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CONDITION REMEDIATION ALTERNATIVES ANALYSIS

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# Project Scoping Report

## Central Sewershed Package 14

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**PREPARED FOR:** San Antonio Water System

**PREPARED BY:** Camille Constantine

**DATE:** March 5, 2020

Revision	Date	Revision Description	Approved By
0	12/5/19	Draft Submittal	Camille Constantine
1	12/16/19	Final Draft QC	Project Controls
2	2/11/20	Final Submittal	Christopher Jackson
3	3/5/20	Final Submittal Rev. 1	Christopher Jackson

This report is released for the purpose of defining the scope of this project and providing recommendations to be verified during the design phase. This report is not to be used for construction, bidding, or permitting purposes.

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Christopher J. Jackson, P.E.

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## 1.0 Executive Summary

San Antonio Water System (SAWS) entered into a Consent Decree (CD) with the United States Environmental Protection Agency (EPA) on July 23, 2013. As part of the CD, SAWS is required to assess the condition of approximately 2,100 miles of gravity sewer mains and identify condition remedial measures on pipes with a “Very Poor” condition rating.

This report presents the results of condition remedial measures alternatives analysis for approximately 8,807.4 linear feet of selected gravity sewer lines. **Table-1.1** summarizes the proposed constructions methods and their estimated costs. The recommendations in this report may be further modified during subsequent design and construction phases, as appropriate, based on additional data and findings.

*Table-1.1: Proposed Construction Method and Estimated Costs*

Type of Work	Length (ft)	Line Size Range (in)	Estimated Construction Cost
Cured – in – Place Pipe (CIPP)	8,807.4	8 – 60	\$ 5,389,597.60
<b>Total</b>			<b>\$ 5,389,597.60</b>

## 2.0 Evaluation

The Main Stem Capacity Project was recommended to be addressed in a systematic, phased approach by Freese and Nichols in a Technical Memorandum titled “Main Stem Systematic Approach Evaluation” submitted to SAWS on January 18, 2019. As part of that systematic approach, condition improvements to sewer mains within the Main Stem Project scope which warrant condition remediation must be made by 2025. This package is to address the sewer mains which required condition remediation that are part of the Main Stem Capacity Project. This package is not intended to address the known capacity constraints identified by SAWS and Freese and Nichols. This package will meet the obligation of condition improvements required in the TM, as well as our obligation as part of the condition remedial measure program of the Consent Decree.

## 3.0 Coordination

### Street Projects

The City of San Antonio (CoSA) provides an ArcGIS layer of street projects throughout the City. No street projects have been identified in the scope of this project at this time. It is recommended that SAWS coordinate with CoSA to determine the timing of

the street projects during design. Please note that pipes may be required to have the construction expedited where street projects are forthcoming.

### High and Medium Pavement Condition Index (PCI) Roads

CoSA provides an ArcGIS layer that has the estimated PCI of roads in the city. All mains on this package will be rehabilitated via CIPP, but may have an impact on high and medium PCI roads.

### Other Considerations

Pipes that are located in sensitive areas that may require additional permits have been listed below in **Table-3.1**.

*Table-3.1: Pipes that need additional coordination*

Compkey	Reason
990295	CoSA Park & Apache Creek & Railroad
1026538	CoSA Park & Apache Creek & Railroad
989415	100Yr Floodplain
989658	100Yr Floodplain & CoSA Storm channel crossing
998267	100Yr Floodplain & CoSA Storm channel crossing
997543	CoSA Storm channel crossing

## 4.0 Planning Budget

The planning budget provided below is based on historical data from similar bids between 2016 and 2018. The data in **Table-4.1** provides cost estimating metrics for the different methods of sewer pipeline rehabilitation and replacement (CIPP, pipe bursting, pipe replacement) for the typical sewer pipe sizes. The unit pricing was calculated based on: pipe size, rehabilitation method, number of estimated point repairs, internal repairs, lateral reconnections, and the pavement condition index of all impacted roads. The planning budget should be revised by the Project Design Consultant during the design based on AACE International standards.

*Table-4.1: Estimated CIPP Cost*

Description	Quantity	Unit	Unit Price	Total
8 – inch CIPP	435	LF	\$ 112.55	\$ 49,000.00
24 – inch CIPP	33.5	LF	\$ 288.00	\$ 10,000.00
33 – inch CIPP	113.4	LF	\$ 402.39	\$ 46,000.00

42 – inch CIPP	283	LF	\$ 509.12	\$ 144,000.00
48 – inch CIPP	3,378.6	LF	\$ 576.43	\$ 1,948,000.00
54 – inch CIPP	1,802.8	LF	\$ 658.86	\$ 1,188,000.00
60 – inch CIPP	2,761.1	LF	\$ 726.52	\$ 2,006,000.00
<b>Total</b>				<b>\$ 5,391,000.00</b>

\*Total amounts have been rounded to nearest \$1000.

## 5.0 Planning Recommendation

**Table-5.1** provides detailed information, the preliminary remediation method, as well as the reason behind each method chosen for each pipe segment included in this package. Most pipes on this package are part of the condition remedial measures program and need to be completed by said compliance year which is recorded in the table under, “Completion Year”.

