



MIDWAY CITY SANITARY DISTRICT

Serving the Community of Westminster and Midway City since 1939

REQUEST FOR BID (RFB)

FOR

2025-26 SEWER MAIN REHABILITATION PROJECT

PROJECT NO. P2025-03

SPECIFICATIONS NO. S2025-03

DRAWING NO. D2025-03

CURED-IN-PLACE PIPE (CIPP) INSTALLATION FOR 35 SEWER MAIN SEGMENTS

January 29, 2026

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**Midway City Sanitary District
Engineering Department**

Prepared By:

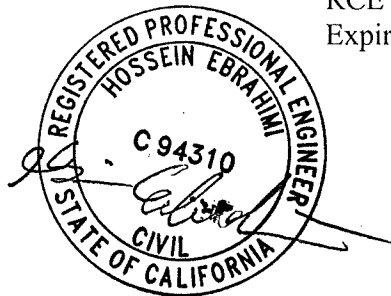
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District Engineer
RCE No. C094310
Expiration Date 12/31/2026

Recommended By:

Milo Ebrahimi, P.E.
District Engineer
RCE No. C094310
Expiration Date 12/31/2026



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Expiration Date 03/31/2027

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Robert Housley
District General Manager



SPECIFICATIONS NO. S2025-03

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SECTION 1 – NOTICE TO CONTRACTORS

PROJECT DESCRIPTION

REQUEST FOR BIDS (RFB)

FOR

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT

PROJECT NO. P2025-03

SPECIFICATIONS NO. S2025-03

DRAWING NO. D2025-03

CURED-IN-PLACE PIPE (CIPP) INSTALLATION FOR 35 SEWER MAIN SEGMENTS

The project consists of rehabilitation of 35 Vitrified Clay Pipe (VCP) sewer main segments using Cured-In-Place Pipe (CIPP) technology. Of these, 32 segments are 8 inches in diameter totaling 8,330 linear feet, 2 segments are 10 inches in diameter totaling 449 linear feet, and 1 segment is 18 inches in diameter totaling 332 linear feet. CIPP installation shall be performed from manhole to manhole, with the use of end seals to prevent infiltration tracking between the host pipe and the liner, as well as leakage into the CIPP at manhole connections in the City of Westminster and unincorporated area of Midway City.

This project includes: 1) Mobilization; and 2) Pre-Installation CCTV Inspection; and 3) Standard Pipe Cleaning; and 4) CIPP Installation; and 5) Traffic Controls; and 6) Sewage Bypasses; and 7) Service Reconnections; and 8) Manhole/Wall Interface Sealings; and 9) Post-Construction CCTV Inspection; and 10) Testing if requested by the District.

This project shall be completed within **Ninety (90) calendar days from notice to proceed.**

The project will also require (but not be limited to): protecting existing utilities; coordination with utility owners, pipe dewatering, maintaining the existing sewer flows during construction, and other work required by the District Engineer.

For bidding purposes only, the latest CCTV condition of the project pipes can be found at:
<https://pioneer.sewerai.com/report?sid=8b242a4a-554b-47df-81d2-249e43e747a9>

To obtain a more detailed view of the conditions, please click on “View on Pioneer Web” on the bottom left-hand corner of any page of the inspection report linked above. Users who want to access this must create a free account with SewerAI, and then e-mail mgountoumas@midwaycitysanitaryca.gov to request permission to view the project.

INSTRUCTIONS TO BIDDERS

SUBJECT: 2025-26 MCSD SEWER MAIN REHABILITATION PROJECT

PROJECT NO. P2025-03

SPECIFICATIONS NO. S2025-03

DRAWING NO. D2025-03

Ladies / Gentlemen:

Enclosed are the plans, specifications, proposal and contract forms for the subject project.

Please submit your bid on the proposal form provided and include the Designation of Subcontractors and appropriate affidavits properly filled out.

One (1) set of plans and specifications will be furnished with the successful bidder and one (1) set each to two (2) designated subcontractors, free of charge, after award of contract.

The CONTRACTOR will be required to pay the latest prevailing wage rates as established by the State of California, Department of Industrial Relations.

Any questions regarding this project should be directed to the Project Manager, Mr. Milo Ebrahimi, at 714-893-3553.

Respectfully,

Milo Ebrahimi, P.E.
District Engineer
Midway City Sanitary District
14451 Cedarwood Street
Westminster, CA 92683

SECTION 1A – NOTICE INVITING BIDS

**MIDWAY CITY SANITARY DISTRICT
STATE OF CALIFORNIA
NOTICE INVITING BIDS**

FOR

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT

PROJECT NO. P2025-03

SPECIFICATIONS NO. S2025-03

DRAWING NO. D2025-03

CURED-IN-PLACE PIPE (CIPP) INSTALLATION FOR 35 SEWER MAIN SEGMENTS

for

**Midway City Sanitary District
14451 Cedarwood Street
Westminster, CA 92683**

1. Receipt and Opening of Bids.
 - a. Notice is hereby given that Sealed Bids, marked "**2025-26 MCSD SEWER MAIN REHABILITATION PROJECT, PROJECT NO. P2025-03**", will be received by the Midway City Sanitary District Front Desk in the District Office, 14451 Cedarwood Street, Westminster, California, until **11:00 AM, on February 27, 2026**, at which time they will be publicly opened in the Conference Room in the District Office.
 - b. Any bid received after the time and date specified above shall not be considered and shall be returned to the bidder, unopened. A bid shall be considered to have been timely submitted if it is received at any time before **11:01 a.m.**
 - c. Bids received via mail, e-mail, or facsimile shall not be considered.
 - d. Each bid shall be submitted in a sealed envelope plainly marked:

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT

PROJECT NO. P2025-03

**Midway City Sanitary District
14451 Cedarwood Street
Westminster, CA 92683**

- e. Any questions regarding this project should be directed to the Project Manager, Mr. Milo Ebrahimi, mebrahimi@midwaycitysanitaryca.gov.

2. Schedule. Notice Requesting Bids Published: January 29, 2026
Mandatory Pre-bid Meeting: **February 12, 2026 at 10:00 A.M.**
Deadline for Receipt of Questions: February 17, 2026 at 4:30 P.M.
Response to Questions (by): February 20, 2026
Deadline for Receipt of Bids: **February 27, 2026 at 11:00 A.M.**
3. Mandatory Pre-Bid Meeting. A **mandatory** pre-bid meeting will be held on **February 12, 2026, at 10:00 A.M.** Meet at the District Offices at 14451 Cedarwood Street, Westminster, CA, at **10:00 A.M.** The meeting is **mandatory** and attendance is required at the District Offices to be eligible to submit a bid for the Project.
4. General Work Description. Generally, the project consists of rehabilitation of 35 Vitrified Clay Pipe (VCP) sewer main segments using Cured-In-Place Pipe (CIPP) technology. Of these, 32 segments are 8 inches in diameter totaling 8,330 linear feet, 2 segments are 10 inches in diameter totaling 449 linear feet, and 1 segment is 18 inches in diameter totaling 332 linear feet. CIPP installation shall be performed from manhole to manhole, with the use of end seals to prevent infiltration tracking between the host pipe and the liner, as well as leakage into the CIPP at manhole connections in the City of Westminster and unincorporated area of Midway City. This project includes: 1) Mobilization; and 2) Pre-Installation CCTV Inspection; and 3) Standard Pipe Cleaning; and 4) CIPP Installation; and 5) Traffic Controls; and 6) Sewage Bypasses; and 7) Service Reconnections; and 8) Manhole/Wall Interface Sealings; and 9) Post-Construction CCTV Inspection; and 10) Testing if requested by the District.
5. The Engineer's estimate for the Project is \$840,000.
6. Contract Time. This project shall be completed within Ninety (90) calendar days from notice to proceed.
7. Contractor's License Requirement. Pursuant to Public Contract Code section 3300 and Business & Professions Code section 7030.5, the Contractor must possess a valid **Class A and/or C42 Contractor's License** at the time of the bid opening and specify its license number.
8. Requirement to be Authorized to do Business in California. All bidders and all designated subcontractors shall be duly authorized to do business in California at the time of bid opening. Contractors and subcontractors that are organized as a corporation, limited liability company, or other entity under the laws of another state must be properly registered with the California Secretary of State pursuant to applicable law.
9. Wage Rate Requirements.
 - a. The wage rates applicable to this Project are the State of California Department of Industrial Relations ("DIR") prevailing rates of per diem wages. Pursuant to the provisions of Section 1770 et seq. of the Labor Code of the State of California, the Director of the DIR has determined the general prevailing rate of the per diem wages and the general prevailing rate for holiday and overtime work in the locality on which the work is to be performed, for each craft, classification or type of worker needed to execute the contract which will be awarded to the successful bidder. Per Diem wages shall be deemed to include employer payments for health and welfare, pension, vacation, apprenticeship or other training programs, and similar purposes. Copies of the prevailing rate of per diem wages are on file at District's principal office, which shall be made available to any

interested party on request, or on the Internet at the State Department of Industrial Relations website (www.dir.ca.gov) under Office of the Director - Research. It shall be mandatory upon the Contractor and on any subcontractor to pay not less than the said specified rates to all workers employed in the execution of the contract. A copy of said rates shall be posted at each job site during the course of construction. The Contractor and all subcontractors shall comply with all provisions of the California Labor Code relating to prevailing wage rates, including Sections 1770-1781.

- b. Apprentices may be employed in conformity with Section 1777.5, 1777.6 and 1777.7 of the California Labor Code. Every apprentice shall be paid the standard wage paid to apprentices under the regulations of the trade at which he/she is employed. Information relative to the employment of apprentices shall be obtained from the Director of the Department of Industrial Relations, who is the Administrative Officer of the California Apprenticeship Council. Copies of all collective bargaining agreements relating to the work as set forth in the aforementioned Labor Code are on file and available for inspection in the office of the State of California, Department of Industrial Relations, Division of Labor Statistics and Research.
 - c. The Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations (DIR). The Contractor is responsible for complying with all requirements of the DIR, including filing electronic payroll reports.
 - d. A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work on a public works project, unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. It is not a violation of Labor Code Section 1771.1 for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.
10. Demonstration of Responsibility. Bidders must demonstrate to the satisfaction of the District that they possess the trustworthiness, quality, fitness, capacity, and experience to satisfactorily perform the contract. Each bidder must submit the information required by the contract documents necessary for the District to evaluate and determine the bidder's qualifications and ability to perform the contract. Prior experience performing similar projects is necessary. Bidders must provide evidence that they have successfully completed a minimum of five (5) public projects involving the installation of CIPP within the public right-of-way, in order to be eligible to be awarded a contract. A contract will not be awarded to any bidder determined by the District to not be a responsible bidder.
11. Securing Bid Documents. Plans and specifications are available online at the Midway City Sanitary District website at:

<https://www.midwaycitysanitaryca.gov/request-for-proposals-rfp-s>.

12. Bids. Bidders shall comply with and agree to all instructions and requirements in this notice and in the contract documents.

- a. In conformance with Section 20483 of the Public Contract Code, all bids shall be presented under sealed cover on the proposal form provided and accompanied by one of the following forms of bidder's security:
 - i. Cash
 - ii. Cashier's check made payable to the Midway City Sanitary District.
 - iii. A certified check made payable to the Midway City Sanitary District.
 - iv. A bidder's bond executed by an admitted surety insurer, prepared on the forms provided and made payable to the Midway City Sanitary District.

The security shall be in an amount equal to at least 10 percent of the amount bid. A bid shall not be considered unless one of the forms of bidder's security is enclosed with it.

BIDDER'S SECURITY SHALL BE FORFEITED, PAID TO, OR RETAINED BY THE DISTRICT AS LIQUIDATED DAMAGES, SHOULD THE BIDDER TO WHOM THE CONTRACT IS AWARDED FAIL TO ENTER INTO THE CONTRACT OR FAIL TO PRESENT SATISFACTORY BONDS OR INSURANCE TO THE DISTRICT AS REQUIRED BY THE CONTRACT DOCUMENTS.

- b. Midway City Sanitary District reserves the right to reject any or all bids or waive any irregularities or informality in a bid. The Midway City Sanitary District also reserves the right to withdraw this Invitation for Bids at any time for any reason without prior notice and the Midway City Sanitary District makes no representations that the contract will be awarded to any Bidder responding to this Invitation for Bids.
 - c. No bid will be accepted from a contractor who is not licensed at the time of bidding in accordance with the provisions of Chapter 9, Division III of Business and Professions Code and in accordance with the Public Contract Code.
 - d. The award of the contract, if awarded, will be to the lowest responsive and responsible bidder whose proposal complies with the requirements prescribed. Such award, if made, will be made within sixty (60) calendar days after the opening of the bids. This period will be subject to extension for such further period as may be agreed upon in writing between the DISTRICT and the lowest responsive and responsible bidder. All bids will be compared on the basis of the Engineer's Estimate of the quantities of work to be done.
 - e. If tie bids from two or more responsive and responsible bidders are received, the District may, at its discretion: (i) reject any and/or all bids presented and re-advertise; (ii) accept any of the tie bids; (iii) accept the lowest bid made by negotiation with the tie bidders; or (iv) award the contract to any one of the low tie bidders by lot occurring during a public meeting.
13. The successful bidder will be allowed to substitute securities or establish an escrow in lieu of retainage, pursuant to Public Contract Code Section 22300, and as described in the contract documents.

14. In accordance with Civil Code section 9550, the successful bidder will be required to furnish a Payment (Labor and Material) Bond in the amount of one hundred percent (100%) of the Contract Sum, and a Faithful Performance Bond in the amount of one hundred percent (100%) of the Contract Sum, said bonds to be secured from an Admitted Surety (an insurance organization authorized by the Insurance Commissioner to transact business of insurance in the State of California during this calendar year), and U.S. Treasury listed. The successful bidder will be required to furnish insurance as set forth in the contract documents.
15. District's Rights Reserved. The Midway City Sanitary District reserves the right to reject any or all bids, to waive any irregularities or informalities in a bid, and to make awards to the lowest responsive, responsible bidder as it may best serve the interest of the Midway City Sanitary District.
16. The District does not maintain a list of pre-qualified approved contractors. Completion of the project's bid package, including references and all other requested documents, will be sufficient.

Dated **January 29, 2026**, at Westminster, California.

MIDWAY CITY SANITARY DISTRICT
By Milo Ebrahimi, District Engineer

SECTION 1B – INSTRUCTIONS FOR BIDDERS

1. Minimum Qualifications: General CONTRACTOR must provide a current Class “A” and/or “C42” license in good standing with the Department of Consumer Affairs - California State License Board at the time of bid opening and specify its license number.
2. Preparation of Bid Form: Bids must be submitted on the prescribed form. All blank spaces for bid prices and lump sum price for which the bid is made must be filled in, in both words and figures. The signature of all persons signing shall be in longhand. The completed bid form shall be without alterations or erasures.

All bids must be submitted in sealed envelopes bearing on the outside the name of the bidder, its address, and the name of the project for which the bid is submitted.

It is the sole responsibility of the bidder to see that its bid is received in proper time. Any bid received after the scheduled closing time for receipt of bids will be returned to the bidder unopened.

Bids shall not contain any recapitulation of the work to be done. Alternative proposals will not be considered. No oral, telephonic or telegraph modifications will be considered.

Before submitting bids, bidders and their subcontractors shall be licensed in accordance with the provisions of the Business and Professions Code.

The bidder shall state in words and figures, the unit prices or the specific sums, as the case may be, for which he/she proposes to perform the work as required by the specifications. In case words and figures do not agree, the words shall govern, and the figures shall be disregarded. If the unit price and the total amount for any item are not in agreement, the unit price alone shall be considered as representing the bidder's intention and the totals will be corrected to conform.

Failure by CONTRACTOR to fill in appropriate blanks in bid proposals may cause rejection of its proposal at the discretion of the District Engineer.

3. Contractor's License: Each bidder is required to provide the information set forth below regarding its license. The California Business and Professions Code Section 7028.15 provides that a licensed contractor shall not submit a bid to the Midway City Sanitary District unless his or her contractor's license number appears clearly on the bid, the license expiration date is stated, and the bid contains a statement that the representations made therein are made under penalty of perjury. Any bid not containing this information, or a bid containing information which is subsequently proven false, shall be considered nonresponsive and shall be rejected by the DISTRICT.
4. Designation of Subcontractors. The bidder is required to fully complete the Designation of Subcontractors included in **Section 3** of this document. All requested information must be included; provided, however, that information other than the subcontractor's name, location of business, the California contractor license number, and the public works contractor registration number, may be submitted by the bidder up to 24 hours after the deadline for submittal of bids. Substitution of bidders may only be made in accordance with Section 4107 of the Public Contract Code.

5. Contractor's Questionnaire. The bidder is required to fully complete and execute the Bidder's Information and Questionnaire Form included in **Section 4A** of this document.
6. Non-Collusion Affidavit: The bidder is required to execute the Non-Collusion Affidavit included in **Section 4B** of this document. DISTRICT also reserves the right to require the principal Contractor to secure a Non-Collusion Affidavit from a proposed subcontractor before awarding any subcontract.
7. Examination of Site and Contract Documents: Each bidder shall visit the site of the proposed work. The bidder shall fully acquaint itself with all conditions relating to construction and labor involved so that it may fully understand the facilities, difficulties and restrictions attending the execution of the work under the contract. Bidders shall thoroughly examine any form, instrument, addendum or other document and be familiar with the drawings and specifications. The failure or omission of any bidder to receive or to examine any form, instrument, addendum or other document or to visit the site and become familiar with existing conditions shall in no way relieve any bidder from obligation with respect to their bid or to the contract. The submission of a bid shall be taken as prima facie evidence of compliance with this section.
8. Withdrawal of Bids: Any bidder may withdraw its bid, either in-person, regular mail, email, or facsimile, at any time prior to the scheduled closing time for receipt of sealed bids.
9. Bidders Interested in More than One Bid: No person, firm, or corporation shall be allowed to make, or file, or be interested in more than one bid for the same work unless alternate bids are called for. A person, firm, or corporation who has submitted a sub-proposal to a bidder or who has quoted prices of materials to the bidder is not thereby disqualified from submitting a sub-proposal or quoting prices to other bidders.
10. Agreement and Bonds: The construction agreement, which the successful bidder, as CONTRACTOR, will be required to execute and the forms and amounts of the bonds which it will be required to furnish at the time of the execution of the Agreement, are included in the Contract Documents, and should be carefully examined by the bidder. The Agreement and the Bonds will be executed in one original.
11. Interpretation of Drawings and Documents: If any person or company contemplating submitting of a bid for the proposed contract is in doubt as to the meaning of any part of the plans, specifications, or other proposed omissions from the drawings, etc., he/she/it may submit to Midway City Sanitary District (DISTRICT) a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Request for interpretation or correction must be submitted as specified in **Section 1A - NOTICE INVITING BIDS** of this document.

Any interpretation by addendum duly issued and a copy of such addendum will be emailed, mailed, or delivered to each person receiving a set of documents. DISTRICT will not be responsible for any other explanation or interpretation of the proposed documents.

12. Receipt/Opening of Bids: The closing date, time and location for sealed bids to be received, opened and publicly read aloud is specified in **Section 1A - NOTICE INVITING BIDS** of this document.

13. Bidder's Security: CONTRACTOR shall have ten (10) calendar days from the award of the Contract to execute the Contract and supply DISTRICT with all of the documents and information required by the Instruction to Bidders and the other Contract Documents, including but not limited to, the necessary bonds and insurance certificates and endorsements. Once the District receives the executed Contract and all of the other properly drafted and executed documents and information, it may issue a Notice to Proceed to the Contractor. If CONTRACTOR refuses or fails to execute the Contract or refuses or fails to provide the required documents and information within the ten (10) calendar days, the DISTRICT may then rescind the award of the Contract and then award the Contract to the next lowest responsive and responsible bidder.

In addition, if CONTRACTOR refuses or fails to execute the Contract or refuses or fails to provide the required documents and information within the time as stated above, his or her bidder's bond or check and the monies represented thereby, or the cash guaranty, shall be and remain the property of the DISTRICT and shall be subject to deposit with the Finance Director of the DISTRICT as other monies belonging to the DISTRICT.

14. Other Requirements: The bidders' attention is specifically directed to the requirements of the Contract Documents with reference to insurance, maintenance of facilities at the site of the project, and the inspection and testing of materials.
15. Award of Contract: The Contract will be awarded to the lowest responsive and responsible bidder, or bidders, complying with these instructions and with **Section 1A – NOTICE INVITING BIDS**. DISTRICT, however, reserves the right to reject any or all bids and to waive any informality in the bids received.
16. Lowest Responsible Bidder: In selecting the lowest responsible bidder, consideration will be given not only to the financial standing, but also to the general competence of the bidder for the performance of the work covered by the proposal. To receive favorable consideration, a bidder must present evidence that he/she/it has successfully performed similar work of comparable magnitude or submit other evidence satisfactory to the DISTRICT that the bidder or its associates are personally competent to manage the proposed undertaking and to carry it forward to a successful conclusion. In addition, if any bidder, or any officer of such bidder, or an employee of such bidder who has a proprietary interest in such bidder, has been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local project because of a violation of law or safety regulation, such bidder may be determined to be a non-responsive bidder. In determining whether a bidder is responsible, the DISTRICT will take into consideration: (a) ability, capacity, and skill; (b) ability to meet the time requirements; (c) character, integrity, and reputation; (d) previous experience; (e) financial resources available for contract performance; and (f) ability to provide maintenance and service pursuant to the warranties required by the contract documents.

17. Bid Protests:

- A. Any bidder claiming that another bidder is not a responsive and responsible bidder shall submit a formal written protest conforming to the requirements of this section to the District Engineer (1) either in person or by U.S. mail (2) and by email as follows:

Milo Ebrahimi, District Engineer
Midway City Sanitary District
14451 Cedarwood Street
Westminster, CA 92683
Email: mebrahimi@midwaycitysanitaryca.gov.

- B. Any protest not conforming to the requirements of this section may be rejected as invalid.
- C. To be considered a valid protest, a bid protest must be received by the DISTRICT Engineer no later than 4:30 p.m. on the fifth calendar day after the date of the bid opening. If the fifth calendar day falls on a weekend or a DISTRICT holiday, the deadline to submit a protest shall be extended to 4:30 p.m. on the next business day.
- D. A bidder submitting the protest shall concurrently transmit a copy of the protest to the bidder deemed the apparent lowest bidder and to any other bidder that is the subject of the protest.
- E. Bid protests must include the name, address and telephone number of the protestor and/or the person representing the protesting party. The written protest must set forth, in detail, all grounds for the protest, including, without limitation, all facts, supporting documentation, legal authorities, and arguments in support of the grounds for the protest. All factual contentions must be supported by evidence. Any matters not set forth in the formal written protest will be deemed waived.
- F. An inadvertent error in listing the California contractor license number or public works contractor registration number provided pursuant to California Public Contract Code §4104(a)(1) shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the corrected contractor's license number is submitted to the public entity by the prime contractor within 24 hours after the bid opening and provided the corrected contractor's license number corresponds to the submitted name and location for that subcontractor.
- G. The DISTRICT's General Manager, or a designee or designees of the General Manager, shall review a timely bid protest and transmit a written determination on the protest stating the reasons for the determination to the protesting bidder and all other affected bidders. Such determination may be transmitted by U.S. mail or email and shall be deemed transmitted on the date it is deposited in the U.S. mail or transmitted via email. The General Manager or his/her designee(s) may base his/her/their determination on the written protest alone or may informally gather evidence from the person(s) filing the protest or any other person having relevant information.

- H. If a bidder disagrees with the determination on the protest made by the General Manager or the General Manager's designee(s), the bidder may appeal the determination to the Board of Directors. Any such appeal shall be in writing, and shall be filed with the General Manager within five (5) calendar days of transmittal of the determination by the General Manager or General Manager's designee(s). If the fifth calendar day falls on a weekend or a DISTRICT holiday, the deadline to file an appeal shall be extended to 4:30 p.m. on the next business day. The Board of Directors will not consider award of the Contract until the time for appeal has expired.
 - I. If an appeal to the Board of Directors is timely filed, the Board of Directors will hold a hearing on the appeal and make a determination as to whether to grant or deny the protest prior to or concurrently with its consideration of award of the Contract.
 - J. The procedures and time limits set forth in this section are mandatory and are a bidder's sole and exclusive administrative remedy in the event of a bid protest. A bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue a bid protest and/or legal challenge to the District's award of the Contract.
18. Determination of Responsiveness and Responsibility; Appeal Rights.
- A. A designee or designees of the DISTRICT's General Manager shall independently evaluate and determine whether each bidder is a responsive and responsible bidder. Such evaluation and determination may be made concurrently with review of a bid protest submitted by another bidder pursuant to Section 17, above, or independently, regardless of whether any bid protest has been timely submitted by another bidder. If the General Manager's designee(s) determines that any bidder is not a responsive and/or responsible bidder, the General Manager's designee(s) shall notify the bidder in writing of the basis of this determination and any related information or evidence received from others or adduced as a result of an independent investigation that the General Manager's designee(s) received or relied on relating to such determination. Such determination may be transmitted by U.S. mail or email and shall be deemed transmitted on the date it is deposited in the U.S. mail or transmitted via email.
 - B. Any bidder who disagrees or disputes the determination made by the General Manager's designee(s) that the bidder is not responsive and/or not responsible may appeal such determination to the General Manager. Such appeal may only be taken by filing a written notice of appeal with the General Manager within five (5) calendar days after the General Manager's designee has mailed or emailed notice of the determination. If the fifth calendar day falls on a weekend or a DISTRICT holiday, the deadline to file an appeal shall be extended to 4:30 p.m. on the next business day. Said written notice of appeal shall include all arguments and evidence the bidder intends to rely on to rebut the determination of the General Manager's designee and/or the information and evidence relied on by the General Manager's designee in making his/her determination.
 - C. Within five (5) working days of the receipt of an appeal, the General Manager, or a designee of the General Manager who has not been involved in the evaluation of bids and qualifications of bidders for the subject project, shall conduct a hearing on the appeal. At the discretion of the General Manager or the General Manager's designee hearing the appeal, said hearing may be conducted either in-person or via telephone or

video conference. During the hearing, the affected bidder shall have the opportunity to rebut any evidence used as a basis for the non-responsive and/or non-responsible determination and to present evidence to the General Manager or the General Manager's designee hearing the appeal as to why the bidder should be found responsive and responsible. Within five (5) working days of the conclusion of the hearing, the General Manager or the General Manager's designee hearing the appeal shall issue a written decision on the appeal and transmit the decision to the bidder via U.S. Mail and/or via e-mail.

- D. If a bidder disagrees with the decision made by the General Manager or the General Manager's designee(s), the bidder may appeal the decision to the Board of Directors. Any such appeal shall be in writing, and shall be filed with the General Manager within five (5) calendar days of transmittal of the decision by the General Manager or General Manager's designee(s). If the fifth calendar day falls on a weekend or a DISTRICT holiday, the deadline to file an appeal shall be extended to 4:30 p.m. on the next business day. The Board of Directors will not consider award of the Contract until the time for appeal has expired.
 - E. If an appeal to the Board of Directors is timely filed, the Board of Directors will hold a hearing on the appeal and make a determination as to whether the bidder is not responsive and/or not responsible prior to or concurrently with its consideration of award of the Contract.
 - F. The procedures and time limits set forth in this section are mandatory and are a bidder's sole and exclusive administrative remedy in the event a bidder is determined by the DISTRICT to be not responsive or not responsible. A bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue a legal challenge to the District's award of the Contract.
19. Non-Discrimination Policy: DISTRICT hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, disability, medical condition, religion, color, sex, sexual orientation, age, marital status, ancestry, or national origin in consideration for an award.

SECTION 2 - CONTRACTOR'S PROPOSAL

BIDDER'S NAME: _____

THE HONORABLE BOARD OF DIRECTORS
MIDWAY CITY SANITARY DISTRICT
14451 CEDARWOOD STREET
WESTMINSTER, CALIFORNIA 92683

SUBJECT PROJECT:

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT

PROJECT NO. P2025-03
SPECIFICATIONS NO. S2025-03
DRAWING NO. D2025-03

Gentlemen:

1. **Total Sub-Bid and Bid Amounts.** The undersigned, having carefully examined the Plans and Specifications for the above subject project and having personally visited the site of the work and been made familiar with the conditions, HEREBY PROPOSE to furnish all labor, materials, equipment and transportation, and do all the work required to complete the said work in accordance with the said Plans and Specifications, and Contract Documents therefore, for the unit prices named in the following bid proposal.

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT

ITEM A - BASE BID ITEMS

NOTE: The Bid Cost shall include but not limited to the Items of: Protecting Existing Utilities (Survey Monuments & Ties, Water Lines, Sewer Lines, etc.), Conducting Field Surveying, Health and Safety Plan, Public Safety & Confined Space Entry, Settlement Monitoring, Securing all Permits and Shop Drawing Submittal for completion of the project.

Item No.	Scope of Work Task Description	Approx. Quantity	Cost Basis	Unit Price (\$)	Item Total (\$)
1	<u>Mobilization:</u> Includes all Performance Work Statement information, submittals, safety plan, as-built drawings, mobilization / demobilization of labor, permits, equipment and materials to the project site, and all costs to the Contractor associated with providing cured CIPP samples for testing. (<i>Note: Costs for all testing of CIPP samples by a laboratory will be paid for by the District and should not be included in the bid proposal.</i>)	1	Lump Sum		
2A	<u>Pre-Installation CCTV Inspection for 8-inch Pipes:</u> Includes post-cleaning CCTV for Owner review. Does not include CCTV inspection just prior to CIPP installation. All inspections will be performed by NASSCO PACP trained and certified personnel.	8,330	Linear Foot		
2B	<u>Pre-Installation CCTV Inspection for 10-inch Pipes:</u> Includes post-cleaning CCTV for Owner review. Does not include CCTV inspection just prior to CIPP installation. All inspections will be performed by NASSCO PACP trained and certified personnel.	449	Linear Foot		
2C	<u>Pre-Installation CCTV Inspection for 18-inch Pipes:</u> Includes post-cleaning CCTV for Owner review. Does not include CCTV inspection just prior to CIPP installation. All inspections will be performed by NASSCO PACP trained and certified personnel.	332	Linear Foot		
3A	<u>Standard Pipe Cleaning for 8-inch Pipes:</u> Including all labor, equipment, materials and cost of material disposal.	8,330	Linear Foot		

Item No.	Scope of Work Task Description	Approx. Quantity	Cost Basis	Unit Price (\$)	Item Total (\$)
3B	<u>Standard Pipe Cleaning for 10-inch Pipes:</u> Including all labor, equipment, materials and cost of material disposal.	449	Linear Foot		
3C	<u>Standard Pipe Cleaning for 18-inch Pipes:</u> Including all labor, equipment, materials and cost of material disposal.	332	Linear Foot		
4A	<u>CIPP Installation for 8-inch Pipes:</u> Includes all labor, equipment, and materials required for the complete installation of a CIPP, including preliner if needed according to section 3.2.C of NASSCO CIPP Installation PSG.	8,330	Linear Foot		
4B	<u>CIPP Installation for 10-inch Pipes:</u> Includes all labor, equipment, and materials required for the complete installation of a CIPP, including preliner if needed according to section 3.2.C of NASSCO CIPP Installation PSG.	449	Linear Foot		
4C	<u>CIPP Installation for 18-inch Pipes:</u> Includes all labor, equipment, and materials required for the complete installation of a CIPP, including preliner if needed according to section 3.2.C of NASSCO CIPP Installation PSG.	332	Linear Foot		
5	<u>Traffic Controls:</u> Includes all labor, equipment and materials required to implement a traffic control plan for the entire project and shall include all costs associated with sub-contracted traffic control specialists.	1	Lump Sum		
6	<u>Sewage Bypasses:</u> Includes all labor, equipment and materials required to implement a flow bypass plan for the entire project, including the cost of all sub-contracted flow bypass specialists.	1	Lump Sum		

Item No.	Scope of Work Task Description	Approx. Quantity	Cost Basis	Unit Price (\$)	Item Total (\$)
7	<u>Service Reconnections:</u> Includes reconnecting existing live sewer service connections to the installed CIPP.	1	Lump Sum		
8	<u>Manhole/Wall Interface Sealings:</u> Includes sealing the interface between the installed CIPP and the manhole wall.	70	Each		
9A	<u>Post-Construction CCTV Inspection for 8-inch Pipes:</u> Includes post-lining CCTV for submission to the Owner. All inspections will be performed by PACP trained and certified personnel.	8,330	Linear Foot		
9B	<u>Post-Construction CCTV Inspection for 10-inch Pipes:</u> Includes post-lining CCTV for submission to the Owner. All inspections will be performed by PACP trained and certified personnel.	449	Linear Foot		
9C	<u>Post-Construction CCTV Inspection for 18-inch Pipes:</u> Includes post-lining CCTV for submission to the Owner. All inspections will be performed by PACP trained and certified personnel.	332	Linear Foot		
Total Project Cost (number):					
Total Project Cost in words:					

TOTAL BID PROPOSAL

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT

PROJECT NO. P2025-03

SPECIFICATIONS NO. S2025-03

DRAWING NO. D2025-03

TOTAL BID PROPOSAL
(ITEM A)

\$ _____

TOTAL BID PROPOSAL WRITTEN IN WORDS:

The foregoing quantities are approximate only, being given as a basis for the comparison of bids, and the Midway City Sanitary District does not expressly or by implication, agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work as may be deemed necessary or expedient by the District Engineer.

NOTE: The contract will be awarded to the lowest responsive and responsible bidder, based on the amount shown under TOTAL BID PROPOSAL. IN CASE OF DISCREPANCY BETWEEN THE WORDS AND FIGURES, THE WORDS SHALL PREVAIL.

2. Open Bid. It is understood that the Midway City Sanitary District reserves the right to reject all bids. The undersigned agrees that this bid shall remain valid and not be withdrawn for a period of sixty (60) calendar days from the actual date prescribed for its opening.

3. Errors or Omissions in Bid. The undersigned acknowledges and agrees that DISTRICT will not be responsible for any errors or omissions on the part of the undersigned in making up their bid, nor will bidders be released because of errors.

4. No Modification. The undersigned acknowledges and agrees that no verbal agreement or conversation with any officer, agent or employee of DISTRICT, either before or after the execution of the Agreement, shall affect or modify any of the terms or obligations of this Proposal.

5. No Collusion. The undersigned declares that the only persons or parties interested in this proposal as principals are those named herein; that no officer, agent, or employee of the DISTRICT is personally interested, directly or indirectly, in this proposal; that this proposal is made without connection to any other individual firm, or corporation making a bid for the same work;

and that this proposal is in respects fair and without collusion or fraud. The undersigned has executed the attached non-collusion affidavit, pursuant to Public Contract Code Section 7106.

6. License. The undersigned declares that it is licensed in accordance with the laws of the State of California.

7. Worker's Compensation Certification. The undersigned acknowledges and agrees that is aware of the provisions Section 3700 of the Labor Code, which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that Code, and that the undersigned will comply with such provisions before the commencement of any work under this Contract, if awarded, and will execute the certification included with the Contract, pursuant to Labor Code Section 1861.

8. Designation of Subcontractors. Attached hereto, in compliance with Section 4100-4113 of the Public Contract Code of the State of California, is Bidder's completed "Designation of Subcontractors." The undersigned understands that if it fails to specify a subcontractor in excess of one-half of one percent (1/2%) of the undersigned's total bid, it shall, in accordance with Public Contract Code Section 4106, be deemed to have agreed to perform that portion itself, and agreed that it is fully qualified to perform such portion itself. The undersigned further understands that if, after award of the Contract, it subcontracts any such portion of the work hereunder in violation of Sections 4107 or 4109 of the public Contract Code, it shall be subject to penalties as set forth in Section 4111 of the Public Contract Code.

9. Execution of Agreement. Commencement of Work. It is understood and agreed that if a Notice of Award is mailed or delivered personally to the undersigned bidder within sixty (60) calendar days after the opening of bids, or at any time thereafter before it is withdrawn, the undersigned bidder will execute and deliver the Agreement to the Midway City Sanitary District, together with the insurance documents specified in the Contract Documents, the Performance Bond and the Payment Bond, all within ten (10) calendar days after personal delivery, email, or deposit in the mail, as the case may be, of the Notice of Award. The undersigned bidder further agrees that the work shall be commenced by the undersigned Bidder on the date stated in the Midway City Sanitary District's Notice to Proceed and shall be completed in the time specified in the Contract Documents.

10. Bid Guarantee. Accompanying this bid is (insert words "cash", "certified check", "cashier's check" or "bidder's bond", as the case may be) in an amount equal to not less than ten percent (10%) of the Total Bid Amount. The undersigned acknowledges and agrees that such security shall be forfeited, paid to or retained by the Midway City Sanitary District as liquidated damages should the bidder to whom the contract is awarded fail to execute the Agreement and all required insurance documents, bonds and other required forms as required under the Contract Documents.

11. Additional Information. The Notice of Award or any request for additional information may be addressed to the undersigned bidder at the business address set forth below.

12. Receipt of Addenda. The undersigned acknowledges receipt of the following addenda and certifies that all such addenda are included in its proposal:

Addenda: ____, ____, ____, ____, and ____.

BIDDER'S NAME/SIGNATURE

Each bid must give the full address of the bidder and be signed by bidder with bidder's usual signature. Bids by partnerships must furnish the full name of all partners and must be signed by one of the members of the partnership, or by an authorized representative, followed by the signature and designation of the person signing. Bids by corporations must be signed with the legal name of the corporation, followed by the name of the state of incorporation and by the signature and designation of the president, secretary, or other person authorized to bind it in the matter. The name of each person signing shall also be typed or printed below the signature. Satisfactory evidence of the authority of the officer signing on behalf of a corporation shall be furnished.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

By: _____
Signature

Print Name: _____

Title: _____

Company: _____

Address: _____

Check one:

- ☐ Corporation
- ☐ Partnership
- ☐ Individual

Subscribed and sworn to before me

This _____ day of _____, 20____.

Signature of Notary Public

(Attach Jurat)

(SEAL)

SECTION 3 - DESIGNATION OF SUBCONTRACTORS

Bidder's Name _____

In compliance with the Provisions of Section 4100-4107 of the California Public Contract Code and any amendments thereto, the undersigned certifies that the sub-bids of the following listed SUBCONTRACTORS have been used in making up this bid, and that the SUBCONTRACTORS listed will be used for the work for which they bid, subject to the approval of the District Engineer, and in accordance with the applicable provisions of the Specifications.

Each Subcontractor proposed to be used to perform work on a portion of the Project or to provide materials and equipment in excess of one-half of one percent (1/2%) of the bidder's total bid must be listed. Bidder must include all requested information. Add additional pages as necessary.

Subcontractor Name: _____

Address: _____

License No. and Class: _____

DIR Registration No. _____

Phone No.: _____ E-mail: _____

Specific Scope of Work (including corresponding Bid Item Nos.): _____

Subcontractor Name: _____

Address: _____

License No. and Class: _____

DIR Registration No. _____

Phone No.: _____ E-mail: _____

Specific Scope of Work (including corresponding Bid Item Nos.): _____

Subcontractor Name: _____

Address: _____

License No. and Class: _____

DIR Registration No. _____

Phone No.: _____ E-mail: _____

Specific Scope of Work (including corresponding Bid Item Nos.): _____

Subcontractor Name: _____

Address: _____

License No. and Class: _____

DIR Registration No. _____

Phone No.: _____ E-mail: _____

Specific Scope of Work (including corresponding Bid Item Nos.): _____

Subcontractor Name: _____

Address: _____

License No. and Class: _____

DIR Registration No. _____

Phone No.: _____ E-mail: _____

Specific Scope of Work (including corresponding Bid Item Nos.): _____

SECTION 4 – FORMS TO BE PROVIDED WITH BID

SECTION 4A – BIDDER INFORMATION AND QUESTIONNAIRE

The Bidder certifies that the following information is true and correct:

Bidder's Name: _____

Business Address: _____

Email: _____ Telephone: _____

State Contractor's License No. and Class: _____

Original Date Issued: _____ Expiration Date: _____

Department of Industrial Relations Registration No. _____

Type of Legal Entity (check one): ☐ Corporation ☐ Partnership ☐ Individual

State of Organization (if a Corporation): _____

California Secretary of State Registration Number (if applicable): _____

If Bidder is a Corporation, list the names and titles of all officers and managers:

If a Bidder is a Partnership, list the names of all partners:

If the Bidder is an Individual, list the name of the owner(s): _____

Number of years engaged in the contracting business under present business name _____.

List all other names under which Bidder has done business within the past 10 years:

REFERENCES:

Following are the names, addresses and telephone numbers for public agencies for which Bidder has performed work of a similar nature and scope. Bidders must provide a minimum of five (5) references for public projects involving the installation of CIPP within the public right-of-way.

Agency Name: _____

Address: _____

Individual to Contact: _____

Phone No.: _____ Email: _____

Year Work Completed: _____

Contract Amount: \$ _____

Project Name and No. (if known): _____

Location of work: _____

Description of Work: _____

Agency Name: _____

Address: _____

Individual to Contact: _____

Phone No.: _____ Email: _____

Year Work Completed: _____

Contract Amount: \$ _____

Project Name and No. (if known): _____

Location of work: _____

Description of Work: _____

Agency Name: _____

Address: _____

Individual to Contact: _____

Phone No.: _____ Email: _____

Year Work Completed: _____

Contract Amount: \$ _____

Project Name and No. (if known): _____

Location of work: _____

Description of Work: _____

Agency Name: _____

Address: _____

Individual to Contact: _____

Phone No.: _____ Email: _____

Year Work Completed: _____

Contract Amount: \$ _____

Project Name and No. (if known): _____

Location of work: _____

Description of Work: _____

Agency Name: _____

Address: _____

Individual to Contact: _____

Phone No.: _____ Email: _____

Year Work Completed: _____

Contract Amount: \$ _____

Project Name and No. (if known): _____

Location of work: _____

Description of Work: _____

QUESTIONNAIRE

The Bidder must answer the following questions. Bidder's responses will be used in DISTRICT's evaluation of whether the Bidder is a responsible bidder. Use additional sheets if necessary.

1. List the names, titles, addresses, and phone numbers of all individuals, firm members, partners, joint venturers, and/or corporate officers having a principal interest in this proposal:

2. List the dates of any voluntary or involuntary bankruptcy judgments against any principal having an interest in the proposal: _____

3. List all current and prior DBA's, aliases, and/or fictitious business names for any principal having an interest in the proposal: _____

4. Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bid, ever been disqualified, removed, or otherwise prevented from bidding on; or completing a federal, state, or local government project because of a violation of law of a safety regulation?

____ Yes ____ No

If the answer is Yes, explain the circumstances in the following space: _____

5. List any lawsuit(s) filed against you or your firm over the past ten (10) years for breach or non-performance of contract: _____

6. List the results of any lawsuit(s): _____

_____.
7. List any claim(s) filed by subcontractors against you or your firm over the past ten (10) years:

_____.
8. List the results of each claim: _____

_____.
9. List any disciplinary action and the ultimate disposition within the past ten (10) years taken against you or your firm by the State Contractor's License Board: _____

_____.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____ [date], at _____ [city], _____ [state]."

Signature

Title

Subscribed and sworn to before me

This _____ day of _____, 20____.

Signature of Notary Public

(SEAL)

SECTION 4B – NONCOLLUSION AFFIDAVIT TO ACCOMPANY PROPOSAL

BIDDER'S NAME: _____

**NONCOLLUSION AFFADAVIT TO BE EXECUTED
BY BIDDER AND SUBMITTED WITH BID**

State of California)

County of Orange) ss.

In conformance with Public Contract Code section 7106, the party making the foregoing bid declares the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that such bid is genuine and not collusive or sham; that said bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder; that all statements contained in the bid are true; and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____ [date], at _____ [city], _____ [state]."

Signature

Title

Subscribed and sworn to before me

This _____ day of _____, 20____.

Signature of Notary Public

(SEAL)

SECTION 4C – BID BOND

Bond No. _____
Premium _____

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT

PROJECT NO. P2025-03
SPECIFICATIONS NO. S2025-03
DRAWING NO. D2025-03

(10% of aggregate amount of bid)

(Not required if cash, cashier's check or certified check in the required amount accompanies the bid)

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, we, as Principal, have submitted a bid to the MIDWAY CITY SANITARY DISTRICT for certain work for which bids are to be opened at 14451 Cedarwood Street, Westminster, CA 92683, on _____, 2026, which work is generally described as

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT
PROJECT NO. P2025-03

NOW THEREFORE, we, as Principal, and _____, as Surety, are held and firmly bound unto the MIDWAY CITY SANITARY DISTRICT in the sum of ten percent (10%) of the aggregate amount of bid of the Principal, submitted by said Principal to the MIDWAY CITY SANITARY DISTRICT for the work described above, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, assigns and successors, jointly and severally, firmly by these presents. In no case shall the liability of the Surety hereunder exceed the sum of _____ and ___/100 DOLLARS (\$_____).

The condition of this obligation is such that if the bid is rejected or if within the period specified therefor, or, if no period be specified, within ten (10) calendar days after the prescribed Agreement is presented to the Principal for signature, the Principal (I) enters into a written Agreement with the MIDWAY CITY SANITARY DISTRICT, in the prescribed form and in accordance with the Contract Documents; (ii) files two bonds with the MIDWAY CITY SANITARY DISTRICT, one to guarantee faithful performance and the other to guarantee payment for labor and materials, in accordance with the Contract Documents and as required by law; and (iii) files the required insurance certificates in accordance with the Contract Documents, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect, it being expressly understood and agreed that the liability

of the Surety for any and all default of the Principal hereunder shall be the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that no bid errors, change, extension of time, alteration or addition to the terms of the contract, or to the work to be performed thereunder or the specifications accompanying the same, shall in any manner affect its obligations under this bond, and it does hereby waive notice of any such error, change, extension of time, alteration or addition to the terms of said contract or the call for bids, or to the work, or to the specifications.

As part of the obligation served hereby and in addition to the face amount specified therefore, there shall be included costs and reasonable expenses and fees, including without limitation reasonable attorney's fees, incurred by the MIDWAY CITY SANITARY DISTRICT in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered. Death of the Principal shall not relieve Surety of its obligations hereunder.

IN WITNESS WHEREOF, this instrument has been duly executed by Principal and Surety on this ____ day of _____, 2026. The name and corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

PRINCIPAL

SURETY

(Principal Name) (Seal)

(Surety Name) (Seal)

By: _____
(Signature)

By: _____
(Signature)

(Print Name and Title)

(Print Name and Title)

By: _____
(Signature)

By: _____
(Signature)

(Print Name and Title)

(Print Name and Title)

Principal Address and Telephone:

Surety Address and Telephone:

Affix Corporate Seals
Attach Notary Acknowledgments for all Signatures
Attach Power-of-Attorney if Executed by Attorney-in-Fact

SECTION 5 – CONSTRUCTION AGREEMENT

SAMPLE CONSTRUCTION AGREEMENT

THIS AGREEMENT (the "Agreement" or the "Contract") is made this ____ day of _____, 2026, by the **Midway City Sanitary District**, a California Special District ("DISTRICT"), and _____, a _____ (the "**CONTRACTOR**"). In consideration of the mutual covenants, conditions, promises and agreements herein contained DISTRICT and CONTRACTOR agree as follows:

RECITALS:

The following recitals are a substantive part of this Agreement:

1. This Contract is entered into pursuant to Midway City Sanitary District Board of Directors Authorization dated **[date]**.
2. DISTRICT desires to utilize the services of CONTRACTOR to furnish material, equipment, and labor for the **2025-26 MCSD SEWER MAIN REHABILITATION PROJECT, PROJECT NO. P2025-03, SPECIFICATIONS NO. S2025-03, AND DRAWING NO. D2025-03.**
3. CONTRACTOR is qualified by virtue of experience, training, education, and expertise to accomplish services.

AGREEMENT

THE PARTIES MUTUALLY AGREE AS FOLLOWS:

- 5.1 General Conditions.** CONTRACTOR certifies and agrees that all the terms, conditions and obligations of the Contract Documents as hereinafter defined, the location of the job site, and the conditions under which the work is to be performed have been thoroughly reviewed, and enters into this Contract based upon CONTRACTOR'S investigation of all such matters and is in no way relying upon any opinions or representations of DISTRICT. It is agreed that this Contract represents the entire agreement. It is further agreed that the Contract Documents including the Notice Inviting Bids, Special Instructions to Bidders, if any, Scope of Work, Plans, Specifications, General Conditions, Special Conditions, and CONTRACTOR's Proposal, are incorporated in this Contract by reference, with the same force and effect as if the same were set forth at length herein, and that CONTRACTOR and its subcontractors, if any, will be and are bound by any and all of said Contract Documents insofar as they relate in any part or in any way, directly or indirectly, to the work covered by this Contract.

"Project" as used herein defines the entire scope of the work covered by all the Contract Documents. Anything mentioned in the Specifications and not indicated in the Plans, or indicated in the Plans and not mentioned in the Specifications, shall be of like effect as if indicated and mentioned in both. In case of discrepancy in the Plans or Specifications, the matter shall be immediately submitted to DISTRICT'S Engineer, without whose decision

CONTRACTOR shall not adjust said discrepancy save only at CONTRACTOR'S own risk and expense. The decision of the Engineer shall be final.

- 5.2 Materials and Labor.** CONTRACTOR shall furnish, under the conditions expressed in the Plans and Specifications, at CONTRACTOR'S own expense, all labor and materials necessary, except such as are mentioned in the Specifications to be furnished by the DISTRICT, to construct and complete the Project, in good workmanlike and substantial order. If CONTRACTOR fails to pay for labor or materials when due, DISTRICT may settle such claims by making demand upon the surety to this Contract. In the event of the failure or refusal of the surety to satisfy said claims, DISTRICT may settle them directly and deduct the amount of payments from the Contract price and any amounts due to CONTRACTOR. In the event DISTRICT receives a stop notice from any laborer or material supplier alleging non-payment by CONTRACTOR, DISTRICT shall be entitled to deduct all of its costs and expenses incurred relating thereto, including but not limited to administrative and legal fees.
- 5.3 Project.** The PROJECT is described as **2025-26 MCSD SEWER MAIN REHABILITATION PROJECT, PROJECT NO. P2025-03.**
- 5.4 Plans and Specifications.** The work to be done is shown in a set of detailed Plans and Specifications entitled: **2025-26 MCSD SEWER MAIN REHABILITATION PROJECT, SPECIFICATIONS NO. S2025-03, AND DRAWING NO. D2025-03.**

Said Plans and Specifications and any revision, amendments or addenda thereto are incorporated herein as part of this Contract and referred to by reference. The work to be done must also be in accordance with the General Conditions, Special Conditions,, Standard Specifications and Standard Plans of the DISTRICT, which are also incorporated herein and referred to by reference.

- 5.5 Time of Commencement and Completion.** CONTRACTOR shall have **ten (10) calendar days from the award of the Contract** to execute the Contract and supply DISTRICT with all of the documents and information required by the Instruction to Bidders and the other Contract Documents, including but not limited to, the necessary bonds and insurance certificates and endorsements. Once the District receives the executed Contract and all of the other properly drafted and executed documents and information, it may issue a Notice to Proceed to the CONTRACTOR. If CONTRACTOR refuses or fails to execute the Contract or refuses or fails to provide the required documents and information within the ten (10) calendar days, the DISTRICT may then rescind the award of the Contract and then award the Contract to the next lowest responsive and responsible bidder.

Upon receipt of the Notice to Proceed, CONTRACTOR agrees to submit shop drawings and traffic control plans **within fourteen (14) calendar days**. Further, upon receipt of the Notice to Proceed the CONTRACTOR shall diligently prosecute the work to completion within **Ninety (90) calendar days from notice to proceed**, excluding delays caused or authorized by the DISTRICT as set forth in Sections 5.7, 5.8 and 5.9 hereof.

5.6 Time is of the Essence. Time is of the essence of this Contract. As required by the Contract Documents, CONTRACTOR shall prepare and obtain approval of all shop drawings, details and samples, and do all other things necessary and incidental to the prosecution of CONTRACTOR'S work in conformance with an approved construction progress schedule. CONTRACTOR shall coordinate the work covered by this Contract with that of all other CONTRACTORS, subcontractors and of the DISTRICT, in a manner that will facilitate the efficient completion of the entire work in accordance with Section 5.5 herein. DISTRICT shall have complete control of the premises on which the work is to be performed and shall have the right to decide the time or order in which the various portions of the work shall be installed or the priority of the work of other subcontractors, and, in general, all matters representing the timely and orderly conduct of the work of CONTRACTOR on the premises.

5.7 Excusable Delays. CONTRACTOR shall be excused for any delay in the prosecution or completion of the Project caused by acts of God; inclement weather; damages caused by fire or other casualty for which CONTRACTOR is not responsible; any act of negligence or default of DISTRICT; failure of DISTRICT to make timely payments to CONTRACTOR; late delivery of materials required by this CONTRACT to be furnished by DISTRICT; combined action of the workers in no way caused by or resulting from default or collusion on the part of CONTRACTOR; a lockout by DISTRICT; or any other delays unforeseen by CONTRACTOR and beyond CONTRACTOR'S reasonable control.

DISTRICT shall extend the time fixed in Section 5.5 herein for completion of the Project by the number of days CONTRACTOR has thus been delayed, provided that CONTRACTOR presents a written request to DISTRICT for such time extension within fifteen (15) days of the commencement of such delay and DISTRICT finds that the delay is justified. DISTRICT'S decision will be conclusive on the parties to this Contract. Failure to file such request within the time allowed shall be deemed a waiver of the claim by CONTRACTOR.

No claims by CONTRACTOR for additional compensation or damages for delays will be allowed unless CONTRACTOR satisfies DISTRICT that such delays were unavoidable and not the result of any action or inaction of CONTRACTOR and that CONTRACTOR took all available measures to mitigate such damages. Extensions of time and extra compensation as a result of incurring undisclosed utilities would be determined in accordance with SPECIAL PROVISIONS and Sections 2-8, 6-4, and 7-4 of the Standard Specifications for Public Works Construction 2024 Edition (GREEN BOOK). The DISTRICT'S decision will be conclusive on all parties to this Contract.

5.8 Extra Work. The Contract price includes compensation for all work performed by CONTRACTOR, unless CONTRACTOR obtains a written change order signed by a designated representative of DISTRICT specifying the exact nature of the extra work and the amount of extra compensation to be paid all as more particularly set forth in Section 5.9 hereof and the General Conditions.

DISTRICT shall extend the time fixed in Section 5.5 herein for completion of the Project by the number of days reasonably required for CONTRACTOR to perform the extra work, as determined by DISTRICT'S Engineer. The decision of the Engineer shall be final.

5.9 Changes in Project. Provisions and procedures regarding changes in the work for the Project directed by DISTRICT or requested by CONTRACTOR are set forth in the General Conditions, which are incorporated herein by reference.

5.10 Liquidated Damages for Delay. The parties agree that if the total work called for under this Contract, in all parts and requirements, is not completed within the time specified in Section 5.5 herein, plus the allowance made for delays or extensions authorized under Sections 5.7, 5.8, and 5.9 herein, the DISTRICT will sustain damage which would be extremely difficult and impractical to ascertain. The parties therefore agree that CONTRACTOR will pay to DISTRICT the sum of **One Thousand Dollars (\$1,000.00) per day** for each and every calendar day during which completion of the Project is so delayed. CONTRACTOR agrees to pay such liquidated damages and further agrees that DISTRICT may offset the amount of liquidated damages from any monies due or that may become due CONTRACTOR under the Contract.

5.11 Contract Price and Method of Payment. DISTRICT agrees to pay and the CONTRACTOR agrees to accept as full consideration for the faithful performance of this Contract, subject to any subsequent additions or deductions as provided in approved change orders, the sum of **XXXXXX hundred and XXXXXX, thousand and XXXXXX hundred XXXXX dollars and 00/100 (\$XXXXXXX)** as itemized in the bid proposal.

Progress payments shall be made to the CONTRACTOR on a monthly basis for each successive month as the work progresses, as more fully described in the General Conditions. The CONTRACTOR shall be paid such sum as will bring the total payments received since the commencement of the work up to ninety –five percent (95%) of the value of the work completed, less all previous payments, provided that the CONTRACTOR submits the request for payment prior to the end of the day required to meet the payment schedule. The DISTRICT will retain five percent (5%) of the amount of each such progress estimate and material cost until 30 days after the recordation of the Notice of Completion.

Payments shall be made on demands drawn in the manner required by law, accompanied by a certificate signed by the DISTRICT'S Engineer, stating that the work for which payment is demanded has been performed in accordance with the terms of the Contract. Partial payments of the Contract price shall not be considered as an acceptance of any part of the work.

5.12 Substitution of Securities in Lieu of Retention of Funds. Pursuant to California Public Contract Code § 22300, the CONTRACTOR will be entitled to post approved securities with the DISTRICT or an approved financial institution in order to have the DISTRICT release funds retained by the DISTRICT to ensure performance of the Contract. CONTRACTOR shall be required to execute an addendum to this Contract together with escrow instructions and any other documents in order to affect this substitution.

5.13 Completion. Within ten (10) days after the contract completion date of the Project, CONTRACTOR shall file with the DISTRICT'S Engineer its affidavit stating that all workers and persons employed, all firms supplying materials, and all subcontractors upon the Project have been paid in full, and that there are no claims outstanding against the Project for either labor or material, except those certain items, if any, to be set forth in an affidavit covering disputed claims, or items in connection with Stop Notices which have been filed under the provisions of the statutes of the State of California. DISTRICT may require affidavits or certificates of payment and/or releases from any subcontractor, laborer or material supplier.

5.14 CONTRACTOR's Employees Compensation. DISTRICT has determined that the work for the Project under this Contract requires work of labor categories which are subject to Prevailing Wage Laws identified in the State of California Labor Code. CONTRACTOR is aware of the requirements of California Labor Code Section 1720, et seq., and 1770, et seq., as well as California Code of Regulations, Title 8, Section 16000, et seq., ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on "public works" and "maintenance" projects. CONTRACTOR agrees to fully comply with all applicable federal and state labor laws (including, without limitation, the Prevailing Wage Laws). It is agreed by DISTRICT and CONTRACTOR that, in connection with the work provided pursuant to this Contract, CONTRACTOR shall bear all risks of payment or non-payment of prevailing wages under California law, and CONTRACTOR hereby agrees to defend, indemnify, and hold DISTRICT, its elected officials, officers, employees, and agents free and harmless from any claim or liability arising out of any failure or alleged failure to comply with the Prevailing Wage Laws. The foregoing indemnity shall survive termination of this Contract. CONTRACTOR understands and agrees to comply with the California Labor Code compliance conditions set forth in this Section 5.14 [Labor Code Sections 1720 et seq., 1813, 1860, 1861, 3700].

5.14.1 **General Prevailing Rate.** Pursuant to the provisions of Section 1770 et seq. of the Labor Code of the State of California, which are hereby incorporated by reference and made a part hereof, the Director of the Department of Industrial Relations has determined the general prevailing rate of the per diem wages and the general prevailing rate for holiday and overtime work in the locality on which the work is to be performed, for each craft, classification or type of worker needed to execute this Agreement. Per Diem wages shall be deemed to include employer payments for health and welfare, pension, vacation, apprenticeship or other training programs, and similar purposes. CONTRACTOR agrees to comply with the provisions of California Labor Code Sections 1771, 1774 and 1775 concerning the payment of prevailing rates of wages to workers and the penalties for failure to pay prevailing wages. The applicable prevailing wage determination(s) may be obtained at <https://www.dir.ca.gov/oprl/dprevwagedetermination.htm>, are on file with DISTRICT, and are available to any interested party upon request. A copy of said rates shall be posted at each job site during the term of this Contract.

5.14.2 **Forfeiture for Violation.** In accordance with Labor Code Section 1775, the CONTRACTOR and any subcontractor shall forfeit, as a penalty to DISTRICT, not more than **Two Hundred Dollars (\$200.00)** for each calendar day or portion thereof for each worker paid less than the established prevailing rates for such work or craft in which such worker is employed for any Work done under the Contract in violation of the provisions of the California Labor Code Sections 1770 to 1780, inclusive. In addition to said penalty and pursuant to said Section 1775, for each day or portion thereof in which each worker was paid less than the prevailing wage rate the difference between such established prevailing wage rates and the amount paid to each worker shall be paid to each worker by the CONTRACTOR.

5.14.3 **Apprentices.** Section 1777.5, 1777.6 and 1777.7 of the Labor Code of the State of California, regarding the employment of apprentices is applicable to this

Contract and the CONTRACTOR shall comply therewith. In accordance with Labor Code Section 1777.7, if CONTRACTOR or one of its subcontractors is determined by the chief of the Division of Apprenticeship Standards to have knowingly violated Labor Code Section 1777.5, the CONTRACTOR or subcontractor shall forfeit, as a penalty to DISTRICT, not more than **One Hundred Dollars (\$100.00)** for each full calendar day of noncompliance, or not more than **Three Hundred Dollars (\$300.00)** for each full calendar day of noncompliance if the CONTRACTOR or subcontractor has knowingly committed a second or subsequent violation within a three-year period and the noncompliance results in apprenticeship training not being provided as required.

5.14.4 **Workday.** Eight (8) hours of labor shall constitute a legal day's work for all workmen employed in the execution of this Contract, and CONTRACTOR and any subcontractor shall comply with and be governed by the laws of the State of California having to do with working hours set forth in Division 2, Part 7, Chapter 1, Article 3 of the California Labor Code. CONTRACTOR shall comply with the provisions of California Labor Code Section 1813 concerning penalties for workers who work excess hours. CONTRACTOR shall, as a penalty to DISTRICT, forfeit **twenty-five dollars (\$25.00)** for each worker employed in the execution of this Contract by the CONTRACTOR or by any subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of Division 2, Part 7, Chapter 1, Article 3 of the California Labor Code. (See, e.g., Cal. Labor Code §1815.)

5.14.5 **Record of Wages: Inspection.** CONTRACTOR agrees to maintain accurate payroll records showing the name, address, social security number, work classification, straight-time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker or other employee employed by it in connection with the Project and agrees to require that each of its subcontractors does the same. The applicable CONTRACTOR or subcontractor or its agent having authority over such matters shall certify all payroll records as accurate in accordance with Labor Code Section 1776(a). CONTRACTOR shall comply with all the provisions of Labor Code Section 1776, and shall submit payroll records to the Labor Commissioner pursuant to Labor Code Section 1771.4(a)(3). Penalties for noncompliance with the requirements of Section 1776 may be deducted from progress payments per Section 1776. CONTRACTOR further agrees that its payroll records and those of its subcontractors shall be made available upon request to the employee or employee's representative, the DISTRICT, the general public through the DISTRICT, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards pursuant to Labor Code Section 1776. In addition, CONTRACTOR shall submit copies of certified payroll reports **and cancelled checks** for labors, every two weeks to the DISTRICT Engineer. Certified payroll and cancelled checks submittals are due one month after start of construction and every two weeks thereafter. *If the certified payroll and cancelled checks are not submitted, the CONTRACTOR will be notified that compliance is required within five (5) working days or Contract work must cease. The DISTRICT will not be responsible for any delay or acceleration charges or any incurred costs or damages as a result of the work stoppage due to CONTRACTOR's failure to*

comply. Work shall be ceased in an orderly, safe fashion with all vehicle access restored, should this not occur, DISTRICT will correct the deficiencies and deduct the cost from funds due to the CONTRACTOR. In addition, no progress payment shall be made until the copies of certified payroll reports and cancelled checks are submitted.

5.14.6 **Contractor and Subcontractor Registration.** CONTRACTOR and its subcontractors must be registered with the California Department of Industrial Relations pursuant to Labor Code Section 1725.5. This Contract shall not be effective until CONTRACTOR provides proof of registration to the DISTRICT. CONTRACTOR shall provide the list of subcontractors, along with their DIR registration numbers, utilized on this Contract prior to any work being performed; and CONTRACTOR shall provide a complete list of all subcontractors with each invoice. Additionally, CONTRACTOR shall provide DISTRICT with a complete list of all subcontractors utilized on Project within ten working days of the completion of the Project, along with their DIR registration numbers.

5.14.7 **Posting of Job Site Notices.** CONTRACTOR shall comply with the job site notices posting requirements established by the Labor Commissioner pursuant to Title 8, California Code of Regulations Section 16461(e) or other regulation promulgated pursuant to Labor Code Section 1771.4(a)(2).

5.14.8 **Notice of DIR Compliance Monitoring and Enforcement.** Pursuant to Labor Code Section 1771.4, this Project is subject to compliance monitoring and enforcement by the California Department of Industrial Relations. CONTRACTOR shall post job site notices as prescribed by DIR regulations and furnish the records specified in California Labor Code Section 1776 directly to the Labor Commissioner in the manner prescribed by California Labor Code Section 1771.4(a)(3).

5.14.9 **Securing Payment of Compensation.** Pursuant to California Labor Code Sections 1860 and 3700, CONTRACTOR will be required to secure the payment of compensation to its employees. By signing this Contract, CONTRACTOR hereby certifies as follows:

“I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers’ compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Agreement.”

15.15 **Surety Bonds.** CONTRACTOR shall, upon entering into performance of this Agreement, furnish bonds in the amount of one hundred percent (100%) of the Contract price bid, to guarantee the faithful performance of the work, and the other in the amount of one hundred percent (100%) of the Contract price bid to guarantee payment of all claims for labor and materials furnished. This Contract shall not become effective until such bonds are supplied to and approved by the DISTRICT.

5.16 Insurance.

- 5.16.1 CONTRACTOR is also aware of the provisions of Section 3700 of the Labor Code, which requires every employer to be insured against liability for Workers' Compensation or undertake self-insurance in accordance with the provisions of that Code, and will comply with such provisions before commencing the performance of the work of this Contract.
- 5.16.2 CONTRACTOR and all subcontractors shall carry workers' compensation insurance for the protection of its employees during the progress of the work. The insurer shall waive its rights of subrogation against the DISTRICT, its directors, officers, agents and employees for this Contract and all public agencies from whom permits will be obtained and their directors, officers, agents, and employees as determined by the DISTRICT, and shall issue a waiver of subrogation.
- 5.16.3 CONTRACTOR and all subcontractors shall at all times carry, on all operations hereunder, bodily injury, including death, and property damage liability insurance, including automotive operations bodily injury and property damage coverage; and builder's all risk (course of construction) insurance (which need not include coverage for floods or earthquakes). Float insurance may not be submitted in lieu of builder's all-risk insurance. All insurance coverage shall be in amounts specified by the DISTRICT in this Section 5.16 and shall be evidenced by the issuance of a certificate and additional insured endorsement in forms prescribed by the DISTRICT and shall be underwritten by insurance companies satisfactory to the DISTRICT for all operations, subcontract work, contractual obligations, product or completed operations, all owned vehicles and non-owned vehicles. Said insurance coverage obtained by the CONTRACTOR, excepting workers' compensation coverage, shall name the DISTRICT, its Officers, Agents, Employees, Engineers, and Consultants for this Contract, and all public agencies from whom permits will be obtained and their Directors, Officers, Agents and Employees, as determined by the DISTRICT, as additional insured on said policies. Additional insured status shall be evidenced in the form of an Additional insured Endorsement (CG 20 10 1185). A sample is included in the appendix of the specifications for reference.

For any claims related to this Project, the CONTRACTOR's insurance coverage shall be primary insurance as respects DISTRICT, the City of Westminster, and their respective Officers, Officials, Agents, Employees, Engineers, Volunteers, and Consultants for this Contract, and all public agencies from whom permits will be obtained and their Directors, Officers, Agents and Employees, as determined by the DISTRICT. Any insurance or self-insurance maintained by the DISTRICT, the City of Westminster, and/or their respective Officers, Officials, Agents, Employees, Engineers, Volunteers, and Consultants for this Contract, and all public agencies from whom permits will be obtained and their Directors, Officers, Agents and Employees, as determined by the DISTRICT shall be excess of the CONTRACTOR's insurance and not contribute with it.

- 5.16.4 Before CONTRACTOR performs any work at, or prepares or delivers materials to, the site of construction, CONTRACTOR shall furnish:

COMMENCEMENT OF WORK. CONTRACTOR shall not commence work under this Agreement until all certificates and endorsements have been received and approved by the DISTRICT. All insurance required by this Agreement shall contain a Statement of Obligation on the part of the carrier to notify the DISTRICT of any material change, cancellation, or termination at least thirty (30) days in advance. A **wavier of subrogation** shall be provided by the insurer for **each policy** waiving subrogation against DISTRICT, its officers, officials, employees, agents, and volunteers for this contract and all public agencies from whom permits will be obtained and their directors, officers, agents, and employees, as determined by the DISTRICT, Claims **made** and **modified occurrence** policies **shall not be accepted** for any policy. All subcontractors shall be required to provide and maintain the same insurances as required of CONTRACTOR under this contract. CONTRACTOR shall be required to collect and maintain all required insurances from all subcontractors.

INSURANCE AMOUNTS. CONTRACTOR shall maintain all of the foregoing insurance coverage in force until the work under this Contract is fully completed. The requirement for carrying the foregoing insurance shall not derogate from the provisions for indemnification of Midway City Sanitary District and/or City of Westminster by CONTRACTOR under Section 5.17 of this Contract. Notwithstanding nor diminishing the obligations of CONTRACTOR with respect to the foregoing, CONTRACTOR shall subscribe for and maintain in full force and effect during the life of this Contract, the following insurance in amounts not less than the amounts specified and issued by a company admitted and licensed in California and having a Best's Guide Rating of A-Class VII or better (**Claims made and modified occurrence policies are not acceptable**):

Workers' Compensation	As required by the State of California.
Employer's Liability	Not less than \$1,000,000 per accident for bodily injury or disease.
Commercial General Liability (including ongoing, products and completed operations, and not excluding XCU)	Not less than \$5,000,000 per occurrence for bodily injury, personal injury and property damage.
Automobile Liability, including non-owned and hired vehicles	Not less than \$2,000,000 combined single limit for bodily injury and property damage. Coverage shall include mobile equipment.
Builder's All-Risk / Course of Construction	Completed value of the project with no coinsurance penalty provisions.
Follows Form Excess Liability	Required for any underlying policy that does not meet the underlying policy limits required herein.

An Additional Insured Endorsement, **ongoing and products-completed operations**, for the Commercial General Liability policy shall designate DISTRICT, City of Westminster and their respective Officers, Officials, Agents, Employees, Engineers, Volunteers, and Consultants for this Contract, and all

public agencies from whom permits will be obtained and their Directors, Officers, Agents and Employees, as determined by the Midway City Sanitary District as additional insureds for liability arising out of work or operations performed by or on behalf of the CONTRACTOR. CONTRACTOR shall provide to DISTRICT proof of insurance and endorsement forms that conform to DISTRICT's requirements, as approved by the DISTRICT.

An Additional Insured Endorsement for Automobile Liability policy, including mobile equipment, shall designate DISTRICT, City of Westminster, and their respective Officers, Officials, Agents, Employees, Engineers, Volunteers, and Consultants for this Contract, and all public agencies from whom permits will be obtained and their Directors, Officers, Agents and Employees, as determined by the Midway City Sanitary District as additional insureds for automobiles owned, leased, hired, or borrowed by the CONTRACTOR. CONTRACTOR shall provide to DISTRICT proof of insurance and endorsement forms that conform to Midway City Sanitary District's requirements, as approved by the DISTRICT.

An Additional Insured Endorsement for Contractors' Pollution Legal Liability policy shall designate DISTRICT, City of Westminster, and their respective Officers, Officials, Agents, Employees, Engineers, Volunteers, and Consultants for this Contract, and all public agencies from whom permits will be obtained and their Directors, Officers, Agents and Employees, as determined by the DISTRICT as additional insureds for liability arising out of work or operations performed by or on behalf of the CONTRACTOR.

CONTRACTOR shall provide DISTRICT proof of insurance and endorsement forms that conform to DISTRICT's requirements, as approved by the DISTRICT.

CONTRACTOR shall provide DISTRICT proof of insurance and endorsement forms that conform to DISTRICT's requirements, as approved by the DISTRICT.

