this edge

060:

Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 059



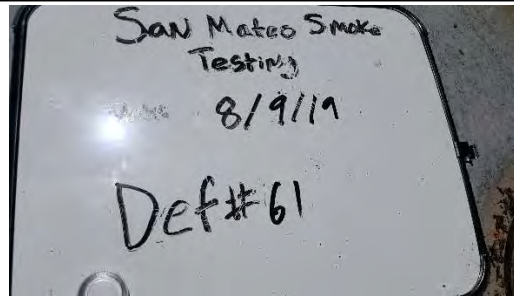
Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 060





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Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 061
Address: 1476 Forge Rd
Lat: 37.528872° Long: -122.351427°





Smoke Testing Form

Date 08/08/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 062

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
062	1501 Brandywine Rd	1	1	6	1	4'	10'	4	

GPS Coordinates

Lat: 37.528517° Long: -122.351224°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

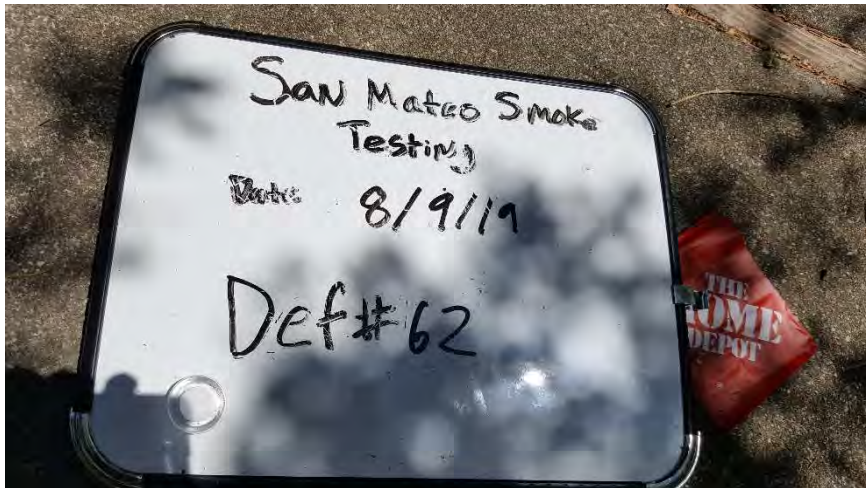
Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments:

Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 062





Smoke Testing Form

Date 08/08/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 063-064

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
063	1523 Forge Rd	1	1	16	1	2'	2'	2	
	Lat: 37.527257°								
	Long: -122.351579°								
064	1523 Forge Rd	1	1	16	1	1'	1'	1	
	Lat: 37.527248°								
	Long: -122.351523°								

GPS Coordinates

Lat: 37.527257° Long: -122.351579°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

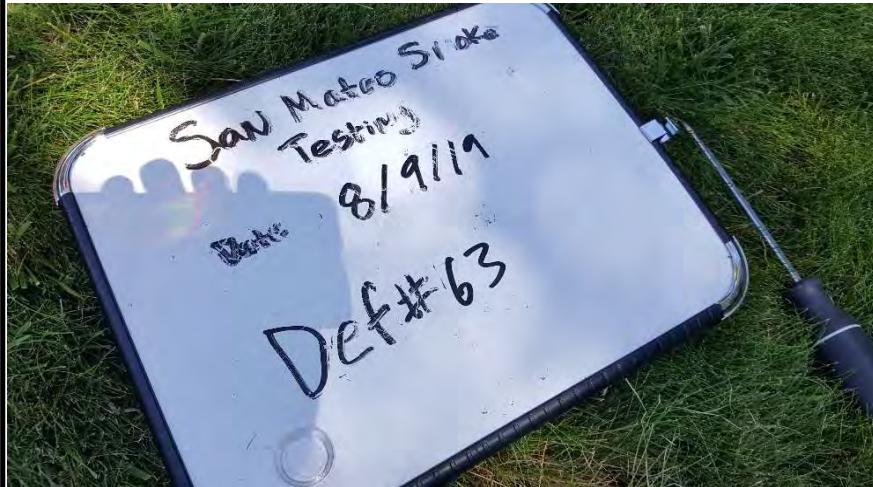
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: 063: Could not open. A low area. 064: No cap



Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 063



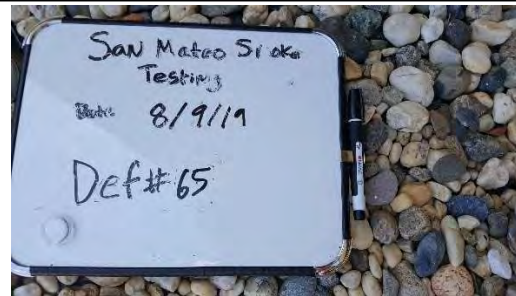


Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 064





Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 065
Address: 1548 Forge Rd
Lat: 37.526663° Long: -122.351975°





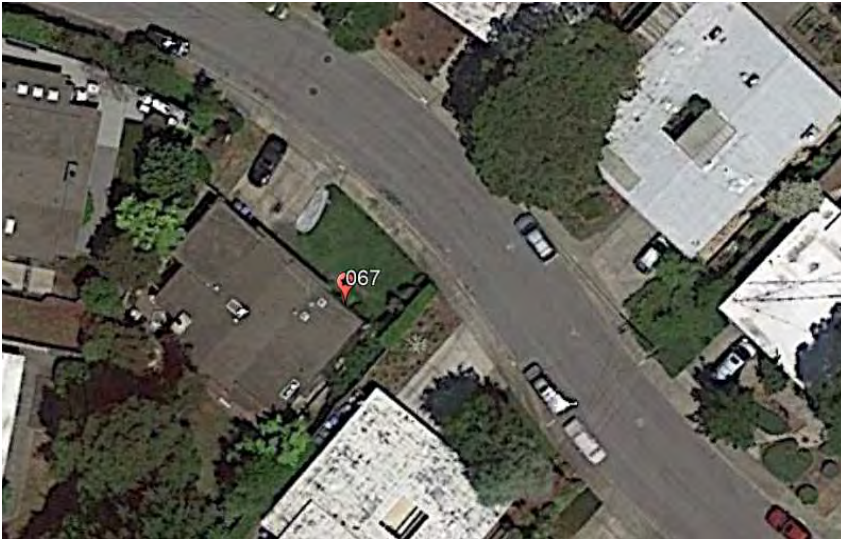
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Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 066
Address: 1563 Forge Rd
Lat: 37.526282° Long: -122.351841°





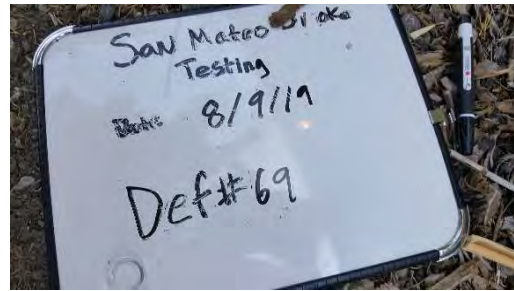
Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 067
Address: 1508 Brandywine Rd
Lat: 37.528049° Long: -122.350796°





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Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 069
Address: 10 Fairfield Ct
Lat: 37.527365° Long: -122.349487°





ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 070
Address: 1531 Branywine Rd
Lat: 37.527578° Long: -122.349748°





Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 071
Address: 10 Fairfield Ct
Lat: 37.527273° Long: -122.349589°



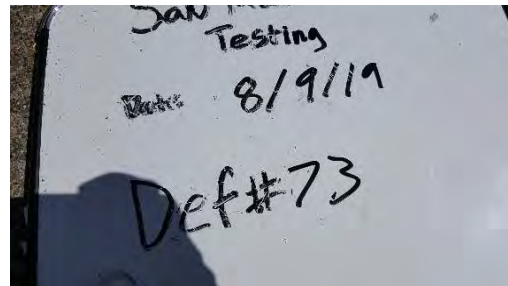


Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 072
Address: 1536 Branywine Rd
Lat: 37.527260° Long: -122.349765°



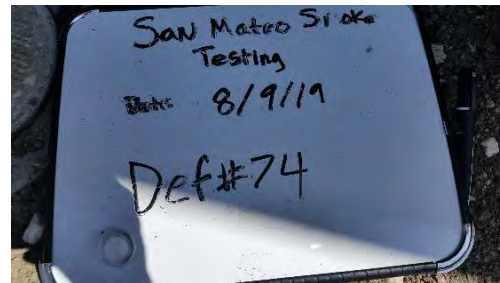


Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 073
Address: 1577 Brandywine Rd
Lat: 37.525817° Long: -122.350241°





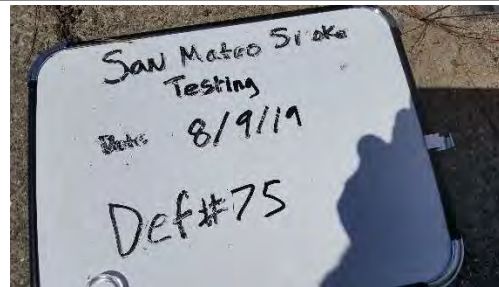
Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 074
Address: 1577 Brandywine Rd
Lat: 37.525742° Long: -122.350262°





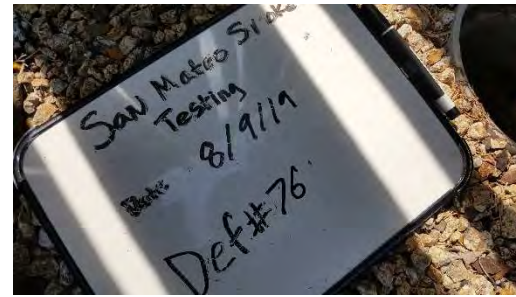
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 075
Address: 1595 Brandywine Rd
Lat: 37.525587° Long: -122.350834°



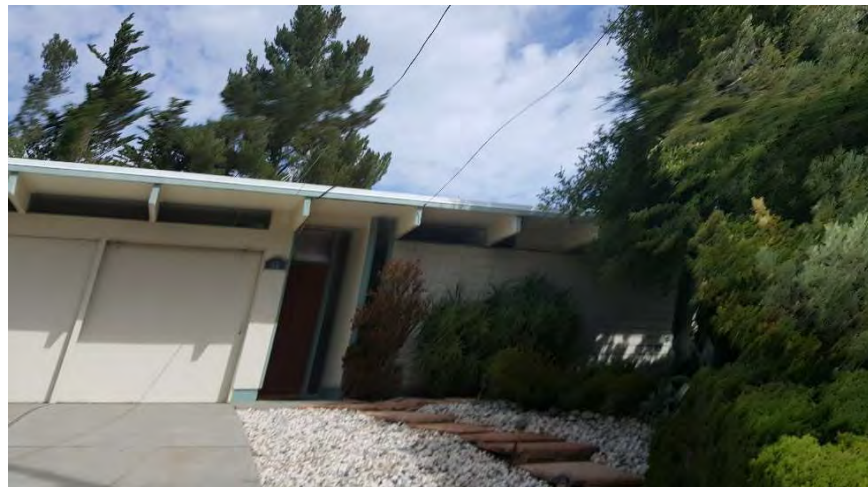
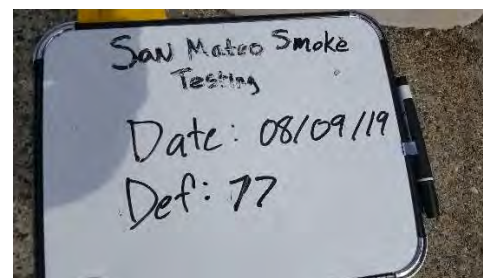


Project: San Mateo Smoke Testing 2019
Date: 8/8/2019
Defect: 076
Address: 1570 Brandywine Rd
Lat: 37.526041° Long: -122.350249°





Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 077
Address: 65 Trenton Pl
Lat: 37.526984° Long: -122.350831°





Smoke Testing Form

Date 08/09/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanochara/ Rickey Bradley **Defect#** 078

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
078	50 Trenton Pl	1	1	16	1	6'	10'	5	

GPS Coordinates

Lat: 37.526887° Long: -122.350648

- Results Code**
1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test

- Status Code**
1. Private
 2. Public

- Source Type Code**
1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)

- Smoke Code**
1. Light
 2. Medium
 3. Heavy

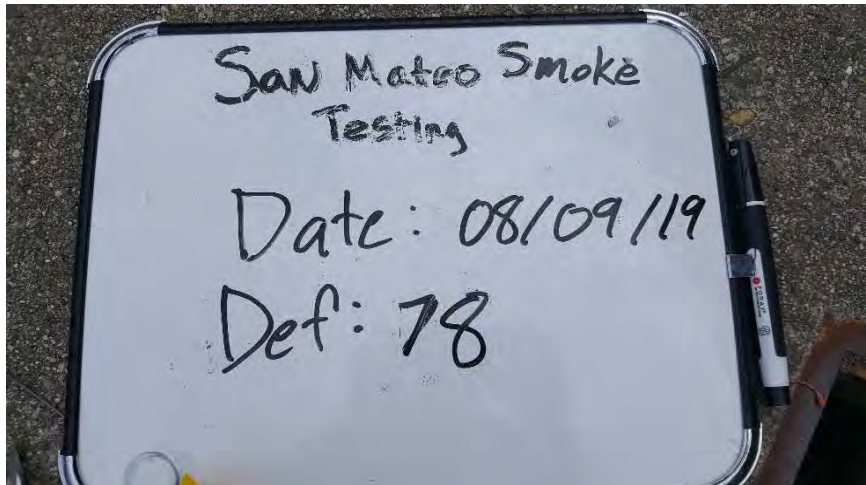
- Runoff Code**
1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Water flows over and will drain into cleanout



Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 078





Smoke Testing Form

Date 08/09/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 079

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
079	35 Trenton Pl	1	1	16	1	4'	4'	2	

GPS Coordinates

Lat: 37.526519° Long: -122.350987°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

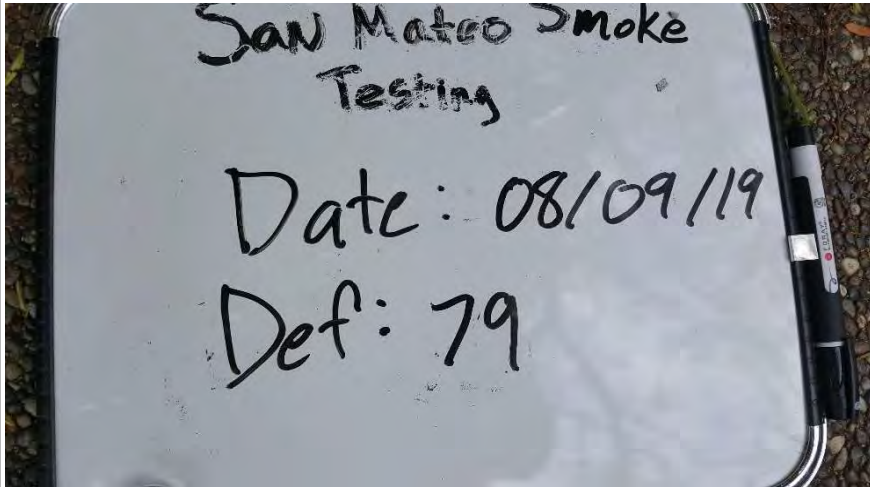
- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Cap off. Low point could drain into cleanout



Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 079





Smoke Testing Form

Date 08/09/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 080

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
080	15 Trenton Pl	1	1	6	1	6'	12'	5	

GPS Coordinates

Lat: 37.526188° Long: -122.351077°

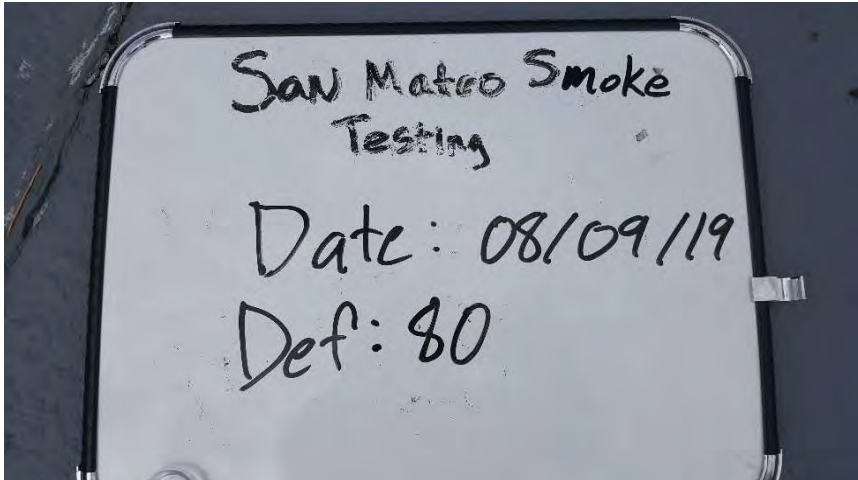
- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Not lowest point but water will funnel here.



Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 080



Smoke Testing Form

Date 08/09/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 081-082

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
081	2332 Bunker Hill Dr	1	1	6	1	12'	16'	4	
	Lat: 37.524949°								
	Long: -122.350349°								
082	2332 Bunker Hill Dr	1	1	6	1	12'	16'	3	
	Lat: 37.524959°								
	Long: -122.350306°								

GPS Coordinates

Lat: 37.524949° Long: -122.350349°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

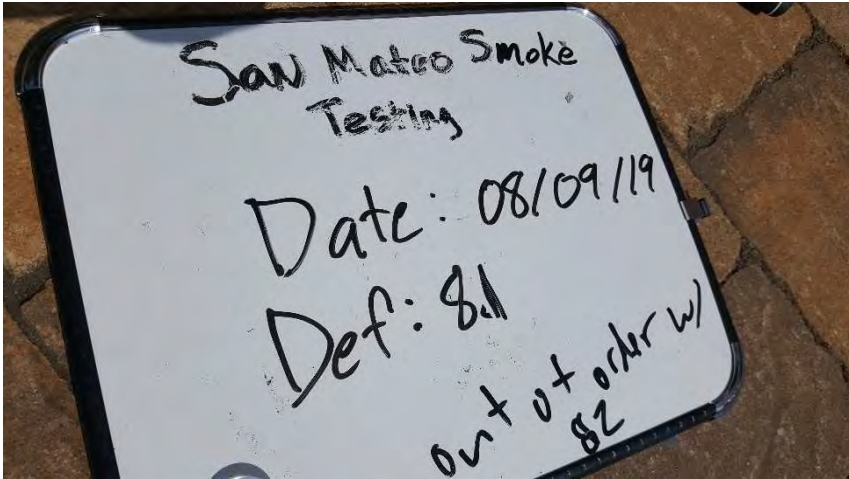
Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: 081: Area drain low point of driveway. 082: Gutters feed to these drains.

Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 081



Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 082





Smoke Testing Form

Date 08/09/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 083

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
083	1723 Lexington Ave	1	1	6	2	20'	30'	3	

GPS Coordinates

Lat: 37.521796° Long: -122.349726°

- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Main area drain of entire driveway and gutters also drain here



Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 083





Smoke Testing Form

Date 08/09/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 084

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
084	1715 Lexington Ave	1	1	6	1	5'	16'	5	

GPS Coordinates

Lat: 37.522030° Long: -122.349908°

- Results Code**
1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test

- Status Code**
1. Private
 2. Public

- Source Type Code**
1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)

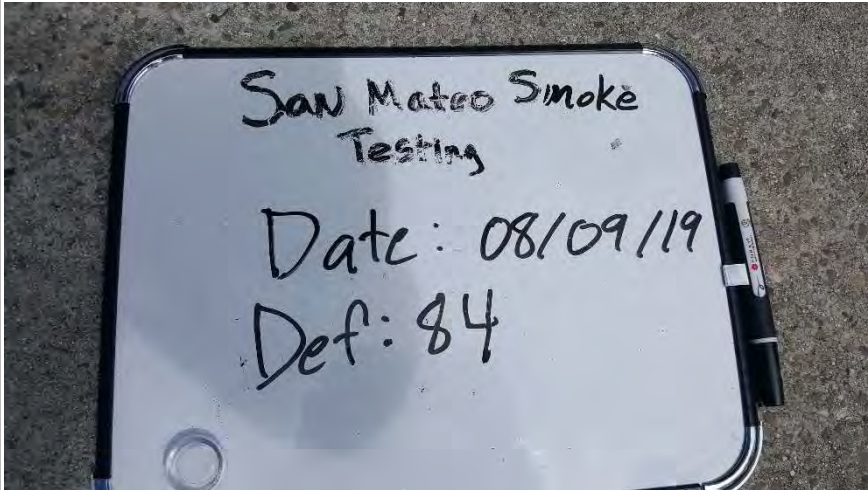
- Smoke Code**
1. Light
 2. Medium
 3. Heavy

- Runoff Code**
1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



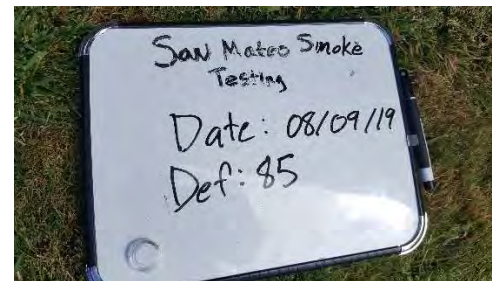
Comments: Not lowest point but does funnel here through pavement groove. Gutter also drain here

Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 084





Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 085
Address: 1703 Lexington Ave
Lat: 37.522643° Long: -122.350297°



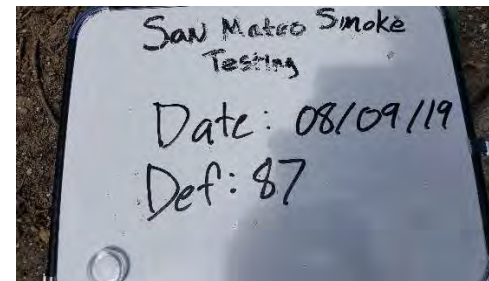


Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 086
Address: 1667 Lexington Ave
Lat: 37.523463° Long: -122.351282°





Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 087
Address: 1659 Lexington Ave
Lat: 37.523669° Long: -122.351418°





Smoke Testing Form

Date 08/09/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 088

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
088	1635 Lexington Ave	1	1	16	1	3'	8'	4	

GPS Coordinates

Lat: 37.524054° Long: -122.351846°

- Results Code**
1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test

- Status Code**
1. Private
 2. Public

- Source Type Code**
1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)

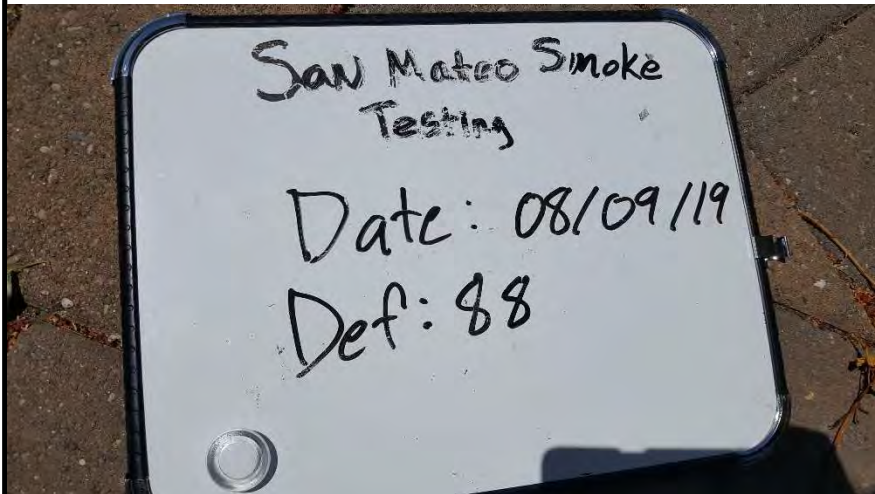
- Smoke Code**
1. Light
 2. Medium
 3. Heavy

- Runoff Code**
1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



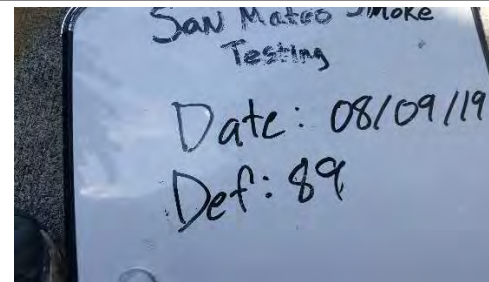
Comments: low spot; cap loose

Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 088





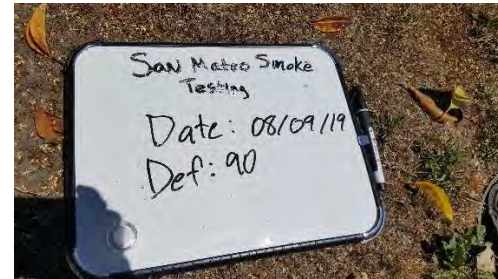
Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 089
Address: 1627 Lexington Ave
Lat: 37.524225° Long: -122.352027°





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Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 090
Address: 1628 Lexington Ave
Lat: 37.524046 Long: -122.352250°





Smoke Testing Form

Date 08/09/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 091

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
091	1620 Lexington Ave	1	1	1/6	1	3'	8'	3	

GPS Coordinates

Lat: 37.524212°	Long: -122.352436°
-----------------	--------------------

- Results Code**
1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
-
- Status Code**
1. Private
 2. Public
-
- Source Type Code**
1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
-
- Smoke Code**
1. Light
 2. Medium
 3. Heavy
-
- Runoff Code**
1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Area drain or lateral



Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 091





Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 092
Address: 1612 Lexington Ave
Lat: 37.524271° Long: -122.352510°





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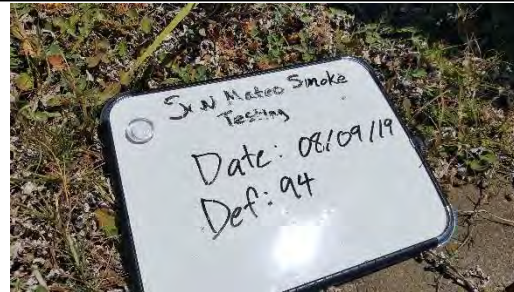
Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 093
Address: 1668 Yorktown Rd
Lat: 37.522633° Long: -122.348128°





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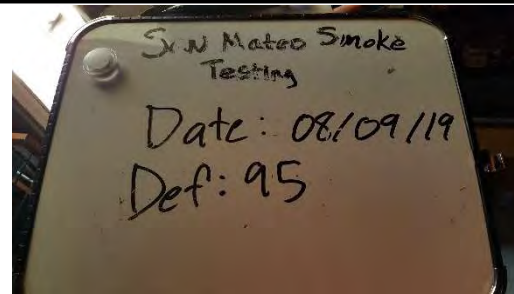
Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 094
Address: 1675 Yorktown Rd
Lat: 37.522519° Long: -122.348128°





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Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 095
Address: 1644 Yorktown Rd
Lat: 37.522999° Long: -122.348797°





Smoke Testing Form

Date 08/09/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 096

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
096	1712 Monticello Rd	1	1	16	3	3'	3'	1	

GPS Coordinates

Lat: 37.522814°° Long: -122.349632°

- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



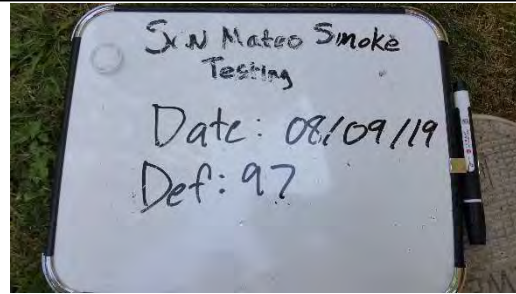
Comments: Rusty/Deteriorated Cap. Low point

Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 096





Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 097
Address: 1716 Monticello Rd
Lat: 37.522625° Long: -122.349580°





Smoke Testing Form

Date 08/09/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 098

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
098	1724 Monticello Rd	1	1	1	1	3'	8'	3	

GPS Coordinates

Lat: 37.522272° Long: -122.349282°

- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Cleanout could not be located. Low point near walkway

Project: San Mateo Smoke Testing 2019
Date: 8/9/2019
Defect: 098





Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 099

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
099	57 Roxbury Ln	1	1	14	3	20'	50'	1	

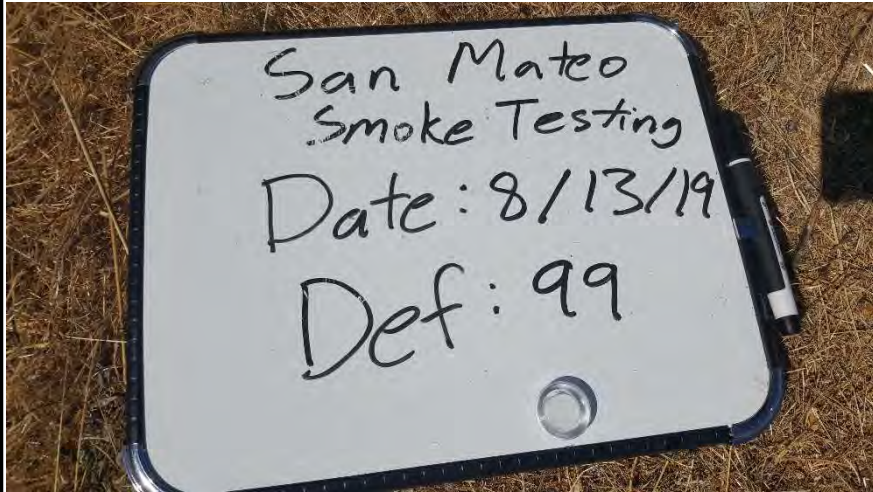
GPS Coordinates

Lat: 37.529840°	Long: -122.350276°
-----------------	--------------------

- Results Code**
1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
-
- Status Code**
1. Private
 2. Public
-
- Source Type Code**
1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
-
- Smoke Code**
1. Light
 2. Medium
 3. Heavy
-
- Runoff Code**
1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Sewer manhole lid low point on hill; infiltration disk recommended



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Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 099



Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 100-101

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
100	1715 Yorktown Rd	1	1	1	2	7'	2'	3	
	Lat: 37.521307°								
	Long: -122.347565°								
101	1715 Yorktown Rd	1	1	6	3	5'	10'	2	
	Lat: 37.521306°								
	Long: -122.347582°								

GPS Coordinates

Lat: 37.521307° Long: -122.347565°

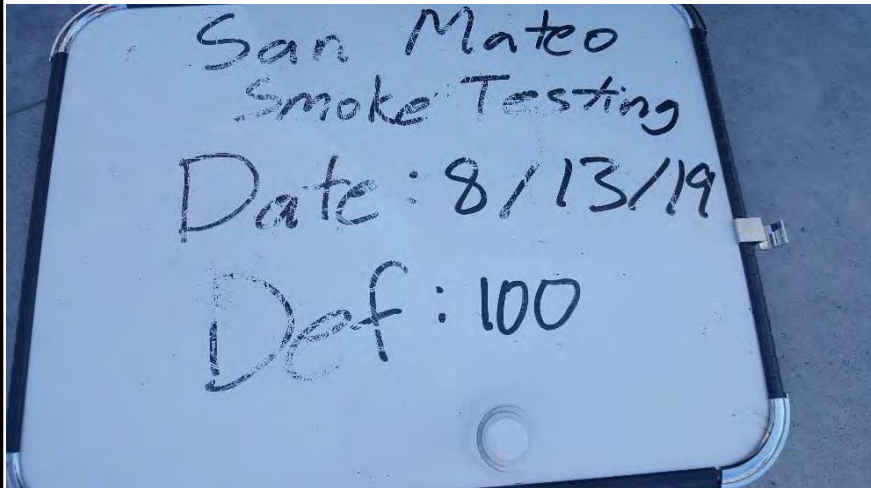
- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: 100: Smoke coming from edge of pavement. 101: Area drain maybe cleanout



Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 100

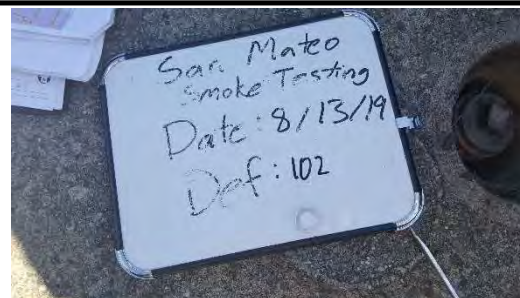


Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 101





Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 102
Address: 1751 Yorktown Rd
Lat: 37.520419° Long: -122.347176°



Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 103-104

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
103	1759 Monticello Rd	1	1	14	3	5'	18'	1	
	Lat: 37.520813°								
	Long: -122.348020°								
104	1759 Monticello Rd	1	1	16	3	1'	1'	1	
	Lat: 37.520876°								
	Long: -122.348319°								

GPS Coordinates

Lat: 37.520813° Long: -122.348020°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

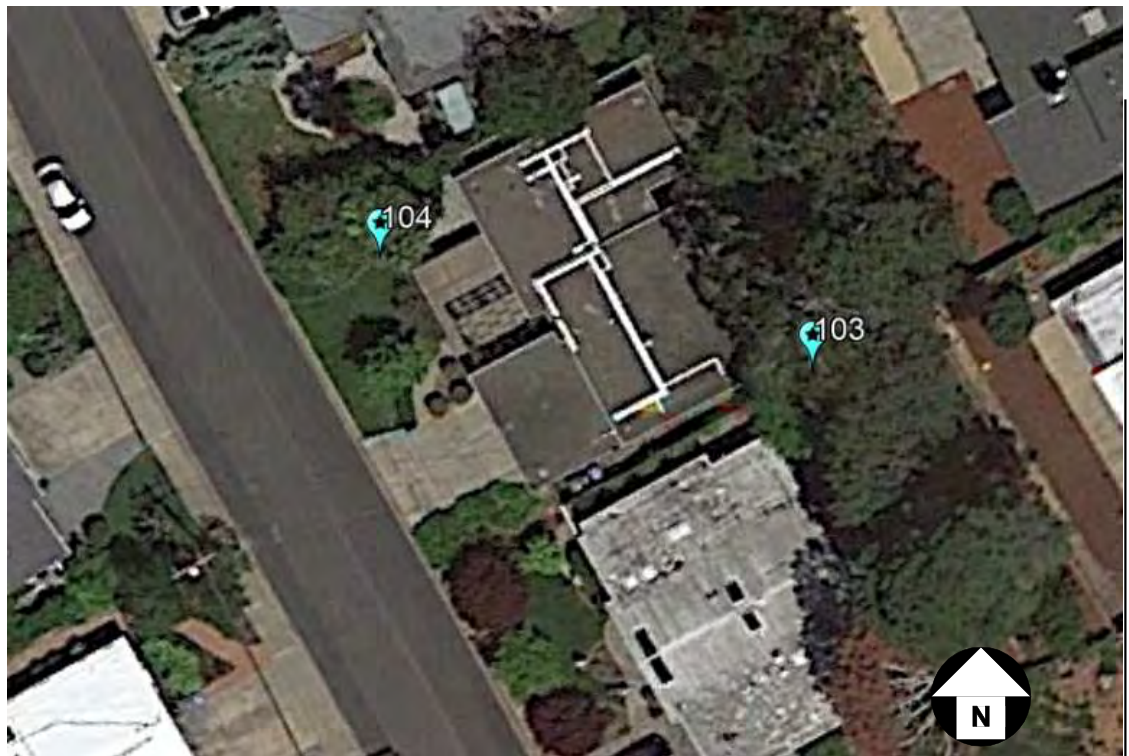
- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



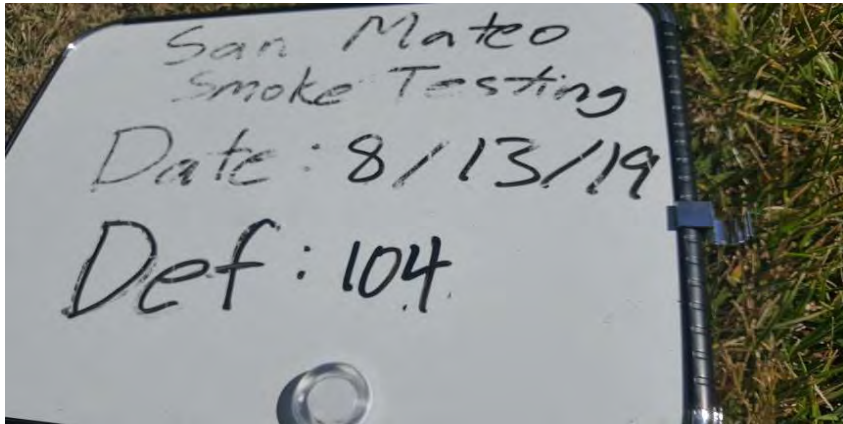
Comments: 103: Sewer manhole lid low point on hill; infiltration disk recommended.
 104: Rusty/ deteriorated cap

Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 103





Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 104



Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 105

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
105	1751 Monticello Rd	1	1	1	1	15'	30'	4	

GPS Coordinates

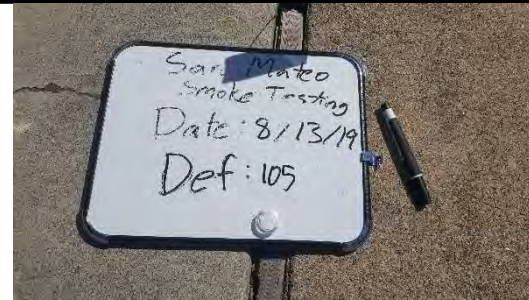
Lat: 37.521039° Long: -122.348461°

- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Smoke coming from cracks in driveway and cleanout. Included part of the roof since downspout drains here. Probably crack lateral

Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 105





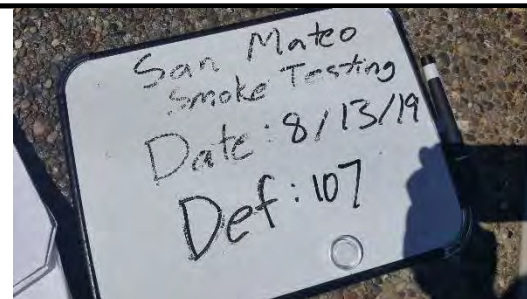
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Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 106
Address: 1786 Yorktown Rd
Lat: 37.519846° Long: -122.347881°





Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 107
Address: 1760 Lexington Ave
Lat: 37.520073° Long: -122.349137°



Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 108-109

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
108	1763 Lexington Ave	1	1	17	1	4"	4"	4	
	Lat: 37.519961°								
	Long: -122.348840°								
109	1763 Lexington Ave	1	1	6	1	10'	20'	4	
	Lat: 37.519968°								
	Long: -122.348816°								

GPS Coordinates

Lat: 37.519961° Long: -122.348840°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

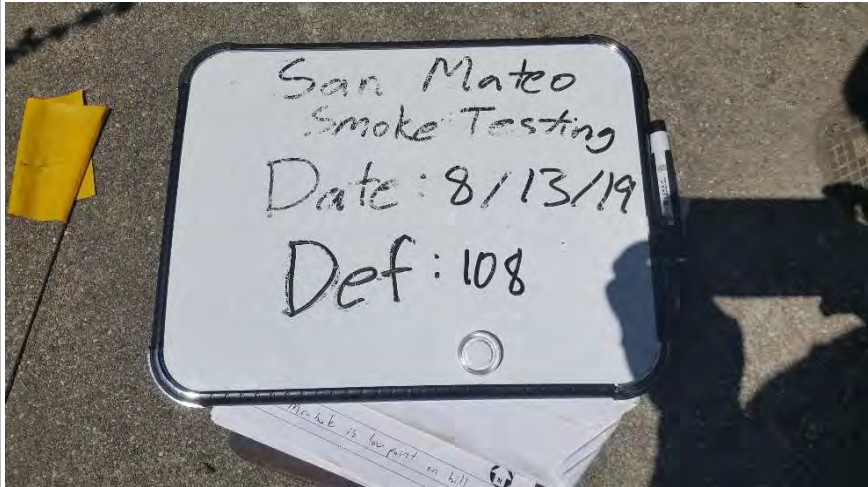
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



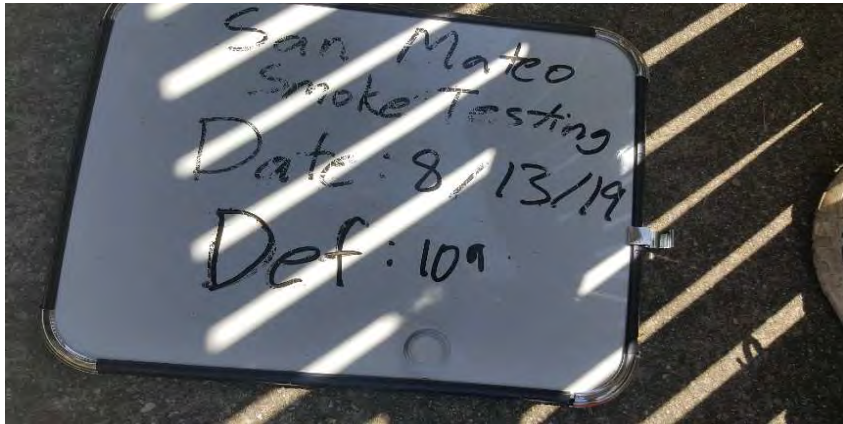
Comments: 108: Cannot open cover

109: Downspouts drain to here. Low point.

Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 108



Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 109



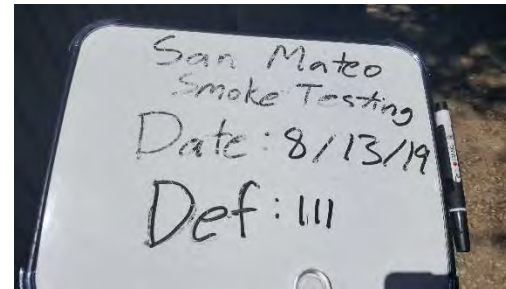


Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 110
Address: 1790 Lexington Ave
Lat: 37.519345° Long: -122.348496°





Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 111
Address: 1804 Lexington Ave
Lat: 37.519145° Long: -122.348079°



Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 112-113

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
112	1823 Lexington Ave	1	1	1	3	8'	14'	1	
	Lat: 37.519180°								
	Long: -122.347585°								
113	1823 Lexington Ave	1	1	16	3	1'	1'	1	
	Lat: 37.519212°								
	Long: -122.347560°								

GPS Coordinates

Lat: 37.519180° Long: -122.347585°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

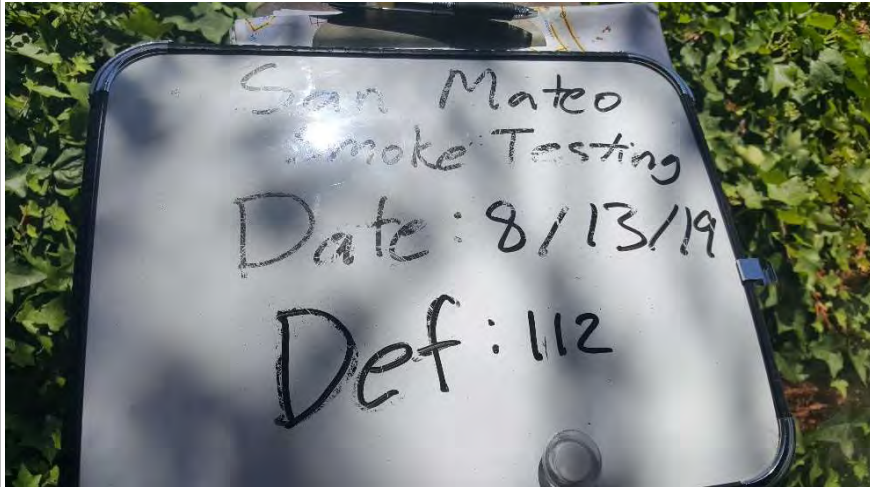
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: 112: Most likely a lateral

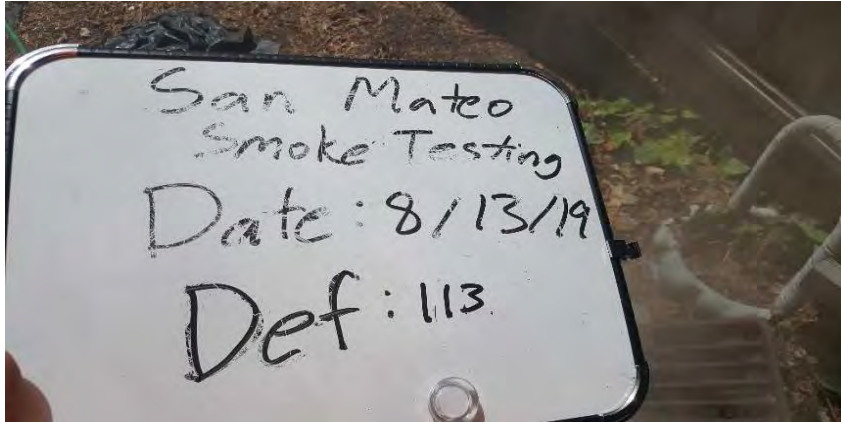
113: Grated cleanouts with caps off

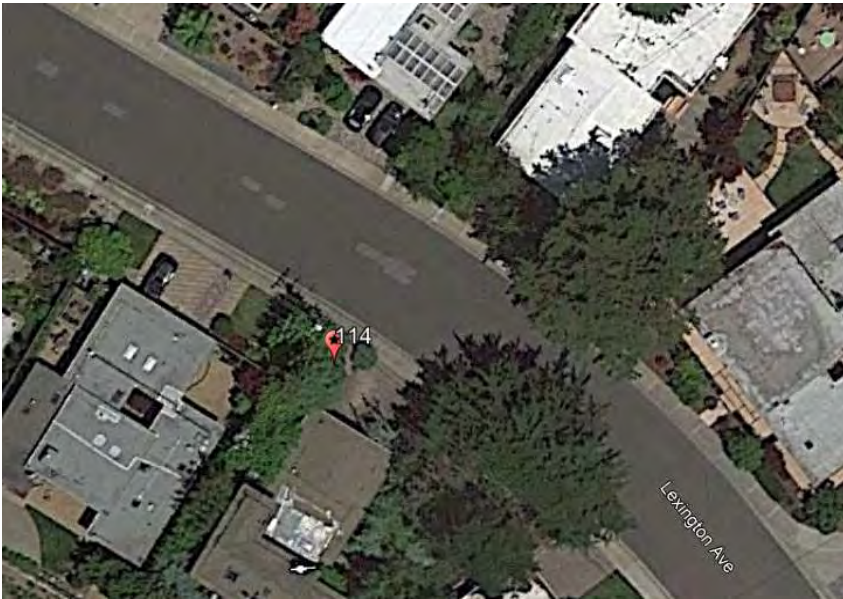
Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 112





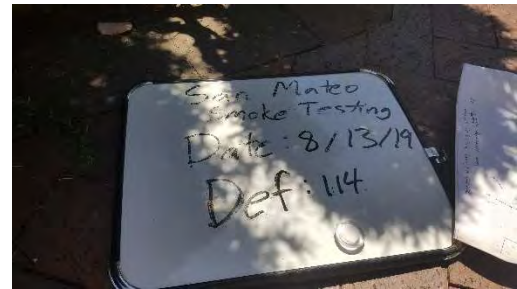
Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 113





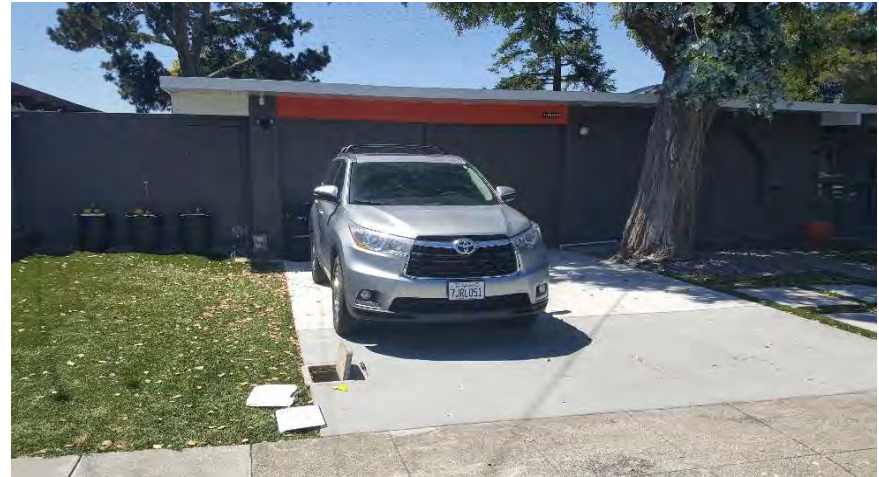
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 114
Address: 1928 Lexington Ave
Lat: 37.517800° Long: -122.345058°





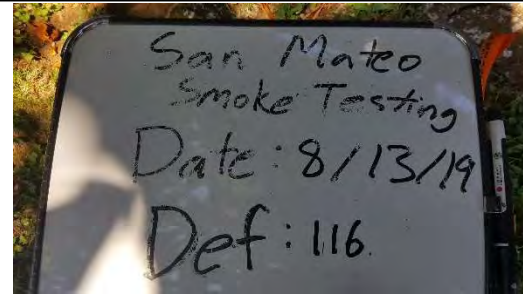
Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 115
Address: 1896 Lexington Ave
Lat: 37.518151° Long: -122.345788°





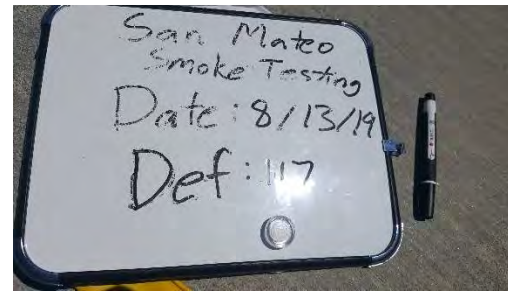
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 116
Address: 1907 Ticonderoga Dr
Lat: 37.518718° Long: -122.345473°



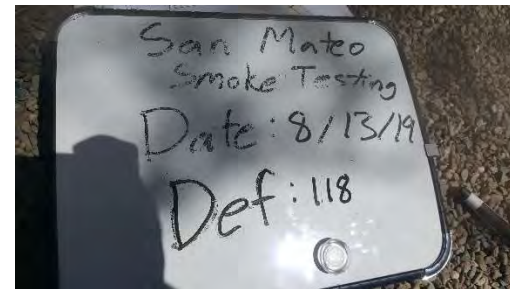


Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 117
Address: 1920 Ticonderoga Dr
Lat: 37.518532° Long: -122.345358°



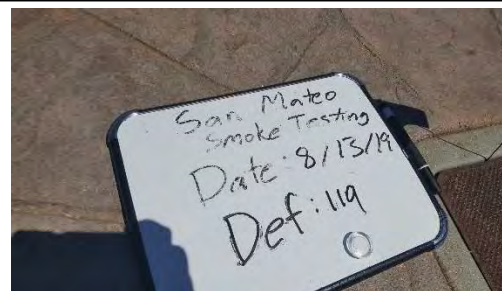


Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 118
Address: 1935 Ticonderoga Dr
Lat: 37.518807° Long: -122.344776°



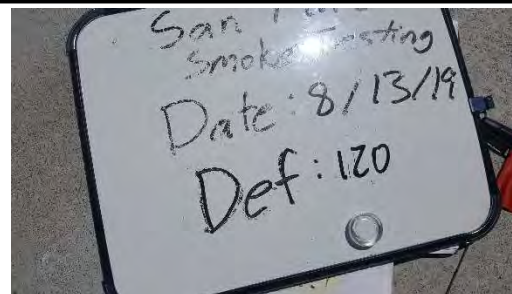


Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 119
Address: 1936 Ticonderoga Dr
Lat: 37.518585° Long: -122.344747°





Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 120
Address: 1952 Ticonderoga Dr
Lat: 37.518514° Long: -122.344417°





Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 121

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
121	1951 Ticonderoga Dr	1	1	1	1	4'	12'	3	

GPS Coordinates

Lat: 37.518676° Long: -122.344295°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

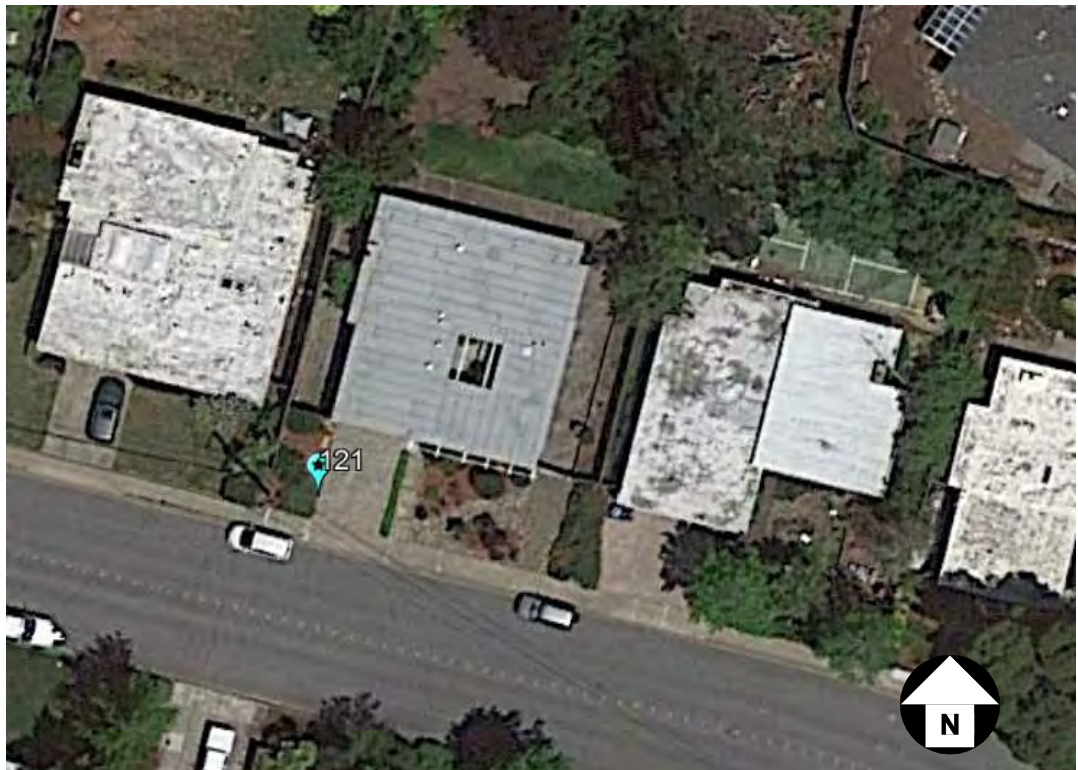
- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