**Table-5.1: Recommendation Summary**

Comkey	As-built	Install Year	Block Map No.	Completion Year*	Dia (in)	Length (ft)	Material	Avg Depth (VF)	Preliminary Rehabilitation Actions	IAP Comments
1018144	DJ-1066	1993	158566		60	294.4	RCP	11	CIPP	Known Capacity Issue. Opportunity main, in between target mains. Will be on bypass.
980849	DJ-1066	1993	158566	2023	60	308.5	RCP	16	CIPP	Reinforcement projecting, under med PCI, CTV from 2014, and parallel 12" DI water main, recommend CIPP, SA.
1018183	DJ-1066	1993	158566	2023	60	14.56	RCP	10	CIPP	9LF, Looks more like a junction box, reinforcement visible, CCTV from 2014, recommended CIPP, SA
1026538	DJ-0048	1962	154574		42	283	RCP	20	CIPP	Siphon and opportunity main. If asset can be rehab CIPP then keep. If Jack bore and tunnel then remove and put on future CMOM package. If UPRR permit for site is going to delay schedule of entire package, then remove for future CMOM package.
1030352	DJ-1065	1991	158566	2023	60	569	RCP	10	CIPP	Surface aggregate projecting, reinforcement visible. Pipe has multiple laterals. 48" SWR main, 6" WTM and a gas main running parallel. In a med PCI residential road. Recommend CIPP. CC
2389347	OM-2770	1916	158564		8	50	CT	12	CIPP	Opportunity main. Low cost impact. Rehab now that the 60" will be on bypass.
3354579	DJ-4316B	1990	158566	2023	48	14.5	RCP	10	CIPP	14LF, Med PCI road, crosses 12' DI water main, Looks more like a junction box, recommend CIPP, SA
990295	DJ-4314D	1991	154574	2023	33	113.4	RCP	19	CIPP	CJ Pipe has exposed rebar. Can be lined. Moved from M-18 to C-14.
982177	DJ-4316B	1990	158566	2023	48	301.7	RCP	11	CIPP	Reinforcement projecting and corroded, CCTV from 2014, recommend CIPP, SA.
981492	DJ-4316B	1990	158566	2023	48	307	RCP	11	CIPP	Install Manhole (Bend or C/O). CCTV from 2005 rated pipe a D. 24" and 12" WTM's running parallel in a medium PCI neighborhood rd. Recommend CIPP. CC
998267	DJ-0579	1981	158564	2023	60	148.2	RCP	9	CIPP	Near Floodplain, Under Storm channel boxes, aggregate visible, CCTV from 2014, recommended CIPP, SA
999017	DJ-4316B	1990	158564	2023	48	64.6	RCP	10	CIPP	Near Floodplain, Under Storm channel boxes, reinforcement visible, recommended CIPP, SA
989552	DJ-4316B	1990	158564		48	654.7	RCP	14	CIPP	Known Capacity Issue. Opportunity main, under Bexar office building, in between target mains, will be on bypass. 'D' rated pipe.

Compkey	As-built	Install Year	Block Map No.	Completion Year*	Dia (in)	Length (ft)	Material	Avg Depth (VF)	Preliminary Rehabilitation Actions	IAP Comments
989553	DJ-4316B	1990	158564	2025	24	33.5	PVC	10	CIPP	Was not able to CCTV pipe, need PR before. Would say to abandon - CC. CJ is equalizer pipe that needs some internal repairs done before lining
997543	DJ-0579	1981	158564		60	65.6	RCP	9	CIPP	Known Capacity Issue. Opportunity main, cuts through rip rap, near the Bexar office building, in a CoSA strm channel, 100yr floodplain & by a creek.
989556	DJ-4316B	1990	158564	2025	54	106.7	RCP	16	CIPP	Known Capacity Issue. Hanging gasket with debris buildup. No serious defects can be lined. -CC. CJ Agreed
982461	DJ-4316B	1990	158562	2023	54	489.3	RCP	12	CIPP	Pipe reinforcement visible, deposit buildup, CCTV from 2014. 24" CoSA STRM drain and WTM running parallel. Recommend CIPP. CC
989415	OM-3147	1915	158564	2025	60	303.5	RCP	11	CIPP	Known Capacity Issue, 60" RCP, 294 LF, aggregate projecting, reinforcing corroded & hanging, ragging, I concur with the rehab action. Pipe can be lined. WTM Crossing-CC. CJ Agreed
997962	DJ-4316B	1990	158564	2023	48	169	RCP	7	CIPP	Surface aggregate projecting, reinforcement visible. 60" SWR main running parallel. Located in an empty lot. Large utility poles on lot. Recommend CIPP. CC
989454	OM-3147	1915	158564	2025	60	187.7	RCP	12	CIPP	60" RCP, 200 LF, surface aggregate projecting, surface reinforcing visible, attached deposits, I changed the rehab action to Lining. No serious defects, but Surface agg. projecting. Recommend lining - CC. CJ Agreed
982320	OM-3147	1915	158564	2025	60	183	RCP	10	CIPP	Known Capacity Issue, 60" RCP, 187 LF, surface aggregate projecting, surface reinforcing corroded, I changed the rehab action to Lining. Pipe can be lined - CC. CJ Agreed
981719	DJ-1066	1993	158566	2023	60	313.3	RCP	18	CIPP	Reinforcement projecting, under med PCI, CTV from 2014, recommend CIPP, SA.
982629	OM-3147	1915	158564	2025	60	167.1	RCP	8	CIPP	Known Capacity Issue, 60" RCP, 165 LF, surface aggregate projecting, surface reinforcing corroded, ragging, I changed the rehab action to Lining. Can be lined - CC. CJ Agreed
982319	OM-3610	1921	158564		8	385	CT	8	CIPP	Opportunity main. Rehab now that the 60" will be on bypass. 'D' rated pipe.
982312	OM-3147	1915	158564	2025	60	179.2	RCP	9	CIPP	Known Capacity Issue, 60" RCP, 181 LF, surface aggregate visible, surface reinforcing corroded, I changed the rehab action to Lining. No serious defects, recommend lining. WTM&Gas crossing- CC. CJ Agreed