In the event any of CONTRACTOR'S underlying policies do not meet policy limits within the insurance requirements, CONTRACTOR shall provide coverage under an excess liability policy. The policy must be a follow-form excess/umbrella policy. CONTRACTOR shall provide the **schedule of underlying policies** for an excess/umbrella liability policy, state that the excess/umbrella policy **follows form** on the insurance certificate, and provide an **additional insured endorsement** for the excess/umbrella liability policy designating DISTRICT, City of Westminster, and their respective Officers, Officials, Agents, Employees, Engineers, Volunteers, and Consultants for this Contract, and all public agencies from whom permits will be obtained and their Directors, Officers, Agents and Employees, as determined by the Midway City Sanitary District as additional insureds.

A primary/non-contributory endorsement shall be provided to DISTRICT for each policy except the excess liability policy. For any claims related to this Agreement, CONTRACTOR's insurance coverage shall be primary insurance as respects DISTRICT, City of Westminster, and their respective officers, officials, agents, employees, and volunteers for this contract and all public agencies from whom permits will be obtained and their directors, officers, agents, and employees as

determined by Midway City Sanitary District. Any insurance or self-insurance maintained by DISTRICT, City of Westminster, and/or their respective officers, officials, agents, employees, and volunteers for this contract and all public agencies from whom permits will be obtained and their directors, officers, agents, and employees, as determined by DISTRICT shall be excess of the CONTRACTOR's insurance and shall not contribute with it. CONTRACTOR shall provide to DISTRICT proof of insurance and endorsement forms that conform to DISTRICT's requirements, as approved by the DISTRICT.

DISTRICT or its representatives shall at all times have the right to inspect and receive the original or a certified copy of all said policies of insurance, including certificates and endorsements, at CONTRACTOR'S sole cost and expense. CONTRACTOR shall pay the premiums on the insurance hereinabove required.

If CONTRACTOR maintains higher insurance limits than the minimums shown above, CONTRACTOR shall provide coverage for the higher insurance limits otherwise maintained by the CONTRACTOR.

5.17 Risk and Indemnification. All work covered by this Contract done at the site of construction or in preparing or delivering materials to the site shall be at the risk of CONTRACTOR alone. CONTRACTOR shall, with respect to all work covered by or incidental to this Contract, be responsible for any liability imposed by law and agrees to save, indemnify, defend and hold the Midway City Sanitary District, and its officers, agents, employees, engineers, and consultants for this Contract, and all public agencies from whom permits will be obtained and their directors, officers, agents and employees (collectively, the "Indemnified Parties," and individually, an "Indemnified Party") harmless from any claim, suit or action of every name, kind, and description, loss, damage, cost, expenses, including reasonable attorney's fees and expert fees, costs of compliance with administrative orders and directives, litigation, arbitration, awards, fines, and administratively or judicially-imposed penalties or judgments ("Claims"), arising by reason of death or bodily injury to person(s), injury to property, or other loss, damage or expense, resulting from the Work performed under this Contract, defects in the Work, or by or on account of acts, errors or omissions of the CONTRACTOR or CONTRACTOR's subcontractors, suppliers, employees, invitees, or agents or from any other cause whatsoever arising during the progress of the Work or at any time prior to its completion and acceptance by DISTRICT, including any of the same resulting from DISTRICT's alleged or actual acts, errors, or omissions regardless of whether on or off of the worksite. Said responsibility shall extend to claims, demands or liability for loss, damage or injuries occurring or discovered after completion of the Project, as well as during the progress of the Project work. However, CONTRACTOR shall not be obligated under this Contract to indemnify an Indemnified Party with respect to the active negligence, sole negligence, or willful misconduct of an Indemnified Party.

In addition, if any action is brought against the CONTRACTOR or any of its subcontractors to enforce a stop payment notice or notice to withhold, which names DISTRICT as a party to said action, DISTRICT shall be entitled to reasonable attorney's fees, costs and necessary disbursements arising out of the defense of such action by DISTRICT. DISTRICT shall be entitled to deduct its costs for any stop payment notice filed, whether court action is involved or not.

In any and all claims against the Indemnified Parties by an employee of the CONTRACTOR, any subcontractor, any supplier, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation as specified herein shall not be limited in any way by the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR, or any subcontractor, or any supplier or other person under Workers' Compensation acts, disability benefit acts, or other employee acts.

The CONTRACTOR shall also be responsible for and shall indemnify, defend and hold harmless DISTRICT and ITS directors, officers, employees, and agents from and against all losses, expenses, damages (including damages to the Work itself), attorney's fees, and other costs, including all costs of defense, which any of them may incur with respect to the failure, neglect, or refusal of the CONTRACTOR to faithfully perform the Work and all of the CONTRACTOR's obligations under the Contract. Such costs, expenses, and damages shall include all costs, including attorney's fees incurred by the indemnified parties in any lawsuit to which they are a party.

In the event CONTRACTOR or its insurer refuses or fails to provide a legal defense to DISTRICT after receiving written notice of the legal action and a tender and demand for defense, DISTRICT shall have the right to select counsel of its own choice to represent all the interests of MCSD at CONTRACTOR's cost and expense. CONTRACTOR agrees that the amount of legal costs and expenses, including attorneys' fees, may be withheld by DISTRICT from any Contract amounts due and owing to CONTRACTOR until such time as a final determination is made as to the responsibility for payment of said fees and costs. CONTRACTOR further agrees that to the extent DISTRICT incurs such damages and the damages exceed any remaining Contract amounts due and owing to CONTRACTOR, CONTRACTOR shall reimburse DISTRICT for all such additional damages upon demand by DISTRICT for the same.

CONTRACTOR and DISTRICT agree that nothing in this Section is intended to be or is a prevailing party clause as it pertains to attorney's fees.

5.18 Termination. This Contract may be terminated in whole or in part in writing by the DISTRICT for its convenience, provided that the CONTRACTOR is given (1) not less than ten (10) calendar days written notice of intent to terminate, and (2) an opportunity for consultation with the DISTRICT prior to termination. The procedures and obligations of DISTRICT and CONTRACTOR in the event of termination by DISTRICT are set forth in the General Conditions and incorporated into this Section 5.18 by reference.

5.19 Warranty. The CONTRACTOR agrees to perform all work under this Contract in accordance with the DISTRICT's designs, drawings and specifications.

The CONTRACTOR guarantees for a period of one (1) year from the date of the notice of completion of the work that the completed work is free from all defects due to faulty materials, equipment or workmanship and that CONTRACTOR shall promptly make whatever adjustments or corrections which may be necessary to cure any defects, including repairs or any damage to other parts of the system resulting from such defects. The CONTRACTOR'S warranty obligations are set forth more fully in the General Conditions, which are incorporated herein by reference.

The CONTRACTOR'S obligations under this clause are in addition to the CONTRACTOR'S other express or implied assurances of this Contract or state law and in no way diminish any

other rights that the DISTRICT may have against the CONTRACTOR for faulty materials, equipment or work.

- 5.20 Attorneys' Fees.** If any action at law or in equity is necessary to enforce or interpret the terms of this Contract, each shall bear its own attorneys' fees, costs and necessary disbursements. Notwithstanding the foregoing, if any action is brought against the CONTRACTOR or any subcontractor to enforce a Stop Notice or Notice to Withhold, which named the DISTRICT as a party to said action, the DISTRICT shall be entitled to reasonable attorneys' fees, costs and necessary disbursements arising out of the defense of such action by the DISTRICT. The DISTRICT shall be entitled to deduct its costs for any Stop Notice filed, whether court action is involved or not.
- 5.21 Entire Agreement.** The Contract Documents constitute the entire agreement between the parties, and supersede any prior agreement between the parties, oral or written, including the MCSD's award of the Project to Contractor, unless such agreement is expressly incorporated herein. The MCSD makes no representations or warranties, express or implied, not specified in the Contract Documents.
- 5.22 Execution of Other Documents.** The parties to this Agreement shall cooperate fully in the execution of any and all other documents and in the completion of any additional actions that may be necessary or appropriate to give full force and effect to the terms and intent of the Contract Documents.
- 5.23 Execution in Counterparts.** This Agreement may be executed in counterparts such that the signatures may appear on separate signature pages. A copy, or an original, with all signatures appended together, shall be deemed a fully executed Agreement.
- 5.24 Severability.** If any provision of the Contract Documents shall be held invalid or unenforceable by a court of competent jurisdiction, such holding shall not invalidate or render unenforceable any other provision hereof.
- 5.25 Amendments.** The terms of the Contract Documents shall not be waived, altered, modified, supplemented or amended in any manner whatsoever except by written agreement signed by the parties
- 5.26 Law; Venue.** This agreement has been executed and delivered in the State of California and the validity, enforceability and interpretation of any of the clauses of this Agreement shall be determined and governed by the laws of the State of California. The duties and obligations of the parties created hereunder are performable in ORANGE COUNTY and such COUNTY shall be the venue for any action of proceeding that may be brought or arise out of, in connection with or by reason of this Agreement

5.27 Notices. Any notice required or permitted under this Contract may be given by personal delivery or by deposit in the United States mail, or by electronic telecommunication at the addresses set forth below in the manner specified in the General Conditions, which are incorporated herein by reference. Any party whose address changes shall notify the other party in writing.

To DISTRICT:

Midway City Sanitary District
Attention: Robert Housley
General Manager
14451 Cedarwood Street
Westminster, CA 92683
(714) 677-2962 (Direct)
(714) 893-3553 (District Office)
Email: rhousley@midwaycitysanitaryca.gov
mebrahimi@midwaycitysanitaryca.gov

TO CONTRACTOR:

Email: _____

/SIGNATURES ON NEXT PAGE/

IN WITNESS THEREOF, these parties have executed this Construction Agreement on the day and year shown below.

**"DISTRICT"
MIDWAY CITY SANITARY DISTRICT**

By: _____

Title: _____

Date: _____

APPROVED AS TO FORM:

Midway City Sanitary District
General Counsel

Date: _____

"CONTRACTOR"

Contractor State License No. _____

Expiration Date: _____

By: _____

Title: _____

Date: _____

By: _____

Title: _____

Date: _____

If CONTRACTOR is a corporation, a Corporate Resolution and/or Corporate Seal is required.

If CONTRACTOR is a partnership, all partners shall sign under the partnership name.

FAITHFUL PERFORMANCE BOND

Bond No. _____
Premium _____

KNOW ALL PERSON BY THESE PRESENTS

THAT WHEREAS, the MIDWAY CITY SANITARY DISTRICT, a public entity of the State of California (the "District") and _____ (the "Principal") have entered into an Agreement whereby Principal agrees to install and complete certain designated public improvements, which Agreement is dated _____, 2026 and is identified as follows:

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT
PROJECT NO. P2025-03

WHEREAS, Principal is required under the terms of said Agreement to furnish a bond for the faithful performance of said Agreement.

NOW, THEREFORE, we, the Principal, and _____, as Surety, are held and firmly bound unto MIDWAY CITY SANITARY DISTRICT, in the sum of _____ and ____/100 DOLLARS (\$_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, assigns and successors, jointly and severally, firmly by these presents.

The condition of this obligation is such that if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Agreement during the original term of said Agreement and any extensions thereof that may be granted by the District, with or without notice to the Surety, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreement of any and all covenants, terms, conditions and agreement of any and all duly authorized modifications of said Agreement that may hereafter be made, and shall indemnify, defend and save harmless the MIDWAY CITY SANITARY DISTRICT, its officers, agents, consultants, employees, volunteers, managers and members, then this obligation is to be void, otherwise to remain in full force and virtue. In case suit or other proceeding is brought upon this bond, Surety will pay costs and reasonable attorney's fees to be awarded and fixed by the Court, and to be taxed as costs and to be included in the judgment therein rendered.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Agreement or to the work to be performed thereunder or the specifications accompanying the same, shall in any manner affect its obligations under this bond, and it does hereby waive notice of any such change, extension of time, alteration or additions. Death of the Principal shall not relieve Surety of its obligations hereunder.

IN WITNESS WHEREOF, this instrument has been duly executed by Principal and Surety on this ____ day of _____, 20____.

PRINCIPAL

SURETY

(Principal Name)

(Seal)

(Surety Name)

(Seal)

By: _____
(Signature)

By: _____
(Signature)

(Print Name and Title)

(Print Name and Title)

By: _____
(Signature)

By: _____
(Signature)

(Print Name and Title)

(Print Name and Title)

Principal Address and Telephone:

Surety Address and Telephone:

Affix Corporate Seals

Attach Notary Acknowledgments for all Signatures

Attach Power-of-Attorney if Executed by Attorney-in-Fact

PAYMENT (LABOR AND MATERIAL) BOND

Bond No. _____
Premium _____

KNOW ALL PERSON BY THESE PRESENTS:

THAT WHEREAS, the MIDWAY CITY SANITARY DISTRICT, a public entity of the State of California (the "District") and _____ (the "Principal") have entered into an Agreement for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to construct:

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT
PROJECT NO. P2025-03

Which said Agreement dated _____, 2026, and all of the Contract Documents are hereby referred to and made a part hereof; and

WHEREAS, the Principal is required, before entering upon the performance of the Work, to file a good and sufficient bond with the body by whom the contract is awarded to secure the claims arising under said Agreement.

NOW, THEREFORE, THESE PRESENTS WITNESSETH:

That the said Principal and the undersigned _____ (the "Surety"), an admitted surety in the State of California, are held and firmly bound unto the Midway City Sanitary District in the sum of _____ and ____/100 DOLLARS (\$_____), which sum well and truly be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, by these presents.

The condition of this obligation is that if the said Principal or any of its subcontractors, or the heirs, executors, administrators, successors, or assigns of any, all, or either of them, shall fail to pay (a) any of the persons named in Section 9100 of the California Civil Code, (b) any amounts due under the California Unemployment Insurance Code with respect to work or labor performed under the Agreement, or (c) any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principal and its subcontractors pursuant to Section 13020 of the California Unemployment Insurance Code with respect to such work or labor, then said Surety will pay the same in an aggregate amount not exceeding the amount herein above set forth, and also in case suit or other legal proceeding is brought upon this bond, will pay costs and reasonable attorney's fees to be awarded and fixed by the Court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons named in Section 9100 of the California Civil Code so as to give a right of action to

such persons or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise it shall be and remain in full force and effect.

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, addition, omission or other modification to the terms of said Contract or the specifications or plans accompanying the same, whether or not made pursuant to the terms of the Contract, shall in any manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration, addition, omission or modification. Death of the Principal shall not relieve surety of its obligations hereunder.

IN WITNESS WHEREOF, this instrument has been duly executed by Principal and Surety on this ____ day of _____, 20____.

PRINCIPAL

SURETY

(Principal Name) (Seal)

(Surety Name) (Seal)

By: _____
(Signature)

By: _____
(Signature)

(Print Name and Title)

(Print Name and Title)

By: _____
(Signature)

By: _____
(Signature)

(Print Name and Title)

(Print Name and Title)

Principal Address and Telephone:

Surety Address and Telephone:

Affix Corporate Seals

Attach Notary Acknowledgments for all Signatures

Attach Power-of-Attorney if Executed by Attorney-in-Fact

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between the **MIDWAY CITY SANITARY DISTRICT**, whose address is 14451 Cedarwood Street, Westminster, CA 92863 (hereinafter called "Owner"), _____, whose address is _____ (hereinafter called "CONTRACTOR"), and _____, whose address is _____ (hereinafter called "Escrow Agent").

For the consideration hereinafter set forth, the Owner, CONTRACTOR, and escrow agent agree as follows:

(1) Pursuant to Section 22300 of the California Public Contract Code, the CONTRACTOR has the option to deposit securities with the escrow agent as a substitute for retention earnings required to be withheld by the Owner pursuant to the construction contract entered into between the Owner and CONTRACTOR for **2025-26 MCSD SEWER MAIN REHABILITATION PROJECT** in the amount of _____ and ____/100 DOLLARS (\$_____), dated _____, 2026 (hereafter referred to as the "Contract"). Alternatively, on written request of the CONTRACTOR, the Owner shall make payments of the retention earnings directly to the Escrow Agent. When the CONTRACTOR deposits the securities as a substitute for the Contract earnings, the escrow agent shall notify the Owner within ten days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the Owner and CONTRACTOR. Securities shall be held in the name of MIDWAY CITY SANITARY DISTRICT and shall designate the CONTRACTOR as the beneficial owner.

(2) The Owner shall make progress payments to the CONTRACTOR for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the CONTRACTOR until such time as the escrow created under this contract is terminated. The CONTRACTOR may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the escrow agent directly.

(4) The CONTRACTOR shall be responsible for paying all fees for the expenses incurred by the escrow agent in administering the escrow account. These expenses and payment terms shall be determined by the CONTRACTOR and escrow agent.

(5) The interest earned on the securities or the money market accounts held in escrow and all interest on the interest shall be the sole account of CONTRACTOR and shall be subject to withdrawal by CONTRACTOR at any time and from time to time without notice to the Owner.

(6) The CONTRACTOR shall have the right to withdraw all or any part of the principal in the escrow account only by written notice to the escrow agent accompanied by written authorization from the Owner to the Escrow Agent that the Owner consents to the withdrawal of the amount sought to be withdrawn by CONTRACTOR.

(7) The Owner shall have a right to draw upon the securities in the event of default by the CONTRACTOR. Upon seven days' written notice to the escrow agent from the Owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.

(8) Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the CONTRACTOR has complied with all requirements and procedures applicable to the Contract, the Escrow Agent shall release to the CONTRACTOR all securities and interest on deposit less escrow fees and charges of the escrow account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payment of fees and charges.

(9) The Escrow Agent shall rely on the written notifications from the Owner and the CONTRACTOR pursuant to Sections (1) to (8), inclusive, of this Escrow Agreement and the Owner and CONTRACTOR shall hold the Escrow Agent harmless from the Escrow Agent's release, conversion, and disbursement of the securities and interest as set forth above.

(10) Pursuant to Public Contract Code section 22300, CONTRACTOR shall pay to each subcontractor, not later than twenty (20) days after receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to insure the performance of the CONTRACTOR.

(11) Securities eligible for investment under this Escrow Agreement, as provided by Public Contract Code section 22300, shall be those listed in section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by CONTRACTOR and Owner.

(12) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of the CONTRACTOR in connection with the foregoing, and exemplars of their respective signatures are as follows:

OWNER

CONTRACTOR

Midway City Sanitary District

Signature

Signature

Name

Name

Title

Title

ESCROW AGENT

Signature

Name

Title

COMPENSATION INSURANCE CERTIFICATE

Pursuant to Section 1861 of the State Labor Code, each contractor to whom a public works contract has been awarded shall sign the following certificate and shall submit same to DISTRICT prior to performing any work on the contract:

"I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code and I will comply with such provisions before commencing the performance of work of this contract."

Contractor

By: _____
(PRINT)

(SIGNATURE)

Title

Date

TO BE SUBMITTED WITH CONTRACT

SECTION 6 - GENERAL CONDITIONS

See Appendix A9 for General Conditions.

SECTION 7 - SPECIAL PROVISIONS

ARTICLE 1: LIABILITY FOR COSTS AND RESPONSIBILITY

The Contractor will be required to assume responsibility for all services whether or not they possess them within their firm. The Contractor will be the sole point of contact with regard to contractual matters, including payment of any and all charges resulting from the Contract.

ARTICLE 2: PERMITS

The Contractor and all of its subcontractors, at its and/or their sole expense, shall obtain and maintain during the term of the Agreement all appropriate permits required in connection with the performance of the Project.

The required permits include:

- Traffic control plans and encroachment permits are required from the City of Westminster.
- Confined Space Permit is required for entering into any District's manholes. Confined space procedures will be provided with the permit.
- Permits for using the water facilities such as fire hydrant from the City of Westminster and County of Orange - for unincorporated area of Midway City.
- Any other permit which is required by the local agency and the local jurisdiction.

The CONTRACTOR shall also be responsible for all the requirements of South Coast Air Quality Management permit and Rule 1166.

ARTICLE 3: LICENSES AND CERTIFICATES

The Contractor and all of its subcontractors, at its and/or their sole expense, shall obtain and maintain during the term of the Contract, all appropriate licenses and certificates required in connection with the performance of the Project.

The required Licenses and Certificates include:

- General contractor license A and/or C42.
- Personals with NASSCO PACP certification.
- Business Licenses are required from the City of Westminster.
- Any other Licenses and Certificates which is required by the local agency and the local jurisdiction.

ARTICLE 4: SPILL PREVENTION AND CLEAN UP

Spill prevention and cleanup shall be performed based on instructions and guidelines by Orange County Public Works Standards that is attached. In case of observation of Sewer System Overflow (SSO), please immediately call District's emergency numbers: 714-310-9004 or 714-310-8654.

ARTICLE 5: CONFINED SPACE

MCSD Written Program for Confined Space and Sewer Maintenance Codes of Safe Practice that includes a Confined Space Entry Permit application are attached.

ARTICLE 6: INCREASE OF WORK

The District reserves the right, if needed and requested through a change order, to increase the Scope of Work by up to 10% of the Total Project Cost, using the same unit prices listed in the Bid Schedule. For lump sum items, the increased percentage of work to be completed will be used to determine the cost.

ARTICLE 7: SCHEDULE OF CONSTRUCTION AND ORDER OF WORK

A. Schedule of Construction

It shall be the CONTRACTOR's responsibility to contact and coordinate the requirements of any impact to public utilities through the utility representatives. **The construction schedule shall include the start and completion dates of public utilities underground work and coordination.**

The progress schedule shall be consistent with the order of the work, and time requirements of the contract. Construction shall be scheduled in such a manner that hours between **3:00 p.m. to 3:30 p.m.** shall be spent in cleaning up, watering and street sweeping the job site and rearranging traffic delineation for the opening of traffic lanes. No construction activities will be allowed beyond **3:30 p.m.** Any work activities beyond **3:30 p.m.**, if allowed by the Engineer, shall be considered as overtime. The Contractor shall be responsible for any overtime inspection costs.

Construction in more than one location at one time will not be allowed unless authorized by the City of Westminster and District Engineer in writing. Said authorization will be contingent upon the CONTRACTOR's ability to demonstrate a significant benefit to the DISTRICT and CITY.

B. Construction Meeting

A weekly construction meeting shall be held between representatives of the DISTRICT and the CONTRACTOR, at an agreed upon place, day of the week and time in order to discuss progress, submittals, potential problems and other activities related to the project.

ARTICLE 8: DUST, AND SOUND CONTROL REQUIREMENTS, CLEAN AIR ACT AND WATER POLLUTION CONTROL ACT REQUIREMENTS

Dust Control

Dust control shall consist of applying water in conformance with Section 5 and Section 8 of the Standard Specifications, with the following modification:

The CONTRACTOR shall furnish and operate a water truck and self-loading motor vacuum sweeper with spray nozzles applied at least twice each calendar day (including holidays and weekends), first during construction to keep paved areas reasonably clean, and second at the end of day. The CONTRACTOR shall never leave the construction premises dirty or dusty.

All spillage and any excessive dirt or debris resulting from hauling operations, moving of equipment along or across any private or public property or public traveled way, shall be removed immediately at the CONTRACTOR's expense.

Whenever the CONTRACTOR fails to control dust resulting from the performance of the work, the Engineer may cause such dust to be controlled. The costs of controlling dust shall be deducted from moneys due or to become due the CONTRACTOR.

No separate payment will be made for any work performed or material used to control dust resulting from the CONTRACTOR's performance of the work, or by public traffic, either inside or outside the right-of-way. Full compensation for such dust control will be considered as included in the price paid for the various items of work involved.

Sound Control

The CONTRACTOR shall comply with all local sound control and noise level rules, regulations and ordinances, which apply to any work performed pursuant to the contract.

Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.

The noise level from the CONTRACTOR's operations shall not exceed 86 DBA at a distance of fifty feet (50'). This requirement in no way relieves the CONTRACTOR from responsibility for complying with local ordinances regulating noise level.

Said noise level requirement shall apply to all equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be owned by the CONTRACTOR. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

Full compensation for conforming to the requirements of sound control shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

By submission of this bid, or the execution of this contract or subcontract, as appropriate, the bidder, CONTRACTOR, or SUBCONTRACTOR, as appropriate, will be deemed to have stipulated the following:

- A. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub. L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub. L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR Part 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

- B. That the CONTRACTOR agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed hereunder.
- C. That the CONTRACTOR shall promptly notify the OSHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.
- D. That the CONTRACTOR agrees to include or cause to be included the requirements of paragraphs 1 through 4 of this Section in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements (FHWA 1273 Rev. 8/89, 12-4-89).

Full compensation for conforming to the requirements of the Clean Air Act and Federal Water Pollution Control Act shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

ARTICLE 9: CONSTRUCTION WATER

Construction water may be taken only at locations approved by the City of Westminster Water Services Division. This valve shall be operated when taking construction water with the fire hydrant remaining open during the day. CONTRACTOR will be charged for construction water on an as-used basis.

The CONTRACTOR shall make application to the City of Westminster Water Services Division for installation of a fire hydrant water meter for his/her construction water and shall make appropriate meter deposits to cover cost of relocation or damage to the meter.

Water shall be applied in the amounts, at the locations, and for the purposes designated in these specifications and as ordered by the District Engineer.

Payment for applying water, including all labor, tools, equipment, and incidentals required for the application of water shall be considered as included in the various contract items of work involving the use of water, and no additional compensation will be allowed.

ARTICLE 10: MOBILIZATION/DEMobilIZATION

Mobilization and demobilization shall consist of preparatory work and operations including, but not limited to, those necessary for the movement of personnel, equipment, materials and incidentals to the project site necessary for work on the project and for all other work and operations which must be performed or costs incurred including bonds, insurance and financing prior to beginning work on the various contract items on the project site. Any bonds that must be posted or proof of insurance issues that arise must be resolved prior to mobilization and/or demobilization. Mobilization and demobilization shall also include the time and labor to move the necessary construction equipment to and from the job site, supervisory time on the job by the CONTRACTOR's personnel to keep the construction site in a safe condition, maintaining a superintendent at the job site whenever work is being performed and all other related work as required for all non-working days during the course of construction. The CONTRACTOR is responsible for securing an adequate storage site for equipment and materials.

Payment for mobilization and demobilization shall be included per lump sum for Mobilization in the bid proposal and shall include full compensation for furnishing all labor, materials, equipment, rental of necessary equipment, materials and storage sites for storage purpose, and incidentals necessary to mobilize and demobilize in accordance with the paragraph above. This item shall be paid in accordance with the completion percentage of the project to the Contractor and shall include the cost of such mobilization and administration for the entire Contract period.

ARTICLE 11: TRAFFIC CONTROL

Traffic control shall conform to the latest editions of the California Manual on Uniform Traffic Control Devices or (CA MUTCD), and with the Caltrans Standard Plan No. T-11 Traffic Control System for lane closure on multi-lane conventional highways. In addition, traffic control shall conform to the policies and requirements of the City of Westminster, and other agencies having jurisdiction within the construction areas.

A. Vehicle Traffic Control

A minimum of one eleven-foot lane for each direction and a ten-foot two way left turn lane shall be kept open and maintained for public use at all times except as indicated on the approved traffic control plans or as directed by the Engineer during construction.

B. Pedestrian Traffic Control

A minimum of one four-foot wide pedestrian walkway shall be kept open and maintained outside the vehicle travel lanes to the satisfaction of the Engineer along both sides of each public street at all times during construction.

C. Access to Adjacent Properties

Access to all driveways shall be kept open and maintained for public use at all times except where otherwise approved by the Engineer.

D. General Traffic Controls

Two sets of notification letters shall be distributed by CONTRACTOR. The first set of letters shall be distributed two weeks prior to beginning of construction, and the second set of letters shall be distributed two days in advance of beginning of construction. The notification letters shall provide notice of traffic restriction, period of construction, and suggested use of alternate routing. The District Engineer shall approve exact wording on the advanced notification letters. Notification shall be provided to all properties with frontage on the project limits and all affected properties.

Traffic control devices shall comply with Section 7 of the "WORK AREA TRAFFIC CONTROL HANDBOOK (WATCH)" as prepared by the Uniform Ordinances and Practices Committee of the Southern California Chapter, American Public Works Association.

Flashing arrow signs shall be used (battery or solar powered only).

Placement of temporary pavement marking tape shall consist of applying, maintaining, and later removing temporary traffic stripe (traffic line) and pavement marking tape at the locations shown on the plans or designated by the Engineer in conformance with these special provisions.

Every effort shall be made by the CONTRACTOR to ensure traffic safety. If, in the opinion of the Engineer, additional signing or delineation is required for traffic safety, then the CONTRACTOR shall furnish and place the additional signs or delineators at no additional cost to the DISTRICT.

E. Road Closure Conditions

No road closures shall be permitted.

F. Traffic Control and Safety

Signs, k-rails, lights, flags and other warning and safety devices shall conform to the requirements set forth in the current "Manual of Warning Signs, Lights, and Devices for the Use in Performance of Work Upon Highways", chapter 5 of State of California Traffic Manual.

If attention is directed to the existence of a hazard and the CONTRACTOR fails to provide such devices, said devices will be placed or caused to be placed by the DISTRICT. The cost of placement of these devices shall be the sole responsibility of the CONTRACTOR and shall be paid for at the rate of \$50.00 per hour for labor and the pickup truck, \$5.00 per day per barricade, and any other costs incurred by the DISTRICT relative to traffic control. Said costs shall be deducted from the progress payments and from the total contract price for the work.

The CONTRACTOR shall provide and maintain all signs, k-rails, barricades, pedestals, flashers, delineators and other necessary facilities for the protection of the motoring public within the limits of the construction area and all its approaches, including advanced signing and barricades. He/she shall also post proper signs to notify the public regarding the conditions of the roadway, all in accordance with the provisions of the Vehicle Code, and the "Manual of Traffic Controls," as published by the State of California, Business and Transportation Agency, Department of Transportation.

The CONTRACTOR shall conduct his/her operations so as to provide reasonable access to the adjacent properties and shall have no greater length or quantity of work under construction than he can properly prosecute with a minimum of inconvenience to the public and other CONTRACTOR engaged on adjacent or related work.

All portable delineators (36" high, orange in color with weighted base) shall be spaced as necessary for proper delineation of the travel way. The spacing between delineators shall not exceed thirty-five feet (35') on tangents and twenty-five feet (25') on tapers and curves.

If the traffic cones or portable delineators are damaged, displaced or are not in an upright position from any cause, said cones or portable delineators shall immediately be replaced or restored to their original location in an upright position by the CONTRACTOR.

The CONTRACTOR shall furnish such flagmen as are necessary to give adequate warning to traffic or to the public of any dangerous conditions to be encountered. Flagmen shall perform their duties and shall be provided with the necessary equipment in accordance with the current Caltrans "Instructions to Flagmen" and shall give warning to the public of any dangerous conditions to be encountered. The equipment shall be furnished and kept clean and in good repair by the CONTRACTOR at his/her expense.

Should the CONTRACTOR appear to be neglectful or negligent in furnishing warning and protective measures as provided above, the Engineer may direct attention to the existence of a hazard. The necessary warning and protective measures shall then be furnished and installed by the CONTRACTOR at his/her expense. Should the Engineer point out the inadequacy of warning and protective measures, such action on the part of the Engineer shall not relieve the CONTRACTOR from responsibility for public safety or abrogate his/her obligation to furnish and pay for these devices.

All existing stop signs and street name signs shall be maintained in visible locations during construction and permanently relocated or removed as directed by the Engineer. Signs, which need not be maintained during construction or permanently relocated, shall be salvaged.

All existing traffic signs that are removed and/or damaged shall be replaced in kind at its location at CONTRACTOR's expense unless otherwise noted on the plans.

The CONTRACTOR may establish temporary "No Parking Tow Away" zones adjacent to the work zone. Establishment of such zones shall be coordinated with the Westminster Police Department, (714) 898-3315, and the CITY'S Traffic/Parking Control, (714) 548-3220. Temporary "*No Parking Tow Away*" zone sign shall be posted 72 hours in advance by the CONTRACTOR, stating the date and time.

G. Staging Area

In the Traffic Control Plan, staging area must be shown for the dewatering tank and/or other equipment. If additional staging area is required, it is the Contractor's responsibility to secure a suitable location.

H. Payment

Payment for traffic control shall be made at the contract price bid per lump sum for Traffic Control. Said payment shall include full compensation for furnishing all labor, materials, tools, and equipment and incidentals and for doing all the work involved in providing traffic control, including notification letters, applying, maintaining and removing tape for temporary traffic stripes and pavement markings, flashing arrow signs, as specified in these special provisions and as directed by the Engineer and no additional compensation will be allowed therefore.

ARTICLE 12: CONSTRUCTION YARD SITE

The proposed project is located in residential and commercial areas. CONTRACTOR shall at his/her expense, secure a site for storing materials, supplies, and equipment. A conscious effort

on his/her part is required, that due regard to the rights of the public must be observed at all times. Possible obstruction and inconvenience shall be kept to the minimum.

Available vacant properties in the area may not be zoned for construction yard. It is recommended to check with the City's Planning Department. A temporary use permit is required. The application is subject to review and approval by the Director of Public Works Department. Before moving in to the site, CONTRACTOR shall provide a certificate of insurance naming the City of Westminster as additional insureds from all liability. The construction yard site will become part of the project. All conditions and requirements of the project also apply to the construction yard.

Storage of construction in streets, roads or highways shall be subject to the City of Westminster requirements but shall not be more than three (3) working days after unloading nor will the materials be stored in the streets over weekends and holidays. All materials or equipment not installed or used in the construction within three (3) working days after unloading shall be stored at the construction yard.

Storage of construction equipment shall be subject to the City of Westminster encroachment permit requirements. Construction equipment shall not be stored at the work site before its actual use on the work nor for more than one (1) working day after it is no longer needed on the work. All repairs or assembly of equipment that will take two (2) or more working days shall be done at the construction yard. All equipment and materials shall be stored at the yard during weekends and holidays, unless otherwise authorized by the City permit and the Engineer.

Excavated materials shall not be stored in public streets, roads or highways. Excavated materials that may be suitable for backfill shall be stored at a site of CONTRACTOR's choice. The Engineer shall have safe access to the site for purposes of inspection and testing at all times.

Full compensation for conforming to the requirements of this Article shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed.

ARTICLE 13: PROTECTION AND RESTORATION OF EXISTING UTILITIES AND NON-HIGHWAY FACILITIES

All utilities including water, gas, oil, telephone, electrical, cable TV, fiber optic systems, traffic signals, sewer mains and services, storm drains, and street light conduit and wires shall be protected in place, except as noted on the project plans. Abandoned facilities are likely to be encountered on this project. Many abandoned facilities are not available through the public records nor will they be located by Underground Service Alert (USA), however if they are encountered, the abandoned facilities shall be saw cut and removed to accommodate the proposed construction. The facilities shall be capped or backfilled with controlled low strength material (300 psi) as deemed appropriate by the Engineer. The DISTRICT will pay for the transportation and disposal of such abandoned facilities and capping of such facilities on a time and materials basis in accordance with the Standard Specifications.

The DISTRICT does not guarantee the accuracy of depth, size, type, material and location of all utilities shown on the plans or marked in the field by utility companies. Data was provided to the DISTRICT based upon available records. It is to be used for information purposes only.

The CONTRACTOR shall use extreme caution around all existing utilities, especially Southern California Gas, Southern California Edison and AT&T pipes and conduits. Furthermore, the CONTRACTOR shall indemnify and hold harmless the City of Westminster, the DISTRICT, its officers, its board members, employees, and consultants from any and all claims, suits, or actions resulting from or arising out of any damage(s) caused to such utilities as a result of the CONTRACTOR's failure to adequately protect such utilities in place.

The CONTRACTOR will not be entitled to damages or additional payment for delays attributable to utility relocations or alterations if utilities are correctly located and shown on the plans. The CONTRACTOR, however, will be given an extension of time for unforeseen delays due to interferences by utilities. This work includes searching within five (5') feet on all sides of a marked utility in the field (not shown on the plans) that is not found or never existed.

All costs incurred for potholing, hand digging, exposing, locating, supporting, protecting, maintaining and providing reasonable time to relocate or resolve conflict of underground and above ground utilities, shall be included in the price bid for the various items of work and no additional compensation will be allowed.

CONTRACTOR shall notify the Underground Service Alert (USA) giving at least two (2) working days' notice --- 811.

The following is a list of utility companies and purveyors who may have underground utilities within the project right-of-way:

- | | |
|--|----------------|
| • City of Westminster, Water Services Division | (714) 894-3796 |
| • City of Westminster, Traffic Engineering | (714) 548-3457 |
| • Midway City Sanitary District | (714) 893-3553 |
| • Southern California Edison Co. | (310) 892-1323 |
| • Southern California Gas Co. | (213) 231-7273 |
| • AT & T | (714) 666-5692 |
| • O.C.T.A. | (714) 265-4497 |
| • Time Warner Communications | (714) 591-4882 |
| • Orange County Public Works - Construction | (714) 567-7804 |
| • Orange County Sanitation District | (714) 593-7176 |
| • Southern California Edison Co. - Emergency | (800) 611-1911 |
| • Frontier Communications | (714) 375-6760 |
| • Charter Communications | (714) 231-8786 |
| • Verizon | (626) 331-0155 |
| • Union Pacific Railroad | (402) 544-5000 |

Some of the above utilities and purveyors are not Underground Service Alert (USA) members. It shall be the CONTRACTOR's responsibility to call, notify and make certain that utilities have responded to his/her notification. Damage to utilities, caused by failure to notify, is the CONTRACTOR's sole responsibility.

The CONTRACTOR shall arrange and coordinate his/her work to permit utilities to make any necessary adjustments required by the construction of the various items in this contract.

CONTRACTOR shall also protect facilities in place as shown on the plans or as marked in the field, and "To be relocated by others", in both original and relocated positions and any damage to such facilities shall be immediately repaired at no cost to the DISTRICT.

When damage occurs to existing utilities, CONTRACTOR shall notify the Owner of the Utility and the Engineer immediately and take whatever action necessary to mitigate further damage to the utility and the surrounding area.

The CONTRACTOR is notified therefore, that he/she is responsible and liable for all costs in rectifying damages to any utilities caused as a result of his/her operations. At the request of the DISTRICT, costs in rectifying such damages can be withheld or deducted from the final progress payment due to CONTRACTOR at the discretion of the Engineer.

The CONTRACTOR is responsible for protecting water service connections, sewer laterals, gas service lines, telephone conduits, cable TV conduits, electrical conduits, fiber optic conduits, traffic signal conduits and all other utility service connections whose location can be determined or inferred by buildings and other above-ground visible facilities such as valve boxes, water meter boxes, manholes, vaults, pull boxes, gas meters, and the like in spite of the fact that they are not shown on the plans or marked in the field. Therefore, the CONTRACTOR shall establish the location of such utilities in the field and determine the cost of protecting or relocating those facilities in order to perform the work indicated in the contract documents and include that cost in his/her bid. The CONTRACTOR shall assume that every parcel, including a vacant parcel, is served by a service connection for each type of utility.

All existing improvements, including utilities, shall be protected in place unless otherwise shown on the contract plans or approved by the Engineer. All existing improvements damaged by the CONTRACTOR in the performance of his/her work shall be replaced in its original or better condition. This includes, but is not limited to landscaping, trees, irrigation lines, sprinklers, planters, foundations, walls, driveways, sidewalks, mailboxes, parking curbs, and utilities whether they are located on private property or within the public right-of-way.

Payment for protecting or removing and replacing all facilities, and coordinating utility adjustments, except for those items of work specifically included as separate bid items in the Bid Proposal shall be considered as paid for in the various contract items and no additional compensation will be allowed.

Private mailboxes, planters, and other facilities, etc. as shown on plans or within construction areas in the field shall be relocated by the CONTRACTOR. Payment for relocations shall be included in the various items of work and no additional compensation will be allowed.

ARTICLE 14: MAINTAINING AND TEMPORARY HANDLING OF SEWER FLOWS

The CONTRACTOR is required to maintain sewer flows during the construction of the sewer lines. All the CONTRACTOR's work shall be done in compliance with the City of Westminster NPDES Storm Water Permit Local Implementation Plan. CONTRACTOR shall submit following items or operation within fifteen (15) days after receiving the Notice to Proceed:

- Sewage bypass pipe material and fittings.
- Plans showing details of proposed method of temporary handling of sewage flow, routing and protection of bypass lines, containment areas, equipment location, schematic of pump set-up and discharge, and proposed sequencing.
- Pump characteristic curves, electrical, controls, and instrumentation.
- Spill Prevention, Control, and Countermeasure plan.

The CONTRACTOR shall prepare, submit a spill prevention, control and countermeasure plan that is consistent with and meets the objectives of the Local Implementation Plan and incorporates the following of the work:

Specifics shall include as applicable, but are not limited to:

- A. Pipe patch kits
- B. Sand bags
- C. Rubber matting
- D. Bypass pipes, pumps, and other relevant equipment
- E. Extra pumps
- F. Secondary containment in trench or other surrounding land relief

The spill prevention, control and countermeasure plan shall be approved by the Engineer before work will be permitted to start. The CONTRACTOR is responsible for implementation of said plan.

In the event the CONTRACTOR elects to use engine driven pumps, the engines shall be muffled in such a manner that the maximum noise level will not exceed 80 dBA at a distance of five feet from the engine. Standby pumping equipment shall be onsite continuously during pumping to provide 100 percent standby pumping capacity. The CONTRACTOR shall provide manpower to continuously monitor the pumping equipment on a 24-hour basis while in operation and activate standby equipment, if necessary.

Temporary plugs shall be a heavy-duty inflatable type with a steel rod through plug centerline, a retaining plate and an eye-lift on both ends. Plugs shall be new, made of natural rubber and shall show no cracks or signs of damage. The plugs shall have a flexible sealing design to compensate for any irregular interior surface of the corroded pipe.

Under no circumstances shall sewage be deposited onto the ground surface, streets, or into gutters, ditches, catch basins or storm drains or natural drainage ways. Sewage shall be handled in accordance with the approved Spill Prevention, Control and Countermeasure Plan and in a manner so as not to create a public nuisance, health hazard, or odor complaint.

The CONTRACTOR shall be responsible for continuity of sanitary sewer service to each property connected to the sewers during the work to be performed under this Contract. If sewage backup or odors occur and enter dwellings, other structures, or affect the public, the CONTRACTOR shall be responsible for cleanup, repair, property damage costs, fines imposed by jurisdictional authorities, and all claims arising, therefore. All spills shall be contained and cleaned up in accordance with the favorably reviewed Spill Prevention and Cleanup guidelines by Orange County Public Works Standards.

Full compensation for maintaining sewer flows and for complying with all requirements of this Article shall be included in the lump sum price bid for **Sewage Bypasses** and shall include full compensation for furnishing all labor, tools, equipment, materials, incidentals, and doing all work involved and no additional compensation will be allowed.

ARTICLE 15: DAYTIME AND NIGHT WORK SCHEDULE

It is the CONTRACTOR's responsibility to propose a night work schedule in the event of unforeseen public safety and constructability efficiency conditions, should it be in the best interest of the DISTRICT and the City. The CONTRACTOR shall submit a comprehensive proposal for working at night.

The term "hours of darkness" used in the Standard Specifications (GREENBOOK) shall mean the hours of darkness as defined in Division 1, Section 280, of the California Vehicle Code.

All the hours-of-darkness construction work shall be in conformance with Sub-Sections 2-2, 5-7.6, 601-1, 601-3.7.4.4, 601-3.7.4.5 of the Standard Specifications.

The Contractor shall also be in conformance with the Caltrans Standard Specifications (2024 Edition) while constructing work during the daytime and/or hours-of-darkness under the Sections below as instructed. Extreme attention shall be given to the hours-of-darkness and night-time working requirements.

- Section 12 – Temporary Traffic Control, Sub-sections 12-3.01 - General, 12-3.02 – Traffic Cones, 12-3.11 – Construction Area Signs, 12-3.30 – Flashing Arrow Signs, 12-3.31 – Portable Flashing Beacons, 12-3.32 – Portable Changeable Message Sign, 12-4.02 – Traffic Control Systems, 12-6.02 Temporary Pavement Delineation, Materials, 12-6.03 - Construction, 12-7.02 – Temporary Pavement Delineation for Seal Coats, Materials.
- Section 82 – Signs and Markers, Sub-sections 82-2.03 - Construction.
- Section 84 – Markings, Sub-sections 84-2.01 - General, 84-2.02 - Materials, 84-2.03 - Construction.
- Section 86 – Division X Electrical Work - General, Sub-sections 86-1.01.
- Section 87 – Electrical Systems, Sub-sections 87-1.03 - Construction.

ARTICLE 16: COMPLETION AND ACCEPTANCE

Upon receipt of the CONTRACTOR's written assertion that the work has been completed, the Engineer or his authorized representative will inspect the work for acceptance. A "punch list" shall be prepared and submitted to the CONTRACTOR for compliance and/or repair.

The project is considered certifiable for completion; when all liens and claims for labor, materials, tools and equipment have been paid for and all liens and claims releases are received by the DISTRICT, when all Contract items of work have been completed, including changes to the plan in an acceptable workmanship; when all repairs to damages of existing utilities, appurtenances and improvements have been completed and accepted by the respective owners; when all survey monuments and other survey markers have been re-set and copy of center line ties been submitted; when the project site and all ground occupied by the CONTRACTOR left in a neat and

presentable condition. The street shall be swept and washed with water. The CONTRACTOR prior to acceptance by the Engineer must complete all corrections noted in the "punch list".

Full compensation for conforming to the requirements of this Article shall be considered as included in the contract prices paid for the various contract items of work and no additional compensation will be allowed.

END OF SECTION

APPENDIX A: CONSTRUCTION PLANS AND STANDARDS

- 1. Scope of Work**
- 2. Construction Plans**
- 3. NASSCO Cured-In-Place Pipe (CIPP) Installation
Performance Specification Guideline (PSG) (June 2023)**
- 4. Modification to NASSCO CIPP Installation PSG (June
2023)**
- 5. NASSCO Guideline for the Safe Use and Handling of
Styrene-Based Resins in Cured-in-Place Pipe (April
2023)**
- 6. Midway City Sanitary District Design and Construction
Requirements for Sanitary Sewers**
- 7. Spill Prevention and Clean Up**
- 8. Confined Space**
- 9. General Conditions**

APPENDIX A1 - Scope of Work

Scope of Work

The scope of work includes the rehabilitation of 35 Vitrified Clay Pipe (VCP) sewer main segments using cured-in-place pipe (CIPP) technology. Of these, 32 segments are 8 inches in diameter totaling 8,330 linear feet, 2 segments are 10 inches in diameter totaling 449 linear feet, and 1 segment is 18 inches in diameter totaling 332 linear feet.

CIPP installation shall be performed from manhole to manhole, with the use of end seals to prevent infiltration tracking between the host pipe and the liner, as well as leakage into the CIPP at manhole connections.

If the Contractor determines that any sewer segment is not suitable for lining, subject to District approval, the District reserves the right to replace that segment (with the same diameter) with another segment at the same unit price through a change order.

All work shall be performed in accordance with all applicable laws and regulations, including but not limited to Cal/OSHA, as well as local and state standards.

This work encompasses all tasks necessary to successfully complete the project, including but not limited to:

1. Mobilization:

Includes all Performance Work Statement information, submittals, safety plan, as-built drawings, mobilization/ demobilization of labor, permits, equipment and materials to the project site, and all costs to the Contractor associated with providing cured CIPP samples for testing.

2. Pre-Installation CCTV Inspection for 8-, 10-, and 18-inch Pipes:

Includes post-cleaning CCTV for Owner review. Does not include CCTV inspection just prior to CIPP installation. All inspections will be performed by NASSCO PACP trained and certified personnel.

3. Standard Pipe Cleaning for 8-, 10-, and 18-inch Pipes:

Including all labor, equipment, materials and cost of material disposal.

4. CIPP Installation for 8-, 10-, and 18-inch Pipes:

Includes all labor, equipment, and materials required for the complete installation of a CIPP, including preliner if needed according to section 3.2.C of NASSCO CIPP Installation PSG.

5. Traffic Controls:

Includes all labor, equipment and materials required to implement a traffic control plan for the entire project and shall include all costs associated with sub-contracted traffic control specialists.

6. Sewage Bypasses:

Includes all labor, equipment and materials required to implement a flow bypass plan for the entire project, including the cost of all sub-contracted flow bypass specialists.

7. Service Reconnections:

Includes reconnecting existing live sewer service connections to the installed CIPP.

8. Manhole/Wall Interface Sealings:

Includes sealing the interface between the installed CIPP and the manhole wall.

9. Post-Construction CCTV Inspection for 8-, 10-, and 18-inch Pipes:

Includes post-lining CCTV for submission to the Owner. All inspections will be performed by PACP trained and certified personnel.

10. Testing:

If required and requested by the District, CIPP mechanical properties should be verified through field sampling and independent testing per Section 3.7 of the NASSCO CIPP Installation Performance Specification Guideline (June 2023). Payment for all testing by a laboratory will be paid for by the District directly to the laboratory or through reimbursement by the District to the Contractor.

The scope of work includes the following documents:

1. Attached Construction Drawings

This document is detailed technical document that illustrates the design, dimensions, materials, and installation requirements needed to guide and execute construction work in the field. Table of Sewer Main Segments for Rehabilitation, provided on Sheet 0 of the Construction Drawings, summarizes key information for each pipeline segment included in the project. It serves as a reference for identifying, locating, and characterizing the sewer mains for rehabilitation. The table includes the following fields:

- a. Sheet No. – The drawing sheet number where the segment is shown.
- b. Pipe Segment ID – A unique identifier assigned to each pipeline segment.

- c. Upstream Manhole – The manhole at the starting point (higher elevation) of the pipe segment.
- d. Downstream Manhole – The manhole at the endpoint (lower elevation) of the pipe segment.
- e. Length (Ft) – The total length of the pipe segment in feet.
- f. Street Location – The name of the street or roadway under which the pipe segment is located.
- g. City – The jurisdiction or municipality where the pipe segment is located.
- h. Pipe Diameter – The internal diameter of the pipe, typically measured in inches.
- i. Pipe Material – The construction material of the existing pipe.
- j. Rehab Types – The rehabilitation method specified for the segment.

2. Attached Specifications

- a. NASSCO Cured-In-Place Pipe (CIPP) Installation Performance Specification Guideline (PSF) (June 2023)
This guideline, published by the National Association of Sewer Service Companies (NASSCO), provides standardized performance-based criteria for the installation of cured-in-place pipe (CIPP) systems. It outlines requirements for materials, design, installation, testing, and quality assurance to ensure consistent, long-term rehabilitation of gravity sewer mains using CIPP technology.
- b. Modification to NASSCO CIPP Installation PSG (June 2023)
This document outlines project-specific adjustments to the standard NASSCO CIPP Installation Performance Specification Guideline, tailoring requirements such as materials, installation procedures, or testing criteria to meet the unique conditions and objectives of the project.
- c. NASSCO Guideline for the Safe Use and Handling of Styrene-Based Resins in Cured-in-Place Pipe (April 2023)
This guideline establishes recommended practices for the safe storage, handling, and installation of styrene-based resins used in CIPP rehabilitation. It addresses health, safety, and environmental considerations, including exposure control, emissions management, and regulatory compliance, to protect workers, the public, and the environment during CIPP projects.

d. MCSD Design and Construction Requirements for Sanitary Sewers (November 2010)

This document outlines the standards and technical criteria used by the Midway City Sanitary District for planning, designing, and constructing sanitary sewer facilities. The document establishes uniform requirements for materials, pipeline sizing, alignment, installation methods, inspection, testing, and acceptance to ensure reliable, safe, and long-lasting sewer infrastructure. It provides guidance for engineers, developers, and contractors to ensure that all new or upgraded sewer systems are compatible with district operations and meet regulatory and performance expectations.

APPENDIX A2 - Construction Plans

2025-26 MCSD SEWER MAIN REHABILITATION PROJECT

MIDWAY CITY SANITARY DISTRICT

TABLE OF SEWER MAIN SEGMENTS FOR REHABILITATION

Sheet No.	Pipe Segment ID	Upstream MH	Downstream MH	Length (Ft)	Street Location	City	Pipe Diameter (In)	Pipe Material	Rehab Type
1	GM10071	MH10074	MH10083	41.8	Centerstone Ct	Westminster	8	VCP	CIPP Lining
2	GM12035	MH12023	MH12022	322.8	Bannock Road	Westminster	8	VCP	CIPP Lining
3	GM20059	MH20045	MH20054	213.9	Edwards Street	Westminster	8	VCP	CIPP Lining
4	GM20062	MH20054	MH21002	219.9	Edwards Street	Westminster	8	VCP	CIPP Lining
5	GM20070	MH20061	MH21010	253.4	Yosemite Dr	Westminster	8	VCP	CIPP Lining
6	GM21019	MH21018	MH21017	295.7	Klondike Avenue	Westminster	8	VCP	CIPP Lining
7	GM21047	MH21042	MH21054	303.2	La Pat Place	Westminster	8	VCP	CIPP Lining
8	GM21074	CO21003	MH22002	305.9	La Pat Place	Westminster	8	VCP	CIPP Lining
9	GM22004	MH22002	MH22006	336.0	La Pat Place	Westminster	8	VCP	CIPP Lining
10	GM22101	MH22058	MH22068	423.1	Goldenwest Street	Westminster	10	VCP	CIPP Lining
11	GM23020	MH23004	MH23021	264.9	Roxanne Drive	Westminster	8	VCP	CIPP Lining
12	GM23027	MH23014	MH23032	383.2	Nancy Lee Drive	Westminster	8	VCP	CIPP Lining
13	GM35042	MH35026	MH35034	299.4	Alley	Westminster	8	VCP	CIPP Lining
14	GM40044	MH40039	MH40040	118.3	Cedarwood Avenue	Westminster	8	VCP	CIPP Lining
15	GM49056	MH49037	MH49036	263.0	23rd Street	Westminster	8	VCP	CIPP Lining
16	GM50012	MH50008	MH50011	250.0	Jefferson Street	Westminster	8	VCP	CIPP Lining
17	GM54020	MH54011	MH54012	303.2	Riata Street	Midway City	8	VCP	CIPP Lining
18	GM54033	MH54023	MH54024	332.0	Bolsa Avenue	Midway City	18	VCP	CIPP Lining
19	GM55024	MH64029	MH55019	259.6	Natoma Avenue	Westminster	8	VCP	CIPP Lining
20	GM58013	MH58012	MH58011	238.6	Wells Road	Westminster	8	VCP	CIPP Lining
21	GM61005	MH61005	VP61001	25.7	Magnolia Street	Westminster	10	VCP	CIPP Lining
22	GM62017	MH62018	MH62017	131.8	Purdy Street	Westminster	8	VCP	CIPP Lining
23	GM62065	MH62059	MH62070	300.2	Colletta Place	Westminster	8	VCP	CIPP Lining
24	GM62075	MH62071	MH53048	215.0	Reese Way	Midway City	8	VCP	CIPP Lining
25	GM63007	MH63005	MH63006	304.0	Yermo Way	Westminster	8	VCP	CIPP Lining
26	GM63008	MH63006	MH63022	294.7	Colletta Place	Westminster	8	VCP	CIPP Lining
27	GM64002	MH64003	MH64002	184.5	Elvira Avenue	Westminster	8	VCP	CIPP Lining
28	GM64018	MH64016	MH64014	184.0	Elvira Avenue	Westminster	8	VCP	CIPP Lining
29	GM64051	MH64026	MH64025	357.7	Montrose Avenue	Westminster	8	VCP	CIPP Lining
30	GM64053	MH64028	MH64027	186.5	Montrose Avenue	Westminster	8	VCP	CIPP Lining
31	GM69050	MH69044	MH69058	178.6	Swan Street	Westminster	8	VCP	CIPP Lining
32	GM71017	MH71008	MH71031	342.1	Tilden Street	Westminster	8	VCP	CIPP Lining
33	GM71077	MH71057	MH72001	307.0	Alcester Street	Westminster	8	VCP	CIPP Lining
34	GM72001	MH71066	MH72013	371.5	Givens Place	Westminster	8	VCP	CIPP Lining
35	GM85043	MH85021	MH85047	300.0	Danborough Street	Westminster	8	VCP	CIPP Lining



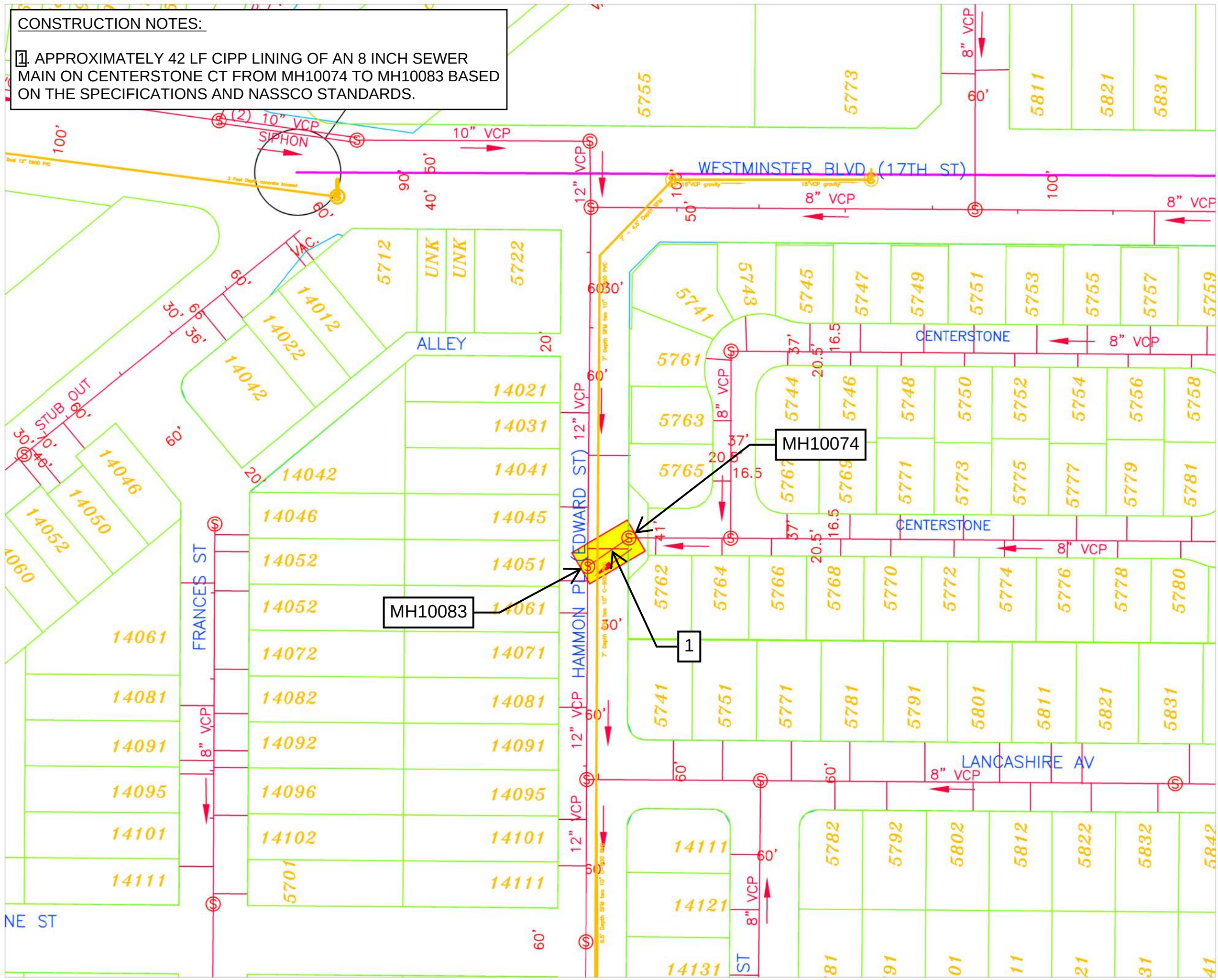
MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SHEET NO.: 00

CONSTRUCTION NOTES:
1. APPROXIMATELY 42 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON CENTERSTONE CT FROM MH10074 TO MH10083 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM10071

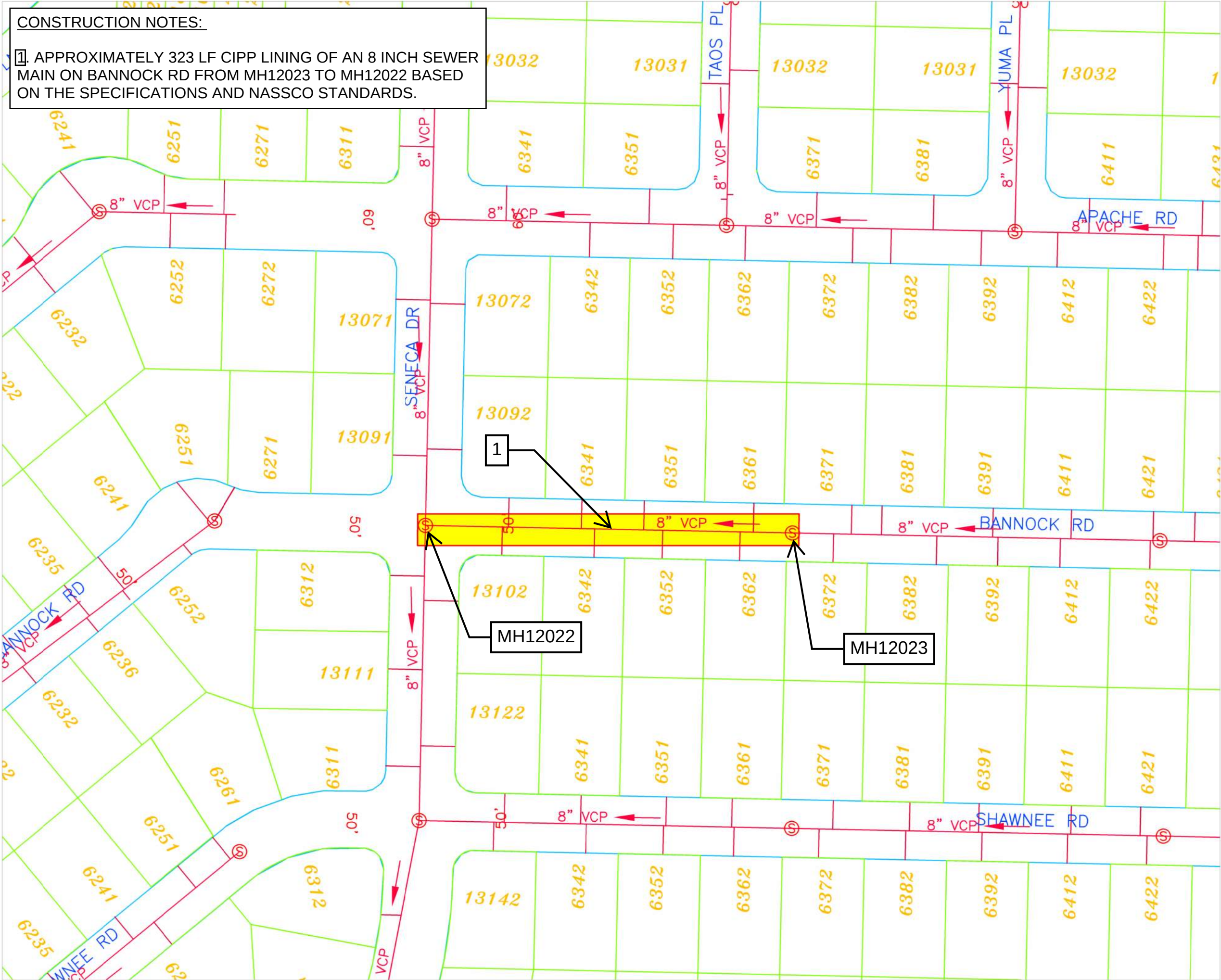
SHEET NO.: 01



Legend

- Limits of Work
- 14591 Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type

CONSTRUCTION NOTES:
1. APPROXIMATELY 323 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON BANNOCK RD FROM MH12023 TO MH12022 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM12035

SHEET NO.: 02



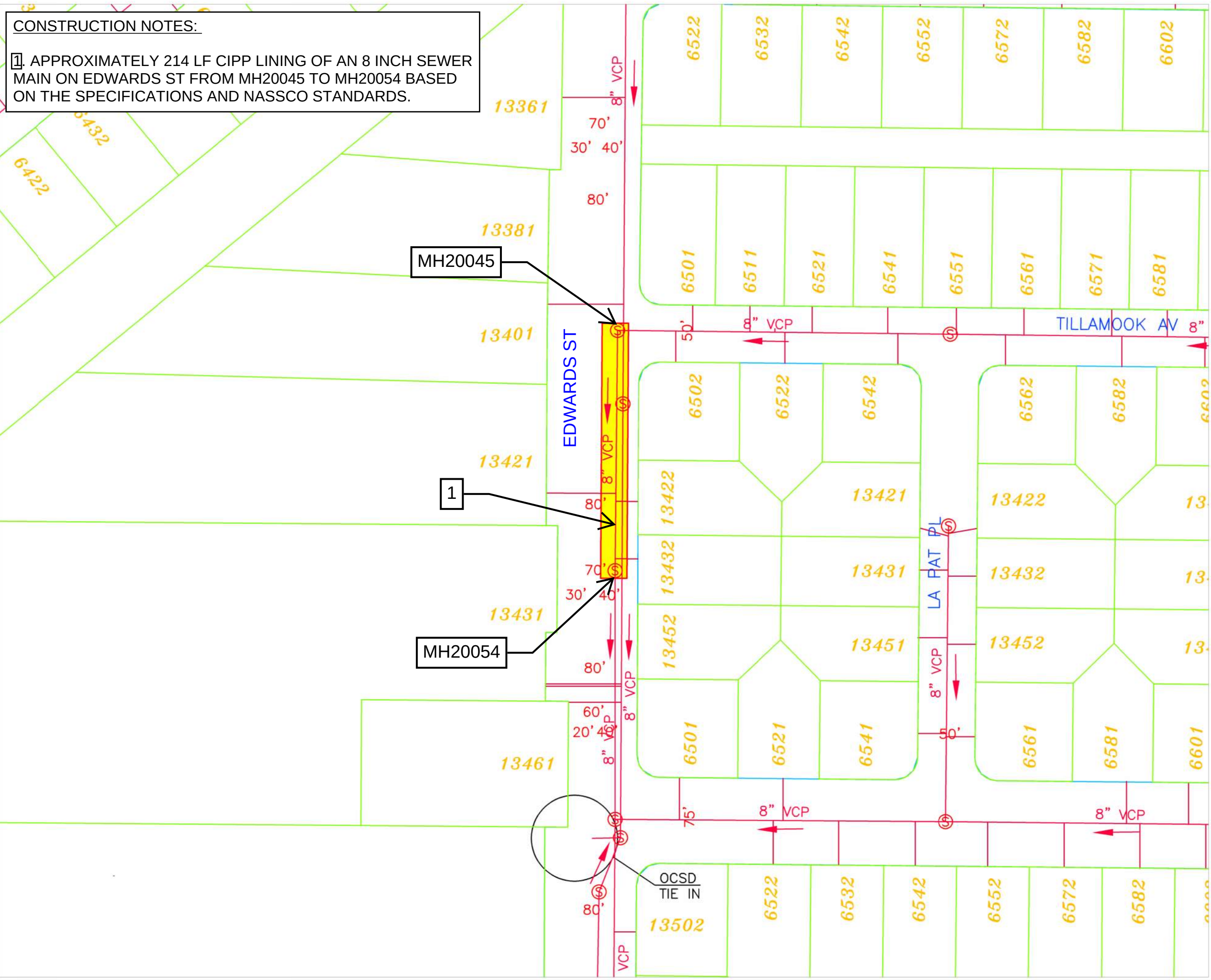
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Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
- Pipe Size & Type

CONSTRUCTION NOTES:

1. APPROXIMATELY 214 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON EDWARDS ST FROM MH20045 TO MH20054 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM20059

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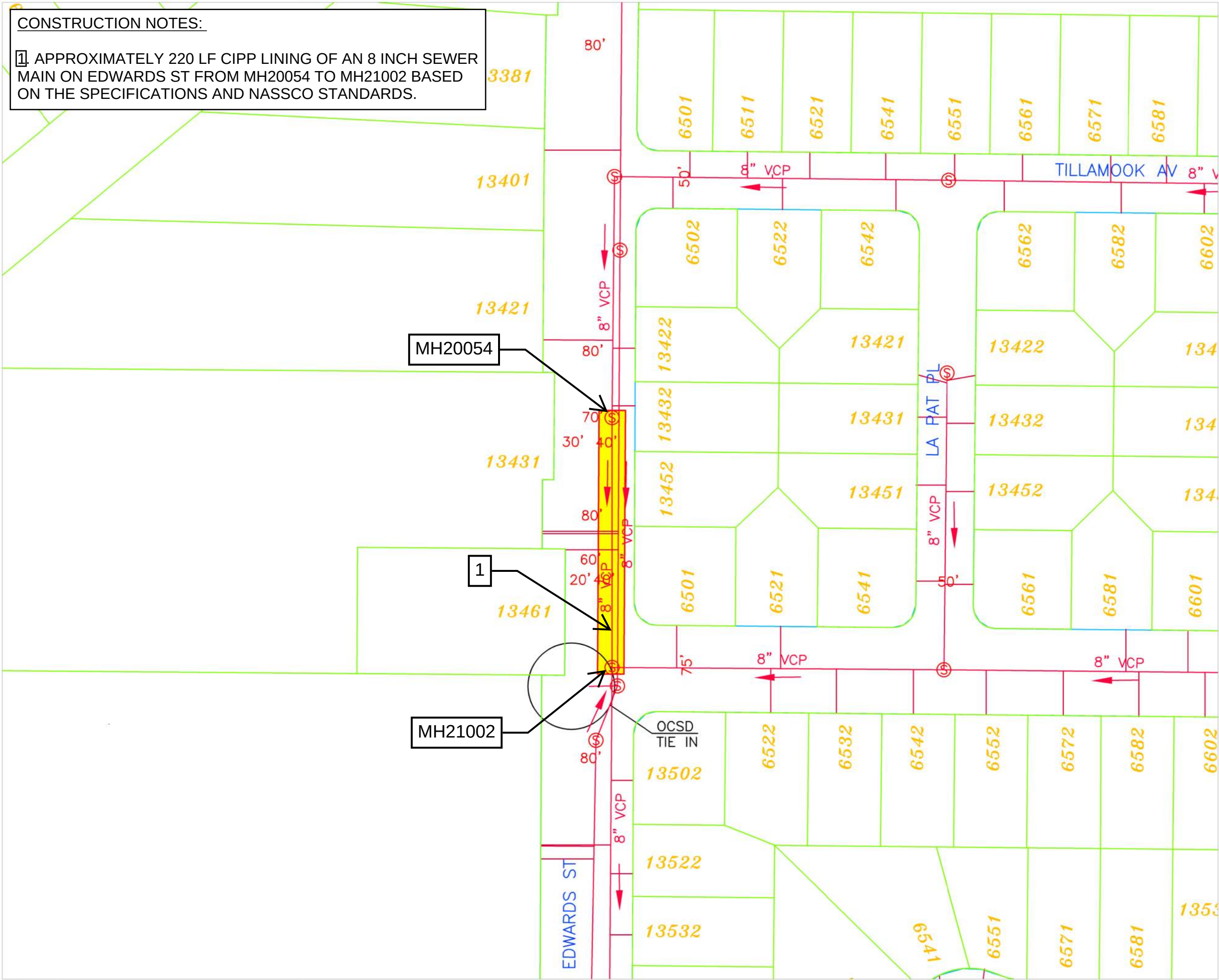


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Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
- Pipe Size & Type

CONSTRUCTION NOTES:
1. APPROXIMATELY 220 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON EDWARDS ST FROM MH20054 TO MH21002 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM20062

SHEET NO.: 04



SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type

CONSTRUCTION NOTES:

1. APPROXIMATELY 253 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON YOSEMITE DR FROM MH20061 TO MH21010 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



