



CAPACITY, MANAGEMENT, OPERATION, AND MAINTENANCE ALTERNATIVES ANALYSIS

Project Scoping Report

2022 CMOM Central West Sewershed Project

PREPARED FOR: San Antonio Water System

PREPARED BY: Camille Garza, Steven Anthes and Sean Oboyle

DATE: July 19, 2022

Revision	Date	Revision Description	Approved By
0	6/16/2022	Draft Submittal	Camille Garza, Steven Anthes & Sean Oboyle
1	6/24/2022	Final Draft QC	Project Controls, Ann Peche & Rachel Hoffmeyer
2	7/19/2022	Final Submittal	Ann Peche

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.



Ann E. Peche, 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 ongoing Capacity, Management, Operations, and Maintenance (CMOM) component of the CD, SAWS is required to perform alternative analysis on targeted and urgent mains identified as high risk.

This report presents the results of the CMOM alternative analysis for approximately 14,431 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	14,407	54 - 72	\$24,902,800.00
OPEN CUT	24	24	\$29,900.00
Total	14,431		\$24,932,700.00

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.

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 Located on CoSA Improvement Project

Compkey	Street Location	Type of Project
992066	Broadway St.	2017-2022 CoSA Bond Project

High and Medium Pavement Condition Index (PCI) Roads

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

Other Considerations

Pipes 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
1026445	100 Year Floodplain
3907883	TxDOT ROW
3907884	TxDOT ROW

4.0 Planning Budget

The planning budget provided below is based on historical data from similar bids between 2017 and 2021. 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. A contingency of 30% is incorporated into the Estimated Cost Calculation because of the age of the historical data used to calculate the unit pricing. 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*
54 – inch CIPP	3,998.1	LF	\$1,010.73	\$ 4,041,000.00
60 – inch CIPP	2,604.9	LF	\$1,650.35	\$ 4,299,000.00
72 – inch CIPP	7,804.0	LF	\$1,385.96	\$ 10,816,000.00
Sub Total				\$19,156,000.00
Contingency (30%)				\$5,746,800.00
Total				\$24,902,800.00

Table-4.2: Estimated OPEN CUT Cost

Description	Quantity	Unit	Unit Price	Total*
24 – inch OPEN CUT	24	LF	\$958.33	\$ 23,000.00
Sub Total				\$23,000.00
Contingency (30%)				\$6,900.00
Total				\$29,900.00

*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.

Table-5.1: Recommendation Summary

Map No.	Pipe ID	Preliminary Rehabilitation Actions	Diameter	Length	Material	Install Year	Comments
10	3518078	CIPP	60	157	RCP	1967	DS CCTV from 2022 includes MH to MH coverage. Some surface aggregate visible/projecting, but CCTV video becomes blurry half way through. Pipe appeared to be in fair condition during blurry CCTV and is a candidate for CIPP. 2 laterals identified in the CCTV. Segment is located along the C-13 Broadway Corridor Project Pkg B alignment. Segment appears to cross a 24" water main. Propose CIPP due to pipe condition and location.
10	992066	CIPP	60	301.9	RCP	1967	DS CCTV from 2019 includes MH to MH coverage with sonar. Surface aggregate visible/projecting. Pipe is a candidate for CIPP. CCTV references old USMH # (45400 instead of 1069927). Segment is located along the C-13 Broadway Corridor Project Pkg B alignment. Segment appears to cross two 6" water mains and an 8" water main. Propose CIPP due to pipe condition and location.
11	1026445	CIPP	72	1800	RCP	1986	DS CCTV from 2021 includes MH to MH coverage and sonar available. Pipe has reinforcement visible/projecting and intruding sealing rings and rags hanging throughout. Pipe is a candidate for CIPP. As-built indicates main is in a 50' sewer easement that also covers the parallel 54" sewer main. Consultant to confirm easement. As-built also indicates the main is within a 130LF concrete saddle near the USMH where there is shallow ground coverage and there is a curve in the main near the DSMH. There is a parallel 42" recycle main along the length of the pipe. Sewer mains upstream of this segment are part of Multiple Sewershed Pkg 18 project. Propose CIPP due to pipe size, condition, and location.
12	976097	CIPP	54	1030	RCP	1965	DS CCTV from 2021 includes MH to MH coverage and sonar available. Pipe has reinforcement visible/projecting throughout and deposits attached ragging. CCTV shows slight curve in the pipe near the DSMH. Pipe is a candidate for CIPP. As-built indicates main is in a 50' sewer easement. Consultant to confirm easement. There is a parallel 42" recycle main along the length of the pipe. Sewer mains upstream of this segment are part of Multiple Sewershed Pkg 18 project. Propose CIPP due to pipe size, condition, and location.
12	1012763	CIPP	72	1546.3	RCP	1986	DS CCTV from 2018 includes MH to MH coverage with sonar. Pipe has reinforcement visible/projecting and intruding sealing rings hanging throughout. The quality of the CCTV is poor/blurry. Pipe is a candidate for CIPP, but new CCTV may be warranted based on age & quality of existing CCTV. As-built indicates main is in a 50' sewer easement that also covers the parallel 54" sewer main. Consultant to confirm easement. There is also a parallel 42" recycle main. Propose CIPP due to pipe size, condition, and location.