Compkey	As-built	Install Year	Block Map No.	Completion Year*	Dia (in)	Length (ft)	Material	Avg Depth (VF)	Preliminary Rehabilitation Actions	IAP Comments
981889	DJ-4316B	1990	158566	2025	48	587.1	RCP	9	CIPP	Known Capacity Issue, 48" RCP, 572 LF, aggregate projecting, reinforcing corroded, I changed the rehab action to Lining. Agree, recommend lining - CC. CJ Agreed
997963	DJ-4316B	1990	158564	2025	60	27	RCP	9	CIPP	Known Capacity Issue, 60" RCP, 8 LF complete, aggregate projecting, reinforcing corroded, ragging, I concur with the rehab action. Agree would line pipe. WTM Crossing - CC. CJ Agreed
982449	DJ-4316B	1990	158562	2023	54	569.3	RCP	18	CIPP	Reinforcement visible, deposit buildup, CCTV from 2014, under med PCI road, recommend CIPP, SA.
989658	DJ-4316B	1990	158564	2025	48	985	RCP	7	CIPP	Known Capacity Issue, 48" RCP, 998 LF, aggregate visible, reinforcing corroded, I concur with the rehab action. Would recommend lining - CC. CJ Agreed
981551	DJ-4316B	1990	158566	2025	48	295	RCP	13	CIPP	Known Capacity Issue, 48" RCP, 300 LF, surface reinforcing corroded, surface aggregate visible, intruding taps, I changed the rehab action to Lining. Main is in good shape, only a few intruding laterals; CIPP - CC. CJ Agreed.
982448	DJ-4316B	1990	158562	2025	54	69.3	RCP	18	CIPP	54". Surface Reinforcement visible, would recommend lining WTM & Gas crossing- CC. CJ Agreed
982366	DJ-4316B	1990	158562	2023	54	21.5	RCP	17	CIPP	Reinforcement visible throughout pipe. Located in a gated off lot. Recommend CIPP. CC
982224	DJ-4316B	1990	158562	2023	54	21.5	RCP	18	CIPP	Reinforcement visible and is in line with another main recommended for CIPP. Located in fenced in empty lot. Recommend CIPP. CC
989659	DJ-4316B	1990	158562	2025	54	164.4	RCP	17	CIPP	Known Capacity Issue. Surface reinforcement visible, recommend lining - CC. CJ Agreed
989664	DJ-4316B	1990	158564	2025	54	150	RCP	15	CIPP	Known Capacity Issue. Intruding seal with debris build up. Would recommend lining. -CC. CJ Agreed
983297	DJ-4316B	1990	158562	2023	54	210.8	RCP	19	CIPP	Close to house, CCTV from 2014, reinforcement missing, recommend CIPP, SA

\*SAWS anticipates shifting all 2023 deadlines to 2025 for this project under section 31 of the Condition Assessment and Remedial Measures Program of the Consent Decree.

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## **6.0 Proposed Project Schedule**

**Table-6.1** provides a proposed project schedule which includes a timeframe for engineering design (plans, permits, right-of-entry, etc.), bidding, and construction phases based CIP board funding and previous schedules from similar projects. These should be reviewed and revised by the consultant during the contract negotiation.

