



CAPACITY, MANAGEMENT, OPERATION, AND MAINTENANCE ALTERNATIVES ANALYSIS

Project Scoping Report 2020 CMOM Package 2

PREPARED FOR: San Antonio Water System

PREPARED BY: Steven Anthes and Camille Constantine

DATE: March 5, 2020

Revision	Date	Revision Description	Approved By
0	2/14/20	Draft Submittal	Steven Anthes/Camille Constantine
1	2/28/20	Draft Submittal Rev.1	Steven Anthes
2	3/3/20	Final Draft QC	Project Controls
3	3/5/20	Final Submittal	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.

Christopher J. Jackson, P.E.

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 Capacity, Management, Operation, and Maintenance (CMOM) alternatives analysis for approximately 4,863 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
CIPP	4,740	8 - 21	\$ 804,941.00
OPEN CUT	123	8 - 8	\$ 184,601.87
Total	4,863		\$ 989,542.87

2.0 Evaluation

Pipe segments chosen to be rehabilitated on this package have contributed to previous SSOs, and/or are likely to cause or significantly contribute to the future of occurrence of SSOs.

A meeting was held on February 27, 2020 to discuss pipe prioritization under major roads. At said meeting, it was decided that all remaining identified “E” rated small diameter mains under major roads not already on a project would be included in the scope of this package. The scope was then increased to capture these mains.

3.0 Coordination

Street Projects

The City of San Antonio (CoSA) provides an ArcGIS layer of street projects throughout the City. **Table-3.1** below lists the pipes that are located near or within identified street projects. This information has also been overlaid into the detailed location maps provided. It is our understanding that the actual dates of the projects are subject to change. 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.

Table-3.1: Pipes Improvement Project Located on CoSA

Compkey	Street Location	Type of Project
997966	S LAREDO ST	Reconstruction with Asphalt
969095	BROADWAY ST	Reconstruction with Asphalt
991998	PROBRANDT	Reconstruction with Asphalt

High and Medium Pavement Condition Index (PCI) Roads

CoSA provides an ArcGIS layer that has the estimated PCI of roads in the city. **Table-3.2** below shows what mains are going to be impacting high and medium PCI roads and will increase the unit price for that main.

Table-3.2: Pipes Impacting High and Medium PCI Roads

Compkey	Street Name	Estimated PCI
1065153	AVONDALE	76.73
991998	State HWY 536	TxDOT – New Pavement
969095	BROADWAY	TxDOT – New Pavement

Other Considerations

Pipes that are located in sensitive areas that may require additional permits have been listed below in **Table-3.3**.

Table-3.3: Pipes that need additional coordination

Compkey	Reason
969410	100Yr Floodplain, CPS
1064945	100Yr Floodplain
1065153	100Yr Floodplain
969095	100Yr Floodplain
1049757	100Yr Floodplain, Brackenridge Golf Course
998775	CoSA Parks

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**, and **Table-4.2** 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	1461	LF	\$ 108.15	\$ 158,000.00
10 – inch CIPP	694	LF	\$ 122.48	\$ 85,000.00
12 – inch CIPP	288	LF	\$ 145.83	\$ 42,000.00
15 – inch CIPP	1259	LF	\$ 185.86	\$ 234,000.00
20 – inch CIPP	1038	LF	\$ 275.53	\$ 286,000.00
Total				\$ 805,000.00

Table-4.2: Estimated OPEN CUT Cost

Description	Quantity	Unit	Unit Price	Total
8 – inch OPEN CUT	123	LF	\$ 1,504.07	\$ 185,000.00*
Total				\$ 185,000.00

*substantial pavement costs included

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.

Table-5.1: Recommendation Summary

PipeID	Actions	Diameter	Length	Material	Install Year	Comments
979052	CIPP	10	276.2	VCP	1958	Major Road Crossing, CI pipe with two angle offsets that will require new Manholes installed before CCTV can be performed similar to M10B-CIPP, CIPP-SA. CJ Agree with CIPP and install MHs at bends
1050811	CIPP	8	579	VCP	1963	Major Road Crossing. CP with a previous PR, majority of the pipe is in good shape, and can be lined w/ the exception of one section with missing pipe. - CC. CJ Agree with CIPP. Designer to look and see if rerouting is feasible
983308	CIPP	20	201.3	RCP	1899	Medium PCI, Crosses 12" water main, 8" gas main, CIPP-SA. CJ Pipe is a good candidate for CIPP.
991998	OPEN CUT	8	59	CT	1930	Major Road Crossing; High Risk PR, large section of pipe missing in the bottom of the pipe, crosses under 18" SD, wrong material CP, Open Cut - SA. CJ Agree with OC. Designer to explore abandoning line as it appears to be dry.
1049757	CIPP	12	288	CAS	1968	Major Road Crossing. Very heavy encrustation, CCTV only got 10LF. -CC CJ Agree with CIPP but will need new CCTV during design
991402	CIPP	20	412	RCP	1899	Urgent - Crosses 8" CI water main, 30" storm drain, 12" gas main, under I35 overpass in street not near columns, wrong material – VCP, possible voids under pavement and overpass, CIPP – SA. CJ Agree with CIPP. May need point repairs
1065153	CIPP	8	92	VCP	1965	Opportunity main – D rated adjacent, included bypass, PB – SA. CJ Swap to CIPP due to being adjacent to CIPP main.
1064945	CIPP	15	366.4	VCP	1965	Major Road Crossing. Previous SSO, CoSA strm crossing and 100Yr floodplain. Wrong mat: CAS. Heavy encrustation. CIPP - CC. CJ Agree
971707	CIPP	8	326	VCP	1963	Major Road Crossing; High Risk PR. Changes material from CP to DIP. CCTV only got 32LF. Heavy tuberculation & encrustation. Clean and CIPP. See if elevations work for reroute. - CC. CJ Agree with CIPP and exploring reroute
987453	CIPP	15	578	CAS	1959	Major Road Crossing. One road is currently under construction, the rest crosses under 3 hwy/interchanges. Encrustation attached to pipe walls that blocks CCTV. CIPP - CC. CJ Agree with CIPP
1040237	CIPP	8	158	PVC	1991	Major Road Crossing. Wrong mat: DIP. Pipe has corrosion and tuberculation. Crossing in the middle of a major road intersection. CIPP - CC. CJ Agree with CIPP and wrong material
969095	OPEN CUT	8	63.3	CT	1948	Major Road Crossing. VPC pipe and there is a significant drop with broken sections, and a large offset. Might be able to pipeburst. - CC. CJ Changed to OC. Missing majority of CCTV and has severe grade issues
976310	CIPP	8	306	DIP	1958	Major Road Crossing, CI pipe with two angle offsets that will require new Manholes installed before CCTV can be performed similar to M10B-CIPP, CIPP-SA. CJ Agree with CIPP and install MHs at bends
969410	CIPP	15	314.1	CAS	1968	In a power transmission property, crosses UGE, 100 year Floodplain, missing 202' of CCTV (65%), As-Built show 14" CIP, CIPP – SA due to no good bore pit site. CJ Agree with CIPP. Looked at rerouting south to near UPRR but appears unfeasible
998775	CIPP	10	418.1	CAS	1959	Major Road Crossing. Heavy encrustation and only 40LF of CCTV. Request more CCTV but CIPP - CC. CJ Agree with CIPP and new CCTV
997966	CIPP	20	425	DIP	1989	Crossing I-35 between column and under retaining walls, 20" DI Pipe in RCP casing according to As-Built, DS MH in Laredo St on 2020 CoSA mill and overlay, Crosses 8" gas main, CIPP - SA. CJ Agree with CIPP