**MIDWAY CITY
SANITARY DISTRICT**

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM20070

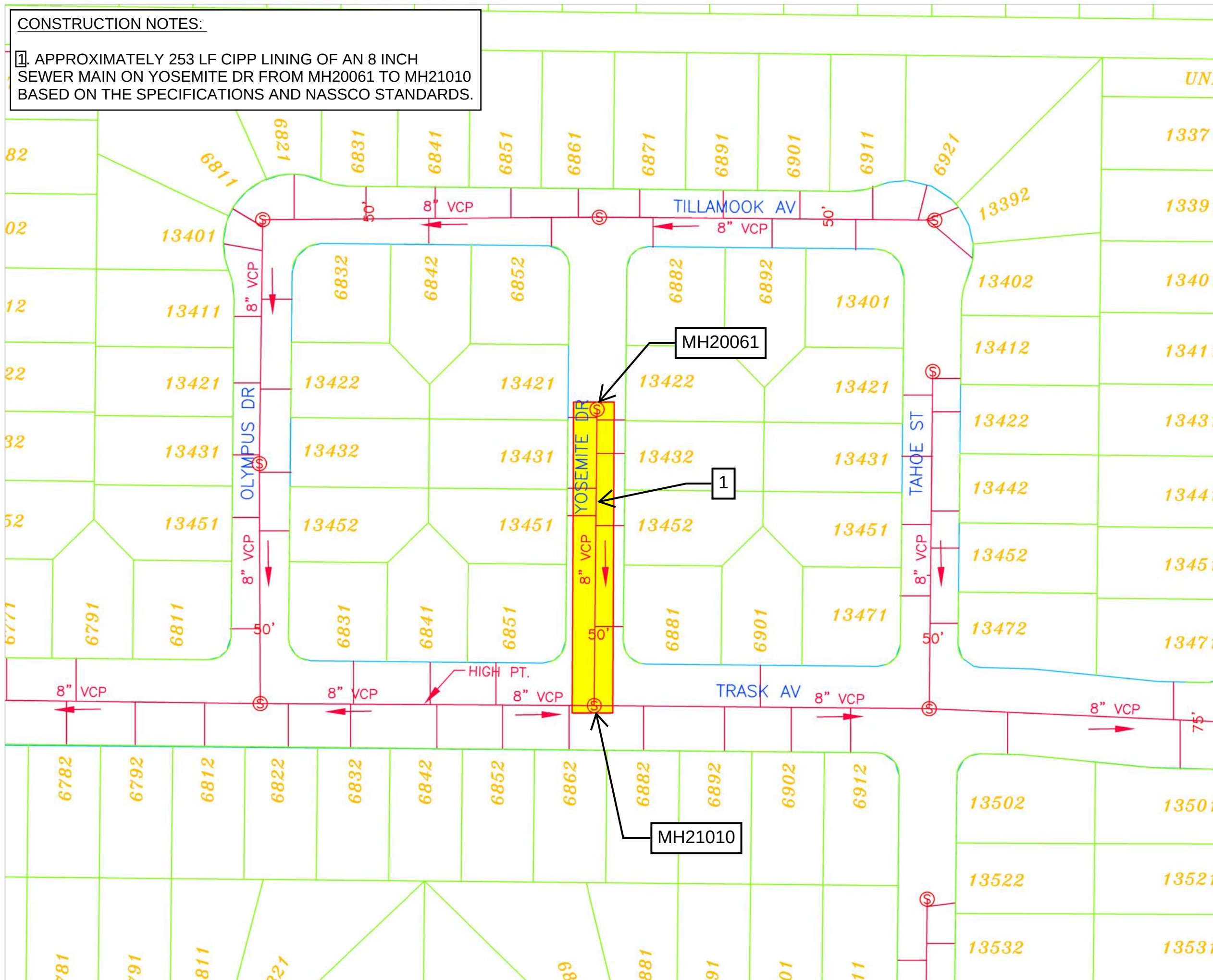
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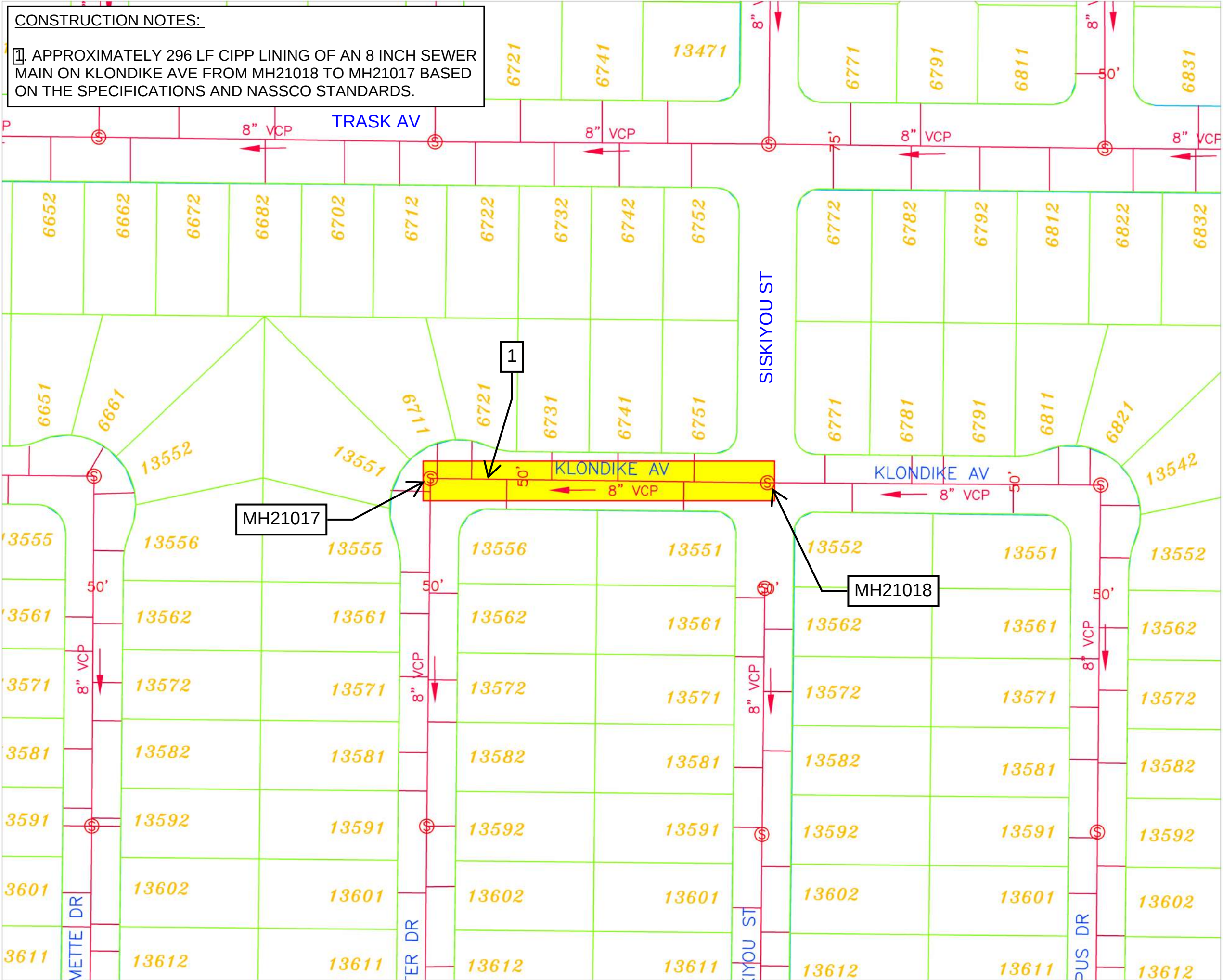
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- Limits of Work
- 14591 Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type



CONSTRUCTION NOTES:
1. APPROXIMATELY 296 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON KLONDIKE AVE FROM MH21018 TO MH21017 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM21019

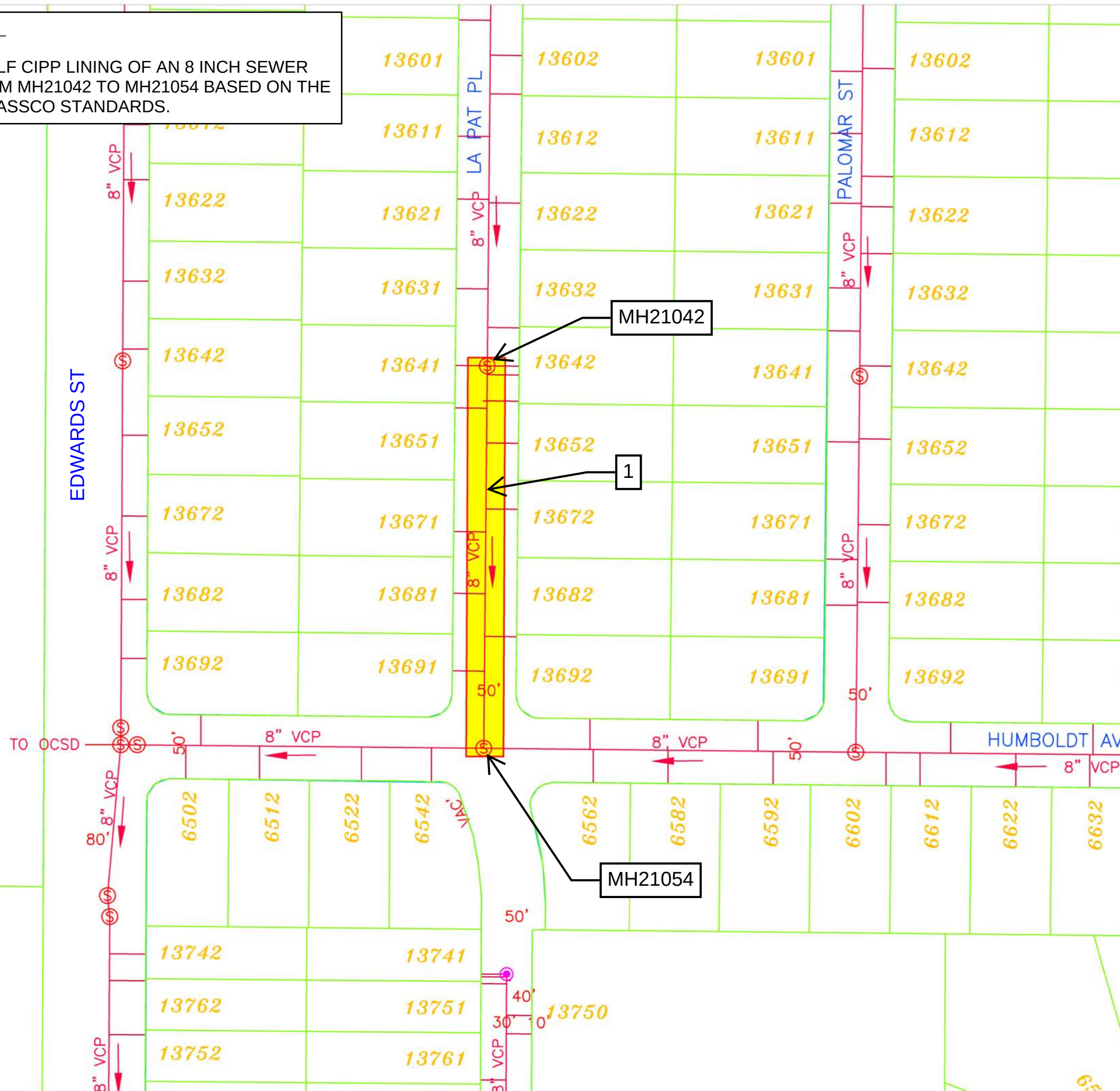
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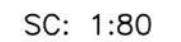
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- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
- Pipe Size & Type

1. APPROXIMATELY 303 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON LA PAT PL FROM MH21042 TO MH21054 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



SHEET NO.: 07



	Limits of Work
14591	Property Number
	Property Line
	MCSD Sewer Line
	OCSD Trunk
SABRE LN	Street Name
	Sewer Manhole
	Flow Direction
8" VCP	Pipe Size & Type

CONSTRUCTION NOTES:

1. APPROXIMATELY 306 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON LA PAT PL FROM CO21003 TO MH22002 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM21074

SHEET NO.: 08



SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
-

CONSTRUCTION NOTES:

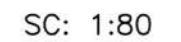
1. APPROXIMATELY 336 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON LA PAT PL FROM MH22002 TO MH22006 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.

1. APPROXIMATELY 336 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON LA PAT PL FROM MH22002 TO MH22006 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



PROJECT NAME: SEWER MAIN REHAB

SHEET NO.: 09



Legend

	Limits of Work
14591	Property Number
	Property Line
	MCSO Sewer Line
	OCSO Trunk
SABRE LN	Street Name
	Sewer Manhole
	Flow Direction
8" VCP	Pipe Size & Type

- | | |
|---|------------------|
|  | Limits of Work |
|  | Property Number |
|  | Property Line |
|  | MCSD Sewer Line |
|  | OCSD Trunk |
|  | Street Name |
|  | Sewer Manhole |
|  | Flow Direction |
|  | Pipe Size & Type |

CONSTRUCTION NOTES:

1. APPROXIMATELY 423 LF CIPP LINING OF A 10 INCH SEWER MAIN ON GOLDENWEST ST FROM MH22058 TO MH22068 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM22101

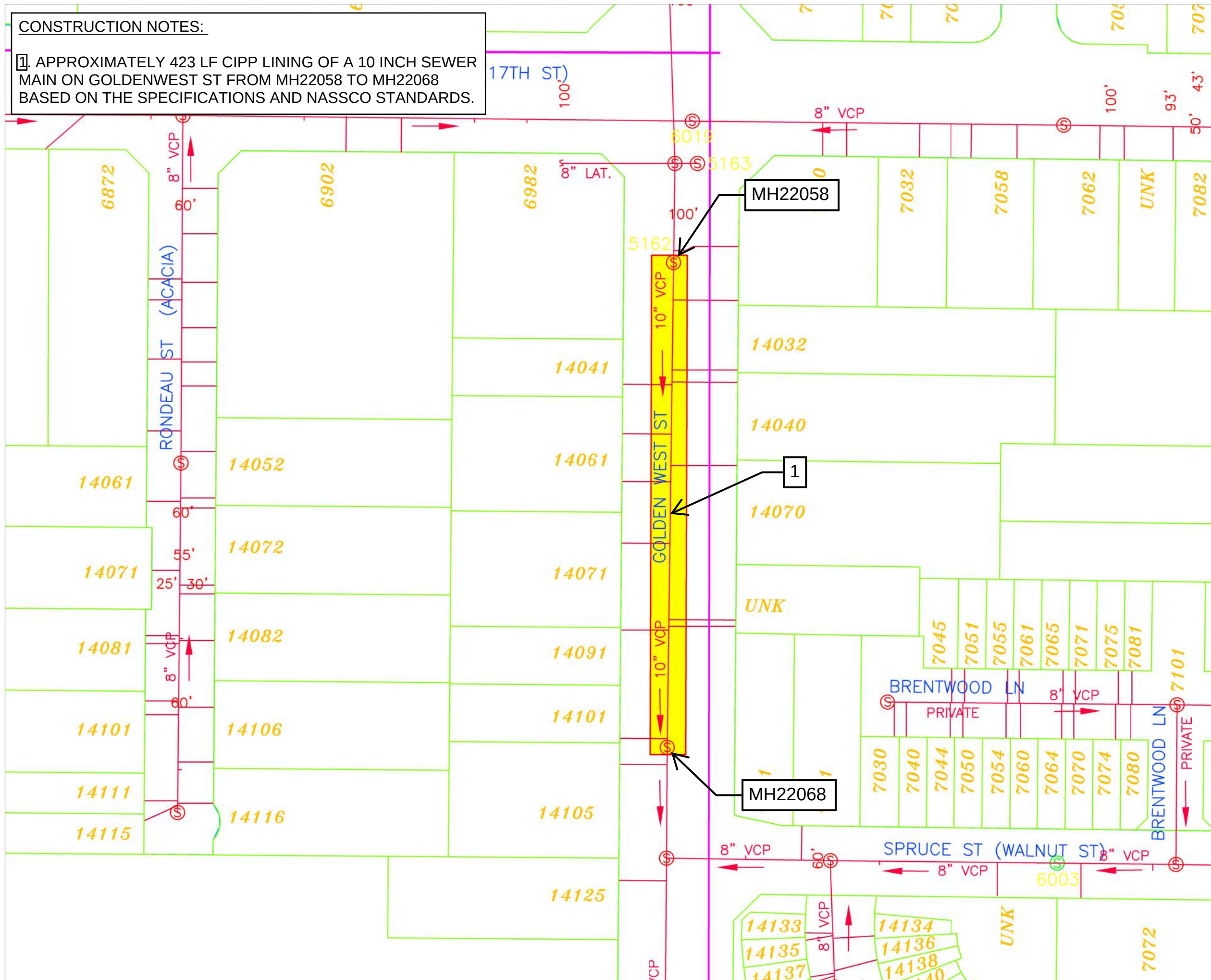
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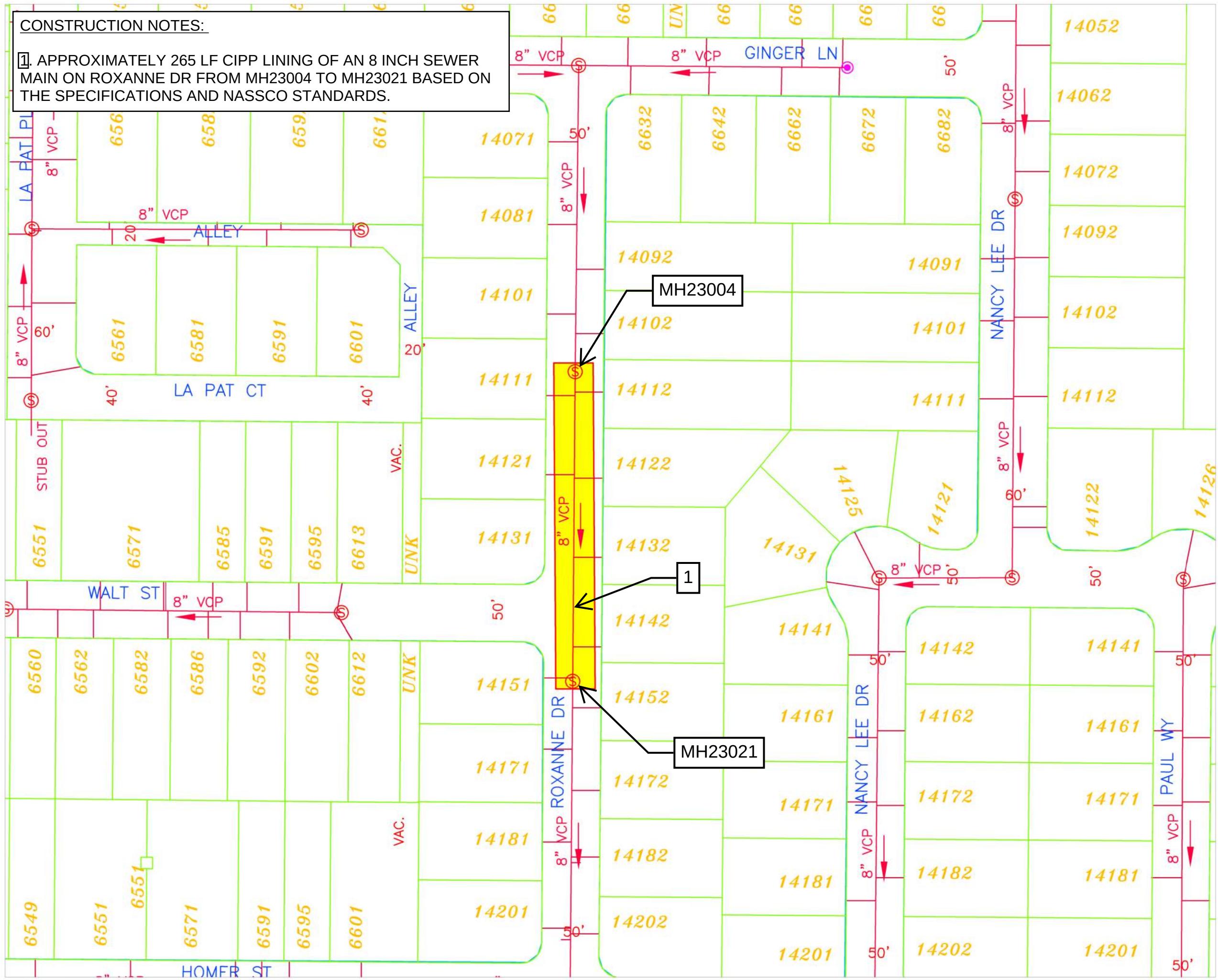
SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
- Pipe Size & Type



CONSTRUCTION NOTES:
1. APPROXIMATELY 265 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON ROXANNE DR FROM MH23004 TO MH23021 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM23020

SHEET NO.: 11

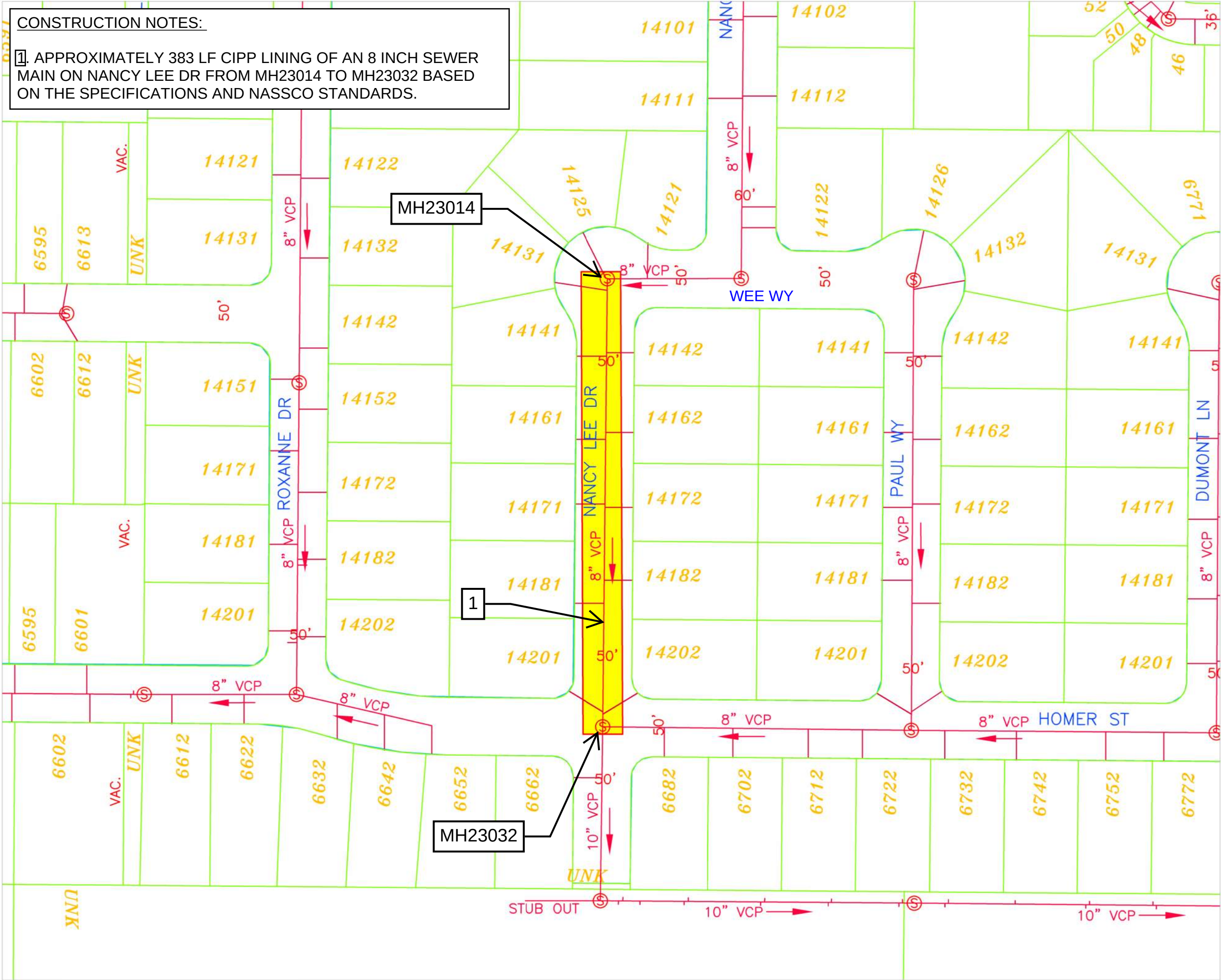


SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type

CONSTRUCTION NOTES:
1. APPROXIMATELY 383 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON NANCY LEE DR FROM MH23014 TO MH23032 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM23027

SHEET NO.: 12

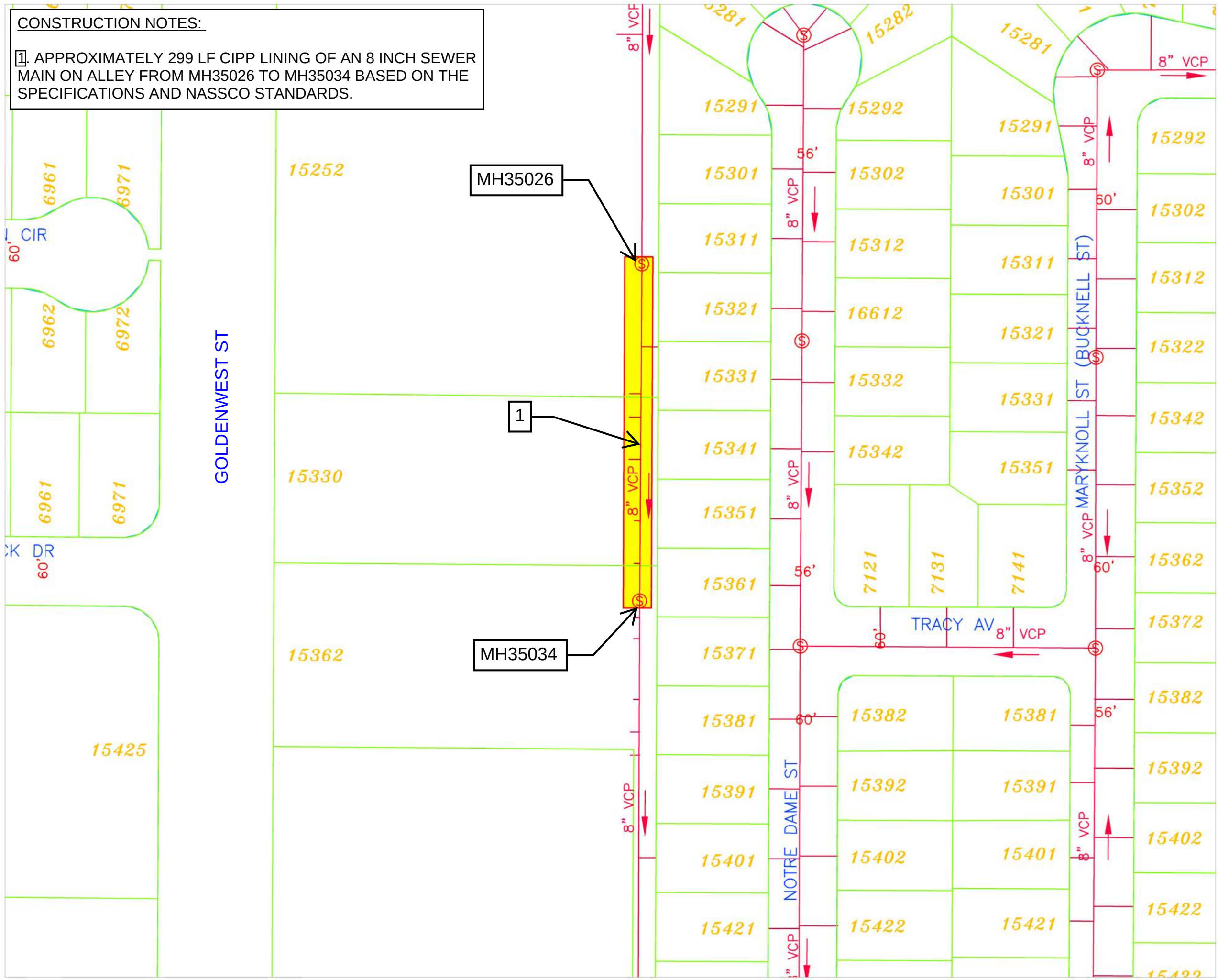


SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type

CONSTRUCTION NOTES:
1. APPROXIMATELY 299 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON ALLEY FROM MH35026 TO MH35034 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025
PROJECT NAME: SEWER MAIN REHAB
SEGMENT ID: GM35042
SHEET NO.: 13

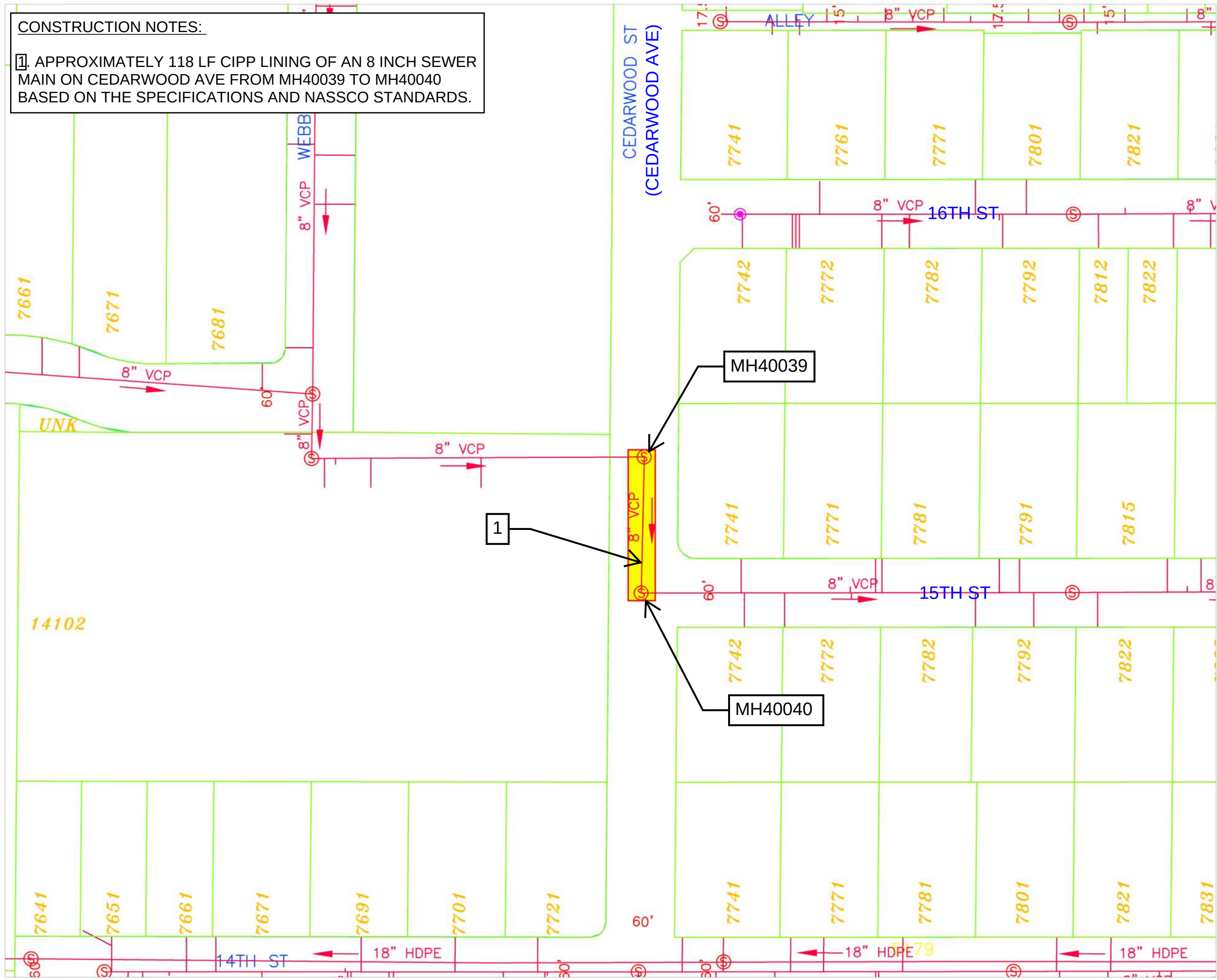


Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
- Pipe Size & Type

CONSTRUCTION NOTES:

1. APPROXIMATELY 118 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON CEDARWOOD AVE FROM MH40039 TO MH40040 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM40044

SHEET NO.: 14



SC: 1:80

Legend

- Limits of Work
- 14591 Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type

CONSTRUCTION NOTES:

1. APPROXIMATELY 263 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON 23RD ST FROM MH49037 TO MH49036 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM49056

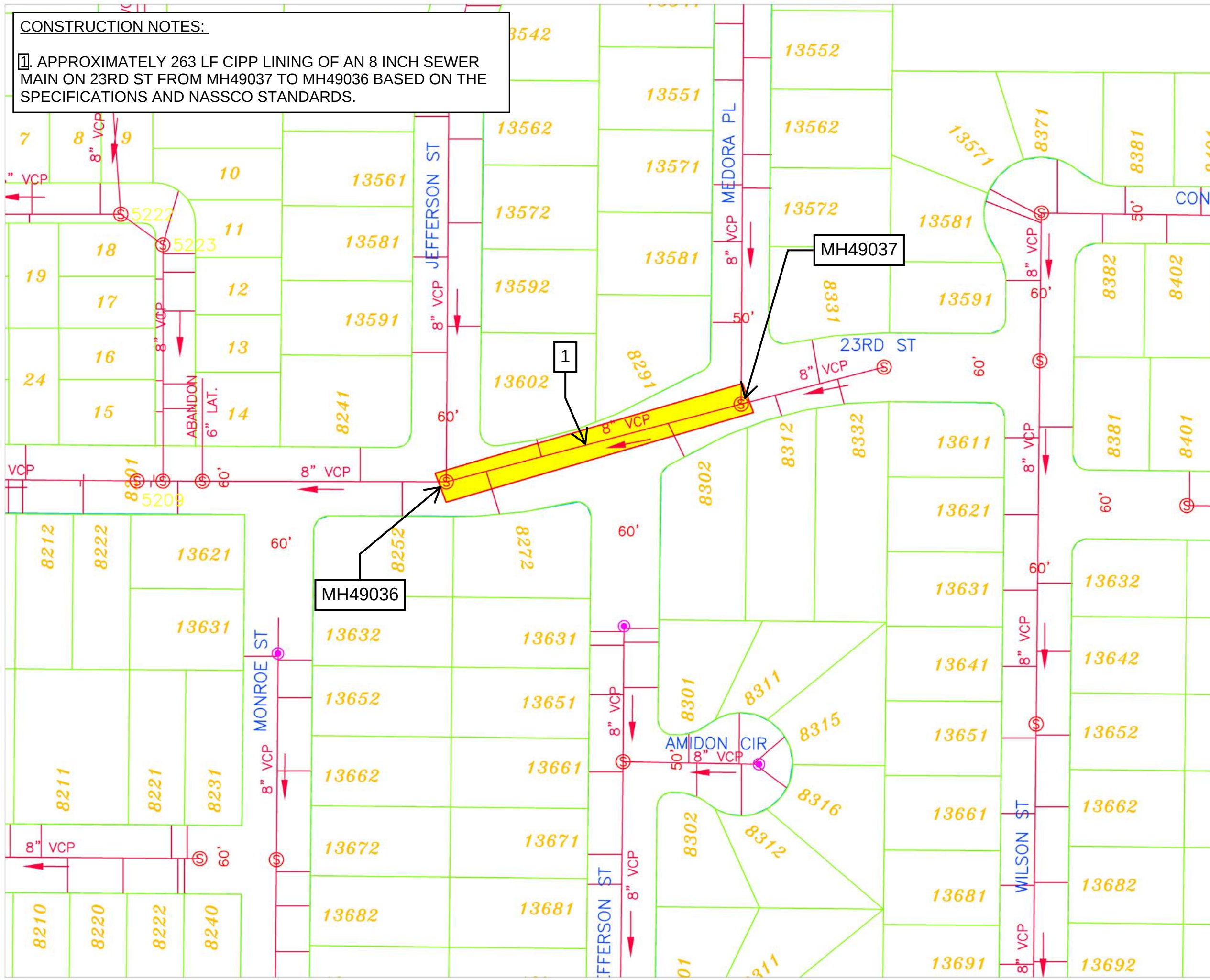
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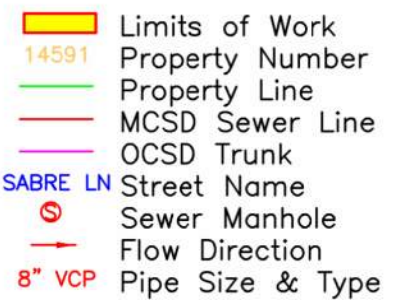
SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type



1. APPROXIMATELY 250 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON JEFFERSON ST FROM MH50008 TO MH50011 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



CONSTRUCTION NOTES:

1. APPROXIMATELY 303 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON RIATA ST FROM MH54011 TO MH54012 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM54020

SHEET NO.: 17



SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
-

CONSTRUCTION NOTES:

1. APPROXIMATELY 332 LF CIPP LINING OF AN 18 INCH SEWER MAIN ON BOLSA AVE FROM MH54023 TO MH54024 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM54033

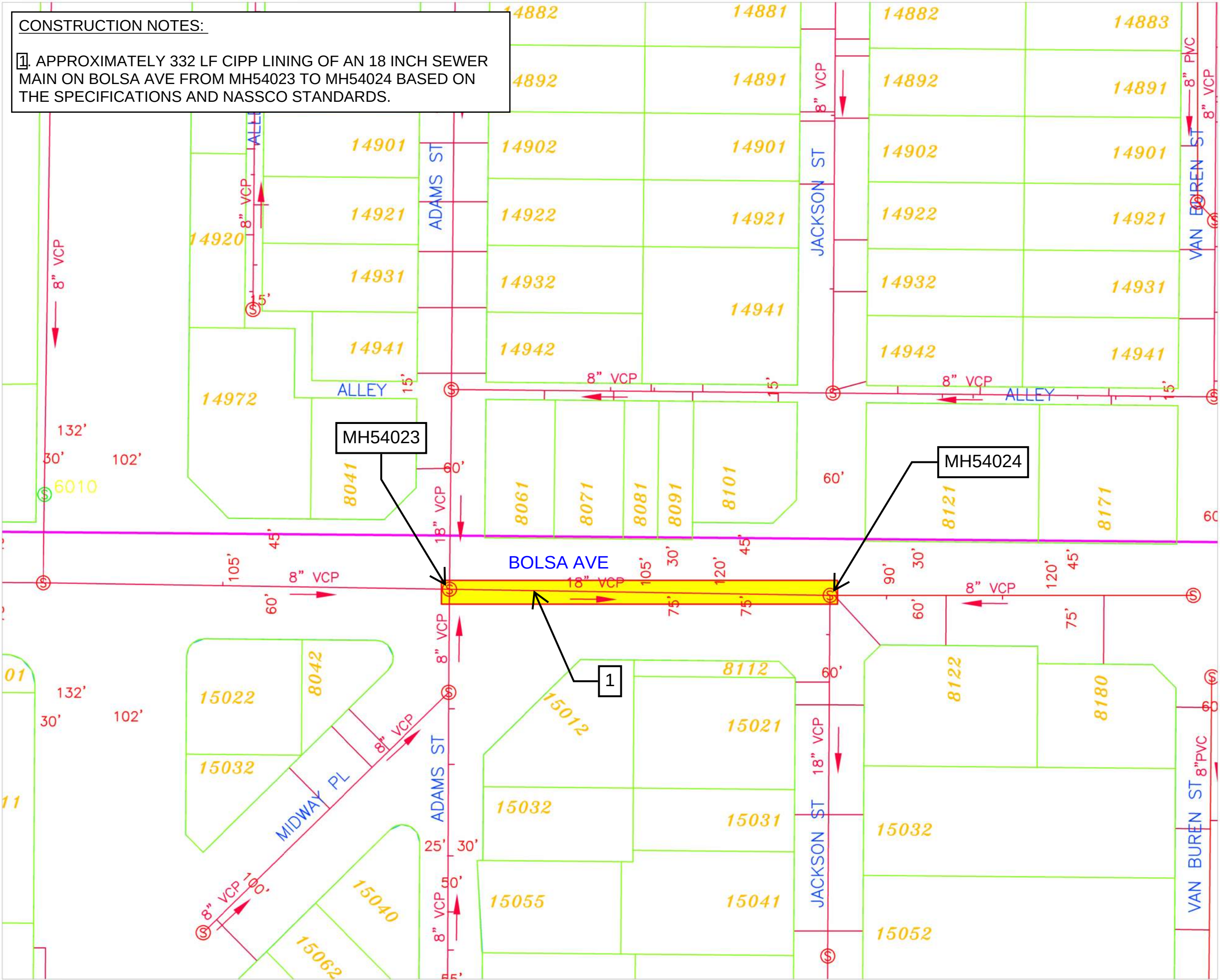
SHEET NO.: 18



SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type



CONSTRUCTION NOTES:

1. APPROXIMATELY 260 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON NATOMA AVE FROM MH64029 TO MH55019 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM55024

SHEET NO.: 19



SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
-

CONSTRUCTION NOTES:
1. APPROXIMATELY 239 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON WELLS RD FROM MH58012 TO MH58011 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



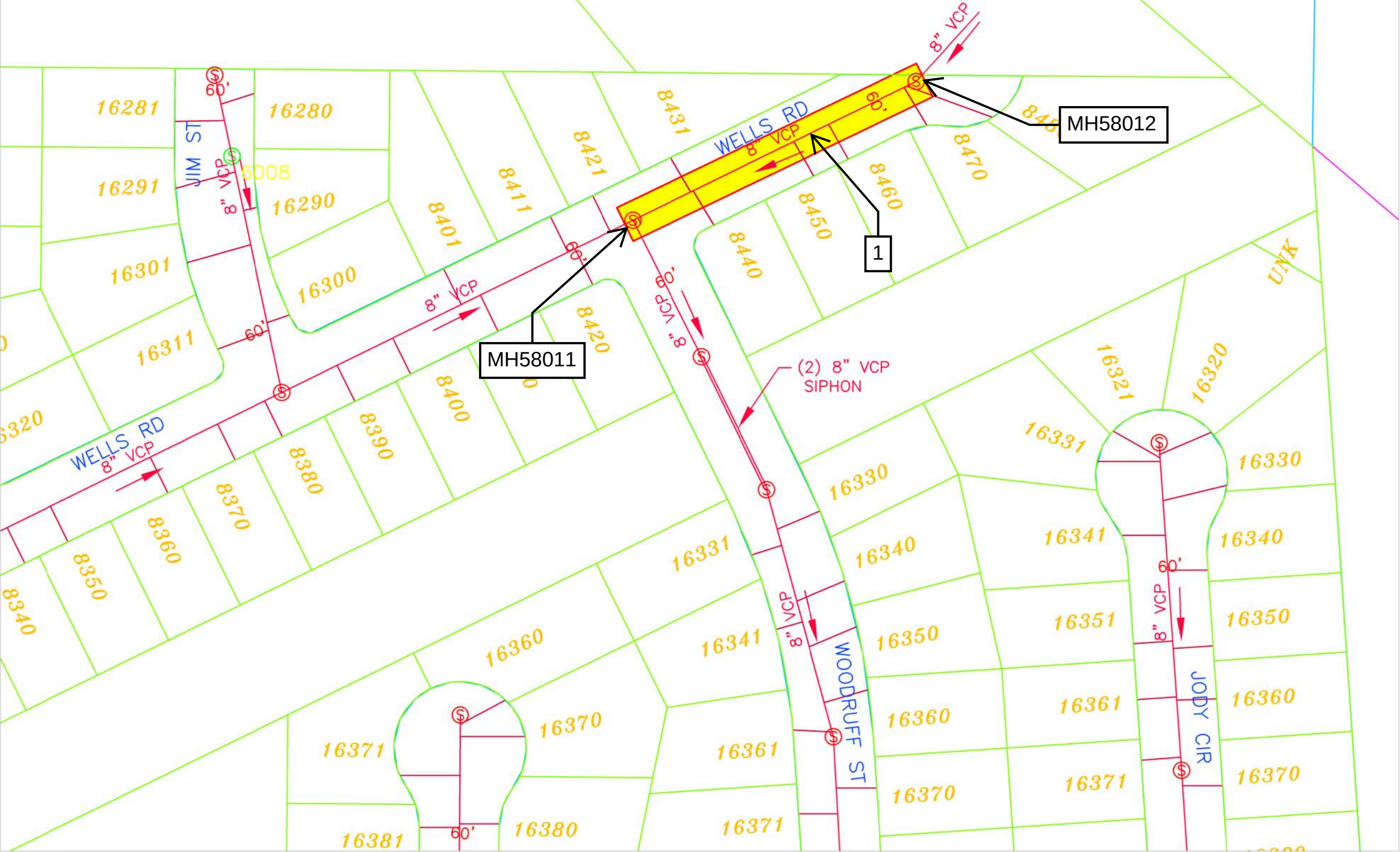
MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM58013

SHEET NO.: 20



SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
- Pipe Size & Type

CONSTRUCTION NOTES:
1. APPROXIMATELY 26 LF CIPP LINING OF AN 10 INCH SEWER MAIN ON MAGNOLIA ST FROM MH61005 TO VP61001 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM61005

SHEET NO.: 21



SC: 1:80

Legend

Limits of Work

14591

Property Number

Property Line

MCSD Sewer Line

OCSD Trunk

SABRE LN

Street Name

⊙

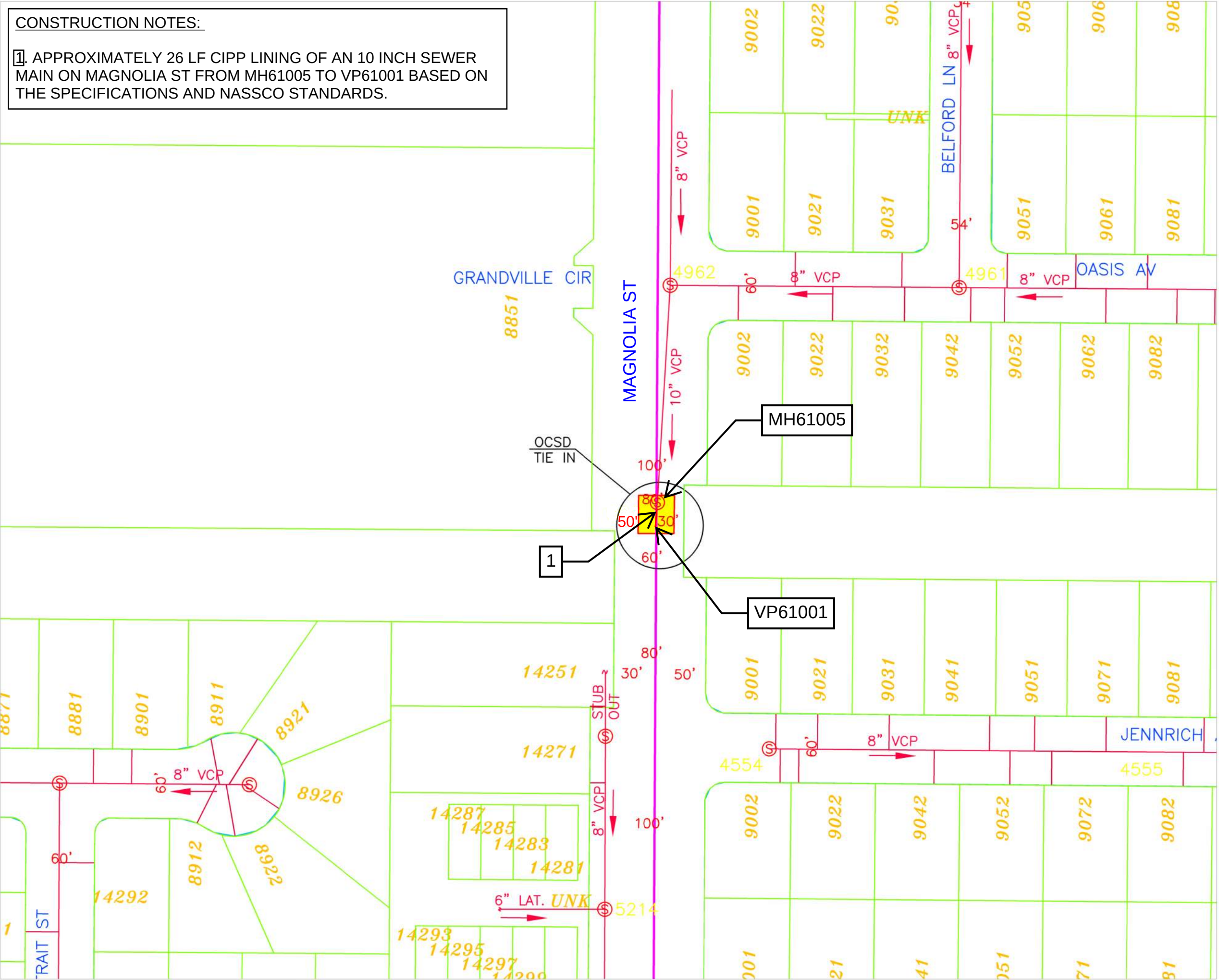
Sewer Manhole

→

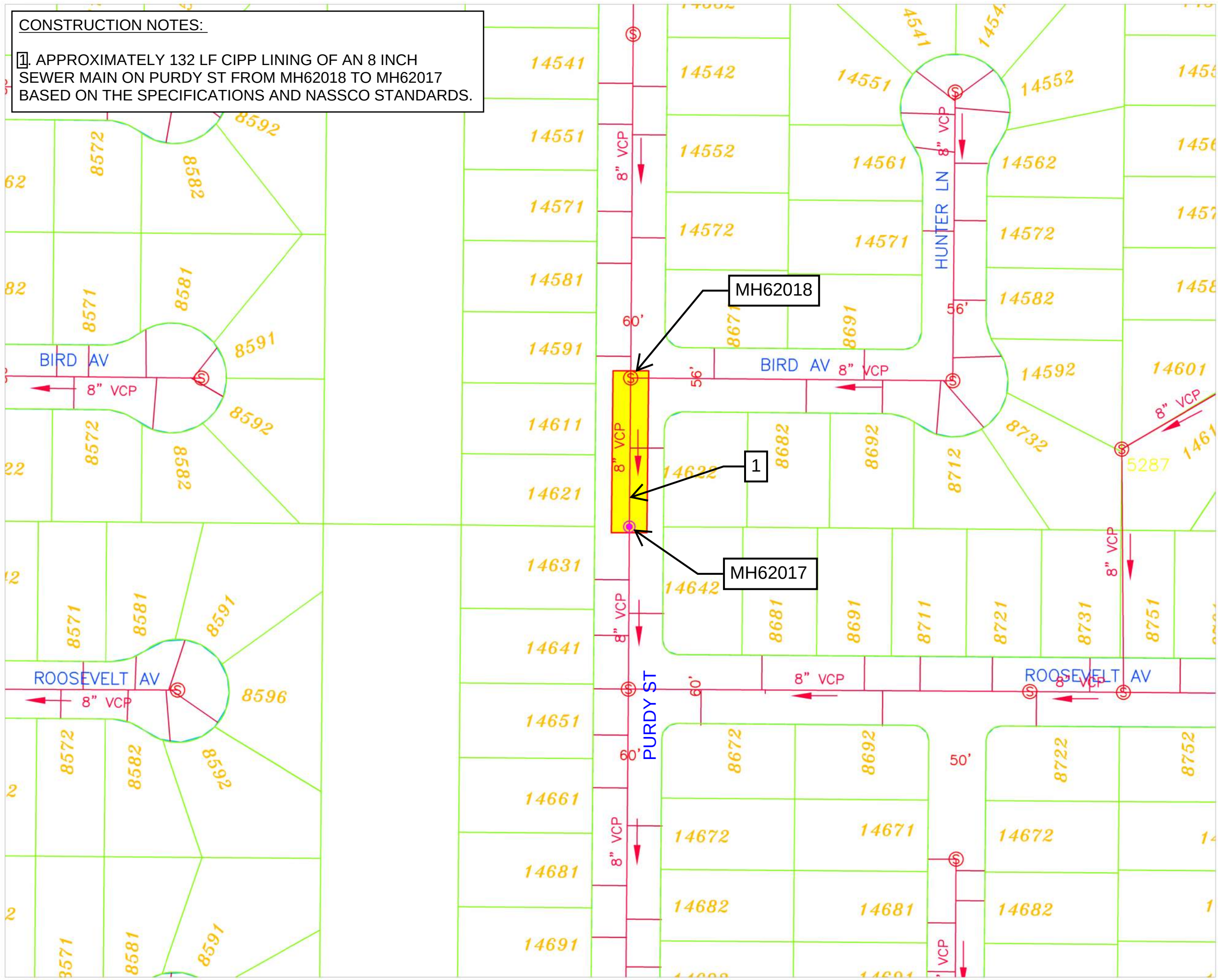
Flow Direction

8" VCP

Pipe Size & Type

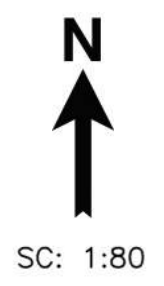


CONSTRUCTION NOTES:
1. APPROXIMATELY 132 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON PURDY ST FROM MH62018 TO MH62017 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025
PROJECT NAME: SEWER MAIN REHAB
SEGMENT ID: GM62017
SHEET NO.: 22



Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
- Pipe Size & Type

CONSTRUCTION NOTES:

1. APPROXIMATELY 300 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON COLLETTA PL FROM MH62059 TO MH62070 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM62065

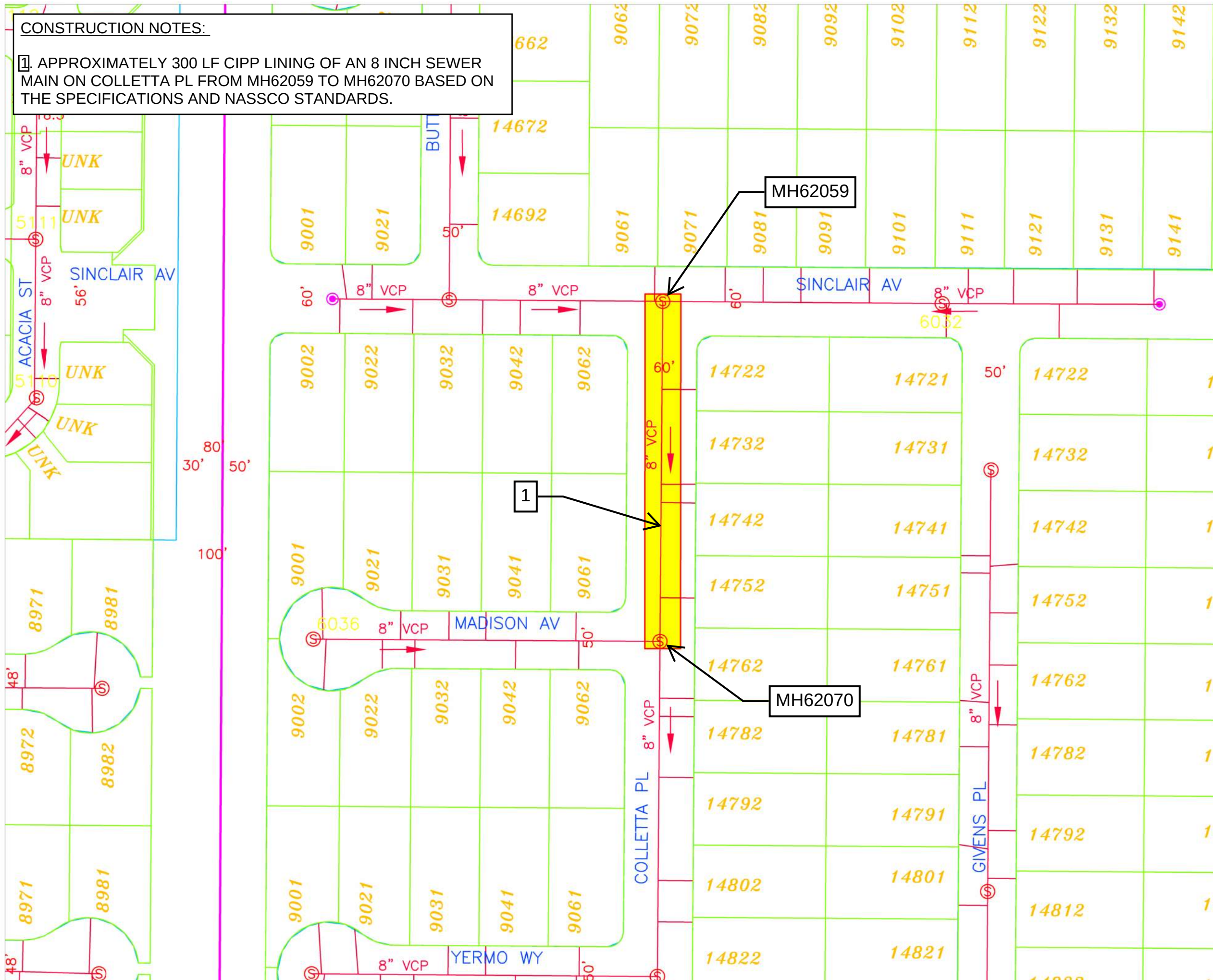
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SC: 1:80

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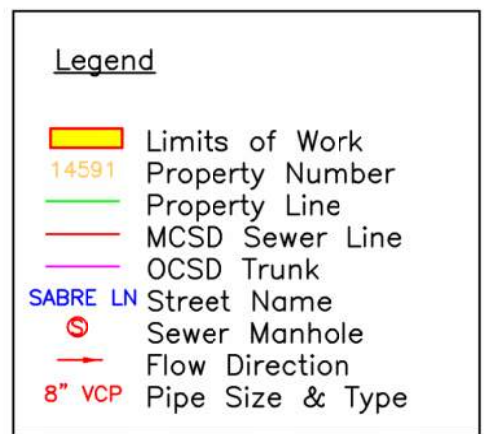
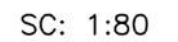
- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
- Pipe Size & Type



1. APPROXIMATELY 215 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON REESE WY FROM MH62071 TO MH53048 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



SHEET NO.: 24



1. APPROXIMATELY 304 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON YERMO WY FROM MH63005 TO MH63006 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.

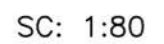


DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM63007

SHEET NO.: 25



- ### Legend
- | | |
|---|------------------|
|  | Limits of Work |
| 14591 | Property Number |
|  | Property Line |
|  | MCSD Sewer Line |
|  | OCSD Trunk |
| SABRE LN | Street Name |
|  | Sewer Manhole |
|  | Flow Direction |
| 8" VCP | Pipe Size & Type |

1. APPROXIMATELY 295 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON COLLETTA PL FROM MH63006 TO MH63022 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



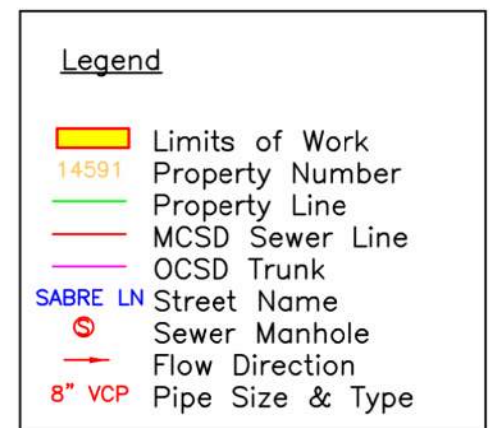
DRAWING DATE: 11/12/2025

SEGMENT ID: GM63008

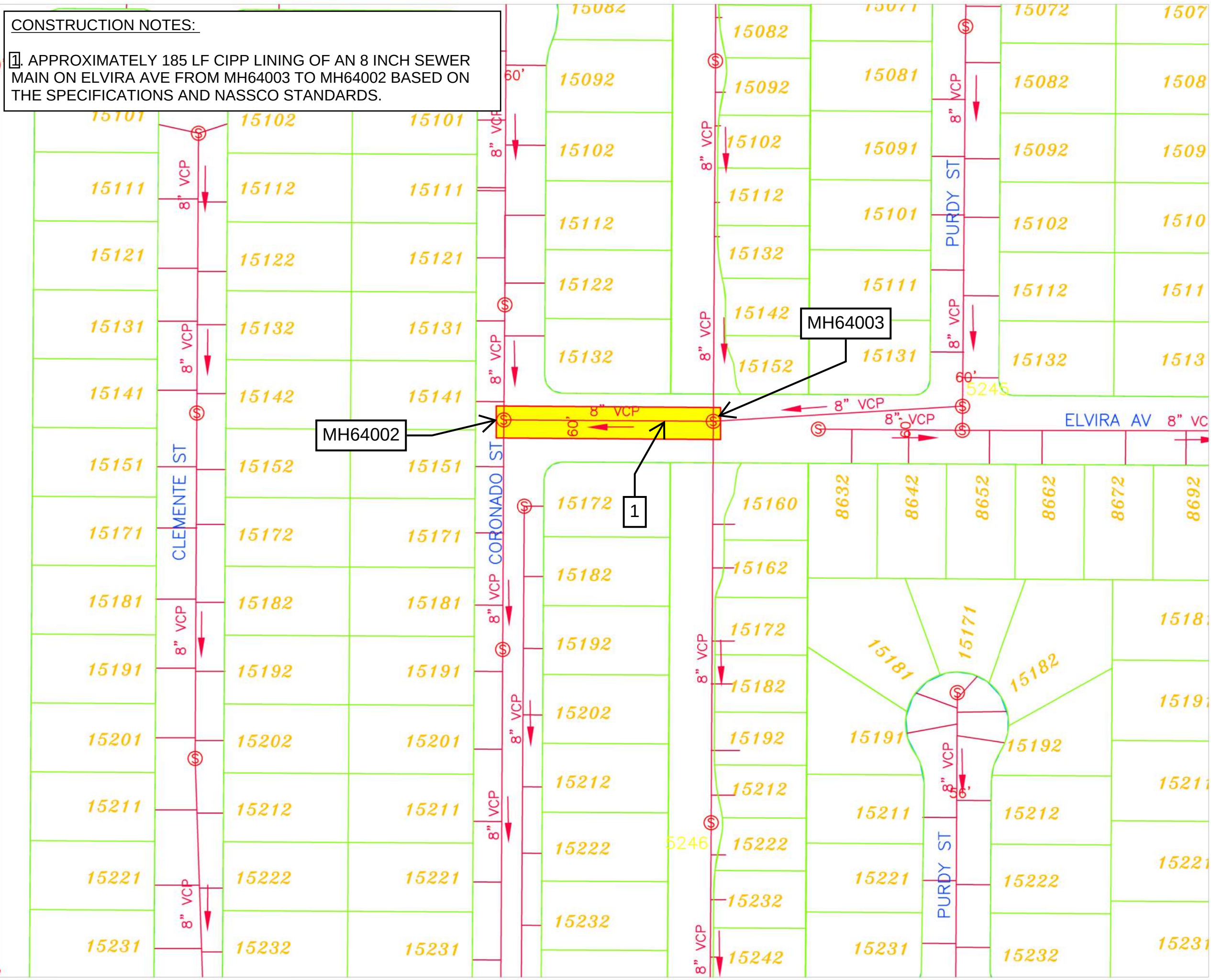
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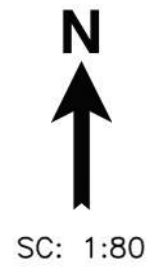


CONSTRUCTION NOTES:
1. APPROXIMATELY 185 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON ELVIRA AVE FROM MH64003 TO MH64002 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025
PROJECT NAME: SEWER MAIN REHAB
SEGMENT ID: GM64002
SHEET NO.: 27



Legend

- Limits of Work
- 14591 Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- S Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type

CONSTRUCTION NOTES:

1. APPROXIMATELY 184 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON ELVIRA AVE FROM MH64016 TO MH64014 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM64018

SHEET NO.: 28



SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
-

CONSTRUCTION NOTES:

1. APPROXIMATELY 358 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON MONTROSE AVE FROM MH64026 TO MH64025 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM64051

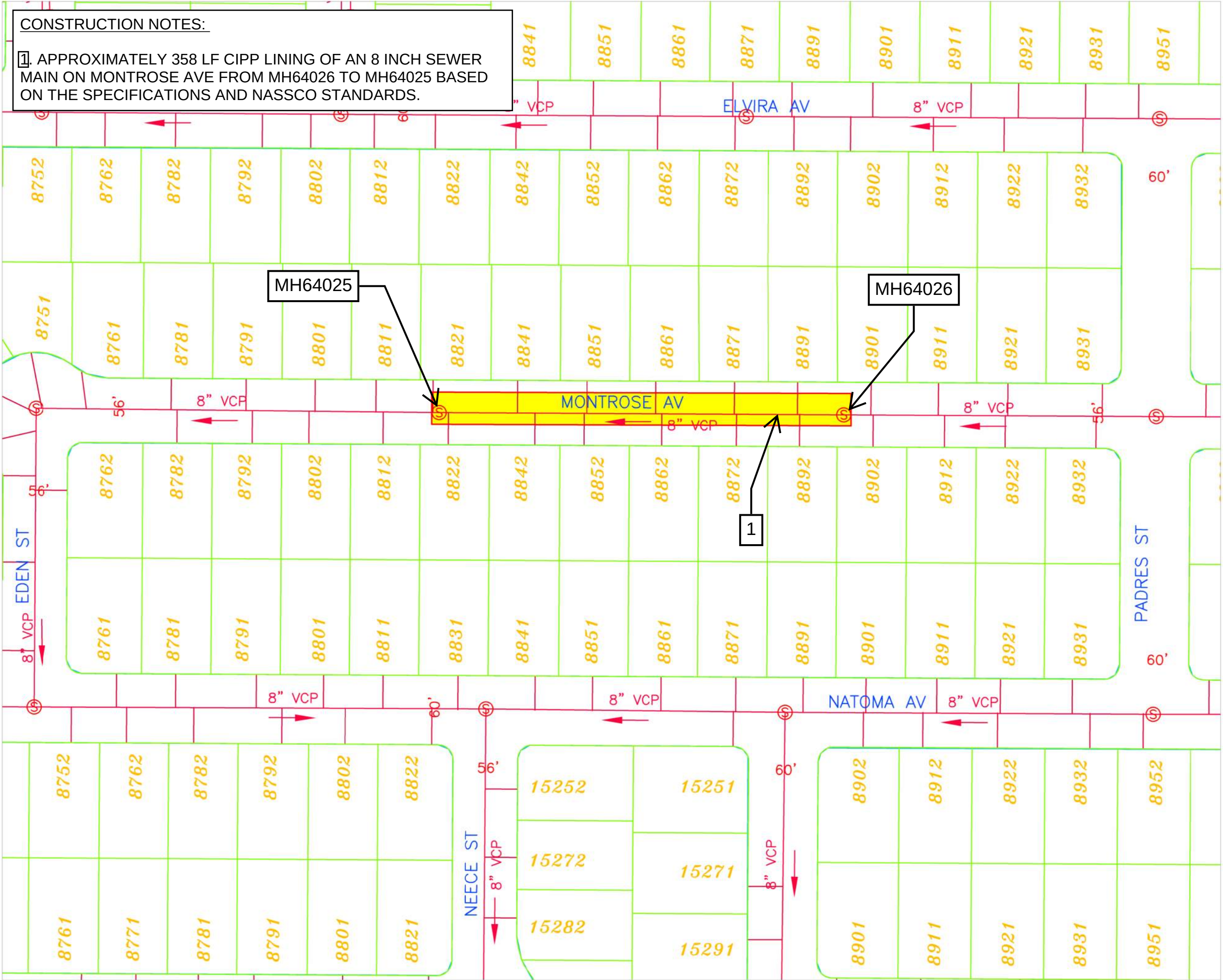
SHEET NO.: 29



SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
- Pipe Size & Type



1. APPROXIMATELY 187 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON MONTROSE AVE FROM MH64028 TO MH64027 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.