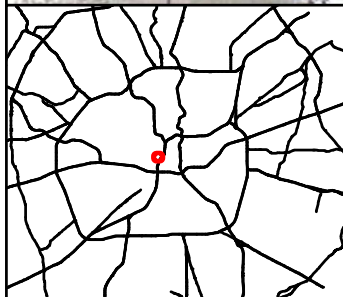
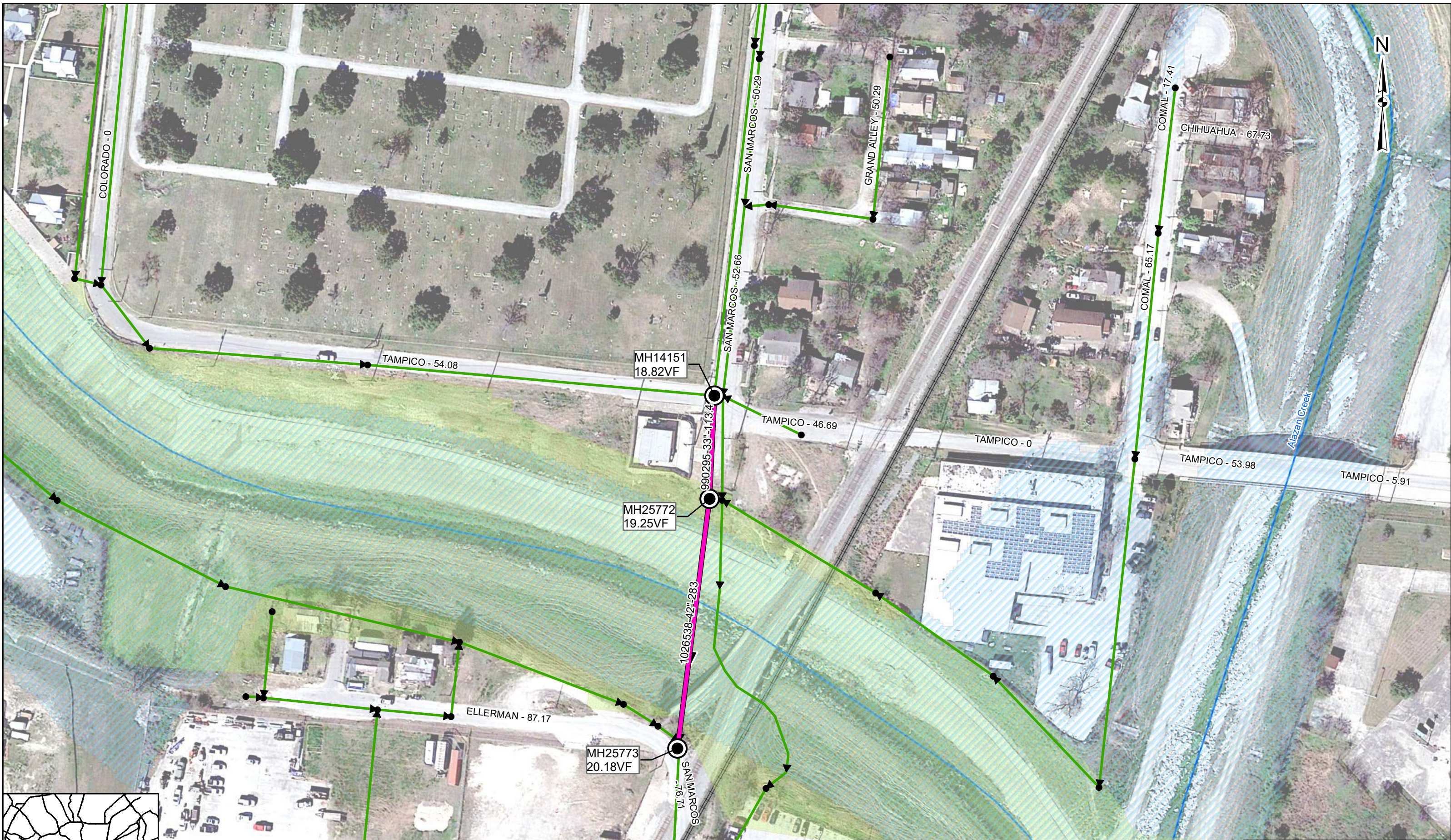
## **7.0 Detailed Maps**

In the detailed maps attached are the CoSA street projects, the estimated PCI for all CoSA roads, and relevant sensitive areas.