6.0 Proposed Project Schedule

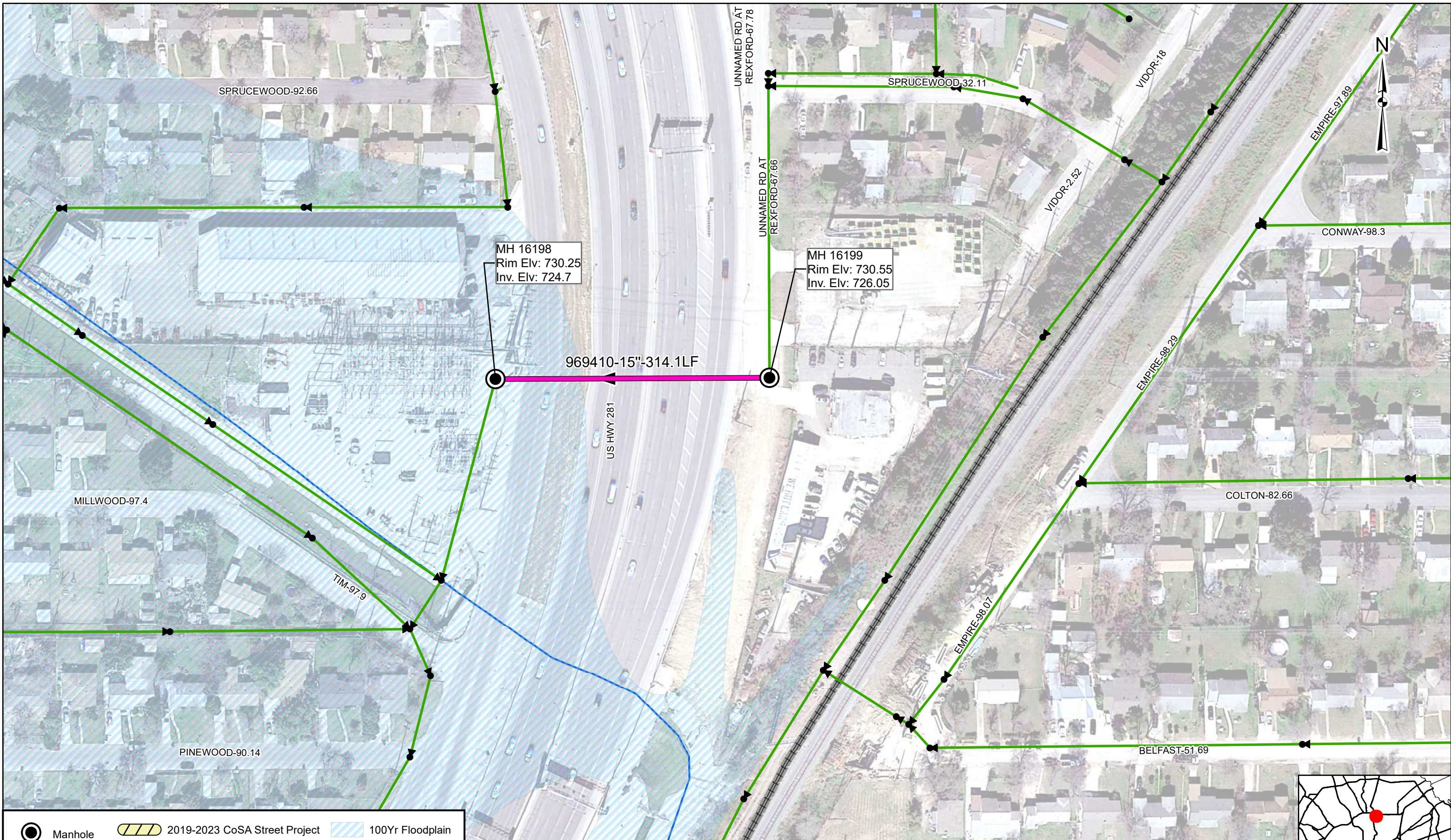
Table-6.1 provides a proposed project schedule which includes a timeframe for engineering design (plans, permits, right-of-entry, etc.), bidding, and construction phases based CIP board funding and previous schedules from similar projects. These should be reviewed and revised by the consultant during 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													
					1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter	
					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	2020 CMOM Package 2	680	Fri 3/6/20	Fri 1/14/22																										
2	Contract Execution	148	Fri 3/6/20	Fri 7/31/20																										
3	RFQ	29	Fri 3/6/20	Fri 4/3/20																										
4	Selection	33	Mon 4/6/20	Fri 5/8/20																										
5	Negotiation	23	Mon 5/11/20	Tue 6/2/20																										
6	Execute Contract	59	Wed 6/3/20	Fri 7/31/20																										
7	Design	229	Mon 8/3/20	Fri 3/19/21																										
8	Validation TM	26	Mon 8/3/20	Fri 8/28/20																										
9	Validation TM Review	12	Mon 8/31/20	Fri 9/11/20																										
10	60% Design	47	Mon 9/14/20	Fri 10/30/20																										
11	60% Design Review	12	Mon 11/2/20	Fri 11/13/20																										
12	Plan in Hand Walk Through	5	Mon 11/16/20	Fri 11/20/20																										
13	90% Design	61	Mon 11/23/20	Fri 1/22/21																										
14	ROE Acquisition	89	Mon 11/16/20	Fri 2/12/21																										
15	90% Design Review	12	Mon 1/25/21	Fri 2/5/21																										
16	100% Design	19	Mon 2/15/21	Fri 3/5/21																										
17	100% Design Review	12	Mon 3/8/21	Fri 3/19/21																										
18	Solicitation	149	Mon 3/22/21	Tue 8/17/21																										
19	100% Deisgn - Contracting Review	19	Mon 3/22/21	Fri 4/9/21																										
20	Advertisement	26	Mon 4/12/21	Fri 5/7/21																										
21	Board Prep	85	Mon 5/10/21	Mon 8/2/21																										
22	Board Date	1	Tue 8/3/21	Tue 8/3/21																										
23	Execute Contract	14	Wed 8/4/21	Tue 8/17/21																										
24	Construction	150	Wed 8/18/21	Fri 1/14/22																										