Table-5.1: Recommendation Summary

Map No.	Pipe ID	Preliminary Rehabilitation Actions	Diameter	Length	Material	Install Year	Comments
12	1010738	CIPP	54	1614	RCP	1965	DS CCTV from 2018 includes MH to MH coverage with sonar. Pipe has reinforcement visible/projecting and surface aggregate projecting/missing throughout. The quality of the CCTV is poor/blurry. Pipe is a candidate for CIPP, but new CCTV may be warranted based on age & quality of existing CCTV. As-built indicates main is in a 50' sewer easement. Consultant to confirm easement. There is also a parallel 42" recycle main. Propose CIPP due to pipe size, condition, and location.
13	3907883	CIPP	72	53.7	RCP	1986	DS CCTV from 2021 includes MH to MH coverage. Pipe has reinforcement visible/projecting and intruding sealing rings hanging. Pipe is a candidate for CIPP. USMH was installed in 2020 as part of Multiple Sewershed Package 5. As-built indicates main is in a 50' sewer easement that also covers the parallel 54" sewer main. Consultant to confirm easement. There is also a parallel 42" recycle main. Propose CIPP due to pipe size, condition, and location.
13	3907884	CIPP	54	111.1	RCP	1965	DS CCTV from 2021 includes MH to MH coverage. Pipe has reinforcement visible/projecting and surface aggregate projecting/missing throughout. Pipe is a candidate for CIPP. USMH was installed in 2020 as part of Multiple Sewershed Package 5. As-built indicates main is in a 50' sewer easement. Consultant to confirm easement. There is also a parallel 42" recycle main. Propose CIPP due to pipe size, condition, and location.
14	1010672	CIPP	72	1642	RCP	2003	DS CCTV from 2021 includes MH to MH coverage and sonar available. Pipe has reinforcement visible/projecting and surface aggregate projecting/missing throughout. Pipe is a candidate for CIPP. USMH is a doghouse manhole installed in 2020. As-built indicates main is in a 50' sewer easement that also covers the parallel 54" sewer main. Consultant to confirm easement. There is also a parallel 42" recycle main. OHE crossing and a power pole is located near the DSMH. Propose CIPP due to pipe size, condition, and location.
14	3213786	CIPP	54	1243	RCP	2003	DS CCTV from 2021 includes MH to MH coverage and sonar available. Pipe has reinforcement visible/projecting and deposit attached ragging. Pipe is a candidate for CIPP. As-built indicates main is in a 50' sewer easement. Consultant to confirm easement. There is also a parallel 42" recycle main. Propose CIPP due to pipe size, condition, and location.
15	1010674	CIPP	60	496	RCP	2003	DS CCTV from 2021 includes MH to MH coverage and sonar available. Pipe has reinforcement visible and surface aggregate missing. Pipe is a candidate for CIPP. Segment appears to cross two gas mains, a 16" water main, OHE, and a concrete drainage channel along Applewhite Rd; segment also runs parallel to a 42" recycle main. Propose CIPP due to pipe size, condition, and location.