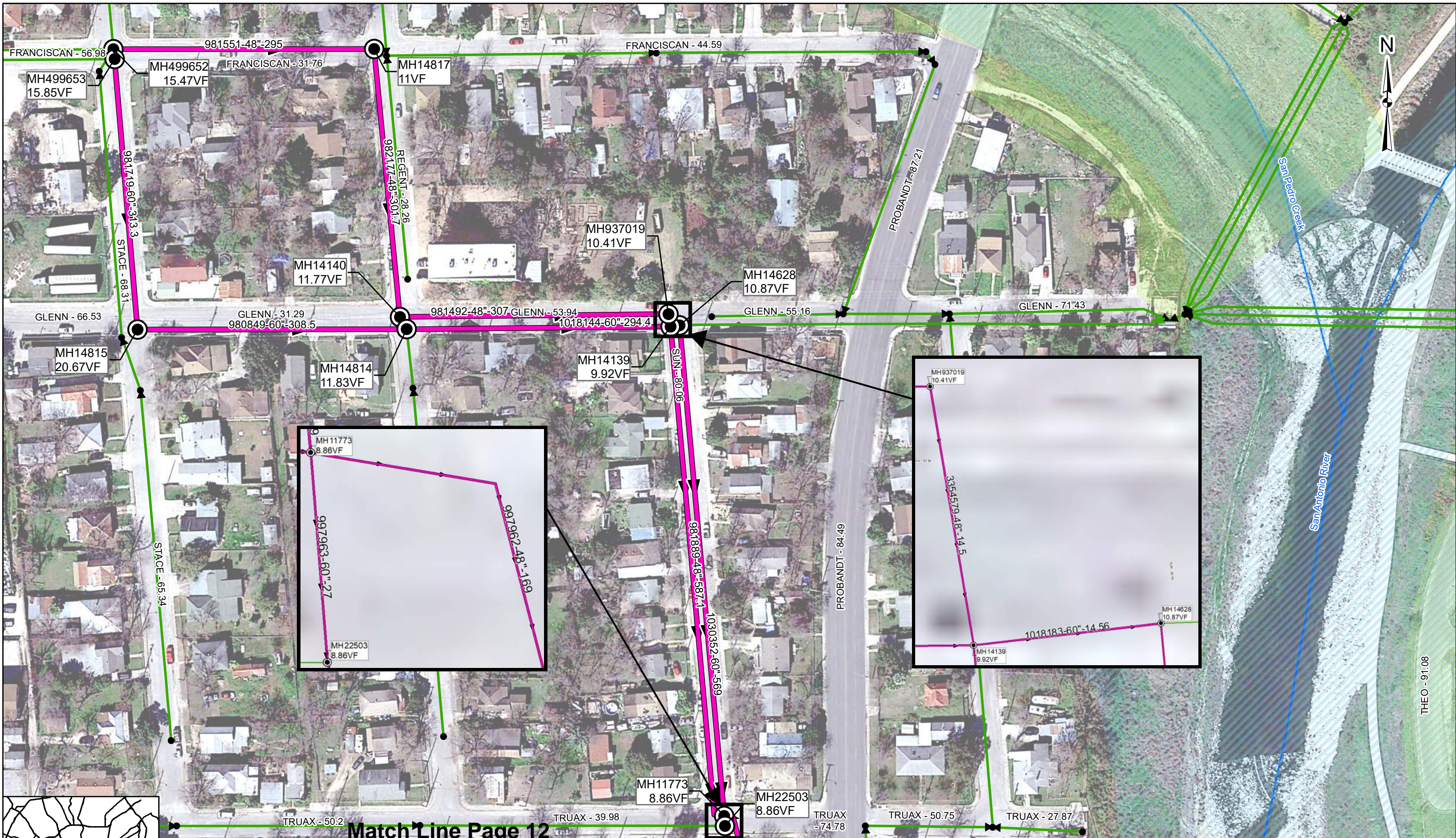
**Table 6.1 - Proposed Project Schedule**

ID	Task Name	Calendar Days	Start	Finish	2020												2021												2022					
					1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter					
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb				
1	<b>Central Sewershed Package 14</b>	<b>1075</b>	<b>Mon 3/2/20</b>	<b>Thu 2/9/23</b>	[Gantt bar spanning from Mon 3/2/20 to Thu 2/9/23]																													
2	<b>Contract Execution</b>	<b>157</b>	<b>Mon 3/2/20</b>	<b>Wed 8/5/20</b>	[Gantt bar spanning from Mon 3/2/20 to Wed 8/5/20]																													
3	RFQ	33	Mon 3/2/20	Fri 4/3/20	[Gantt bar spanning from Mon 3/2/20 to Fri 4/3/20]																													
4	Selection	33	Mon 4/6/20	Fri 5/8/20	[Gantt bar spanning from Mon 4/6/20 to Fri 5/8/20]																													
5	Negotiation	26	Mon 5/11/20	Fri 6/5/20	[Gantt bar spanning from Mon 5/11/20 to Fri 6/5/20]																													
6	Execute Contract	59	Mon 6/8/20	Wed 8/5/20	[Gantt bar spanning from Mon 6/8/20 to Wed 8/5/20]																													
7	<b>Design</b>	<b>308</b>	<b>Thu 8/6/20</b>	<b>Wed 6/9/21</b>	[Gantt bar spanning from Thu 8/6/20 to Wed 6/9/21]																													
8	Validation TM	42	Thu 8/6/20	Wed 9/16/20	[Gantt bar spanning from Thu 8/6/20 to Wed 9/16/20]																													
9	Validation TM Review	21	Thu 9/17/20	Wed 10/7/20	[Gantt bar spanning from Thu 9/17/20 to Wed 10/7/20]																													
10	60% Design	98	Thu 10/8/20	Wed 1/13/21	[Gantt bar spanning from Thu 10/8/20 to Wed 1/13/21]																													
11	60% Design Review	21	Thu 1/14/21	Wed 2/3/21	[Gantt bar spanning from Thu 1/14/21 to Wed 2/3/21]																													
12	Plan in Hand Walk Through	7	Thu 1/28/21	Wed 2/3/21	[Gantt bar spanning from Thu 1/28/21 to Wed 2/3/21]																													
13	ROE Acquisition	91	Thu 2/4/21	Wed 5/5/21	[Gantt bar spanning from Thu 2/4/21 to Wed 5/5/21]																													
14	90% Design	63	Thu 2/4/21	Wed 4/7/21	[Gantt bar spanning from Thu 2/4/21 to Wed 4/7/21]																													
15	90% Design Review	21	Thu 4/8/21	Wed 4/28/21	[Gantt bar spanning from Thu 4/8/21 to Wed 4/28/21]																													
16	100% Design	28	Thu 4/29/21	Wed 5/26/21	[Gantt bar spanning from Thu 4/29/21 to Wed 5/26/21]																													
17	100% Design Review	14	Thu 5/27/21	Wed 6/9/21	[Gantt bar spanning from Thu 5/27/21 to Wed 6/9/21]																													
18	<b>Solicitation</b>	<b>160</b>	<b>Thu 6/10/21</b>	<b>Tue 11/16/21</b>	[Gantt bar spanning from Thu 6/10/21 to Tue 11/16/21]																													
19	100% Design - Contracting Review	29	Thu 6/10/21	Thu 7/8/21	[Gantt bar spanning from Thu 6/10/21 to Thu 7/8/21]																													
20	Advertisement	28	Fri 7/9/21	Thu 8/5/21	[Gantt bar spanning from Fri 7/9/21 to Thu 8/5/21]																													
21	Board Prep	88	Fri 8/6/21	Mon 11/1/21	[Gantt bar spanning from Fri 8/6/21 to Mon 11/1/21]																													
22	Board Date	1	Tue 11/2/21	Tue 11/2/21	[Gantt bar spanning from Tue 11/2/21 to Tue 11/2/21]																													
23	Execute Contract	14	Wed 11/3/21	Tue 11/16/21	[Gantt bar spanning from Wed 11/3/21 to Tue 11/16/21]																													
24	Construction	450	Wed 11/17/21	Thu 2/9/23	[Gantt bar spanning from Wed 11/17/21 to Thu 2/9/23]																													