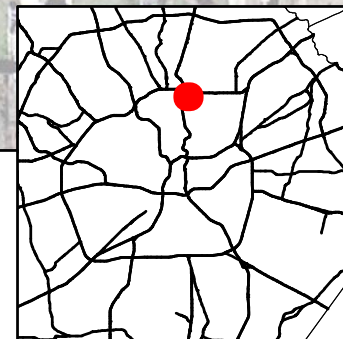
MH 16198
Rim Elv: 730.25
Inv. Elv: 724.7

MH 16199
Rim Elv: 730.55
Inv. Elv: 726.05

969410-15"-314.1LF

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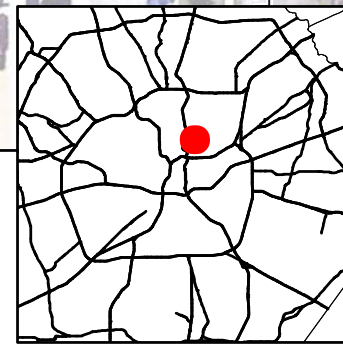
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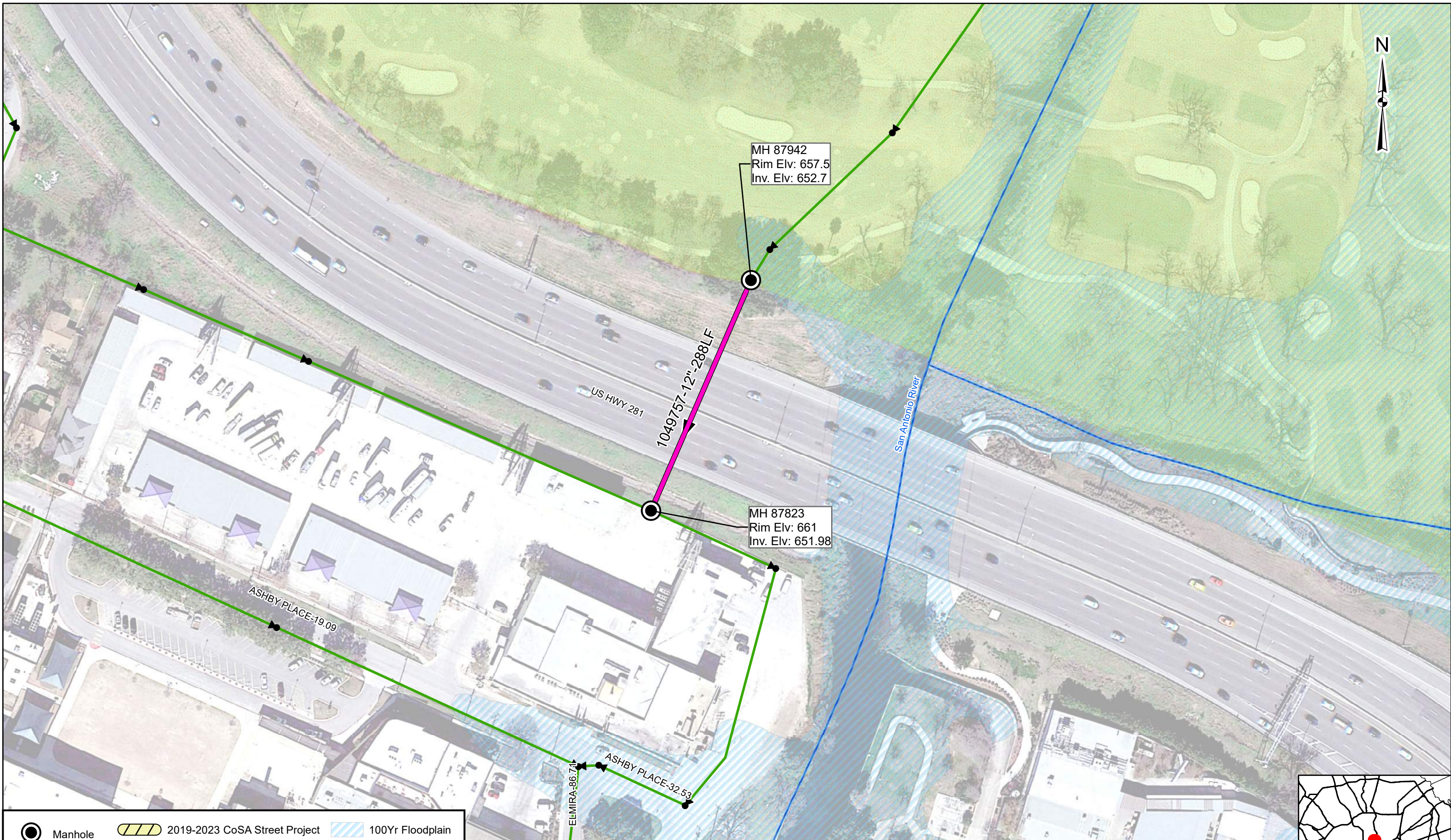