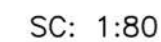


DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM64053

SHEET NO.: 30



- | | |
|---|------------------|
|  | Limits of Work |
| 14591 | Property Number |
|  | Property Line |
|  | MCSD Sewer Line |
|  | OCSD Trunk |
| SABRE LN | Street Name |
|  | Sewer Manhole |
|  | Flow Direction |
| 8" VCP | Pipe Size & Type |

1. APPROXIMATELY 179 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON SWAN ST FROM MH69044 TO MH69058 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



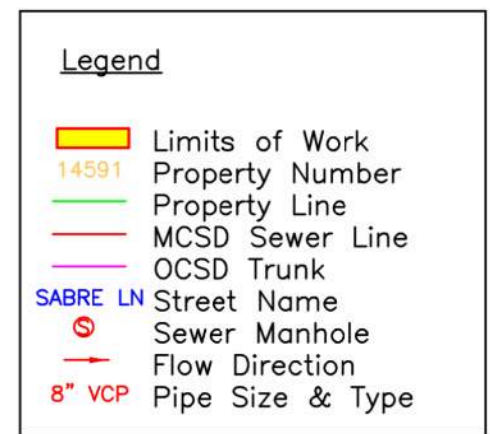
DRAWING DATE: 11/12/2025

SEGMENT ID: GM69050

SHEET NO.: 31



SC: 1:80



CONSTRUCTION NOTES:

1. APPROXIMATELY 342 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON TILDEN ST FROM MH71008 TO MH71031 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM71017

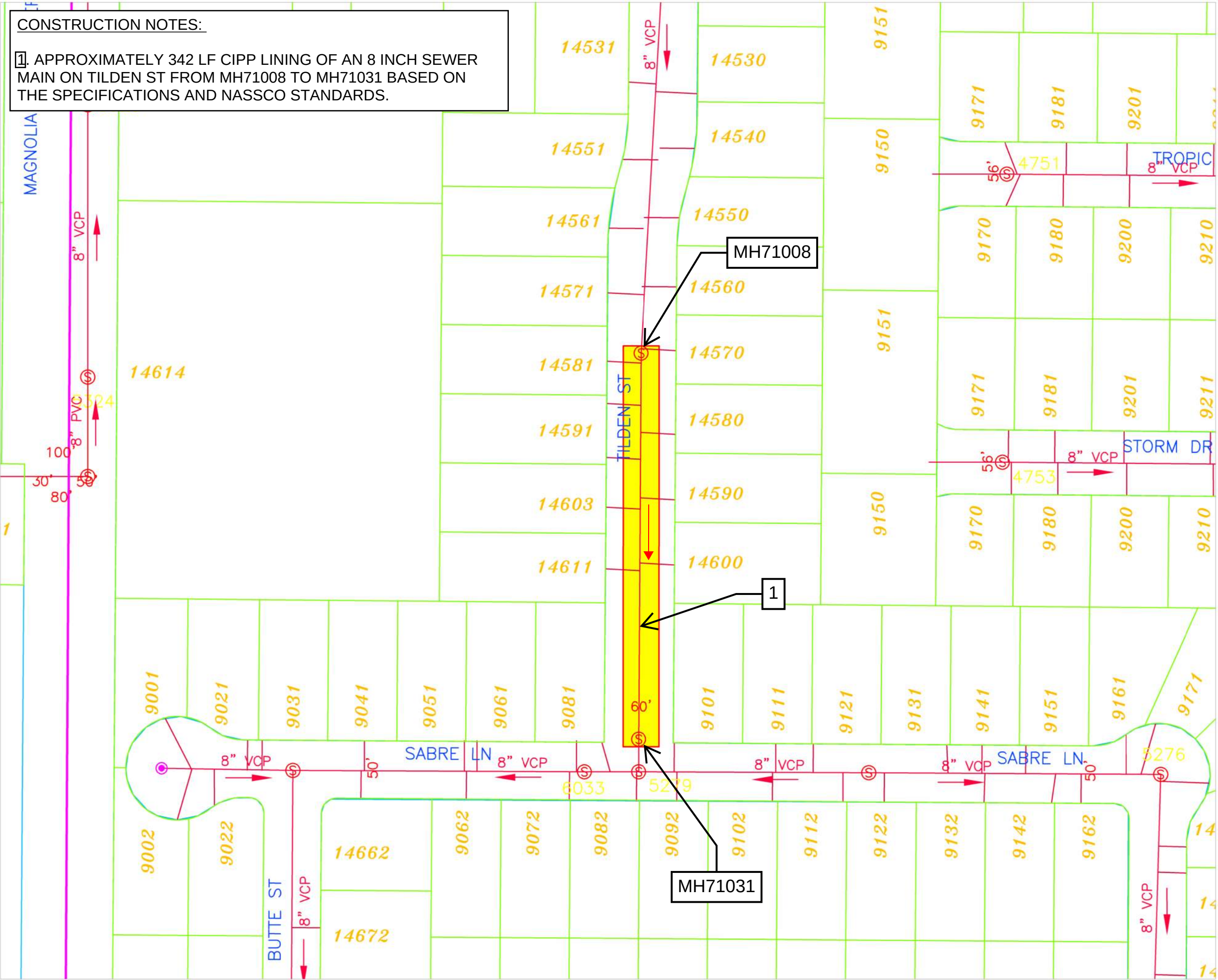
SHEET NO.: 32



SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSO Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
- Pipe Size & Type



CONSTRUCTION NOTES:

1. APPROXIMATELY 307 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON ALCESTER ST FROM MH71057 TO MH72001 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM71077

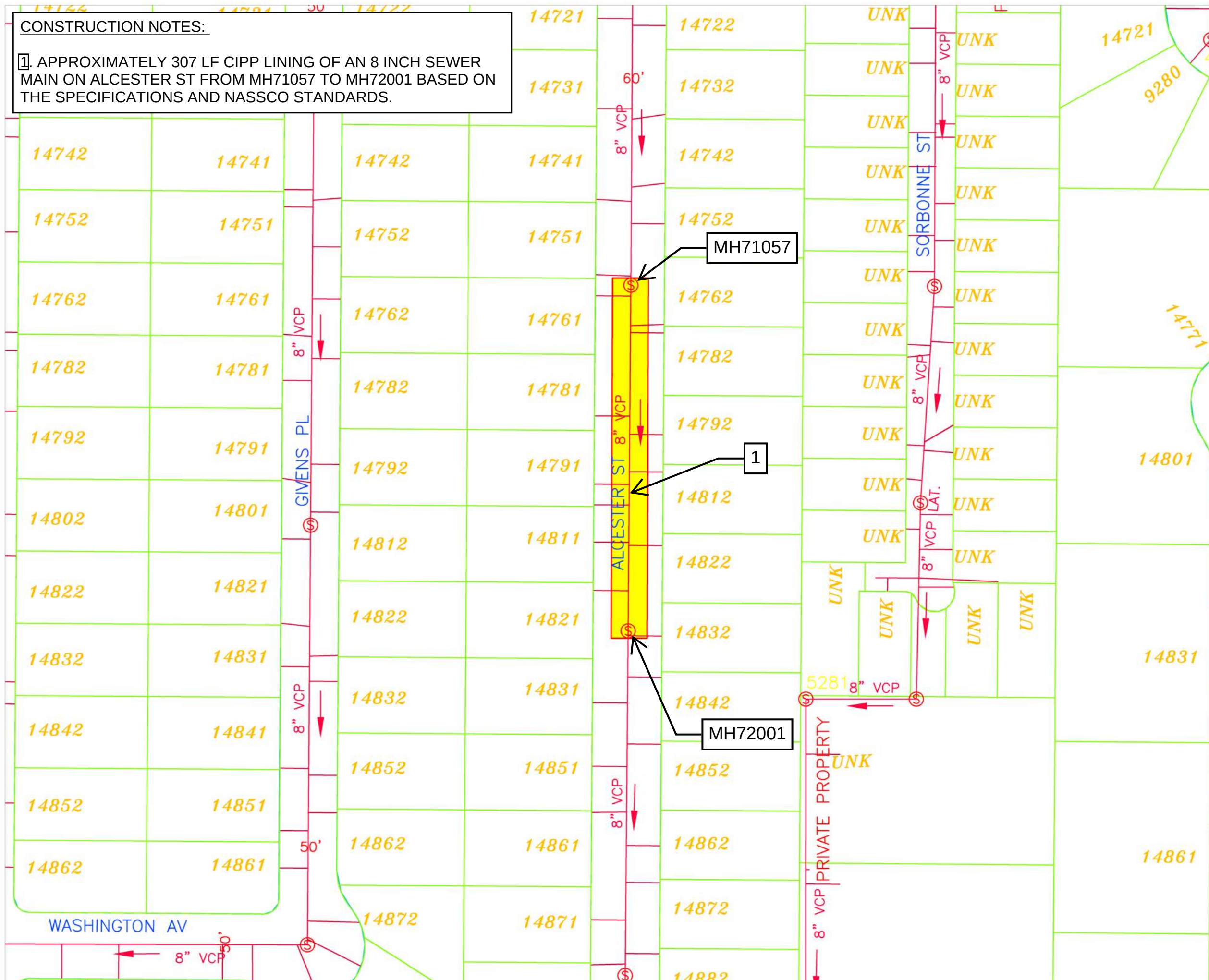
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SC: 1:80

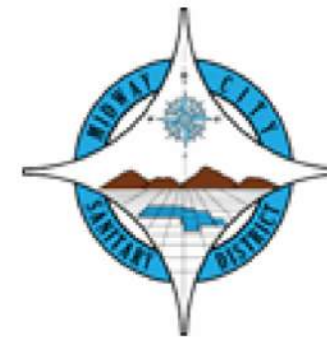
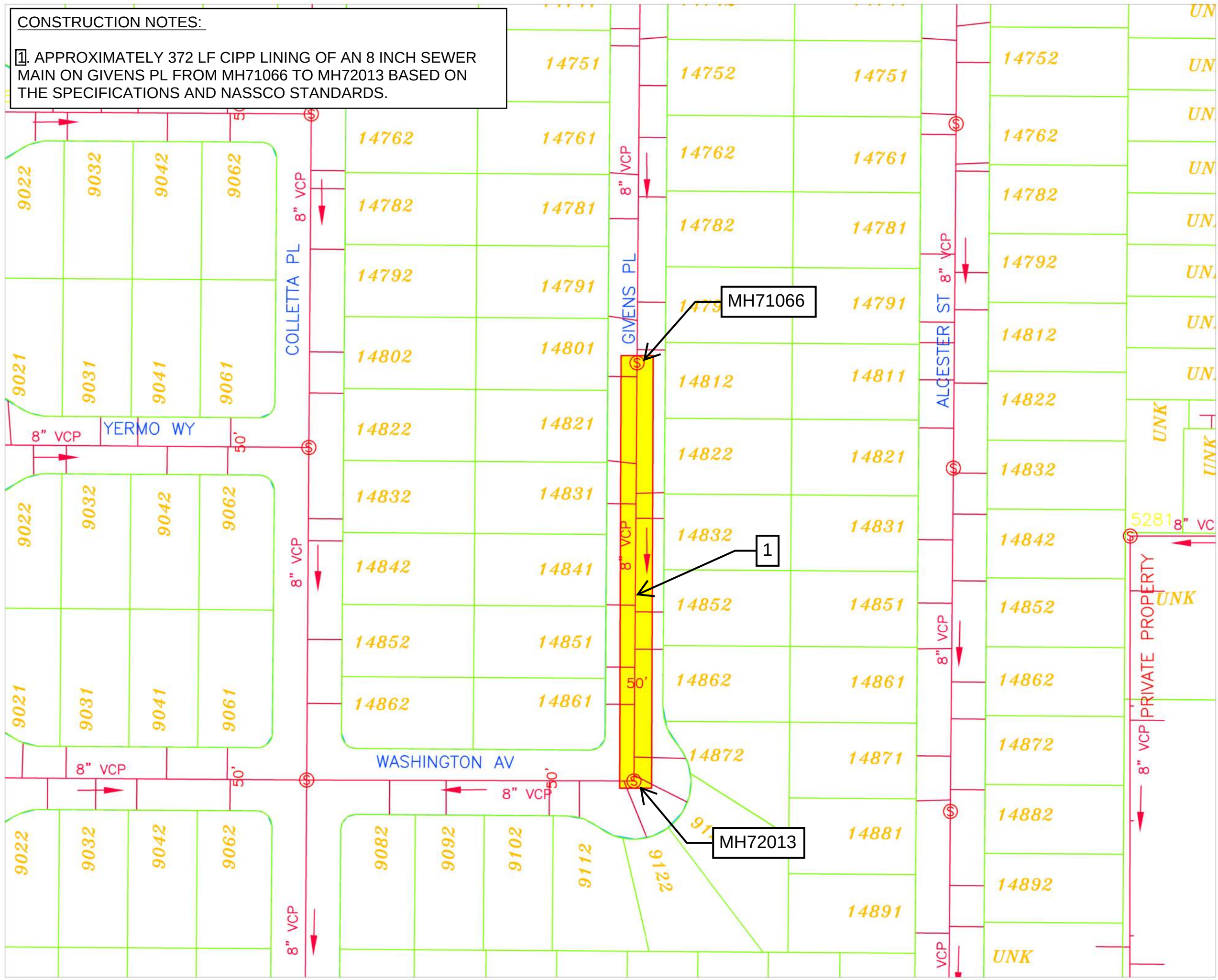
Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type



CONSTRUCTION NOTES:

1. APPROXIMATELY 372 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON GIVENS PL FROM MH71066 TO MH72013 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM72001

SHEET NO.: 34

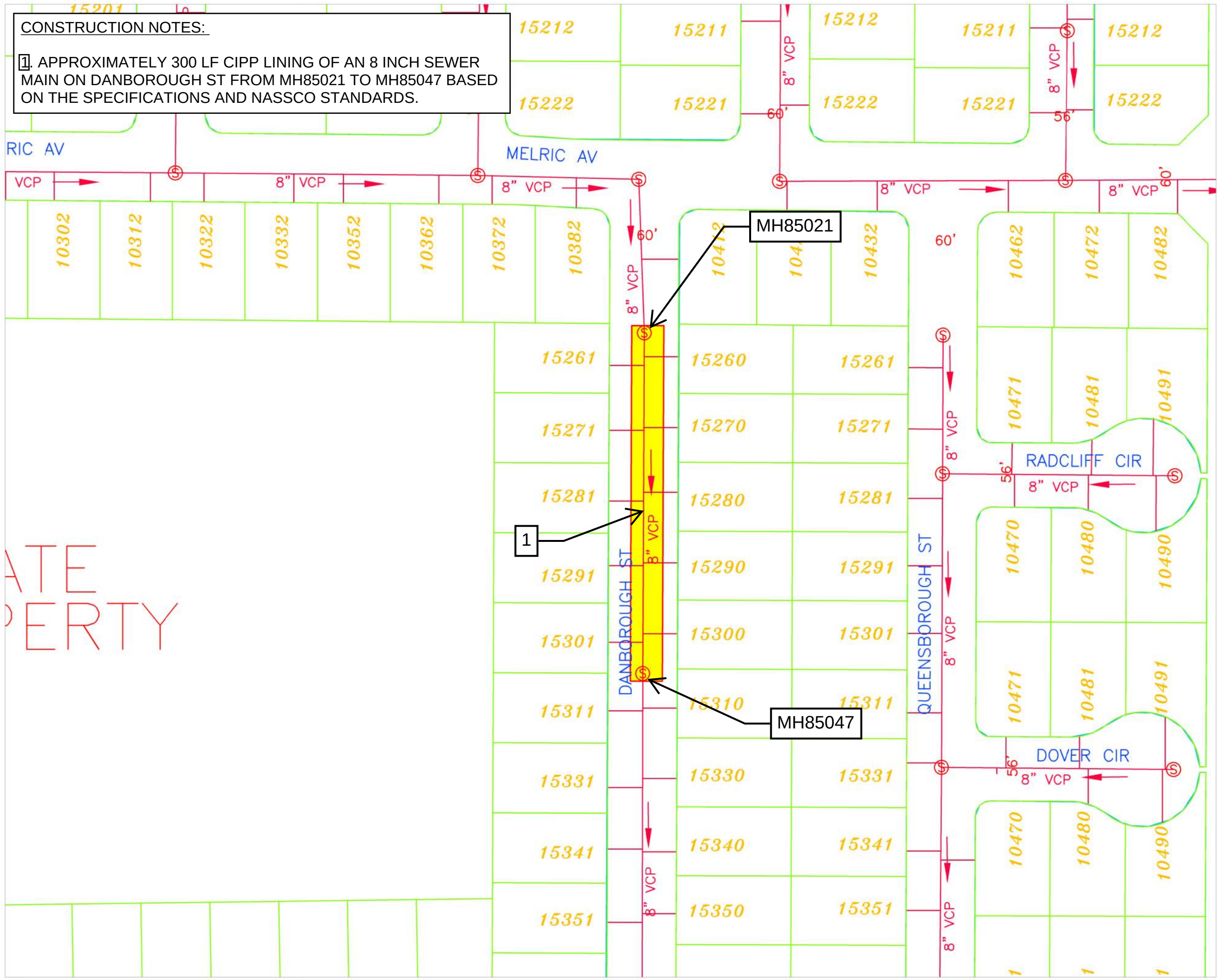


SC: 1:80

Legend

- Limits of Work
- 14591 Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- SABRE LN Street Name
- Sewer Manhole
- Flow Direction
- 8" VCP Pipe Size & Type

CONSTRUCTION NOTES:
1. APPROXIMATELY 300 LF CIPP LINING OF AN 8 INCH SEWER MAIN ON DANBOROUGH ST FROM MH85021 TO MH85047 BASED ON THE SPECIFICATIONS AND NASSCO STANDARDS.



MIDWAY CITY
SANITARY DISTRICT

DRAWING DATE: 11/12/2025

PROJECT NAME: SEWER MAIN REHAB

SEGMENT ID: GM85043

SHEET NO.: 35



SC: 1:80

Legend

- Limits of Work
- Property Number
- Property Line
- MCSD Sewer Line
- OCSD Trunk
- Street Name
- Sewer Manhole
- Flow Direction
-

***APPENDIX A3 – NASSCO Cured-In-Place Pipe (CIPP)
Installation Performance Specification Guideline (PSG) (June
2023)***

CURED-IN-PLACE PIPE (CIPP) INSTALLATION

PERFORMANCE SPECIFICATION GUIDELINE (PSG)

June 2023



2023 Edition

NASSCO Pipe Rehab Committee

(Supersedes all previous editions of this document)

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Nassco.org

NASSCO, Inc.
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Frederick, MD 21703

Disclaimer

These Specifications were prepared by a Committee comprised of representatives of NASSCO members and peer-reviewed by industry professionals. These Specifications are not specific to any one product, project, or job site, and should be considered a guideline only. Conditions for use may require additions, deletions or amendments to these guidelines so as to conform to project-specific site conditions and to comply with applicable laws, regulations, and ordinances. NASSCO does not guarantee, certify or assure any result and assumes no liability as to content, use and application of these guidelines

EFFECTIVE SPECIFICATIONS

Effective specifications should encourage the most innovative, efficient and experienced Contractor to provide the level of quality required by the Owner at the best and lowest competitive price.

The specification should not strive to encourage the Contractor to seek the cheapest approach and product delivery available to provide the lowest price.

Effective specifications include the following, which are critical for project success:

1. Product selection for the best solution.
2. Definition of project goals and requirements, both short and long term.
3. Construction means and methods as defined, in writing, by the Contractor.
4. Product provided and installed as specified by the product manufacturer.
5. Product quality and quantity confirmed through inspection and testing.
6. Product design and service life verified through warranty inspection.

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PART 1 GENERAL

This performance specification guideline (PSG) is for the rehabilitation of gravity sewers, either sanitary, combined or storm, by the installation of cured-in-place-

- A. This performance specification guideline (PSG) includes the minimum requirements for the rehabilitation of sanitary and storm sewer pipelines by the installation of cured-in-place pipe (CIPP) within the existing, deteriorated pipe as shown on the plans included as part of these contract documents.
- B. The rehabilitation of pipelines shall be done by the installation of a resin-impregnated flexible tube which, when cured, shall be continuous and tight-fitting throughout the entire length of the original pipe. The CIPP shall extend the full length of the original pipe and provide a structurally sound, jointless and water-tight new pipe-within-a-pipe. The Contractor is responsible for proper, accurate and complete installation of the CIPP using the system selected by the Contractor meeting the Owner requirements.
- C. Neither the CIPP product, system, nor its installation, shall cause adverse effects to any of the Owner's processes or facilities. The installation pressure for the product shall not damage the system in any way, and the use of the product shall not result in the formation or production of detrimental compounds or by-products at the wastewater treatment plant. The Contractor shall notify the Owner and identify by-products produced as a result of the installation operations, test and monitor the levels, and comply with local waste discharge requirements. The Contractor shall clean up, restore existing surface conditions and structures, and repair the CIPP system determined to be defective. The Contractor shall conduct installation operations and schedule cleanup in a manner to cause the least possible obstruction and inconvenience to traffic, pedestrians, businesses and property owners or tenants and to provide an environmentally safe restored jobsite.
- D. The prices submitted by the Contractor shall include all costs of permits, labor, equipment and materials for the various bid items necessary for furnishing and installing, complete in place, CIPP in accordance with these specifications. Items of work not specifically mentioned herein which are required, by the Contractor, to make the product perform as intended and deliver the final product as specified herein shall be included in the respective lump sum and unit prices bid.

1.1 DESCRIPTION OF WORK AND PRODUCT DELIVERY

The specifications must include a detailed description of the work required including products that are to be included in the installation, and what is to be delivered by the Contractor.

- A. This PSG covers work necessary to furnish and install the CIPP. The Contractor shall provide materials, labor, equipment, and services necessary for traffic control (if required), bypass pumping and/or diversion of flows, cleaning, measurement and television inspection of sewers to be rehabilitated, CIPP installation, reconnection of service connections, quality controls, provide samples for performance of required material tests, final television inspection, testing of the rehabilitated pipe system, warranty work and other work, as specified herein.
- B. The product furnished shall be a complete CIPP system including specific materials, applicable equipment and installation procedures. If prequalification is required, the CIPP system manufacturer may submit appropriate data/information to the Owner. Other CIPP systems or multi-component products will be required to meet the submittal requirements as contained herein.
- C. The CIPP shall be continuous and jointless from manhole to manhole or access point to access point and shall be free of defects that will affect the long-term life and operation of the pipe.
- D. The CIPP shall not leak at the manholes or through the wall of the installed pipe.-

If the host pipe is in groundwater, the use of end seals, if specified, shall be included to prevent infiltration tracking between the host pipe and CIPP and leaking into the CIPP at manholes.

- E. The CIPP shall be designed for a life of 50 years or greater and an equal service life unless specifically specified otherwise by the Owner.
- F. The CIPP may be designed for partially deteriorated conditions to resist external groundwater pressures only or for fully deteriorated conditions for a structural stand-alone pipe.
- G. The installed CIPP shall comply with the chemical resistance requirements of the relevant ASTM standard(s) F1216, or ASTM D5813 (Section 6.4.1), ASTM F1743 or ASTM F2019.
- H. All existing and confirmed active service connections and any other service laterals to be reinstated, as directed by the Owner, shall be re-opened robotically or by hand in the case of person-entry size piping, to their original shape and to 90% - 95% of their original area. All over-cut or under-cut service connections shall be properly repaired to meet the requirements of these specifications.
- I. All materials furnished as part of this contract shall be marked with detailed product information, stored in a manner specified by the manufacturer and tested to the requirements of this contract.
- J. Testing and warranty inspections shall be executed by the Owner. Defects found shall

be repaired or replaced by the Contractor.

- K. The Contractor shall furnish, from the project installation, samples, marked with chain of custody information such as project name, section, date, diameter and thickness, etc., for product testing at the request of the Owner. The Owner shall take possession of the samples for testing and shall maintain the chain of custody, deliver the samples to an approved laboratory and pay for material and product testing performed under this contract.

1.2 REFERENCES

All applicable reference documents should be listed in this section. If a document does not apply, is not pertinent or has unknown content, it should not be included. Specific reference document requirements should be defined in the contract documents or by reference to a specific section of the document. Specific Contractor requirements and/or test procedures contained in the references should be defined in detail in the contract documents.

- A. The following documents form a part of this specification to the extent stated herein and shall be the latest editions thereof. Where differences exist between codes and standards, the requirements of these specifications shall apply. References to codes and standards shall be to the latest revised version.
- ASCE MOP 145 – Design of Close-Fit Liners for the Rehabilitation of Gravity Pipes
 - ASTM - F1216 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
 - ASTM - F1743 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)
 - ASTM - D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
 - ASTM - F2019 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic Cured-in-Place (GRP-CIPP) Using the UV-Light Curing Method
 - ASTM - D2990 Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics

- ASTM - D5813 Standard Specification for Cured-in Place Thermosetting Resin Sewer Pipe
- Guideline for the Safe Use and Handling of Styrene-Based Resins in Cured-in-Place Pipe, NASSCO. 2023.
- Trenchless Technology Center at Louisiana Tech, 2019. NASSCO CIPP Emissions Phase 2: Evaluation of Air Emissions from Polyester Resin CIPP with Steam Cure
- Trenchless Technology Center at Louisiana Tech, 2023. NASSCO CIPP Emissions Phase 3 “Evaluation of Styrene Emissions Associated with Various CIPP Coatings in Refrigerated Storage” Final Report

1.3 PERFORMANCE WORK STATEMENT (PWS) SUBMITTAL

In place of the engineer defining the specific method for product installation, the contractor defines the installation means and methods through a written plan called the Performance Work Statement (PWS). During construction the PWS provides valuable information to the inspector so that the inspector can determine if the submitted means and methods are being followed by the contractor. The PWS also outlines the necessary quality checks to be performed and the installation crew qualifications.

- A. The Contractor shall submit, to the Owner, a Performance Work Statement (PWS) which clearly defines the CIPP product delivery in conformance with the requirements of these contract documents. Unless otherwise directed by the Owner, the PWS shall, at a minimum, contain the following:
- B. Clearly indicate that the CIPP will conform to the project requirements as outlined in the Description of Work and as delineated in these specifications.
- C. A detailed product installation plan describing preparation work, cleaning operations, pre-CCTV inspections, bypass pumping, traffic control, installation procedure, method of curing, service reconnection, quality control, testing to be performed, final CCTV inspection, warranties furnished necessary and appropriate for a complete CIPP installation. An installation schedule shall be prepared, submitted and conform to the requirements of this contract.
- D. Contractor’s description of the proposed CIPP technology, including a plan for identifying active service connections maintaining service, during mainline CIPP installation, to each home connected to the section of pipe being rehabilitated, including temporary service for commercial, industrial and apartment complexes, if required by the contract.
- E. A description of the CIPP materials to be furnished for the project. Materials shall be identified in the submittals and conform to these specifications and/or shall conform to the pre-approved product submission.

- F. A statement of the Contractors experience. The Contractor shall have a minimum of three (3) years of cumulative experience installing CIPP in pipe of a similar size, length and configuration as contained in this contract. The lead personnel, including the superintendent, the foreman and the lead crew personnel for the CCTV inspection, resin wet-out, the CIPP installation, curing and the robotic service reconnections each

must have a minimum of one (1) year of experience with the CIPP technology proposed for this contract and must have demonstrated competency and experience to perform the scope of work contained in this contract. The name and experience of each lead individual performing work on this contract shall be submitted with the PWS. Personnel replaced by the Contractor, on this contract, shall have similar, verifiable experience as the personnel originally submitted for the project

If the design calculations include mechanical properties greater than the minimum properties listed in these specifications, the mechanical properties included in the design calculations become the minimum acceptable values when testing field samples.

- G. Engineering design calculations, in accordance with the Appendixes of ASTM F1216, or ASTM F2019, ASCE MOP 145, or other design protocol as specified by the owner, for each length of CIPP to be installed including the thickness of each proposed CIPP. It will be acceptable for the Contractor to submit a design for the most severe line condition and apply that design to all the line sections. These calculations shall be performed and certified by a qualified Professional Engineer. All calculations shall include data that conforms to the requirements of these specifications or has been pre-approved by the Owner.
- H. Proposed manufacturers' technology data shall be submitted for all CIPP products and all associated technologies to be furnished.

Reinstating service laterals is a critical operation for completing small diameter CIPP installations. This specialty type equipment is not readily available for rent from local equipment rental companies. Because of this, often redundant robotic cutters are specified for small diameter projects with service laterals.

- I. Submittals shall include information on CIPP intended for installation and tools and equipment required for a complete installation. The PWS shall identify which tools and equipment will be redundant on the job site in the event of equipment breakdown. Equipment to be furnished for the project, including proposed back-up equipment, shall be clearly described. The Contractor shall outline the mitigation procedure to be implemented in the event of key equipment failure during the installation process.

Non-specialty backup equipment should be identified and reserved by the Contractor (on will call) from local rental companies in the event of equipment failure.

- J. A description of the Contractor's proposed procedures for removal of existing blockages in the pipeline that may be encountered during the cleaning process.

Proper public notification can prevent many public relations issues during a project. If the residents know that there will be workers and equipment near their homes, that they should not use large volumes of water or that they may smell strange odors, many homeowner concerns and problems can be prevented.

- K. A public notification plan shall be prepared and submitted including detailed staged notification to residences affected by the CIPP installation.

CIPP installations commonly include the use of resins which contain a styrene component. These resins can emit a distinctive odor from the styrene component. To minimize this nuisance odor the contractor should devise an odor control plan that will mitigate the nuisance effect to the general public and residents at the project site during the CIPP installation.

- L. An odor control plan shall be submitted by the Contractor that will ensure that project specific odors will be minimized at the project site and surrounding area. Part of the plan will include methods for removing odors from residents' homes, if required.
- M. Compensation for work required for the submittal of the PWS shall be included in the various pipelining items contained in the Proposal.

1.4 PRODUCT SUBMITTALS

Product submittals require the contractor to submit the materials to be incorporated in the installation. This also allows the contractor to submit alternative materials that may be equal or better than those specified. The engineer must be prepared to evaluate alternative materials through evaluation, certifications and third-party testing to validate alternative materials meet the specified requirements of the contract.

This section includes a list of significant CIPP products and procedures that should be included in the submittal package. These include the two principal products, the tube and the resin, in addition to handling and storing these items from the manufacturing plant to the wet-out facility. Also included are detailed procedures for wet-out, installation and curing.

- A. Tube – including the manufacturer and description of product components (i.e., felt, fiberglass and other reinforcing materials) and applicable tube mechanical properties.
- B. Flexible membrane – including materials (i.e., coating, foil) specific to the proposed curing method and recommended repair (patching) procedure if applicable.
- C. Resin - including the manufacturer and description of product components including

the spectroscopic wavelength diagram for the resin being furnished as well as mechanical properties, corrosion data and creep data.

- D. Manufacturers' shipping, storage and handling recommendations for all components of the CIPP system.
- E. Safety Data Sheets (SDS) for all materials to be furnished for the project.
- F. Tube wet-out and cure method including:
 - 1. A description of the wet-out procedure for the proposed technology. In the case of tubes wet-out by a third party, the wet-out information from the third-party source.
 - 2. The Manufacturer's recommended cure method for each diameter and thickness of CIPP to be installed. The PWS shall contain a detailed curing procedure outlining the curing medium, the method of application and how the curing process will be monitored (e.g., temperatures, pressure, output of light, rate of travel of light train assembly).
- G. Compensation for all work required for the submittal of product data shall be included in the Lump Sum price contained in the Proposal for Mobilization.

Worker safety should be the number one priority on a job site. No work should start until the Contractor submits a safety plan, and all work should be conducted in accordance with the safety plan. The plan should be sufficiently detailed to describe daily safety meeting requirements, procedures and documentation. Emergency procedures and location of medical facilities should be identified

1.5 SAFETY

- A. The Contractor shall conform to work safety requirements of pertinent regulatory agencies and shall secure the site for the working conditions in compliance with the same. The Contractor shall erect signs and other devices as are necessary for the safety of the work site.
- B. The Contractor shall perform the Work in accordance with applicable OSHA standards. Emphasis shall be placed upon the requirements for entering confined spaces and with the equipment being utilized for pipe renewal.
- C. The Contractor shall submit a proposed Safety Plan to the Owner prior to beginning any work, identifying all competent persons. The plan shall include a description of a daily safety program for the job site and all emergency procedures to be implemented in the event of a safety incident. The Safety Plan shall include safety recommendations for mitigating styrene emissions on heat-cure CIPP job sites that have a potential to

pose health risks to workers. Refer to TTC's Emissions Phase 2 and Phase 3 Reports and NASSCO's Styrene Guideline (See 1.2 REFERENCES). Work shall be conducted in accordance with the Contractor's submitted Safety Plan.

- D. Compensation for work required for the submittal of the Safety Plan shall be included in the pipelining items contained in the Proposal.

1.6 QUALITY CONTROL PLAN (QCP)

A Quality Control Plan (QCP) should be submitted by the Contractor. The QCP should include a discussion of the proposed quality controls to be performed by the Contractor, including material protection and handling, equipment operation and documentation requirements. The Contractor personnel, including names and cell phone numbers for those that are responsible for assuring that all quality requirements are met, should be identified and submitted.

- A. A Quality Control Plan (QCP) that represents and conforms to the requirements of these specifications shall be submitted to the Owner. At a minimum the QCP shall include the following:
 - 1. A discussion of the proposed quality controls to be performed by the Contractor.
 - 2. Defined responsibilities, of the Contractor's personnel, for assuring that quality requirements for this contract are met. These shall be assigned by the Contractor to specific personnel.
 - 3. Proposed procedures for quality control, product sampling and testing shall be defined and submitted as part of the plan.
 - 4. Proposed methods for product performance controls, including method of and frequency of product sampling and testing both in raw material form and cured product form.
 - 5. Scheduled performance and product test result reviews between the Contractor and the Owner at a regularly scheduled job meeting.
 - 6. Inspection forms and guidelines for quality control inspections shall be prepared in accordance with the standards specified in this contract and submitted with the QCP.

Success of a CIPP installation leverages an industry standard of care performance specification and an inspector that understands CIPP quality control procedures required on a project. The inspector should be trained and knowledgeable in where the product is applicable, technology procedures, material wet-out, curing requirements, acceptability standards and required testing.

1.7 CIPP REPAIR/REPLACEMENT

As part of the PWS, the Contractor should submit repair and replacement procedures for common CIPP defects. Defects should be categorized as those that need no repair, those that can be repaired and those that must be removed and replaced. Defects that affect the operation and/or longevity of the CIPP should be repaired or replaced.

- A. Occasionally installations will result in the need to repair or replace a defective CIPP. The Contractor shall outline specific repair or replacement procedures for potential defects that may occur in the installed CIPP. Repair/replacement procedures shall be as recommended by the CIPP system manufacturer and shall be submitted as part of the PWS.
- B. Defects in the installed CIPP that will not affect the operation and long-term life of the product shall be identified and defined.
- C. Repairable defects that may occur in the installed CIPP shall be specifically defined by the Contractor based on manufacturer's recommendations, including a step-by-step repair procedure, resulting in a finished product meeting the requirements of these contract specifications.
- D. Unrepairable defects that may occur to the CIPP shall be clearly defined by the Contractor based on the manufacturer's recommendations, including a recommended procedure for the removal and replacement of the CIPP.

1.8 AS-BUILT DRAWINGS/RECORDS

As-Built drawings/records include the identification of the work completed by the Contractor and should include the pre- and post-inspection documentation. As-Built drawings /records should be kept current and should be available on the project site at all times. As-Built drawings/records can be in the form of actual drawings, either paper or electronic, spreadsheets or Word documents.

- A. As-Built drawings/records, pre and post inspection videotapes, CDs or other electronic media shall be submitted to the Owner, by the Contractor, within 2 weeks of final

acceptance of said work or as specified by the Owner. As-Built drawings/records will include the identification of the work completed by the Contractor and shall be prepared on one set of Contract Drawings/Records provided to the Contractor at the onset of the project.

- B. As-Built drawings/records shall be kept on the project site at all times, shall include all necessary information as outlined in the PWS or as agreed to by the Owner and the Contractor at the start of the Contract, shall be updated as the work is being completed and shall be clearly legible.
- C. Compensation for work required for the submittal and approval of As-Built drawings/records shall be included in the various pipelining items contained in the Proposal.

1.9 WARRANTY

The Contractor should warrant the CIPP material and installation for a period as specified. If required by the Owner, the Contractor should warrant defective work that has been repaired for an extended period as agreed. After completion of the work but before the warranty period has expired, the owner should inspect a portion of the rehabilitated system. Initial warranty inspection should include up to 15% of the completed work. The warranty inspection should be based on the recommendations documented by the project inspector during the execution of the project. Defects found should be remedied in accordance with the repair/replacement plan submitted in the PWS. Depending on the frequency of defects found, the Owner may inspect more installations, as necessary.

- A. The materials used for the project shall be certified by the manufacturer for the specified purpose. The Contractor shall warrant the CIPP material and installation for a period of one (1) year. During the Contractor warranty period, any defect which may materially affect the integrity, strength, function and/or operation of the pipe, shall be repaired at the Contractor's expense in accordance with procedures included in Section 1.7 CIPP Repair/Replacement and as recommended by the manufacturer.
- B. For work completed by the Contractor that is defective and/or has been repaired, the Contractor shall warrant this work for (1) year in addition to the warranty required by the contract.
- C. After a pipe section has been rehabilitated and for a period of time up to one (1) year following completion of the project, the Owner may inspect all or portions of the rehabilitated system. The specific locations will be selected at random by the Owner's inspector and should include all sizes of CIPP from this project. If it is found that any of the CIPP has developed abnormalities since the time of "Post Construction Television Inspection," the abnormalities shall be repaired and/or replaced as defined in Section 1.7 CIPP Repair/Replacement and as recommended by the manufacturer.

If, after inspection of a portion of the rehabilitated system under the contract, problems are found, the Owner may televise all the CIPP installed on the contract. All verified defects shall be repaired and/or replaced by the Contractor and shall be performed in accordance with Section 1.7 CIPP Repair/Replacement and per the original specifications, all at no additional cost to the Owner.

PART 2 PRODUCTS

2.1 MATERIALS

The cured CIPP product must meet the chemical resistance requirements specified as referenced in the relative ASTM standard(s) F1216, ASTM F1743, ASTM D5813 (Section 6.4.1), or ASTM F2019. The tested product should be the same type of tube and resin used on the project. Chemical resistance testing is a qualification test that is typically completed by the resin manufacturer who then certifies that the product meets the specified requirement. This certification, which can be accompanied by the test report, is submitted by the contractor prior to the start of the project.

- A. The CIPP System must meet the chemical resistance requirements of these contract documents.
- B. Materials shipped to the project site shall be accompanied by test reports certifying that the material conforms to the appropriate ASTM standards listed herein. Materials shall be shipped, stored, and handled in a manner consistent with written recommendations of the CIPP system manufacturer to avoid damage. Damage includes, but is not limited to, gouging, abrasion, flattening, cutting, puncturing or ultra- violet (UV) degradation. On-site storage locations shall be approved by the Owner. Damaged materials shall be promptly removed from the project site at the Contractor's expense and disposed of in accordance with all current applicable agency regulations.

2.2 TUBE

The tube is the vehicle that carries the resin into the pipeline and holds the resin in place prior to and during cure. The thickness of the tube and installation procedures determine the finished thickness of the CIPP. A properly designed and specified tube is critical to achieving the specified finished CIPP thickness.

- A. The tube shall consist of one or more layers of absorbent non-woven felt fabric, felt/fiberglass, felt/carbon fiber, carbon fiber or fiberglass and meet the material requirements of ASTM F1216, ASTM F1743, or ASTM F2019 and ASTM D5813 as applicable. The tube shall be capable of absorbing and carrying resins, constructed to withstand installation pressures and curing temperatures and have sufficient strength to bridge missing pipe segments and stretch to fit irregular pipe sections. The

Contractor shall submit certified information from the tube manufacturer on the nominal void volume in the felt fabric that will be filled with resin or the recommended saturation rates using the proposed resin.

- B. The wet-out tube ("liner") shall have a uniform thickness and excess resin distribution that when compressed at installation pressures will meet or exceed the design thickness after cure.
- C. The tube shall be manufactured to a size and length that when installed will tightly fit the internal circumference of the original pipe. Allowance shall be made for circumferential stretching during installation. The tube shall be properly sized to the diameter of the existing pipe and the length to be rehabilitated and be able to tolerate circumferential changes to fit irregular pipe sections and negotiate bends. The Contractor shall determine the minimum tube length necessary to effectively span the designated run between manholes. The Contractor shall verify the lengths in the field prior to ordering and prior to impregnation of the tube with resin to ensure that the tube will have sufficient length to extend the entire length of the run. The Contractor shall also measure the inside diameter of the existing pipelines in the field prior to ordering tube so that the CIPP can be installed in a tight-fitting condition.
- D. The outside and/or inside layer of the tube (before inversion/pull-in, as applicable) shall be coated or covered with an impermeable, flexible membrane that will contain the resin and facilitate, if applicable, vacuum impregnation and monitoring of the resin saturation during the resin impregnation (wet-out) procedure.
- E. No material shall be included in the tube that may cause delamination in the cured CIPP. No dry or unsaturated layers shall be acceptable upon visual inspection as evident by color contrast between the tube and the activated resin containing a colorant, if a colorant is utilized.
- F. The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made. The color contrast shall be sufficient to distinguish between the fully resin saturated tube and dry or resin lean areas.
- G. Seams in the tube, if applicable, shall meet the requirements of section 7.1 of ASTM F1743.
- H. The outside of the tube shall be marked at a maximum of every 5 feet with the name of the manufacturer or CIPP system, manufacturing lot and production footage.
- I. The minimum length of the tube shall be that deemed necessary by the installer to effectively span the distance from the starting manhole to the terminating manhole or access point, plus that amount required to run-in and run-out for the installation process.

- J. The nominal tube wall thickness shall be constructed, as a minimum, to a sufficient thickness that exceeds the required design thickness for that section of installed CIPP. Wall thickness transitions may be fabricated into the tube between installation entrance and exit access points. The volume of resin used in the impregnation shall be sufficient to fully saturate the tube.

2.3 RESIN

In felt tube CIPP, the resin is the structural pipe. In reinforced tube CIPP, the resin is important in providing the structural matrix so that the reinforcing fibers can significantly increase the CIPP's mechanical properties. Thus, it is important that the applicable resin for the pipe's flow characteristics is specified and delivered to the wet-out facility. The project representative should verify that the resin specified or substituted by the Contractor meets the contract specified requirements. The inspector should verify that the specified or approved resin is supplied by the Contractor and correct amount of resin is added to the tube at the wet-out facility. This information can be verified from the spectroscopic wavelength diagram of the resin, the tube wet-out report and standard resin saturation charts furnished from the suppliers of the resin and tube.

- A. The resin shall be a corrosion resistant polyester or vinyl ester resin and catalyst system or epoxy resin and hardener system that, when properly cured within the tube composite, meets the requirements of ASTM F1216, ASTM F1743 or ASTM F2019, the mechanical properties herein, and those which are to be utilized in the design of the CIPP for this project. The resin, specified for the specific application defined in the contract documents, shall produce CIPP which will comply with or exceed the structural and chemical resistance requirements of this specification.
- B. The resin to tube ratio, by volume, shall be furnished as recommended by the CIPP tube manufacturer.

2.4 STRUCTURAL REQUIREMENTS

The calculated design thickness typically determines the minimum installed CIPP thickness. However, in small diameter CIPP, such as 8", the calculated thickness may be quite small depending upon the design loads. The minimum installed CIPP thickness in these cases should consider the minimum thickness required for maintenance activities such as pressure jetting and abrasion and damage from materials and objects in the pipe flow. Also, the risk of leakage through the CIPP wall increases as the wall becomes thinner. Under these circumstances, a minimum wall thickness greater than the calculated design thickness may be prudent. The type of CIPP product, for example felt or glass tube, should be considered.

- A. The mechanical properties and physical characteristics of the finished CIPP will vary

considerably, depending on the types and mixing proportions of the materials used and the degree of cure executed. It shall be the responsibility of the Contractor to control these variables and to provide a CIPP system which meets or exceeds the minimum properties specified herein or as submitted in the PWS.

- B. The CIPP shall be designed as per ASTM F1216 Appendix X1, ASTM F2019 Appendix X1, or ASCE MOP 145. The CIPP design shall assume no bonding to the original pipe wall.
- C. The design engineer shall set the long-term (50 year extrapolated) Creep Retention Factor at 50% of the initial design flexural modulus as determined by ASTM D790 test method. This value shall be used unless the Contractor submits long-term test data (ASTM D2990) to substantiate a higher retention factor.
- D. The cured pipe material ("CIPP") shall, at a minimum, meet or exceed the mechanical properties, as listed below or as submitted in the PWS.

2.5 MINIMUM MECHANICAL PROPERTIES

Property	Test Method	Cured Composite Per ASTM F1216 or F1743	Cured Composite Per ASTM F2019	Cured Composite Per Design
Flexural Modulus of Elasticity	ASTM D790	250,000 psi	Declared Value but not less than 725,000 psi	Contractor Value
Flexural Strength	ASTM D790	4,500 psi	Declared Value but not less than 15,000 psi	Contractor Value

- A. The required CIPP wall thickness shall be based, as a minimum, on the mechanical properties of the cured composite and per the design of the Professional Engineer (see section 1.3.G) and in accordance with the design equations contained in Appendix X1 of ASTM F1216, Appendix X1 of ASTM F2019, or ASCE MOP 145 and the following design parameters:

Design Safety Factor	2.0 (1.5 for pipes 36" or larger, if applicable)
Creep Retention Factor	50% or otherwise verified by test data
Ovality	2% or as measured by field inspection
Constrained Soil Modulus	Per AASHTO LRFD Section 12 and AWWA Manual M45
Groundwater Depth	As specified or indicated on the Plans
Soil Depth (above the crown)	As specified or indicated on the Plans
Live Load	Highway, railroad, airport or permanent structures as applicable
Soil Load (assumed)	120 lb./cu. ft. or as specified

ASCE MOP 145 does not use a safety factor and includes three Design States [I, II, or III]. MOP 145 design is based on LRFD (load and resistance design factors), and the appropriate parameters depend on the Design State used and are defined in the MOP.

- B. The Contractor shall submit, prior to installation of the lining materials, certification of compliance with these specifications and/or the requirements of the pre-approved CIPP system. Certified material test results shall be included that confirm that materials conform to these specifications and/or the pre-approved system. Materials not complying with these requirements will be rejected.
- C. The design soil modulus may be adjusted based on data, determined from project soil testing results, as provided by the Owner in the contract documents.

PART 3 INSTALLATION

3.1 CONSTRUCTION REQUIREMENTS

The construction requirements cover on-site activities needed for proper installation of the CIPP product. Construction activities (cleaning, inspection, measurement, bypass, etc.) should have been explained in the PWS submitted by the Contractor. Inspection and testing requirements, during construction, should be defined for the Contractor and the inspector. The Contractor shall keep wet-out and curing logs for inspection by the Owner or Owner's project representative.

- A. The liner shall be constructed of materials and methods that, when installed, shall

provide a continuous structurally sound CIPP able to withstand all imposed static and dynamic loads on a long-term basis as required in the specifications.

- B. The Contractor may, under the direction of the Owner, utilize existing manholes in the project area as installation access points. If a street must be closed to traffic because of the location of the sewer, the Contractor shall furnish a detailed traffic control plan with necessary labor and equipment. The plan shall be in conformance with the requirements of the local agency having jurisdiction over traffic control.
- C. Cleaning of Pipelines – Before ordering tube materials for the project, the Contractor shall remove debris from inside the pipeline that will interfere with the installation and the final product delivery of the CIPP, as required in these specifications, and accurately measure and document the diameter and length of the existing pipeline to be rehabilitated. Solid debris and deposits shall be removed from the system and disposed of properly by the Contractor. Moving material from manhole section to manhole section shall not be allowed. As applicable, the Contractor shall either plug or install a flow bypass pumping system to properly clean the pipelines. Precaution shall be taken by the Contractor in the use of cleaning equipment to avoid damage to the existing pipe. The repair of any damage, caused by the cleaning equipment, shall be the responsibility of the Contractor. The Owner will designate a site for the disposal of debris removed from the Owner's sewer system as a result of the cleaning operation. Unless otherwise specified by the Owner, the Contractor shall dispose of debris at no charge. Should dumping fees apply, the Contractor shall be compensated at the respective unit price bid in the Proposal for cleaning.
- D. Bypassing Existing Flows - The Contractor shall provide for the flow of existing mainline and service connection effluent, if applicable, around the section or sections of pipe designated for CIPP installation. With most small diameter pipelines, particularly on terminal sewers, plugging will be adequate but must be monitored on a regular basis to prevent backup of sewage into adjacent homes. Service connection effluent may be plugged, if required, only after proper notification to the affected residence and may not remain plugged overnight. Installation of the CIPP shall not begin until the Contractor has installed the required plugs, or a sewage bypass system, and all pumping facilities have been installed and tested under full operating conditions including the bypass of mainline and side sewer flows, if required. Once the installation has begun, existing flows shall be maintained, until the CIPP is fully cured, cooled down, fully televised and the CIPP ends finished. The Contractor shall coordinate sewer bypass and flow interruptions with the Owner at least 7 days in advance. The pump and bypass lines shall be of adequate capacity and size to handle peak flows. The Contractor shall submit a detail of the bypass plan and design to the Owner before proceeding with any CIPP installation. Compensation for bypass pumping and all associated plans and approvals shall be at the price bid in the Proposal.
- E. Contractor shall perform post-cleaning video inspections of the pipelines. Only PACP certified personnel trained in locating defects, obstacles and service connections by

closed circuit television shall perform the inspection. The Contractor shall provide the Owner a copy of the pre-cleaning and post-cleaning video and suitable log, and/or in digital format, for review prior to installation of the CIPP and for later reference by the Owner.

- F. Line Obstructions - It shall be the responsibility of the Contractor to clear the line of obstructions that will interfere with the installation and long-term performance of the CIPP. If pre-installation inspection reveals an obstruction, misalignment, broken or collapsed section or sag that was not identified as part of the original scope of work and will prohibit proper installation of the CIPP, the Contractor may be directed by the Owner to correct the problem(s) prior to installation by utilizing open cut repair methods. The Contractor shall be compensated for this work under a contingency pay item designated for open cut point repairs. Removal of previously unknown obstructions shall be considered as a changed condition. The cost of removal of obstructions that appeared on pre-bid video documentation and made available to the Contractor, prior to the bid opening, shall be compensated for on a unit price basis in accordance with the contract documents.
- G. The Contractor shall be responsible for confirming the locations of all branch service connections prior to installing the CIPP. If required in the contract documents, each connection will be dye tested to determine whether or not the connection is live or abandoned. Other approved methods to confirm live connections are acceptable. The cost for dye testing of existing service connections shall be compensated at the unit price bid in the Proposal for Dye Testing of Existing Service Connections. In the event the status of a service connection cannot be adequately defined, the Owner will make the final decision, prior to installation of the CIPP, as to the status. Typically, only service connections deemed "active" shall be reopened by the Contractor.
- H. The Contractor shall be allowed use water from an owner-approved fire hydrant in the project vicinity. Use of an approved double check backflow assembly shall be required. Contractor shall provide his own approved assembly. Contractor shall pay current market price for all water usage.

3.2 INSTALLATION OF CIPP

It is important that the CIPP be installed in accordance with the manufacturer's recommendations. These procedures should have been outlined in the PWS submitted by the Contractor. Recommended procedures that should be monitored include: Installation speed and pressure, the cure schedule and curing temperature monitoring must be maintained and documented, as recommended by the manufacturer. Chemical grouting should be utilized, or a pre-liner should be installed, where the infiltration into the pipeline is excessive and may affect the cure and/or the final structure of the CIPP unless the tube has an outer coating or film.

- A. The CIPP shall be installed and cured in the host pipe per the manufacturer's specifications as described and submitted in the PWS.
- B. CIPP installation shall be in accordance with the applicable ASTM standards as modified in this Section 3.2.
- C. If significant groundwater infiltration is present in the existing sewer, such as PACP defects coded "infiltration gusher" or multiple "runners", the Contractor shall install a preliner or perform chemical grouting to control resin loss and contamination, maintain CIPP thickness, prevent mechanical property reduction and prevent inadequate curing of the CIPP resulting from water or other contamination of the resin during installation. The preliner shall be a plastic tube to fit the existing pipeline and shall be continuous from manhole (access) to manhole (access). Preliners are not required in this situation when using pulled-in liners with exterior coatings or in the case of light cured liners (i.e., UV or LED) that contain an outer membrane.
- D. The liner shall be positioned in the pipeline using the method specified by the manufacturer. Care should be exercised not to damage the liner during installation. The liner should be pulled-in or inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point in accordance with ASTM F1216, ASTM F1743, or ASTM F2019, and the manufacturer's recommendations.
- E. When Using Hot Water or Steam Cure: Prior to installation and as recommended by the manufacturer, remote temperature gauges or sensors shall be placed inside the host pipe to monitor the temperatures during the cure cycle. CIPP and/or host pipe interface temperature shall be monitored and logged during cure.

To monitor the temperature of the CIPP wall and to verify correct curing, where specified by the contract documents, temperature monitors can be placed between the host pipe and the CIPP in the bottom of the host pipe (invert) at manholes or access points and/or throughout its entire length (continuous) to monitor the temperature on the outside of the CIPP during the curing process.

Curing shall be accomplished by utilizing the appropriate medium in accordance with the manufacturer's recommended cure procedure and/or schedule. The curing source or in and output temperatures shall be monitored and logged during the cure cycles, if applicable. The manufacturer's recommended cure method and schedule shall be used for each line segment installed, and the CIPP wall thickness and the existing ground conditions with regard to temperature, moisture level, and thermal conductivity of soil shall be taken into account by the Contractor.

If any temperature sensor or continuous sensor location does not reach the temperature as specified by the manufacturer to achieve proper curing or cooling, the installer can make necessary adjustments to comply with the manufacturer's recommendations. For continuous temperature monitoring, the system computer should have an output report that specifically identifies stations along the length of pipe, indicates the maximum temperature achieved and the sustained temperature time at the stations. At each station along the length of the pipe, the computer should record both the maximum temperature and the minimum cool down temperature and comply with the manufacturer's recommendations.

When using hot water or steam cure methods, monitoring cure temperatures is important for verifying the correct cure of the resin. Temperatures can be monitored continuously in time and location throughout the pipeline being rehabilitated by using a fiber optic cable sensing system installed in the pipe invert prior to CIPP installation. Continuous monitoring systems are computer controlled with a real-time screen display and can be monitored by any smart device. This is especially useful for critical sewers and medium to large diameter sewers. As a minimum, standard thermocouples, which measure temperatures at one point, should be used, typically at the pipe invert in the termination manhole. Often thermocouples are used in addition to continuous monitoring systems to verify proper cure of the CIPP.

- F. When Using Photoinitiated Reaction (i.e., UV or LED light cure): A protocol shall be defined by the manufacturer and recorded during the cure process and maintained as documentation to verify cure. Data collected shall include time, rate of travel of the light curing assembly for dynamic curing processes, pressures, temperature in the liner and the power output of the light assembly along the entire length of the installed CIPP. The cure procedure shall be in accordance with ASTM F1216, ASTM F1743, or ASTM F2019 and the manufacturer's recommendation as included in the PWS submission by the Contractor.

3.3 COOL DOWN

Proper cool down of CIPP is important to help minimize CIPP shrinkage and cracking. The temperature profile and times required should be provided as a part of the cure schedule. Short cuts that reduce the cool down time should not be allowed.

- A. The Contractor shall cool the CIPP in accordance with the approved CIPP manufacturer's recommendations as described and outlined in the PWS.
- B. Temperatures and curing data shall be monitored and recorded by the Contractor throughout the installation process to ensure that each phase of the process is achieved as approved in accordance with the CIPP system manufacturer's recommendations.

3.4 FINISH

Any defect which could affect the structural integrity or longevity of the CIPP should be repaired. Sealing the ends of the CIPP at manholes and at service connection openings, if specified, is important in cases where the sewer is below the groundwater surface elevation. Leaks through the wall of the CIPP are considered a defect.

- A. The installed CIPP shall be continuous over the entire length of a sewer line section and be free from visual defects such as foreign inclusions, dry spots, pinholes, major wrinkles and delamination. The CIPP shall be impervious and free of leakage through the CIPP wall.
- B. Any defect which will or could affect the structural integrity or strength of the CIPP shall be repaired at the Contractor's expense in accordance with the procedures submitted under Section 1.7 CIPP Repair/Replacement.
- C. The beginning and end of the CIPP shall be sealed to the existing host pipe, if specified. The sealing material shall be compatible with the pipe end and shall provide a watertight seal.
- D. If any of the service connections leak water between the host pipe and the installed CIPP, the connection mainline interface shall be sealed, if required by these specifications, to provide a leak tight connection.
- E. If the wall of the CIPP leaks, it shall be repaired or removed and replaced with a watertight pipe as recommended by the manufacture of the CIPP system.
- F. Compensation shall be at the actual length of CIPP installed. The length shall be measured from center of manhole to center of manhole. The unit price per linear foot installed shall include materials, labor, equipment and supplies necessary for the complete CIPP installation. Compensation for service connection sealing and pipe sealing at the manhole/wall interface shall be at the unit price bid in the Proposal.

The long-term structural capability of the existing underground pipeline is defined by the pipe design and the surrounding soil structure. When a CIPP is installed through an existing pipe that represents such defects as soil visible or soil missing, the engineer should consider that the soils be replaced using a flowable fill technique to provide soils support for the newly installed CIPP.

3.5 FLOWABLE FILL OF VOID AREAS

- A. Where required by the Owner, the Contractor shall backfill known voids that remain

after installation of CIPP. The material shall be of the flowable fill type and shall be injected into the void while removing all trapped air from the void. The Contractor shall submit the proposed method of placing the flowable fill, including pressures that will not collapse the CIPP and air release method to be employed, to the Owner for review before material is installed. The cost of this work shall be at the unit price bid for flowable fill and include all material, equipment, and labor to complete the filling of the soil void

3.6 MANHOLE CONNECTIONS AND RECONNECTIONS OF EXISTING SERVICES

The most common method of sealing the CIPP at manholes is to install a hydrophilic rubber seal prior to installing the CIPP. Sealing the CIPP at manholes after the CIPP has been installed is possible but less effective. Side connections should be cut open to at least 90%-95% of the original service connection opening area. In all cases, the invert of the lateral connection shall be cut flush with the invert entering the mainline to eliminate debris build-up.

- A. A seal, consisting of a resin mixture or hydrophilic seal compatible with the installed CIPP, shall be applied at manhole/wall interface, if specified, in accordance with the CIPP System manufacturer's recommendations.
- B. Existing services shall be internally or externally reconnected unless indicated otherwise in the contract documents
- C. Reconstructions of existing services shall be made after the CIPP has been installed, fully cured, and cooled down. It is the Contractor's responsibility to make sure that all active service connections are reconnected. If verification of active service connections requires techniques beyond standard mainline CCTV then a separate bid item shall be included.

Verification of active services can be completed using many options such as dye testing, CCTV via lateral launching from the main, connection records from the Owner or other means. Methods requiring the Contractor to extend resources beyond mainline CCTV should be separate bid items.

- D. External reconstructions are to be made with a tee fitting or other approved method in accordance with CIPP System manufacturer's recommendations. Saddle connections shall be seated and sealed to the new CIPP using grout or resin compatible with the CIPP.
- E. A CCTV camera and remote cutting tool shall be used for internal reconstructions. The machined opening shall be at least 90 percent of the service connection opening area and the bottom of both openings must match. The opening shall not be more than 100 percent of the service connection opening. The edges of the opening shall not have

pipe fragments or CIPP fragments which may obstruct flow or snag debris. In all cases the invert of the service connection shall be cut flush with the invert entering the mainline.

- F. If service reinstatements result in openings that are greater than 100 percent of the service connection opening, the Contractor shall install a CIPP type repair, sufficiently in size to completely cover the over-cut service connection. No additional compensation will be paid for the repair of over-cut service connections.
- G. Coupons or fragments of CIPP material resulting from service tap cutting shall be collected at the next manhole downstream of the pipe rehabilitation operation prior to leaving the site. Coupons may not be allowed to pass through the system.
- H. Compensation shall be at the actual number of services reconnected using either internal or external means as contained in the Proposal. The unit price bid per service line reconnected shall include all materials, labor, equipment and supplies necessary to complete the work as required in these specifications.

3.7 TESTING OF INSTALLED CIPP

CIPP mechanical properties should be verified through field sampling and independent testing. Samples shall be taken from the CIPP section installed and should be properly marked and transmitted to an independent testing laboratory or obtained from the project site by a laboratory representing the Owner. Test results should be transmitted from the laboratory to the Owner's representative. Sampling should be in accordance with ASTM F1216, ASTM F1743, or ASTM F2019 as applicable, and a chain of custody should be strictly maintained. Restrained samples can be used for sewers of 18" diameter or less. Plate samples are used for pipelines larger than 18" diameter. Samples should be acquired as directed and specified by the Owner or the Contract documents.

- A. The mechanical properties and thickness of the installed CIPP shall be verified through field sampling and laboratory testing. All materials for testing shall be furnished by the Contractor to the Owner for testing. All materials testing shall be performed at the Owner's expense by an independent third-party laboratory selected by the Owner as recommended by the CIPP manufacturer. All tests shall be in accordance with applicable ASTM test methods to confirm compliance with the requirements specified in these contract documents, or as submitted in the PWS. Tubes constructed of fiberglass and cured by light (i.e., photoinitiated reaction) shall be tested in accordance with Appendix X2 of ASTM F2019.
- B. The Contractor shall provide samples for testing to the Owner from the actual installed CIPP. Samples shall be provided from each section of CIPP installed or as required by the Owner. The sample shall be cut from a section of cured CIPP that has been inverted or pulled through a like diameter pipe which has been held in place by a

suitable heat sink, such as sandbags. All curing, cutting and identification of samples will be witnessed by the Owner and transmitted by the Owner's representative as specified, and sent to the testing laboratory. Flat plate samples can be taken on pipelines greater than 18 inches in diameter, if specified. Identification on the samples shall include markings indicating the direction of reinforcement when used in tube construction and shall be standard chain of custody markings.

- C. The laboratory results shall identify the test sample location as referenced to the nearest manhole and station. Final payment for the project shall be withheld pending receipt and approval of the test results. If properties tested do not meet the minimum mechanical and thickness requirements, the CIPP shall be repaired or replaced by the Contractor unless the actual mechanical properties and the thickness of the sample tested meet the design requirements as required in the contract.

Chemical resistance is a qualification test where CIPP samples tested should be of the tube and resin proposed for the actual construction. For municipal applications, a certification is typically submitted from the manufacturer verifying that the chemical resistance meets the contract requirements. For industrial installations, the chemical resistance of the resin installed must be tested to meet the corrosion resistance requirements of the pipeline being rehabilitated.

- D. Chemical resistance - The CIPP system installed shall meet the chemical resistance requirements of the relevant ASTM standard(s) F1216, ~~or~~ ASTM F1743, ASTM D5813 (section 6.4.1), or ASTM F2019. CIPP samples tested shall be of the tube and the specific resin proposed for actual construction. It is required that CIPP samples without plastic coating meet these chemical testing requirements. A certification may be submitted, by the Contractor, from the manufacturer verifying that the chemical resistance of the CIPP meets the contract requirements.
- E. Hydraulic Capacity - The installed CIPP shall, at a minimum, be equal to the full flow capacity of the original pipe before rehabilitation. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition.
- F. The installed CIPP thickness shall be measured for each line section installed as per the ASTM requirements specified. If the CIPP thickness does not meet that specified in the contract and submitted as the approved design by the Contractor, then the CIPP shall be repaired or removed unless the tested mechanical properties and the thickness of the sample tested meet the design requirements as required in the contract. The CIPP thickness shall have tolerance of minus 5%. In worker-entry size piping, where sampling is by flat plate, a quality-based approach using the approved quality plan will be used to accept installed thickness (see discussion in following text box). If the plate sample does not meet the required mechanical property values, or if quality checks are deficient, it may be necessary for the Contractor to remove a core sample from the CIPP 12 o'clock position to check thickness. The openings produced from core samples shall be repaired in accordance with manufacturer's recommended

procedures.

For small diameter CIPP of 18" inch diameter or less, the restrained sample can be measured for thickness. In sewers larger than 18-inch diameter the flat plate sample can be tested for thickness, but a flat plate can be constructed in any thickness. The thickness can be measured in a manhole once the CIPP ends are cut, but this may result in a low measurement due to resin loss and thinning. A quality-based approach can be used where it is determined that if all the quality checks are met, the likelihood of the CIPP installed thickness meeting the required minimum installed thickness is good. For example, if the dry tube is the correct thickness, the correct type and amount of resin is added during wet-out, and the correct pressures, temperatures and procedures are used during installation and cure, the installed thickness should meet the design minimum thickness. If the plate sample does not meet the required physical property values, or if any quality checks are deficient, it may be necessary to remove a core sample from the CIPP at the 12:00 o'clock position to check thickness. The core hole shall be repaired as recommended by the manufacturer.

- G. All costs to the Contractor associated with providing cured CIPP samples for testing shall be included in the Lump Sum price bid for Mobilization. Payment for all testing by a laboratory will be paid for by the Owner directly to the laboratory under the lump sum Reserve for Testing item in the Bid Proposal.

3.8 FINAL ACCEPTANCE

Sample testing and repairs to the CIPP should be completed. Test results must have been received from the independent laboratory and meet the contract specified requirements prior to final acceptance of the installed CIPP.

- A. CIPP sample testing and repairs to the installed CIPP, as applicable, shall be completed before final acceptance, meeting the requirements of these specifications, and documented in written form.

Prior to conducting the final CCTV, the Contractor should thoroughly clean the newly installed CIPP. Sewage flow in the line should be minimized, and standing water in sags should be cleared. The CCTV visual quality of the final inspection shall be as specified in the contract. If the quality does not meet the specified requirements, the Contractor shall re-CCTV those section that are unacceptable.

- B. The Contractor shall perform a closed-circuit television inspection in the presence of the Owner after installation of the CIPP and reconnection of the side sewers per PACP requirements. Conventional pan-and-tilt TV camera or sidewall scanning technology, as approved by Owner, shall be used. The finished CIPP shall be continuous over the entire length of the installation and shall be free of significant visual defects, damage, lifts, holes, leaks and other defects that are not a reflection of the existing pipe condition. Unedited digital documentation of the inspection shall be provided to the

Owner within ten (10) working days of the CIPP installation. The data shall note the inspection date, location of all reconnected side sewers, debris, as well as defects in the CIPP, including, but not limited to, gouges, cracks, bumps, or bulges. If post installation inspection documentation is not submitted within ten (10) working days of the CIPP installation, the Owner may, at its discretion, suspend further installation of CIPP until the post-installation documentation is submitted. As a result of this suspension, no additional working days will be added to the contract, nor will adjustment be made for increase in cost. Immediately prior to conducting the CCTV inspection, the Contractor shall clean the newly installed CIPP removing debris and build-up that may have accumulated at no additional cost to the Owner.

Final CCTV inspection should be performed using water jets to eliminate standing water in sags and bellies while the line is being televised.

If required by the Owner in the specifications, leakage can be determined through visual inspection (water or air installations), hydrostatic testing (water installations), air testing (air installations) or infiltration testing (water or air installations). For small diameter sewers installed with air pressure (light cure or steam cure), it does not make sense to do hydrostatic (exfiltration) testing for leakage. This leaves visual inspection or air testing as viable alternatives.

For large diameter sewers, visual inspection for leakage is the most common method. Air and hydrostatic testing should not be performed for sewers greater than 36" diameter because of worker safety. Any unacceptable leakage through the CIPP wall should be repaired as required in the contract documents or agreed to by the owner.

- C. If required by the Owner in the specifications, and if the pipe diameter is less than or equal to 36", the CIPP shall be tested for leakage using the water exfiltration test (ASTM F1216 8.2) or a low pressure air test (refer to Appendix A). Testing is limited to pipe lengths with no reinstated service laterals and could delay service lateral reinstatement. Water exfiltration or air testing is not recommended in pipe diameters exceeding 36" diameter. In these cases, a visual inspection for leakage shall be performed, if specified.

Any unacceptable leakage through the CIPP wall should be repaired as required in the specifications or agreed to by the owner.

Not all CIPP line segments can be air tested because of end configurations in the manhole, shape of the CIPP and CIPP irregularities. It is recommended that only a set percentage of the line segments in any one project be tested in lieu of testing each line segment.

Low pressure air testing can be a dangerous operation. It is imperative that all safety protocols for plug operation & maintenance and air testing be followed, including proper blocking/bracing of plugs during the air test and limiting air tests to a maximum diameter of 36 inches.

- D. Bypass pumping or plugging from the upstream manhole shall be utilized to minimize sewage from entering the line during the inspection. In the case of bellies in the line, the pipe shall be cleared of standing water to provide continuous visibility during the inspection.

3.9 TYPICAL BID ITEMS

Additional items such as pre-liner and flowable backfill can be added to specific contracts requiring these items.

- A. Mobilization – Lump Sum - Includes all PWS information, submittals, safety plan, as-built drawings, testing samples, mobilization/demobilization of labor, equipment and materials to the project site. Generally limited to 5% of the total amount bid for the project.
- B. Pre-Installation CCTV Inspection – Per linear foot - Includes pre-cleaning and post cleaning CCTV for Owner review. Does not include CCTV inspection just prior to CIPP installation. All inspections will be performed by PACP trained and certified personnel.
- C. Dye Testing of Service Connections – Per each - Includes dye testing and documentation of existing service connection on each pipe length to be lined.
- D. Point Repairs – Per each or by Lump Sum Contingency - Includes excavation and restoration of a section or sections of pipe that are beyond rehabilitation using CIPP. Note: Point repair items shall be categorized by pipe size, a minimum length of excavation and depth category of excavation to be paid for in the Proposal. If point repairs are not identified in the contract documents, payment shall be on a contingency basis.
- E. Standard Pipe cleaning – Per linear foot for each pipe size category – including all labor, equipment, materials and cost of material disposal.
- F. Heavy Pipe Cleaning – Per linear foot for each pipe category – including all labor, equipment, materials and cost of material disposal.
- G. Preliner Installation – per linear foot installed by size category. Includes all labor, equipment and materials required.
- H. CIPP Installation – Per linear foot for each pipe size category - Includes all labor,

equipment and materials required for the complete installation of a CIPP.

- I. Flowable Fill – per cu. yd. of material installed and documented including all labor, equipment and materials required for the complete backfilling of soil voids.
- J. Traffic Control – Lump Sum – Includes all labor, equipment and materials required to implement a traffic control plan for the entire project and shall include all costs associated with sub-contracted traffic control specialists.
- K. Sewage Bypass – Lump Sum – Includes all labor, equipment and materials required to implement a flow bypass plan for the entire project, including the cost of all sub-contracted flow bypass specialists.
- L. Service Reconnections – Per each – Includes reconnecting existing live sewer service connections to the installed CIPP. Owner shall review and verify those connections that are not live and will be left unopened.
- M. Service connection sealing – Per each – Includes sealing the interface between the installed CIPP and the host pipe at the location of the service connection.
- N. Manhole/Wall Interface Sealing – Per each – Includes sealing the interface between the installed CIPP and the manhole wall.
- O. Post Construction CCTV Inspection - Per linear foot - Includes post lining CCTV for submission to the Owner. All inspections will be performed by PACP trained and certified personnel.
- P. Reserve for Testing – Lump Sum Reserve – For Owners use to include testing required as directed by the Owner, under this contract, by an independent laboratory. (The amount will be set by the Owner in the Bid Proposal)

****END OF SECTION****

Appendix A: Air Testing of CIPP

Pressure gauges used for this test shall have a minimum division of 0.1 psi and an accuracy of 0.0625 psi.

Test Procedure:

1. The tested pipe may be wet or dry.
2. The minimum test pressure should equal 3.5 psi plus 0.433 psi for each foot of average water or groundwater depth over the crown of the pipe. The maximum test pressure shall be 6 psi.
3. Slowly add air to the section of pipe being tested until the internal air pressure is raised to 4 psi greater than the average back pressure due to water or groundwater. The maximum air pressure shall be 6 psi.
4. Once the test pressure is reached, allow a period of time for the air temperature to stabilize. The stabilization period can vary from a few minutes to an hour or more dependent upon the temperature of the air and CIPP under test. Add air to maintain pressure.
5. After the temperature stabilization period, disconnect the air supply.
6. Record the time in seconds required for the air pressure to drop from 3.5 to 2.5 psi greater than the average back pressure due to water or groundwater.

Acceptance Criteria:

The tested section is acceptable if the time recorded is not less than the time in seconds (T):

$$T = K/C$$

Where:

K = the sum of the computations ($0.011d^2L$) for each size of CIPP and its length in the section

C = the sum of the computations ($0.0003882 dL$) for each size of CIPP and its length in the section; the minimum value for C = 1

d = inside diameter of CIPP in inches

L = length of CIPP in feet

If the tested section fails the air test (time recorded is less than T), check all connections of the test apparatus with soapy water for leaks. Complete another stabilization period (# 4 above) and retest. If the tested section fails again but the results are better (time recorded is still less than T but closer), the problem may be temperature stabilization or re-rounding or expansion of the CIPP. Repeat the stabilization/test cycle if results continue to improve until the section passes. If after repeated test/stabilization cycles the results are not improving, there is most likely a leak in the CIPP or the test apparatus.

If it is determined that there is a leak in the CIPP test section, then a visual test will be performed to locate the leak and repair it, if possible. Repairs will be in accordance with manufacturer's recommendations. Once repaired, the section should be retested.

Not all CIPP line segments can be air tested because of end configurations in the manhole, shape of the CIPP and CIPP irregularities such as wrinkles. It is recommended that only a set percentage (typically 10%) of the line segments in any one project be tested in lieu of testing each line segment.

Low pressure air testing can be a dangerous operation. It is imperative that all safety protocols for plug operation & maintenance and air testing be followed, including proper blocking/bracing of plugs during the air test and limiting air tests to a maximum diameter of 36 inches.

Table 1: Example Air Test Chart for Gravity Sewers

*Adapted from "Oregon Standard Specifications for Construction, 2015, Section 00445.72 Pipe Testing, pp. 330-331"

Table 1: Example Air Test Chart for Gravity Sewers

Example Air Test Chart for Gravity Sewers																		
Minimum Acceptance Time for Pressure Drop from 3.5 to 2.5 psi																		
Adapted from "Oregon Standard Specifications for Construction" (2015)																		
Diameter	6-inch			8-inch			10-inch			12-inch			18-inch			24-inch		
Length (ft.)	C	K	Minimum Time	C	K	Minimum Time	C	K	Minimum Time	C	K	Minimum Time	C	K	Minimum Time	C	K	Minimum Time
			Min.-Sec.			Min.-Sec.			Min.-Sec.			Min.-Sec.			Min.-Sec.			Min.-Sec.
100	1.00	35	0'-35"	1.00	64	1'-02"	1.00	100	1'-40"	1.00	146	2'-26"	1.00	329	5'-29"	1.00	585	9'-45"
150	1.00	53	0'-53"	1.00	93	1'-33"	1.00	150	2'-30"	1.00	219	3'-39"	1.01	493	8'-10"	1.34	877	10'-53"
200	1.00	70	1'-10"	1.00	125	2'-05"	1.00	200	3'-20"	1.00	292	4'-52"	1.34	658	8'-10"	1.79	1169	10'-53"
250	1.00	88	1'-28"	1.00	156	2'-36"	1.00	250	4'-10"	1.12	365	5'-27"	1.68	822	8'-10"	2.24	1462	10'-53"
300	1.00	105	1'-45"	1.00	187	3'-07"	1.11	300	4'-30"	1.34	439	5'-27"	2.01	987	8'-10"	2.68	1754	10'-53"
350	1.00	123	2'-03"	1.02	218	3'-33"	1.29	349	4'-30"	1.57	512	5'-27"	2.35	1151	8'-10"	3.13	2046	10'-53"
400	1.00	140	2'-20"	1.17	249	3'-33"	1.48	399	4'-30"	1.79	585	5'-27"	2.68	1316	8'-10"	3.58	2339	10'-53"
450	1.00	158	2'-38"	1.31	280	3'-33"	1.66	449	4'-30"	2.01	658	5'-27"	3.02	1480	8'-10"	4.03	2631	10'-53"
500	1.10	175	2'-40"	1.46	312	3'-33"	1.85	499	4'-30"	2.24	731	5'-27"	3.36	1644	8'-10"	4.47	2923	10'-53"
550	1.21	193	2'-40"	1.61	343	3'-33"	2.03	549	4'-30"	2.46	804	5'-27"	3.69	1809	8'-10"	4.92	3216	10'-53"
600	1.31	210	2'-40"	1.75	374	3'-33"	2.22	599	4'-30"	2.68	877	5'-27"	4.03	1973	8'-10"	5.37	3508	10'-53"
650	1.42	228	2'-40"	1.90	405	3'-33"	2.40	649	4'-30"	2.91	950	5'-27"	4.36	2138	8'-10"	5.82	3801	10'-53"
700	1.53	245	2'-40"	2.05	436	3'-33"	2.59	699	4'-30"	3.13	1023	5'-27"	4.70	2302	8'-10"	6.26	4093	10'-53"
Notes:																		
1. $C = (0.0003882)dL$																		
2. $K = (0.011)d^2L$																		
3. $T_{(Sec.)} = (K/C)$																		
4. If C is less than 1 use C =1																		
5. For project calculated minimum times, use actual inside diameter of CIPP																		
6. Calculations shown are for 4.5 mm CIPP for 6", 6 mm for 8", 10" & 12", 9 mm for 18" and 12 mm for 24"																		
7. If $C > 1$, $T_{(Sec.)} = 28.34d$																		

***APPENDIX A4 - Modification to NASSCO CIPP Installation
PSG (June 2023)***

Modification to CIPP Installation PSG

Section 1.1, part D – replace with the following:

The CIPP shall not leak at the manholes or through the wall of the installed pipe. The use of end seals shall be included to prevent infiltration tracking between the host pipe and CIPP and leaking into the CIPP at manholes.