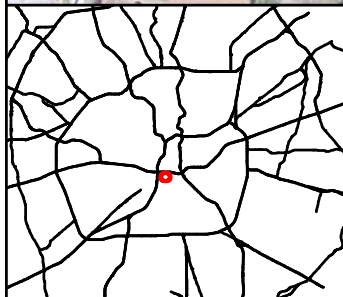
# Central Sewershed Package 14

	MHs in Scope		100Yr Floodplain
	Proposed CIPP		CoSA Park
	Creek		Railroads



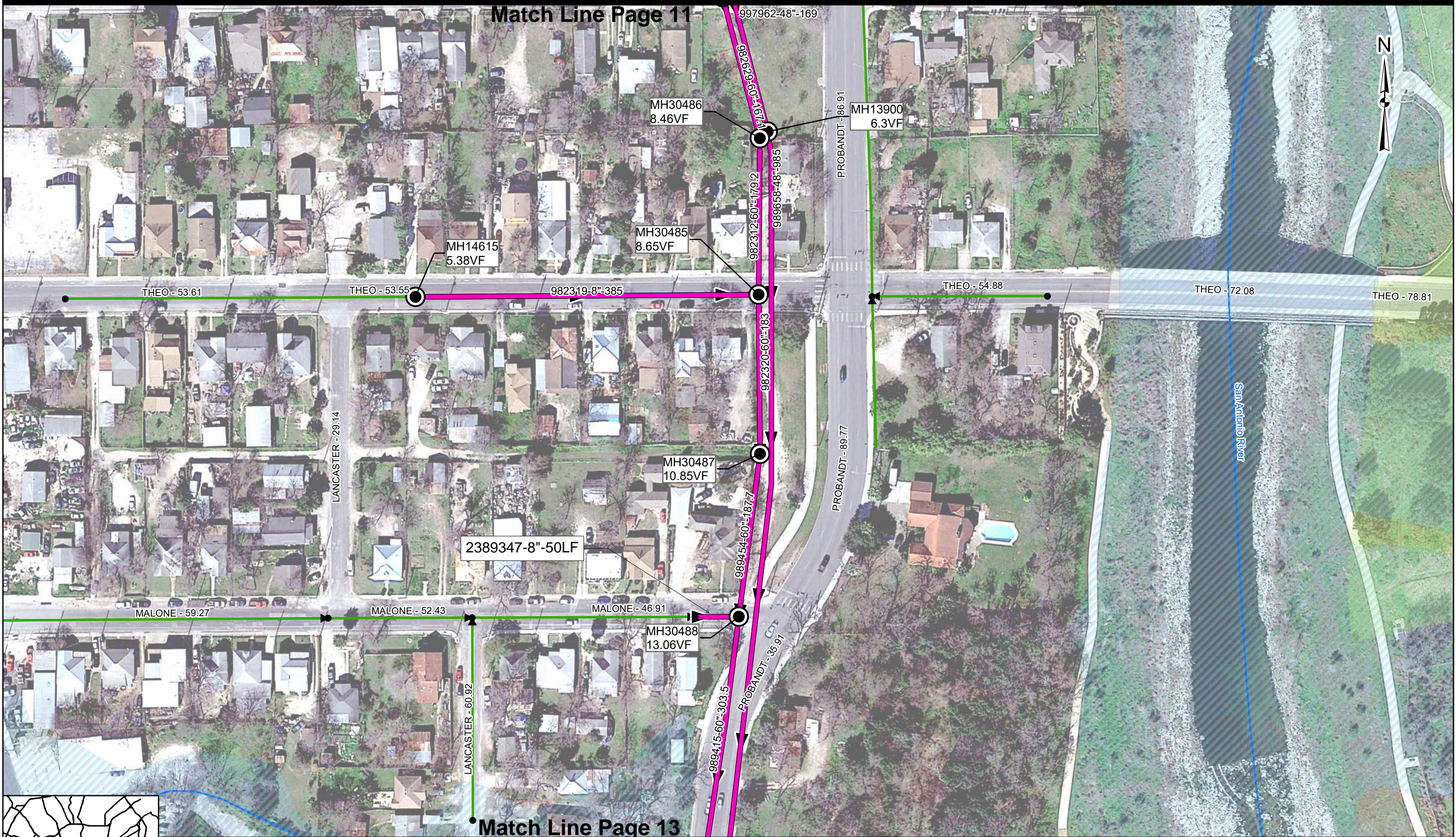