	Manhole		2019-2023 CoSA Street Project		100Yr Floodplain
	CIPP		2017-2022 CoSA Bond Projects		Creeks
	OPEN CUT		Railroad		CoSA Park
			Edwards Recharge Zones		Karst Zone

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MH 87942
Rim Elv: 657.5
Inv. Elv: 652.7

MH 87823
Rim Elv: 661
Inv. Elv: 651.98

1049757-12"-288LF

ASHBY PLACE-19.09

ASHBY PLACE-32.53

ELMIRA-86.71

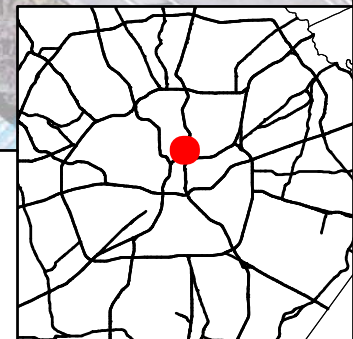
US HWY 281

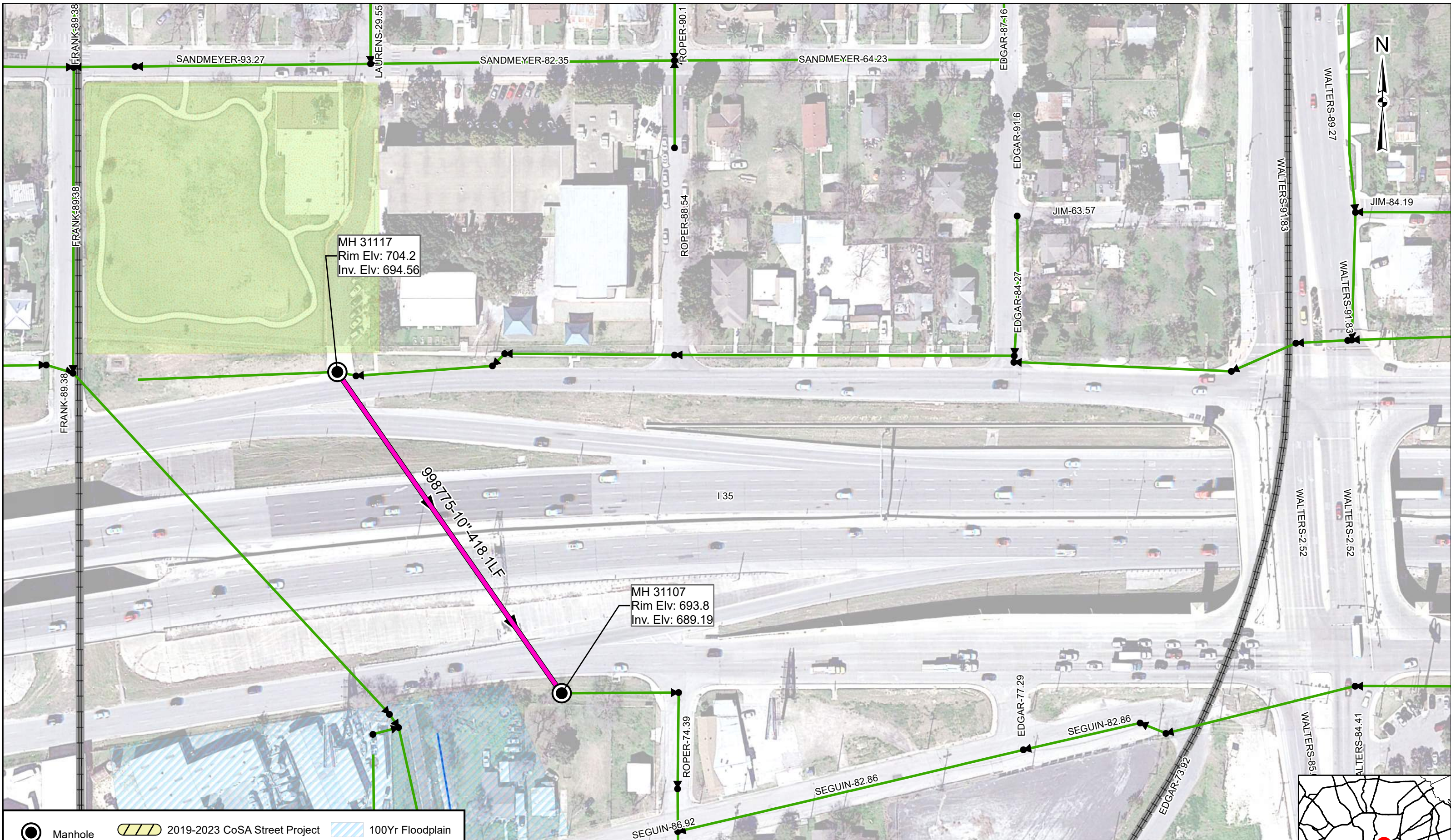
San Antonio River



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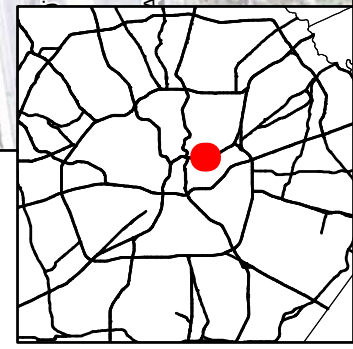
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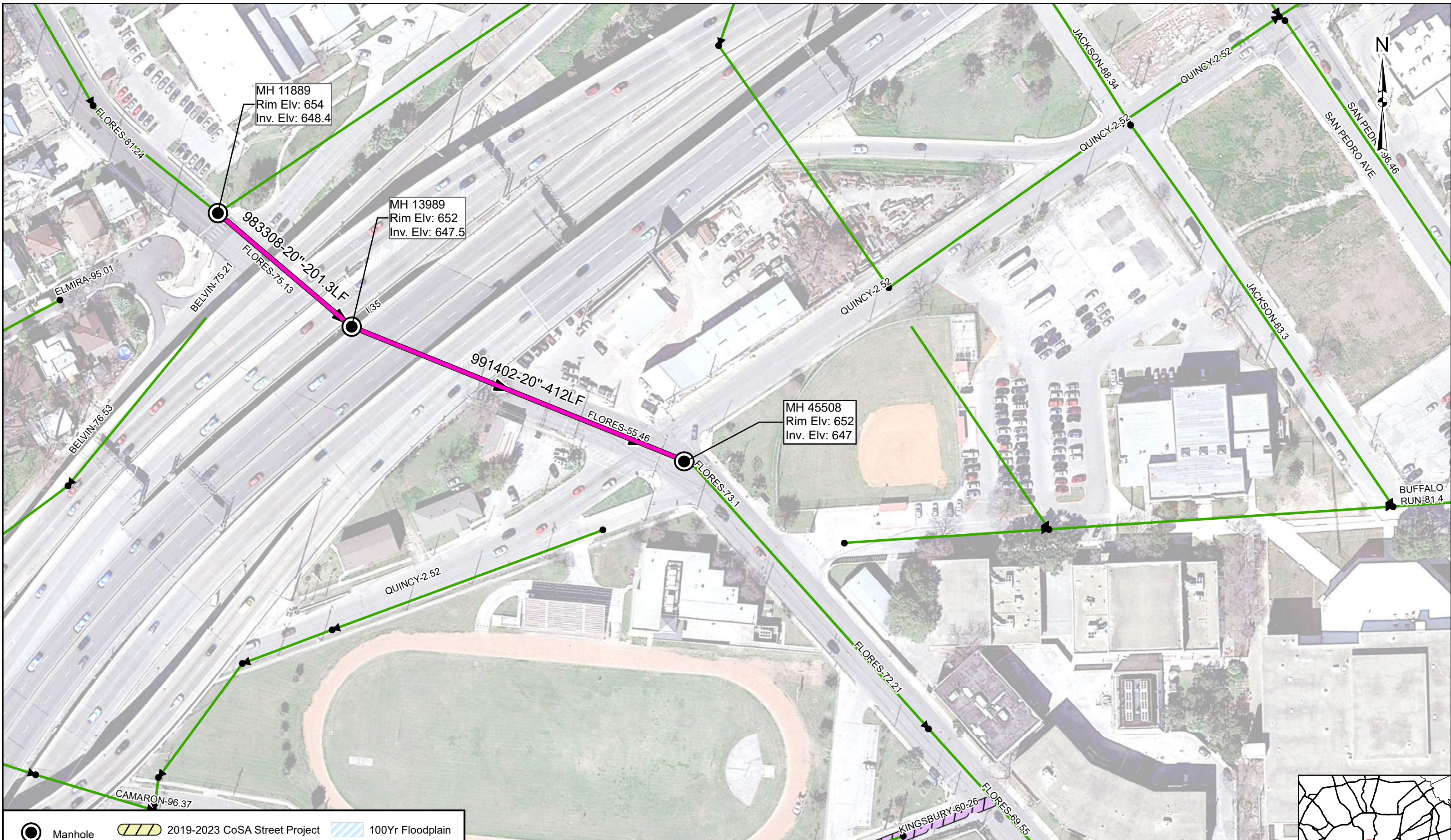




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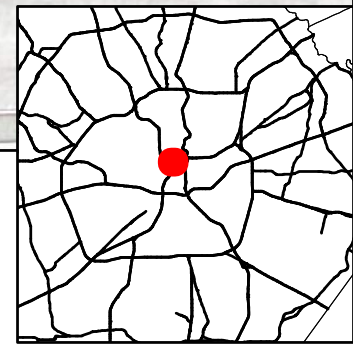
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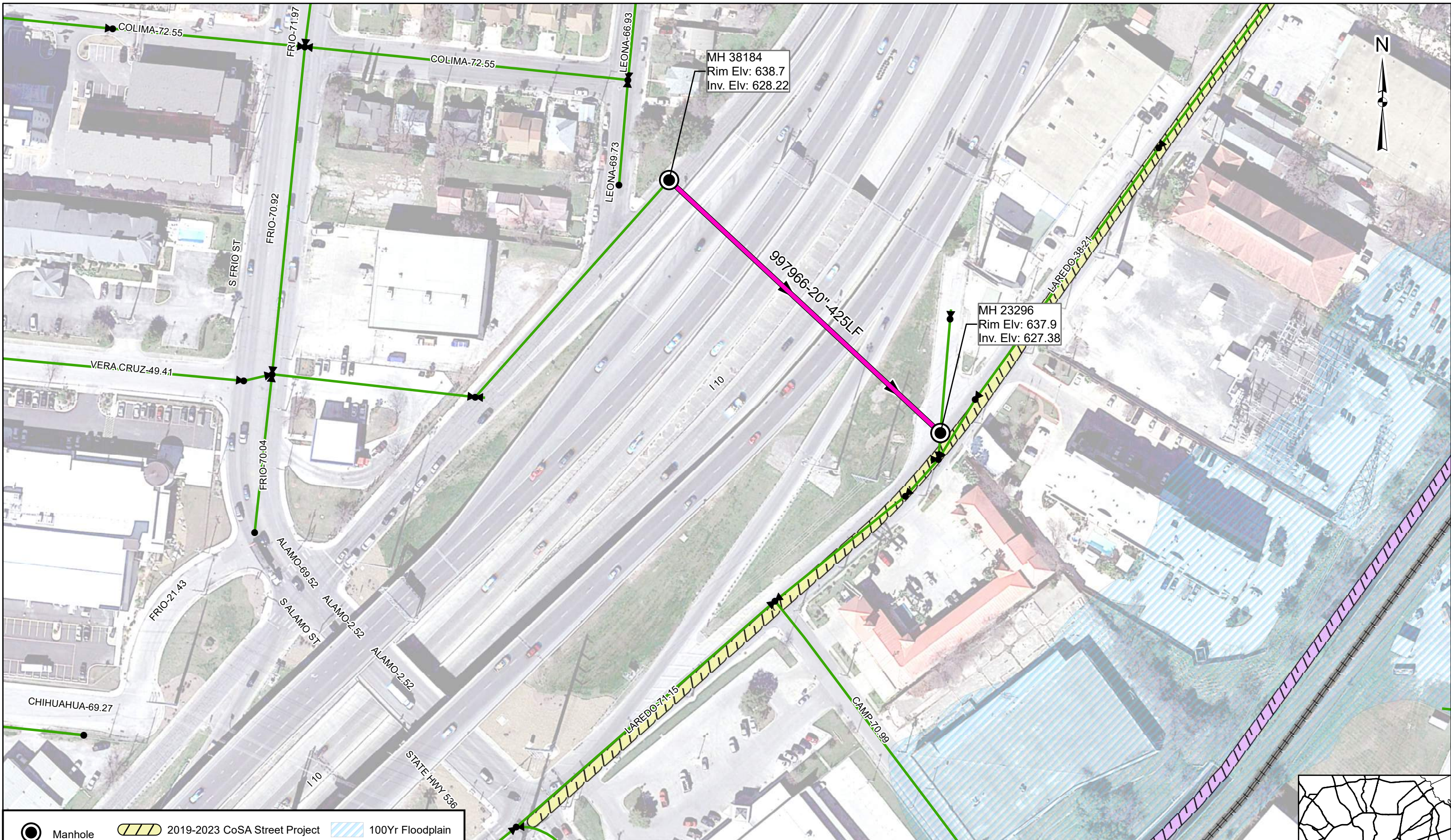