- Section 1.3, Part D – replace with the following:

Contractor's description of the proposed CIPP technology, including a plan for identifying active service connections maintaining service, during mainline CIPP installation, to each home connected to the section of pipe being rehabilitated.

- Section 1.3, Part K – replace with the following:

A public notification plan shall be prepared and submitted including detailed staged notification to residences affected by the CIPP installation. A public notification plan includes the Resident Notification Letter that requires preapproval from the District.

CIPP installations commonly include the use of resins which contain a styrene component. These resins can emit a distinctive odor from the styrene component. To minimize this nuisance odor the contractor should devise an odor control plan that will mitigate the nuisance effect to the general public and residents at the project site during the CIPP installation.

- Section 2.4, Part B – replace with the following:

The CIPP shall be designed as per ASTM F1216 Appendix X1, ASTM F2019 Appendix X1, or ASCE MOP 145. The CIPP design shall assume no bonding to the original pipe wall. The required structural CIPP wall thickness shall be a minimum of 6 mm for pipe having a nominal diameter of 8" to 18" or based on the minimum mechanical properties in section 2.5 below or greater values if substantiated by independent lab testing and in accordance with the design equations in the Appendix X1.

- Section 2.5 MINIMUM MECHANICAL PROPERTIES – replace the value of “Flexural Modulus of Elasticity” for “Cured Composite Per ASTM F1216 or F1743” with the following:

400,000 psi

- Section 3.5, part A – replace with the following:

It is not part of this project.

- Section 3.6, part C - replace with the following:

Reconnections of existing services shall be made after the CIPP has been installed, fully cured, and cooled down. It is the Contractor’s responsibility to make sure that all active service connections are reconnected. The only technique required to verify active service connections for this project is mainline CCTV.

- Section 3.6, part H – replace with the following:

This section is deleted.

- Section 3.8, part C- replace with the following:

Any unacceptable leakage through the CIPP wall should be repaired as required in the specifications or agreed to by the owner.

- Section 3.9 TYPICAL BID ITEMS

This section is deleted.

***APPENDIX A5 – NASSCO Guideline for the Safe Use and
Handling of Styrene-Based Resins in Cured-in-Place Pipe
(April 2023)***

Guideline for the Safe Use and Handling of Styrene-Based Resins in Cured-in-Place Pipe



April 2023

This Styrene Guideline is maintained and updated by NASSCO's:
Health & Safety Committee
CIPP Safety Workgroup
Technical Advisory Council (TAC)

Disclaimer

These Guidelines were prepared by Committees comprised of representatives of NASSCO members and peer-reviewed by industry professionals. These Guidelines are not specific to any one product, project, or job site, and should be considered a guideline only. Conditions for use may require additions, deletions, or amendments to these guidelines so as to conform to project-specific site conditions and to comply with applicable laws, regulations, and ordinances. NASSCO does not guarantee, certify or assure any result and assumes no liability as to content, use and application of these guidelines.

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Executive Summary

Styrene-based resin systems properly used in cured-in-place pipe (CIPP) produce a safe and environmentally sound solution to the challenges in restoring the nation's failing infrastructure. This Guideline discusses styrene and other volatile organic compounds (VOCs) and how to use styrene-based resins in a manner that is safe to workers and residents in an environmentally friendly manner.

Although styrene occurs naturally in many foods such as cinnamon, coffee, and strawberries, styrene derived from petroleum and natural gas by-products has raised many questions about whether its usage in polyester and vinyl ester resin systems, commonly used in CIPP to rehabilitate piping systems, has the potential to adversely affect human health and/or the environment.

Because styrene odor can be detected at concentrations as low as 0.16 ppm or even lower¹⁷, or as low as 0.1 ppm¹⁶, depending on one's ability to detect odors, styrene's odor can be a nuisance to those not accustomed to working around it. To minimize odor concerns during the installation of CIPP, residents/homeowners should be informed of the CIPP installation schedule and what to expect. They should also be advised to ensure that their sewer traps are filled with water and are in a proper state of repair. In cases of damaged, dry, or non-existent traps, the areas or rooms where floor drains or access to traps are located should be ventilated, if possible, by leaving doors or windows open to the outside during the CIPP installation process. The resident/homeowner should be further advised that non-repair of a defective trap may cause hazardous sewer gases to enter the home.

During the installation process, contractors should practice good housekeeping and protect the environment and human health by preventing any accidental resin spillage as well as ensuring proper clean up and disposal. Given the nature of these resin systems to resist movement once placed in the tube's fiber matrix, only very small quantities, such as minor dripping or droplets, should be anticipated on a properly managed jobsite.

Industry standard practice when rehabilitating sanitary sewers with hot water cured CIPP is to discharge the cure water to the immediate downstream sanitary sewer manhole. The impact of styrene in the cure water when discharged directly to a sanitary sewer is typically insignificant if proper discharge procedures are utilized including cooling the cure water to at least 100 F prior to high volume discharges. Although every situation is different and dependent upon site conditions, the receiving downstream collection system should have adequate flow to properly dilute the discharged cure water. This minimizes odors from gases escaping downstream manholes and significantly reduces the risk of harm to wastewater treatment plants or the plants' discharge quality from either styrene or the temperature of the cure water/wastewater mix. Special precautions may need to be taken when discharging CIPP cure water into a sanitary sewer located immediately upstream from a wastewater treatment plant. Depending on the circumstances, these precautions may include making certain the cure water is properly cooled and possibly pretreated to reduce the styrene concentration to an acceptable level.

Studies by Purdue University and others¹⁶ (see CUIRE-UTA Phase 1 Study for list) raised the question of possible hazards to workers and the public from styrene releases from steam cured CIPP job sites. These studies also found a number of other VOCs in the exhaust discharge. Little evidence was produced regarding the health effects of the exhaust discharge on either workers or the public, indicating a need for more studies.

Responding to the industry need for more research into the safety of styrene and other VOCs discharged into the atmosphere at steam cured CIPP job sites, in late 2017 NASSCO commissioned a two-phase study. Phase 1, by the Center for Underground Infrastructure Research and Education (CUIRE) at The University of Texas at Arlington (UTA), focused on the review of published literature pertaining to air emissions during CIPP installations using

styrene-based resins. The work, completed in April 2018, found that prior studies did not adequately capture exposures or levels in surrounding areas to which workers or the public may be exposed. Also, the studies lacked information on the effect of different meteorological conditions. Based on information gathered from the literature review, CUIRE developed a scope for Phase 2 of the study. Results of the Phase 1 investigation were presented in the report “Evaluation of Potential Release of Organic Chemicals in the Steam Exhaust and Other Release Points during Pipe Rehabilitation Using the Trenchless Cured-In-Place Pipe (CIPP) Method”¹⁶ (available for review at www.nassco.org).

As a result, the Phase 2 study, conducted by the Trenchless Technology Center (TTC) at Louisiana Tech, began in July 2019 and consisted of measuring emissions from steam cured CIPP job sites representing sewers of different lengths, diameters and in varying geographical locations. In all, nine CIPP job sites were visited. Measurements were taken before, during and after installation in various locations on the site as well as locations in the surrounding area and inside nearby buildings connected to the subject sewer. Worker exposure was also measured by personal monitors. In addition, dispersion modeling was conducted primarily to evaluate the emissions concentrations for possible worst-case scenarios over a range of weather conditions to determine best practice recommendations. Measured and modeled emission concentrations were compared to appropriate health-based criteria to determine if any potential health risks exist for workers or the nearby residents.

Phase 2 work was completed in late 2019 with the results presented via a webinar by TTC in December 2019 and in the report “NASSCO CIPP Emissions Phase 2: Evaluation of Air Emissions from Polyester Resin CIPP with Steam Cure”¹⁷ (available for review at www.nassco.org).

During the Phase 2 study, of all the chemicals found both in CIPP steam cured CIPP emissions and on the EPA’s TO-15 list, styrene was the only VOC to exceed regulatory thresholds for a portion of the measurements taken. Because of this important finding, only styrene was evaluated for health risks. Two situations were found to require safety precautions to protect workers: 1) upon initial opening of the transport truck/storage unit door and entering the transport truck/storage unit and 2) in the vicinity of the exhaust stack during the cure phase. Safety recommendations for in the vicinity of the exhaust stack are presented in the Steam Cure section of this Guideline.

In addition to the two situations found to require safety precautions to protect workers in the Phase 2 study, a subsequent study was recommended to better understand the concentrations and dispersion of styrene related to refrigerated storage units. As a result, the Phase 3 study conducted by TTC at Louisiana Tech, began in August 2021, focused on the VOC (styrene) emissions associated with various CIPP coatings and concentrations in refrigerated storage units.

Three tasks were identified as the project approach: 1) Styrene breakthrough analysis of various coatings in a laboratory setting utilizing gas chromatography (GC) to develop a mathematical model of styrene breakthrough concentrations over time, 2) Evaluate the GC model by simulating field conditions in a lab using a modified chest freezer to collect VOC (styrene) emissions and 3) Field validation of laboratory results in refrigerated storage units to conduct breakthrough analysis utilizing photoionization detectors (PIDs).

Phase 3 work was completed in early 2023 with results available in the report “NASSCO CIPP Emissions Phase 3: Evaluation of Styrene Emissions Associated with Various CIPP Coatings in Refrigerated Storage”²⁰ (available for review at www.nassco.org).

During the Phase 3 study, the laboratory breakthrough analysis curve was not replicated during field analysis, and developing a mathematical model of styrene breakthrough concentrations over time was not achieved. Recommendations for improving refrigerated storage unit safety on CIPP project sites are presented in the Water Cure and Steam Cure sections of this Guideline.

Introduction

Styrene is the ideal monomer used for cross-linking polyester and vinyl ester resins. Although alternative monomers have been extensively investigated and are currently in use in the CIPP industry, none of those monomers have matched the overall performance or cost of styrene. However, the use of styrene-free vinyl ester resins has increased principally because of publicity about styrene and styrene's distinctive odor and low threshold level of detection by humans.

The increasing awareness of the need to limit the effects of styrene exposure has led the polyester resin processing industry to pursue strategies to reduce exposure in the manufacturing and processing plant environment. Most of the studies undertaken to date have centered on these producers' and users' environments which are dramatically different than the work environment of the CIPP installation contractor. Given the desire to address the rehabilitation industry's need for standards in the proper safe use and handling of styrene-based resins for CIPP, in 2008 NASSCO created a styrene task force to review the technical information available from these studies and current CIPP installation practices to produce this Styrene Guideline. This guideline was updated in 2009, 2017, 2020 and now in 2023 based on the findings of the Phase 3 study referenced in the Executive Summary. In addition to this Guideline, NASSCO has prepared an Inspector Training and Certification Program (ITCP) for CIPP to properly equip owners, project engineers and inspectors with the necessary knowledge to ensure that a proper installation is achieved which minimizes the potential for release of styrene to the environment. An extensive revision of the ITCP training materials was completed in 2017, and further revisions are currently ongoing with an expected release date later in 2023. .

Polyester and vinyl ester resin systems have been used successfully for over 50 years in CIPP. Potential hazards are mitigated when proper confined space and other health and safety procedures are followed. Styrene vapors are heavier than air and will migrate to the bottom of confined spaces. Unfortunately, when proper health and safety protocols are not followed, hazards can occur. For example, there has been at least one reported incident involving worker safety where the effects of styrene gas may have contributed to the incapacitation of a worker who may not have been following proper confined space procedures resulting in loss of life due to drowning.

There have also been reports where styrene gas has entered buildings and caused the residents to evacuate. This is understandable because those not familiar with the smell of styrene may notice an unusual, chemical smell and become concerned. Although a small percent of the population may be affected by inhaling styrene from CIPP projects, such as experiencing upper respiratory tract issues, most people in these situations simply need to move to a well-ventilated area. As no definitive document for these resin systems used in the CIPP industry existed prior to 2008, the unknown gave rise to speculation as to their safety with respect to the workers involved, the general public, especially when the odors enter the structures connected to the piping under rehabilitation and the surrounding environment from where the work is taking place.

Styrene is a common chemical compound found where we live and work. Indoor sources of styrene emissions include off-gassing of building materials and consumer products and tobacco smoke. For example, styrene is emitted from carpet, floor waxes and polishes, paints, adhesives, putty, etc.

Styrene is expected to exist solely as a vapor in the ambient atmosphere¹⁹. In its vapor phase it is expected to react rapidly with hydroxyl radicals and with ozone. Half-lives have been estimated to range from 7 to 16 hours¹⁸. Atmospheric washout (the removal from the atmosphere of gases and sometimes particles by their solution in or attachment to raindrops as they fall) is not expected to be an important process because of these rapid reaction rates and styrene's low vapor pressure. Outdoor air monitoring by the EPA for 259 monitoring sites involving some 8,072 observations in 2007 showed that the mean concentrations for these sites were very low and ranged from 0.028 to 5.74 parts per billion (ppb). The primary sources of styrene in outdoor air include emissions from industrial processes involving styrene and its polymers and copolymers, vehicle emissions, and other combustion processes.

Published scientific journal articles agree that styrene biodegrades rapidly in most environments. Fu and Alexander⁴ concluded that styrene will be rapidly destroyed by biodegradation in most environments having oxygen, although the rates may be slow in environments with low pH. Fu, Mayton and Alexander⁵ concluded that being broken down by microbes is a major fate mechanism by which styrene is destroyed in soils. Cushman⁶ concluded that styrene's potential impact on aquatic and soil environments is significantly mitigated by the rapid rate at which it evaporates and biodegrades in the environment. Alexander⁷ concluded transport of styrene in nature is very limited because of its volatility from soils and surface waters, its rapid destruction in air and its biodegradation in soils and surface and ground waters.

Material Facts

Styrene Monomer	
Property	Value
Auto-ignition Temperature (in air):	914°F
Boiling Point: @14.7 psi (Atmospheric Pressure)	293°F
Color:	Colorless
Corrosivity:	Non-corrosive to metals except copper and alloys of copper
Density: 32°F 68°F	7.71 lbs./US Gallon 7.55 lbs./US Gallon
Solubility: Styrene in Water:	
32°F	0.018 gms/100 gmsH ₂ O
104°F	0.040 gms/100 gmsH ₂ O
176°F	0.062 gms/100 gmsH ₂ O
Upper (UEL) and Lower (LEL) Explosive Limits:	
UEL	6.1%
LEL	1.1%
By Volume of Air @ 68°F & Atmospheric Pressure	
2011 Health and Human Services Ruling:	Reasonably anticipated carcinogen

CIPP Installation Practices

Good Housekeeping. Many environmental and safety issues can be prevented when good housekeeping is practiced on CIPP installation job sites. One definition of good housekeeping is the general care, cleanliness, orderliness and maintenance of a business or property. That definition certainly applies to CIPP job sites.

Resins, catalysts and other chemicals must be handled with care to promote a safe working environment and prevent spills. This also applies to other liquids on the job site such as gasoline, diesel fuel, various oils, anti-freeze and other liquids common on construction sites. Spills on the ground, a street, sidewalk or on personal property must be addressed immediately. However, an additional level of concern must be raised when a spill enters a sanitary sewer, storm sewer, culvert or surface water.

Excess resin and CIPP trimmings in a sanitary sewer must be trapped and collected and properly disposed of during the installation process and at the conclusion of the project. Disposal may be as simple as collecting the waste liquid polymer in a container and initiating it with the same initiators used for cure. When the material has polymerized, depending on State or Provincial and local regulations, it may be disposed of as industrial waste.

When rehabilitating storm sewers or culverts, additional measures must be taken to prevent excess resin, resin residues or other liquids and debris from cutting and trimming the CIPP from entering a downstream storm sewer or receiving stream. Floating dikes or other devices should be used at the downstream end of a culvert to prevent excess resin from entering the stream. These devices must be maintained throughout the installation process until the installation is complete, including end trimming. Shavings from cutting devices can cause problems in surface waters, and if the floating dikes are removed prior to trimming the ends of the CIPP, these shavings can enter the water.

Provisions must be made by the contractor in advance for containing any accidental spillage of the resin, and these provisions should be included in the project Safety Plan. Further, if more than 2500 pounds of neat (unfilled) resin (approximately 1000 pounds of styrene) is spilled, the spill must be reported to the appropriate local pollution control authorities. For spills less than this “reportable quantity”, check with Federal, State or Provincial and local disposal requirements. Absorption with an inert material and placing in an appropriate waste disposal container is the industry standard for handling small spills on the ground. Some absorbing agents, such as untreated clays and micas, will cause an exothermic reaction which might ignite the styrene monomer. For this reason, absorbing agents should always be approved by the resin manufacturer or tested for their effect on the polymerization of the monomer before they are used on larger spills.

It is recommended that the contractor continually clean the installation site of construction debris and keep tools in their designated storage location. The same is true for equipment items that have been used and are no longer needed to provide for a safe jobsite.

Water Cure

For CIPP installations using hot water to cure the resin, the cure water must be disposed of once the curing cycle is complete. For most sanitary sewer projects, this usually involves slowly discharging the cure water to the sanitary sewer once the cool down cycle has begun. Styrene readily dissipates through volatilization and degradation. In order to ensure that the cured CIPP remains tight fitting and dimensionally stable with the release of the cure water, the standard in the industry is to require that the cool down be continued until the temperature of the CIPP is no more than 100°F. During the cool down process, a small hole is typically made in the downstream end to release hot water as cold water is introduced at the other end of the installation. For high volume discharges, the cure water should be cooled to 90 – 100 F for safety concerns downstream, to reduce the styrene concentration in the cure water, to protect downstream treatment facilities and to produce a higher quality CIPP product. In this case, releasing of the cure water directly to the sewer is not a concern due to the benefits of dilution in the downstream wastewater. When large volumes of process water are discharged to an existing, low capacity, smaller sewer, the flow must be regulated or limited by the contractor to provide for sufficient dilution of the cure water. The contractor should survey and/or notify the downstream homeowners of potential odors from residual styrene contained in the cure water.

In cases where an interceptor is rehabilitated immediately upstream of a wastewater treatment plant, the customer may request additional measures to lower the styrene content of the cure water. Carbon filters and aeration have been used to lower cure water styrene content. When discharging cure water to either a sanitary sewer

or directly to a wastewater treatment plant, the temperature of the cure water may be of greater concern than the styrene content. Thousands of gallons of high temperature water discharged directly to a wastewater treatment plant could have a disruptive effect on biological treatment processes. Properly cooling the cure water is especially important in this case.

Cure water disposal is an important element in the safe installation of CIPP in all types of pipeline systems. When rehabilitating storm sewers and culverts, cure water disposal requires more attention. Cure water should not be discharged to the environment; it should be properly discharged to an adjacent sanitary sewer or hauled to a sanitary sewer manhole or wastewater treatment plant for disposal. Permission should be obtained, in writing, from the sewer or plant owner before discharging. Steam cure, which has only a small amount of steam condensate to manage, is a good installation alternative for storm sewers and culverts, where possible.

Following are NASSCO's recommendations for protecting workers and the public in and around CIPP water cured job sites.

1. All contractors must operate in a safe manner as well as review State or Provincial and local requirements regarding a site-specific safety plan before the start of any work on the project.
2. OSHA confined spaces in construction 1926.1203 shall always be followed.
3. All workers must have proper personal protective equipment (PPE).
4. A work zone perimeter should be maintained around the job site to prevent the public from entering. The limits of the perimeter should be based on distancing from general construction hazards.
5. Current data indicate the public is not at risk during the transfer of liners from the refrigerated storage unit.
6. Job site air monitoring should be conducted and documented for the refrigerated storage unit as installation companies use different types of tube coatings, have various amounts of liner in each storage unit, and follow a variety of installation procedures.
7. The current (April 2023) American Conference of Governmental Industrial Hygienists (ACGIH) has set the threshold limit value time weighted average (TLV-TWA) for styrene at 10 ppm and 20 ppm for the threshold limit value short term exposure limit (TLV-STEL). In addition, notations of ototoxicant and A3 carcinogen ("confirmed animal carcinogen with unknown relevance to humans") were also adopted for styrene.
8. Testing to determine the styrene level in the refrigerated storage unit is recommended when workers must enter. Typical testing instruments are photoionization detectors (PIDs) and detector tubes.
9. When using a PID, if levels are above the 20 ppm TLV-STEL when entering the refrigerated storage unit, the PID should alarm, and the employee should leave the storage unit.
10. Use of impervious coatings and ventilation will reduce the levels of styrene in the refrigerated storage unit and are recommended as first options to reduce styrene levels. Respiratory protection is recommended if these options are not available, and styrene levels exceed the TLV-STEL of 20 ppm.
11. Always define and maintain good housekeeping practices throughout the project period.
12. Discharge properly cooled cure water to a sanitary sewer with adequate flow for dilution.
13. Always keep the public informed and address their questions and concerns. Typically, a minimum 24-hour notification is made with a door-hanger. See NASSCO's 'What's that odor?' brochure and nassco.org for up-to-date information.

Following are TTC's recommendations regarding the refrigerated storage unit as stated in the Phase 3 Study recommendations:

1. From TTC Phase 3: Once storage unit or truck doors are opened and styrene thresholds reduce to below regulatory agencies' limits for the planned exposure time of workers, the truck can safely be entered for that amount of time with minimal PPE. Please refer to the latest exposure guidelines for styrene for full guidance.
2. From TTC Phase 3: If durations for exposure times must be exceeded, manufacturers could consider using thicker coatings, more impermeable coatings, wrapping the liners with impermeable materials to reduce the release of styrene in the refrigerated storage units, additional PPE appropriate for the higher styrene thresholds, etc.

Steam Cure

On steam cured CIPP projects, steam is introduced into the pressurized air flow on one end of the installation, and a mixture of mostly hot water vapor, styrene and other chemical byproducts are exhausted at the other end. Steam curing potentially reduces the amount of styrene that can be released into the environment because the quick cross-linking of the resin effectively binds up the styrene to a high degree. Also, large amounts of cure water do not have to be disposed. A small amount of steam condensate is produced, and this amount can be minimized by maximizing the flow of air through the curing CIPP for the site-specific conditions. This condensate should be cooled and discharged to a sanitary sewer. For storm sewer and culvert projects, the steam condensate should be handled in a similar manner as cure water; steam condensate should be collected and discharged to a sanitary sewer.

The TTC Phase 2 Study found that much of the styrene released using the steam cure method is in the vapor form, principally from the steam exhaust. Although higher levels of styrene can be measured directly in the steam exhaust at the end of the discharge hose, the Phase 2 study found that the styrene concentration of the vapor rapidly dissipates as it moves away from the discharge point. The styrene concentration in the air is rapidly diluted by the cube of the distance from the source. Also, higher levels of styrene are found in conjunction with heat, so as the air cools, the styrene level decreases. The styrene level decrease helps to determine the location of the public/worker perimeter to be established.

Following are NASSCO's recommendations for protecting workers and the public in and around CIPP steam cured job sites.

1. All contractors must operate in a safe manner as well as review State or Provincial and local requirements regarding a site-specific safety plan before the start of any work on the project.
2. OSHA confined spaces in construction 1926.1203 shall always be followed. In addition, no worker should enter a job site manhole during steaming operations.
3. All workers must have proper personal protective equipment (PPE).
4. Exhaust stacks should be a minimum of 6 feet in height above the work area.
5. The exhaust stack and manhole should have a 15-foot radius perimeter established around them.
6. Other sources of exhaust discharge (loose connections, glands, etc.) should be minimized and/or properly repaired or adjusted.
7. A work zone perimeter should be maintained around the job site to prevent the public from entering. The limits of the perimeter should be based on general construction hazards as well as proper distancing from exhaust discharge sources. Exhaust discharge sources that conflict with start/stop traffic lanes or pedestrian access areas should be included in the work zone perimeter.

8. Current data indicate the public is not at risk during the transfer of liners from the refrigerated storage unit.
9. Job site air monitoring should be conducted and documented for the refrigerated storage unit as installation companies use different types of tube coatings, have various amounts of liner in each storage unit, and follow a variety of installation procedures.
10. The current (March 2023) American Conference of Governmental Industrial Hygienists (ACGIH) has set the threshold limit value time weighted average (TLV-TWA) for styrene at 10 ppm and 20 ppm for the threshold limit value short term exposure limit (TLV-STEL). In addition, notations of ototoxicant and A3 carcinogen (“confirmed animal carcinogen with unknown relevance to humans”) were also adopted for styrene.
11. Testing to determine the styrene level in the refrigerated storage unit is recommended when workers must enter. Typical testing instruments are photoionization detectors (PIDs) and detector tubes.
12. When using a PID, if levels are above the 20 ppm TLV-STEL when entering the refrigerated storage unit, the PID should alarm, and the employee should leave the storage unit.
13. Use of impervious coatings and ventilation will reduce the levels of styrene in the refrigerated storage unit and are recommended as first options to reduce styrene levels. Respiratory protection is recommended if these options are not available, and the styrene levels exceed the TLV-STEL of 20 ppm.
14. Always define and maintain good housekeeping practices throughout the project period.
15. Discharge cooled steam condensate to a sanitary sewer.
16. Always keep the public informed and address their questions and concerns. Typically, a minimum 24-hour notification is made with a door-hanger. See NASSCO’s ‘What’s that odor?’ brochure and nassco.org for up-to-date information.

Following are TTC’s recommendations for protecting workers and the public in and around CIPP steam cured job sites as covered in the Phase 2 Study and also regarding the refrigerated storage unit as stated in the Phase 3 Study recommendations.

17. From TTC Phase 2: Exhaust stacks should be a minimum of 6 feet in height above the work area. This enhances the dispersion of emissions and lessens the likelihood of workers entering the steam plume even when wearing PPE.
18. From TTC Phase 2: The steam exhaust stack and manhole should have a 15-foot radius perimeter established around them. This perimeter can be entered for short amounts of time not exceeding 5 minutes. Longer durations require additional PPE.
19. From TTC Phase 3: Once storage unit or truck doors are opened and styrene thresholds reduce to below regulatory agencies’ limits for the planned exposure time of workers, the truck can safely be entered for that amount of time with minimal PPE. Please refer to the latest exposure guidelines for styrene for full guidance.
20. From TTC Phase 3: If durations for exposure times must be exceeded, manufacturers could consider using thicker coatings, more impermeable coatings, wrapping the liners with impermeable materials to reduce the release of styrene in the refrigerated storage units, additional PPE appropriate for the higher styrene thresholds, etc.

Light Cure

Light cure CIPP is installed by pulling or inverting the liner into place and then inflating with air. No end product of water or steam condensate is produced requiring disposal and/or monitoring. Depending on the installation

method used, large volumes of air may be pumped through the wet-out tube and exhausted to maintain its inflated condition while the light curing equipment is pulled through for curing. During the light cure process, heat and styrene vapor are released within the CIPP and exhausted at the discharge end.

Following are recommendations for protecting workers and the public in and around CIPP light cured job sites:

1. All contractors must operate in a safe manner as well as review State or Provincial and local requirements regarding a site-specific safety plan before the start of any work on the project.
2. OSHA confined spaces in construction 1926.1203 shall always be followed.
3. All workers must have proper personal protective equipment (PPE).
4. A work zone perimeter should be maintained around the job site to prevent the public from entering. The limits of the perimeter should be based on general construction hazards.
5. Job site air monitoring should be conducted and documented according to regulatory guidelines.
6. Always define and maintain good housekeeping practices throughout the project period.
7. Always keep the public informed and address their questions and concerns. Typically, a minimum 24-hour notification is made with a door-hanger.

General Curing Recommendations

It is imperative that the manufacturer's recommendations be followed no matter which curing method is being used. Properly cured CIPP releases less styrene to the environment over time. Thermocouples and/or continuous monitoring sensor systems placed strategically in the liner/host pipe invert interface are a must for heat cured CIPP. A written cure schedule acknowledging the climatological and site conditions present, resin system proposed, cure times, and cure temperatures will lead to a proper cure, a long CIPP design and service life and minimal environmental impact.

Proper planning is also very important when using styrene-based resins, especially when heavily occupied buildings are connected to the sewer being rehabilitated. In addition, caution around fresh air intakes during CIPP installations must be well managed to prevent styrene from migrating into buildings.

Summary

Following proper procedures when installing and curing CIPP minimizes styrene releases to the environment. CIPP should be installed in accordance with the manufacturer's written instructions and cured following the manufacturer's or resin supplier's written cure schedule. Cure water, exhaust discharges and condensates, air and other discharges to the environment should be properly managed. In addition, contractor good housekeeping on the jobsite is always in order.

Following proper procedures and observing the recommended job site practices discussed in this document attempt to minimize the safety risk to workers and the public, which is NASSCO's key objective in producing this Styrene Guideline. The Contractor's primary responsibility is to provide a safe worksite, including providing a detailed site-specific safety plan as required by State or Provincial and local requirements.

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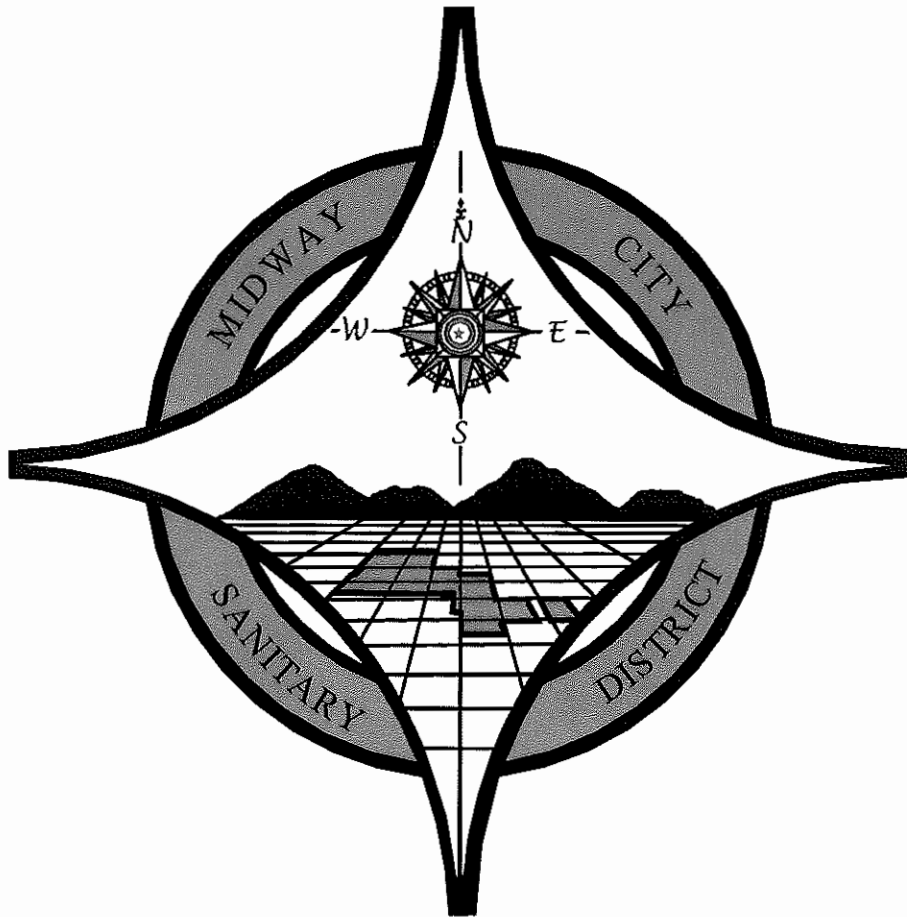
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*indicates the document was peer reviewed prior to publication.

***APPENDIX A6 - Midway City Sanitary District Design and
Construction Requirements for Sanitary Sewers***

**DESIGN AND CONSTRUCTION
REQUIREMENTS
FOR SANITARY SEWERS**



**MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CALIFORNIA
BOARD APPROVED 11/2/2010**

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SECTION 1 – GENERAL

1-1 DEFINITIONS

DISTRICT - Midway City Sanitary District

DISTRICT ENGINEER – Engineer or Authorized Representative for the District

STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

All references to the standard Specifications refer to the latest edition as revised or amended at the date of construction.

ASTM – The American Society for Testing and Materials, latest revision.

APPROVED EQUAL – A material or product that is equivalent to or exceeds, in the opinion of the District Engineer, in all respects, that which is specified.

1-2 PLAN CHECK AND APPROVAL OF PLANS

Construction drawings of the proposed sewer construction within the District boundary shall be submitted and approved by the District Engineer, attested to by the Engineer's signature on the drawings. This approval shall apply only to general design concepts and does not guarantee the absence of errors or omissions.

1-3 PAYMENT OF FEES

Prior to approval of plans and connections to District sewers, the developer shall pay all fees as required under current District policy. Fees will be determined by the District Engineer at time of plan check.

1-4 "AS-BUILT" DRAWINGS

In the case dedicated sewer main is constructed, the Design Engineer shall "As-Built" the original drawings to the satisfaction of the District Engineer and provide the District with a set of duplicate mylars.

SECTION 2 – DESIGN REQUIREMENTS

2-1 Design Criteria

(a) Minimum size – The minimum size for sewer mains shall be 8-inches and for laterals 4-inches.

(b) Sewer Slop – Minimum pipeline slopes shall be:

<u>Pipe Size (Mains)</u>	<u>Grade</u>
8 inch	0.40%
10 inch	0.28%
12 inch	0.22%
15 inch	0.16%
18 inch	0.12%
4 inch (laterals)	2.0%

(c) Pipe Capacity – Pipelines shall be designed to carry estimated peak flow as follows:

18-inch or smaller – flowing $\frac{1}{2}$ full

21-inch or larger – flowing $\frac{3}{4}$ full

(d) Manholes – Manhole construction is required at the following locations:

- (1) At changes of slop
- (2) At changes of direction
- (3) At changes of pipe size
- (4) At junction of laterals larger than 6-inches
- (5) At intervals not exceeding 350 feet
- (6) At termination of sewer mains
- (7) At special locations as designated by the District Engineer

Elevation drop through manholes shall be 0.10 foot minimum.

SECTION 2 – DESIGN REQUIREMENTS (Continued)

- (e) Pipe Material – Polyvinyl Chloride (PVC) pipe is approved for all sewer line construction. Vitrified Clay Pipe (VCP) pipe may be specified only with prior approval from the District Engineer. Ductile Iron Pipe (DIP), or Class 200 Polyvinyl Chloride (PVC) – C900, shall be used for sewer construction within the vicinity of water mains as in Standard Drawing S-019.
- (f) Curved Sewer – Curved sewer may be specified only with prior approval from the District Engineer.

2-2 Preparation of Drawings

All sewer plans shall be prepared as follows:

Sheet Size:	24 by 36 inches
Scales:	Horizontal – one inch equals 40 feet. Vertical – one inch equals 4 feet for sewer slopes less than 10 percent. One inch equals 8 feet for slopes greater than 10 percent.
Sewer Plans:	Sewer plan shall show both existing and proposed construction and shall include standard notes and a signature block for the District Engineer. (Sewer profile will be required when public sewer main is proposed.)
Sewer Mains and Lateral Location:	Sewer Mains and Lateral location shall be shown on the plans and located by stationing. Stationing shall conform to the existing stationing.

2-3 Sewer Construction on Private Property

Sewer mains constructed on private property that are to be maintained by the Midway Way City Sanitary District shall be shown within a 20 foot easement to be dedicated to the District. Only under instances approved by the Board of Directors and the District Engineer will sewer within easements be accepted by the District.

SECTION 3 – INSPECTION OF WORK

The Midway City Sanitary District (MCSD) shall provide an inspector for the Inspection of all sewer improvements constructed within the public right-of-way or MCSD easements. All work shall be left open and uncovered until the installation is observed by the District Inspector. The contractor shall not proceed with any subsequent phase of work until the previous phase has been inspected by the District.

The term inspection referred to herein shall mean observation by the District Inspector or other District representative and does not constitute or imply any guarantees.

Inspection shall be made at the following intervals of work:

- (a) Trench excavation and bedding
- (b) Placing of pipe, fittings and structures
- (c) Placing and compacting of the pipe bedding
- (d) Backfill of balance of trench to grade; in public right-of-way, Performed by local governing agency; within easements, entire backfill to be under inspection by the District Inspector
- (e) Balling and cleaning, air testing and mirroring, after receipt of Compaction certification, but prior to paving
- (f) Repairs made after initial inspection
- (g) After manholes are raised to grade
- (h) Saddle or manhole connections to existing sewers

The District shall at all times have access to work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge of the progress, workmanship and character of materials used and employed in the work.

No pipe, fitting or other materials shall be installed until inspected by the District or its representative. All installations which are to be backfilled shall be inspected prior to backfilling and the contractor shall give due notice to the District Engineer in advance of backfilling so that proper inspection may be provided.

SECTION 3 – INSPECTION OF WORK (Continued)

The inspection of the work shall not relieve the contractor of any of his obligations to complete the work as prescribed by these specifications. defective work shall be made good, and unsuitable materials may be rejected notwithstanding the fact that such defective work and unsuitable materials have been previously overlooked by the District and accepted.

The District shall have the authority to suspend the inspection of the work wholly or in part for such time as it may deem necessary due to the failure on the part of the contractor to comply with these specifications as determined by the District Engineer. Any work performed without inspection of the District shall be considered unacceptable.

SECTION 4 – SEWER CONSTRUCTION

4-1 General

All work shall conform to the standard Specifications for Public Works Construction except as modified herein, the work Area Traffic Control Watch Manuel Handbook, and the standard Plans and Specifications of the Midway City Sanitary District.

The contractor shall be responsible for obtaining all necessary permits and shall Comply with all safety ordinances, regulations, orders, and shall be solely Responsible for the safety conditions of the work.

4-2 Connection to Existing Facilities

Modification to existing manhole shall be done by core drilling unless otherwise approved by the District Engineer. New channels in existing manholes shall be finished smooth and shaped in the direction of flow. Any annular space around the pipe at the manhole base shall be filled with plastic cement (1:3 field mix).

4-3 Sewer and Water Separation

All new sewer construction shall maintain a minimum distance of 10 feet horizontally and 1 foot vertically below water mains. Any construction above the water main or in violation of the basic separation requirements shall be done per Standard Drawing S-019.

4-4 Special Provisions

The following additions are made to the Standard Specifications for Public Works Construction:

Adjustment of Manholes Frame and Cover Sets to Grade

Prior to asphalt concrete paving, manhole frame and covers shall be left 6 inches below finish grade. After street surfacing is completed, frames and covers shall be raised to grade per Standard Drawing S-055A. Whenever manholes are constructed in unpaved areas, the manhole covers shall be set 18 inches above finished grade.

SECTION 4 – SEWER CONSTRUCTION (continued)

Bedding

Pipe bedding shall meet the approval of the District Engineer and local governing agencies.

Field Jointing of Clay Pipe

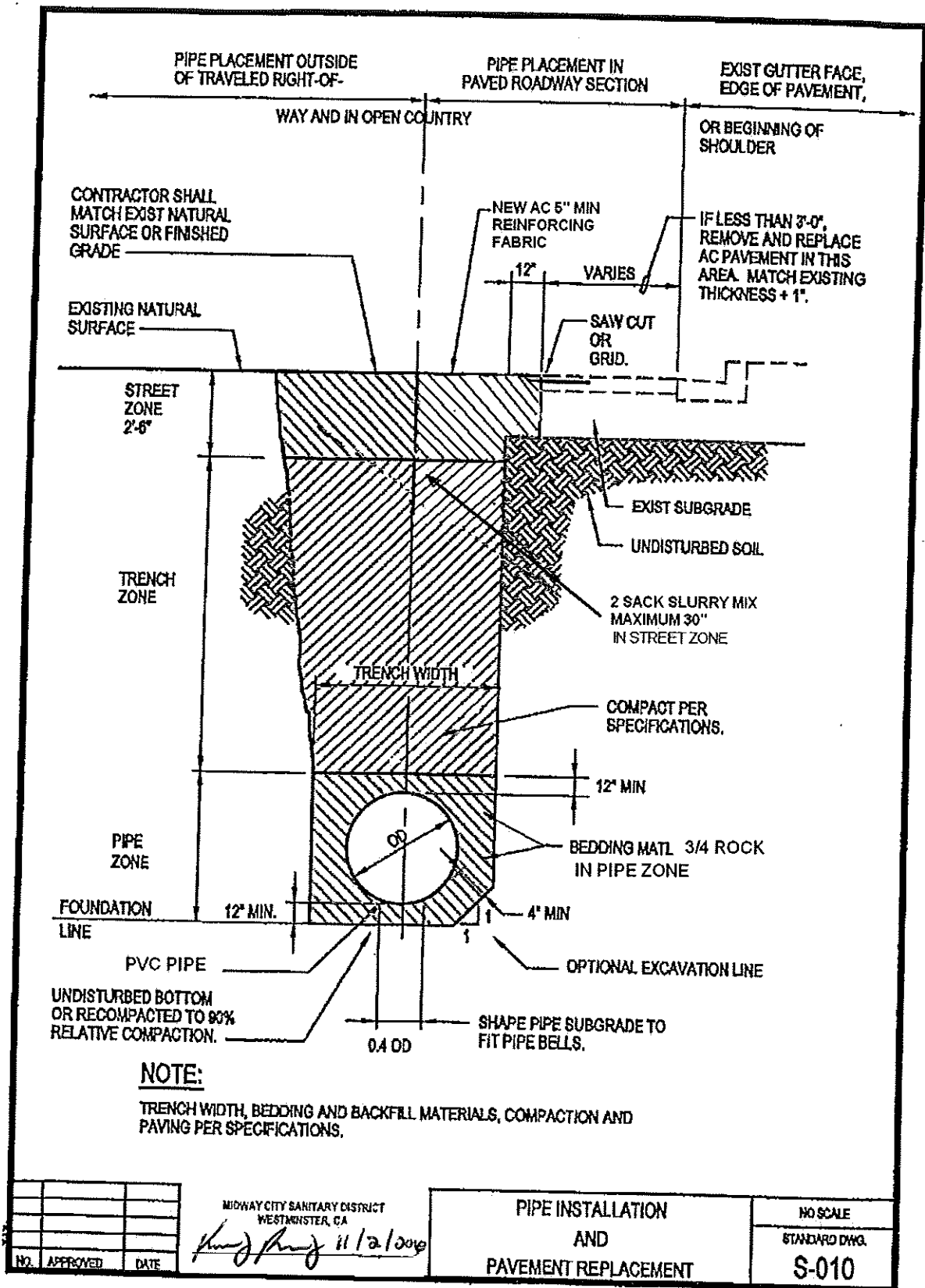
Only Type "G" joints are approved for vitrified clay pipe (VCP) with the exception That Type "D" joints may be used for laterals and sewer repair work.

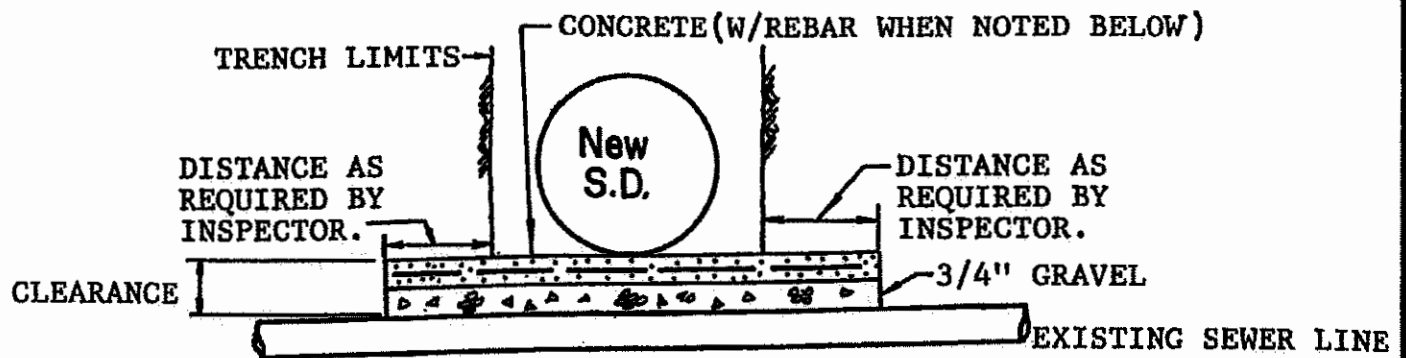
Backfill and Densification

All trench backfill and bedding shall be compacted to 90 percent minimum Relative compaction unless otherwise required by the local governing agency.

Trench Resurfacing

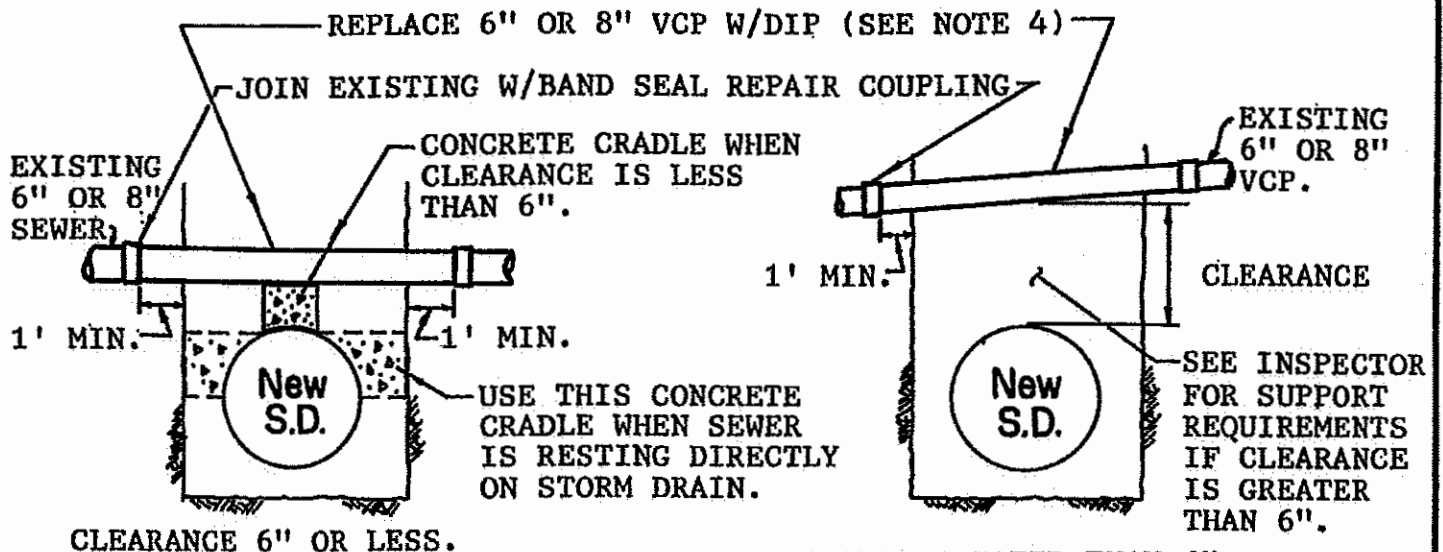
Trench resurfacing shall meet the requirements of the local governing agency.





IF CLEARANCE IS 8" TO 18", USE 4" CONCRETE SLAB OVER 4" OF 3/4" GRAVEL.
 IF CLEARANCE IS LESS THAN 8", USE CONCRETE SLAB W/ REBAR OVER 3/4" GRAVEL
 AS REQUIRED BY INSPECTOR.

CASE I



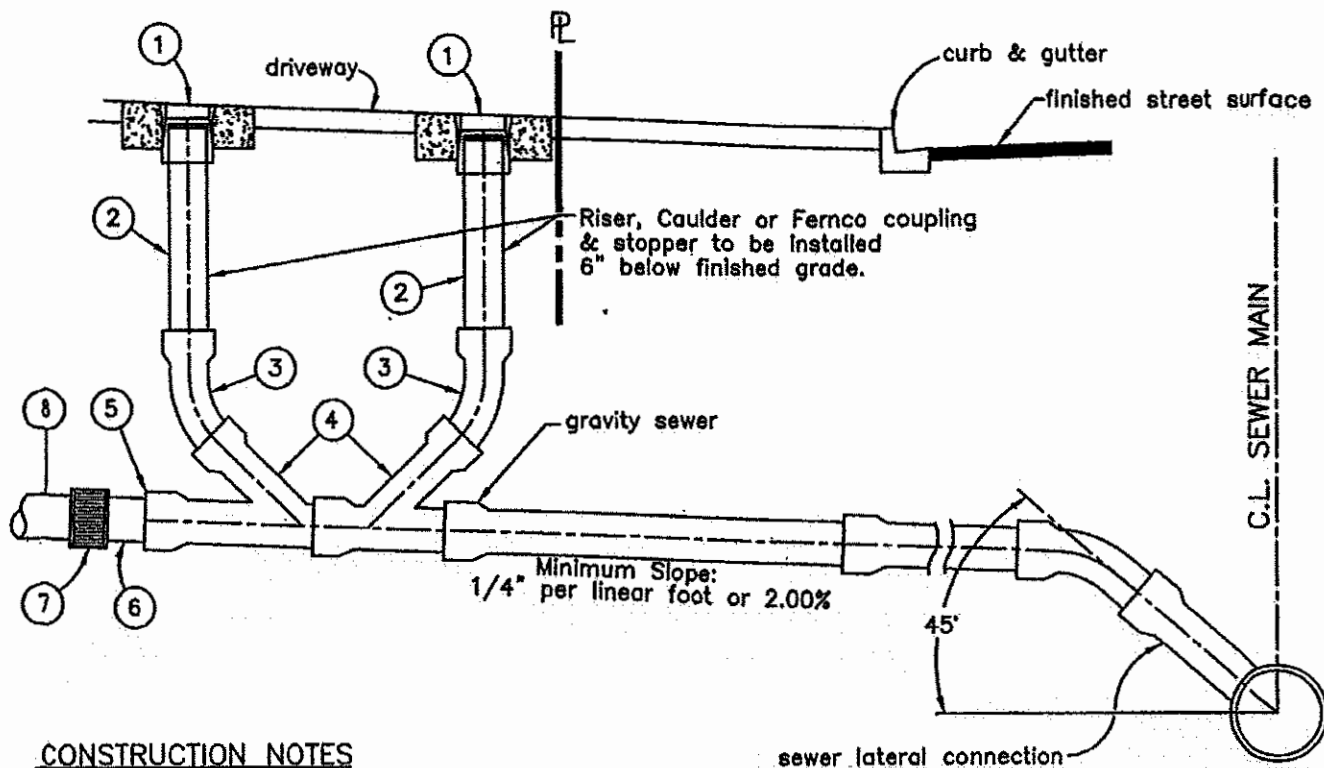
CASE II

CASE III

Notes:

1. For use in conjunction with storm drain construction in the vicinity of sewer lines to prevent damage to sewer during backfill operation.
2. This standard does not meet the State Department of Health requirements for sewer and water crossing.
3. Case III may be used with the construction of new water main with prior approval of District Engineer.
4. 10" VCP or larger to be protected in place per inspector requirements.
5. Concrete shall be Class 420-C-2000.

			MIDWAY CITY SANITARY DISTRICT WESTMINSTER, CA.	SEWER - STORM DRAIN CROSSING		NO SCALE
			<i>[Signature]</i> 11/2/2010			STANDARD DWG.
NO.	APPROVED	DATE				S-011

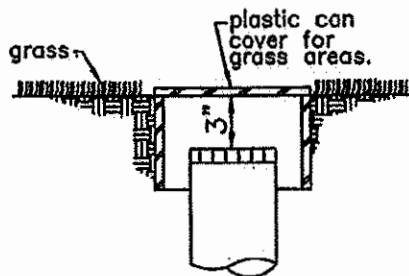


CONSTRUCTION NOTES

- ① Install sewer cleanout cover traffic rated.
- ② 4" (or 6") SDR-35 PVC sewer pipe with gasketed, integral bell and spigot joints.
- ③ 4" (or 6") SDR-35 PVC 45° bend.
- ④ 4" x 4" (or 6" x 6") SDR-35 PVC wye branch fitting.
- ⑤ 4" (or 6") ABS stopper (where laterals are stubbed)
- ⑥ 4" (or 6") short piece, SDR-35 PVC, 6-inches long.
- ⑦ 4" (or 6") rubber mechanical banded seal clamp. Fernco or approved equal.
- ⑧ 4" (or 6") private sewer lateral.

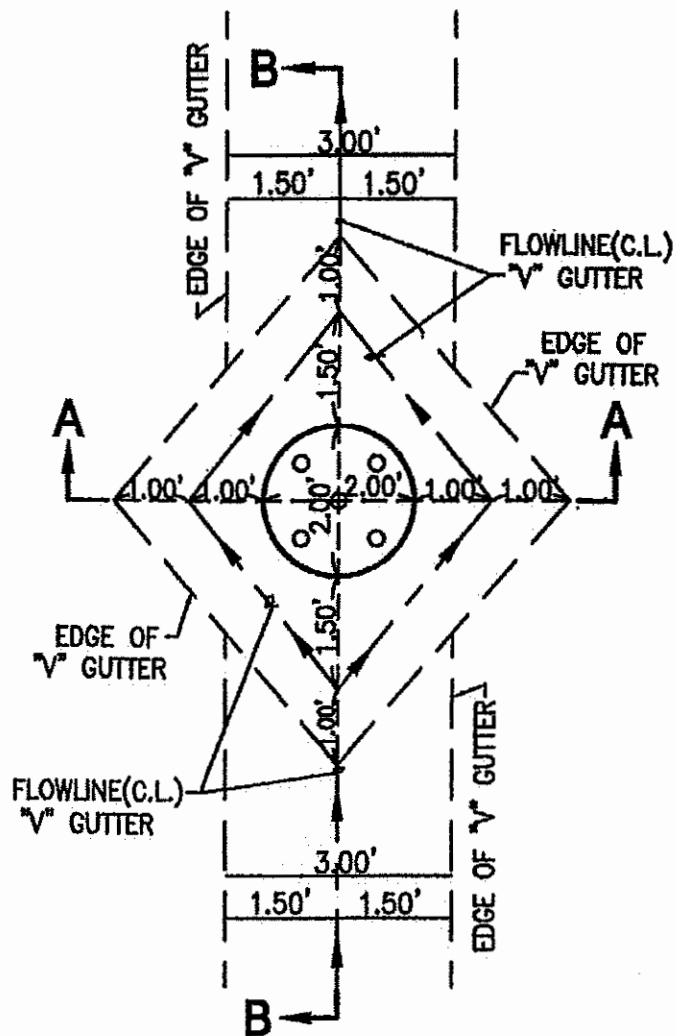
GENERAL NOTES

- 1 Minimum slope for 4" or 6" sewer lateral shall be 1/4" per foot unless authorized.
2. Sewer cleanout shall include a stopper over risers. Use Mission Clay products stopper or equal.
3. Sewer cleanout riser pipe material shall be 4" or 6" VCP, ABS, SDR-35.
4. A cleanout shall be installed on all sewer lateral connections.
5. PVC shall be SDR-35 per ASTM 3034.
6. PVC pipe and fittings shall be bedded with 3/4" aggregate base rock material.
- 7 Where VCP materials are used, bedding shall be 3/4" aggregate base rock material.

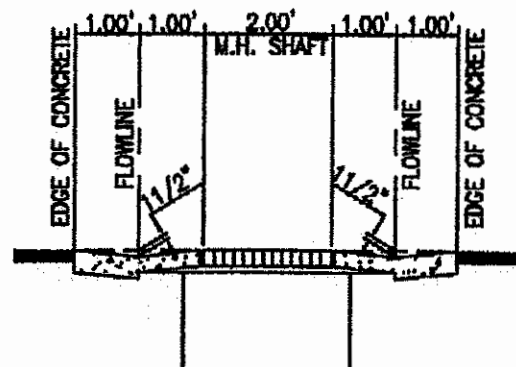


DETAIL-UNPAVED AREA

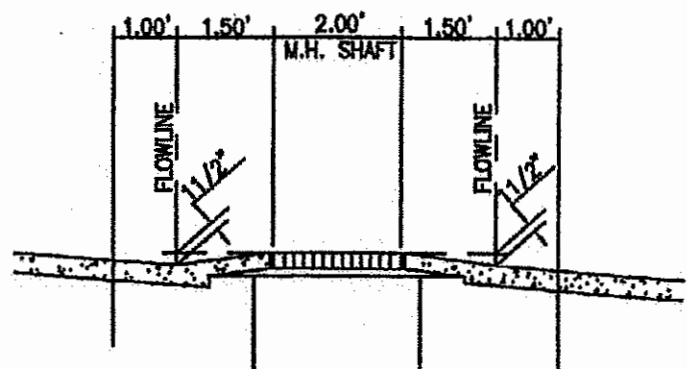
NO.	APPROVED	DATE	MIDWAY CITY SANITARY DISTRICT WESTMINSTER, CA <i>[Signature]</i> 11/21/2010	2 WAY CLEAN OUT ON PRIVATE PROPERTY	NO SCALE
					STANDARD DWG.
					S-012



PLAN

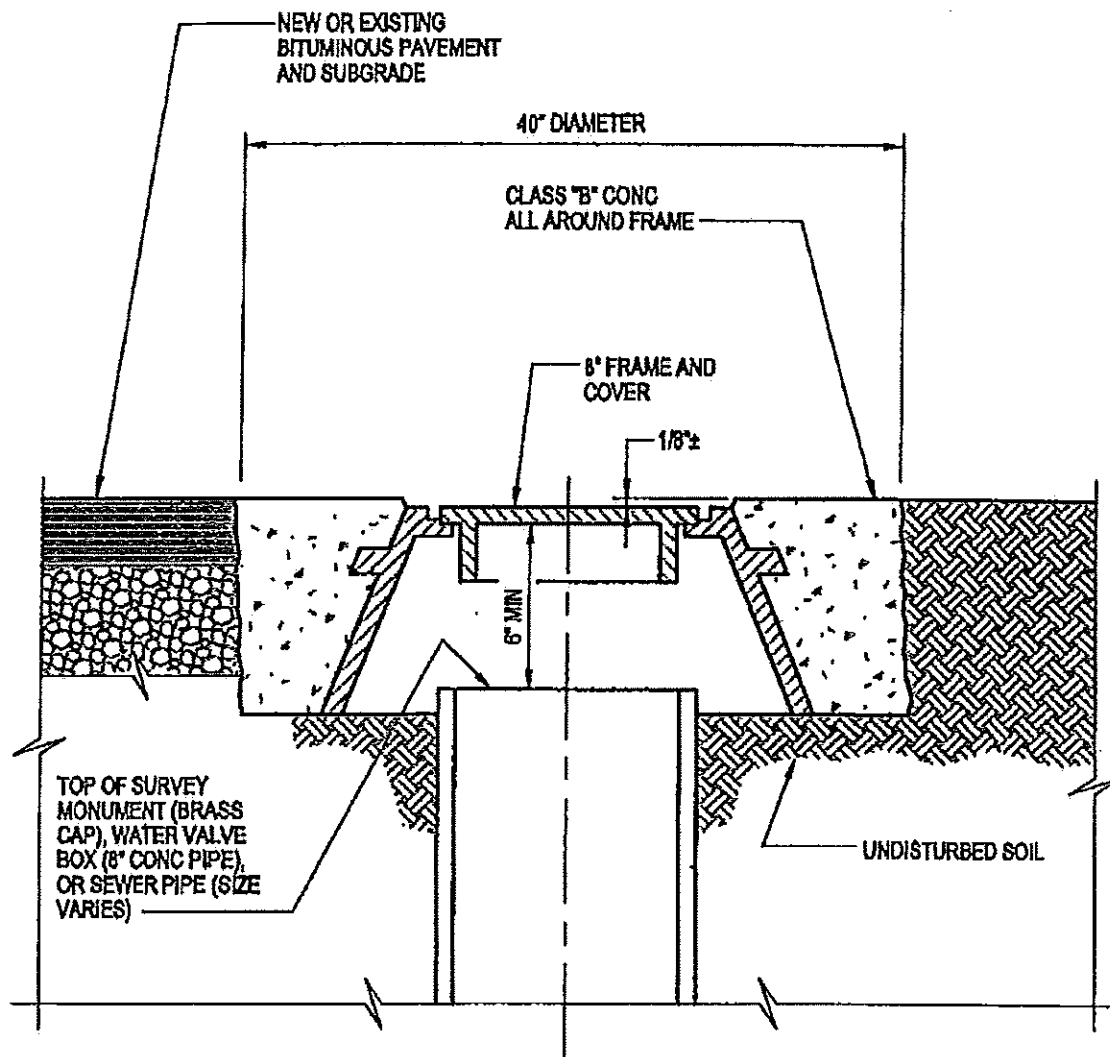


SECTION A-A



SECTION B-B

NO.	APPROVED	DATE	MIDWAY CITY SANITARY DISTRICT WESTMINSTER, CA. <i>[Signature]</i> 11/2/2010	RAISED SEWER MANHOLE IN ALLY GUTTER	NO SCALE STANDARD DWG. S-013
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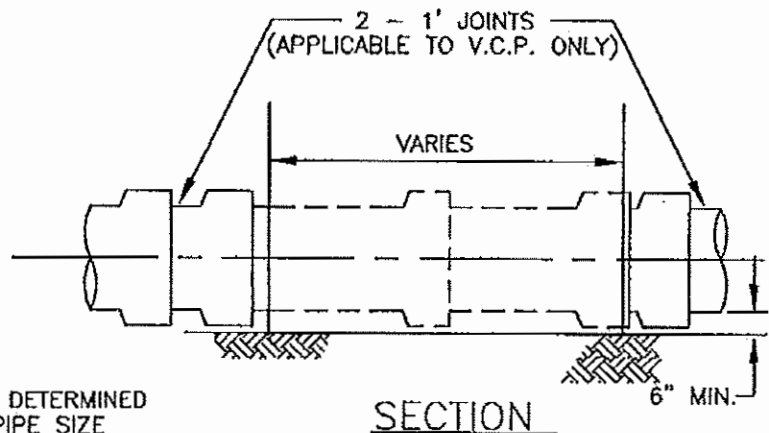
NO.	APPROVED	DATE

MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CA

[Signature] 11/2/2010

SEWER CLEAN OUT
COVER AND FRAME
INSTALLATION

NO SCALE
STANDARD DWG.
S-015

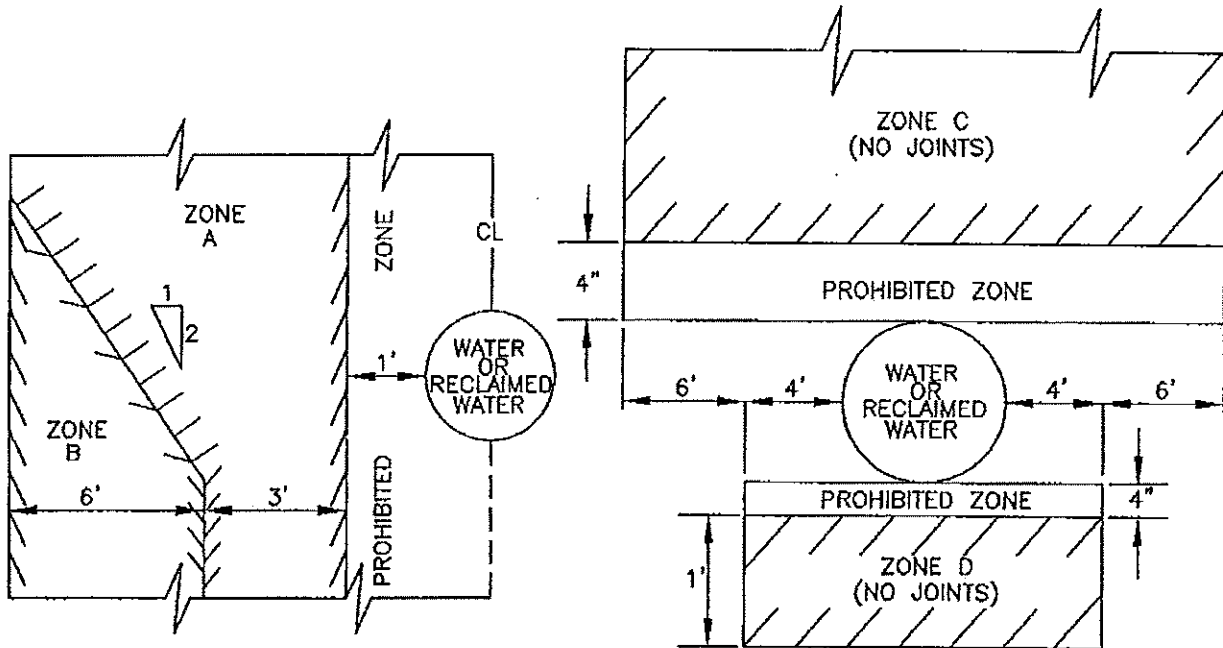


BASIC SEPARATION STANDARDS

1. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE DOMESTIC WATER AND RECLAIMED WATER MAINS AND SEWER LINES SHALL BE AT LEAST 10 FEET.
2. PERPENDICULAR CONSTRUCTION (CROSSING): PRESSURE WATER MAINS SHALL BE AT LEAST ONE FOOT ABOVE SANITARY SEWER AND RECLAIMED WATER LINES WHERE THESE LINES MUST CROSS.
3. SPECIAL PROVISIONS: ALTERNATIVE CONSTRUCTION CRITERIA WHERE THE BASIC SEPARATION STANDARDS CANNOT BE ATTAINED ARE SHOWN BELOW:

SITUATION:

LOCATION OF NEW SEWER & RECLAIMED WATER LINES TO EXISTING DOMESTIC & RECLAIMED WATER LINES.



PARALLEL CONSTRUCTION

PERPENDICULAR CROSSING

IF ANY SEWER OR RECLAIMED WATER PIPELINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE SEWER

RECLAIMED WATER

- | | | |
|---|--|--|
| A | DO NOT LOCATE ANY PARALLEL SEWER OR RECLAIMED WATER LINES IN THIS AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL. | |
| B | USE V.C.P. OR D.I.P. WITH COMPRESSION JOINTS. | USE D.I.P. OR CLASS 200 P.V.C. - AWWA C900 |
| C | USE D.I.P. WITH MECHANICAL JOINTS OR CLASS 200 P.V.C. - AWWA C900 | USE D.I.P. OR CLASS 200 P.V.C. - AWWA C900 |
| D | USE D.I.P. OR CLASS 200 P.V.C. - AWWA C900 | USE D.I.P. OR CLASS 200 P.V.C. - AWWA C900 |

MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CALIFORNIA

PIPELINE SEPARATION
REQUIREMENTS
SHEET 1 OF 2

NO SCALE

STANDARD DWG.

S-019

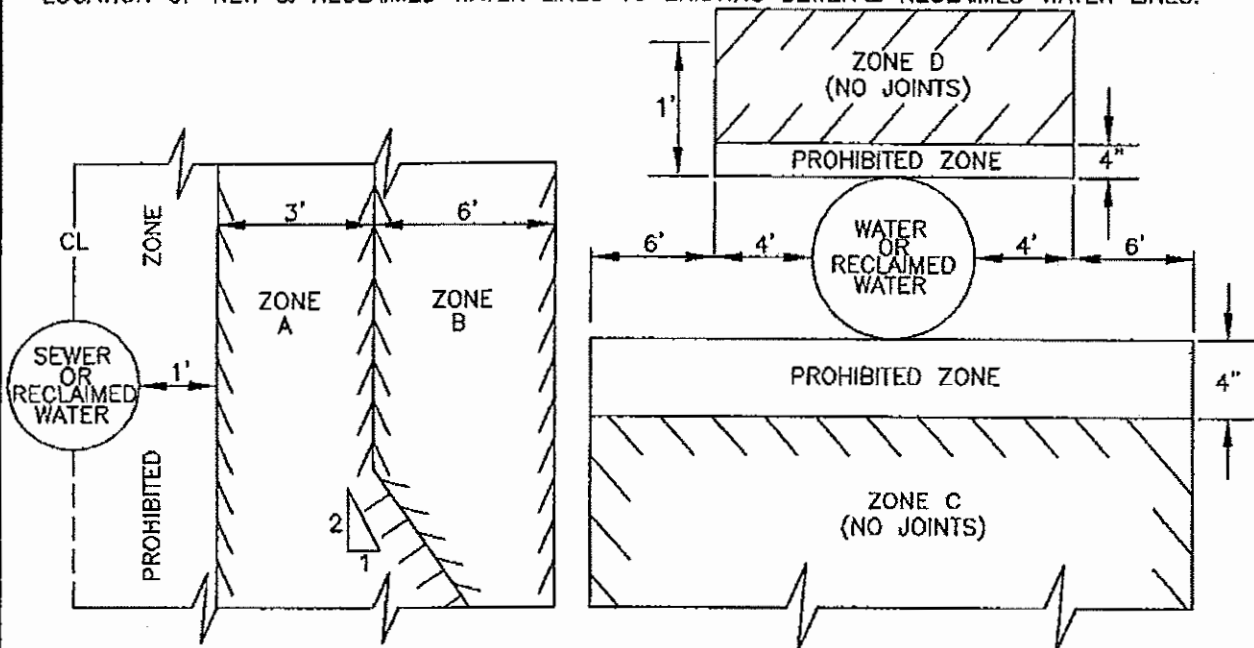
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GENERAL NOTES

1. NO PIPE JOINTS SHALL BE PERMITTED WITHIN ZONE D. IT IS THE INTENT OF THESE SPECIFICATIONS THAT NO JOINTS SHALL OCCUR WITHIN ZONE C. IF THAT CANNOT BE ACCOMPLISHED, THE NEW PIPELINE SHALL BE ENCASED IN CONCRETE FOR THE FULL LENGTH OF ZONE C. ENCASEMENT SHALL BE PER STD. DWG. S-018, TYPE "B"
2. ALL D.I.P. MUST HAVE HOT DIP BITUMINOUS COATING AND ALL CLASS 200 P.V.C. MUST MEET DR-14 PER AWWA C900 OR EQUIVALENT.
3. SEWER FORCE MAINS SHALL NOT BE PERMITTED IN ZONES A THROUGH D.
4. THIS CRITERIA DOES NOT APPLY FOR A RECLAIMED WATER LINE CROSSING ANOTHER RECLAIMED WATER LINE.
5. THE CONSTRUCTION CRITERIA APPLY TO HOUSE LATERALS THAT CROSS ABOVE A PRESSURE WATER MAIN BUT NOT TO THOSE HOUSE LATERALS THAT CROSS BELOW A PRESSURE WATER MAIN.

SITUATION:

LOCATION OF NEW & RECLAIMED WATER LINES TO EXISTING SEWER & RECLAIMED WATER LINES.