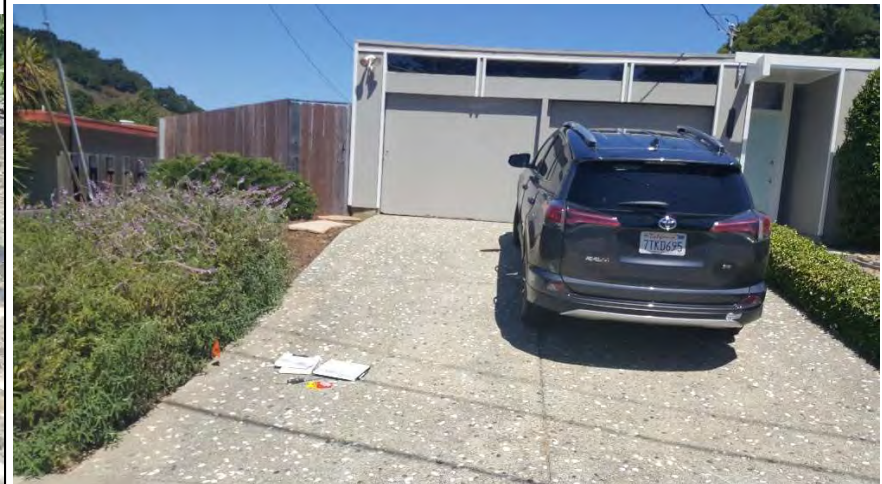
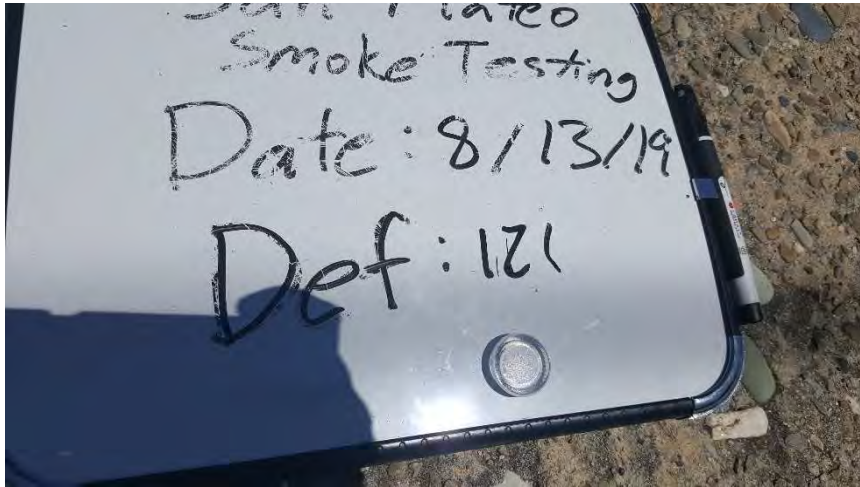
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: No cleanout present. Most likely lateral



Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 121





Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 122

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
122	1956 Lexington Ave	1	1	1	3	8'	10'	1	

GPS Coordinates

Lat: 37.517515° Long: -122.344672°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

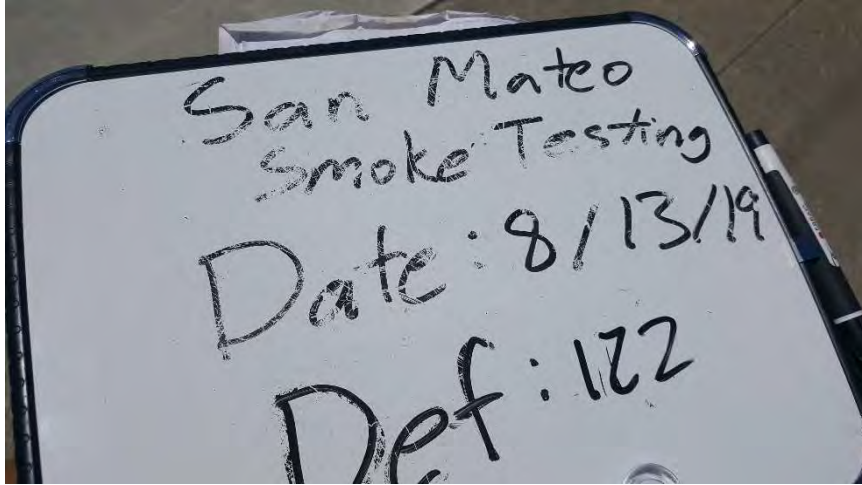
Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Work being done to lateral line

Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 122





Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 123

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
123	5 Turtle Bay Pl	1	1	16	1	4"	4"	5	

GPS Coordinates

Lat: 37.517763° Long: -122.344360°

- Results Code**
1. Positive
2. Suspect
3. Negative
4. Cannot Test
- Status Code**
1. Private
2. Public
- Source Type Code**
1. Service Laterals
2. Transition Joint
3. Driveway Drain
4. Window Well Drain
5. Stairwell Drain
6. Area Drain
7. Downspout
8. Downspout Connection
9. Foundation Drain
10. Building Inside
11. Catch Basin
12. Storm Drain
13. Storm Manhole
14. Main Sewer
15. Upstream Manhole
16. Cleanout
17. Other (Need to Investigate)
- Smoke Code**
1. Light
2. Medium
3. Heavy
- Runoff Code**
1. 0% Paved
2. 25% Paved
3. 50% Paved
4. 75% Paved
5. 100% Paved



Comments: No cap.

Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 123

San Mateo
Smoke Testing
Date: 8/13/19
Def: 123





Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 124

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
124	5 Shelburne Pl	1	1	16	1	4"	4"	2	

GPS Coordinates

Lat: 37.517214° Long: -122.343995°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

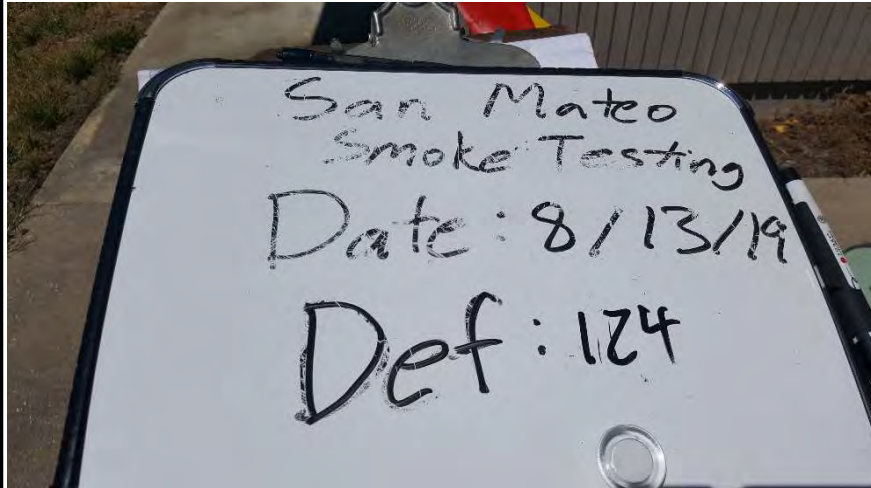
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Cap off. Another pipe is being draining into the line from here. Surcharge evidence

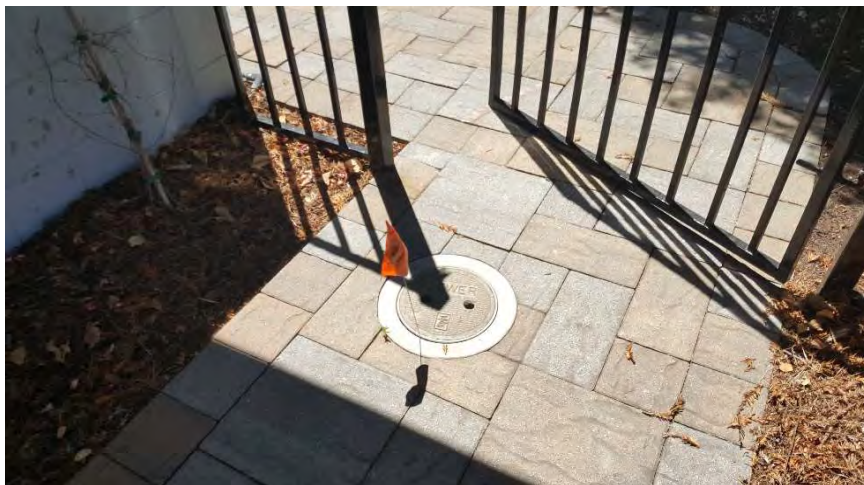
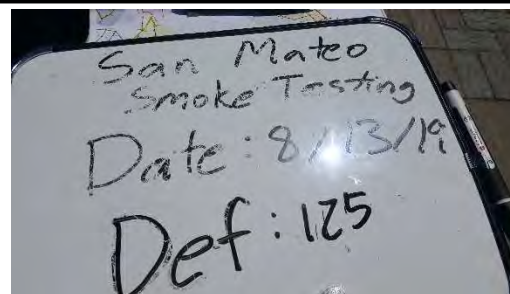
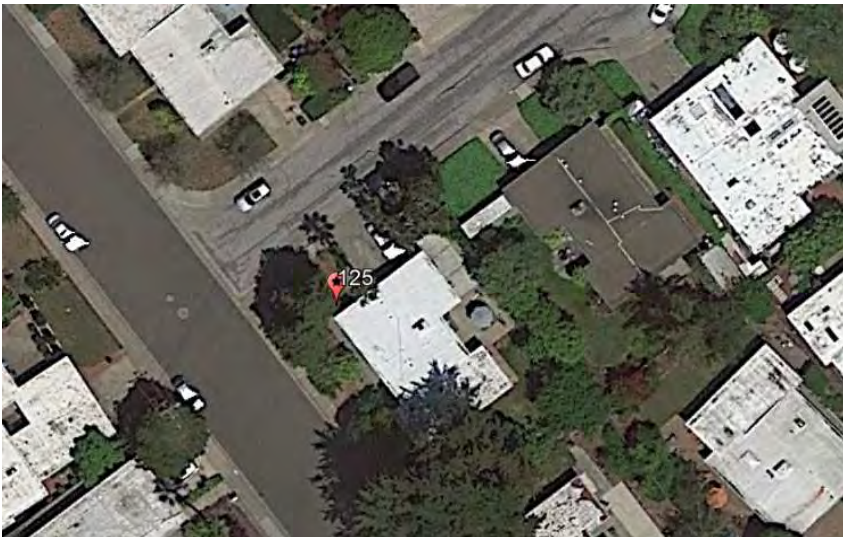


Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 124



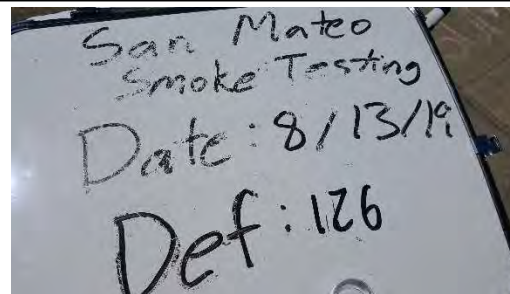


Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 125
Address: 10 Shelburne Pl
Lat: 37.517021° Long: -122.343844°





Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 126
Address: 15 Powhatan Pl
Lat: 37.516794° Long: -122.343128°



Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 127

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
127	5 Powhatan Pl	1	1	16	1	4'	4'	2	

GPS Coordinates

Lat: 37.516636° Long: -122.343441°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

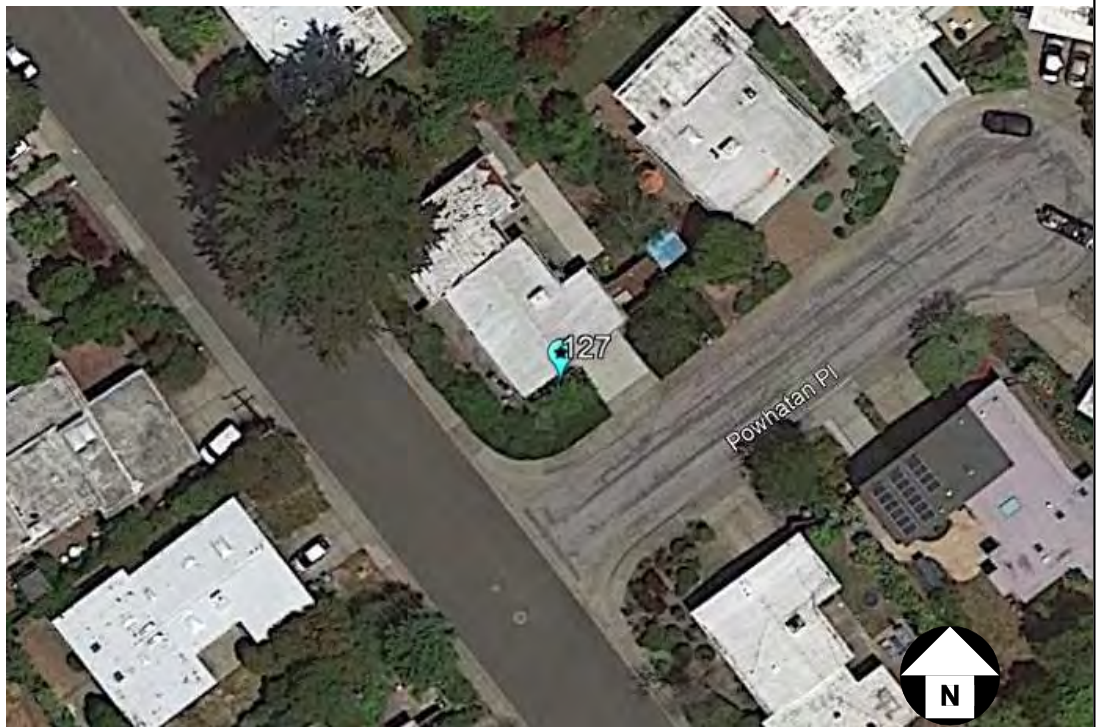
- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

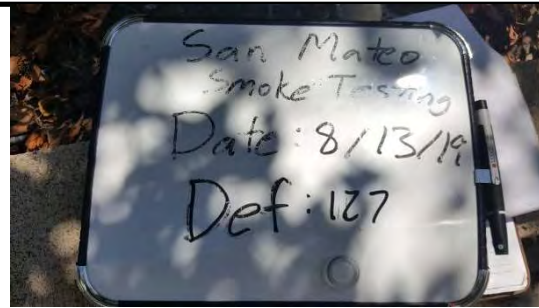
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Cap off. Low point could drain into cleanout

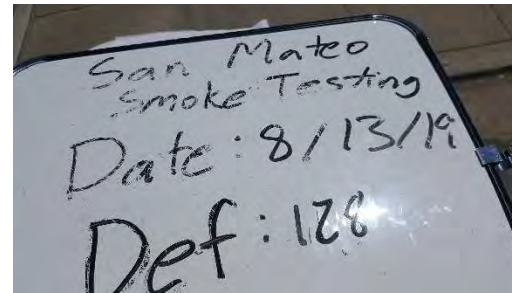


Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 127





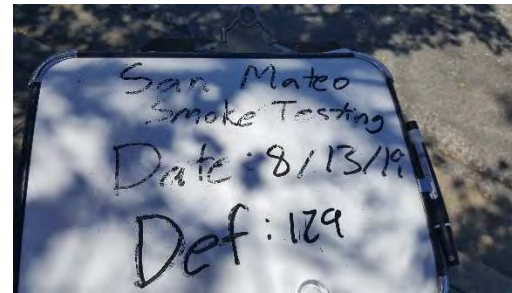
Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 128
Address: 10 Burgoyne Ct
Lat: 37.515938° Long: -122.342631°





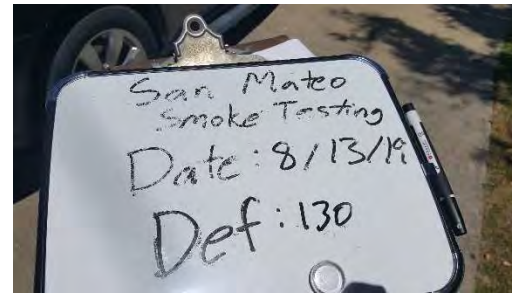
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 129
Address: 20 Burgoyne Ct
Lat: 37.516013° Long: -122.342579°





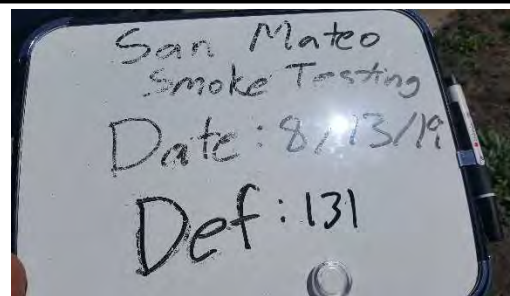
Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 130
Address: 40 Burgoyne Ct
Lat: 37.516242° Long: -122.342163°





ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 131
Address: 2076 Lexington Ave
Lat: 37.515128° Long: -122.342388°





Smoke Testing Form

Date 08/13/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 132

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
132	15 Stoney Point Pl	1	1	17	1	4'	4'	3	

GPS Coordinates

Lat: 37.514450° Long: -122.340946°

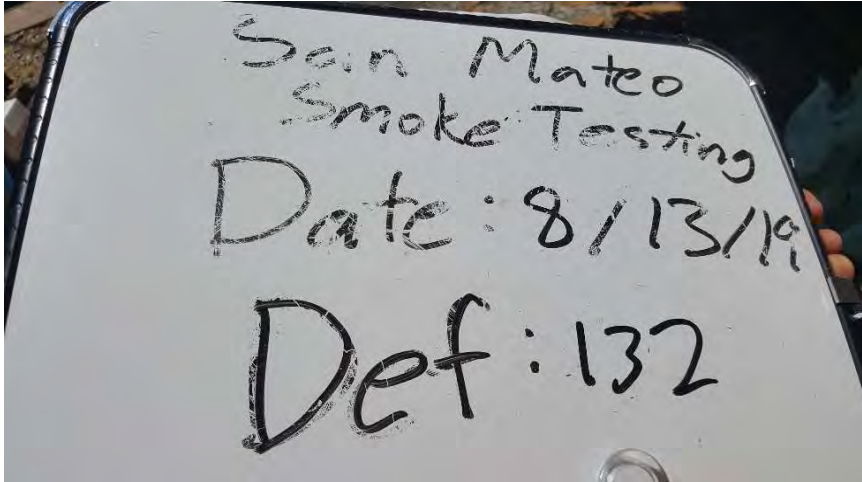
- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



Comments: Cannot access due to debris. Most likely cleanout.