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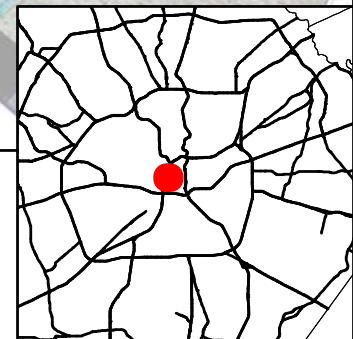
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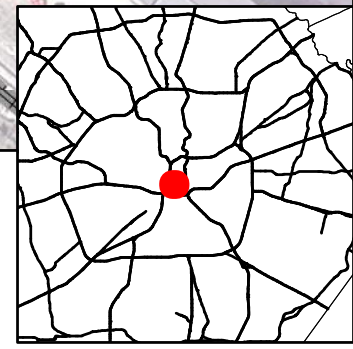
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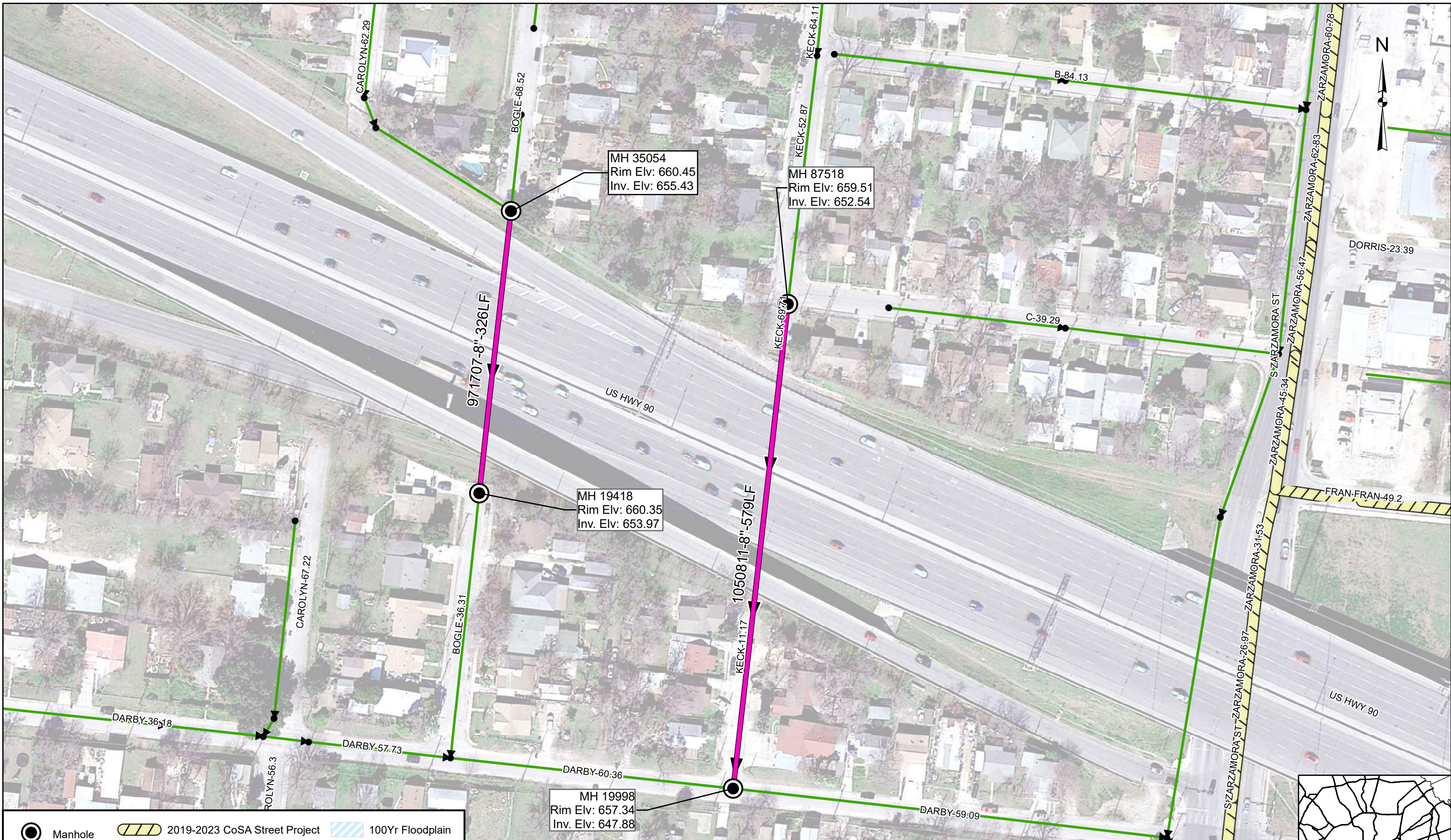




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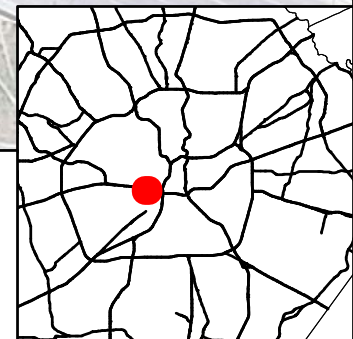
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Inv. Elv: 655.43