PARALLEL CONSTRUCTION

PERPENDICULAR CROSSING

IF ANY WATER OR RECLAIMED WATER PIPELINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE DOMESTIC WATER OR RECLAIMED WATER

- A DO NOT LOCATE ANY PARALLEL DOMESTIC WATER OR RECLAIMED WATER MAIN IN THIS AREA. WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL.
- B USE D.I.P. OR CLASS 200 P.V.C. - AWWA C900
- C USE D.I.P. OR CLASS 200 P.V.C. - AWWA C900
- D USE D.I.P. OR CLASS 200 P.V.C. - AWWA C900

MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CALIFORNIA

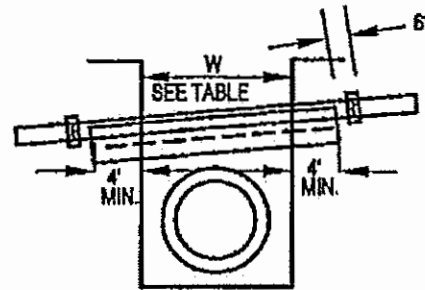
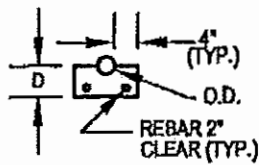
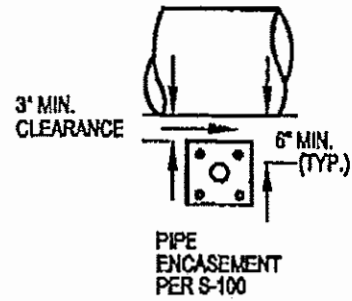
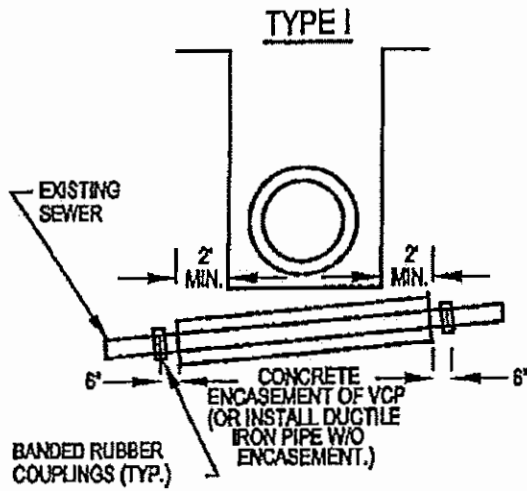
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PIPELINE SEPARATION
REQUIREMENTS
SHEET 2 OF 2

NO SCALE

STANDARD DWG.

S-019



TYPE II

W	DEPTH OF COVER			
	0' TO 6'		8' TO 16'	
	D	BAR #	D	BAR #
3'	12"	4(13)	12"	4(13)
4'	12"	4(13)	12"	5(16)
5'	12"	4(13)	16"	5(16)
6'	12"	5(16)	16"	5(16)
7'	12"	5(16)	16"	6(19)
8'	12"	5(16)	16"	6(19)
9'	12"	6(19)	16"	8(25)
10'	12"	6(19)	16"	8(25)

NOTE:

() DENOTES METRIC SYSTEM.

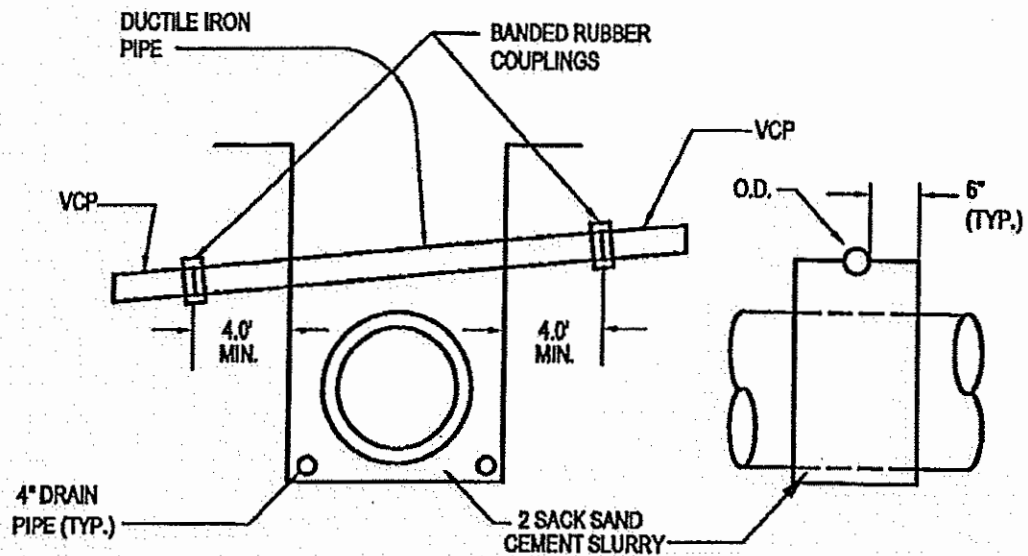
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MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CA

[Signature] 11/2/2016

PIPE SUPPORT
BEAM
ACROSS TRENCHES

NO SCALE
STANDARD DWG.
S-020



NOTE:

THIS DETAIL MAY BE USED ONLY WITH PRIOR
APPROVAL OF THE DISTRICT ENGINEER.

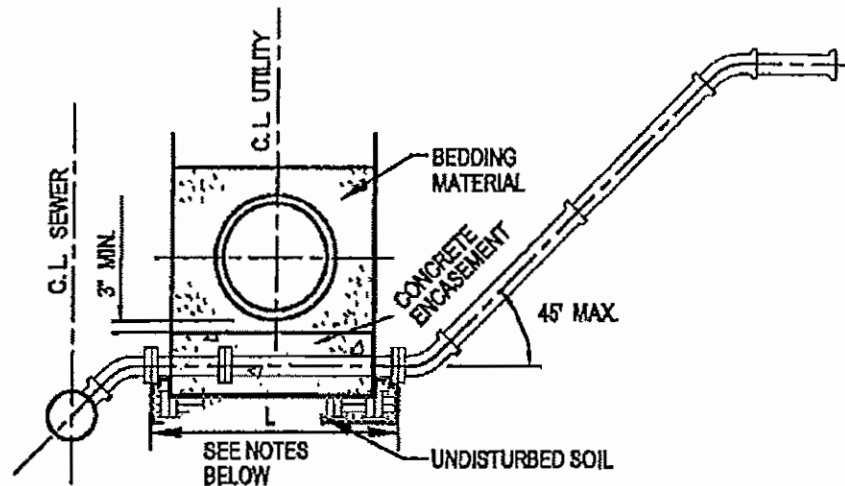
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IRVING CITY SANITARY DISTRICT
WESTMINSTER, CA

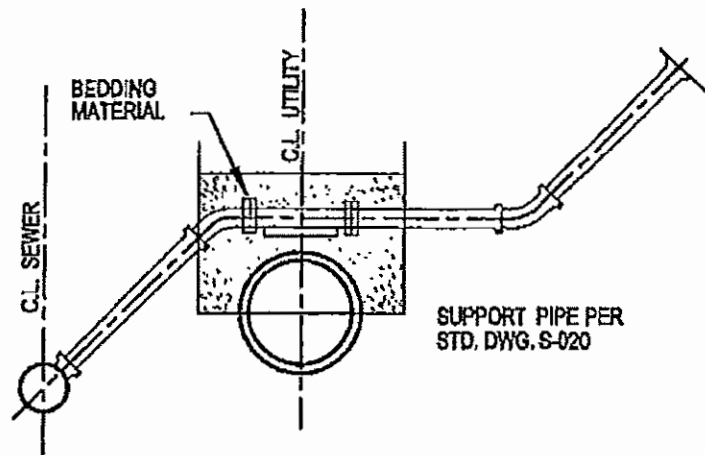
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PIPE SUPPORT
WALL
ACROSS TRENCHES

NO SCALE
STANDARD DWG.
S-021



TYPE I



TYPE II

NOTES:

1. ANY OTHER PROPOSED DESIGN SHALL HAVE THE DISTRICT ENGINEER'S APPROVAL PRIOR TO THE START OF CONSTRUCTION.
2. MINIMUM SLOPE FOR SEWER LATERAL SHALL BE 1/4" PER FOOT.
3. L= WIDTH OF STORM DRAIN TRENCH PLUS EXTENSION AT BOTH SIDES TO FIRST PIPE JOINT AT OR BEYOND TRENCH.
4. LATERALS SHALL HAVE A MINIMUM OF 5' OF COVER AT THE PROPERTY LINE.
5. ALL ENCASED SEWER PIPE SHALL BE DUCTILE IRON WITH BANDED RUBBER COUPLINGS.
6. ALL ENCASEMENTS SHALL BE CLASS 'A' CONCRETE.

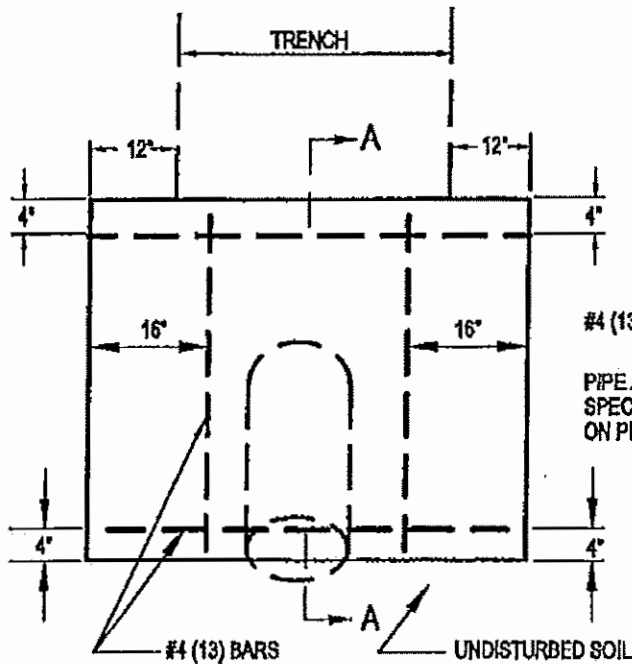
NO.	APPROVED	DATE

MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CA

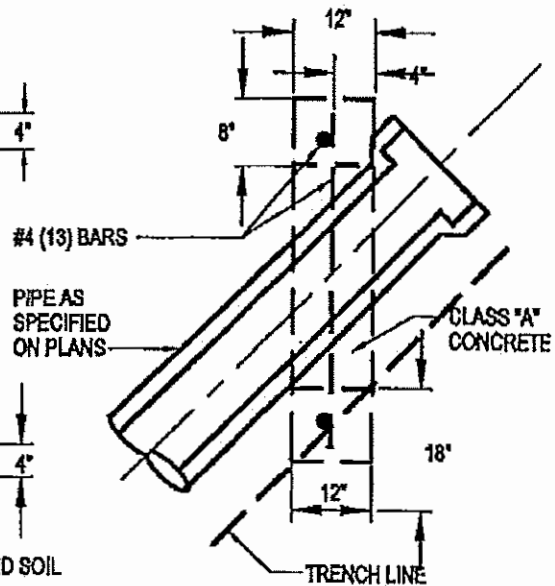
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SEWER HOUSE
LATERAL AT
UTILITY INTERSECTIONS

NO SCALE
STANDARD DWG.
S-022



ELEVATION



SECTION A-A

NOTES:

1. PIPE ANCHOR BLOCKS SHALL BE INSTALLED ON ALL SEWERS WHERE THE SLOPE EXCEEDS 30%.
2. SPACING SHALL BE 100' ON CENTER WHERE SLOPES ARE 30% TO 50%, 75' ON CENTER WHERE SLOPES ARE 51% TO 70% AND 50' ON CENTER WHERE SLOPES ARE 71% AND GREATER.
3. THE ENGINEER MAY REQUIRE DUCTILE IRON PIPE WITH MECHANICAL JOINTS IN LIEU OF ANCHOR BLOCKS.

() DENOTES METRIC SYSTEM.

NO.	APPROVED	DATE

MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CA

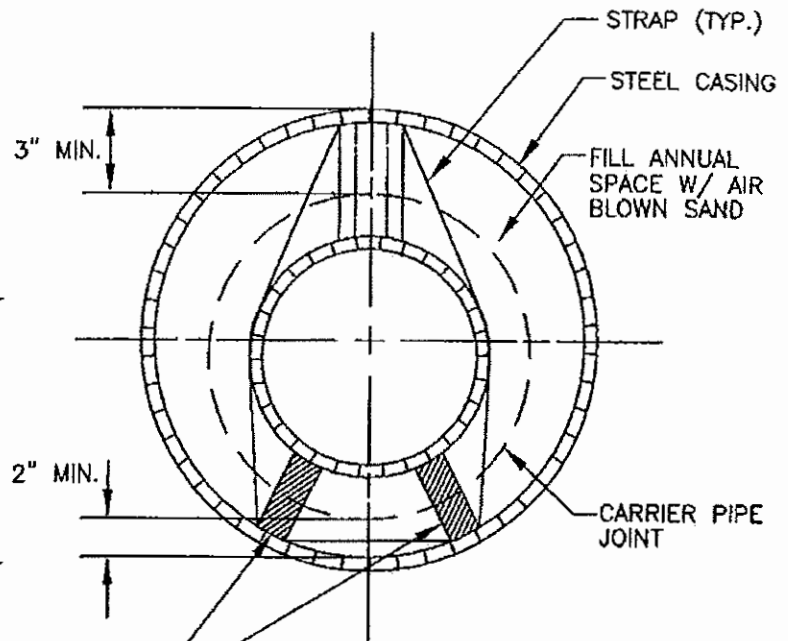
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ANCHOR
BLOCK
DETAIL

NO SCALE
STANDARD DWG.
S-023

V.C.P. SIZE	MIN. CASING SIZE	MIN. WALL THICKNESS
6"	16" I.D.	1/4"
8"	18" I.D.	1/4"
10"	21" I.D.	5/16"
12"	24" I.D.	5/16"

P.V.C. SIZE	MIN. CASING SIZE	MIN. WALL THICKNESS
6"	12" I.D.	1/4"
8"	16" I.D.	1/4"
10"	18" I.D.	5/16"
12"	20" I.D.	5/16"



FOR EACH LENGTH OF PIPE, 3' LONG 4" X 4" SKIDS BEVELED AT BOTH ENDS, SHALL BE STRAPPED IN PLACE 3" FROM EACH END OF PIPE. NOTCH SKID TO SEAT STRAP. STRAP SHALL BE 316 STAINLESS STEEL.

NOTES:

1. UNLESS NOTED OTHERWISE, CASING SHALL BE INSTALLED BY THE BORE, JACK AND/OR TUNNEL METHOD.
2. SIZE AND THICKNESS OF CASING SHALL BE AS SHOWN IN SCHEDULE.
3. ALL STEEL CASING PIPE FIELD JOINTS SHALL BE WELDED FULL-CIRCUMFERENCE.
4. UNFINISHED 4" X 4" REDWOOD SKIDS SHALL BE PROVIDED PER DETAIL ABOVE.
5. CARRIER PIPE SHALL BE AIR PRESSURE TESTED PRIOR TO FILLING CASING.
6. UPSTREAM AND DOWNSTREAM ELEVATIONS OF CARRIER PIPE TO BE VERIFIED PRIOR TO FILLING.
7. EACH END OF CASING SHALL BE SEALED WITH CONCRETE MORTAR.
8. INSTALL GROUT CONNECTIONS TO CASING AND GROUT TO FILL ALL VOIDS.

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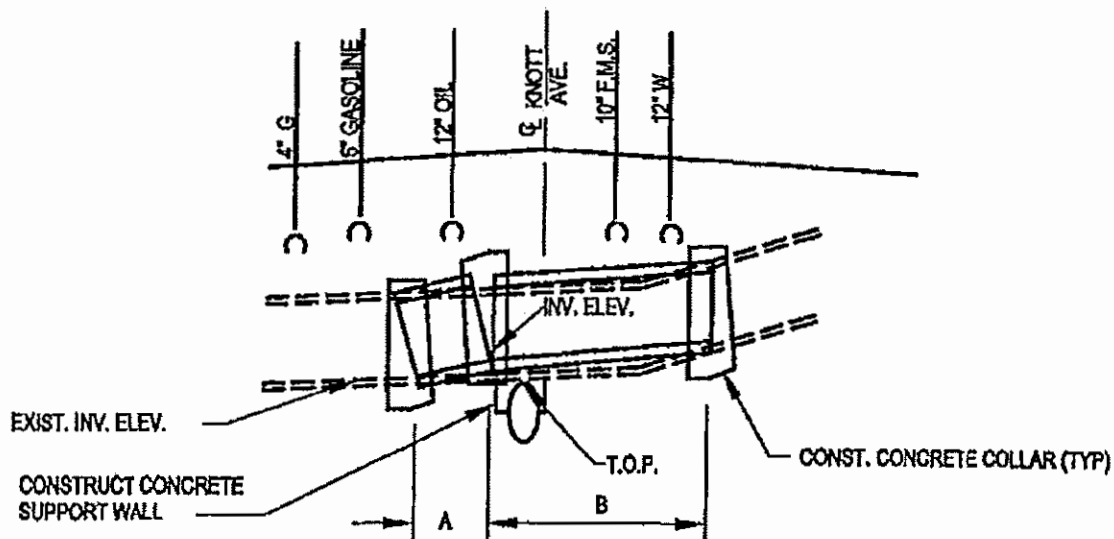
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STEEL PIPE CASING

NO SCALE

STANDARD DWG.

S-030A

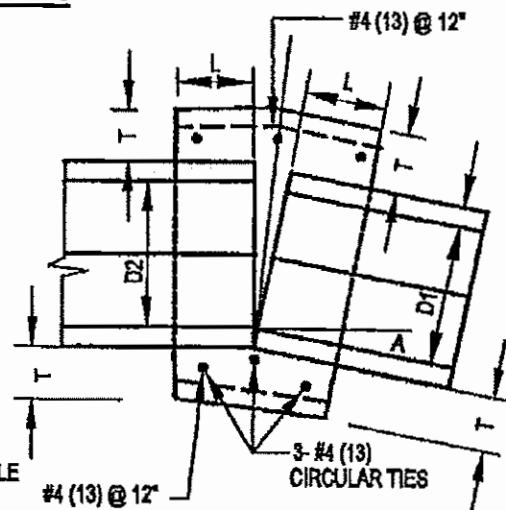


TYPICAL PROFILE
NO SCALE

NOTES:

1. A CONCRETE COLLAR IS REQUIRED WHERE THE CHANGE IN GRADE EXCEEDS 0.10 FEET PER FOOT.
2. WHERE PIPES OF DIFFERENT DIAMETERS ARE JOINED WITH A CONCRETE COLLAR, L AND T SHALL BE THOSE OF THE LARGER PIPE D=D1 OR D2, WHICHEVER IS GREATER.
3. FOR PIPE SIZE NOT LISTED USE NEXT SIZE LARGER.
4. OMIT REINFORCING ON PIPES 24" AND LESS IN DIAMETER AND ON ALL PIPES WHERE ANGLE CHANGE IS LESS THAN 0.10 FEET PER FOOT.
5. WHERE REINFORCING IS REQUIRED THE DIAMETER OF THE CIRCULAR TIES SHALL BE $D + (2 \times \text{WALL THICKNESS}) + 8$.
6. WHEN D1 IS EQUAL TO OR LESS THAN D2, JOIN INVERTS AND WHEN D1 IS GREATER THAN D2, JOIN SOFFITS.
7. NOT TO BE USED FOR A SIZE CHANGE ON THE MAINLINE.
8. USE CLASS "A" CONCRETE.
9. DIMENSIONS A,B, ELEVATIONS AND SLOPES ($S=0.00\%$) SHALL BE SHOWN ON THE PLANS.
10. THE INSIDE OF THE FIELD CLOSURE SHALL BE BARREL FORMED UTILIZING T-LOCK PVC AND ANGLE TURNBACKS AT EDGES, CAULK EDGES OF PVC.

() DENOTES METRIC SYSTEM



TYPICAL CONCRETE COLLAR
NO SCALE

D	L	T
12"	1.0"	4"
18"	1.0"	5"
24"	1.0"	6"
36"	1.5"	8"
42"	1.5"	9"

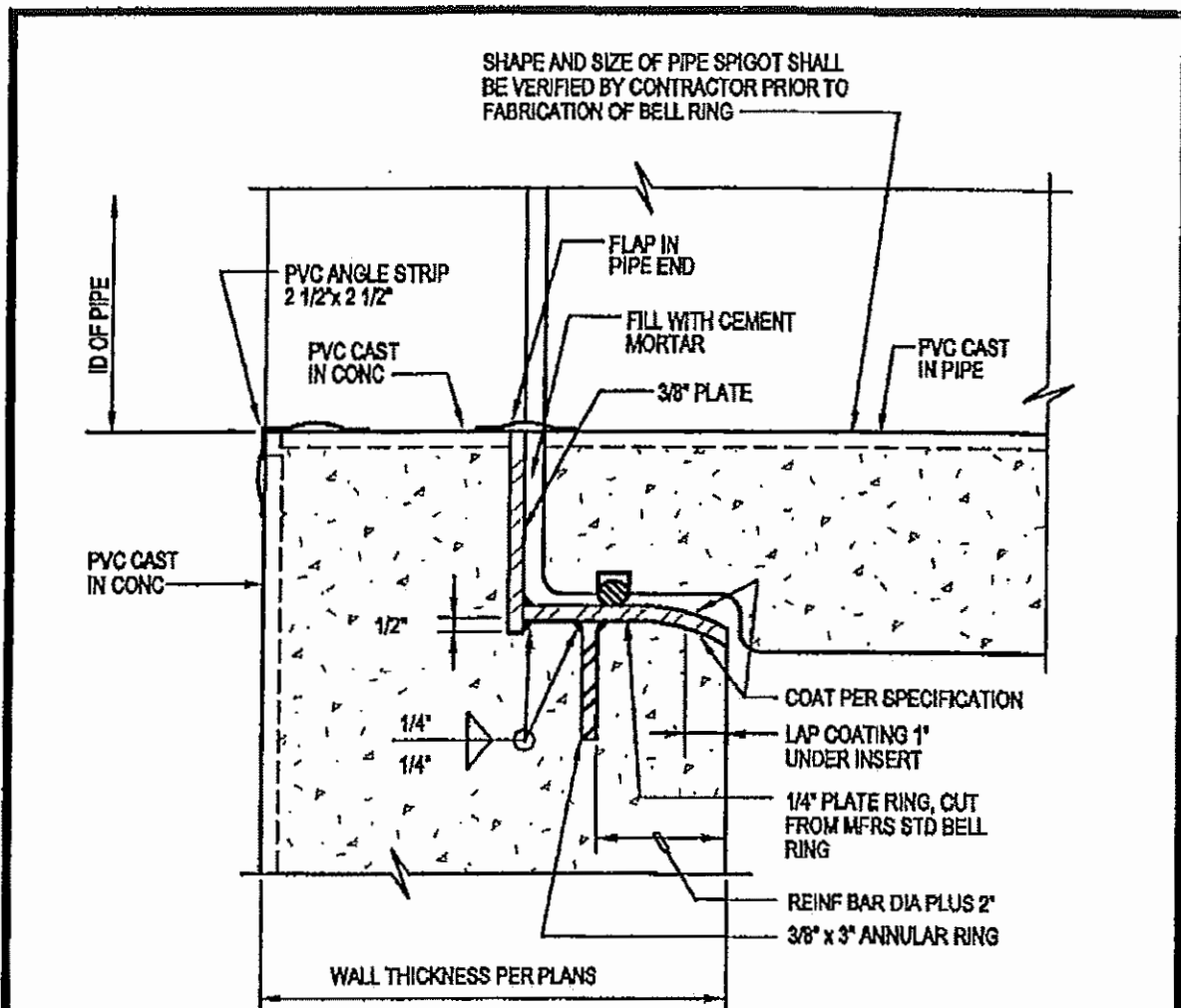
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FIELD CLOSURE
FOR
V.C.P.

NO SCALE
STANDARD DWG.
S-040



NOTES:

1. WELD ALL CUT REINFORCING BARS TO ANNULAR RING FOR PIPES GREATER THAN 48" DIAMETER. USE LOW HYDROGEN WELDING ER 70XX.
2. GRIND SMOOTH ALL METAL EDGES IN AREAS TO BE COATED AND ALL SURFACES IN PIPE SEATING AREA.
3. RING SHALL HAVE SPIDER BRACING INSTALLED AT POINT OF MANUFACTURE.
4. ALL WELDS SHALL BE DYE TESTED PRIOR TO SHIPMENT.

NO.	APPROVED	DATE

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BELL RING INSERT
WITH PVC
PLATE LINER

NO SCALE
STANDARD DWG.
S-044

FRAME AND COVER
PER DWG. S-053

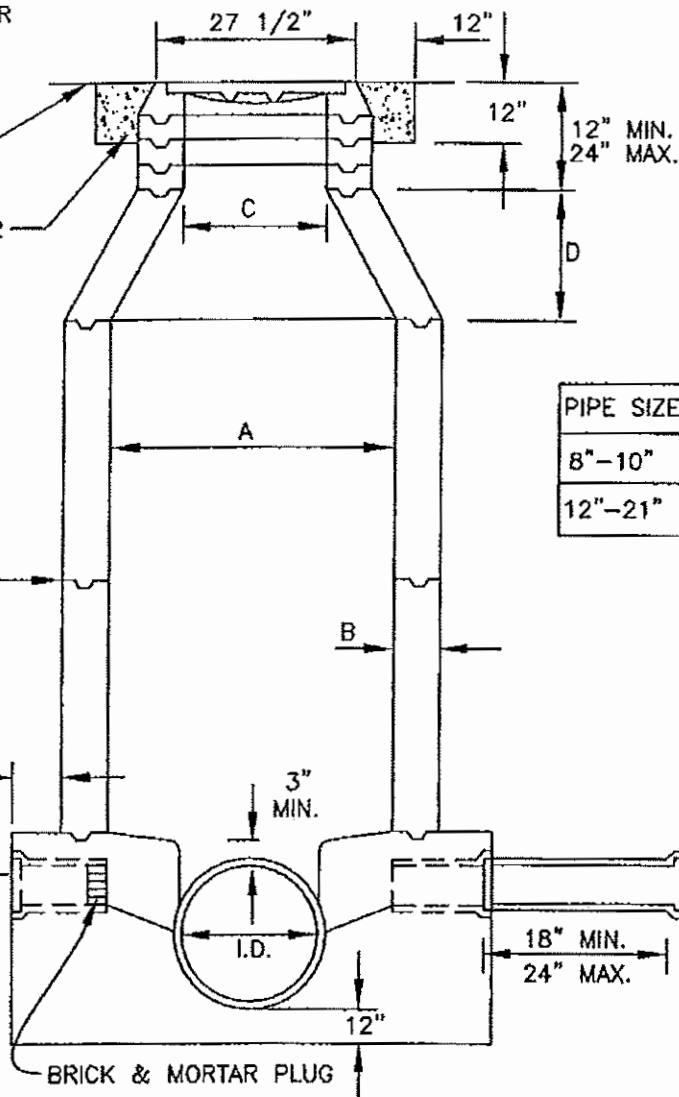
3/4" TO 1"
A.C. PAVING

CLASS "B"
CONCRETE COLLAR

1" MASTIC
JOINT (TYP.)

FACTORY
PLUG

BRICK & MORTAR PLUG



NOTES:

1. NO STEPS ARE ALLOWED IN ANY MANHOLE. ALL SHAFTS AND CONES SHALL BE PRECAST. ECCENTRIC CONE SHALL BE SET WITH STRAIGHT SIDE ON THE DOWNSTREAM SIDE OF THE MANHOLE. SHAFT AND CONE MAY BE REINFORCED OR NON-REINFORCED.
2. MANHOLE BASE SHALL BE POURED WITH CLASS "A" CONCRETE.
3. SIDES OF BASE SHALL BE EITHER FORMED OR POURED AGAINST VERTICAL SMOOTH EARTH.
4. CROWN OF LATERAL SHALL MATCH CROWN OF MAIN.
5. MANHOLE PLACED IN UNPAVED AREAS SHALL HAVE THEIR FRAMES AND COVERS SET TO 18" ABOVE FINISHED GRADE.
6. WHEN THE DEPTH OF MANHOLE EXCEEDS 15' FROM THE TOP OF PIPE TO FINISHED GRADE THE MANHOLE SHAFT SHALL BE INCREASED TO A DIAMETER OF 60".

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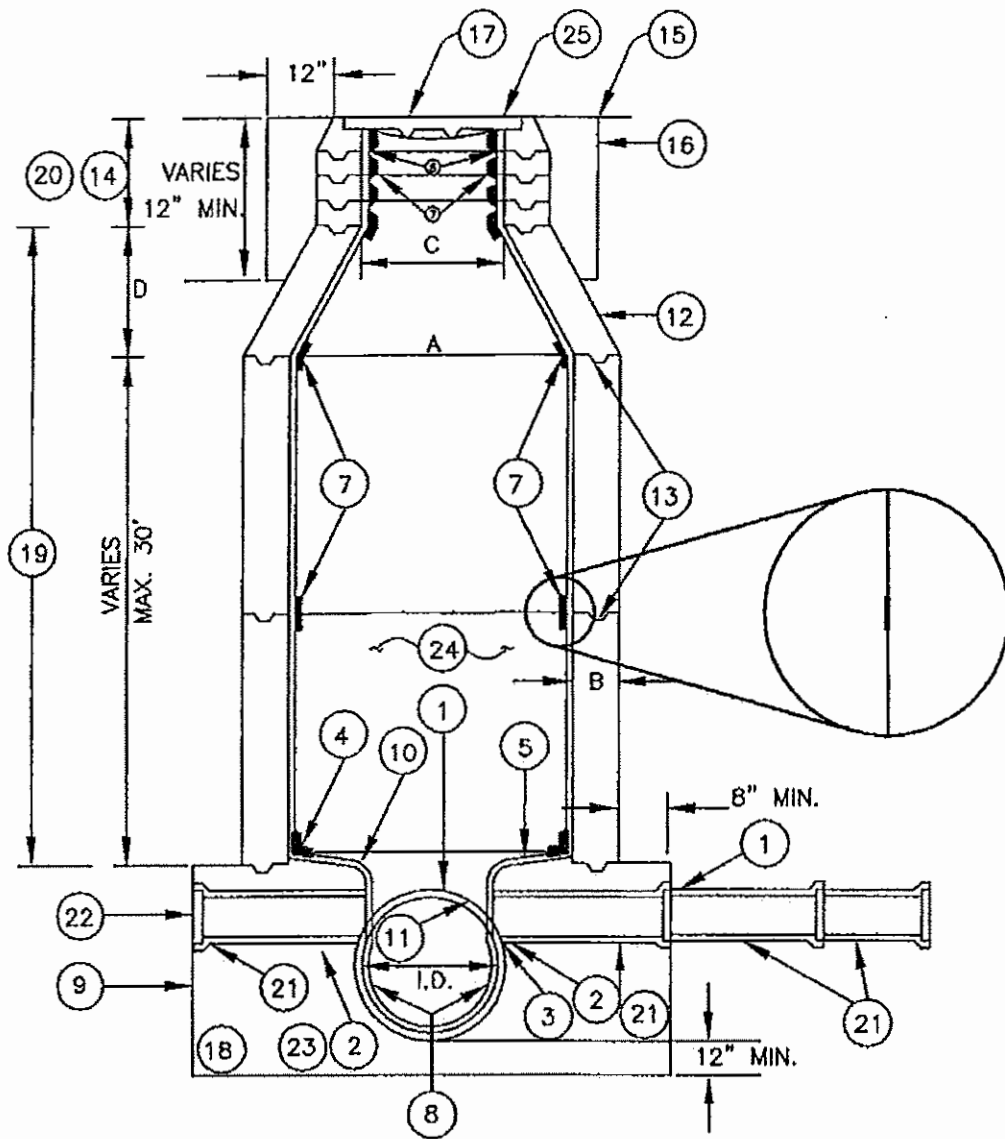
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UN-LINED MANHOLE FOR SEWERS

NO SCALE

STANDARD DWG.

S-045A



NOTES:

SEE DETAIL S-050A SHEET 3 OF 3
FOR DIMENSION TABLE.

MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CALIFORNIA

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PVC-LINED MANHOLE
FOR SEWERS
SHEET 1 OF 3

NO SCALE

STANDARD DWG.

S-050A

NOTES:

- (1.) LATERAL SOFFIT SHALL MATCH SOFFIT OF TRUNK SEWER. SEE NOTE 21.
- (2.) PVC TURNBACK ON VCP SHALL BE A MINIMUM OF 6" PER S-056.
- (3.) PVC LINER PLATE SHALL BE HELD TIGHT TO OUTSIDE SURFACE OF VCP BY 1/2" STAINLESS STEEL BAND WITH CONTACT CEMENT ADHESIVE APPLIED TO BOTH SURFACES PER S-056.
- (4.) PREFORMED CORNER WELD STRIP TO BE INSTALLED.
- (5.) INSTALL NON-SKID SURFACE ON COMPLETE MANHOLE SHELF, BOTH SIDES OF MAIN CHANNEL PER THE STANDARD SPECIFICATIONS.
- (6.) INSTALL CONTINUOUS PREFORMED CORNER PVC ANGLES UNDER FRAME.
- (7.) PVC WELD STRIPS.
- (8.) COMPLETE CONCRETE CHANNEL SHALL BE CONSTRUCTED WITH FORMS AND PVC LINED. WHERE PVC LINED RCP IS USED. THE CHANNEL LINING IS TO BE INSTALLED TO THE SAME DEPTH AS THE RCP LINING.
- (9.) SIDES OF BASE TO BE EITHER FORMED OR POURED NEAT AGAINST UNDISTURBED EARTH. BASE MAY BE EITHER CIRCULAR OR RECTANGULAR.
- (10.) MANHOLE SHELVES TO BE SLOPED 1" PER FT. TO CHANNEL
- (11.) ALL LATERAL INLETS 12" DIAMETER AND SMALLER SHALL HAVE PVC WELDED GAS FLAPS INSTALLED PER DRAWING NO. S-056.
- (12.) ECCENTRIC CONE TO BE SET WITH STRAIGHT SIDE ON DOWNSTREAM SIDE OF MANHOLE FOR MAINTENANCE PURPOSES. ECCENTRIC REINFORCED CONCRETE FLAT TOPS MAY BE USED WHEN APPROVED BY THE ENGINEER THRU SUBMITTAL REVIEW.
- (13.) 2 WRAPS OF RAM NECK OR APPROVED EQUAL SEALANT. THE SEAL STRIPS SHALL BE PLACED ON SHOULDER OF GROOVE. STEPS ARE NOT ALLOWED IN ANY MANHOLE.
- (14.) DISTANCE FROM TOP OF CONE TO TOP OF FRAME AND COVER SHALL NOT BE LESS THAN 12" OR MORE THAN 24". ALL GRADE RINGS SHALL BE REINFORCED CLASS V CONCRETE WITH PRECAST PVC LINER PLATE ON INSIDE.
- (15.) FOR 1" AC PAVING, CONTRACTOR OR DESIGNER SHALL VERIFY WITH LOCAL CITY REQUIREMENTS. SEE S-055.
- (16.) CONCRETE COLLAR SEE S-055.
- (17.) FRAME AND COVER PER DRAWING NO. S-053A, S-054-A OR S-055.
- (18.) MANHOLES 72" AND LARGER SHALL HAVE CLASS "A" CONCRETE BASES W/ #8 (19) @ 12" E.W.
- (19.) MANHOLES SHALL BE BACKFILLED WITH 1 1/2 SACK SLURRY.

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WESTMINSTER, CALIFORNIA

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PVC-LINED MANHOLE
FOR SEWERS
SHEET 2 OF 3

NO SCALE

STANDARD DWG.

S-050A

NOTES CONTINUED:

- ②0 MANHOLES PLACED IN UNPAVED AREAS SHALL HAVE THE COVERS PLACED 18" ABOVE FINISHED GRADE.
- ②1 ALL MANHOLES SHALL HAVE TWO 8" VCP STUBS SLOPED 1/4" PER FOOT INSTALLED AT 90° TO THE MAIN CHANNEL EXCEPT WHERE THE MAIN CHANNEL MAKES A TURN OF OVER 45°. STUBS SHALL BE 8" MIN. IN DIA. UNLESS OTHERWISE NOTED.
- ②2 ALL UNUSED CONNECTIONS SHALL HAVE A FACTORY MADE VCP PLUG INSTALLED IN THE BELL END OF THE PIPE AND A BRICK AND MORTAR PLUG IN THE SPIGOT END OF THE CONNECTION TO THE MAIN TRUNK SEWER CHANNEL. EACH VCP CONNECTION TO THE MANHOLE BASE SHALL HAVE TWO EACH, TWO FOOT JOINTS.
- ②3 PIPE ABOVE SPRING LINE TO BE REMOVED BY SAW CUTTING, REMOVED SECTION SHALL BE THE MANHOLE SHAFT DIAMETER.
- ②4 INSTALLATION OF P.V.C. LINER PLATE SHALL CONFORM TO THE REQUIREMENTS OF SECTION 06620 OF THE MASTER SPECIFICATIONS OF THE ORANGE COUNTY SANITATION DISTRICT.
- ②5 SEAL MANHOLE COVERS AS PER SPECIFICATIONS FOR MINIMIZING ODOR OR INFLOW.
- ②6 VACUUM TESTING SHALL BE PERFORMED PER ASTM C-1224 UNO.

○ DENOTES REINFORCED CROSS SECTION
 ○○ DENOTES BASE MUST BE REINFORCED CONCRETE

PIPE SIZE	A	B	C	D
8"-10"	48"	8"	26"	24"
		6"		
12"-24"	60"	8"	36"	24"
		6"		

MIDWAY CITY SANITARY DISTRICT
 WESTMINSTER, CALIFORNIA

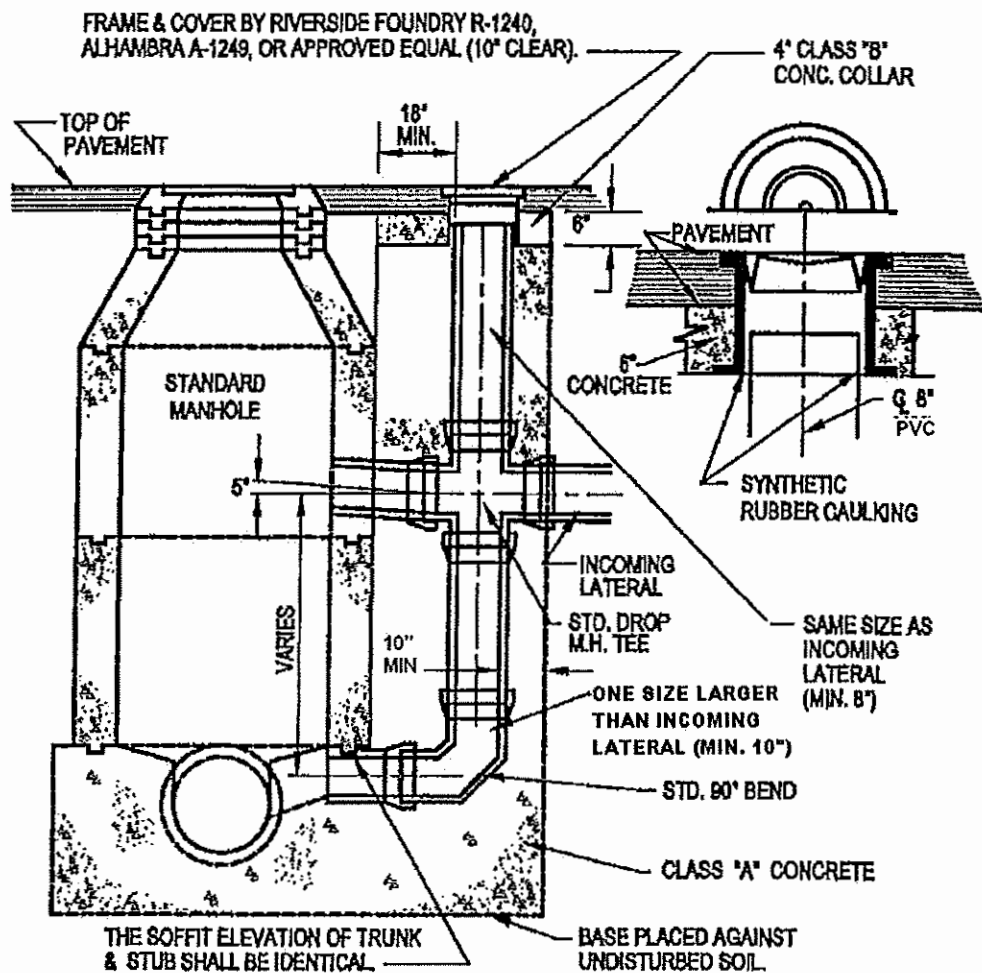
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PVC-LINED MANHOLE
 FOR SEWERS
 SHEET 3 OF 3

NO SCALE

STANDARD DWG.

S-050A



NOTES:

1. SEE DETAIL S-050 FOR STANDARD MANHOLE.
2. CONCRETE FOR DROP SECTIONS SHALL BE FORMED.
3. ALL MANHOLE PENETRATIONS SHALL BE MADE BY CORE DRILLING.
4. DROP MANHOLE CONNECTION SHALL BE USED ONLY WHERE SLOPE OF LATERAL INCOMING TO MAIN SEWER WOULD EXCEED 10% AND WITH APPROVAL OF THE THE ENGINEER AND SPECIAL PERMISSION ONLY.

NO.	APPROVED	DATE

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WESTMINSTER, CA

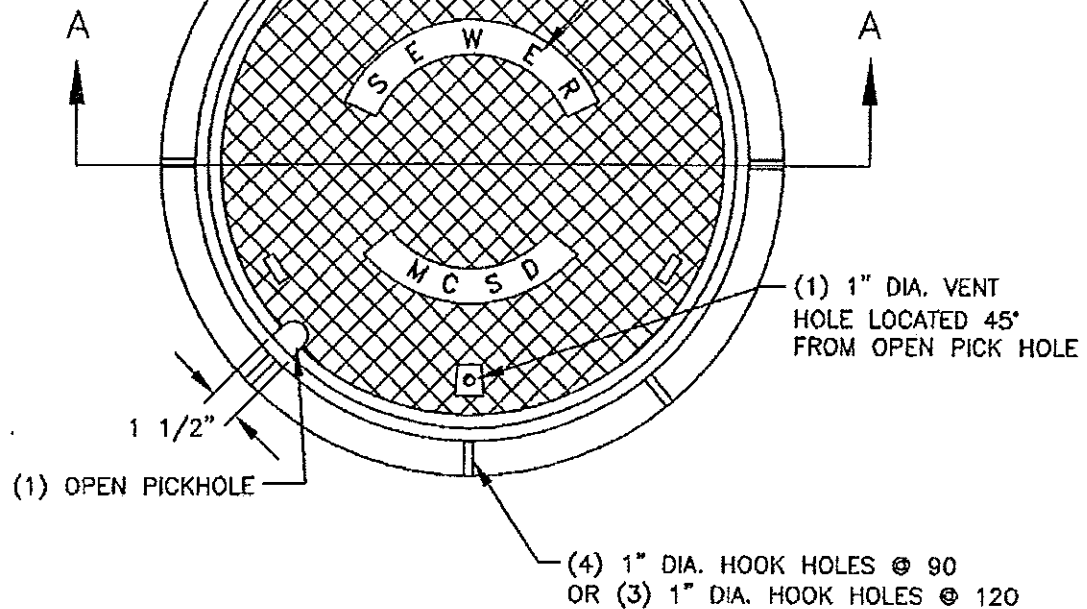
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DROP MANHOLE
CONNECTION TO
STANDARD MANHOLE

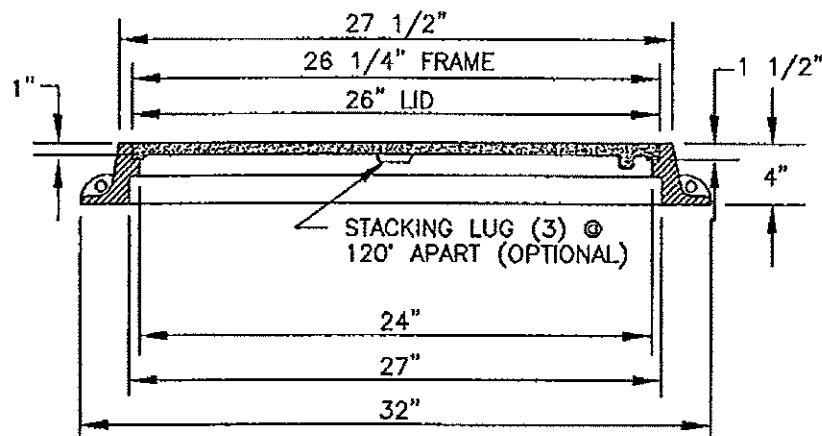
NO SCALE
STANDARD DWG.
S-051

DIAMOND TREAD PATTERN

3" LETTERS (TYP.)



PLAN



SECTION A-A

NOTE:

- COVERS SHALL BE TRAFFIC GRADE ALHAMBRA A-1270 OR APPROVED EQUAL. ALL CASTINGS SHALL BE COMPLETELY PAINTED WITH 6 MILS. "COAL TAR EPOXY" OR ASPHALT EMULSION, AND LETTERED "MADE IN COUNTRY OF ORIGIN", MARKED WITH MANUFACTURER'S IDENTIFICATION "HEAT NO. ____", "ASTM A-48", AND "CLASS 35B IRON" ON UNDERSIDE OF COVER. WEIGHT OF COVER SHALL BE 300 LBS. MIN.*, WEIGHT OF FRAME SHALL BE 275 LBS. MIN.*, *ACTUAL WEIGHTS SHALL BE BETWEEN 95-110% MINIMUM.

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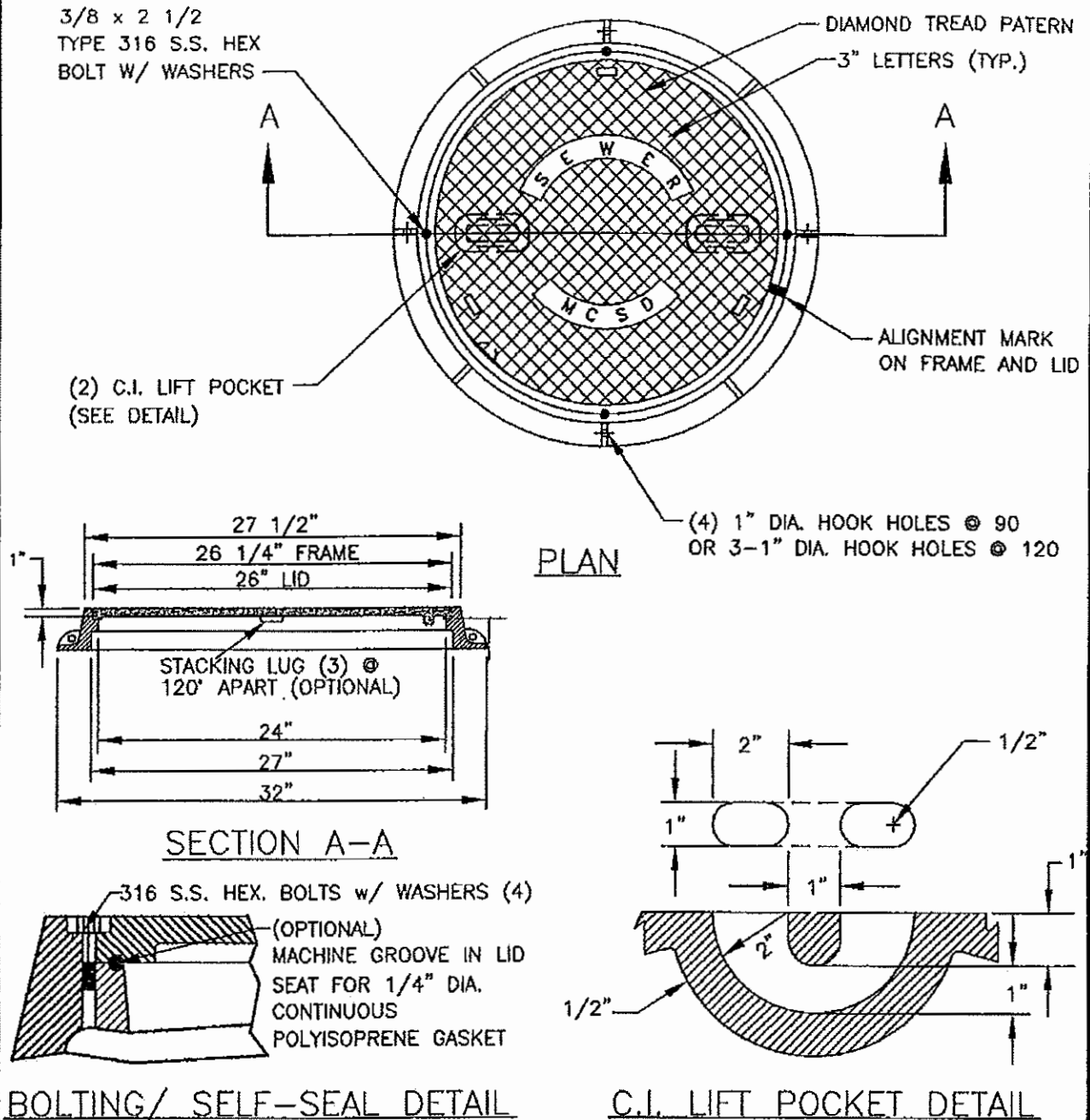
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STANDARD MANHOLE FRAME AND COVER

NO SCALE

STANDARD DWG.

S-053A



NOTE:

1. COVERS SHALL BE TRAFFIC GRADE.
ALL CASTINGS SHALL BE COMPLETELY PAINTED WITH 6 MILS. "COAL TAR EPOXY" OR ASPHALT EMULSION, AND LETTERED "MADE IN COUNTRY OF ORIGIN", MARKED WITH MANUFACTURER'S IDENTIFICATION "HEAT NO. ____", "ASTM A-48", AND "CLASS 35B IRON" ON UNDERSIDE OF COVER. WEIGHT OF COVER SHALL BE 300 LBS. MIN.*, WEIGHT OF FRAME SHALL BE 275 LBS. MIN.*
*ACTUAL WEIGHTS SHALL BE BETWEEN 95-110% MINIMUM.
2. BOLTED COVERS SHALL BE INSTALLED AT ALL INTERSECTIONS.

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WESTMINSTER, CALIFORNIA

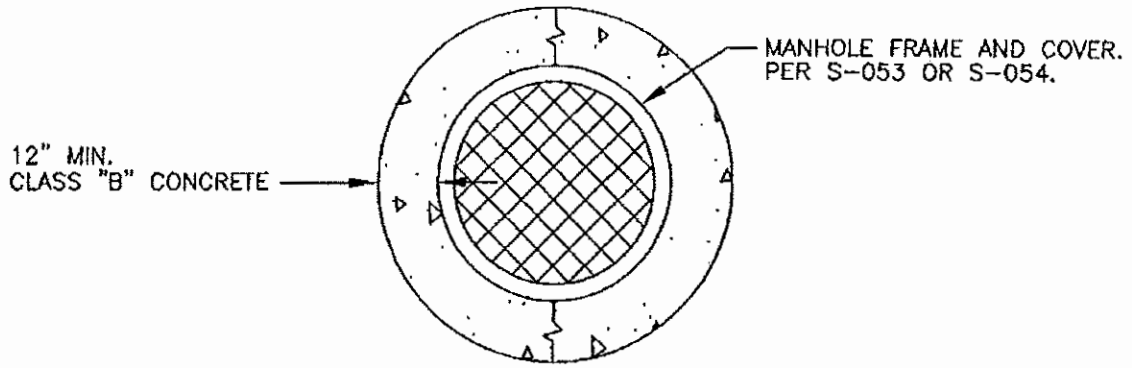
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BOLTED MANHOLE
FRAME AND COVER

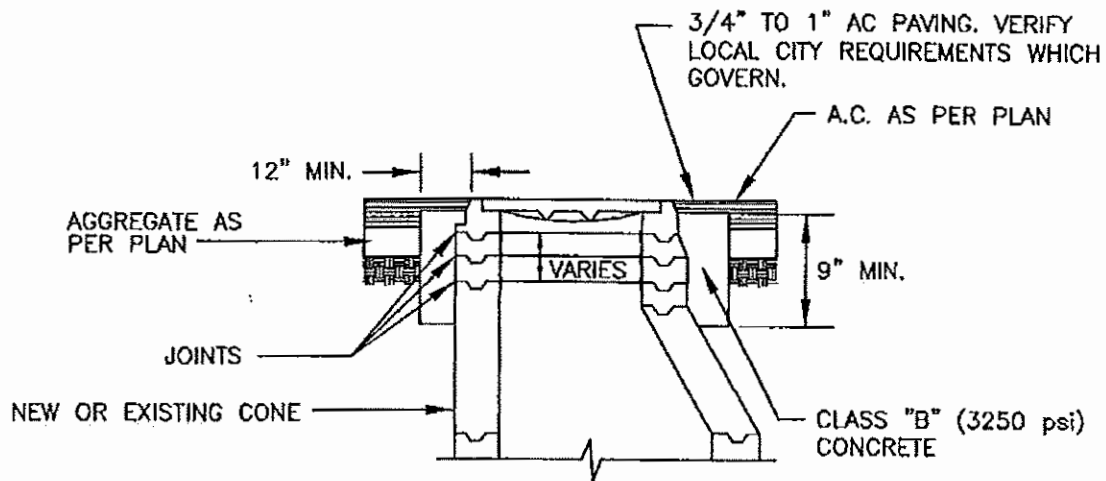
NO SCALE

STANDARD DWG.

S-054A



PLAN



CROSS SECTION

NOTES:

1. ALL AGGREGATE BASE REMOVED SHALL BE REPLACED WITH CLASS B CONCRETE.
2. CONCRETE MAY BE CIRCULAR OR SQUARE IN SHAPE WITH A MINIMUM OF 12" BETWEEN EDGE OF CONCRETE AND LIP OF MANHOLE FRAME.
3. MANHOLE MAY BE ADJUSTED TO GRADE USING MORTAR OR PRECAST RINGS. SET FLUSH TO 1/8" HIGH (MAXIMUM).
4. REPAIR PVC OR OTHER LINING, IN KIND.
5. SEAL MANHOLE COVERS AS PER SPECIFICATIONS.
6. REPAIR OR REPLACE MANHOLE LINING IN KIND PER SPECIFICATIONS.

COMPRESSIVE STRENGTH AT 28 DAYS (PSI)	3,250
CEMENT FACTOR MINIMUM (SACK/CU. YD)	5.50
WATER CEMENT RATIO MAXIMUM (GALLONS/SACK)	6.50

MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CALIFORNIA

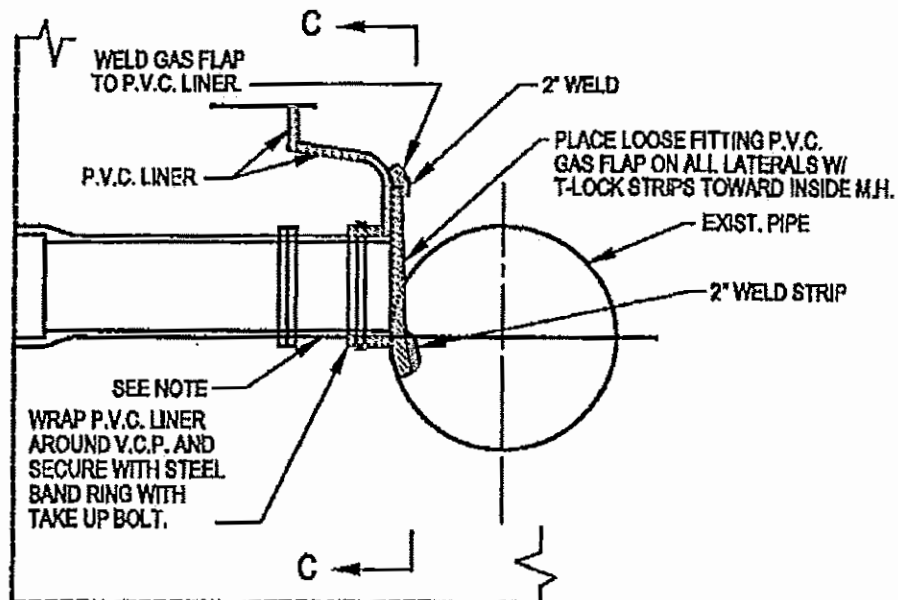
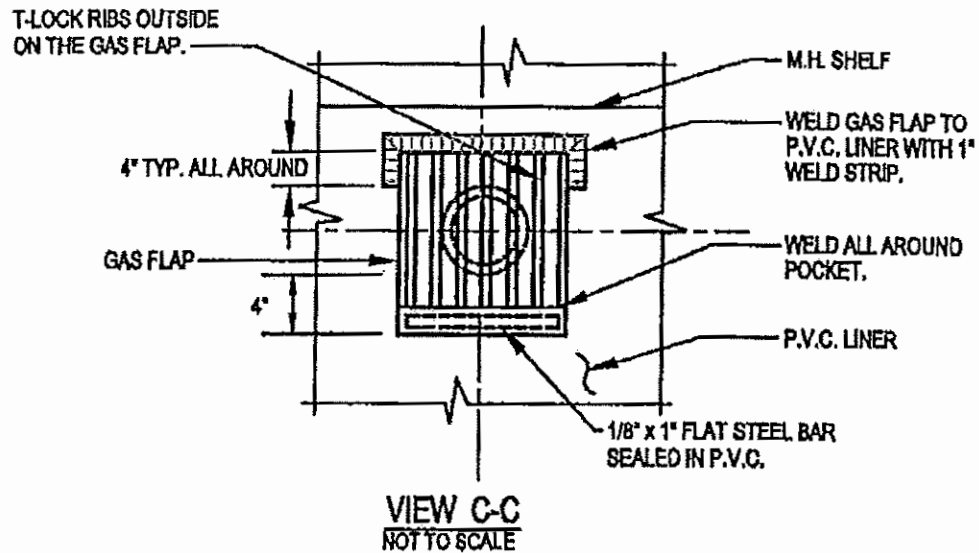
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MANHOLE ADJUSTMENT
TO GRADE

NO SCALE

STANDARD DWG.

S-055A



NOTES:

1. FOR INSTALLATION AT EXISTING M.H. REMOVE INTERFERING CONCRETE AT END OF EACH LATERAL AND EXTEND VCP AS SHOWN. GROUT IN PLACE. EXTEND PVC M.H. LINER OVER GROUT AND INSTALL GAS FLAP AS SHOWN.
2. FOR MANHOLES WITHOUT PVC LINER, ATTACH GAS FLAP WITH 1/4" x 1" ST. STL. FLAT BAR AND 3 ST. STL. CA.
3. PROVIDE GAS FLAPS FOR ALL LATERALS 12" AND LESS, UNLESS OTHERWISE SPECIFIED.

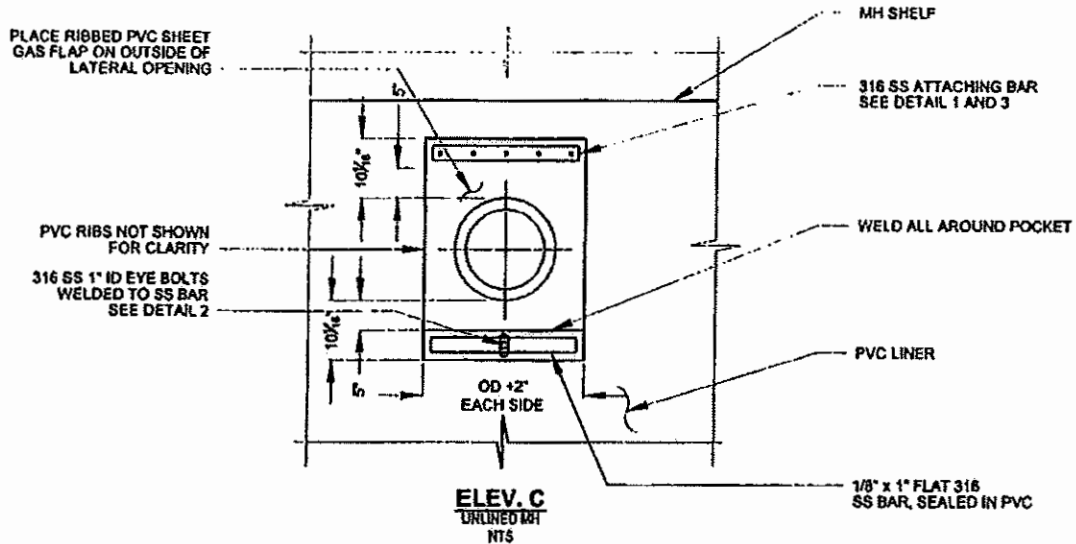
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WESTMINSTER, CA

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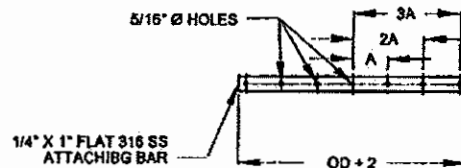
P.V.C. LINER AND GAS
FLAP INSTALLATION
AT LATERALS

NO SCALE
STANDARD DWG.
S-056

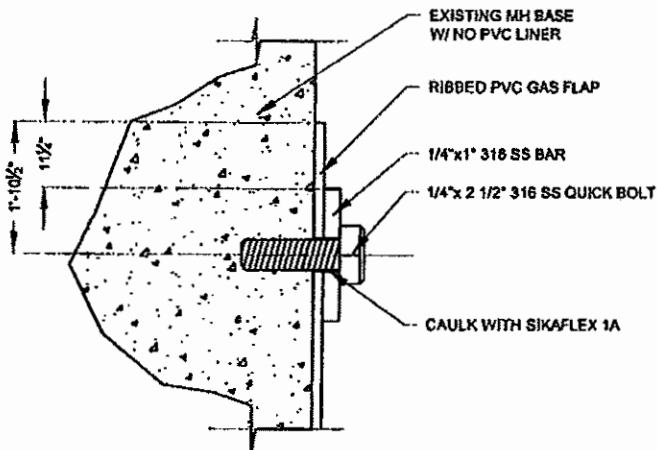


NOTES:

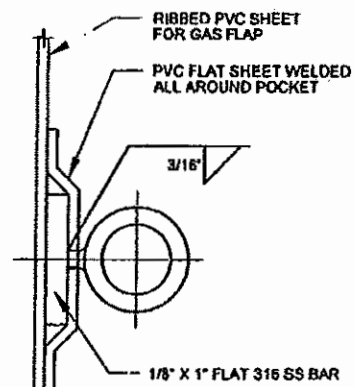
1. FOR INSTALLATION AT EXISTING MH, SEE STD DWG. S-057
2. FOR MANHOLES WITHOUT PVC LINER, ATTACH GAS FLAP W/ 1/4" x 1" 316 SS FLAT BAR. DRILL HOLES 1/2" FROM EACH END AND ONE IN THE CENTER. (A = 3" OR LESS) SPACE OTHER HOLES 3" OR LESS
3. PROVIDE GAS FLAP FOR ALL LATERALS 12" AND LESS, UNLESS OTHERWISE SPECIFIED.



DETAIL 3
ATTACHING BAR SEE NOTE 2

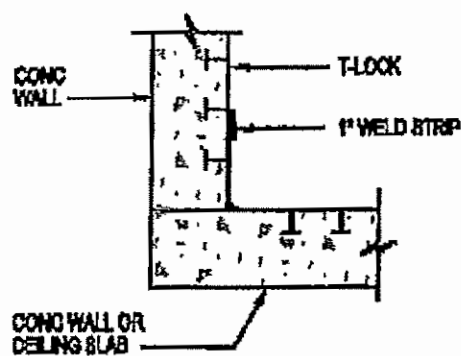


DETAIL 1
NTS

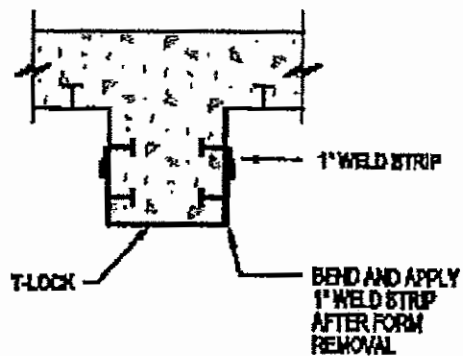


DETAIL 2
NTS

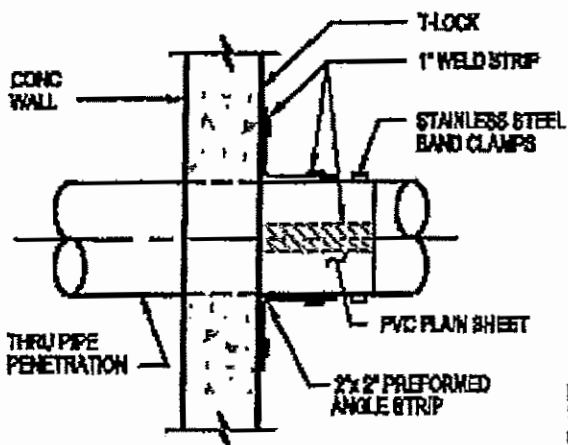
			MIDWAY CITY SANITARY DISTRICT WESTMINSTER, CALIFORNIA		GAS FLAP INSTALLATION FOR UNPVC LINED OR UNLINED MANHOLES		STANDARD DWG. S-057	
055	1	MST	11/20/2010					
NO.	APPROVED	DATE						



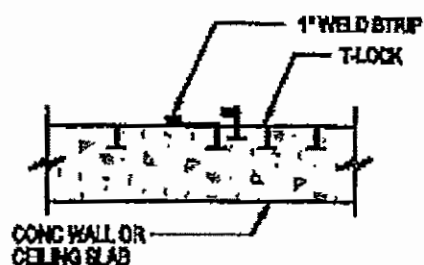
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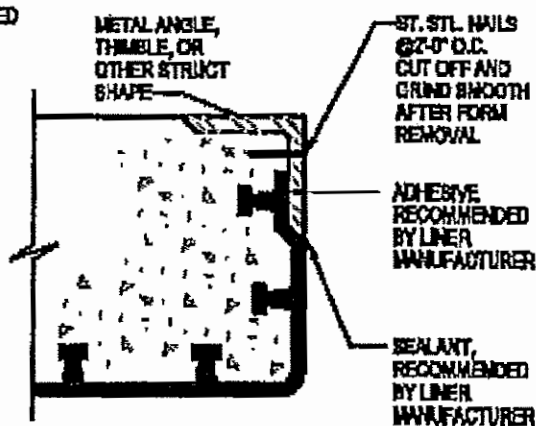
BEAM



PIPE PENETRATION



SPLICE



METAL EMBED

NOTES:

1. AT BUTT JOINTS, INSTALL 1" WELD STRIP ON FRONT AND BACK.
2. LINER RIBS SHALL BE ORIENTED VERTICALLY ON VERTICAL SURFACES.

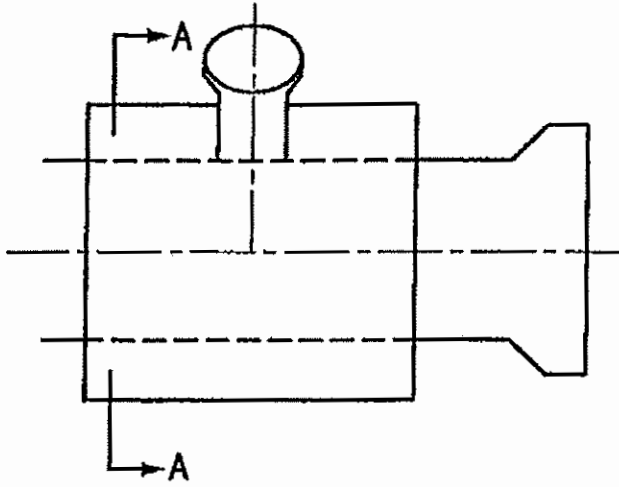
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WESTMINSTER, CA

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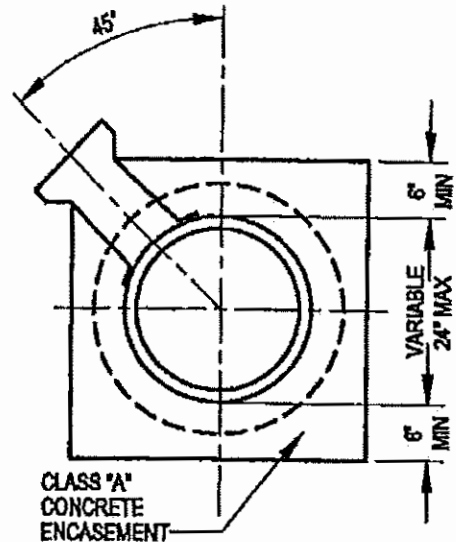
LINER-PVC

NO SCALE
STANDARD DWG.
S-065

THE BELL ON THE COLLAR TEE SADDLE SHALL NOT BE ENCASED IN CONCRETE. TAP SHALL BE MADE AT THE APPROXIMATE CENTERLINE OF THE JOINT. ENCASE 12" EACH SIDE OF OPENING.



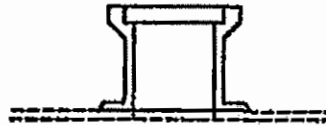
ELEVATION



SECTION A-A

NOTE:

SADDLE CONNECTIONS SHALL NOT BE MADE TO SEWERS LARGER THAN 8" I.D.



COLLAR TEE SADDLE

(AS PROVIDED BY MANUFACTURER)

NOTES:

1. THE CONTRACTOR SHALL SECURE THE COLLAR TEE SADDLE TO THE SEWER WITH AN EPOXY RESIN PROVIDED BY THE PIPE MANUFACTURER.
2. THE CONTRACTOR SHALL ENCASE THE SADDLE CONNECTION WITH CLASS "A" CONCRETE AFTER THE CONNECTION IS INSPECTED BY THE ENGINEER.
3. THE CONTRACTOR SHALL KEEP ALL CLAY CHIPS, DIRT, EPOXY, MORTAR AND CONCRETE OUT OF THE SEWER SADDLE, AND PERFORM A CLEANING AND BALLING OF THE SEWER.
4. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED PIPE AS DIRECTED BY THE ENGINEER.
5. SADDLE CONNECTIONS TO SEWERS 8" IN DIAMETER SHALL BE DONE BY CORE DRILL.