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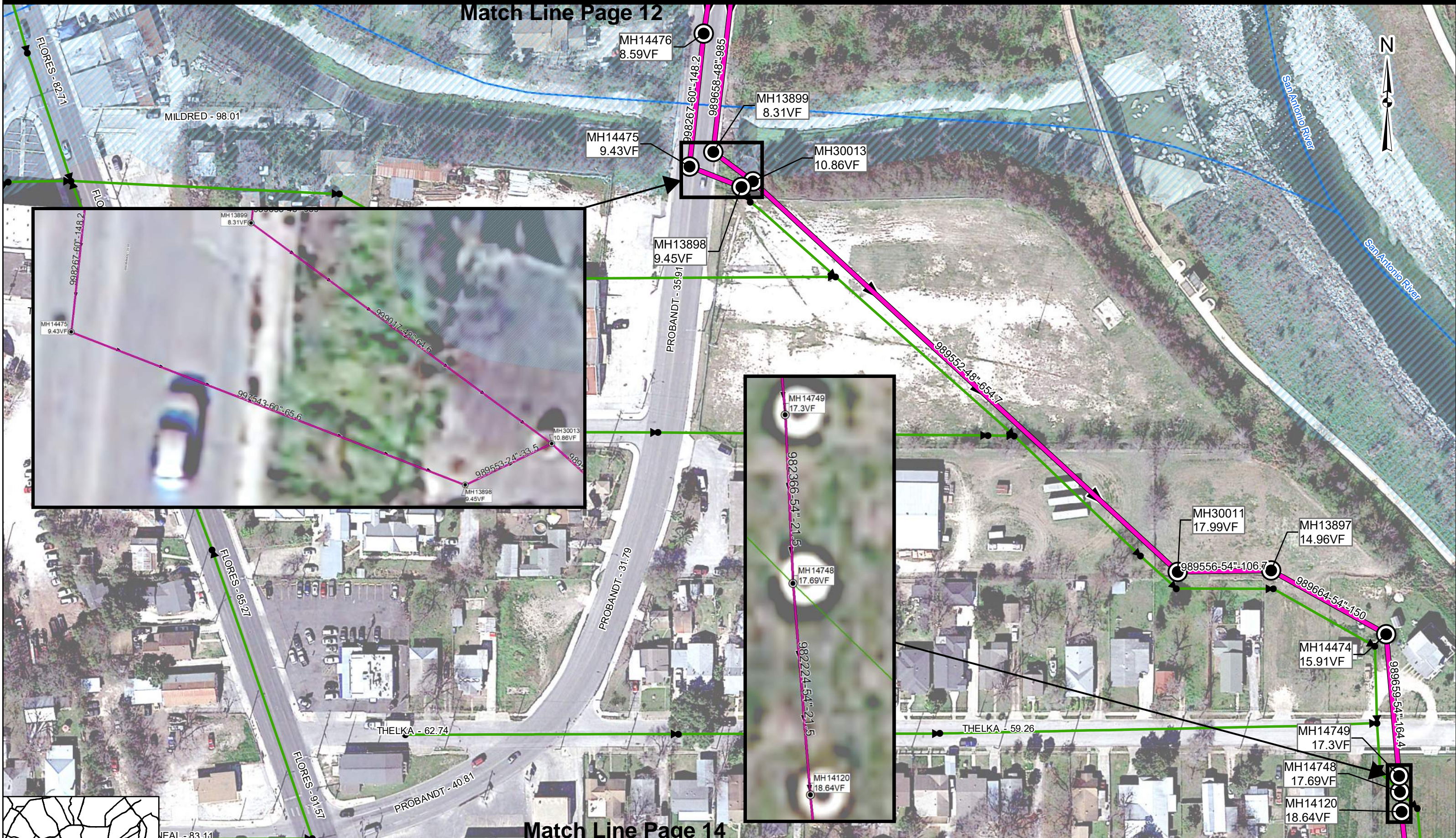
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	Proposed CIPP		CoSA Park
	Creek		Railroads