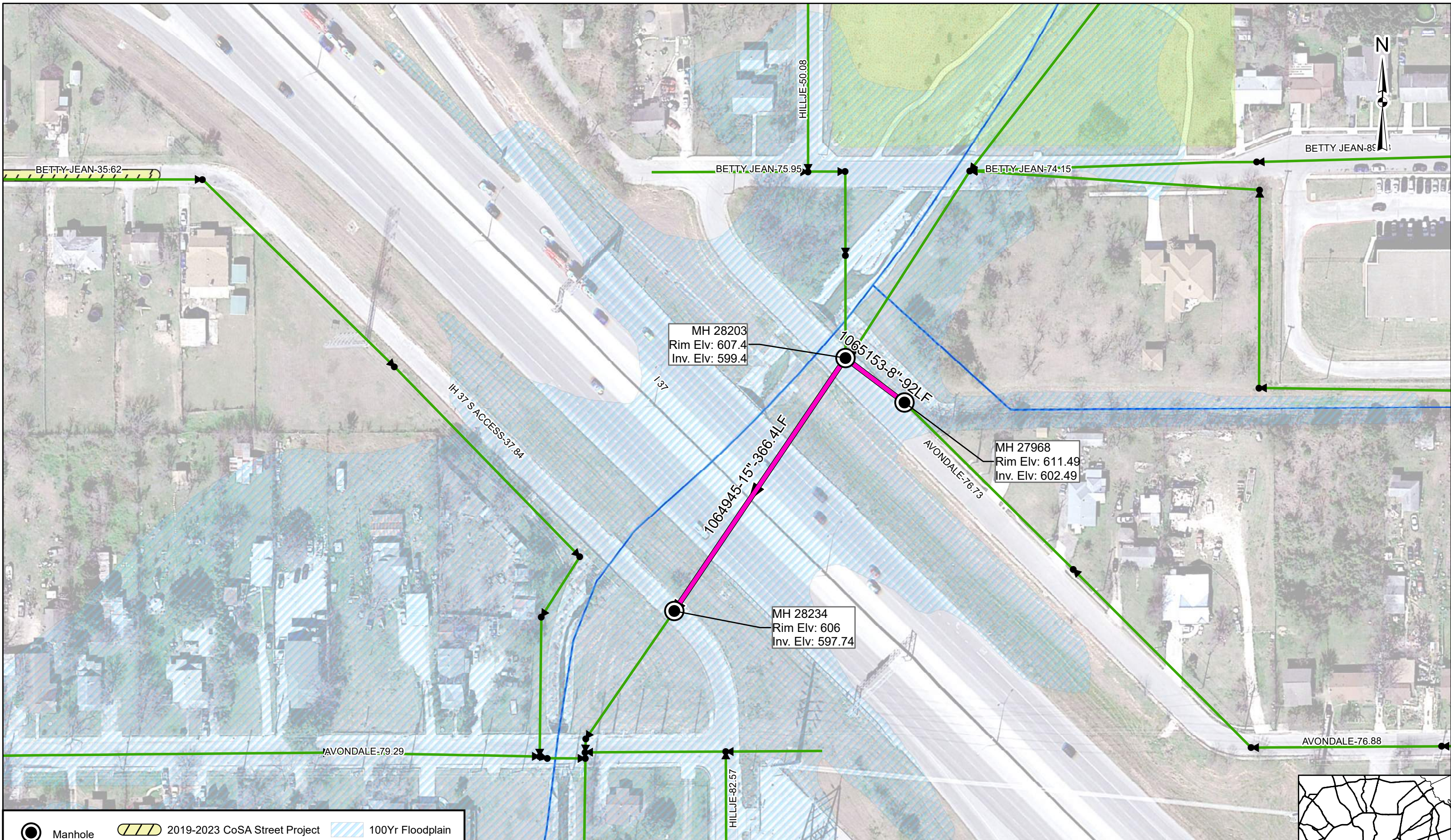
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Rim Elv: 659.51
Inv. Elv: 652.54

MH 19418
Rim Elv: 660.35
Inv. Elv: 653.97

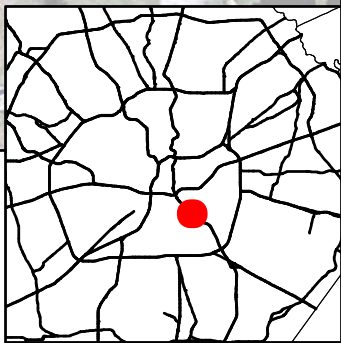
MH 19998
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Inv. Elv: 647.88