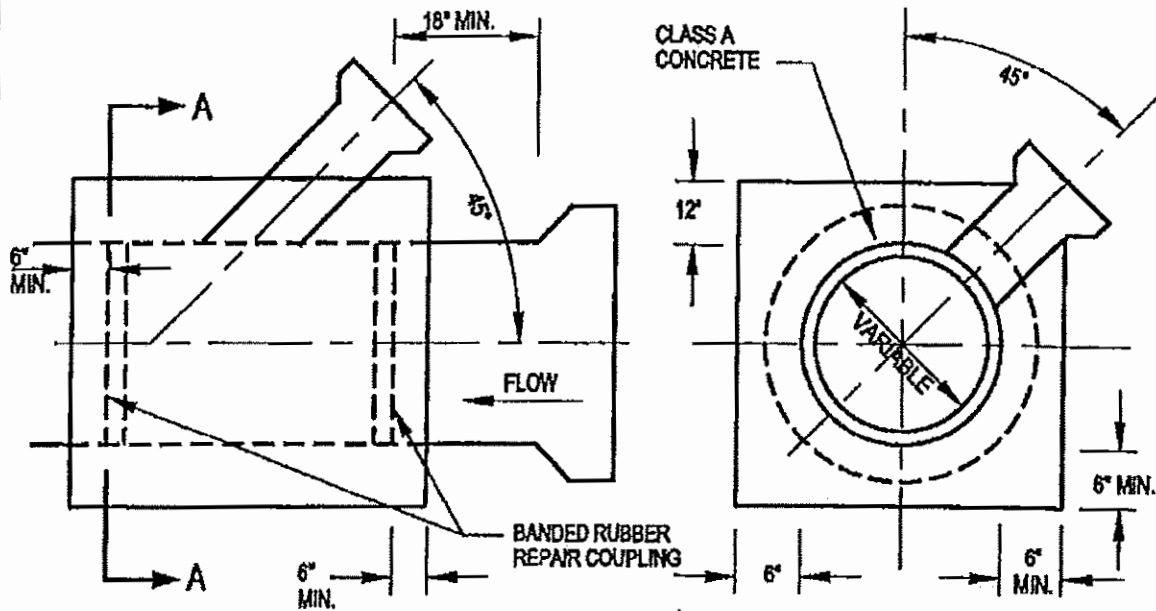
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MIDWAY CITY SANITARY DISTRICT
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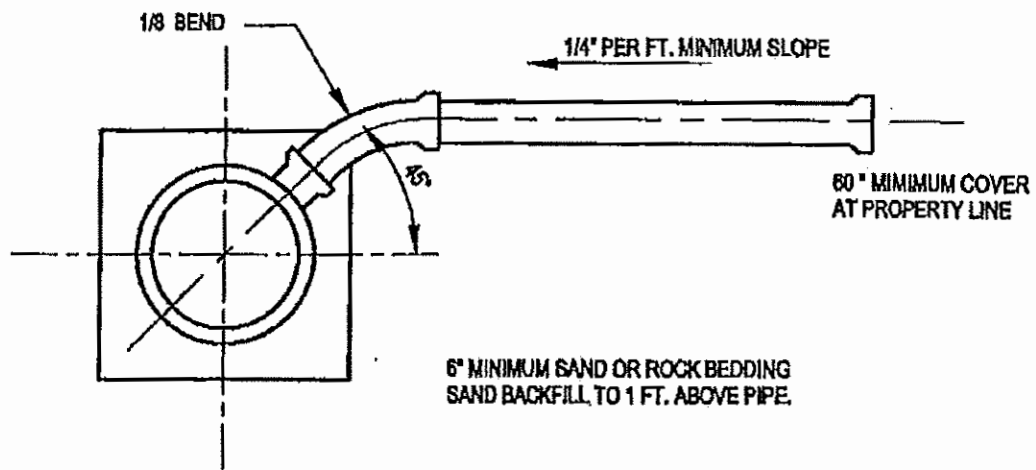
SADDLE CONNECTION

NO SCALE
STANDARD DWG.
S-070



ELEVATION

SECTION A-A



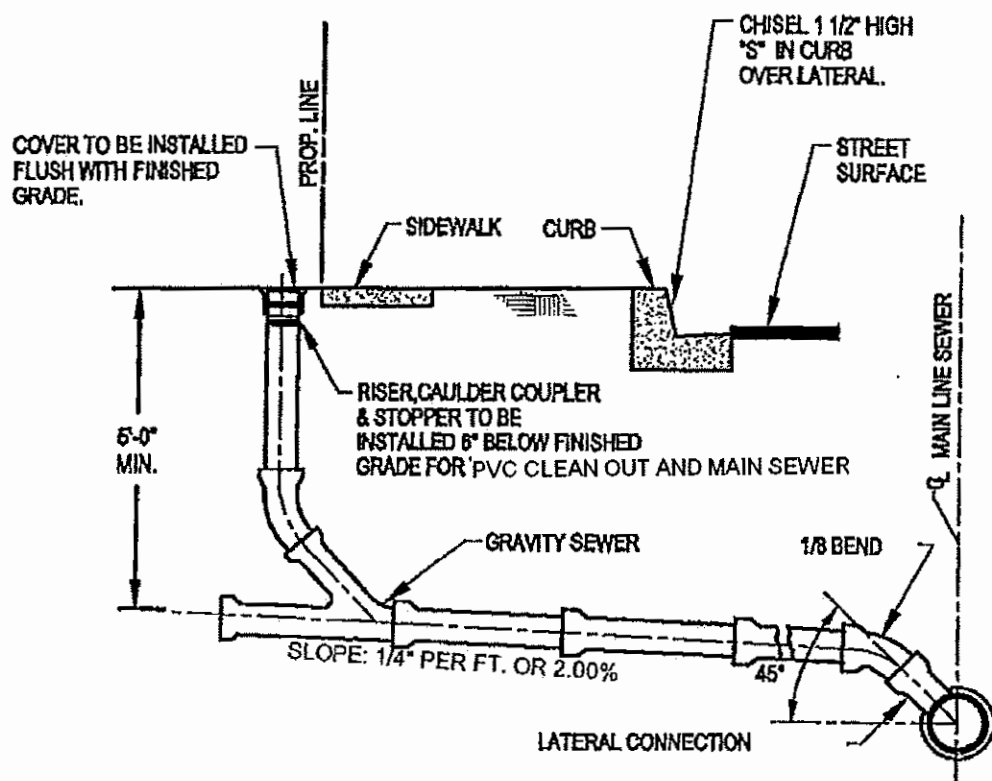
NO.	APPROVED	DATE

SADWAY CITY SANITARY DISTRICT
WESTMINSTER, CA

Phygy Phygy 11/2/2012

CUT IN WYE CONNECTION

NO SCALE
STANDARD DWG.
S-071



NOTES:

1. FOR SLOPE LESS THAN 1/4" PER FOOT, A 6" CONNECTION SHALL BE USED. MIN. SLOPE = 1/8" PER FT.
2. SEWER CLEANOUT SHALL INCLUDE A STOPPER OVER RISERS.
3. FOR SEWER CLEANOUT RISER USE PIPE OF THE SAME DIAMETER AND MATERIAL USED IN THE ADJOINING SEWER LINE.
4. SINGLE FAMILY RESIDENCES SHALL BE 4" GRAVITY SEWERS. ALL OTHERS SHALL BE 6" OR MORE.
5. A CLEANOUT SHALL BE INSTALLED ON ALL HOUSE CONNECTIONS.
6. GRAVEL OR CRUSHED ROCK BEDDING TO SPRING LINE OF WYE AND 1 FOOT EACH SIDE OF LATERAL.

NO.	APPROVED	DATE

MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CA

Handwritten signature 11/2/2010

HOUSE LATERAL, TYPICAL

NO SCALE

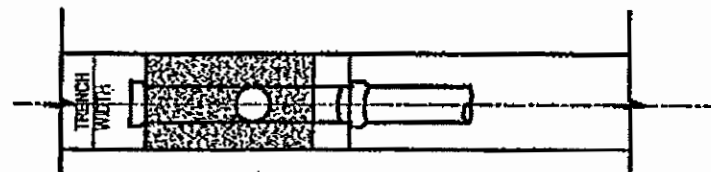
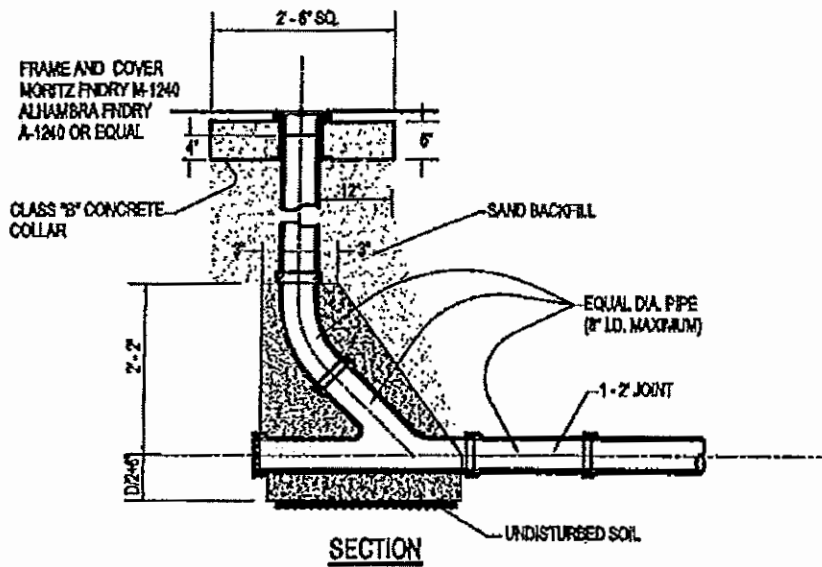
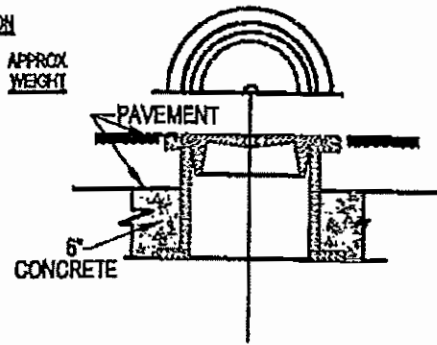
STANDARD DWG.

S-072

**LAMPHOLE COVER AND FRAME
FOR SEWER LINE INSPECTION AND EXAMINATION**

PLATE NUMBER	CLEAR OPENING	OVERALL BASE	HEIGHT FRAME	APPROX WEIGHT
M-1240	110 10	15	12	

PAINTED: BITUMINOUS PAINT



SECTION A-A

NOTES:

1. CLEAN OUTS IN PUBLIC RIGHT OF WAY APPROVED FOR USE IN UNINCORPORATED ONLY. PERMISSION TO CONSTRUCT CLEAN OUTS MUST BE OBTAINED FROM THE ENGINEER IN EACH CASE.

NO.	APPROVED	DATE

MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CA

Henry Peng 11/21/2010

**CLEAN OUT
DETAIL
IN ROADWAY**

NO SCALE
STANDARD DWG.
S-073

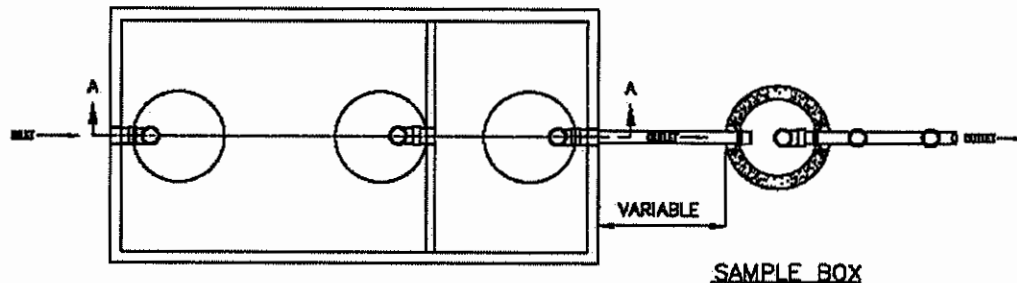
GREASE INTERCEPTOR TANK WITH SAMPLE BOX

MIDWAY CITY SANITARY DISTRICT
WESTMINSTER, CALIFORNIA

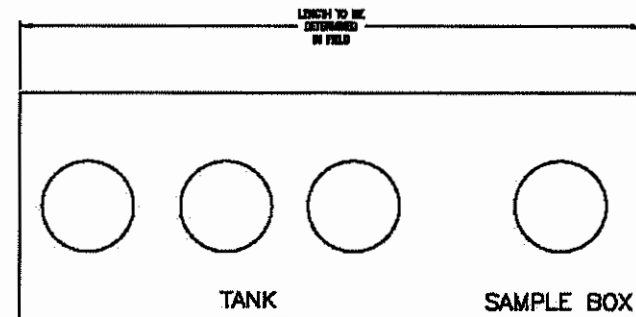
REQUIREMENTS:

1. Size and Location of Interceptor to be approved prior to installation.
2. Interceptor to have:
 - a. Sample Box
 - b. Sanitary Tee; inside sample box, discharge side
 - c. Vent
 - d. Cleanout prior to lateral connection
 - e. Manhole at each internal baffle tube -- no more than 10' between manholes
3. Inspection of Interceptor
 - a. All connections to interceptor to be inspected prior to backfill.
 - b. Interceptor to be filled with water prior to inspection, per manufacturers instruction or request.
4. All manholes and sample boxes to be installed a minimum of 1/2" above finish grade/pavement with a concrete collar a minimum of 18" around all manhole lids and 12" deep.
5. Concrete Collar, Sample Box fitting and all exterior piping supplied by installer.

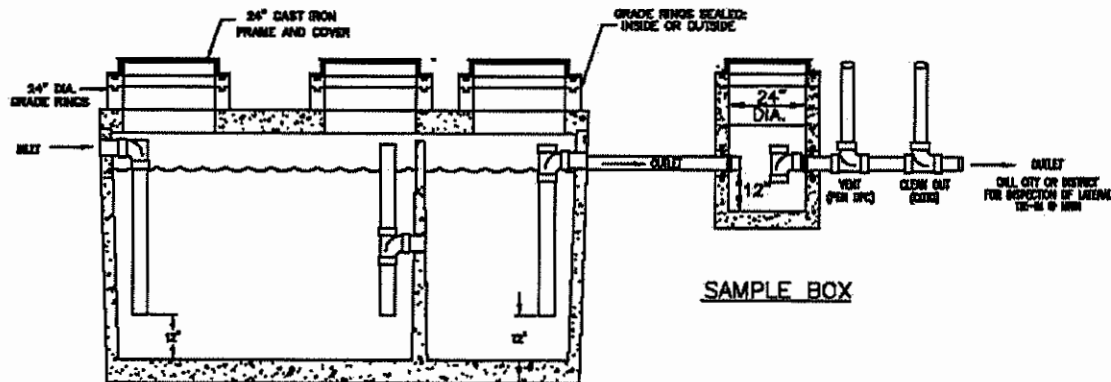
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PLAN VIEW



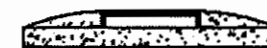
CONCRETE COLLAR DETAIL
PLAN VIEW



SIDE VIEW



PLAN VIEW



END VIEW

GREASE INTERCEPTOR

APPENDIX A7 - Spill Prevention and Clean Up

IC17. SPILL PREVENTION AND CLEANUP

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner¹. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	x
Metals	x
Bacteria	x
Oil & Grease	x
Organics & Toxicants	x
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

Spill Prevention

1. Develop procedures to prevent/mitigate spills to storm drain systems.
Standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures.
2. Post "No Dumping" signs with a phone number for reporting illegal dumping and disposal.
3. Conduct routine cleaning, inspections, and maintenance
 - Sweep and clean storage areas consistently at a designated frequency (e.g. weekly, monthly). DO NOT hose down areas to storm drains.
 - Place drip pans or absorbent materials beneath all mounted taps, and at all potential drip and spill locations during filling and unloading of tanks. Reuse, recycle, or properly dispose of any collected liquids or soiled absorbent materials.
 - Check tanks (and any containment sumps) frequently for leaks and spills. Replace tanks that are leaking, corroded, or otherwise deteriorating with tanks in good condition. Collect all spilled liquids and properly dispose of them.

MINIMUM BEST MANAGEMENT PRACTICES Pollution Prevention/Good Housekeeping

- Develop procedures to prevent/mitigate spills to storm drain systems.
- Post "No Dumping" signs with a phone number for reporting illegal dumping and disposal.
- Conduct routine cleaning, inspections, and maintenance.
- Properly store and handle chemical materials.
- Protect materials stored outside from stormwater runoff.
- Secure drums stored in an area where unauthorized persons may gain access to prevent accidental spillage, pilferage, or any unauthorized use.
- Identify key spill response personnel.
- Clean up leaks and spills immediately.
- Report and track spills.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

¹ EPA "Preliminary Data Summary of Urban Stormwater Best Management Practices"

- Check for external corrosion of material containers, structural failures, spills and overfills due to operator error, failure of piping system, etc.
 - Inspect tank foundations, connections, coatings, and tank walls and piping system.
4. Properly store and handle chemical materials.
 - Designate a secure material storage area that is paved with Portland cement concrete, free of cracks and gaps, and impervious in order to contain leaks and spills.
 - Do not store chemicals, drums, or bagged materials directly on the ground. Place these items in secondary containers.
 - Keep chemicals in their original containers, if feasible.
 - Keep containers well labeled according to their contents (e.g., solvent, gasoline).
 - Label hazardous substances regarding the potential hazard (corrosive, radioactive, flammable, explosive, poisonous).
 - Prominently display required labels on transported hazardous and toxic materials (per US DOT regulations).
 5. Utilize secondary containment systems for liquid materials.
 - Surround storage tanks with a berm or other secondary containment system.
 - Slope the area inside the berm to a drain.
 - Drain liquids to the sanitary sewer if available. DO NOT discharge wash water to sanitary sewer until contacting the local sewer authority to find out if pretreatment is required
 - Pass accumulated stormwater in petroleum storage areas through an oil/water separator.
 - Use catch basin filtration inserts.
 6. Protect materials stored outside from stormwater runoff. Construct a berm around the perimeter of the material storage area to prevent the runoff of uncontaminated stormwater from adjacent areas as well as runoff of stormwater from the material.
 7. Secure drums stored in an area where unauthorized persons may gain access to prevent accidental spillage, pilferage, or any unauthorized use.

Spill Control and Cleanup Activities

8. Identify key spill response personnel.
9. Adopt the Orange County Hazardous Materials Area Plan or an equivalent plan, which includes a set of planned responses to hazardous materials emergencies. The plan should include:
 - Description of the facility, owner and address, activities and chemicals present
 - Facility map
 - Notification and evacuation procedures
 - Cleanup instructions
 - Identification of responsible departments
10. Clean up leaks and spills immediately.
 - Place a stockpile of spill cleanup materials where they will be readily accessible (e.g. near storage and maintenance areas).
 - Utilize dry cleaning methods to clean up spills to minimize the use of water. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste. Physical methods for the cleanup of dry chemicals include the use brooms, shovels, sweepers, or plows.
 - Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
 - Clean up chemical materials with absorbents, gels, and foams. Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
 - For larger spills, a private spill cleanup company or Hazmat team may be necessary.

11. Reporting

1. Report spills that pose an immediate threat to human health or the environment to local agencies, such as the fire department, and the Regional Water Quality Control Board.
2. Establish a system for tracking incidents. The system should be designed to identify the following:
 - Types and quantities (in some cases) of wastes
 - Patterns in time of occurrence (time of day/night, month, or year)
 - Mode of dumping (abandoned containers, “midnight dumping” from moving vehicles, direct dumping of materials, accidents/spills)
 - Responsible parties
3. Federal regulations require that any oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hour).

Training

1. Educate employees about spill prevention and cleanup.
 - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
 - Educate employees on aboveground storage tank requirements.
 - Train all employees upon hiring and conduct annual refresher training.
2. Train employees responsible for aboveground storage tanks and liquid transfers on the Spill Prevention Control and Countermeasure Plan.

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read “No Dumping Drains to Ocean”.

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003.
www.cabmphandbooks.com

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

Stormwater Management Manual for Western Washington. Volume IV Source Control BMPs. Prepared by Washington State Department of Ecology Water Quality Program. Publication No. 99-14. August 2001.

For additional information contact:

County of Orange/ **OC** Watersheds

Main: (714) 955-0600

24 hr Water Pollution Hotline: 1-877-89-SPILL

or visit our website at www.ocwatersheds.com

APPENDIX A8 - Confined Space

MIDWAY CITY SANITARY DISTRICT WRITTEN PROGRAM

FOR

CONFINED SPACE

THESE POLICIES SHALL MEET OR EXCEED OSHA STANDARDS

Completed by: Nicolas Castro, Director of Operations/Safety and current Sewer Maintenance employees

Date writing: February 12, 2014

Confined Spaces include: manholes, wet-wells, vaults, etc.

1. Desirable (3) three trained & certified employees by MCSD
2. Required equipment: air tester, tri-pod, PPE's, air blower, full body harness, retrieval line, barricades, cones, cell phones, communications devices, entry permit required for each job
3. Air tester calibrated quarterly
4. In case of an emergency:
 - a. Call 911
 - b. Call Lead-worker and or Safety Director
 - c. Communicate said job with define rolls
5. (6) six months field training required per MCSD
6. Equipment check quarterly:
 - a. Full body harness
 - b. Tri-pod & retrieval line
 - c. Respirator
 - d. Lanyards
 - e. Air tester
 - f. Rope
 - g. Air blower
 - h. Protective gear (white paper suit)

1910.146

CONFINED SPACE PROGRAM

The following confined space program is provided only as a guide to assist employers and employees in complying with the requirements of OSHA's Confined Space Standard, 29 CFR 1910.146, as well as to provide other helpful information. It is not intended to supersede the requirements of the standard. An employer should review the standard for particular requirements that are applicable to their individual situation and make adjustments to this program that are specific to their company. An employer will need to add information relevant to their particular facility in order to develop an effective, comprehensive program.

CODE OF SAFE PRACTICE (Continued)

General Area/Specific Job Safety Class: **Sewer/Maintenance**

SAFETY STANDARDS FOR SEWER DEPARTMENT

- 1) Confined Spaces: such as entering into a manhole or wet-well will be permitted confined space entries. Requiring an Authorized Entrant, Attendant and Entry Supervisor. The use of a Tripod, gas detector and gas ventilation is mandatory.
 - a) Employees are required to wear the appropriate Personnel Protective Equipment (PPE) for confined space entry, respirator, goggles, hard hat, chemical suit, and gloves.
- 2) All electrical work being performed must have two (2) employees present at any of the District's facilities.
- 3) When working around an open wet-well hatch:
 - a) The employee or contractor performing the work must be harnessed and secured.
 - b) Any person not performing the work must stay five (5) feet away from open hatch.
- 4) Lockout/tagout procedures are required when working on electrical, pumps and any other equipment or machinery
- 5) No un-used equipment or debris should be permitted around working area. (emergency only – work sight should be keep safe as possible)
- 6) When operating the combination cleaner (Vactor Truck) a minimum of two employees must be present, the operator and helper.
 - a) Operator Duties: The operator must watch inside the manhole while the Vactor truck is in use, looking for any possible hazard coming from within the manhole.
 - b) Helper Duties: The helper sets up the work area to include but not limited to setting up traffic control when a flagman is not present. He/she must watch the surrounding area for potential hazard, pedestrian and/or children that may enter the working area.

CODE OF SAFE PRACTICE (Continued)

- c) Flagman Duties: is to setup traffic control and pay attention to oncoming traffic when he/she is needed.
 - d) Safety cones and signs shall be put out first when working in the street.
 - e) If the line cleaner is being operated, a flag person must be present on major streets or high volume of traffic that may cause hazards for pedestrians or employees. Note major streets include; Westminster Blvd, Beach Blvd, Bolsa Ave, Magnolia, Brookhurst
 - f) Flagman is require to wear the following Personal Protective Equipment (PPE); White hard hat, safety glasses, safety reflective vest.
- 7) Always notify your co-worker, lead man or supervisor if non-routine tasks are to be performed.
- 8) During any operation within the sewer collection system, lift station and/or other duties, the employee must have a steel toed shoe and safety / prescription safety glasses on at all times.
- 9) Seat belts must be worn when driving or riding in District vehicles.
- 10) All Sewer Maintenance personnel shall wear hard hats when working on construction projects.
- 11) No Smoking around or in manholes, line cleaner when in operation and in ALL District vehicles.
- 12) To lift heavy objects, squat down, keep your back straight and use the leg muscles when lifting. Do not attempt to lift any object heavier than you can handle.
- 13) Wash hands when leaving the work area.
- 14) Safety vests must be worn at all times.
- 15) No MCSD employee operating any vehicle owned or leased by MCSD may use a cell phone or other similar electronic device (including but not limited to citizens' band radios, two-way radios and walkie-talkies) for the purpose of voice-based communications, including the dialing, answering or speaking on such device or for any other purpose, unless the employee first legally parks the vehicle and set parking break. This prohibition shall also apply to any MCSD employee operating a vehicle not owned or leased by MCSD while the employee is engaged in MCSD business.

CODE OF SAFE PRACTICE (Continued)

Confined Space Entry Permit

Date and Time Issued: _____ Date and Time Expires: _____

Job site/Space I.D.: _____ Job Supervisor: _____

Equipment to be worked on: _____ Work to be performed: _____

Stand-by personnel: _____

1. Atmospheric Checks: Time _____

Oxygen _____ %

Explosive _____ % L.F.L.

Toxic _____ PPM

2. Tester's signature: _____

3. Source isolation (No Entry):	N/A	Yes	No
Pumps or lines blinded,	()	()	()
disconnected, or blocked	()	()	()

4. Ventilation Modification:	N/A	Yes	No
Mechanical	()	()	()
Natural Ventilation only	()	()	()

5. Atmospheric check after
isolation and Ventilation:

Oxygen _____ % > 19.5 %

Explosive _____ % L.F.L. < 10 %

Toxic _____ PPM < 10 PPM H(2)S

Time _____

Tester's signature: _____

6. Communication procedures:

7. Rescue procedures:

8. Entry, standby, and back up persons:	Yes	No
Successfully completed required training?		
Is it current?	()	()

CODE OF SAFE PRACTICE (Continued)

9. Equipment:	N/A	Yes	No
Direct reading gas monitor - tested	()	()	()
Safety harnesses and lifelines for entry and standby persons	()	()	()
Hoisting equipment	()	()	()
Powered communications	()	()	()
SCBA's for entry and standby persons	()	()	()
Protective Clothing	()	()	()
All electric equipment listed Class I, Division I, Group D and Non-sparking tools	()	()	()

10. Periodic atmospheric tests:

Oxygen	____%	Time	____	Oxygen	____%	Time	____
Oxygen	____%	Time	____	Oxygen	____%	Time	____
Explosive	____%	Time	____	Explosive	____%	Time	____
Explosive	____%	Time	____	Explosive	____%	Time	____
Toxic	____%	Time	____	Toxic	____%	Time	____
Toxic	____%	Time	____	Toxic	____%	Time	____

We have reviewed the work authorized by this permit and the information contained here-in. Written instructions and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit is not valid unless all appropriate items are completed.

Permit Prepared By: (Supervisor) _____

Approved By: (Unit Supervisor) _____

Reviewed By (Cs Operations Personnel) : _____

(printed name)

(signature)

This permit to be kept at job site. Return job site copy to Safety Office following job completion.

CODE OF SAFE PRACTICE (Continued)

LOCKOUT PROCEDURES FOR WORK BEING PERFORMED

ON

PUMPS OR IN WET-WELLS

Sequence of Lockout

(1) Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

Name(s)/Job Title(s) of affected employees and how to notify.

(2) The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.

Type(s) and magnitude(s) of energy, its hazards and the methods to control the energy.

(3) If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).

Type(s) and location(s) of machine or equipment operating controls.

(4) De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

Type(s) and location(s) of energy isolating devices.

(5) Lock out the energy isolating device(s) with assigned individual lock(s).

CODE OF SAFE PRACTICE (Continued)

(6) Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

Type(s) of stored energy – methods to dissipate or restrain.

(7) Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

Caution: Return operating control(s) to neutral or “off” position after verifying the isolation of the equipment.

Method of verifying the isolation of the equipment.

(8) The machine or equipment is now locked out.

Restoring Equipment to Service. When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

(1) Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.

(2) Check the work area to ensure that all employees have been safely positioned or removed from the area.

(3) Verify that the controls are in neutral.

(4) Remove the lockout devices and reenergize the machine or equipment.

Note: The removal of some forms of blocking may require re-energizing of the machine before safe removal.

(5) Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

APPENDIX A9 - General Conditions

GENERAL CONDITIONS

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GENERAL CONDITIONS

1. DEFINITIONS

The following definitions are used in the Specifications or other Contract Documents. Their intent and meaning shall be as follows:

As-Built Drawings – A copy of the Plans used by the CONTRACTOR to record changes to the Work as specified in the General Requirements.

Beneficial Occupancy – Intended use of a building, system, structure, or facility by MCSD prior to Final Completion.

Bid – A form, or forms, completed in their entirety stating the Bidder’s offer to both furnish all materials and to perform all Work required under the Contract. Bid also includes a proposal submitted by CONTRACTOR to perform all required Work.

Board – Board of Directors of the Midway City Sanitary District (MCSD). Where authority has been properly delegated to him, the Board may act through the General Manager

Bond – Performance Bond, or Payment Bond, or other instrument of security.

Business Day – A day on which MCSD offices are open for regular business, Monday through Friday between the hours of 8:00 A.M. to 4:30 P.M. (Pacific Time Zone) unless otherwise specified, and excluding MCSD Holidays.

Change Order – A written order by the ENGINEER, made bilaterally by MCSD and CONTRACTOR or unilaterally by MCSD, which covers alterations, changes, additions, or deletions to the Contract Documents or the Work in any manner which are necessary for the proper completion of the Work and which may result in adjustments to the Contract Price, period of performance, or both.

Claim – A written statement by the CONTRACTOR requesting additional time and/or money from MCSD arising out of acts or omissions of MCSD and/or differing conditions during the performance of the Contract which the CONTRACTOR could not have reasonably anticipated at the time of entering into the Contract, and which is submitted in response to MCSD's rejection of, or failure to approve, CONTRACTOR's Request for Change, or otherwise issue a Change Order modifying the Contract, adjusting the Contract Price and/or period of performance in a manner consistent with that which the CONTRACTOR believes is appropriate. The Claim shall be submitted in the manner and in the time consistent with the requirements set forth in these General Conditions.

Code – Codes of the State of California as well as any other federal or local law, statute, ordinance, rule or regulation.

Construction Schedule – The CONTRACTOR's accepted Baseline Construction Schedule as it evolves through periodic updates that record actual progress of the Work to completion, when it shall show the "as-built" record of the CONTRACTOR's work plan as executed.

CONSULTANT – Any CONSULTANT retained by MCSD or its (sub) consultant(s) who provides design or construction phase services for support of this Project.

Contract / Contract Documents – The following documents constitute a part of and comprise the Contract Documents: Construction Agreement, CONTRACTOR's Bid, Performance Bond, Payment Bond, insurance certificates and endorsements, Plans and Specifications, General Conditions, Special Conditions, plan clarifications, and Supplemental Agreements, including Change Orders issued after Contract award.

Contract Duration / Time of Completion – The period of performance provided for in the Contract, and as amended via Change Orders.

Contract Milestone / Milestone – A significant performance point in the Work, as provided for in the Contract Documents.

CONTRACTOR – The individual, partnership, joint venture, corporation, or other combination thereof, identified as such in the Contract, and referred to throughout the Contract Documents as if singular in number and who directly contracts with MCSD. The term “CONTRACTOR” means the CONTRACTOR or its authorized representative.

Contract Price – The total amount of money for which the Contract is awarded, as modified by any Change Orders.

Contract Unit Price – The amount stated in the CONTRACTOR’s Bid for a single unit of an element of the Work.

Critical Path – A continuous sequence of schedule network activities with the least amount of total float, ending at a Contract Milestone.

Days – Unless otherwise specifically stated, the term “days” will be understood to mean consecutive calendar days.

Drawings – See Plans.

DISTRICT – Midway City Sanitary District.

DISTRICT Holidays – MCSD recognizes the following holidays on which its offices are closed for regular business: New Year’s Day, Washington’s Birthday, Memorial Day, Independence Day, Labor Day, Veteran’s Day, Thanksgiving Day, the day after Thanksgiving, Christmas Eve, and Christmas Day. Holidays that occur on Saturdays and Sundays will be observed on the preceding Fridays and the following Mondays, respectively. MCSD reserves the right to recognize additional holidays without prior notice.

ENGINEER – The District Engineer of MCSD or MCSD’s designee.

Extra Work – New or unforeseen Work, or added Work of a different character or function and for which no basis for payment is prescribed in the Contract Documents; or that involves revisions of the details of the Work in such manner as to render inequitable payment under items upon which the CONTRACTOR bid in its Bid; or that Work to be done under “stipulated prices” as given in the Schedule of Prices.

Final Acceptance – Action taken by MCSD Board of Directors accepting the Work as fully completed.

Final Completion / Contract Completion / Completion / Completion Date – The Contract Milestone recognized through action taken by the ENGINEER certifying that the Work is fully completed under the Contract Documents prior to MCSD’s acceptance of the Work as fully completed.

Float – The flexibility that an activity has against the critical path.

Fragment– A fragment of the schedule network that typically illustrates a particular sequence of activities for thorough analysis.

General Conditions – Legal and contractual instructions to the CONTRACTOR setting forth both the CONTRACTOR and MCSD responsibilities for business related activities pertaining to the Contract. The term “General Conditions” used in the Specifications shall be interpreted to refer to the General Conditions of the Contract Documents.

General Manager – The individual designated by MCSD as its Chief Executive Officer and agent.

General Requirements – Legal and contractual instructions to the CONTRACTOR setting forth both the CONTRACTOR and MCSD responsibilities for technical aspects of the Work indicated under the Contract. The term “General Requirements” used in the Specifications shall be interpreted to refer to the General Requirements of the Contract Documents.

INSPECTOR – The individual(s) designated by the ENGINEER as the field Project representative with delegated authority to enforce the requirements of the Contract Documents, subject to the approval of the General Manager.

Law – Any federal, state or local law, statute, ordinance, rule, regulation or code.

Legal Address of CONTRACTOR – The address given on the CONTRACTOR’s Bid shall be the legal address of the CONTRACTOR and is the designated place to which all notices, letters or other communications to the CONTRACTOR shall be mailed or delivered.

MCSD – Midway City Sanitary District.

Notice to Proceed -- A written notice given by MCSD to the CONTRACTOR fixing the date on which the time for performance under the Contract will commence.

MCSD – Midway City Sanitary District.

Operational Acceptance – Written notification by the ENGINEER accepting the Work as operationally complete. Used for the purpose of placing equipment or facilities in service before all of the Contract Work is completed.

or equal / Or Equal / OR EQUAL – Any product, equipment, material, thing, or service which is proposed by the CONTRACTOR for use in the Work, which is equal to or better than, and is as suitable as the product, material, equipment, thing or service specified in the Contract Documents as to function, performance, reliability, quality, and general configuration.

OWNER – Midway City Sanitary District.

Payment Bond – A bond required from a CONTRACTOR to secure payment to Subcontractors, laborers, mechanics and Suppliers employed on the Work of the Contract.

Performance Bond – A bond required from a CONTRACTOR at the time of execution of a Contract which guarantees faithful performance of the Contract by the CONTRACTOR.

Plans – The part of the Contract Documents consisting of the plans, profiles, typical and general cross-sections, working drawings, or exact reproductions thereof, which show the location, character, dimensions and details of the Work to be done (if any).

Project(s) – The entire scope of Work covered by all Contract Documents.

Proposal – A standard form supplied by MCSD as tear-out sheets, which when completed in its entirety and executed, shall constitute a Bid Submittal.

Record Drawings – Construction drawings from completed projects maintained by MCSD as a record of how facilities were actually constructed. These are generally created from the original plans, addendum and Change Order drawings, and the CONTRACTOR's as-built copy of the construction plans.

Request for Change – A written request by the CONTRACTOR to MCSD for the issuance of a Change Order.

Schedule of Prices - A list of Bid Item(s) in the Bid or Proposal including the item number, approximate quantities, item descriptions, total price per item and total amount of Bid.

Specifications – Elements of the Contract Documents and revisions which describe the commercial, legal, technical and non-technical requirements of the Project. Specifications include but are not limited to Project Requirements, Provisions, General Conditions, General Requirements, Supplementary Conditions, Technical Specifications, and all revisions made to the Specifications including Addenda, Notice to Bidders, and Change Orders, signed by the ENGINEER and authorized by the Board.

Standard Plans / Standard Drawings – Details of standard structures, devices or instructions referred to on the Plans or in the Specifications by title or number and issued by MCSD.

Standard Specifications for Public Works Construction – The latest edition of Standard Specifications for Public Works Construction ("Green Book") as written and promulgated by the Public Works Standards, Inc.

Subcontractor – One who is licensed pursuant to California Business and Professions Code, Section 7000 et. seq., and who contracts directly with the prime CONTRACTOR or with another Subcontractor to perform some part of the Work. A Subcontractor does not have any direct contract with MCSD related to the Work.

Supplemental Agreements – Written agreements between MCS D and the CONTRACTOR, covering schedules, drawings, instructions, alterations, amendments or extensions to the Contract and including Contract Change Orders.

Supplier – An individual, organization, or firm who is not required for the purposes of the Work to be licensed pursuant to California Business and Professions Code as a CONTRACTOR or Subcontractor, within the meanings of those terms as defined hereinabove, who provides equipment and/or materials for the Work to the CONTRACTOR or a Subcontractor, including that fabricated to a special design, but who does not perform labor at the site except for labor or labor supervision required by some manufacturers as part of their equipment installation for warranty or other purposes or for operation of rented equipment, and only to the extent such labor or labor supervision is excepted from licensing requirements under the California Business and Professions Code, including but not limited to Section 7040 et seq. The term “supplier” also includes fabricator, manufacturer, or vendor.

Surety or Sureties – The bondsmen or party or parties who guarantee the fulfillment of the Contract, or a portion of the Contract, by Bond and whose signatures are affixed to the Bond.

Terms – The terms “Approved”, “Directed”, “Satisfactory”, “Accepted”, “Acceptable”, “Proper”, “Required”, “Necessary”, and “Or Equal” mean as approved, directed, satisfactory, accepted, acceptable, proper, required, necessary, and or equal, in the opinion of the ENGINEER.

Total Float – The amount of time that the actual start and finish of an activity can be delayed along a given network path without delaying the Contract Completion date.

Trade Names – Where a certain product is called by its Trade Name, it is intended as a guide for type and quality.

Typical Details – Details of standard structures, devices or instructions referred to on the Plans and Specifications by title or number and developed by the CONSULTANT.

Unavoidable Delay – An interruption of the Work beyond the control of the CONTRACTOR and which interruption the CONTRACTOR could not have avoided by the exercise of care, prudence, foresight, diligence and mitigation.

Work – All the Work specified in the Contract Documents necessary to complete the requirements of the Contract, including the furnishing of all labor and materials. Also, the completed construction or parts thereof required to be provided under the Contract Documents, including all materials, equipment, and supplies incorporated or to be incorporated in the construction.

2. EXECUTION OF CONTRACT

2.1. NOTICE TO PROCEED

Upon receipt of all properly executed Contract Documents from CONTRACTOR, MCSD shall execute all documents as necessary, establish the effective date of the Contract, and MCSD shall issue a Notice to Proceed, unless the ENGINEER determines that good cause exists to delay the issuance. In such case, MCSD may delay issuance of the Notice to Proceed. Said Notice to Proceed shall be forwarded to the CONTRACTOR by mail or by any other means which shall provide confirmation of a date and time receipt acknowledgment, including but not limited to electronic telecommunication. The time required for completion of the Contract shall begin upon the effective date of the Notice to Proceed.

2.2. CONTRACT BONDS

Refer to Construction Agreement.

2.3. INSURANCE

Refer to Construction Agreement.

2.4. CONTRACTOR'S LIABILITY NOT LIMITED BY INSURANCE

Nothing contained in the insurance requirements is to be construed as limiting the liability of the CONTRACTOR or the CONTRACTOR's Sureties.

3. CONTROL OF THE WORK

3.1. AUTHORITY OF THE ENGINEER

The ENGINEER serves as the agent of MCSD and will observe the accomplishment of the Work in accordance with the provisions of the Contract. The ENGINEER will decide any and all questions which may arise as to the interpretations of the Contract Documents, as to the quality and acceptability of materials furnished and Work performed, as to the manner of performance, and as to the rate of progress of the Work. All questions as to the acceptable performance of the Contract on the part of the CONTRACTOR shall be decided by the ENGINEER.

It shall be the duty of the CONTRACTOR to call the ENGINEER's attention to apparent errors and omissions in the Plans and Specifications. The ENGINEER may, by appropriate written instructions, correct errors and omissions, which instructions shall be as binding upon the CONTRACTOR as though contained in the original Contract Documents. The ENGINEER shall have authority to make minor changes in the Work not involving extra or lesser cost, and not inconsistent with the intent of the Contract Documents.

All instructions, rulings, and decisions of the ENGINEER shall be in writing, and shall be final and binding on the CONTRACTOR unless formal written objection is made as specified herein.

It is expressly agreed that the ENGINEER shall not have the power to waive any of the obligations of the Contract Documents for the furnishing by the CONTRACTOR of good and suitable material, and for performing the Work as herein described. Failure or omission on the part of the ENGINEER to reject defective or inferior Work or materials, or the ENGINEER's release of the CONTRACTOR from obligations to remedy the defective or inferior Work, shall not imply acceptance of the Work. Upon discovery of said defective Work, the CONTRACTOR shall immediately tear out, remove, and properly replace the defective Work without additional compensation. Neither shall such failure or omission, nor any acceptance by the ENGINEER, or by the Board be construed as relieving the responsibilities of the CONTRACTOR or its Sureties, for a sum of money as may be needed to remove and replace, or to repair, any or all Work or materials which is found to be defective or inferior. In such instance, in lieu of the recovery of said sum of money, MCSD may permit the CONTRACTOR to perform, at the CONTRACTOR's own expense, the work of removing and replacing or repairing Work or materials found to be defective or inferior.

The Board shall have the final authority in all matters affecting the Work. Within the scope of the Contract Documents, the ENGINEER shall have the authority to enforce compliance with the Contract Documents. The CONTRACTOR shall promptly comply with all instructions from the ENGINEER which are made in accordance with the Contract Documents.

In all matters relating to acceptability of construction materials and equipment, execution and progress of Work, percentage of completion, the interpretation of Contract Documents, delays and Claims by the CONTRACTOR, the decision of the ENGINEER shall be final and binding

unless the CONTRACTOR timely follows the appropriate procedures to object to the same as set forth herein under Claims and Disputes, or unless otherwise ordered by the Board or General Manager.

3.2. SUPERVISION BY CONTRACTOR

The CONTRACTOR is required to give personal attention to the fulfillment of this Contract, and to keep the Work under control. The CONTRACTOR shall have a copy of the Contract Documents available at the worksite at all times. During the CONTRACTOR's absence from the worksite, the CONTRACTOR shall provide a site superintendent with full authority to receive and execute such instructions, orders or directions as the ENGINEER may issue in connection with the provisions of the Contract Documents. The site superintendent shall be available on site at all times during progress of the Work.

The CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but the CONTRACTOR shall not be solely responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence, or procedure of construction which is indicated in and required by the Contract Documents except as otherwise provided in the General Conditions, entitled Errors and Omissions.

The CONTRACTOR shall be responsible to see that the completed Work complies with the Contract Documents.

Before any Work is done at the worksite, the CONTRACTOR shall give written notice to the ENGINEER stating the name, home address and telephone number of the CONTRACTOR's site superintendent. The ENGINEER shall be informed in writing prior to any change of site superintendent. A statement naming more than one representative at a time to be in charge, depending upon which is present at the time, will not be acceptable.

The CONTRACTOR shall file with the ENGINEER the names, addresses, and telephone numbers of representatives who can be contacted at any time in case of emergency. These representatives must be fully authorized and equipped to correct unsafe or excessively inconvenient conditions on short notice.

If a site superintendent or the CONTRACTOR is not present at a particular location of the worksite, the ENGINEER may inform the foreman, or other person in charge, regarding an interpretation of the Contract Documents or of any disapproval or rejection of materials or Work performed. Information so given shall be as binding as if given to the superintendent.

3.3. CONTRACTING AND ASSIGNMENT

Subcontractors not specifically listed in the Bid Submittal or otherwise disclosed to MCS D will not be recognized as such and will not be allowed to work on the Project unless the value

of said Work is less than one-half of one percent of the total Contract Price. All persons engaged in the Work of construction will be considered as employees of the CONTRACTOR, and not as independent contractors. No assignment of any portion of the Work or of any obligation or duty under the Contract is permitted without the express prior written consent of MCSD, and as otherwise authorized by the Contract Documents.

4. LEGAL RELATIONS AND RESPONSIBILITIES

4.1. LAWS TO BE OBSERVED

The CONTRACTOR shall, at its own cost and expense, observe and keep fully informed regarding all existing and future federal, state, city, county, local agency or special district laws and regulations which may in any manner affect those engaged or employed on the Project, or the materials to be used or furnished, or which may in any respect govern, control or otherwise affect the conduct of the Project or any part thereof. The CONTRACTOR shall, at its own cost and expense, furnish all materials and facilities required to comply with such laws and regulations. The CONTRACTOR shall furnish copies of all valid licenses and certifications required of Suppliers, Subcontractors, or employees for the Work upon the request of the ENGINEER.

If any discrepancy or inconsistency is discovered on the Plans, Specifications, permits, or in the Contract Documents for the Project in relation to any such law, regulation, order or decree, the CONTRACTOR shall forthwith report the same to MCSD, in writing, and shall cease operations on that part of the Work until MCSD has given the CONTRACTOR appropriate instructions as provided for in General Conditions, Errors and Omissions.

The CONTRACTOR shall defend and indemnify MCSD, the Board of Directors, the ENGINEER, the CONSULTANT, and its subconsultants, each of their directors, officers, employees or agents against any claim or liability arising from or based on the violation of any such law, or regulation, whether by the CONTRACTOR or any of the CONTRACTOR's employees or agents, including its Subcontractors and Suppliers.

Attention is directed to the following specific regulations and requirements that are included in the Contract Documents. This list of regulations is not warranted to be complete and the burden of ascertaining legal requirements that must be satisfied shall rest solely with the CONTRACTOR.

- A. Employment of Apprentices. The CONTRACTOR and any Subcontractor shall comply with the requirements of Sections 1777.5 and 1777.6 of the California Labor Code in the employment of apprentices.

Information relative to apprenticeship standards, wage schedules and other requirements may be obtained from the Director of Labor Relations, c/o the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

A CONTRACTOR or Subcontractor that is determined by the chief of the Division of Apprenticeship Standards to have knowingly violated Labor Code Section 1777.5 shall forfeit as a civil penalty an amount not to exceeding One Hundred Dollars (\$100) for each full calendar day of noncompliance. A contractor or subcontractor that knowingly commits a second or subsequent violation within a three-year period, if the noncompliance results in apprenticeship training not being provided as required by this chapter, shall forfeit as a civil penalty the sum of not more than three hundred dollars (\$300) for each full calendar day of noncompliance. (California Labor Code Section 1777.7)

- B. Travel and Subsistence Payments. Each worker needed to execute the Work must be paid travel and subsistence payments as defined in the applicable collective bargaining agreements filed in accordance with California Labor Code Section 1773.1.
- C. Hours of Labor. The CONTRACTOR shall forfeit, as a penalty to MCSD, twenty-five dollars (\$25) for each worker employed in the execution of the Contract by the CONTRACTOR or any Subcontractor, for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one (1) calendar day and forty (40) hours in any one (1) calendar week in violation of the provisions of the Labor Code and, in particular, Section 1810 to Section 1815 thereof, inclusive, except that work performed by employees of CONTRACTOR in excess of eight (8) hours per day and forty (40) hours during any one (1) week shall be permitted upon compensation for all hours worked in excess of eight (8) hours per day at not less than 1-1/2 times the basic rate of pay as provided in said Section 1815.
- D. Nondiscrimination in Employment. The CONTRACTOR shall comply with Government Code §12940. Projects under this Contract will obligate the CONTRACTOR and Subcontractors not to discriminate in employment practices. CONTRACTOR must, if requested, submit a compliance report concerning its employment practices and policies. The CONTRACTOR must be prepared to comply in all respects with the requirements regarding nondiscrimination including but not limited to California Labor Code Section 1735.
- E. Prevailing Wage Rates. The CONTRACTOR shall comply with California Labor Code Section 1771 by the payment of prevailing wages as established by the Director of the State Department of Industrial Relations. In accordance with Labor Code Section 1775, the CONTRACTOR and any Subcontractor shall forfeit, as a penalty to MCSD, not more than Two Hundred Dollars (\$200) for each calendar day or portion thereof for each worker paid less than the established prevailing rates for such work or craft in which such worker is employed for any Work done under the Contract in violation of the provisions of the California Labor Code Sections 1770 to 1780, inclusive. In addition to said penalty and pursuant to said Section 1775, for each day or portion thereof in which each worker was paid less than the prevailing wage rate the difference between such established prevailing wage rates and the amount paid to each worker shall be paid to each worker by the CONTRACTOR. Per California Labor Code 1773.2, MCSD will have on file copies of the prevailing rate of per diem wages at its principal office and at each job site, which shall be made available to any interested party upon request.

F. California Department of Industrial Relations (DIR) Registration and Record of Wages.

- 1) The CONTRACTOR and its subcontractors shall comply with the registration requirements of Labor Code §1725.5. Pursuant to Labor Code §1771.4, the Work is subject to compliance monitoring and enforcement by the DIR.
- 2) The CONTRACTOR shall maintain accurate payroll records and shall comply with all of the provisions of Labor Code §1776, and shall submit payroll records to the Labor Commissioner pursuant to Labor Code §1771.4(a)(3). Penalties for non-compliance with the requirements of §1776 may be deducted from progress payments per §1776.
- 3) Pursuant to Labor Code §1776, the CONTRACTOR shall furnish a copy of all certified payroll records to MCSD and/or the general public upon request, provided the public request is made through MCSD, the Division of Apprenticeship Standards or the Division of Labor Enforcement of the Department of Industrial Relations.
- 4) The CONTRACTOR shall comply with the job site notices posting requirements established by the Labor Commissioner per Title 8, California Code of Regulations §16461(e) or other regulation promulgated pursuant to Labor Code Section 1771.4(a)(2).

G. Public Records Act. All records, documents, Drawings, Plans, Specifications, and all other information relating to the conduct of MCSD's business, including information submitted by the CONTRACTOR ("Records"), shall become the exclusive property of MCSD and shall be deemed public records. Said Records are subject to the provisions of the California Public Records Act (Government Code § 7920.000 et. seq.). MCSD's use and disclosure of its records are governed by this Act. MCSD will use its best efforts to inform the CONTRACTOR of any request for any financial records or documents marked "Trade Secret", "Confidential" or "Proprietary" provided by the CONTRACTOR to MCSD.

H. Subcontracting. Pursuant to the provisions of Sections 4100 to 4114, inclusive, of the California Public Contract Code, as amended from time to time, the CONTRACTOR shall not, without the consent of MCSD:

- 1) Substitute any person(s) or Subcontractor(s) designated in the original Bid.
- 2) Assign or transfer any subcontract or allow any subcontract to be performed by anyone other than the original Subcontractor.
- 3) Sublet or subcontract any portion of the Project not so designated in the original Bid when the value of said Work is greater than one-half of one percent (1/2%) of the CONTRACTOR's total Bid.

A violation by the CONTRACTOR of any of the provisions of Sections 4100 to 4114, inclusive, of the Public Contract Code, shall be deemed a violation of the Contract and MCSD will impose the penalties provided therein.

- I. Workers' Compensation. Pursuant to the requirements of California Labor Code Section 1860, the CONTRACTOR shall secure the payment of compensation to CONTRACTOR's employees in accordance with the provisions of Section 3700 of the California Labor Code.
- J. California Air Resources Board (CARB) In-Use Off-Road Diesel Fleets Regulation.
 - 1) The CONTRACTOR and its subcontractors shall comply with all applicable CARB regulations, including, without limitation, all applicable requirements of CARB's regulations governing In-Use Off-Road Diesel-Fueled Fleets, 13 CCR §§ 2449-2449.3.
 - 2) Pursuant to 13 CCR § 2449(i)(1), if applicable, prior to entering into the Contract, the CONTRACTOR shall provide MCSD with a valid Certificate of Reported Compliance from CARB for all vehicles to be used by CONTRACTOR and/or any of its subcontracts for Work under the Contract that are subject to CARB's In-Use Off-Road Diesel Fleets Regulations. If the Project qualifies as an "emergency operation" as defined in 13 CCR §2449(c)(18), pursuant to 13 CCR § 2449(i)(4), in lieu of providing Certificates of Reported Compliance as required above, CONTRACTOR may, instead provide MCSD with an attestation from itself and/or its subcontractors that the vehicles are operated on the Project for emergency operations only.
- K. State Regulations. All requirements applicable, as established by CalEPA, CalOSHA, CARB, DIR, or other state regulatory agencies.
- L. Federal Regulations. All requirements applicable, as established by the EPA, OSHA, or other federal regulatory agencies.

4.2. GENERAL INDEMNIFICATION

Refer to Construction Agreement.

4.3. JOINT AND SEVERAL LIABILITY

If the CONTRACTOR is a joint venture or partnership, each venturer or partner shall be jointly and severally liable for any and all of the duties and obligations of the CONTRACTOR that are assumed under or arise out of the Contract. Each of such venturers or partners waives notice of the breach or non-performance of any undertaking or obligation of the CONTRACTOR contained in, resulting from or assumed under the Contract, and the failure to give any such notice shall not affect or impair such venturer's or partner's joint and several liability hereunder.

4.4. RESPONSIBILITY FOR LOSS, DAMAGE OR INJURY

Neither MCSD, nor its Directors, officers, employees or agents shall be held responsible in any manner for any loss or damage that may happen to the Work or any part thereof during the course of construction; for any loss or damage to any of the materials, equipment, supplies or other things used or employed in performing the Work; for injury to or death of any person, either workers or the public; or for damage to property, from any cause that might have been prevented by the CONTRACTOR, CONTRACTOR's workers, or anyone employed by the CONTRACTOR.

In the event any hazardous materials, including but not limited to asbestos, are utilized in construction or hazardous materials are otherwise encountered during construction, the CONTRACTOR shall take all appropriate precautions to protect persons and property and shall comply with all applicable regulations for the installation, removal, and handling of such hazardous materials. The CONTRACTOR is solely responsible for protection of persons and property that could be affected by construction and the CONTRACTOR's handling of such materials.

4.5. OWNERSHIP OF PLANS, SPECIFICATIONS, SHOP DRAWINGS

All Plans, Specifications, shop drawings, other drawings, permits, reports, licenses, etc., used for this Project are the property of MCSD and shall not be used for any other work. Nothing in this Contract shall be construed to vest in CONTRACTOR any property right in any Plans, Specifications, shop drawings, other drawings, permits, reports, licenses, or other Project-related documents, nor shall the CONTRACTOR obtain any property right in any material, article or structure within the Project area which is in existence at the time the Contract is awarded or subsequently is furnished by the CONTRACTOR to MCSD and becomes a part of the Project.

4.6. PRESERVATION OF PROPERTY

The CONTRACTOR shall exercise reasonable care to avoid injury to existing improvements or facilities, utility facilities, any private or public property wherever located, trees, shrubbery and other landscaping which are not to be removed. The CONTRACTOR is required to familiarize itself with the worksite.

All trees, shrubbery, landscaping which are not to be removed, and pole lines, fences, signs, survey markers and monuments, buildings, structures and improvements, conduits, pipelines (under or aboveground), sewers, waterlines, highway or street facilities, and any other improvements or facilities with respect to any private or public property wherever located shall be protected from injury or damage. The CONTRACTOR shall provide and install suitable safeguards to protect such objects from injury or damage.

If such objects are injured or damaged by reason of the CONTRACTOR's operation, they shall be replaced or restored at the CONTRACTOR's expense to a condition equivalent to their condition prior to such injury or damage or as required by the Contract Documents.

The CONTRACTOR is obligated to respond to a notification of damages to any private or public property wherever located caused by CONTRACTOR's operations by beginning work on emergency repairs/restorations immediately, and in no event later than 4 hours from said notification and on non-emergency repairs/restorations within 72 hours of said notification. Within these required timeframes, the CONTRACTOR must begin efforts to resolve issues of responsibility for any damages or losses for any asserted claim. For any claims the CONTRACTOR asserts are not related to its operations, the CONTRACTOR must provide MCSD with written notice to MCSD stating its position and all documentation supporting the same, as well as written proof of referral to its insurance carrier and its determination, along with detailed rationale for any denial of coverage or denial of the claim. Said proof shall be submitted to MCSD within 30 days of the date of notification to the CONTRACTOR of the damages or losses.

In the event that the CONTRACTOR does not respond in the manner required herein and within the required timeframes, MCSD may determine the validity of the claim and perform the repair/restoration work itself or have another contractor or qualified entity perform the same, and CONTRACTOR's next progress payment shall be reduced in amount commensurate with the cost of the repair/restoration work and/or resulting damages as a Contract deduction. If the cost of the repair/restoration work and/or resulting damages exceeds the amounts remaining due under the Contract, CONTRACTOR shall reimburse MCSD for all remaining costs and/or damages immediately.

The fact that any pipe or other underground facility is not shown on the Contract Documents, or is shown in a different location, shall not relieve the CONTRACTOR of responsibility under this section. The CONTRACTOR shall be responsible for avoiding all injury or damage to any type of underground utility facility.

In addition to any requirements imposed by law, the CONTRACTOR shall shore up, brace, underpin, and protect as may be necessary, all foundations and other parts of all existing structures adjacent to and adjoining the worksite which are, or may be, in anyway affected by the excavations or other operations connected with the performance of the Work. Whenever any notice is required to be given by MCSD or the CONTRACTOR to any adjacent or adjoining landowner or other party before commencement of any Work, such notice shall be given by MCSD, unless the CONTRACTOR is directed otherwise by MCSD.

In an emergency affecting the safety of life or property, including adjoining property, the CONTRACTOR, without special instructions or authorizations, is authorized to act with discretion to prevent such threatened loss or injury.

4.7. PERSONAL LIABILITY

No director, officer, employee, or agent of MCSD, or its CONSULTANT, shall be personally responsible for any liability arising under or by virtue of the Contract.

4.8. WARRANTY OF TITLE

No materials, supplies or equipment for the Work under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest therein or any part thereof is retained by the seller or Supplier. The CONTRACTOR warrants clear and good title to all materials, supplies, and equipment installed and incorporated in the Work and agrees, upon completion of all Work, to deliver the Work together with all improvements and appurtenances constructed or placed thereon to MCSD free from any claims, liens, encumbrances, or charges, and further agrees that neither the CONTRACTOR, nor any person, firm, or corporation furnishing any material or labor for any Work covered by the Contract shall have any right to a lien upon the premises or any improvement or appurtenance thereon, provided that this shall not preclude the CONTRACTOR from installing metering devices or other equipment of utility companies or of municipalities, the title to which is commonly retained by the utility company or the municipality.

Nothing contained in this section shall defeat or impair the right of such persons furnishing materials or labor, under any bond given by the CONTRACTOR for their protection, or any right under any law permitting such persons to look to unpaid funds due the CONTRACTOR in possession of MCSD. The provisions of this section shall be inserted in all subcontracts and material contracts, and notices of its provisions shall be given to all persons furnishing materials for the Work when no formal contract is entered into for such materials.

The CONTRACTOR is responsible for, and shall be obligated to pay, all stop payment notice claims asserted and proved to be an obligation of the CONTRACTOR.

4.9. PROPERTY RIGHTS IN MATERIAL

Nothing in these Contract Documents shall be construed as vesting in the CONTRACTOR any right of property in the materials used after they have been attached or affixed to the Work or the soil, or after payment has been made for materials delivered to the worksite or stored subject to or under the control of MCSD.

All such materials shall become the property of, and title shall pass to, MCSD upon being so attached or affixed or upon payment for materials delivered to the worksite or stored subject to or under the control of MCSD. The CONTRACTOR shall promptly execute, acknowledge and deliver to MCSD proper bills of sale or other written instruments of title in a form as required by MCSD. The written instrument of title shall convey to MCSD title to material, goods, and/or equipment for the Work free and clear of debts, claims, liens, mortgages, taxes and/or encumbrances. If title has not been vested in MCSD previously, title shall pass to MCSD upon Final Acceptance.

The CONTRACTOR at its own expense shall conspicuously mark such material, goods and equipment necessary for the Work as the property of MCSD, and shall not permit such material, goods and equipment necessary for the Work to become commingled with non-MCSD owned materials, equipment or goods, and shall take such other steps MCSD may

require or regard as necessary to vest title to such material, goods and equipment necessary for the Work to MCSD free and clear of debts, claims, liens, mortgages, taxes and/or encumbrances.

Transfer of title of Work to MCSD shall not constitute or imply MCSD's acceptance of the Work. Notwithstanding the transfer of title, the CONTRACTOR shall continue to be liable and responsible to MCSD for any damage to or loss of Work until the Work achieves Final Acceptance, as defined herein.

Soil, stone, gravel and other materials found at the worksite and which conform to the Contract Documents for incorporation into the Work may be used in the Work. No other use shall be made of such materials except as may be otherwise described in the Contract Documents.

4.10. TERMINATION FOR DEFAULT

If the CONTRACTOR refuses or fails to prosecute the Work or any separable part thereof with such diligence as will ensure its completion within the time specified herein, or any authorized extension thereof, or fails to perform the Work in a manner required by the Contract Documents and/or industry standards, or fails to complete such Work within such time as required under the Contract Documents or, if the CONTRACTOR should be adjudged as bankrupt, or is otherwise deemed insolvent by MCSD based on good cause and is unable to proceed with the Work, or if the CONTRACTOR should make a general assignment for the benefit of creditors, or if a receiver should be appointed on account of insolvency, or if the CONTRACTOR files a petition to take advantage of any debtor's act, or should any Subcontractor violate any of the provisions of the Contract, or if the CONTRACTOR should persistently or repeatedly refuse or fail, except in cases for which an authorized extension of time is provided, to supply enough properly skilled workers or proper materials to complete the Work in the time specified, or if the CONTRACTOR should fail to make prompt payment to Subcontractors for material or labor, or if the CONTRACTOR should persistently disregard laws, or instructions given by MCSD, or if the CONTRACTOR otherwise substantially fails to fulfill its obligations under the Contract Documents, MCSD may, without prejudice to any other right or remedy, serve written notice upon the CONTRACTOR and Sureties of MCSD's intention to terminate the CONTRACTOR's performance under the Contract. Said notice shall contain the reasons for such intention to terminate the CONTRACTOR's performance under the Contract, and unless, within ten (10) days after the service of such notice, such violations cease and/or satisfactory arrangements for the corrections thereof have been made, the MCSD may terminate CONTRACTOR's performance under the Contract and the CONTRACTOR shall not be entitled to receive any further payment until the Work is finished.

In the event of any such termination, MCSD shall serve written notice thereof upon the Surety and CONTRACTOR, and the Surety shall have the right to take over and perform the Contract. However, if the Surety, within five (5) days after the service of a notice of termination, does not give MCSD written notice of its intention to take over and perform the Contract, and if it serves such notice of its intent to take over and perform the Contract and does not begin performance thereof within fifteen (15) days from the date of serving said notice, MCSD may take over the Work and prosecute the same to completion by contract or by any other method

it may deem advisable for the account and at the expense of the CONTRACTOR, and the Sureties and/or CONTRACTOR shall be liable to MCSD for any excess cost or other damage incurred by MCSD thereby. In such an event MCSD may without liability for so doing, take possession of and utilize such materials, tools, equipment, supplies and other property belonging to the CONTRACTOR and/or assume assignment of any and all subcontracts for Subcontractors and/or Suppliers that may be on the worksite and be necessary to complete the Work. For any portion of such Work that MCSD elects to complete by furnishing its own employees, materials, tools, and equipment, MCSD shall be compensated in accordance with the schedule of compensation for force account work as stated in the General Conditions section entitled Contract Price Adjustments and Payments.

If the Surety assumes the CONTRACTOR's terminated Work, it shall take the CONTRACTOR'S place in all respects for that part and shall be paid by MCSD for all Work performed by it in accordance with the terms of the Contract Documents. If the Surety assumes the entire Contract, all money due the CONTRACTOR at the time of its default shall be payable to the Surety as the Work progresses, subject to the terms of the Contract.

CONTRACTOR hereby consents to assigning to MCSD and/or MCSD's replacement contractor all subcontracts and other agreements of any and all Subcontractors and/or Suppliers that may be on the worksite and/or may be necessary to complete the Work in the event of Termination for Default or Termination for Convenience, as set forth below. CONTRACTOR agrees to obtain, by way of a subcontract provision, the consent of each and every Subcontractor and/or Supplier for such assignment prior to the commencement of each such Subcontractor's and/or Supplier's Work on the Project.

In the event of such termination, the CONTRACTOR will be paid the actual amount due based on unit prices or lump sums Bid and the quantity of Work completed at the time of termination, less damages caused to MCSD by acts of the CONTRACTOR causing the termination, including but not limited to, all costs to MCSD arising from professional services and attorneys' fees and all costs generated to insure or bond the Work of substituted contractors or subcontractors utilized to complete the Work, such excess shall be paid to the CONTRACTOR. If such costs exceed the unpaid balance, the CONTRACTOR shall pay the difference to MCSD promptly upon demand. On failure of the CONTRACTOR to pay, the Surety shall pay on demand by MCSD. Any portion of such difference not paid by the CONTRACTOR or Surety within thirty (30) days following the mailing of a demand for such costs shall earn interest at the maximum rate authorized by California law.

The CONTRACTOR and MCSD agree that nothing in this section is intended to be or is a prevailing party clause as it pertains to attorney's fees.

The foregoing provisions are in addition to and not in limitation of any other rights or remedies under law or in equity available to MCSD.

If it is later determined by MCSD that the CONTRACTOR had an excusable reason for not performing, such as a fire, flood, or other event which was not the fault of or was beyond the control of the CONTRACTOR, MCSD, after setting up a new performance schedule, may

allow the CONTRACTOR to continue Work, or treat the termination as a termination for convenience, and the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of MCSD.

4.11. TERMINATION FOR CONVENIENCE

MCSD may terminate the CONTRACTOR's performance under the Contract, either in whole or in part, at its own discretion or when conditions encountered during the Work make it impossible or impracticable to proceed, or when MCSD is prevented from proceeding with the Contract by act of God, by law, or by official action of a public authority, or upon a determination that such termination is in the best interest and convenience of MCSD, or whenever MCSD is prohibited from completing the Work for any reason. MCSD shall provide no less than ten (10) days written notice of its intent to terminate the Contract for convenience, and shall provide the CONTRACTOR with consultation with MCSD prior to termination.

Upon receipt of such written notice of termination, the CONTRACTOR shall:

1. Stop Work as specified in the written notice;
2. Terminate all orders and Subcontractors except as necessary to complete Work which is not terminated;
3. If directed in writing by MCSD to do so, assign all right, title and interest in subcontracts and materials in progress, in which case MCSD will have the right at its discretion to settle, or pay any or all claims arising out of the termination of such Subcontractors, but in no event shall recovery by any CONTRACTOR include lost profits for uncompleted portions of Work;
4. Deliver or otherwise make available to MCSD all data, Drawings, Specifications, reports, estimates, summaries and such other information and material as may have been accumulated by the CONTRACTOR in performing this Contract whether completed or in process;
5. Settle outstanding liabilities and claims with the approval of MCSD;
6. Complete performance of such part of the Work as has not been terminated; and
7. Take such other actions as may be necessary, or as may be directed by MCSD for the protection and preservation of the Project and/or property related to the Contract.

Upon receipt of MCSD's written notice of termination for convenience, and within a period of 30 to 60 days, as determined by the ENGINEER at the time of termination, the CONTRACTOR shall submit to the ENGINEER a Termination Proposal which shall include, but is not limited to, the CONTRACTOR's estimated costs to be incurred by the CONTRACTOR as a result of the termination for convenience, and as allowed by the Contract Documents, including all documentation to support such costs; the status of the

Work at time of termination; the status of termination of the CONTRACTOR'S Subcontractor(s) and Supplier(s) agreement(s) including the amount of each said agreement, amount paid under each agreement up to the date of termination, and the amount that currently remains due and owing under each agreement for Work completed as of the date of termination, if any; a list, certified as to quantity and quality, of termination inventory not previously disposed of, excluding items authorized for disposition by the ENGINEER; and any other information and/or documentation as required by MCSD.

Upon receipt of MCSD's written notice of termination for convenience, the CONTRACTOR shall submit to the ENGINEER a request for Final Payment, pursuant to the requirements set forth herein. Such request shall be submitted promptly, but no later than sixty (60) days from the effective date of termination.

The Final Payment to the CONTRACTOR after termination for convenience shall be limited to amounts due and owing under the Contract at time of termination, including the following:

1. Any actual costs incurred by the CONTRACTOR for restocking charges;
2. The agreed upon price of protecting the Work in any manner, if any, as directed by MCSD;
3. The cost of settling and paying claims arising out of the termination of the Work under subcontract agreements or orders with MCSD's approval, as specified above, exclusive of the of the amounts paid or payable on account of goods delivered or Work furnished by Subcontractor prior to the effective date of the termination; and
4. The Contract Price allocable to the portion of the Work properly performed or goods supplied by the CONTRACTOR as of the date of termination, as determined in accordance with the within Sections herein entitled Payment – General and Contract Price Adjustments And Payments, reduced by any sums previously paid to the CONTRACTOR.

MCSD shall have the right to withhold any portion or the whole of the Final Payment under this provision in the event there are any outstanding claims for compensation asserted by MCSD against the CONTRACTOR, or by any third party against MCSD which arises out of the CONTRACTOR's Work.

4.12. NOTICE AND SERVICE THEREOF

Any notice required or given under the Contract shall be in writing, be dated, and signed by the party giving such notice or its duly authorized representative, and be served as follows:

If to MCSD, by personal delivery or by deposit in the United States mail, or by electronic telecommunication.

If to the CONTRACTOR, by personal delivery to the CONTRACTOR or to its authorized representative at the worksite or by deposit in the United States mail, or by electronic telecommunication.

If to the Surety or any other person, by personal delivery to the Surety or other person or by deposit in the United States mail or by electronic telecommunication.

All mailed notices shall be in sealed envelopes, shall be sent by certified mail with postage prepaid, return receipt requested, and shall be addressed to the addresses and addressees contained in the Contract Documents, or such substitute addresses which a party designates in writing and serves as set forth herein.

All electronic telecommunication, to be effective, shall have a date and time receipt acknowledgment, and shall be clearly identified as a contractual notice under this, and any other applicable, provision of the Contract.

4.13. PARTIAL INVALIDITY

In the event any article, section, paragraph, sentence, clause, or phrase (collectively referred to hereinafter as “Contract Elements” or singularly as “Contract Element”) contained in the Contract Documents shall be determined, declared, or adjudged invalid, illegal, unconstitutional, or otherwise unenforceable, such determination, declaration, or adjudication shall in no manner affect the other Contract Elements, which shall remain in full force and effect as if the Contract element declared, determined, or adjudged invalid, illegal, unconstitutional, or otherwise unenforceable, was not originally contained in the Contract Documents.

4.14. WAIVER OF RIGHTS

Except as otherwise specifically provided in the Contract Documents, no action or failure to act by MCS D, ENGINEER or CONTRACTOR shall constitute a waiver of any right or duty afforded any of them under the Contract Documents, nor shall any such actions or failure to act constitute an approval of or acquiescence in any breach thereunder.

4.15. TAXES

The contract prices paid for the work shall include full compensation for all taxes which the CONTRACTOR is required to pay, whether imposed by Federal, State, or local government, including, without being limited to, Federal Excise Tax and Federal Transportation Tax.

4.16. ASSIGNMENT OF ANTITRUST ACTIONS

In entering into a public works contract or subcontract to supply goods, services or materials pursuant to a public works contract, the CONTRACTOR or Subcontractor offers and agrees to assign to MCS D all rights, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C.A. Section 15), or under the Cartwright Act (Chapter

2 [commencing with Section 16700] of Par 2 of Division 7 of the California Business and Professions Code), arising from purchases of goods, services or materials pursuant to the public works contract or subcontract. This assignment shall be made and become effective at the time MCSD tenders Final Payment to the CONTRACTOR, without further acknowledgment by the parties.

In submitting a Bid to MCSD, the Bidder offers and agrees that if the Bid is accepted, it will assign to MCSD all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C.A. Section 15), or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the California Business and Professions Code), arising from purchases of goods, materials or services by the Bidder for sale to the purchasing body, pursuant to the Bid. Such assignment shall be made and become effective at the time MCSD tenders Final Payment to the Bidder.

4.17. SUBCONTRACTING

If the CONTRACTOR subcontracts any part of the Contract, the CONTRACTOR shall be as fully responsible to MCSD for the acts, errors and omissions of the Subcontractor(s) and Suppliers and of the person(s) either directly or indirectly employed by the Subcontractor(s) and Suppliers as the CONTRACTOR is for the acts, errors and omissions of persons directly employed by the CONTRACTOR. Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor/Supplier and MCSD. The divisions and sections of the Specifications and the identifications of any Drawings shall not control the CONTRACTOR in dividing the Work among Subcontractors.

4.18. FLOW-DOWN REQUIREMENTS

Each Subcontract and Supplier agreement shall preserve and protect the rights of MCSD, its directors, officers, agents, and employees under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor or Supplier, unless specifically provided otherwise in the subcontract agreement, the benefits of all rights, remedies and redress against the CONTRACTOR that the CONTRACTOR, by the Contract Documents, has against MCSD. Where appropriate, the CONTRACTOR shall require each Subcontractor and Supplier to enter into similar agreements with sub-Subcontractors. The CONTRACTOR shall make available to each proposed Subcontractor or Supplier, prior to the execution of the subcontract, copies of the Contract Documents. In addition, upon the request of MCSD, the CONTRACTOR shall make available to MCSD any and all Subcontract and Supplier agreements pertaining to the Project and the Work thereunder. By appropriate agreement, written where legally required for validity, the CONTRACTOR shall require:

1. Each Subcontractor and Supplier to be bound to the CONTRACTOR by the terms of the Contract Documents;
2. Each Subcontractor and Supplier shall assume toward the CONTRACTOR all obligations and requirements and responsibilities, including the responsibility for safety of the

Subcontractor's Work, which the CONTRACTOR, by the Contract Documents, assumes toward MCSD;

3. Each Subcontractor and Supplier shall require all subcontracted Work to be performed in accordance with the Contract Documents and that with respect to the Work the Subcontractor or Supplier performs that the Subcontractor or Supplier assume toward the CONTRACTOR all the obligations and responsibilities which the CONTRACTOR assumes toward MCSD.
4. Each of its Subcontractors or Suppliers to include in their contracts with lower-tier Subcontractors or Suppliers these same requirements, and to require each Subcontractor or Supplier to make copies of the Contract Documents available to the Sub-Subcontractors or sub-Suppliers.