Table-5.1: Recommendation Summary

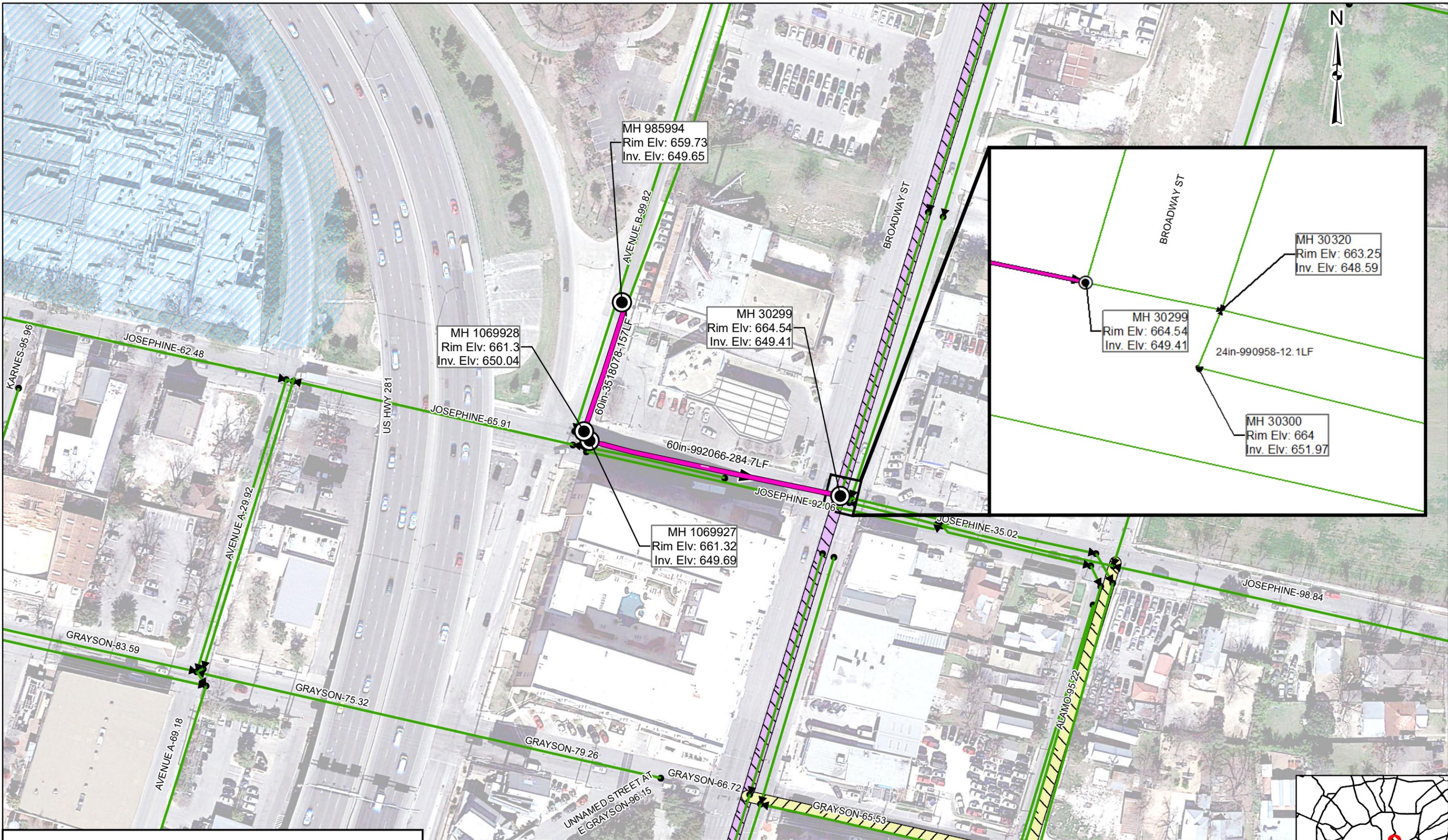
Map No.	Pipe ID	Preliminary Rehabilitation Actions	Diameter	Length	Material	Install Year	Comments
15	1012710	CIPP	72	1101.1	RCP	1986	DS CCTV from 2021 includes MH to MH coverage and sonar available. Pipe has reinforcement visible/projecting. A section of reinforcement is detached and hanging from the crown of the pipe at about 17ft from the USMH. Pipe is a candidate for CIPP once hanging reinforcement is removed. As-built indicates main is in a 50' sewer easement that also covers the parallel 54" sewer main. Consultant to confirm easement. Segment appears to cross two gas mains, a 16" water main, OHE, and a concrete drainage channel along Applewhite Rd; segment also runs parallel to a 42" recycle main. Propose CIPP due to pipe size, condition, and location.
16	1010109	CIPP	72	1660.9	RCP	1986	DS CCTV from 2022 includes MH to MH coverage. Pipe has surface aggregate visible and areas of reinforcement visible/projecting. Pipe is a candidate for CIPP. As-built indicates main is in a 50' sewer easement that also covers the parallel 54" sewer main. Consultant to confirm easement. There is also a parallel 42" recycle main. Propose CIPP due to pipe size, condition, and location.
16	1021633	OPEN CUT	24	24	PVC	1986	DS CCTV from 2021 includes MH to MH coverage. Pipe has reinforcement visible, surface aggregate missing, and also appears to have deposit attached encrustation. Pipe could be lined but may require mechanical cleaning. Pipe acts as a balancing line between the 60" main and 72" main. Propose Open Cut due to pipe condition, size, and short segment length.
16	1013129	CIPP	60	1650	RCP	2003	DS CCTV from 2021 includes MH to MH coverage and sonar available. Pipe has reinforcement visible and surface aggregate missing. Pipe is a candidate for CIPP. Segment runs parallel to a 42" recycle main. Propose CIPP due to pipe size, condition, and location.