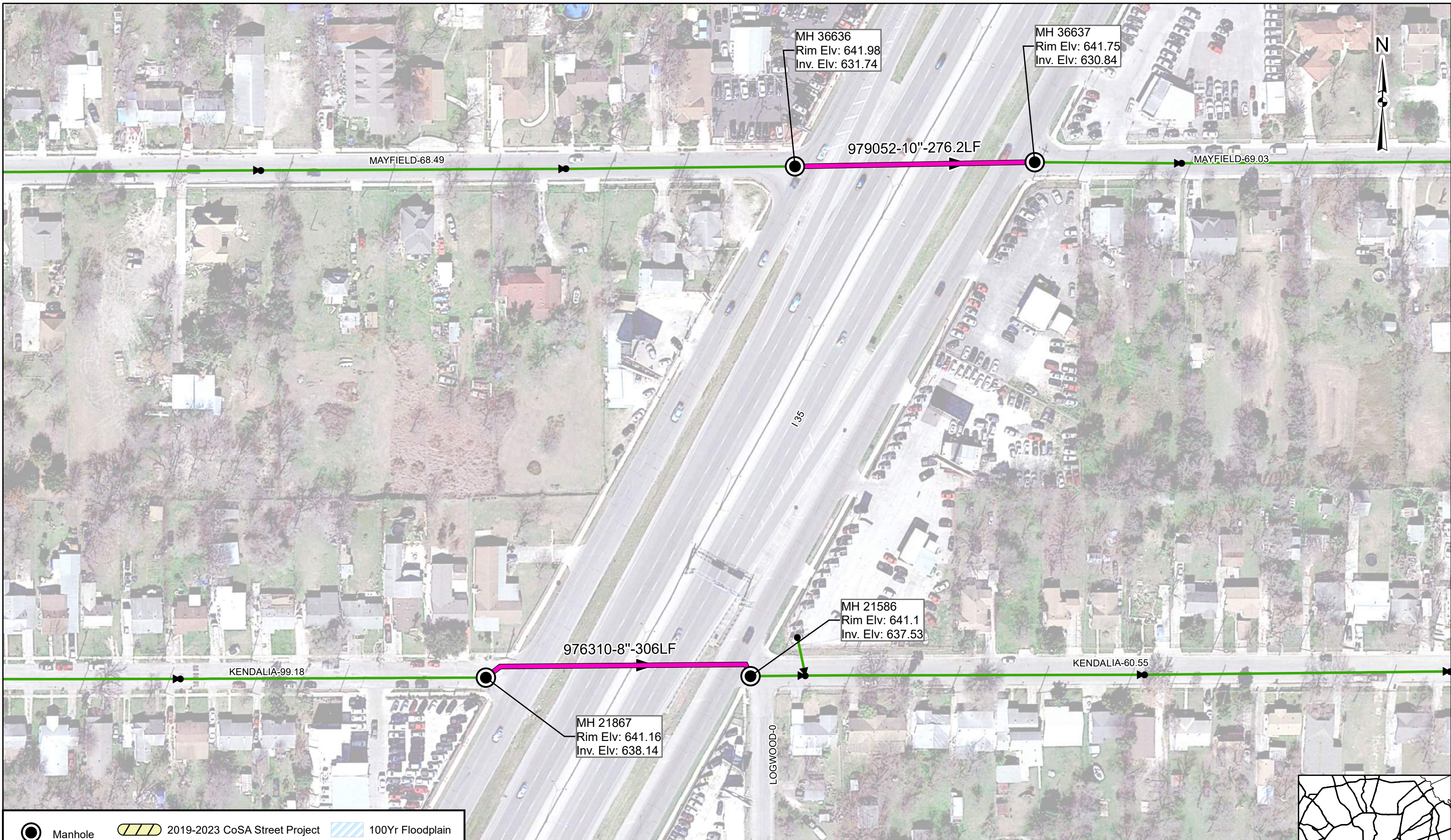
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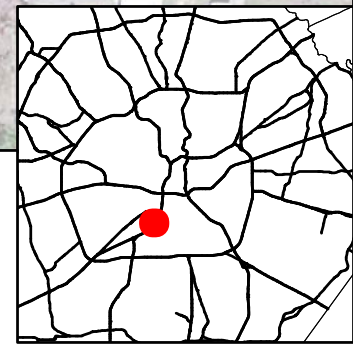
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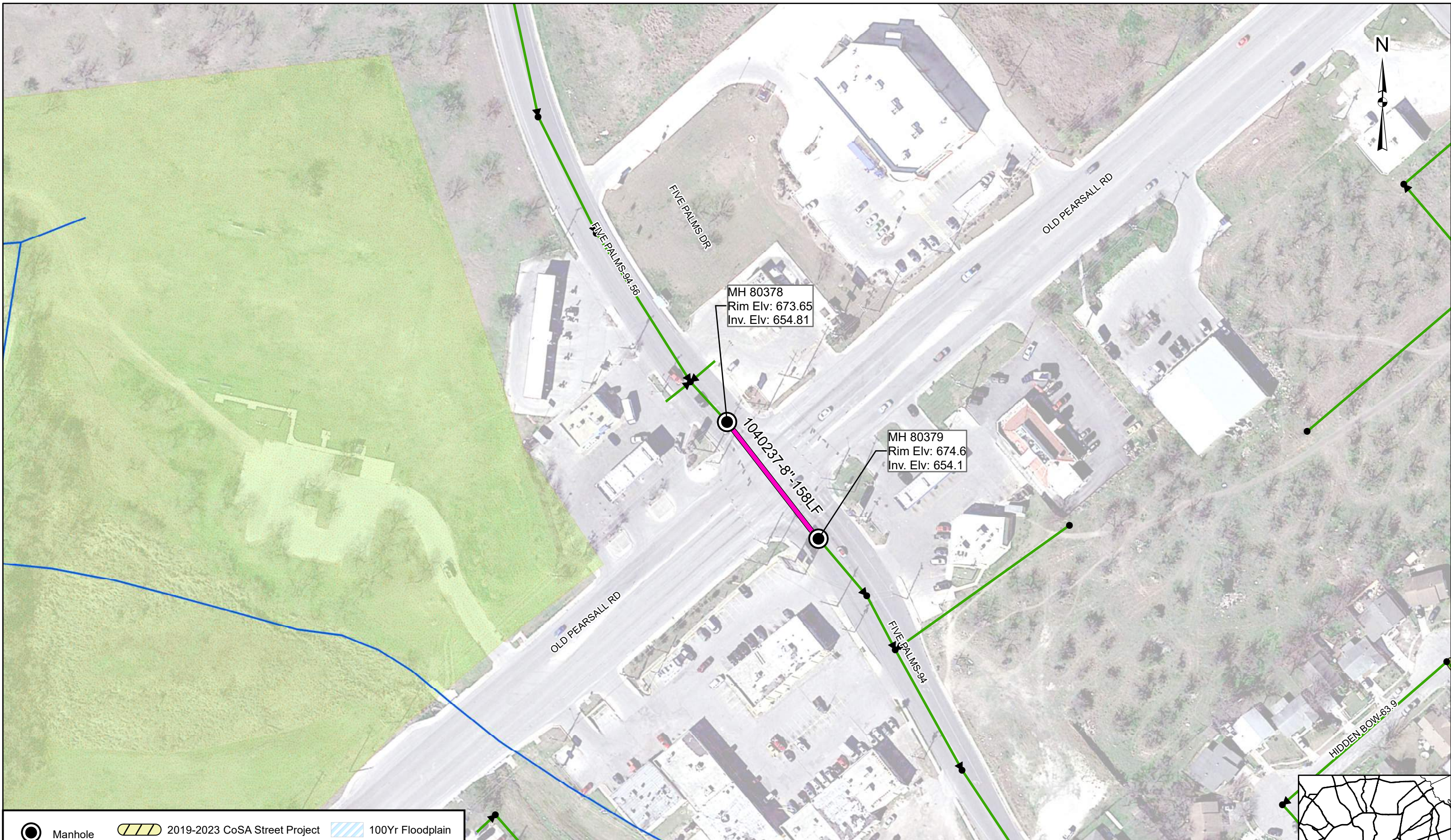




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