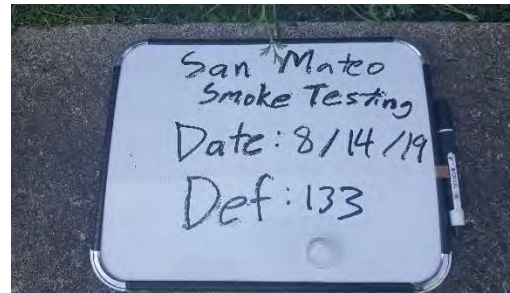


Project: San Mateo Smoke Testing 2019
Date: 8/13/2019
Defect: 132





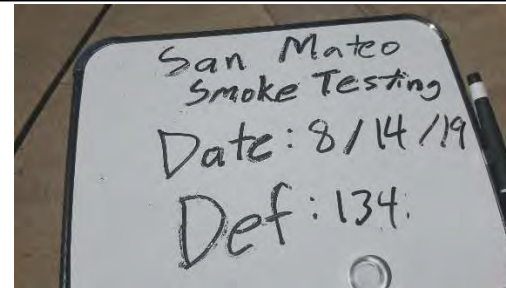
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 133
Address: 2289 Allegheny Way
Lat: 37.513445° Long: -122.340692°





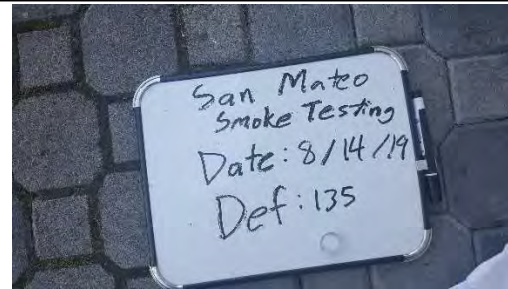
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 134
Address: 2290 Allegheny Way
Lat: 37.513713° Long: -122.340549°





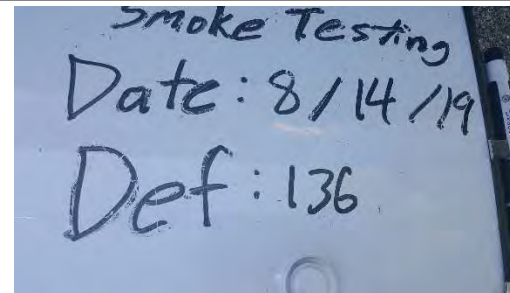
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 135
Address: 2275 Allegheny Way
Lat: 37.513570° Long: -122.340288°





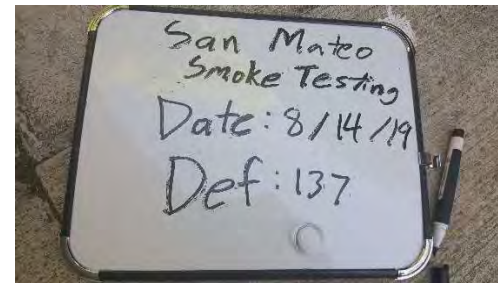
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 136
Address: 2251 Allegheny Way
Lat: 37.513885° Long: -122.339634°



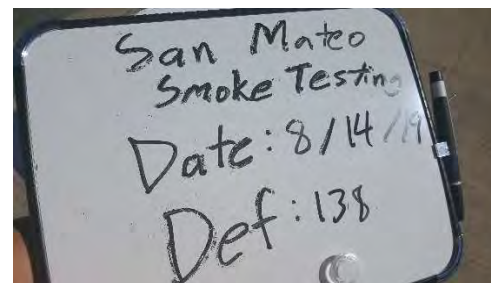


Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 137
Address: 2251 Allegheny Way
Lat: 37.513859° Long: -122.339616°





Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 138
Address: 2227 Allegheny Way
Lat: 37.514109° Long: -122.338927°



Smoke Testing Form

Date 08/14/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 139

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
139	2251 Sheraton Pl	1	1	1	1	3'	4'	1	

GPS Coordinates

Lat: 37.518861° Long: -122.341349°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

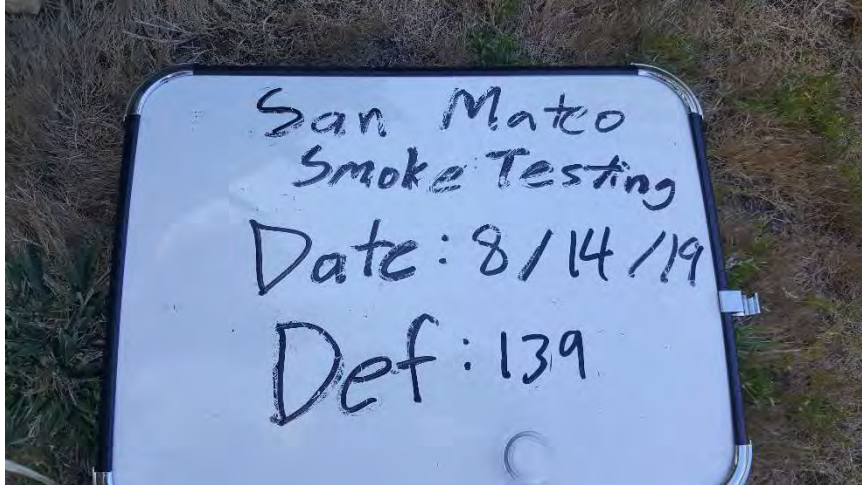
- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Cannot access due to debris. Most likely cleanout.



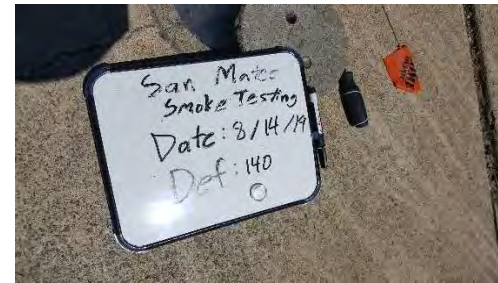
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 139

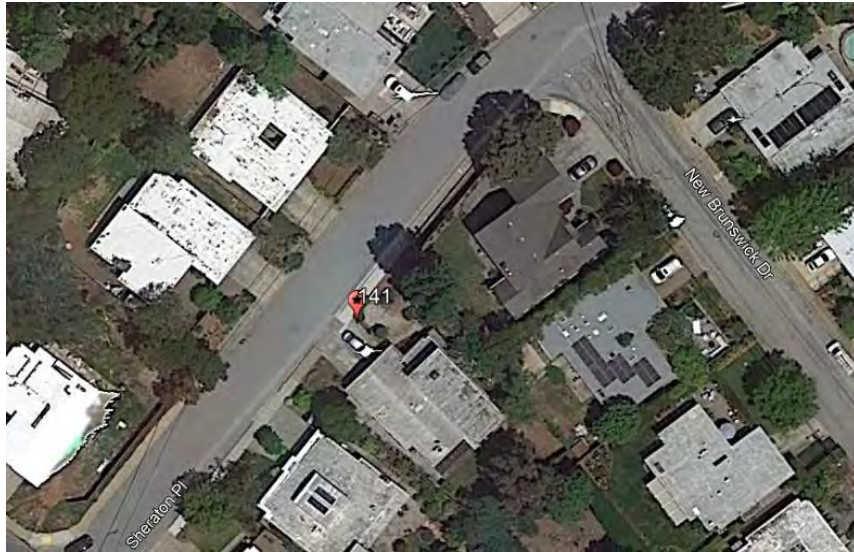




ADS ENVIRONMENTAL SERVICES®

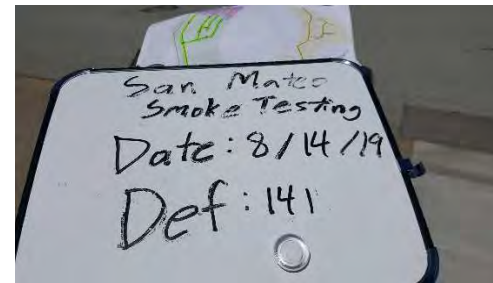
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 140
Address: 2276 Sheraton Pl
Lat: 37.518753° Long: -122.342427°

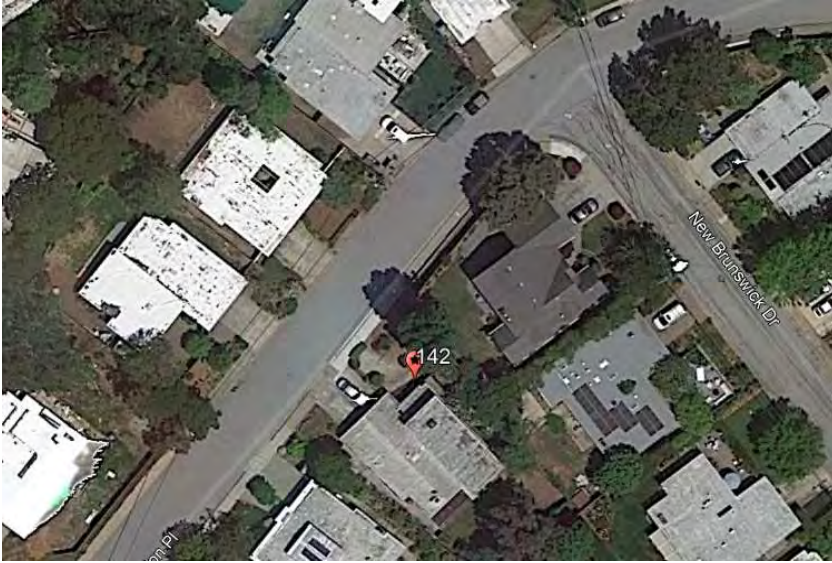




ADS ENVIRONMENTAL SERVICES®

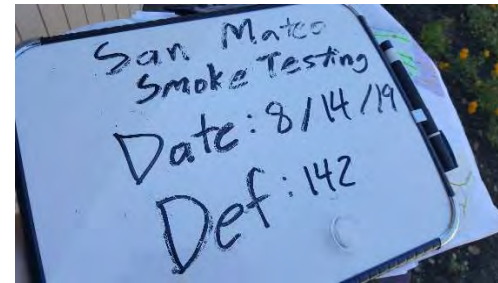
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 141
Address: 2283 Sheraton Pl
Lat: 37.518445° Long: -122.342507°





ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 142
Address: 2283 Sheraton Pl
Lat: 37.518426° Long: -122.342401°



Smoke Testing Form

Date 08/14/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 143

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
143	2289 Sheraton Pl	1	1	16	2	4'	8'	1	

GPS Coordinates

Lat: 37.518247° Long: -122.342698°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

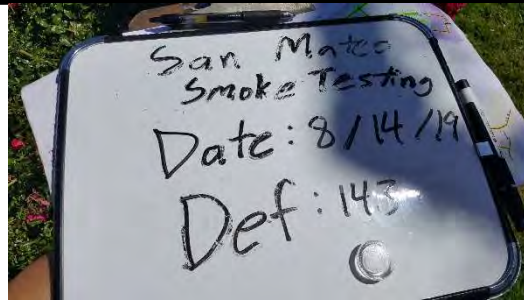
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: No cap. Flows funnel here. Damaged pipe?



Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 143





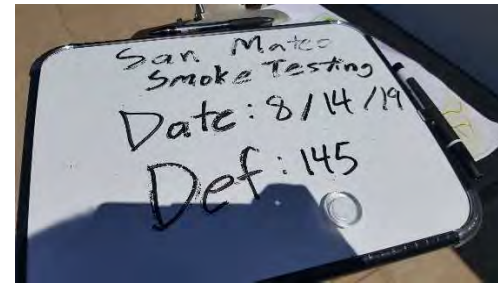
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 144
Address: 1992 Ticonderoga Dr
Lat: 37.517955° Long: -122.343167°



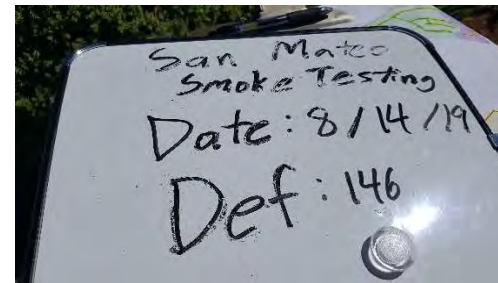


Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 145
Address: 1989 Ticonderoga Dr
Lat: 37.518232° Long: -122.343100°





Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 146
Address: 20 Amboy Ct
Lat: 37.518732° Long: -122.343258°



Smoke Testing Form

Date 08/14/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 147

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
147	25 Amboy Ct	1	1	17	2	8'	12'	5	

GPS Coordinates

Lat: 37.516382° Long: -122.341547°

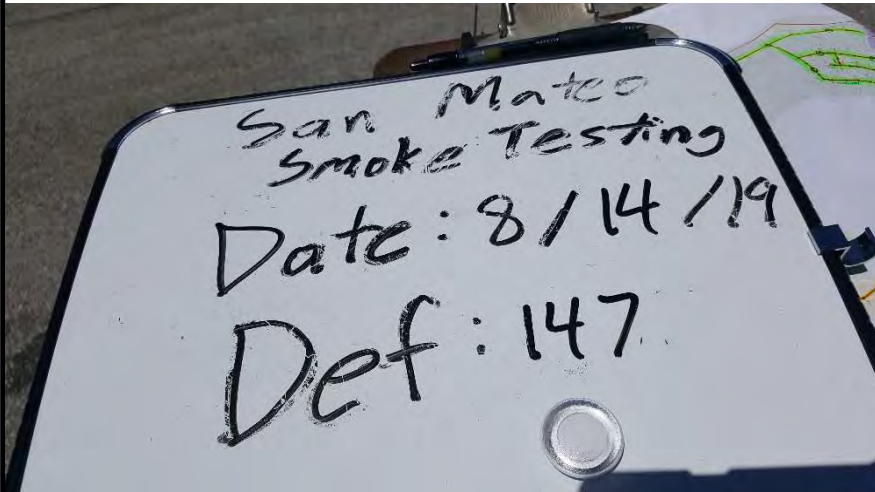
- Results Code**
1. Positive
2. Suspect
3. Negative
4. Cannot Test
- Status Code**
1. Private
2. Public
- Source Type Code**
1. Service Laterals
2. Transition Joint
3. Driveway Drain
4. Window Well Drain
5. Stairwell Drain
6. Area Drain
7. Downspout
8. Downspout Connection
9. Foundation Drain
10. Building Inside
11. Catch Basin
12. Storm Drain
13. Storm Manhole
14. Main Sewer
15. Upstream Manhole
16. Cleanout
17. Other (Need to Investigate)
- Smoke Code**
1. Light
2. Medium
3. Heavy
- Runoff Code**
1. 0% Paved
2. 25% Paved
3. 50% Paved
4. 75% Paved
5. 100% Paved



Comments: Could not tell source. Under container car

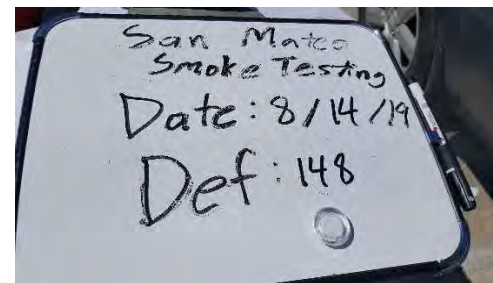


Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 147





Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 148
Address: 2024 Ticonderoga Dr
Lat: 37.517205° Long: -122.342253°





Smoke Testing Form

Date 08/14/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 149

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
149	2019 Ticonderoga Dr	1	1	16	2	2'	2'	1	

GPS Coordinates

Lat: 37.517661° Long: -122.342030°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

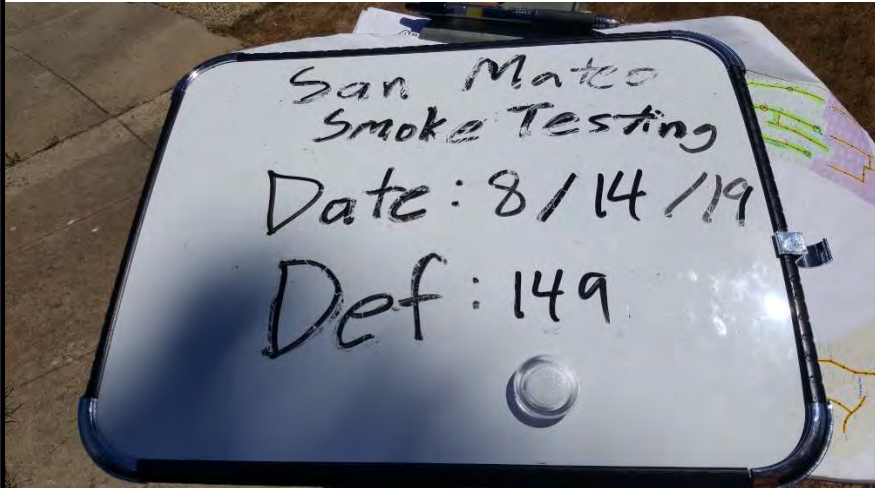
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: No cap. Low point



Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 149





Smoke Testing Form

Date 08/14/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 150-151

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
150	2052 Ticonderoga Dr	1	1	16	1	4"	4"	5	
	Lat: 37.516394°								
	Long: -122.341476°								
151	2052 Ticonderoga Dr	1	1	6	3	8'	20'	3	
	Lat: 37.516382°								
	Long: -122.341547°								

GPS Coordinates

Lat: 37.516394° Long: -122.341476°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: 150: Rusty/ deteriorated cap

151: Area drain. Lowest point



Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 150

San Mateo
Smoke Testing
Date: 8/14/19
Def: 150



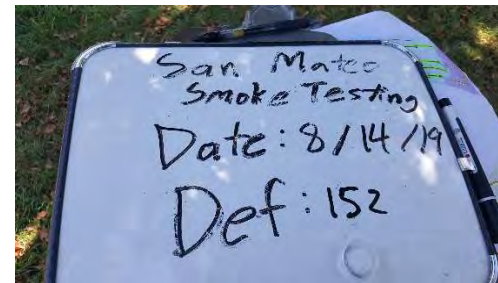


Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 151





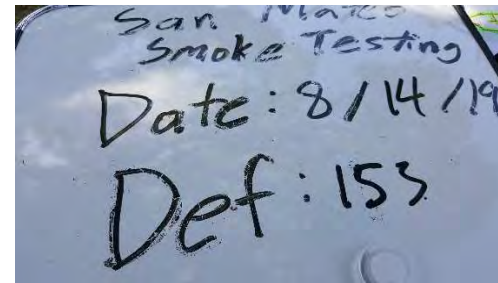
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 152
Address: 2056 Ticonderoga Dr
Lat: 37.516233° Long: -122.341326°





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Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 153
Address: 2056 Ticonderoga Dr
Lat: 37.516184° Long: -122.341343°





Smoke Testing Form

Date 08/14/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 154

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
154	2084 Ticonderoga Dr	1	1	16	2	2'	6'	5	

GPS Coordinates

Lat: 37.515595° Long: -122.340717°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

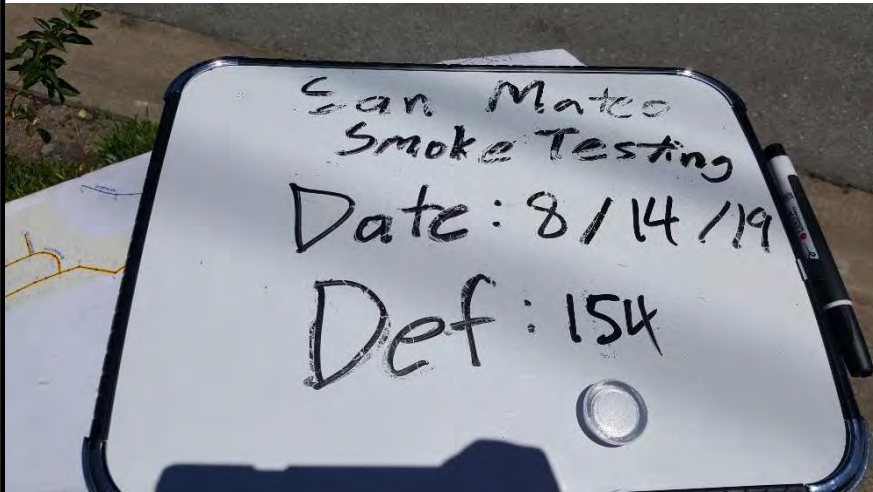
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Cap off.