6.0 Proposed Project Schedule

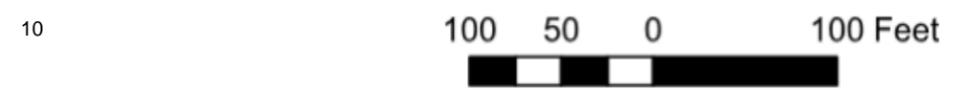
Table-6.1 provides a general project schedule which includes a timeframe for engineering design (plans, permits, right-of-entry, etc.), bidding, and construction phases based CIP board funding and previous schedules from similar projects. These should be reviewed and revised by the consultant during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



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07/19/2022





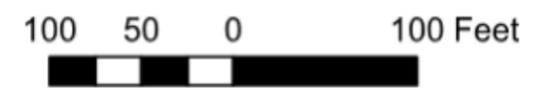
Match line see Sheet 12

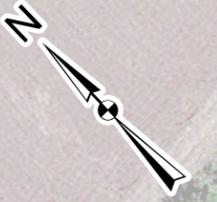
MH 47169
Rim Elv: 570.8
Inv. Elv: 561.41

72in-1026445-1800LF

	Manhole		CoSA IMP Project		100Yr Floodplain
	CIPP		CoSA Bond Projects		Creeks
	OPEN CUT		Railroad		CoSA Park
			Edwards Recharge Zones		Karst Zone

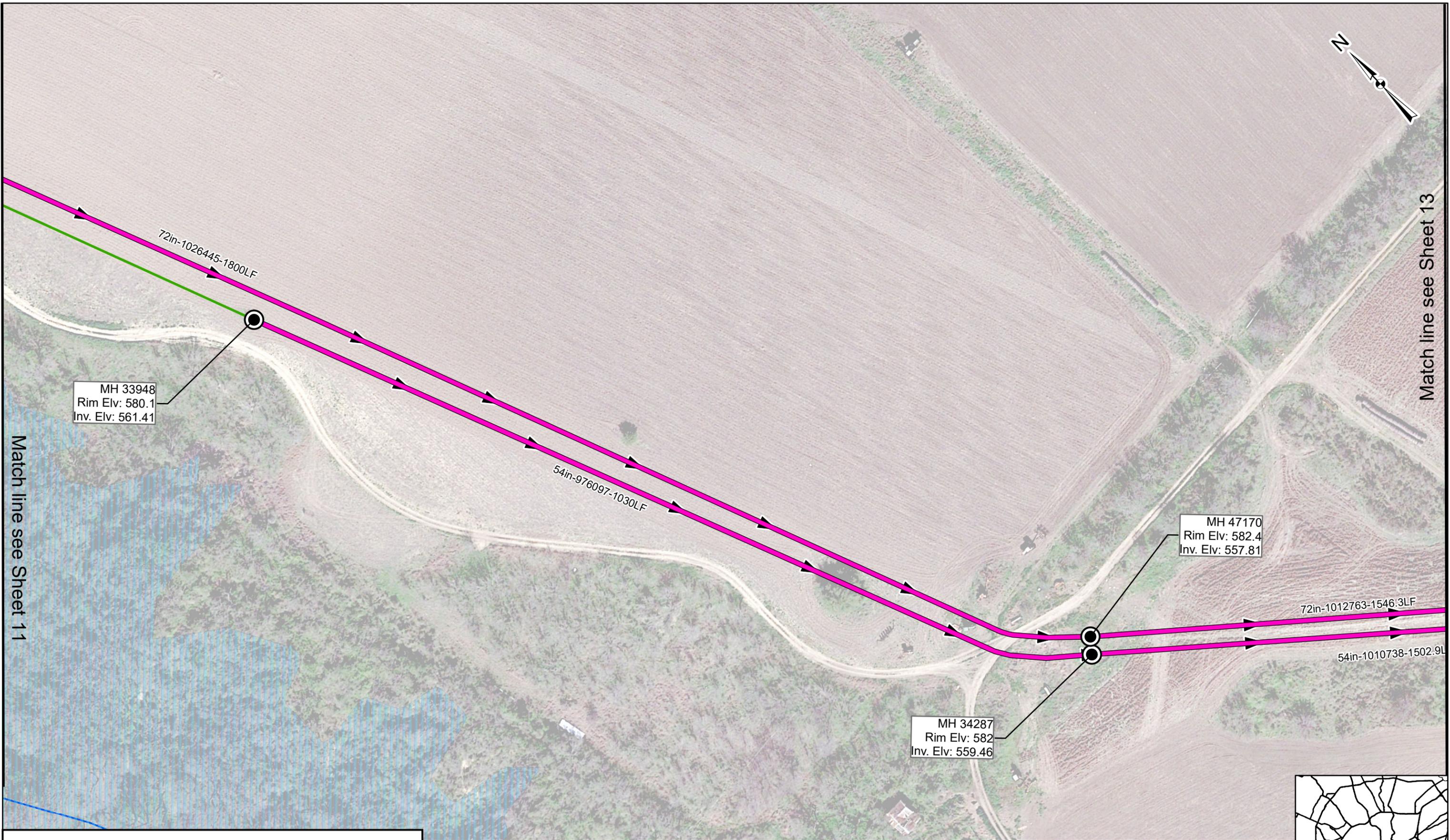
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Match line see Sheet 13