997962-48"-169

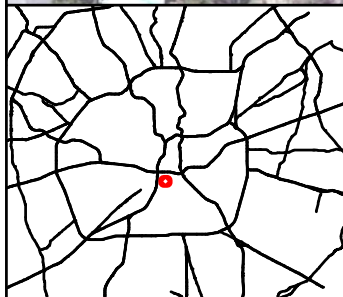


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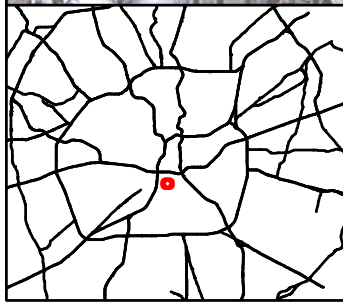
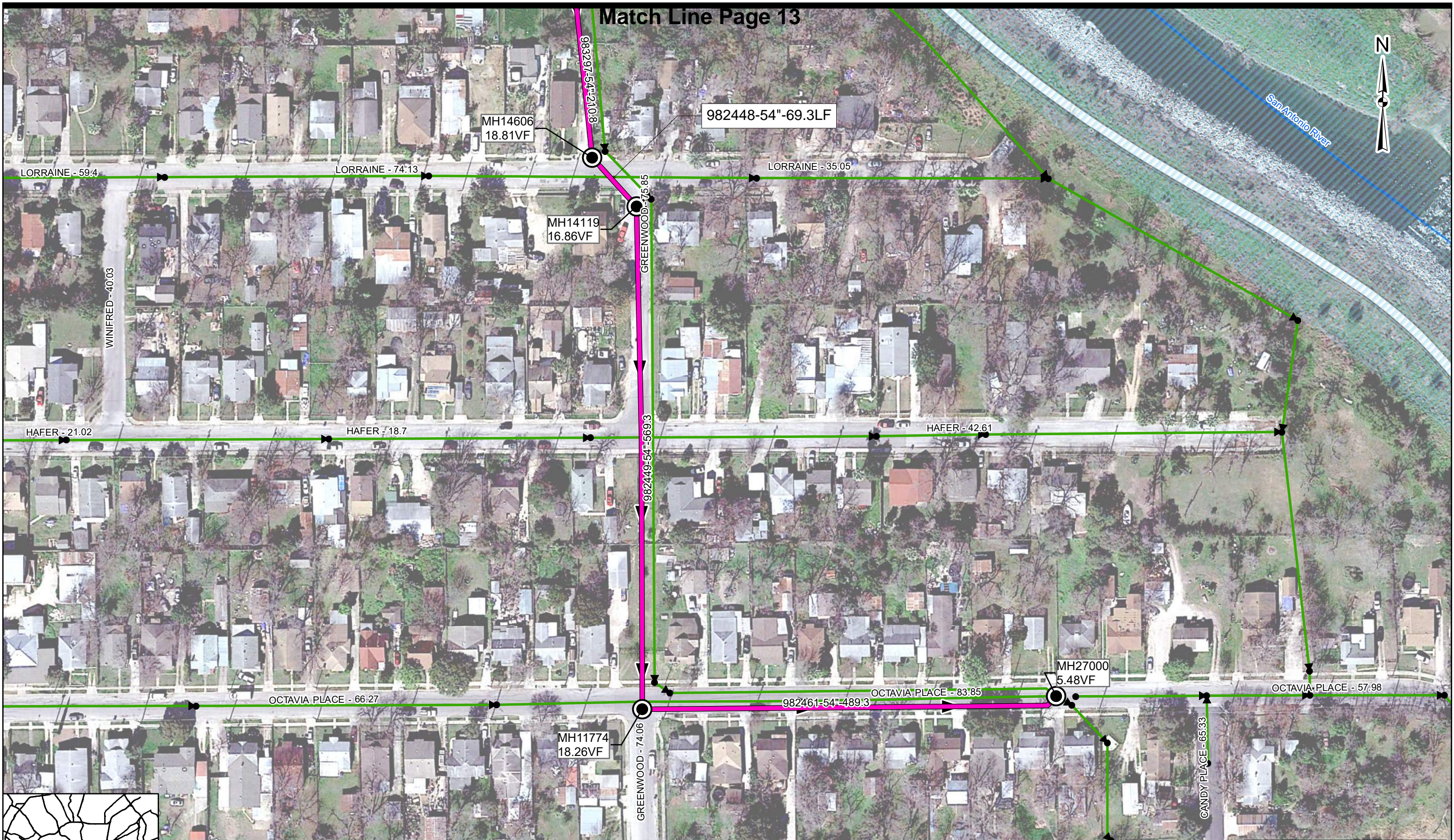
	MHs in Scope		100Yr Floodplain
	Proposed CIPP		CoSA Park
	Creek		Railroads



# Central Sewershed Package 14



	MHs in Scope		100Yr Floodplain
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# Central Sewershed Package 14

	MHs in Scope		100Yr Floodplain
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