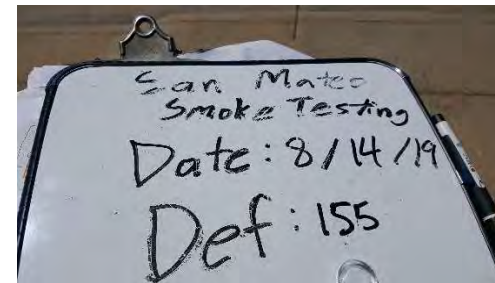
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 154





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Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 155
Address: 2007 New Brunswick Dr
Lat: 37.518554° Long: -122.341757°





Smoke Testing Form

Date 08/14/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 156

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
156	10 Hoods Point Way	1	1	16	3	3'	3'	1	

GPS Coordinates

Lat: 37.518043° Long: -122.341015°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

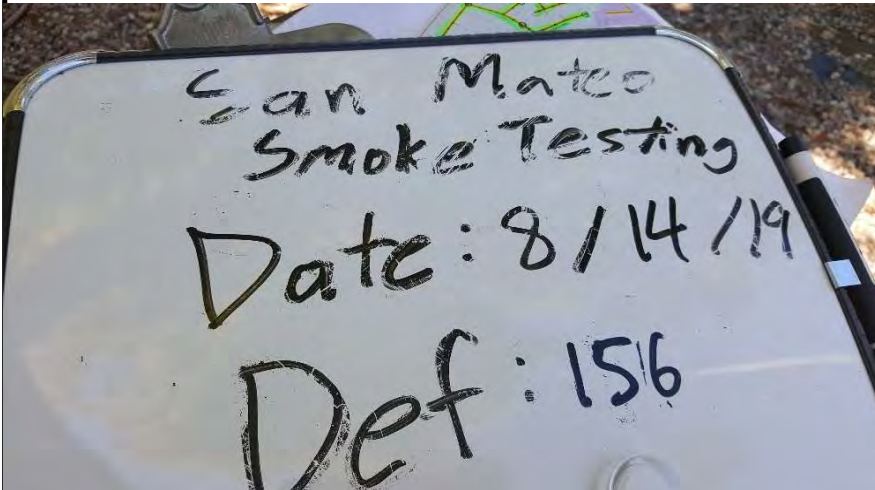
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved

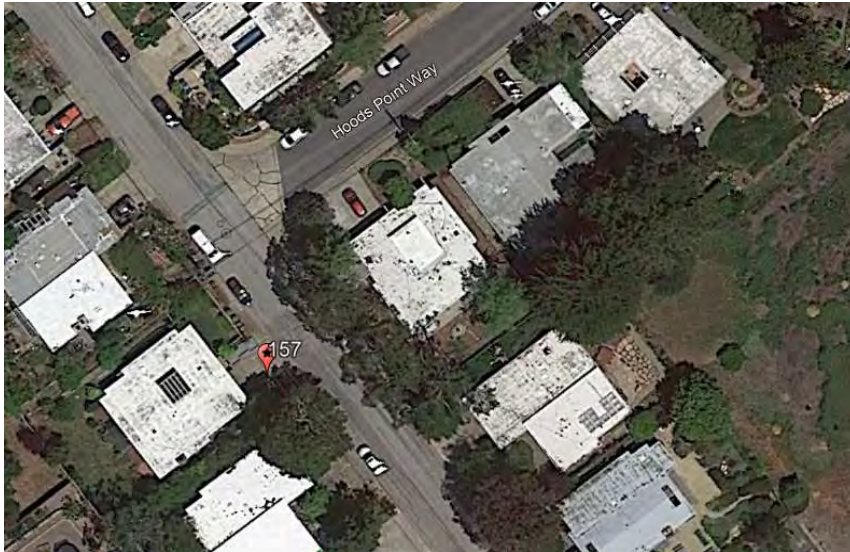


Comments: Low point. No cap



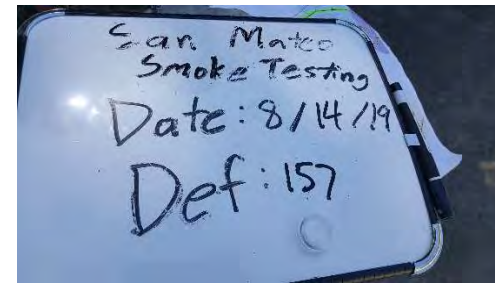
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 156





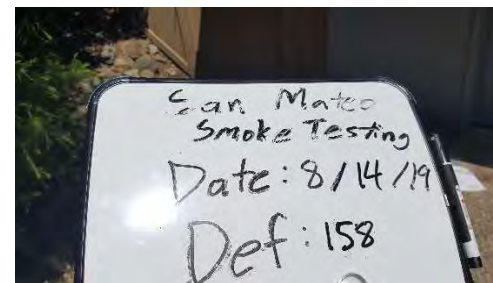
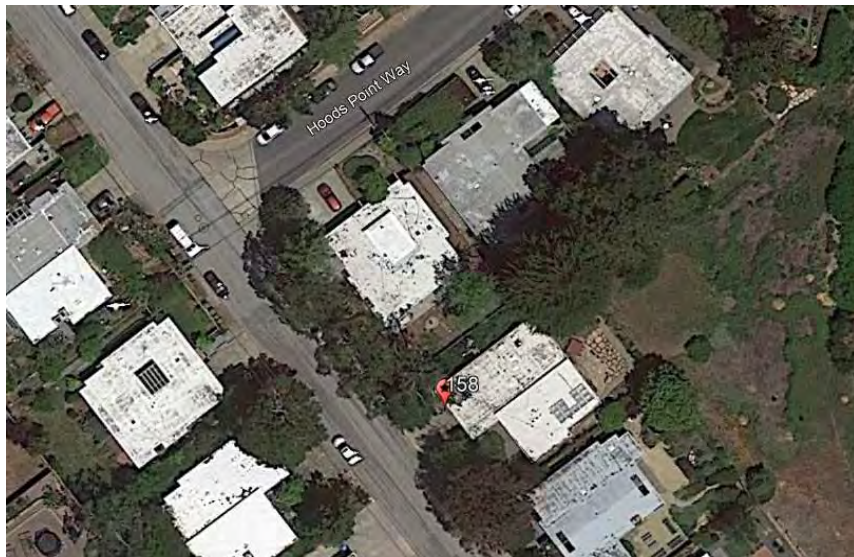
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 157
Address: 2024 New Bruswick Dr
Lat: 37.517790° Long: -122.341258°





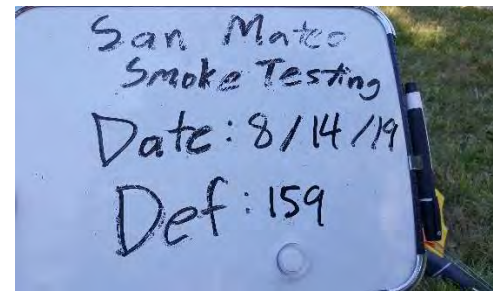
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 158
Address: 2027 New Brunswick Dr
Lat: 37.517731° Long: -122.340910°

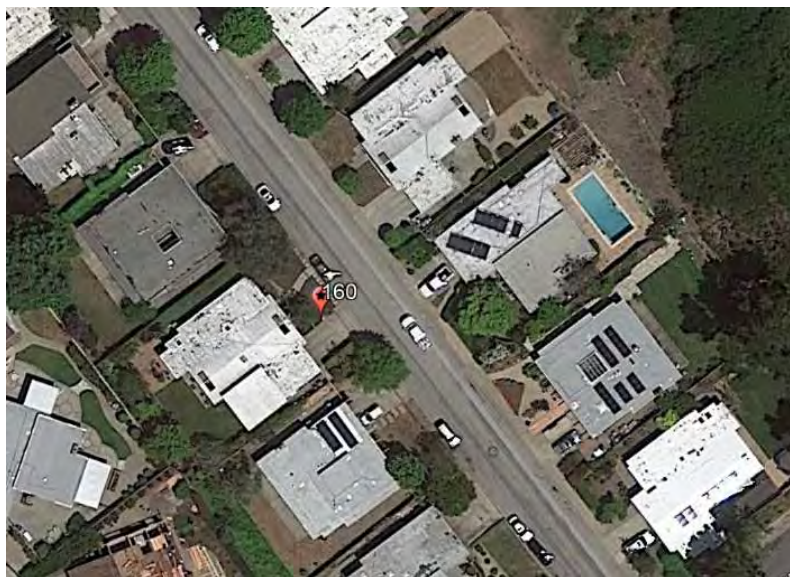




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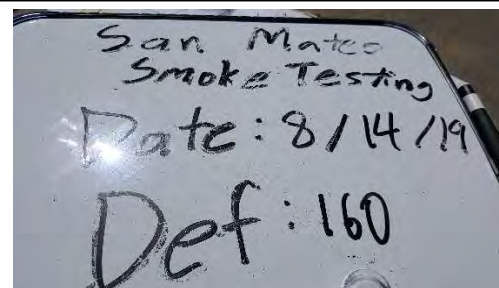
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 159
Address: 2032 New Bruswick Dr
Lat: 37.517468° Long: -122.340950°





ADS ENVIRONMENTAL SERVICES®

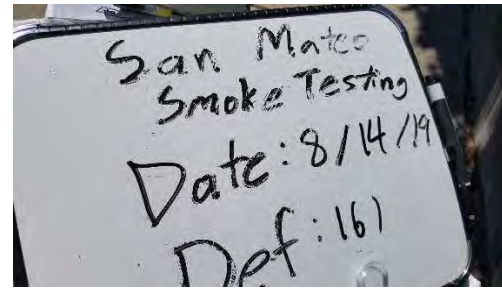
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 160
Address: 2052 New Bruswick Dr
Lat: 37.517000° Long: -122.340505°





ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 161
Address: 2068 New Bruswick Dr
Lat: 37.516748° Long: -122.340248°



Smoke Testing Form

Date 08/14/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 162

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
162	2084 New Bruswick Dr	1	1	16	3	8'	10'	2	

GPS Coordinates

Lat: 37.516320° Long: -122.339929°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

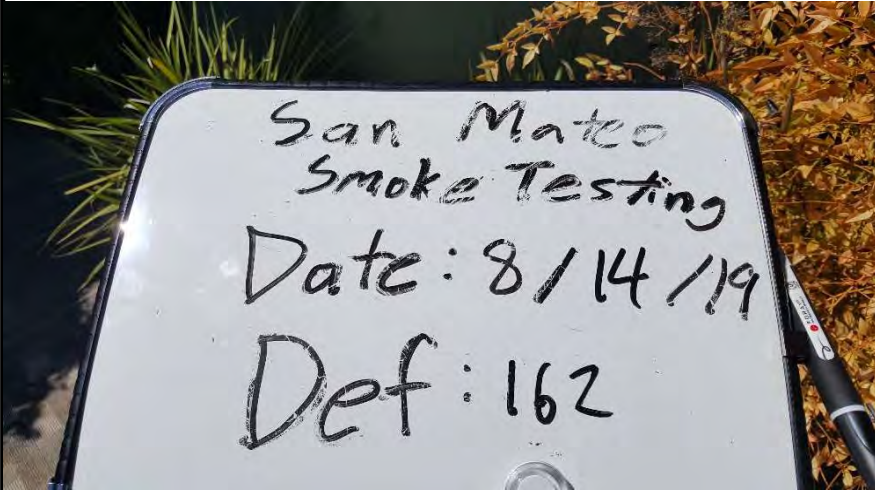
Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: No cap. Downspout drains here

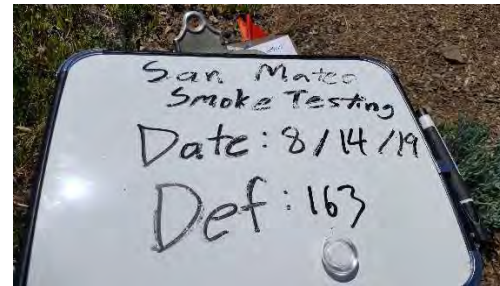
Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 162





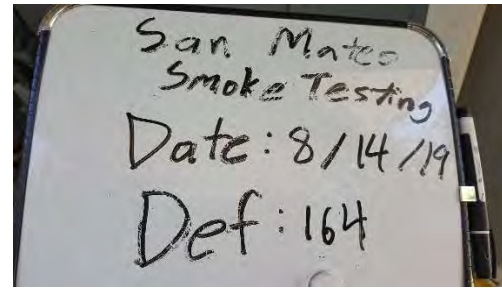
ADS ENVIRONMENTAL SERVICES®

Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 163
Address: 2076 New Bruswick Dr
Lat: 37.516459° Long: -122.340032°





Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 164
Address: 2089 New Bruswick Dr
Lat: 37.516306° Long: -122.339550°



Smoke Testing Form

Date 08/14/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 165

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
165	2227 Cobble Hill Pl	1	1	16	2	2'	6'	4	

GPS Coordinates

Lat: 37.515981° Long: -122.338359°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

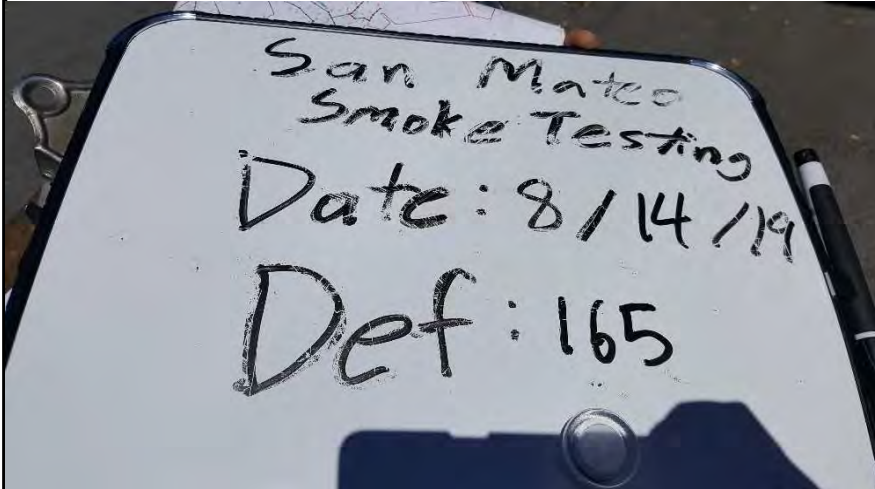
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Cap loose. Water flows over top.



Project: San Mateo Smoke Testing 2019
Date: 8/14/2019
Defect: 165





Smoke Testing Form

Date 08/15/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 166

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
166	1744 Parrott Dr	1	2	14	2	10'	100'	5	

GPS Coordinates

Lat: 37.527849° Long: -122.334820°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

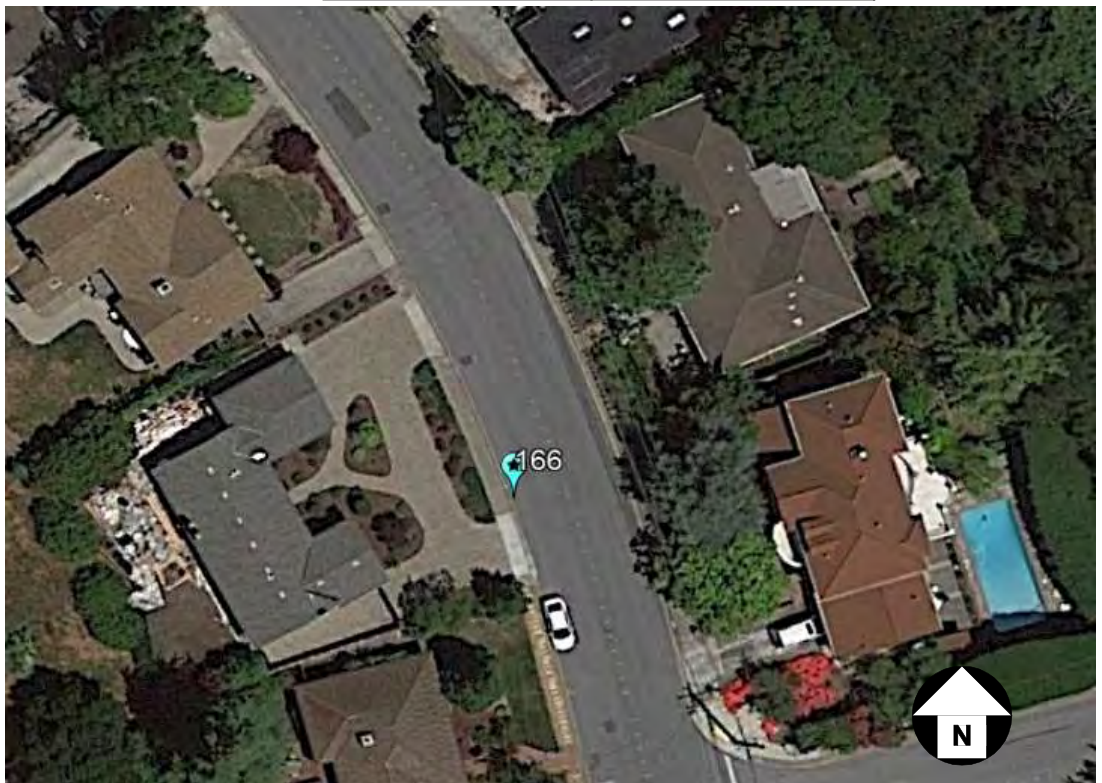
- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

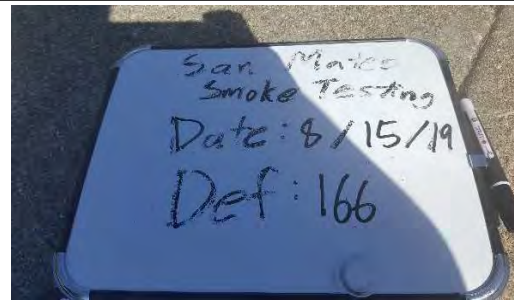
- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: Crack in road/ sidewalk. Could be lateral or main sewer line. On hill and flow will drain over crack. Might have root infiltration .