Match line see Sheet 11



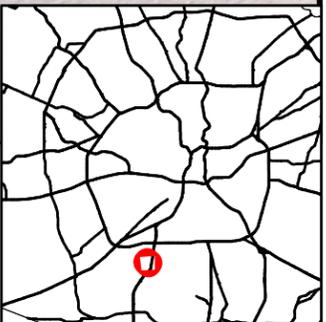
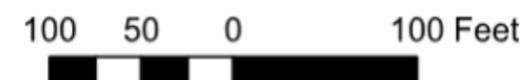
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Inv. Elv: 561.41

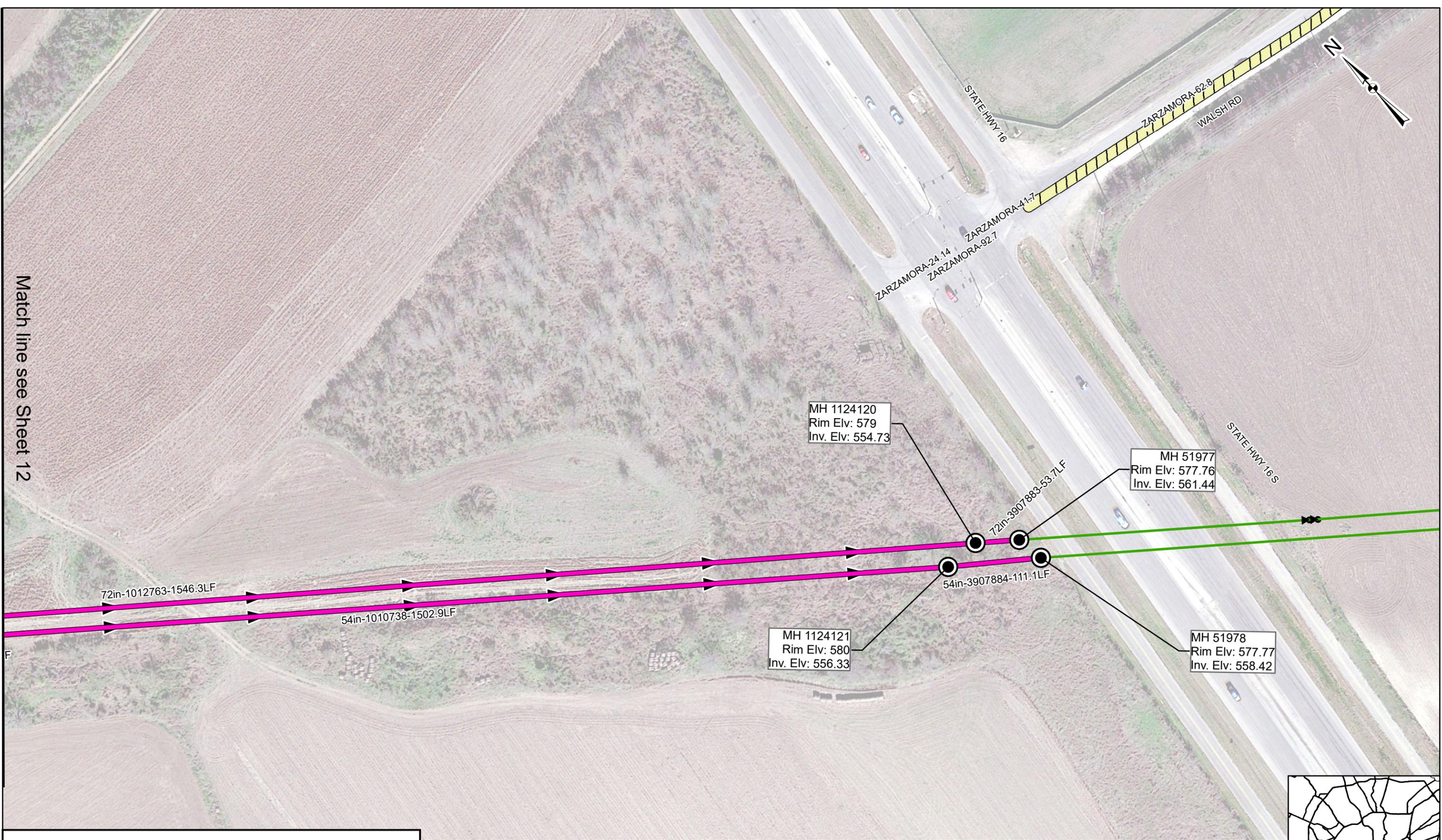
MH 47170
Rim Elv: 582.4
Inv. Elv: 557.81