Project: San Mateo Smoke Testing 2019
Date: 8/15/2019
Defect: 166



Smoke Testing Form

Date 08/15/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 167-168

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
167	1835 Randall Rd	1	1	16	1	4"	4"	1	
	Lat: 37.525768°								
	Long: -122.332880°								
168	1835 Randall Rd	1	1	14	3	5'	5'	1	
	Lat: 37.525702°								
	Long: -122.332832°								

GPS Coordinates

Lat: 37.525768° Long: -122.332880°

Results Code

- 1. Positive
- 2. Suspect
- 3. Negative
- 4. Cannot Test

Status Code

- 1. Private
- 2. Public

Source Type Code

- 1. Service Laterals
- 2. Transition Joint
- 3. Driveway Drain
- 4. Window Well Drain
- 5. Stairwell Drain
- 6. Area Drain
- 7. Downspout
- 8. Downspout Connection
- 9. Foundation Drain
- 10. Building Inside
- 11. Catch Basin
- 12. Storm Drain
- 13. Storm Manhole
- 14. Main Sewer
- 15. Upstream Manhole
- 16. Cleanout
- 17. Other (Need to Investigate)

Smoke Code

- 1. Light
- 2. Medium
- 3. Heavy

Runoff Code

- 1. 0% Paved
- 2. 25% Paved
- 3. 50% Paved
- 4. 75% Paved
- 5. 100% Paved



Comments: 167: Cannot open

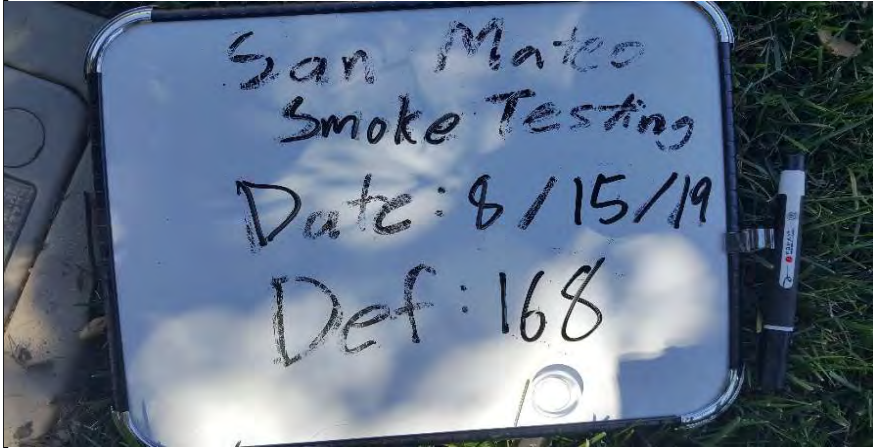
168: Smoke coming from cracks in dirt around manhole

Project: San Mateo Smoke Testing 2019
Date: 8/15/2019
Defect: 167





Project: San Mateo Smoke Testing 2019
Date: 8/15/2019
Defect: 168



Smoke Testing Form

Date 08/15/2019

Project San Mateo Smoke Testing 2019 **Results** Positive

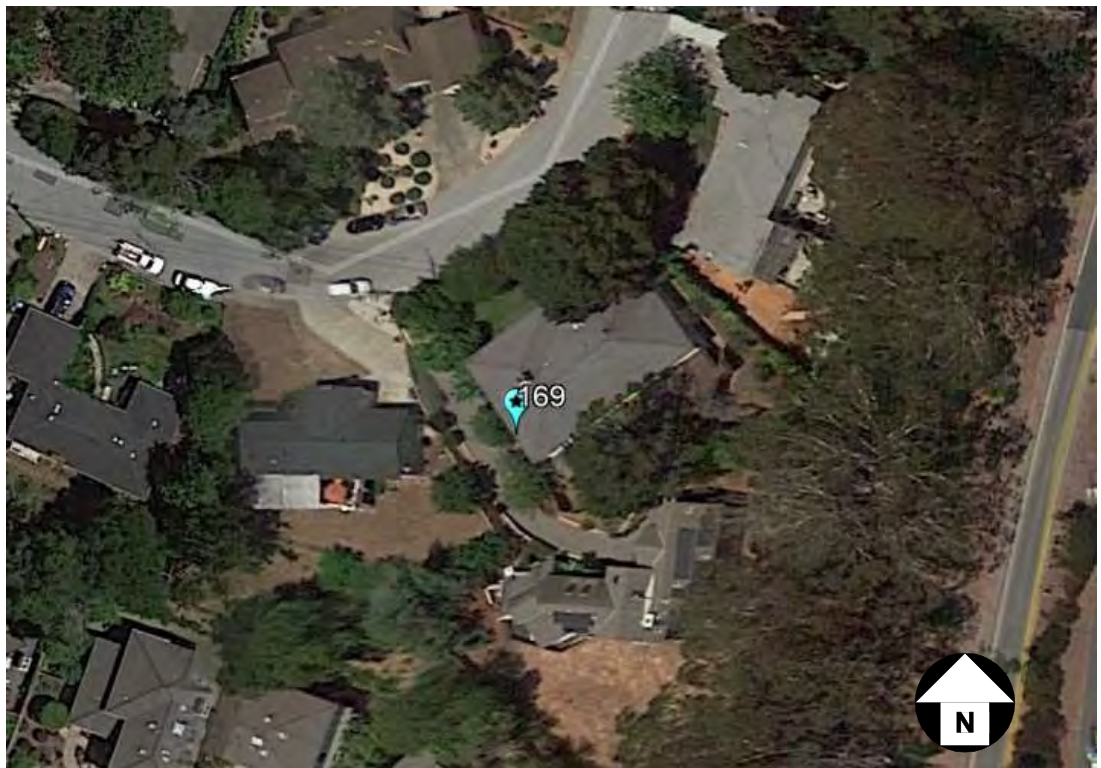
Inspection Crew Aby Takanohara/ Rickey Bradley **Defect#** 169

Defect #	Address/Location	Results	Status	Source Type	Smoke	Area		Run Off	Photo #
						FT	FT		
169	1867 Randell Rd	1	1	1	1	2'	4'	3	

GPS Coordinates

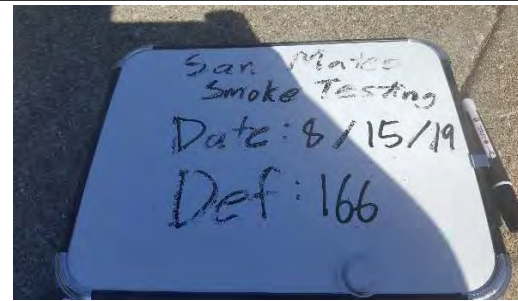
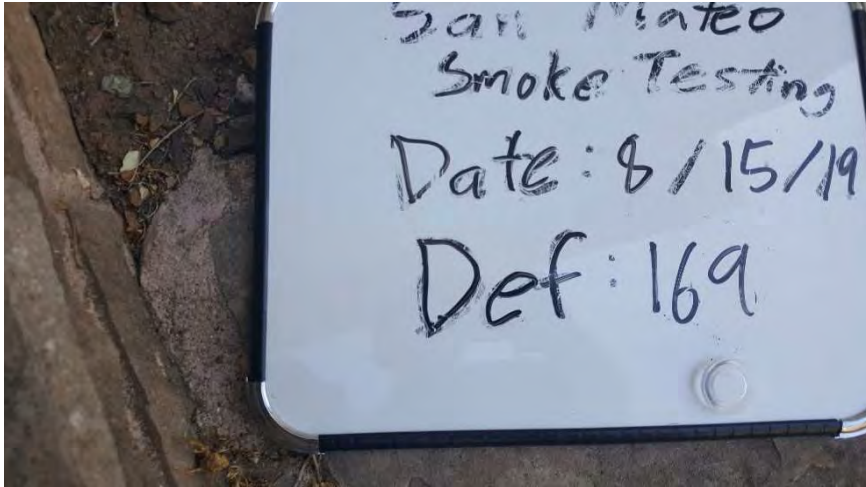
Lat: 37.524693° Long: -122.333335°

- Results Code**
 1. Positive
 2. Suspect
 3. Negative
 4. Cannot Test
- Status Code**
 1. Private
 2. Public
- Source Type Code**
 1. Service Laterals
 2. Transition Joint
 3. Driveway Drain
 4. Window Well Drain
 5. Stairwell Drain
 6. Area Drain
 7. Downspout
 8. Downspout Connection
 9. Foundation Drain
 10. Building Inside
 11. Catch Basin
 12. Storm Drain
 13. Storm Manhole
 14. Main Sewer
 15. Upstream Manhole
 16. Cleanout
 17. Other (Need to Investigate)
- Smoke Code**
 1. Light
 2. Medium
 3. Heavy
- Runoff Code**
 1. 0% Paved
 2. 25% Paved
 3. 50% Paved
 4. 75% Paved
 5. 100% Paved



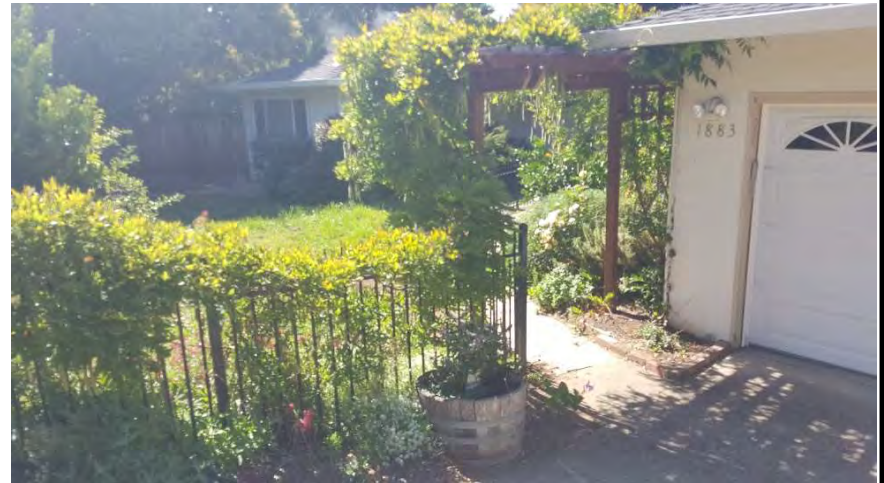
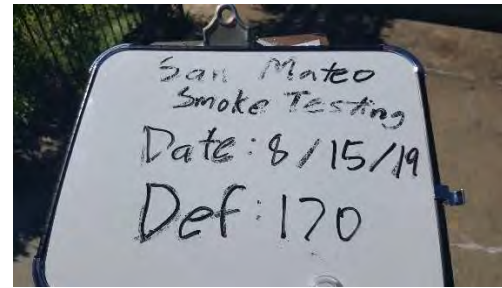
Comments: Smoke from small crack in walkway

Project: San Mateo Smoke Testing 2019
Date: 8/15/2019
Defect: 169



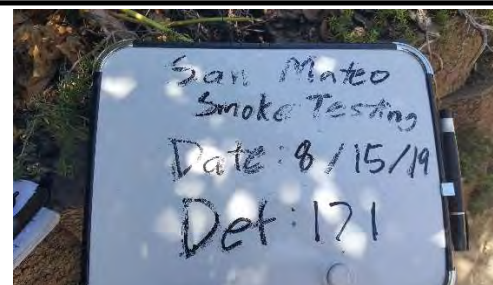
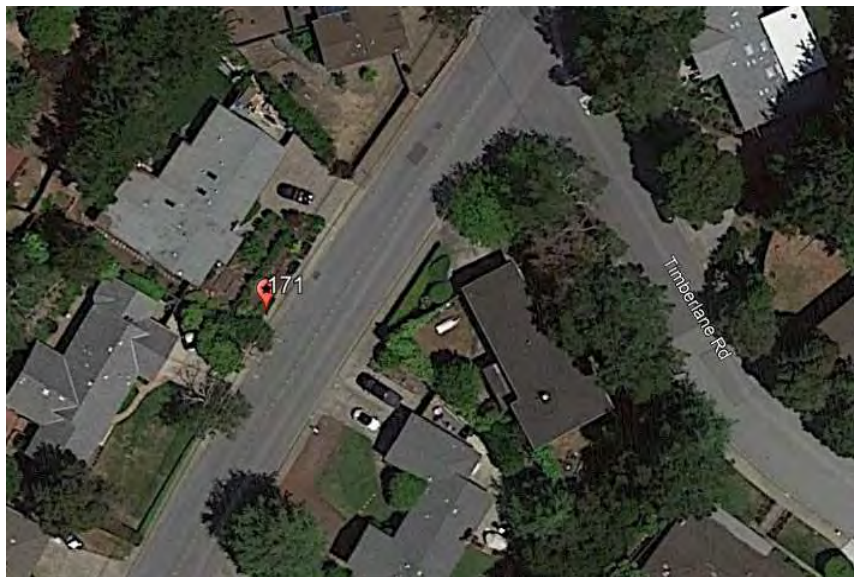


Project: San Mateo Smoke Testing 2019
Date: 8/15/2019
Defect: 170
Address: 1883 Randell Rd
Lat: 37.524750° Long: -122.333806°



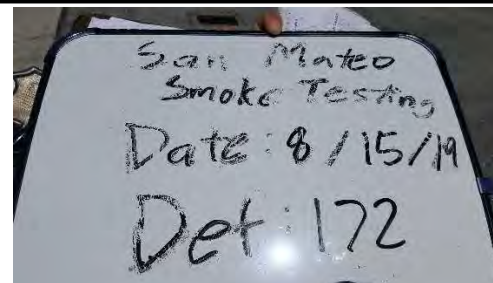
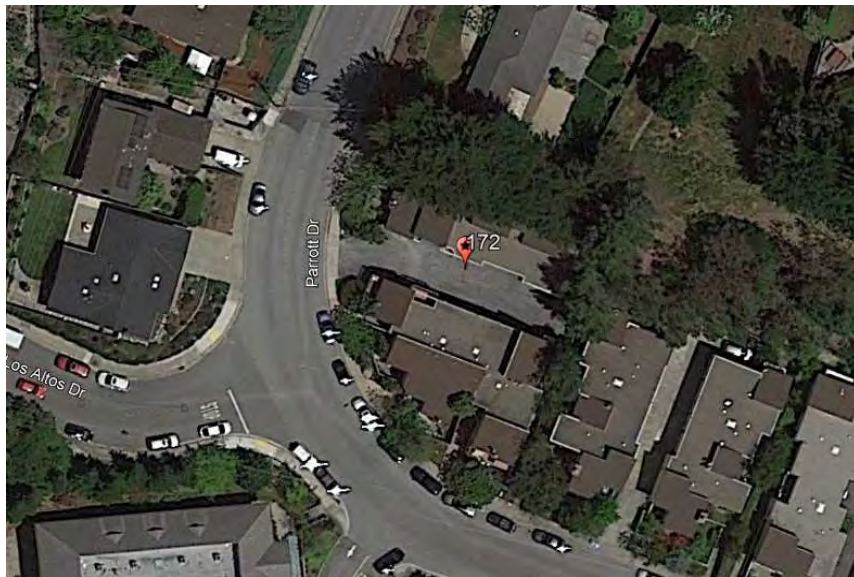


Project: San Mateo Smoke Testing 2019
Date: 8/15/2019
Defect: 171
Address: 1920 Parrott Dr
Lat: 37.523408° Long: -122.336828°





Project: San Mateo Smoke Testing 2019
Date: 8/15/2019
Defect: 172
Address: 2003 Parrott Dr
Lat: 37.522176° Long: -122.337143°



APPENDIX B

SMOKE TESTING NOTICES, PERMIT, AND AUTHORIZATION LETTER

Sanitary Sewer Smoke Testing Happening in Your Neighborhood

What is smoke testing?

The Crystal Springs County Sanitation District (District) has hired ADS Environmental Services to conduct smoke testing in your neighborhood. Smoke testing is a way to find defects in the District sewer system and private sewer laterals.

When will the smoke testing happen?

ADS Environmental Services will be conducting the testing from August 7 to August 22, 2019.

What can I expect to happen?

You may see inspection crews from ADS Environmental Services opening maintenance holes within the roadway and on private property and at times entering yards to do their work. **At no time will field crews have to enter buildings (businesses or residences).**

If you have concerns about us entering your property, please contact Matt Barrett with the District at (650) 599-1443 at least 2 days before the smoke testing is scheduled to begin.

During the testing, you may see white or gray smoke exit from the vent pipes on the roof of homes and businesses from breaks in the sewer lines. **The smoke is non-toxic, leaves no residue, and creates no fire hazard.** The smoke has a slight odor similar to burning paper and may cause minor throat irritation if inhaled.

What if I see smoke in my home or business?

The smoke should not enter your home or business unless defective conditions in your plumbing exist or drain traps are dry. If smoke should enter your building, please notify the smoke testing crews that will be working in the immediate vicinity or contact **Matt Barrett with the District at (650) 599-1443.**

If you have seldom used drains, please pour a gallon of water in the drain to fill the drain trap. This procedure will help prevent the possibility of smoke entering your living areas through seldom used drains. You only need to do this once, prior to the testing scheduled start on August 7th.