MH 34287
Rim Elv: 582
Inv. Elv: 559.46

	Manhole		CoSA IMP Project		100Yr Floodplain
	CIPP		CoSA Bond Projects		Creeks
	OPEN CUT		Railroad		CoSA Park
			Edwards Recharge Zones		Karst Zone

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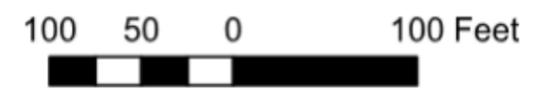




Match line see Sheet 12

	Manhole		CoSA IMP Project		100Yr Floodplain
	CIPP		CoSA Bond Projects		Creeks
	OPEN CUT		Railroad		CoSA Park
			Edwards Recharge Zones		Karst Zone

2022 CMOM Central West Sewershed Project





Match line see Sheet 15

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Rim Elv: 574.66
Inv. Elv: 550.66

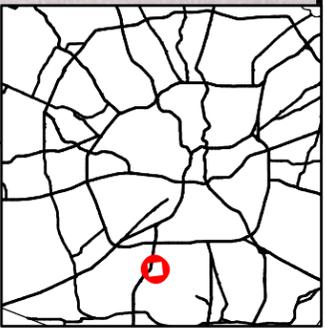
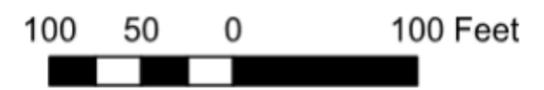
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Rim Elv: 574.75
Inv. Elv: 551.81