Note that if smoke enters your home or business because of a break or defect in your internal plumbing, it is an indication that potentially dangerous sewer gases could enter your building if the defect is not repaired. Although a rare occurrence, to prevent this possibility, we recommend you consult a licensed plumber should smoke enter your home.

If you, or anyone you know lives in the test area and are concerned about the possibility of smoke entering your property or should you have any questions concerning this study, please phone **ADS at (206) 423-3453, or Matt Barrett with the District at (650) 599-1443.**





**COUNTY OF SAN MATEO
DEPARTMENT OF PUBLIC WORKS**

555 County Center, 5th Floor
Redwood City, CA 94063
(650) 363-4100

Permit Number: DPW2019-01021
Issued: 08/01/2019
Inspection Request: (650) 599-7273 (Bayside)
(650) 599-7296 (Coast)

Do not begin construction without confirming date and time of inspection. Minimum notice is 48 hours to start.

APPLICANT NAME: SEAN WINDER

SITE ADDRESS: 0 CRYSTAL SPRINGS RD

AREA: SAN MATEO HIGHLANDS

APPLICANT INFORMATION

SEAN WINDER
ADS ENVIROMENTAL SERVICES
3447 INDUSTRIAL BLVD. SUITE 45
HAYWARD, CA 94595-0000
PHONE #1: 2067625070
PHONE #2: 2064233453

CONTRACTOR INFORMATION

PHONE #1:
PHONE #2:

PROJECT NAME: TCP - SMOKE TEST VARIOUS LOCATION SAN MATEO HIGHLANDS

PROJECT DESCRIPTION: ADS Environmental Services in Coordination with San Mateo County, Sewer District to Traffic Control along various streets in the San Mateo Highlands area, perform a smoke test on Sewer manholes through the entire area, test will consist on blow smoke into the sanitary manhole and walk affected are looking for defects. Use Traffic Control per CA MUTCD/Caltrans. "Call road inspector to schedule backfill inspection".

TYPE OF PERMIT: Other

UNDERGROUND SERVICE ALERT (USE) NO.:

DATE OF USA INQUIRY:

SEWER DISTRICT: undefined

COUNTY SIP REQ'D?: N

PERMIT EXPIRATION DATE: 08/30/2019

Waiver

\$0.01

FEE AMOUNT PAID:

\$0.01

The work authorized by this Permit shall be subject to all the terms, conditions, and restrictions set forth herein. This permit consists of the Special Provisions and Standard Details of San Mateo County as applicable, attached and made a part hereof. The project, as specifically described, is to be strictly construed and no other activity shall be permitted. **Notify County Road Inspector 48 hrs prior to starting work.**

The Permittee and/or his contractor shall indemnify and save harmless the County, its officers, agents, employees and servants from all claims, suits or actions of every name, kind and description, brought for, or on account of, injuries to or death of any person or damage to property resulting from the performance of any work authorized or required by this Permit of Permittee and/or his contractor, their officers, agents, employees and/or servants.

INSURANCE

Permittee is required to maintain property damage and liability insurance in amounts equivalent to or exceeding the legal minimums as a condition of this permit.

APPROVAL BY DEPARTMENT OF PUBLIC WORKS

This permit was issued by me on:

Date: 08/01/2019

Reviewed by: Adolfo Orellana

Signed: _____

**** FOR OFFICE USE ONLY ****

Date Completed: _____

By: _____

DEPARTMENT OF PUBLIC WORKS



Road Operations - Permits
455 County Center, 2/FI.
Redwood City, CA 94063
(650) 363-1822

JAMES C. PORTER
Director of Public Works

DPW 2019-01021

Date: _____
Plan Check #: _____
APN: _____

ENCROACHMENT PERMIT APPLICATION

To Whom It May Concern:

The undersigned hereby applied for permission to excavate, construct and/or otherwise encroach upon the Right-of-Way of the County of San Mateo road(s) listed:

DESCRIBED LOCATION OF PROPOSED ACTIVITY

Various location - See attached map for access
area within Crystal Springs County Sanitation District

DESCRIBED PROPOSED ACTIVITY: <Attach site plan and sketch or scaled drawing>

Access sanitary manholes in area and place smoke blower on top
of manhole. Blow smoke into sanitary system and walk effected area
looking for defects.

NOTE: State of California Government Code Sections 4216 through 4216.9 require an INQUIRY IDENTIFICATION NUMBER be assigned to every person planning to conduct an excavation in a Public Right-of-Way or Private Easement. If applicable, the applicant shall call the "USA" Regional Notification Center at 800-642-2444 a minimum of two (2) days prior to commencing that excavation. **NO PERMIT TO EXCAVATE ISSUED BY SAN MATEO COUNTY SHALL BE VALID UNLESS THE APPLICANT HAS OBTAINED AN INQUIRY ID NUMBER FROM "USA."**

PROPOSED ENCROACHMENT DATE(S): START 8/7/19 FINISH 8/23/19

Applicant agrees to accomplish the described activity in accordance with applicable County of San Mateo codes, regulations, restrictions and specifications and to be subject to inspection and approval by the Dept. of Public Works.

fw Applicant shall indemnify and save harmless the County, its officers, agents, employees and servants from all
initials claims, suits or actions on every name, kind and description, brought for, or on account of, injuries to or death of
any person or damage to property resulting from the performance of any work authorized or required by the County
in conjunction with this request.

fw Applicant is required to maintain property damage and liability insurance in amounts equivalent to or exceeding the
initials legal minimums as a condition of this permit.

APPLICANT COMPLETE

"USA" Inquiry

Date

USA Inquiry ID Number

PLEASE PRINT

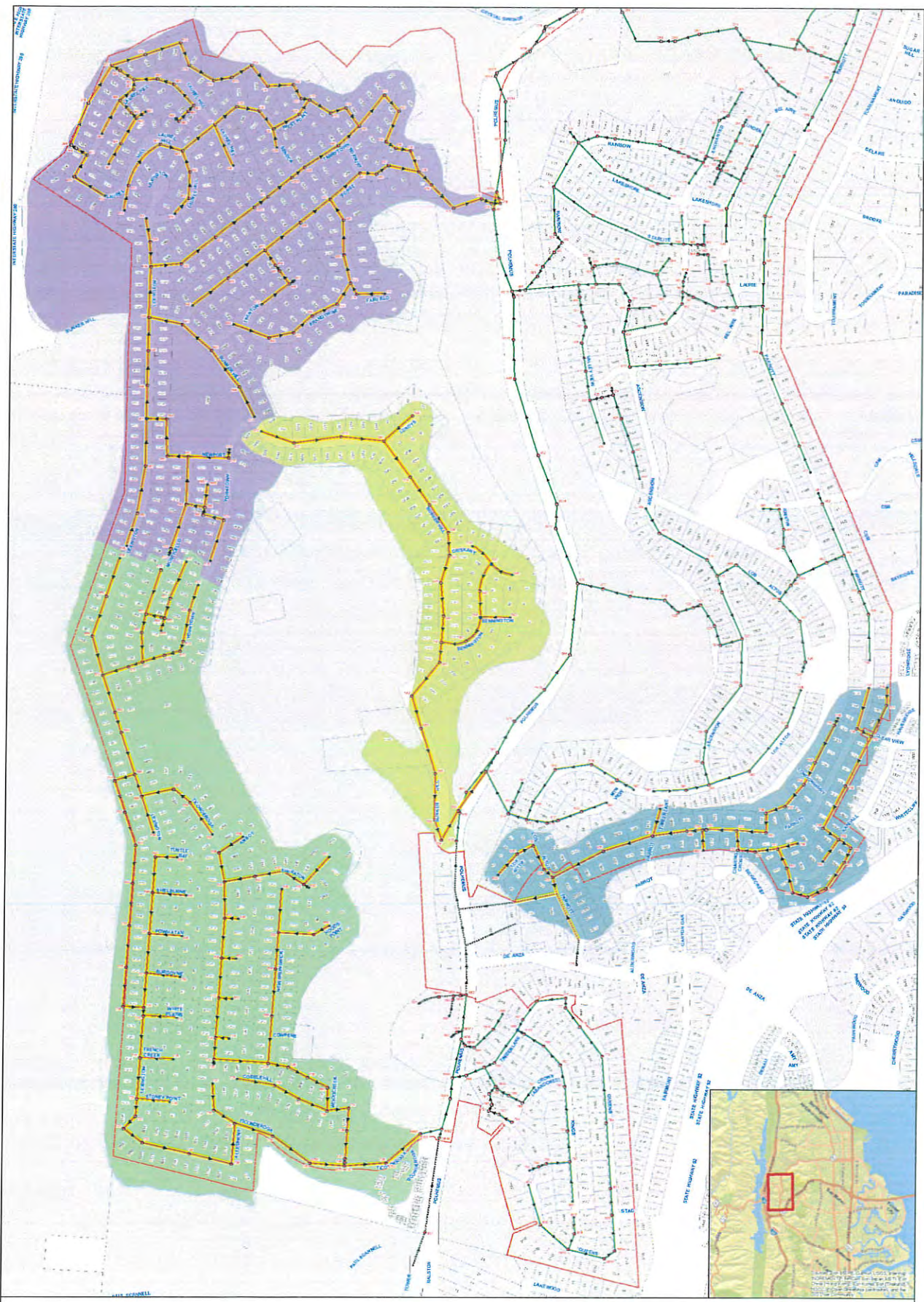
ADS
Applicant Name

3447 Investment Blvd, STE H5
Mailing Address

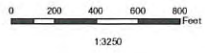
Hayward, CA 94545
City, State Zip

206-423-3453 / swinder@idexcorp.com
Area Code & Phone and email

[Signature]
Applicant Signature



Crystal Springs CSD Smoke Testing - Project Area

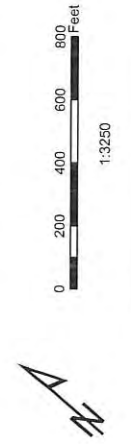


Smoke Test Basins	Sewer Node	Sewer Node NCO
CS-2	Manhole	Manhole
CS-6	Drop Manhole	Drop Manhole
CS-7	Flushing Inlet	Flushing Inlet
CS-10	Terminus	Terminus
Crystal Springs CSD Boundary	Wye	Wye
Smoke Test Segments	Sewer Man	Sewer Man





Crystal Springs CSD Smoke Testing - Project Area



- | | | |
|------------------------------|-------------------|-----------------------|
| Smoke Test Basins | Sewer Node | Sewer Node NCO |
| CS-2 | Manhole | Manhole |
| CS-6 | Drop Manhole | Drop Manhole |
| CS-7 | Flushing Inlet | Flushing Inlet |
| CS-10 | Terminus | Terminus |
| Crystal Springs CSD Boundary | Wye | Wye |
| Smoke Test Segments | Sewer Main | Sewer Main |



**COUNTY OF SAN MATEO
DEPARTMENT OF PUBLIC WORKS**

555 County Center, 5th Floor
Redwood City, CA 94063
(650) 363-4100

Payment Receipt

Check #: CASH
Receipt #: 512910
Money Received By: DPWPERMITS
Name: SEAN WINDER
Address: 0 CRYSTAL SPRINGS RD, San Mateo Highlands, CA null
Parcel #:

Case Number	Account Number	Description	Date Paid	Amount Due	Amount Paid
Public Works Department					
DPW2019-01021	45240-1251	Waiver	8/1/19	\$0.01	\$0.01
				Total Paid:	\$0.01
				Grand Total:	\$0.01
				Balance Due:	\$0.00

October 10, 2018

Mark Chow, P.E.
Principal Civil Engineer
County of San Mateo
Department of Public Works
555 County Center, 5th Floor
Redwood City, CA 94063
Tel. (650) 599-1489
Fax. (650) 361-8220
e-mail: mchow@smcgov.org

Re: 2019 Smoke Testing Proposal
County of San Mateo

Dear Mark,

Thank you for the opportunity to propose on the County of San Mateo smoke testing project. We believe the ADS project team is uniquely qualified to perform this work based on our 43 years of experience performing these services. ADS has local and experienced staff in Hayward which will provide the County of San Mateo immediate access to our project staff and field crews for project updates and facilitate coordination for the critical task of public notification for the smoke testing field work.

We look forward to working with you on this and other future projects. Thank you for the opportunity to propose on your requirements. If you have any questions regarding this proposal, please do not hesitate to call me at (858) 210-5387.

Sincerely,

Rob Larson
Business Development Manager
858-210-5387

Enclosure

Proposed Scope of Work;

ADS Environmental Services (“ADS”) will provide Smoke Testing Services for the County of San Mateo in the Summer of 2019. It is anticipated Smoke Testing will be performed on approximately 60,000 l/ft of sewer pipe.

The scope of work for this project would include the following:

1. ADS will attend a project kickoff meeting with County’s Wastewater team to gather and review documents, these to include the County’s Sewer Map Book, Parcel boundary map, Thomas Brothers.
2. Obtain no fee Right-of Way permit as needed.
3. Provide equipment, materials, and field crews required to smoke test up to 60,000 linear feet of pipeline.
4. Notify residents via door hangers within 24-48 before the scheduled smoke testing.
5. ADS will coordinate with County’s Police and Fire department to communicate smoke test crew locations and schedules.
6. Notify County’s Communications Department of pending smoke testing schedules.
7. Perform smoke testing and document observed leaks using GIS cameras, maps provided by the County, smoke testing forms, and digital photographs.
8. Perform necessary safety procedures, and traffic control in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) using two (2) man crews.
9. Provide two (2) copies of the field forms and digital photographs:

County’s Responsibilities

Prior to any ADS fieldwork, the County will need to provide the following:

1. A fully executed Agreement and a written notice to proceed
2. A letter from the County on Official Letterhead authorizing ADS to perform this work that lists County’s staff so that citizens or others can contact them should they have any question.
3. Send Mail Notifications to Residents prior to ADS Smoke Testing Begins
4. All approvals, permits, etc. necessary to allow ADS to perform services under the Agreement on the County, and Federal property and/or right-of-way.
5. One (1) complete set of collection system drawings (maps) for the test area.
6. Disclosure of any known sanitary system hazards.
7. Other information required by ADS to perform services under the Agreement.

Proposed Project Approach

Field Work: A (2) two-person ADS field crew using a 4,000 cfm blower and non-toxic smoke will be used to smoke test the pipelines. Smoke testing will be limited to test no more than two segments (3 MHs in a row) or 800 feet, except where access dictates different setup procedures.

ADS will utilize standard ADS field forms to record all observed I/I defect data. Digital photographs will be captured for each observed I/I defect and attached to the respective smoke defect. Each smoke form will identify the type of defect (manhole, mainline, municipal service, or private service), leak location (grass, pavement, etc.), severity of the leak, and line segment on which the leak is identified. ADS will document observations regarding each leak identified and its source (roof gutters, cleanouts, laterals, area drains, storm drains etc.). ADS can customize the forms to suit specific County requirements as appropriate.



Defect information will include location, personnel, date, and a schematic layout of the manhole and sewer line under testing. ADS will photograph all smoke leaks observed and will document the leak location using a GPS camera.

- 1) digital photographs of the leaks;
- 2) location of defect via GPS coordinates or reference to permanent landmarks, and
- 3) documentation of defects.

Digital Photographs: Digital Photographs will be taken of smoke coming out of the ground, catch basins, pipes and other sources during the test.



Prepare Reports:

- Prepare field forms
- Record testing results
- Prepare documentary photographs (electronic format)
- Use professional judgment to analyze resulting data
- Prepare list of defects

All defects that are observed during the fieldwork phase of the project will be documented using standard field forms. The severity of the defect will be determined in the field by visual observation of the smoke, type of defect, drainage area and drainage surface.

For data management, smoke defect data will be catalogued as fields in a database flat file in Excel format (for tabular summary report presentation) and if requested, in a database4 format for use in a GIS platform such as ESRI ArcView. An ArcView defect theme (shapefiles) will be provided as well for County use.

Schedule:

- Mobilization 2 weeks after receipt of work authorization (dry weather 2019)
- Smoke test production rate (6,000 – 12,000 feet per day) ;
- Photos, defect and description list, pipes tested and manhole injection point data provided within 3 weeks of completion of basin smoke testing field work.



Smoke Testing Study
County of San Mateo Basins CS-2, CS-6, CS-7, and CS-10

August 2019



ATTACHMENT 8: Smoke Testing Defects and Associated Rehabilitation

The sewer main defects and results and recommended repairs/rehabilitation resulting from the noted defects within the Smoke Testing Study are summarized in the table below.

DEFECT ID	BASIN	LATITUDE	LONGITUDE	DEFCT TYPE	SMOKE DENSITY	ADDRESS	NOTES
1	CS-10	-122.35	37.52	SOURCE UNKNOWN	LIGHT	2285 BUNKER HILL DRIVE	MAY BE LATERAL OR CLEANOUT
34	CS-2	-122.36	37.53	MAIN SEWER	LIGHT	1287 LAUREL DRIVE	SMOKE COMING FROM NEXT TO MANHOLE LID. ADDRESSED IN MANHOLE REHABILITATION
91	CS-2	-122.35	37.52	SOURCE UNKOWN	LIGHT	1620 LEXINGTON AVENUE	AREA DRAIN OR LATERAL
99	CS-2	-122.35	37.53	SEWER MANHOLE	HEAVY	57 ROXBURY LANE	SEWER MANHOLE LID LOW POINT ON HILL; INFILTRATION DISK RECOMMENDED
103	CS-7	-122.35	37.52	SEWER MANHOLE	HEAVY	1759 MONTICELLO ROAD	SEWER MANHOLE LID LOW POINT ON HILL; INFILTRATION DISK RECOMMENDED
108	CS-7	-122.35	37.52	SOURCE UNKNOWN	LIGHT	1763 LEXINGTON AVENUE	CANNOT OPEN COVER
132	CS-7	-122.34	37.51	SOURCE UNKNOWN	LIGHT	15 STONEY POINT PLACE	CANNOT ACCESS DUE TO DEBRIS. MOST LIKELY CLEANOUT
147	CS-7	-122.34	37.52	SOURCE UNKNOWN	MEDIUM	25 AMBOY COURT	COULD NOT TELL SOURCE. UNDER CONTAINER CAR
166	CS-6	-122.33	37.53	MAIN SEWER	MEDIUM	1744 PARROTT DRIVE	CRACK IN ROAD/SIDEWALK. ON HILL AND FLOW WILL DRAIN OVER CRACK. ADDRESSED IN PIPE REHABILITATION.