72in-1010672-1642LF

54in-3213786-1243LF

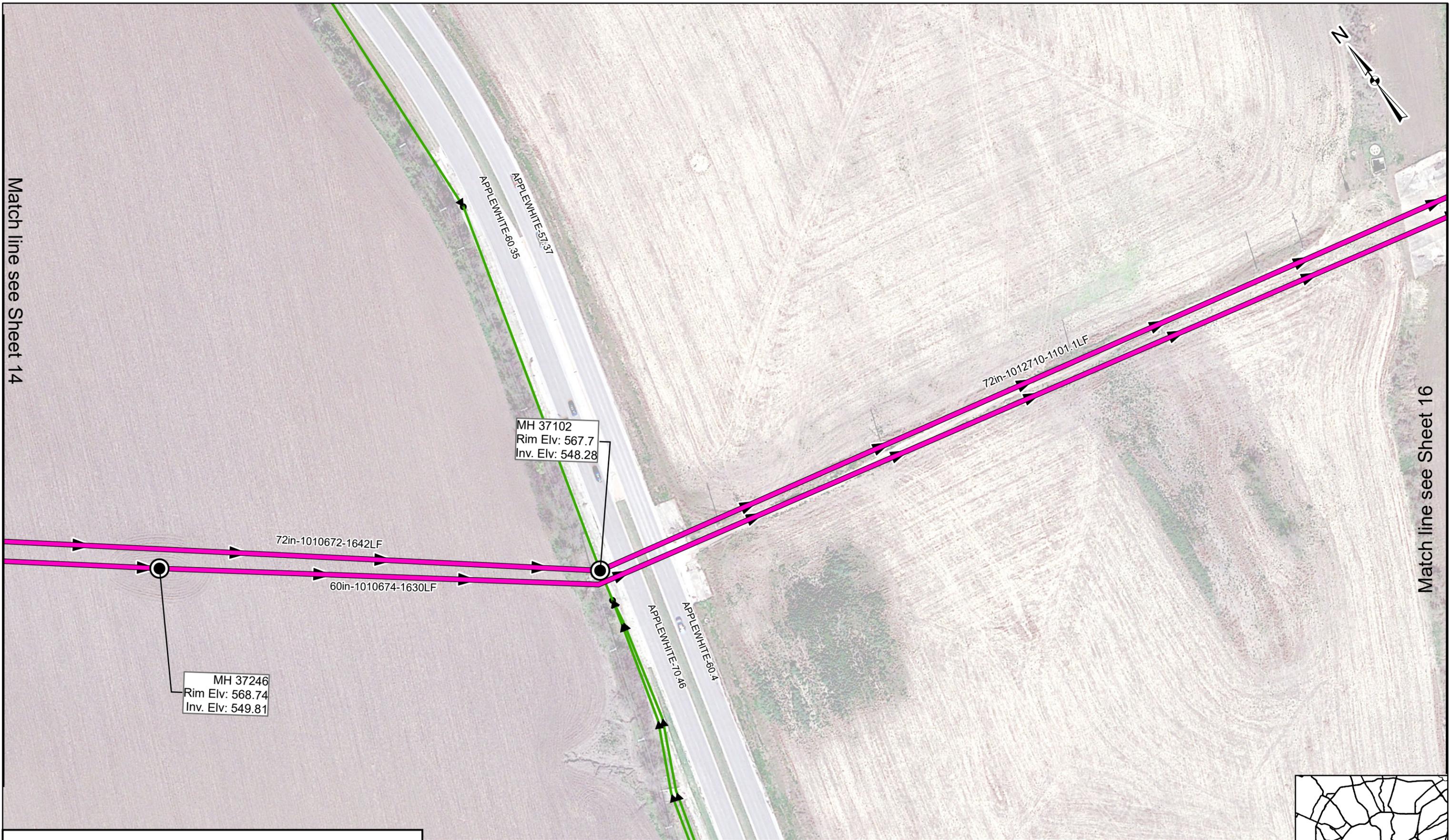
	Manhole		CoSA IMP Project		100Yr Floodplain
	CIPP		CoSA Bond Projects		Creeks
	OPEN CUT		Railroad		CoSA Park
			Edwards Recharge Zones		Karst Zone

2022 CMOM Central West Sewershed Project



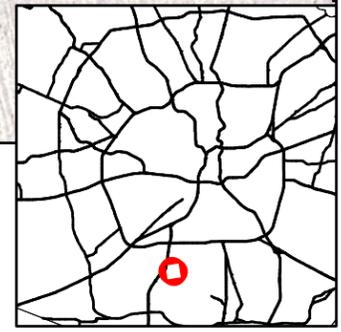
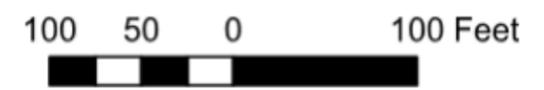
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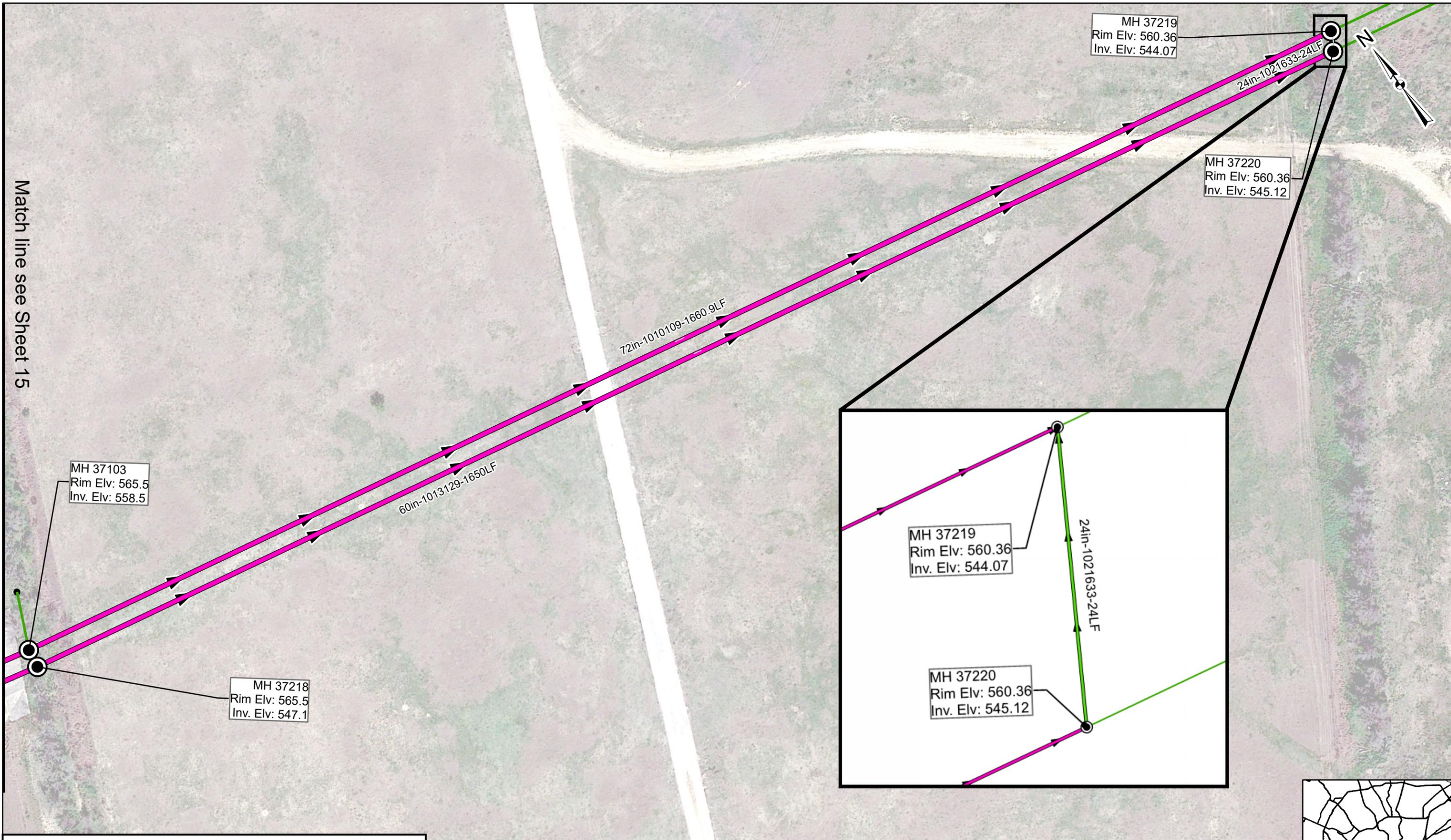
Match line see Sheet 16



	Manhole		CoSA IMP Project		100Yr Floodplain
	CIPP		CoSA Bond Projects		Creeks
	OPEN CUT		Railroad		CoSA Park
			Edwards Recharge Zones		Karst Zone

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Match line see Sheet 15

MH 37103
Rim Elv: 565.5
Inv. Elv: 558.5

MH 37218
Rim Elv: 565.5
Inv. Elv: 547.1

60in-1013129-1650LF

72in-1010109-1660.9LF

MH 37219
Rim Elv: 560.36
Inv. Elv: 544.07

MH 37220
Rim Elv: 560.36
Inv. Elv: 545.12

MH 37219
Rim Elv: 560.36
Inv. Elv: 544.07

MH 37220
Rim Elv: 560.36
Inv. Elv: 545.12

24in-1021633-24LF

24in-1021633-24LF

	Manhole		CoSA IMP Project		100Yr Floodplain
	CIPP		CoSA Bond Projects		Creeks
	OPEN CUT		Railroad		CoSA Park
			Edwards Recharge Zones		Karst Zone

2022 CMOM Central West Sewershed Project