This section does not and shall not operate to relieve the CONTRACTOR of any duty or liability under the Contract Documents, nor does it create any duty or liability on the part of MCSD. The CONTRACTOR shall have sole responsibility for promptly settling any disputes between its Subcontractors and between the Subcontractors and any of their lower-tier Subcontractors.

4.19. ASSIGNMENT

The performance of all or any portion of the Contract may not be assigned except upon the written consent of MCSD, and as specifically provided herein. Consent will not be given to any proposed assignment that would relieve the original CONTRACTOR or the Sureties of responsibilities under the Contract.

Upon obtaining prior written consent of MCSD, the CONTRACTOR may assign monies due or to become due under the Contract, to the extent permitted by law, but any assignment of monies shall be subject to all proper setoffs in favor of MCSD and to all deductions provided for in the Contract. In particular, all monies withheld, whether assigned or not, shall be subject to being used by MCSD for the completion of the Work in the event that the CONTRACTOR should default.

No assignment of the Contract will be approved unless it contains a provision that the funds to be paid to the assignee under the assignment are subject to a prior lien for services rendered or materials supplied for performance of the Work called for under the Contract in favor of all persons, firms, or corporations rendering such services or supplying such materials and that MCSD may withhold funds due until all Work required by the Contract Documents is completed to MCSD's satisfaction.

4.20. WARRANTY (CONTRACTOR'S GUARANTEE)

- A. The CONTRACTOR shall and hereby does guarantee the entire Work, and its performance through maintenance of sufficient warranties, that the entire Work shall perform at all times as part of a fully integrated system consisting of all Work elements specified in the Contract

Documents for a period of one (1) year after the Final Acceptance of the Work by MCSD. Any portion of the Work that is Beneficially Occupied shall be additionally warranted as described, in these General Conditions, Use Prior to Final Completion (Beneficial Occupancy). During the warranty period, the CONTRACTOR shall repair or remove and replace any Work, together with any other work which may be displaced in so doing that is found to be defective in workmanship and/or materials without any expense to MCSD, ordinary wear and tear and unusual abuse or neglect excepted. In the event of failure to comply with the above-mentioned conditions within one (1) week after being notified in writing, MCSD is hereby authorized to proceed to have the defects remedied at the expense of the CONTRACTOR who hereby agrees to pay the cost and charges thereof immediately on demand. The CONTRACTOR's warranty shall continue as to any corrected deficiency until the later of:

1. The remainder of the original one-year warranty period; or
 2. One year after acceptance by MCSD of the corrected Work.
- B. Such action by MCSD will not relieve the CONTRACTOR of the warranties required by this section or elsewhere in the Contract Documents.
- C. All guarantees and warranties, expressed or implied shall inure to the benefit of both MCSD and the CONTRACTOR during the performance of the Work. Upon Final Completion of the Work, such guarantees and warranties shall inure to the benefit of MCSD.
- D. The Performance Bond and the Payment Bond shall continue in full force and effect for the warranty period, including all extensions thereof as provided by the Contract Documents.
- E. If, in the opinion of MCSD, defective Work is detected during the warranty period which creates a dangerous condition or requires immediate correction or modification to prevent further loss to MCSD or to prevent interruption of MCSD operations, MCSD will attempt to give the notice required by this section. If the CONTRACTOR cannot be contacted or does not comply with MCSD's request for correction within a reasonable time as determined by MCSD, MCSD may, notwithstanding the provisions of this section, proceed to make such correction or provide such modification. The costs of such correction or modification shall be charged against the CONTRACTOR. Such action by MCSD will not relieve the CONTRACTOR of the warranties required by this section or elsewhere in the Contract Documents.
- F. This section does not in any way limit the warranty on any items for which a longer warranty is specified or on any items for which a manufacturer or Supplier gives a warranty for a longer period. The CONTRACTOR agrees to act as a co-guarantor with such manufacturer or Supplier and shall furnish MCSD all appropriate guarantee or warranty certificates upon completion of the Project and acceptance by MCSD. No warranty period,

whether provided for in this section or elsewhere, shall in any way limit the liability of the CONTRACTOR, Sureties or insurers.

4.21. SAFETY PRECAUTIONS AND EMERGENCIES

A. CONTRACTOR's Responsibility for Safety.

CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. This requirement will apply continuously twenty four hours a day every day until Final Acceptance of the Work and shall not be limited to normal working hours. The duties of MCSD, Engineer and Inspector do not include review of the adequacy of CONTRACTOR's safety measures in, on, or about the site and vicinity.

B. Safety Officer.

Contractor shall designate a responsible member of its organization at the site of the Work whose duty shall be the prevention of hazards and accidents. This person shall be CONTRACTOR's Superintendent unless otherwise designated in writing by CONTRACTOR to the ENGINEER.

C. Safety Measures.

Contractor shall comply with all Codes and lawful orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. Contractor shall comply with the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc., including the recommendations for safe construction methods and the requirements for the guarding of machinery and equipment therein, to the extent that the provisions of the manual are not in conflict with applicable Codes and orders. CONTRACTOR shall maintain copies of all documents mentioned or referenced in this paragraph readily available at the site until the Work is completed.

D. Warnings and Barricades.

CONTRACTOR shall provide and maintain barricades, guards, temporary bridges and walkways, watchmen, night lights and danger signals illuminated from sunset to sunrise, and all other necessary appliances and safeguards to protect the Work, life, property, the public, excavations, equipment, and materials. Barricades shall be of substantial construction and shall be painted such as to increase their visibility at night. Suitable warning signs shall be so placed and illuminated at night as to show in advance where construction, barricades, or detours exist. Guard rails shall be provided for bridges and walkways over or adjoining excavations, shafts, and other openings and locations where injury may occur.

E. Fire Prevention.

CONTRACTOR's Safety Officer shall inspect the entire Work and site, including storage areas, at frequent intervals to verify that fire prevention measures are constantly enforced.

F. Flammable or Toxic Materials.

Only a working supply of flammable or toxic materials shall be permitted in or on any of the permanent structures and improvements, and shall be removed therefrom at the end of each day's operations. CONTRACTOR shall store flammable or toxic materials and waste separate from the Work and stored materials for the Work in a manner that prevents spontaneous combustion or dispersion, and none shall be placed in any sewer or drain piping nor buried on the Owner's property.

G. Safety Helmets, Clothing, and Equipment.

CONTRACTOR shall not permit any person for whom he is responsible or liable to enter or remain on the site of the Work unless the person is equipped with and wearing a safety helmet and other protective clothing and safety equipment conforming to the requirements of paragraph C. "Safety Measures," and shall discharge from the site all persons not so equipped.

H. Hazardous Areas.

CONTRACTOR shall not permit or allow any person or persons to enter any pipe or space containing hazardous or noxious substances or gases, or where there is an insufficient amount of oxygen to sustain life and consciousness, or any other hazardous area unless equipped with lawful and appropriate safety equipment and life supporting apparatus, and unless those entering are continually monitored and guarded by and in communication with other persons outside the space or area who are equipped in the same way, can give an alarm to others for assistance, and initiate immediate rescue operations in the event of mishap.

I. Emergencies.

CONTRACTOR shall perform any and all operations and shall furnish any materials and equipment necessary during an emergency endangering life or property and, in all cases, shall notify the ENGINEER of the emergency as soon as practicable, but shall not wait for instruction before proceeding to properly protect both life and property.

CONTRACTOR shall file with the ENGINEER a written list giving the names, addresses, and telephone numbers of at least two of his representatives who can be contacted at any time in case of emergency. The representatives shall be fully authorized and equipped to correct unsafe or inconvenient conditions on short notice. CONTRACTOR shall promptly notify the ENGINEER of all changes in the listing.

5. SCOPE OF WORK

5.1. GENERAL

The intent of the Contract Documents as they apply to the Project is to prescribe and provide for the complete and finished performance and accomplishment, in every respect, of the entire contemplated Work indicated in the Contract Documents, relating directly to the Project. It shall be understood that the CONTRACTOR undertaking the execution of all or any part of such Work shall be required to perform in a craftsman-like manner and in strict compliance with Contract Documents, and to furnish and provide in connection therewith all transportation, labor, tools implements, equipment, materials, supplies, services and other items which are necessary or appurtenant to construct and complete the entire Project, including but not limited to all applicable codes, permits, ordinances, regulations, and laws.

5.2. CONSTRUCTION PROCEDURES AND PROTECTION

A. CONTRACTOR's Plant and Equipment.

CONTRACTOR shall furnish modern plant and equipment as necessary to perform the Work in a manner satisfactory to the ENGINEER and in accordance with the Contract Documents, types and designs that comply with the requirements herein and with the requirements prescribed by Codes pertaining to wind and seismic forces at the place of the Project. Construction equipment or machinery that at any time produces unsatisfactory results shall be promptly repaired or replaced by the Contractor and as the ENGINEER may require.

B. Use of Site.

CONTRACTOR shall confine its equipment, the storage of materials and equipment, and the operations of those directly and indirectly employed by it to areas permitted by applicable Codes and the Contract Documents, and shall not unreasonably encumber the site with materials and equipment. Nothing in the Contract Documents shall grant to the Contractor exclusive occupancy of the site of the Work and Project.

C. Overloading.

No part of the Work or new and existing structures, scaffolding, shoring, sheeting, construction machinery and equipment, or other permanent and temporary facilities shall be loaded with weights or subjected to stresses or pressures that endanger any of them. CONTRACTOR shall bear the cost of correcting damage caused by overloading or excessive stresses or pressures.

D. Use of Explosives.

CONTRACTOR shall comply with all laws, ordinances, regulations, codes, and orders governing the transportation, storage, and use of explosives, shall exercise extreme care not to endanger life or property, and shall be responsible for all injury or damage resulting

from the use of explosives for or on the Work. No blasting shall be done in the vicinity of existing structures above or below the ground without the prior written consent of the owner thereof.

E. Cutting and Patching.

CONTRACTOR shall perform all cutting, fitting, or patching of the Work that may be required to make its several parts fit together properly and satisfactorily, and shall not endanger any Work, structures, adjacent property, workmen, or the public by cutting, excavating, or otherwise altering the Work or any part of it. CONTRACTOR shall restore all such cut or patched Work and improvements as approved by the ENGINEER.

F. Verification of Installed Work.

CONTRACTOR shall correct all defects in installed Work of the Contract before subsequent related or connected Work is applied or installed. Where the Contract Documents require a material or item of equipment to be applied or installed under the supervision, inspection, or direction of the supplier or manufacturer, or his representative, the supplier, manufacturer, or his representative shall inspect the applicable installed Work and issue a letter to the ENGINEER stating the corrections required to or approval of the installed Work before his material or equipment is installed or applied.

G. Manufacturers' Instructions.

Unless otherwise provided in the Contract Documents, CONTRACTOR shall apply, install, erect, connect, use, clean, condition, and operate manufactured articles, materials, and equipment in accordance with the various manufacturers' instructions. CONTRACTOR shall compare the requirements of the various manufacturers' instructions with the requirements of the Contract Documents, shall promptly notify the ENGINEER in writing of any difference between such requirements, and shall not proceed with any of the Work affected by such differences until an interpretation or clarification is issued. CONTRACTOR shall bear all costs for any error in the Work resulting from its failure to so compare the various requirements and notify the ENGINEER of any such differences.

H. Public Convenience.

CONTRACTOR shall at all times so conduct its operations as to ensure the least possible obstruction and inconvenience to traffic and the general public and the residents in the vicinity of the Work, to protect persons and property, and to preserve access to driveways, house, and buildings. CONTRACTOR shall have under construction no greater amount of Work than it can properly perform with due regard to the rights of the public, and shall not create any public nuisance. No road, street, or highway shall be closed to the public except with the permission of the proper authorities. Where existing streets are not available as detours, CONTRACTOR shall permit traffic to safely pass through the Work with as little delay and inconvenience as possible, unless otherwise authorized by the ENGINEER. CONTRACTOR shall furnish competent flagmen whose sole duty shall be the directing of traffic through or around the Work when ordered by the ENGINEER, required by public

authorities having jurisdiction, or required by law. At no time shall CONTRACTOR prevent free access to fire hydrants, water and gas main valves, manholes or vaults, or other utility facilities except as otherwise required to perform the Work and in compliance with all Codes and permits. CONTRACTOR shall make temporary provisions to ensure the use of walkways and sidewalks and the proper functioning of gutters, sewer and storm drain inlets, and ditches, which shall not be obstructed.

I. Protection.

CONTRACTOR shall take all precautions and furnish and maintain protection to prevent damage, injury, or loss to all employees and workmen on the Work and all other persons who may be affected thereby; all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of CONTRACTOR or any of its Subcontractors; and other improvements and property at the site or where Work is to be performed including buildings, trees and plants, pole lines, fences, guard rails, guide posts, culvert and project markers, signs, structures, conduits, pipe lines, and improvements within or adjacent to streets, rights of way, or easements, except those items required to be removed by the Contractor in the Contract Documents. The Contractor's protection shall include all the safety precautions required under General Conditions Section entitled "Safety Precautions and Emergencies" and other necessary forms of protection, and the notification of the owners of utilities and adjacent property.

Unless otherwise provided in the Contract Documents or unless otherwise cared for by the owner thereof, all water, gas, oil, or irrigation lines, all lighting, power, communication, or telephone conduits, all sewer and drainage lines and house connection lines, sprinkling systems, and other subsurface structures of any nature along the Work shall be maintained by CONTRACTOR at its expense, and shall not be disturbed, disconnected, or damaged by CONTRACTOR during the progress of the Work. CONTRACTOR shall install temporary pipes of adequate size to carry off sewage from any sewer facilities cut off by construction operations. Installation of temporary pipes shall be made immediately upon cutting of the existing facility, and no sewage shall be allowed to flow from any severed facility upon the ground surface or in the trench excavation. Pipe used in temporary sewers may be clay, metal, concrete, or composition. Before completion of Work, CONTRACTOR shall replace all severed connections and restore to operating order the existing sanitary facilities with matching materials and construction. No liquid from any severed facility shall be allowed to flow upon the ground surface or in any excavation.

Except for those improvements and facilities required to be permanently removed by the Contract Documents, CONTRACTOR shall make satisfactory and acceptable arrangements with the appropriate owners and, at its expense, shall repair and restore all improvements, structures, property, utilities, and facilities disturbed, disconnected, or damaged as a result or consequent of its Work or the operations of those for whom he is responsible or liable, including that caused by trespass of any of them with or without his knowledge or consent, or by the transporting of workmen, materials, or equipment to or from the site.

5.3. ERRORS AND OMISSIONS

The CONTRACTOR, as part of this Contract, shall agree not to take advantage of errors or omissions in the Contract Documents. It is the duty of the CONTRACTOR to promptly notify the ENGINEER in writing of any design, materials, or specified method that the CONTRACTOR believes may prove defective or insufficient. If the CONTRACTOR believes that a defect or insufficiency exists in design, materials or specified method and fails to promptly notify the ENGINEER in writing of this belief, the CONTRACTOR thereby waives any right to assert that defect or insufficiency in design, materials or specified method at any later date in any legal or equitable proceeding against MCSD, or in any subsequent arbitration or settlement conference between MCSD and the CONTRACTOR. The ENGINEER, upon receipt of any such notice, will promptly investigate the circumstances and give appropriate instructions to the CONTRACTOR. Until such instructions are given, any Work done by the CONTRACTOR after the CONTRACTOR becomes aware that a defect or insufficiency exists in design, materials or specified method which is directly or indirectly affected by such alleged defect or insufficiency in design, materials or specified method will be at the CONTRACTOR's own risk and the CONTRACTOR shall bear all costs arising therefrom. In the event the CONTRACTOR believes that the ENGINEER's instruction results in a change to the Contract Documents or Work requiring a change to the period of Contract performance or Contract Price, CONTRACTOR must submit a Request for Change in the time and manner set forth in the Section herein entitled Request for Change (Changes at CONTRACTOR's Request).

If the CONTRACTOR, either before commencing Work or in the course of the Work, finds any discrepancy between the Contract Documents, or the physical conditions at the worksite, or finds an error or omission on the Plans or in any survey, the CONTRACTOR shall promptly notify the ENGINEER in writing of such discrepancy, error or omission. If the CONTRACTOR observes that the Contract Documents are at variance with any applicable law, regulation, order, or decree, the CONTRACTOR shall promptly notify the ENGINEER in writing of such conflict. The ENGINEER, on receipt of such notice, will promptly investigate the circumstances and give appropriate instructions to the CONTRACTOR. Until such instructions are given, Work done by the CONTRACTOR after the discovery of such error, discrepancy, or conflict which is directly or indirectly affected by such error, discrepancy, omission or conflict will be at the CONTRACTOR's own risk and the CONTRACTOR shall bear all costs arising therefrom. In the event the CONTRACTOR believes that the ENGINEER's instruction results in a change to the Contract Documents or Work requiring a change to the period of Contract performance or Contract Price, CONTRACTOR must submit a Request for Change in the time and manner set forth in the Section herein entitled Request for Change (Changes at CONTRACTOR's Request).

Any Work or material not herein specified or shown on the Contract Documents, but which by fair implication in the judgment of the ENGINEER, should be included therein, shall be accomplished or furnished by the CONTRACTOR as part of the Contract requirements.

5.4. REQUEST FOR CHANGE (CHANGES AT CONTRACTOR'S REQUEST)

A. General

The CONTRACTOR may request an equitable adjustment if it considers any Work which is demanded by the ENGINEER in writing to be "Extra Work" and outside the requirements of the Contract Documents or in variance to the same, or otherwise causes the CONTRACTOR to accelerate or decelerate the Work or causes a delay to the Work. Equitable adjustments may also be requested if the CONTRACTOR identifies what it believes to be errors or omissions of any kind, including design errors or omissions, in the Contract Documents or encounters a differing site condition that could not reasonably have been foreseen, and any such occurrence or direction materially changes the Contract Documents or Work and/or which may require a change to the period of performance or Contract Price (either additive or deductive). The CONTRACTOR shall within three (3) days after any such demand, instruction, ruling, occurrence, discovery, or decision is made, notify the ENGINEER in writing by way of a document entitled "Request for Change" (RFC). The RFC shall set out in specific detail all objections such as why the requested Work is not in the scope of the Contract Documents and the reasons therefore, and/or the reason why the required Work is outside the scope of the Contract Documents, the identification of the Contract Document, term, condition, or specification proposed to be altered, changed, added, or deleted, and why the CONTRACTOR believes additional compensation or time will or may be due as a result thereof.

Except for RFCs which are made in the manner and within the time stated above, the CONTRACTOR shall be deemed to have waived, and does by execution of the Contract knowingly waive all Claims for Extra Work, damages and extensions of time resulting from demand, instructions, rulings and decisions of the ENGINEER. Except for requests for equitable adjustment based on defective Specifications, no requests for equitable adjustment hereunder shall be allowed for any costs incurred more than 3 days before the CONTRACTOR gives written notice as required herein. In the case of defective Specifications for which MCS D is responsible, if there are any increased direct costs reasonably incurred by CONTRACTOR in attempting to comply with those defective Specifications, CONTRACTOR will be entitled to recovery of any such increased direct costs if the Request for Change is made in accordance with the procedures set forth herein, Request for Change (Changes At CONTRACTOR's Request) and/or OWNER Initiated Changes. CONTRACTOR, however, is not relieved of its obligation at time of Bid to have reviewed the Contract Documents and identified any patent errors or omissions in the same; and it shall bear all costs arising from any such failure.

B. Request for Change Submissions; Cost and Schedule Proposals

All RFCs shall be dated, numbered sequentially, and shall describe the action or event which the CONTRACTOR believes may require equitable adjustment. The CONTRACTOR shall also provide a description of possible CONTRACTOR actions or solutions to minimize the cost of the RFC, and it shall provide a cost and schedule proposal for said Work based upon an estimate of the cost for the anticipated changed Work, and

shall submit said price and time impact to the ENGINEER whose approval shall be secured before Work is started. The cost and schedule proposal shall include, at a minimum, the following:

1. A detailed cost breakdown of the changed Work organized and subtotaled by specification section in a spreadsheet format specified by the ENGINEER itemizing all costs associated with the Extra Work, deletion or revision, including material, labor, equipment, etc. in a manner evidencing the logical computation and allocation of costs, and the CONTRACTOR must also include all necessary back-up documentation including quantities, labor man-hours, unit prices, and Supplier and Subcontractor quotations to support said estimate, and any other data, information and/or documentation required by the ENGINEER. Costs for preparing cost or schedule proposals are not compensable.
2. If an adjustment to the Contract period of performance is requested, the delay must be substantiated and documented by the CONTRACTOR. In accordance with the schedule requirements in the Specifications, an accurately updated Project schedule proving time impacts and actual delay to critical path activity is required, unless otherwise directed in writing by the ENGINEER, and shall be accompanied by any and all documentation as more particularly specified herein, General Conditions, Extension of Time for Delay. The CONTRACTOR shall also include the identification of labor, materials and/or other cost items including overhead and Subcontractor costs, which have been or may be added, deleted or wasted by such delay, and a statement that the CONTRACTOR is maintaining records which allows the separately identifiable direct costs due to the delay, and those not incurred as a result of the delay, to be readily identifiable and segregated.
3. In addition, the CONTRACTOR shall include with its cost and/or schedule proposal a certification, executed by a duly authorized representative of the CONTRACTOR, stating the following, or the RFC shall be considered incomplete and shall not be accepted by MCSD:

“I certify that (1) the Request for Change is made in good faith, (2) I have reviewed all supporting documentation and data, which is included herewith, and it is accurate and complete, (3) I have determined from my independent review of the Request for Change that the same is meritorious, and that the amount and/or time extension requested accurately reflects the Contract adjustment for which I believe MCSD is liable; and (4) I am duly authorized to certify the Request for Change on behalf of the CONTRACTOR.”
4. CONTRACTOR shall submit three printed copies of the complete proposal along with an electronic copy of the proposal on a compact disc in a file format acceptable to MCSD.

Extra Work shall be priced by CONTRACTOR and paid by MCSD consistent with the allowable costs set forth in the Section herein entitled "Contract Price Adjustments and Payment."

Upon receipt of the CONTRACTOR's RFC, the ENGINEER shall review the same and shall promptly advise the CONTRACTOR in writing of the final decision. The final decision shall be binding, subject however to the approval of the Board of Directors or General Manager, to the extent the final decision changes the Contract Documents and a Change Order is required. If additional information is needed to evaluate the Request for Change, the ENGINEER may at its sole discretion request that the CONTRACTOR submit such additional information or documentation as may be needed to evaluate the RFC. By issuing any request for additional information, the ENGINEER shall not be deemed to have made a determination as to the merit of the CONTRACTOR's Request for Change or as to the nature of the Work in question, and in no event shall it be deemed a direction to proceed with said Work. The CONTRACTOR shall submit any further information or documentation requested by the ENGINEER, whose approval shall be secured before Work is started. In the event negotiations are necessary to determine an appropriate cost and/or schedule adjustment to the Contract, the CONTRACTOR shall negotiate in good faith with the MCSD.

C. Authority to Direct Extra Work

The ENGINEER may, when in the best interest of MCSD issue a Change Order to the CONTRACTOR to proceed with the Extra Work including the Work identified in the RFC in advance of its cost and schedule proposal submission. MCSD reserves the right to reject any requests for equitable adjustment for Extra Work or for additional payment requested as a result of extending the Work under the Bid prices which has not been approved by the ENGINEER in the manner herein provided.

When the price for Extra Work, deletions or other revisions cannot be agreed upon, or the CONTRACTOR fails or refuses to negotiate in good faith with respect to the same, MCSD may issue a unilateral change using its independent estimate and time impact analysis, as more particularly specified in these General Conditions, Contract Price Adjustments and Payments. MCSD may also direct such Work on a time and materials or force account basis.

To the extent the ENGINEER directs Extra Work to be performed on a time and materials or force account basis, such Extra Work shall be performed by the CONTRACTOR, and compensated by MCSD, in the time and manner set forth in General Conditions Section entitled, "Contract Price Adjustments and Payments," Sub-section D thereto, "Time & Material and Force Account Work."

In the event the CONTRACTOR disagrees with any findings made by the ENGINEER as it concerns entitlement to a Change Order, or any portion thereof, additional compensation under the Contract, or adjustment to period of performance, CONTRACTOR shall proceed with the Claims procedures set forth herein. CONTRACTOR also agrees to diligently

proceed with the performance of the Contract, including the delivery of goods or providing of services in accordance with ENGINEER's instructions. CONTRACTOR's failure to diligently proceed in accordance with ENGINEER's instructions shall be considered a material breach of the Contract.

D. Minor Changes

Changes in the Work not materially affecting the efficiency or usability of the finished facility, which do not involve extra or lesser cost, and are not inconsistent with the intent of the Contract Documents or detrimental to the Project or to the interests of MCSD, may be granted by the ENGINEER to facilitate the Work of the CONTRACTOR when such changes are requested, in writing, and submitted to the ENGINEER for approval. In the event such changes are granted in writing by the ENGINEER, the changes shall be made without additional cost to MCSD. The CONTRACTOR will be responsible for all costs associated with future changes or conflicts that are caused by the CONTRACTOR's requested change. It shall be understood that nothing herein shall be construed as granting permissive rights to the CONTRACTOR to demand acceptance of such requested changes.

5.5. OWNER INITIATED CHANGES

A. General

MCSD reserves and shall have the right, without invalidating the Contract and without notice to the Surety(ies), to have changes made within the general scope of the Contract Documents consisting of Extra Work, deletions or other revisions. The signing of the Contract Documents by the CONTRACTOR will be deemed to be an agreement on its part to perform Extra Work, as and when ordered by the ENGINEER.

Upon decision of MCSD to have Extra Work performed, the ENGINEER will so inform the CONTRACTOR, acquainting the CONTRACTOR with the essential details of the Extra Work and issue a Request for Proposal ("RFP"). The CONTRACTOR shall thereupon, and within three (3) days, prepare a proposal for said Extra Work based upon an estimate of cost and submit said price and time impact analysis to MCSD whose approval shall be secured before Extra Work is started. The ENGINEER may, when in the best interests of MCSD, order the CONTRACTOR to proceed with the Extra Work in advance of proposal submission. MCSD reserves the right to reject any Claims for Extra Work or for additional payment claimed as a result of extending the Work under the Bid prices which have not been approved by the ENGINEER in the manner herein provided.

B. Cost and Schedule Proposal

The CONTRACTOR's proposal must include, at a minimum, the items identified in the Section entitled "Request For Change (Changes At CONTRACTOR's Request)," subsection B.1 through B.4.

Extra Work shall be priced by CONTRACTOR and paid by MCSD consistent with the allowable costs set forth in the Section herein entitled “Contract Price Adjustments and Payment.”

The ENGINEER shall review the CONTRACTOR’s RFP submission of costs and/or delays and shall promptly advise the CONTRACTOR in writing of the final decision as to the adjustment to the Contract Price and/or period of performance, if any, to be made in the Contract Documents. The CONTRACTOR shall submit any further information or documentation requested by the ENGINEER, whose approval shall be secured before Extra Work is started. In the event negotiations are necessary to determine an appropriate cost and/or schedule adjustment to the Contract, the CONTRACTOR shall negotiate in good faith with MCSD. The ENGINEER’s final decision shall be binding, subject however to the approval of the Board of Directors or General Manager, to the extent the final decision changes the Contract Documents and a Change Order is required.

C. Authority to Direct Extra Work

The ENGINEER may, when in the best interests of MCSD, order the CONTRACTOR to proceed with the Extra Work in advance of its cost and schedule proposal submission. MCSD reserves the right to reject any Claims for Extra Work or for additional payment claimed as a result of extending the Work under the Bid prices which has not been approved by the ENGINEER in the manner herein provided.

When the price for Extra Work, deletions or other revisions cannot be agreed upon, or the CONTRACTOR fails or refuses to negotiate in good faith with respect to the same, MCSD may issue a unilateral change using its independent estimate and time impact analysis, as more particularly specified in these General Conditions, Contract Price Adjustments and Payments. MCSD may also direct such Extra Work on a time and materials or force account basis.

To the extent the ENGINEER directs Extra Work to be performed on a time and materials or force account basis, such Extra Work shall be performed by the CONTRACTOR, and compensated by MCSD, in the time and manner set forth in General Conditions Section entitled, “Contract Price Adjustments and Payments,” “Time & Material and Force Account Work.”

In the event the CONTRACTOR disagrees with any findings made by MCSD as it concerns adjustment to Contract Price or period of performance, CONTRACTOR shall proceed with the Claims procedures set forth herein. CONTRACTOR also agrees to diligently proceed with the performance of the Contract, including the delivery of goods or providing of services in accordance with MCSD's instructions. CONTRACTOR's failure to diligently proceed in accordance with MCSD's instructions shall be considered a material breach of the Contract.

D. Minor Changes

The ENGINEER may order in writing minor changes in the Work not involving an increase or decrease in the Contract Price, not involving a change in the time for completion, and not inconsistent with the Contract Documents or the purposes for which the Work is being constructed. If the CONTRACTOR believes that any order for minor changes in the Project involves changes in the Contract Price or time for completion, the CONTRACTOR shall not proceed with the minor changes so ordered and shall within three (3) days of the receipt of such order notify ENGINEER in writing of the estimate of the changes in the Contract Price and period of performance believed to be appropriate, and in the manner more particularly set forth herein at Request for Change (Changes At CONTRACTOR's Request).

5.6. CLAIMS

A. Claims Subject to Public Contract Code Section 20104, et seq.

For any Claim subject to Public Contract Code Section 20104 et seq., for Three Hundred Seventy-Five Thousand Dollars (\$375,000) or less, MCSD and CONTRACTOR shall comply with Public Contract Code Section 20104, et seq., for resolution.

B. Notice of Claim

Notwithstanding California Public Contract Code Section 20104.2(a), all Claims shall be filed with MCSD within twenty (20) days of MCSD's decision, act or omission which gives rise to the Claim, or prior to Final Completion, whichever occurs first. This notice requirement is specifically authorized by California Public Contract Code Section 20104.2(a). Unless such Claim is made and filed as herein prescribed, the Claim shall be forfeited and invalidated and the CONTRACTOR shall not be entitled to any relief, damages and/or payment in connection therewith. The presentation of such Claim, however, shall not be deemed evidence of any liability for the alleged damage on the part of MCSD or MCSD agent.

C. Claims Not Subject to Public Contract Code Section 20104, et seq.

For any Claim, including any disagreement between the parties as to the merits, amount or remedy arising from the Project or Contract Documents not subject to Public Contract Code Section 20104, et seq., the provisions of Public Contract Code Section 20104, et seq., are hereby incorporated and shall apply to all such Claims except as follows:

1. The time period in which the Claim shall be filed with MCSD as set forth in Section 20104.2(a) shall be within twenty (20) days of MCSD's decision, act or omission which gives rise to the Claim, or prior to Final Completion, whichever occurs first.
2. MCSD's 60 day response period set forth in Section 20104.2(c) (1) shall be extended to 90 days from receipt of the Claim.

- D. For all Claims submitted by the CONTRACTOR, CONTRACTOR shall include all documentation necessary to substantiate the Claim, which includes, but is not limited to all documentation required to be submitted with the initial Request for Change, pursuant to the General Conditions, Request for Change (Changes At CONTRACTOR's Request), OWNER Initiated Changes and/or Extension of Time for Delay, as applicable, plus any additional documentation or narrative that may have been inadvertently omitted from the initial submission to MCSD and/or ENGINEER, including an explanation as to why said documentation or narrative was not previously included, and any and all documentation, written narratives or other evidence addressing and/or responding to the basis for rejection of the initial Claim including a Request for Change, either in whole or in part, as provided by the ENGINEER and/or MCSD.
- E. Pending the final resolution of any Claims arising under, related to or involving this Contract, CONTRACTOR agrees to diligently proceed with the performance of this Contract, including the delivery of goods or providing of services in accordance with MCSD's instructions. CONTRACTOR's failure to diligently proceed in accordance with MCSD's instructions shall be considered a material breach of the Contract.

5.7. DISPUTES

- A. For all Claims, including any and all disagreements between the parties as to the merits, amount or remedy arising out of an issue in controversy pertaining to the Project and/or Contract Documents, which remain unresolved after the CONTRACTOR submitted the same to the ENGINEER or MCSD for resolution in accordance with these General Conditions, Claims, the CONTRACTOR shall follow the disputes procedure as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code, unless otherwise specified by the Special Provisions. For purposes of those provisions, the running of the period of time within which a dispute must be filed shall be tolled from the time the CONTRACTOR submits its written Claim pursuant to Public Contract Code Section 20104.2(a) and these General Conditions, Claims, until the time that Claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.
- B. Unless any dispute is made and filed as herein prescribed the dispute shall be forfeited and invalidated and the CONTRACTOR shall not be entitled to any relief, damages, and/or payment in connection therewith.
- C. Pending the final resolution of any dispute arising under, related to or involving this Contract, CONTRACTOR agrees to diligently proceed with the performance of this Contract, including the delivery of goods or providing of services in accordance with MCSD's instructions. CONTRACTOR's failure to diligently proceed in accordance with MCSD's instructions shall be considered a material breach of the Contract.

6. PROSECUTION AND PROGRESS OF THE WORK

6.1. PROGRESS OF THE WORK

The CONTRACTOR shall not commence Work until a Notice to Proceed from MCSD has been received. After receipt of the Notice to Proceed, the CONTRACTOR shall commence Work, and shall thereafter diligently prosecute the same in accordance with the Construction Schedule to complete the Work within the specified time limits of the Contract.

6.2. TEMPORARY SUSPENSION OF WORK

The ENGINEER shall have the authority to suspend the Work wholly or in part, for such period as deemed necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the Work, or for such time as deemed necessary due to the failure on the part of the CONTRACTOR to carry out instructions given, or to perform any provision of the Contract. The CONTRACTOR shall immediately comply with the written order of the ENGINEER to suspend the Work wholly or in part. The suspended Work shall be resumed when conditions are favorable and methods are corrected, as ordered by the ENGINEER.

If a suspension of Work is ordered by the ENGINEER due to the failure on the part of the CONTRACTOR to carry out orders given or to perform any provision of the Contract, the CONTRACTOR shall bear all costs associated with the suspension of Work and no extension of time for the completion of the Work shall be granted.

6.3. EXTENSION OF TIME FOR DELAY

If the Work should be delayed at any time by Extra Work or by reason of a suspension ordered by MCSD or because of any other act of MCSD or its officers or employees without contributory fault or neglect on the part of the CONTRACTOR or its agents or employees or its Subcontractors and/or Suppliers or if the Work should be delayed by reason of strikes or abnormal force or violence of the elements or for any other unforeseeable cause beyond the control and without the fault or negligence of the CONTRACTOR, then the CONTRACTOR may be entitled to an extension of time for completion of the Work equivalent to the time actually lost by such delay.

When any such delays are experienced by the CONTRACTOR and a time extension is requested, the CONTRACTOR shall submit to the ENGINEER, a written time impact analysis illustrating the effects of the change or delay on the current Contract completion date utilizing the Construction Schedule that is current at the time the change or delay is encountered within the time and manner specified herein, and in accordance with Request for Change (Changes At CONTRACTOR's Request) and MCSD Initiated Changes.

The CONTRACTOR shall, within three (3) days from the beginning of any such delay, or within a period of time otherwise agreed upon in writing by the ENGINEER, file a written request with MCSD for extension of time which if initiated by the CONTRACTOR shall be

submitted in the form of a Request for Change, as specified herein, Request for Change (Changes At CONTRACTOR's Request) or if the change is initiated by MCSD by the issuance of a Request for Proposal. Failure to do so shall constitute a waiver thereof. Requests for extensions failing to include the information specified in this section or within the time specified above shall result in the forfeiture of the CONTRACTOR's right to receive any extensions of time requested. MCSD will ascertain the facts and the extent of the delay, and its findings of the facts thereon shall be final and conclusive.

Each time impact analysis shall include a Fragnet demonstrating how the CONTRACTOR proposes to incorporate the change or delay into the current Construction Schedule. The Fragnet shall include the sequence of new and/or existing activity revisions that are proposed to be added to the accepted Construction Schedule that is current at the time the change or delay is encountered.

Each time impact analysis shall demonstrate the estimated time impact based on the events of the delay, the anticipated or actual date of the changed Work performance, the status of construction at that point in time, and the event time computation of all activities affected by the change or delay. The event times used in analysis shall be those included in the latest update of the current Construction Schedule in effect at the time the change or delay was encountered. Time extensions will be granted only to the extent that demonstrated time adjustments for the activity or activities affected exceed the total or remaining float along the critical path of activities at the time of actual delay or changed Work performance. Pursuant to the float sharing requirements as described elsewhere in the Contract Documents, time extensions shall not be granted nor delay damages paid until a delay occurs which:

1. Is beyond the control and without the fault or negligence of the CONTRACTOR and its Subcontractors or Suppliers, at any tier; and,
2. Extends actual performance of the Work beyond the current Contract completion date and the most recent date predicted for completion of the Work on the accepted Construction Schedule update that is current as of the time of the delay.

A written request for an extension of time or the granting of an extension of time shall not, in itself, constitute a basis for any Claim against MCSD for additional compensation, or a waiver of MCSD'S right to strictly enforce the time provisions contained in the Contract Documents. Additionally granting of an extension of time shall not in itself constitute a basis for any Claim against MCSD for additional compensation. The CONTRACTOR hereby waives any Claim for additional compensation unless a Claim for additional compensation on account of such delay is filed at the time the request for extension of time is made.

The determination as to whether an extension of time will be granted will be made within sixty (60) days after receipt of a request from the CONTRACTOR as provided above. In the event the CONTRACTOR disagrees with any findings made by MCSD as it concerns adjustment to the period of performance, CONTRACTOR shall proceed with the Claims procedures set forth herein.

No revision to the accepted baseline schedule or updates shall be made without prior written approval from the ENGINEER.

Schedule revisions illustrating the influence of Change Orders and delays shall be incorporated into the Construction Schedule during the first update after agreement is reached.

Any extension of time shall not release the Sureties upon any Bond required under the Contract.

6.4. LABOR COMPETENCY

If any Subcontractor, site superintendent, foreman or person(s) employed by the CONTRACTOR shall fail or refuse to carry out the directions of the ENGINEER or shall appear to the ENGINEER to be incompetent, or to act in a disorderly or improper manner, that person(s) shall be discharged immediately on demand of MCSD and such person(s) shall not again be employed on the Project.

The CONTRACTOR shall bear all costs associated with such discharge of any Subcontractor, site superintendent, foreman or person(s) employed by the CONTRACTOR and such discharge shall not constitute a basis for any Claim against MCSD.

6.5. USE PRIOR TO FINAL COMPLETION (BENEFICIAL OCCUPANCY)

- A. MCSD shall have the right to Beneficially Occupy all or a portion of the Work at no additional cost to MCSD.
- B. If MCSD elects to Beneficially Occupy any completed or partially completed portions of the Work, the ENGINEER shall so document in writing the scope of Work of which it elects to take possession and an inspection shall be made by the CONTRACTOR and ENGINEER of said scope of Work. Based on such inspection, the ENGINEER will attempt to list all incomplete and/or deficient items of Work observed, and provide the CONTRACTOR with such a list. However, the absence of an item from the list shall not relieve the CONTRACTOR of responsibility to perform all of the Work in accordance with the Contract Documents, and any and all areas so occupied will be subject to Final Inspection after the CONTRACTOR completes all punchlist items, before Final Completion. If such prior use by MCSD delays the progress of the Work or causes additional expense to the CONTRACTOR, the CONTRACTOR shall file a written request for extension of time and/or Extra Work.
- C. Until Final Acceptance of the Work, CONTRACTOR shall guarantee, through the provision and maintenance of sufficient warranties, the following: that the portions of the Work Beneficially Occupied shall perform at all times as part of a fully integrated system consisting of all elements which are being Beneficially Occupied; that the portions of the Work Beneficially Occupied are free from all defects due to faulty materials, equipment or workmanship; and that CONTRACTOR shall promptly make whatever adjustments or corrections which may be necessary to cure any defects, including repairs of any damage to other parts of the system resulting from such defects. MCSD shall promptly give notice

to the CONTRACTOR of observed defects. In the event that the CONTRACTOR fails to make adjustments, repairs, corrections or other work made necessary by such defects, MCSD may do so and charge the CONTRACTOR the cost incurred. The CONTRACTOR's warranty shall continue as to any corrected deficiency until the later of (1) the remainder of the original warranty period; or (2) one year after acceptance by MCSD of the corrected work. The Performance Bond and Payment Bond shall each remain in full force and effect through the warranty period.

- D. If MCSD's need to occupy the Work, or any portions thereof, prior to such time as the Work is complete is caused by the CONTRACTOR's failure to complete the Work within the period of performance, including due allowance for extensions of time made in accordance with the Contract Documents, if any, the CONTRACTOR shall bear any and all additional costs associated with completing the Work.

6.6. SUBSTANTIAL COMPLETION

Substantial Completion of the Work means the Work has progressed to the point that MCSD can beneficially occupy or utilize the Work as a whole for the purpose for which it is intended, and the Work complies with applicable codes and regulations, including if required, issuance of certificates of occupancy, or certificate of suitability for use from the appropriate governmental agencies, as determined by the ENGINEER at his/her sole discretion.

When the CONTRACTOR considers that Substantial Completion has been achieved, the CONTRACTOR shall notify the ENGINEER that the Work is substantially complete to the required stage and is ready for inspection and shall include with its Notice of Substantial Completion of the Work a list of minor items, (including the CONTRACTOR's punch list) to be completed or corrected that would not affect Beneficial Occupancy or suitability for use.

After receipt of the CONTRACTOR's Notice of Substantial Completion of Work, the ENGINEER and CONTRACTOR, and any other representative as the ENGINEER deems appropriate, shall make an inspection of the Work to determine whether the Work has been completed in accordance with the Contract Documents and to review the CONTRACTOR's punch list. If, in the ENGINEER's sole opinion, the Work has not achieved Substantial Completion, the parties shall cease the inspection and all costs incurred by MCSD as a result of the premature inspection shall be deducted from the payments due the CONTRACTOR. CONTRACTOR shall thereafter perform all remaining Work to reach Substantial Completion, and re-submit its Notice of Substantial Completion of Work. The inspection of the Work will re-commence as set forth above. If the Work has achieved Substantial Completion, a punch list shall be prepared by the ENGINEER and consist of those items listed by the CONTRACTOR to be completed or corrected as supplemented by those items observed during the inspection. Failure to include any items on the punchlist shall not alter the responsibility of the CONTRACTOR to complete all Work in accordance with the Contract Documents, nor shall the punch list amend the Contract Documents. All deficiencies and/or items identified on the punch list must be corrected within 30 days of said initial inspection conducted at the Substantial Completion phase, unless otherwise specified in writing by the ENGINEER.

6.7. FINAL COMPLETION AND FINAL ACCEPTANCE

A. Final Inspection

The CONTRACTOR shall notify the ENGINEER in writing when all punch list items have been completed, all Work is completed in accordance with the Contract Documents and all clean-up has been done. Clean-up shall be completed when all waste, materials, excess materials, tools, and equipment such as scaffolding, temporary structures, and unneeded facilities such as fencing and sanitary facilities are removed from the Project. The ENGINEER will then make Final Inspection for the purposes of ascertaining that the Work has been fully completed in accordance with the requirements of the Contract Documents.

B. Final Completion

After the ENGINEER has made the Final Inspection and is satisfied that the Work has been completed in accordance with the Contract Documents, including all punch list items, and is satisfied that all submittals have been made and accepted, including, but not limited to all materials required by the Contract Documents and all As-Builts, Record Drawings by the CONTRACTOR, if required by the Contract, and any other required record documents have been completed and accepted, all Change Order Work has been completed and accepted by the ENGINEER, and all other requirements of the Contract Documents, except for any unexecuted Change Orders, possible future warranty and guarantee Work have been accomplished, the ENGINEER shall certify, in writing, the full completion of the Work and the date thereon.

C. Final Acceptance

The Work, after achieving Final Completion, is subject to Final Acceptance by MCSD. Final Acceptance is defined herein as the “action taken by MCSD accepting the Work as fully completed after certification by the ENGINEER,” and occurs in accordance with the following:

CONTRACTOR is required to provide adequate resources to fully support administrative Project close-out efforts identified in the Contract Documents including but not limited to execution of all Change Orders, agreement on all final quantities and all other activities specified herein titled “Final Completion and Final Acceptance,” General Conditions section titled “Final Payment.” Such support and completion of all administrative close-out activities as required herein must be provided within the timeframe(s) requested by MCSD and is condition precedent to Final Acceptance.

The ENGINEER shall, after certifying the date of Final Completion of the Contract, make a final estimate of the amount of Work done thereunder, and the General Manager or designee shall certify the value of such Work and the date of Final Completion. If the Board finds that the Work has been completed according to the Contract Documents, it shall establish the date of Final Acceptance, and find and declare the Work accepted pursuant to this Section, which shall be evidenced by a Notice of Completion.

A Notice of Completion shall be recorded with the Orange County Clerk Recorder's Office immediately after the Final Acceptance, and in no event later than 10 days from Final Acceptance.

Only upon Final Acceptance shall Final Payment be processed. Processing of Final Payment shall occur in accordance with the provisions herein titled "Final Completion and Final Acceptance." Final Completion and Final Acceptance are for purposes of issuing Final Payment, and neither shall act to relieve the CONTRACTOR from any of its obligations under the Contract Documents, and under no circumstances shall Final Acceptance of the Contract Work waive any rights related to claims by MCSD pertaining to warranties and guarantees, latent defects, indemnity, fraud on the part of the CONTRACTOR, gross mistakes on the part of the CONTRACTOR amounting to fraud, or as otherwise provided in the Contract Documents.

6.8. TIME OF COMPLETION

The CONTRACTOR shall complete all or any designated portion of the Work called for under the Contract in all parts and requirements within the time set forth in the Contract Documents. If, at any time CONTRACTOR's critical path Work progress falls behind schedule, MCSD reserves the right to require the CONTRACTOR to work overtime to bring the Project back on schedule. Such overtime shall be at the CONTRACTOR's expense.

Failure of the CONTRACTOR to perform any covenant or condition contained in the Contract Documents within the time period specified shall constitute a material breach of this Contract entitling MCSD to terminate the CONTRACTOR's performance under the Contract unless the CONTRACTOR applies for, and receives, an extension of time in accordance with the procedures set forth in the section herein entitled Extension of Time for Delay, as well as any and all other remedies available to MCSD by law, in equity or pursuant to the provisions of this Contract.

Failure of MCSD to insist upon the performance of any covenant or condition within the time period specified in the Contract shall not constitute a waiver of the CONTRACTOR's duty to complete performance within the designated period unless the waiver is in writing.

MCSD's agreement to waive a specific time provision or to extend the time for performance shall not constitute a waiver of any other time provisions contained in the Contract Documents. Failure of the CONTRACTOR to complete performance promptly within the additional time authorized in the waiver or extension of time agreement shall constitute a material breach of this Contract entitling MCSD to terminate the CONTRACTOR's performance under the Contract and to any and all other legal or equitable remedies.

The CONTRACTOR shall not be assessed the cost of engineering and inspection during any delay in the completion of the Work caused by acts of God, acts of the public enemy, acts of the public utilities, delays caused by failure of a public agency or owner of a utility to provide for removal or relocation of existing main or trunkline utility facilities or other known utility

facilities, fire, floods, earthquake, epidemic, quarantine restrictions, strikes, and unusually severe weather, or delays necessarily resulting from war or national or local emergencies, or delays of Subcontractors due to such causes; provided that the CONTRACTOR shall, within three (3) days from the beginning of any such delay, request an extension of time in accordance with the procedures set forth in this section and as specified in these General Conditions, Extension of Time for Delay. Such delays shall not entitle the CONTRACTOR to any additional compensation. The sole remedy of the CONTRACTOR shall be to seek an extension of time. MCSD shall ascertain the facts and the extent of the delay, and its findings of the facts thereon shall be final and conclusive.

7. PAYMENT FOR WORK

7.1. PAYMENT - GENERAL

Based on written estimates by the ENGINEER or on other evidence satisfactory to the General Manager, MCSD will make monthly progress payments for Work completed. Said progress payments will be based on an approved detailed breakdown of the Contract Price, which shall be furnished by the CONTRACTOR showing unit prices and quantities, as applicable.

Cost of materials will be based on Supplier's invoices. A complete list of invoices shall be presented to the ENGINEER by the CONTRACTOR prior to completion of each estimate. The CONTRACTOR must present to the ENGINEER written evidence substantiating that said purchase price has been paid in full.

Items shown in the detailed breakdown of the Contract Price as unit costs will be included in the progress payments based on the percentage completed for any particular item.

Each progress payment application shall show each Subcontractor and Supplier participating in the Work completed during the previous progress period and the dollar amount of such participation. If the CONTRACTOR disputes a Subcontractor's or Supplier's entitlement to a portion of the previous progress payment, the CONTRACTOR shall submit copies of all communications between the CONTRACTOR and the Subcontractor explaining the CONTRACTOR's determination not to render payment to such Subcontractor or Supplier. Each progress payment application shall be accompanied by:

1. A conditional waiver and release upon progress payment pursuant to Civil Code Section 8132 for each Subcontractor and Supplier participating in the Work completed during the previous progress period which shall be in an amount no less than the dollar amount of such participation; and
2. A conditional waiver and release upon progress payment pursuant to Civil Code Section 8132 on behalf of the CONTRACTOR which shall be in an amount no less than the dollar amount of the total requested in the payment application.
3. Payment application, which includes a payment certification by the CONTRACTOR certifying that the Work for which payment is requested has been accomplished.

CONTRACTOR shall thereafter, within twenty (20) days of receipt of the payment from MCSD, complete an unconditional waiver and release upon progress payment pursuant to Civil Code Section 8134 for each Subcontractor and Supplier participating in the Work completed during the previous progress period and an unconditional waiver and release upon progress payment pursuant to Civil Code Section 8134 on behalf of the CONTRACTOR in an amount no less than the amount received from MCSD, and submit the same with CONTRACTOR's subsequent payment application.

7.2. PAYMENT – APPLICATIONS FOR PAYMENT

MCSD will not accept payment applications from the CONTRACTOR more frequently than once every four weeks. CONTRACTOR shall submit payment applications to MCSD addressed as follows:

Midway City Sanitary District
14451 Cedarwood Street
Westminster, CA 92863
Attention: Milo Ebrahimi, District Engineer

CONTRACTOR shall include the appropriate Project or Contract Number in the addressee information when submitting applications for payment to the ENGINEER.

Payment terms: net 30 days from receipt of properly submitted payment application.
CONTRACTOR's payment application shall include, at a minimum:

1. Clear reference to MCSD's Project or Contract number, as well as MCSD's Project title, to which the payment application applies.
2. CONTRACTOR's payment application number, payment application date, as well as the Contract payment number the invoice represents; for example, CONTRACTOR's submittal of its first payment application is payment number 1, its second payment application submittal is payment number 2, and so on. Any CONTRACTOR re-submittal/revision to a submitted payment application shall have a letter suffix (a, b, c, etc.) added to the payment number, signifying the payment application revision; for example, CONTRACTOR's first re-submittal of its first payment application shall be designated as payment for number "1a".
3. Clear reference to the payment schedule item(s) being invoiced and the appropriate milestone description of activities and/or Work related to the billing.
4. The itemized and total amount being invoiced (in U.S. dollars), less the amount of all contractual retention and deductions applicable for the invoiced amount (in U.S. dollars), and the resulting total net payment due.

5. The time period during which the Work was performed and for which the payment application is submitted.
6. Clear reference to the CONTRACTOR's Taxpayer ID Number.

7.3. CONTRACT PRICE ADJUSTMENTS AND PAYMENTS

A. General

1. Basis of Contract Price Adjustment – General

The basis of a Contract Price adjustment for any change to the Contract Documents, consisting of Extra Work, deletion or other revision shall be determined as specified herein.

For all changes to the Contract Documents that result in a Contract Price adjustment, the CONTRACTOR shall submit a cost and schedule proposal in the time and manner specified in the Contract Documents, including General Conditions sections Request for Change (Changes at CONTRACTOR's Request) and MCSD Initiated Changes. The CONTRACTOR's proposal must include a detailed cost breakdown itemizing all costs and schedule impacts associated with the Work, including material, labor, equipment, etc., all necessary back-up documentation to support said estimate, and any other data required by the ENGINEER. Delay by CONTRACTOR in submitting any pricing information required herein or negotiating in good faith with MCSD with regard to costs proposals for Extra Work, deletions or other revisions will result in delays in Contract Price adjustment and/or payment to CONTRACTOR, and MCSD shall not be responsible for any such delays or damages incurred by the CONTRACTOR as a result thereof. Also, the failure of the CONTRACTOR to submit any pricing information required herein or the failure to negotiate in good faith will prevent the Contract Price adjustment and/or payment to the CONTRACTOR, and MCSD shall not be responsible for any such damages incurred by the CONTRACTOR as a result thereof.

Delays in negotiating an adjustment or in providing substantiating documentation may result in the issuance of a unilateral Change Order using MCSD's cost and schedule estimate.

Bilateral Change Order Execution. The execution of a bilateral Change Order is without reservation of right. The execution by MCSD and the CONTRACTOR shall be deemed to be an unconditional agreement to all Extra Work and adjustments to the Contract Price and Contract Duration related to the change.

No adjustments for Extra Work shall be valid unless submitted in writing by the CONTRACTOR and approved in writing by MCSD.

2. Allowable Costs for Extra Work – General

a. Credit Items.

Where the CONTRACTOR or any tier Subcontractor's portion of a change involves credit items or deductive changes, the CONTRACTOR shall utilize the same markups utilized for additive changes in computing the value of the credit. Contract Duration savings/impacts may also be addressed as appropriate to accurately reflect the nature and impact of the credit item or deductive change on the Work.

b. Performance and Payment Bond Costs.

Performance and Payment Bond costs associated with an adjustment shall be limited to the actual increase arising directly out of the Extra Work and will be paid upon receipt of surety premium invoice that is immediately due and payable by the CONTRACTOR. A copy of the Surety's invoice must be provided to document the change in cost of the Bonds.

c. Bid & Proposal Costs.

MCSD does not compensate for Bid preparation or cost and schedule proposal preparation costs.

B. Payment

1. Negotiated Price for Extra Work

a. General

MCSD will issue a Request for Proposal (RFP) requesting a cost and schedule proposal for the Extra Work in accordance with these General Conditions, MCSD Initiated Changes. The CONTRACTOR's substantiated cost and schedule proposal, which shall conform to the requirements herein and the Section herein entitled MCSD Initiated Changes, must be provided within fifteen (15) days from issuance of a RFP in order to expedite negotiations. Alternatively, if the CONTRACTOR requests the change, the CONTRACTOR will submit a Request for Change which includes its substantiated cost and schedule proposal conforming to the requirements of the Section herein entitled Request for Change (Changes at CONTRACTOR's Request). MCSD may request that the CONTRACTOR certify the cost and schedule proposal. If warranted, MCSD may accept the CONTRACTOR's Bid price for lump sum or unit price amounts in the original or amended form and direct the CONTRACTOR to proceed with the Work. No costs for Extra Work shall be valid unless submitted in writing by the CONTRACTOR and approved in writing by MCSD.

b. Allowable Markup for Extra Work

The allowable markup for Extra Work performed by the CONTRACTOR and/or Subcontractor shall be determined in accordance with the provisions entitled, “Markup” herein, unless otherwise agreed to by MCSD.

2. Price for Extra Work on T&M Basis

When the price for the Extra Work cannot be agreed upon, MCSD may issue a unilateral change using its independent estimate and time impact analysis. MCSD may also direct such Work on a time and materials or force account basis.

Regarding allowable costs MCSD will use those identified above in Section A. MCSD will pay for the Extra Work based on the accumulation of allowable costs as provided herein.

3. Basis for Establishing Costs

a. Labor

The costs of labor will be the actual cost for wages of workers performing the Extra Work at the time the Extra Work is done, plus employer payments of payroll taxes, Worker’s Compensation Insurance, liability insurance, health and welfare, pension, vacation, holiday, training, apprenticeship funds, and other direct costs, resulting from federal, state, or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. Payroll taxes shall be calculated on base wage only and not on fringe benefits. Fringe benefits shall be applied only to the straight-time component of cost and shall not apply to the premium-time component unless otherwise required by the California Labor Code.

MCSD will reimburse Worker’s Compensation Insurance costs for Extra Work labor at the pure premium rate approved by the California State Insurance Commissioner at the time the Extra Work is completed.

The use of a labor classification that would increase the Extra Work cost will not be permitted unless the CONTRACTOR establishes the necessity for such additional costs. Labor costs for equipment operators and helpers shall be submitted only when such costs are not included in the invoice for equipment rental. The labor cost for foremen shall be proportioned to all of their assigned Work and only that applicable to Extra Work will be paid.

Non-direct labor costs, including management personnel above foreman; office personnel (including clerical and other administrative staff); cost estimating; maintenance mechanics; incidental engineering and all other indirect costs of the Extra Work; and any other costs captured by CONTRACTOR’s overhead costs, shall be considered part of markup specified in subsection below, and therefore are

not recoverable as direct labor costs, unless the CONTRACTOR can demonstrate both that the costs (1) are not within the CONTRACTOR's overhead costs; and (2) occurred as part of or a direct result of the Extra Work.

Incidental engineering costs, referred to in the preceding paragraph, are considered non-direct labor costs, and include but are not limited to all time spent by engineers for RFI and RFC preparation, Change Order administration, preparation and coordination of shop drawings, attendance at meetings, inspections scheduling, estimating, drawing or manual preparation and revision, Claim preparation, submittal preparation and review, and mix and shoring design.

b. Materials

The cost of materials reported shall be at invoice or lowest current price at which such materials are locally available and delivered to the job site in the quantities involved, plus sales tax, freight, and delivery.

MCSD reserves the right to approve materials and sources of supply, or to supply materials to the CONTRACTOR if necessary for the progress of the Work. No markup shall be applied to any material provided by MCSD.

c. Tools and Equipment

CONTRACTOR-owned equipment charges for Extra Work, or for delays in Work, shall be in accordance with the current State of California, Department of Transportation, Division of Construction of Labor Surcharge and Equipment Rental Rates, as follows:

- i. Working Equipment Rates, 100% of the price listed for the first shift each day and at 50% of that same hourly rate for the second and third shifts each day.
- ii. Standby Equipment Rates, 50% of the price listed.

Tools and equipment rented by the CONTRACTOR will be reimbursed at the actual invoiced amount applicable to the Extra Work. The CONTRACTOR will provide the applicable weekly or monthly rate for tools and/or equipment that will be used in long durations.

No payment will be made for the use of tools or equipment that has a replacement value of \$500 or less.

The reported rental time for equipment already at the worksite shall be the duration of its use on the Extra Work. This time begins when equipment is first put into actual operation on the Extra Work, plus the time required to move it from its previous site and back, or to a closer site.

No payment will be made for use of CONTRACTOR-owned or rented transportation vehicles (including job trucks) unless the vehicle is utilized (1) by personnel at or below the foreman level; and (2) exclusively in connection with performing Extra Work. In such event, the CONTRACTOR will only be entitled to payment for the pro-rata time the vehicle was actually used in connection with the Extra Work, as properly documented and demonstrated by the CONTRACTOR. All other use of CONTRACTOR-owned or rented transportation vehicles shall be considered part of CONTRACTOR's markup specified in subsection below.

d. Other Items

MCSD may authorize other items that may be required on the Extra Work, including labor, services, material, and equipment. These items must be different in their nature from those required for the Work, and be of a type not ordinarily available for the CONTRACTOR or Subcontractors.

Invoices describing all such items in detail shall be submitted with the request for payment.

e. Invoices

Suppliers' invoices for material, equipment rental and other expenditures shall be submitted with the request for payment. If the request for payment is not substantiated by invoices or other documentation, MCSD may establish the cost of the item involved at the lowest price which was current at the time of the report.

f. General Conditions Costs

No increase in the General Conditions costs shall be allowed for Extra Work unless:

- i. such change extends the Contract Duration; or
- ii. CONTRACTOR demonstrates that an increase in actual General Conditions costs were incurred directly and solely as a result of the Extra Work.

4. Markup

a. Work by CONTRACTOR

The following percentages shall be added to the CONTRACTOR's costs and shall constitute the markup for all overhead and profits:

- i. Labor.....20%
- ii. Materials..... 15%
- iii. Equipment 15%
- iv. Other Items and Expenditures.....15%

b. Work by Subcontractor

Subcontractors performing all or any part of the Extra Work shall apply the same percentages identified in Subsection B.4.a. above, "Work by CONTRACTOR," which shall be added to the Subcontractor's costs and shall constitute the markup for all overhead and profits.

MCSD will pay the CONTRACTOR one (1) additional markup of 5% of the Subcontractor's compensation regardless of the number of intervening tiers of Subcontractors.

c. Contract Unit Prices

MCSD will not pay a markup for units with Unit Prices established in the Contract.

d. Other Costs Not Specifically Designated

The specified markups shall be deemed to include all items of expense not specifically designated and as substantiated as direct cost, indirect cost, or equipment rental in the Labor, Materials, Tools and Equipment, Other Items, and Invoices.

C. Daily Report by CONTRACTOR

When the price for the Extra Work cannot be agreed upon, the CONTRACTOR shall submit a daily report to the ENGINEER on forms approved by the ENGINEER. Included are applicable delivery tickets, listing all labor, materials, and equipment involved for the day, and other services and expenditures when authorized. Failure to submit the daily report by the close of the next working day may waive any rights for that day. An attempt shall be made to reconcile the report daily, and it shall be signed by the ENGINEER and the CONTRACTOR. In the event of disagreement, pertinent notes shall be entered by each party to explain points that cannot be resolved immediately. Each party shall retain a signed copy of the report. Reports by Subcontractors or others shall be submitted through the CONTRACTOR. MCSD will complete its final review of related costs after receipt of

all records, and MCSD reserves its right to correct any errors in said records pertaining to Extra Work, including but not limited to cost found as a result of any such review.

The report shall:

1. Show names of workers, classifications, and hours worked.
2. Describe and list quantities of materials used.
3. Show type of equipment, size, identification number, and hours of operation, including loading, transportation, and stand-by time, if applicable.
4. Describe other services and expenditures in such detail as the ENGINEER may require.

D. Time & Material and Force Account Work

Work performed on a time and materials or force account basis will be subject to a Not to Exceed (NTE) amount. The CONTRACTOR is to provide written notification to the ENGINEER when it has expended seventy-five percent (75%) of the NTE amount. The notification must contain a cost and schedule proposal for the remaining Extra Work or an estimate to complete with an explanation as to why the remaining Extra Work cannot be priced. MCSD may negotiate a fixed price for the remaining Extra Work or if the remaining Extra Work cannot be priced, it may increase the NTE amount. If there is disagreement as to whether the remaining Extra Work can be priced, MCSD may issue a unilateral Change Order based on its independent estimate. In addition to the daily records the CONTRACTOR is required to submit in accordance with Subsection C “Daily Report by CONTRACTOR” above, if a CONTRACTOR seeks additional time arising from the Extra Work, the CONTRACTOR shall also submit all documents supporting any alleged time impacts and associated costs in the time and manner required by General Conditions Section entitled, “Extensions of time for Delay,” and in no event later than fifteen (15) days of completion of the Extra Work.

7.4. INCREASE OR DECREASE IN UNIT QUANTITIES

Increases or decreases in the quantity of a Unit (as defined herein as “a single item or group of items constituting a single unit which is identified as a Unit or Unit priced item in the Schedule of Prices”), as identified in the Schedule of Prices, will be determined by comparing, at the time of Final Completion, the actual or measured quantity of the Unit used to complete the Work with the estimated quantity of that Unit shown in the Schedule of Prices. If the actual or measured quantity of a Unit varies more than twenty-five percent (25%) above or below the estimated quantity of the Unit, an adjustment may be made upon demand of either party, and such adjustment will be made in accordance with these General Conditions, “Contract Price Adjustments and Payments.” In determining the adjustment to the Contract Price, the CONTRACTOR must, at a minimum, demonstrate its actual price of the Units, supported by documentation of Supplier/Subcontractor invoiced cost (not including overhead and profit). Said demand shall be made pursuant to these General Conditions, “OWNER Initiated Changes” and/or “Request for Change (Changes at CONTRACTOR’s Request).”

The adjustment shall be based upon any increase or decrease in costs due solely to the variations in quantity of the Unit as provided herein. This Section shall not apply to variations in quantity due to a Change Order. Furthermore, when the actual or measured quantity of a Unit required to complete the Work is more than a twenty-five percent (25%) increase from the estimated quantity of the Unit, as shown in the Schedule of Prices, the actual or measured quantity of Units up to one hundred twenty-five percent (125%) of the estimated quantity will be paid at the Contract Unit Price shown in the Schedule of Prices.

If neither party makes a demand for an adjustment in Contract Unit Price for actual or measured quantities above one hundred twenty-five percent (125%) or less than seventy-five percent (75%) of the estimated quantity, MCSD will pay the CONTRACTOR the Contract Unit Price shown in the Schedule of Prices for each such Unit.

7.5. SUSPENSION OF PAYMENTS

If after written notice to the CONTRACTOR of deficiencies in Work, failure to comply with the Contract, failure to comply with the Construction Schedule, or failure to revise and keep current with the Construction Schedule, the ENGINEER shall recommend that all or a portion of payments due or to become due under the Contract be suspended until the CONTRACTOR corrects any such deficiency; the ENGINEER may suspend said payments until such deficiencies are corrected.

7.6. MCSD'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE APPLICATION THEREOF

In addition to the amount which MCSD may retain pursuant to the General Conditions, including but not limited to the section entitled Retained Funds, MCSD may withhold a sufficient amount or amounts from any payment otherwise due to the CONTRACTOR as in its judgment may be necessary to cover:

1. Payments which may be past due and payable for properly filed claims against the CONTRACTOR or any Subcontractors for labor or materials furnished in or about the performance of the Work under this Contract.
2. Estimated or actual costs for correcting defective Work not remedied.
3. Amounts claimed by MCSD as forfeiture due to delays or other offsets to the Contract completion caused by the CONTRACTOR.
4. MCSD may contact the CONTRACTOR's Surety and make them aware of the Contract deficiencies, delays and other Contract non-conformance.

MCSD may apply such withheld amount or amounts to the payment of such claims at its discretion. In so doing, MCSD shall be deemed the agent of the CONTRACTOR and any payments so made by MCSD shall be considered as a payment made under the Contract by MCSD to the CONTRACTOR, and MCSD shall not be liable to the CONTRACTOR for such

payment made in good faith. Such payments may be made without prior judicial determination of the claim or claims. MCSD will render to the CONTRACTOR a proper accounting of such funds disbursed on behalf of the CONTRACTOR.

7.7. STOP PAYMENT NOTICES

MCSD will, at its option and at any time, retain out of any amounts due the CONTRACTOR, sums sufficient to cover claims plus twenty-five percent (25%) filed pursuant to Section 9350 et. seq. of the Civil Code of the State of California. The CONTRACTOR shall pay to MCSD, or MCSD may deduct from any such payments made by MCSD to the CONTRACTOR, all costs and expenses including but not limited to administrative and legal expenses incurred by MCSD in processing and/or defending against stop payment notices. The CONTRACTOR will use MCSD's current forms for release of stop payment notices.

7.8. AUDIT ACCESS TO RECORDS

- A. The CONTRACTOR shall maintain all books, records, documents, and other evidence directly pertinent to the performance of the Work under this Contract in accordance with generally accepted accounting principles and practices consistently applied, consistent with those principles set forth in Part 31 of Federal Acquisition Regulation, Contract Cost Principles and Procedures. The CONTRACTOR shall also maintain all financial information and data used by the CONTRACTOR in the preparation or support of any cost submissions, including the CONTRACTOR's original Bid, required for this Contract, or any Change Order, Claim or other request for equitable adjustment, and a copy of the cost summary or information submitted to MCSD. MCSD authorized representatives shall have access, upon twenty four (24) hours advanced, written notice at all times during normal business hours, to all such books, records, documents, financial information, and all other evidence for the purpose of inspection, audit, and copying. The CONTRACTOR shall, at no cost to MCSD, provide proper facilities for such access, inspection, and copying purposes. In the event it is determined, by way of an audit or other means, that the CONTRACTOR has been previously overpaid, MCSD shall have the right to deduct any such overpayment from the CONTRACTOR's next progress payment or the Final Payment, or the CONTRACTOR shall within 10 days after receiving notice from MCSD of any such overpayment reimburse MCSD in an amount equal to the overpayment, plus any applicable interest to which MCSD is entitled.
- B. The CONTRACTOR shall maintain cost accounting records, cost and pricing data and any other accounting evidence sufficient to properly reflect all direct and indirect costs of whatever nature pertaining the what CONTRACTOR has incurred, claims to have incurred, or anticipates it will incur in connection with the Contract Work and any and all Change Orders, Requests for Change and/or Claims, including but not limited to:
 - 1. Direct costs of Contract item Work;

2. Direct costs of changes and/or Extra Work in conformance with the provisions herein entitled Request for Changes (Changes at CONTRACTOR's Request), whether performed by the CONTRACTOR or others;
 3. Direct costs of changes and/or Extra Work in conformance with the provisions herein entitled or OWNER Initiated Changes, whether performed by the CONTRACTOR or others;
 4. Indirect costs of overhead.
- C. The CONTRACTOR agrees to make all items (A) through (H) of this section applicable to this Contract and all Change Orders, Claims, or other requests for equitable adjustments affecting the period of performance or price. The CONTRACTOR agrees to include items (A) through (H) of this section in all of the associated subcontracts and make these items applicable to all subcontracts, at any tier, in excess of \$10,000 and to make items (A) through (H) of this section applicable to all Change Orders, Claims, and other requests for equitable adjustment related to completion of the Work.
- D. Audits conducted under this Section shall be in accordance with generally accepted auditing standards and established procedures and guidelines of the reviewing or audit agency.
- E. The CONTRACTOR agrees to the disclosure of all information and reports resulting from access to records under items (A) through (H) of this section, to MCSD and other affected agencies.
- F. Records under Items (A) through (H) of the Section shall be maintained and made available during the performance of the Work under this Contract until 3 years past Final Payment, and until final settlement of all disputes, Claims, or litigation, whichever occurs later. In addition, those records which relate to any portion of this Contract, to any Change Order, to any dispute, to any litigation, to the settlement of any Claims arising out of such performance, or to costs or items to which an audit exception has been taken, shall be maintained and made available until Final Payment or final resolution of such dispute, litigation, Claim, or exception, whichever occurs later.
- G. This right of access article applies to all financial records pertaining to the Contract and all Change Orders. In addition, this right of access applies to all records pertaining to all contracts, Change Orders, and Contract amendments:
1. To the extent the records pertain directly to Contract performance;
 2. If there is any indication that fraud, gross abuse, or corrupt practices may be involved;
or
 3. If the CONTRACTOR's performance under the Contract is terminated for default or convenience.

H. Access to records is not limited to the required retention periods. The authorized representatives of MCSD shall have access to records at any reasonable time for as long as the records are maintained.

7.9. RETAINED FUNDS; SUBSTITUTION OF SECURITIES

From each progress payment MCSD shall retain five percent (5%) of the funds due the CONTRACTOR to assure satisfactory completion of the Contract. The cumulative amount retained as retention amounts shall be retained by MCSD until the Final Payment, and shall not exceed 5% of the Contract Price as amended or adjusted by Change Orders.

To ensure performance under the Contract Documents, the CONTRACTOR may, at its sole expense, substitute securities equivalent to the retention withheld by MCSD. Such securities shall be deposited with an escrow agent approved by MCSD, who shall then pay such retention to the CONTRACTOR. Upon satisfactory completion of the Work, the securities shall be returned to the CONTRACTOR. The CONTRACTOR shall be the beneficial owner of any security substituted for monies withheld and shall receive any accrued interest thereon. Securities eligible for investment shall include those listed in Government Code § 16430, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the CONTRACTOR and MCSD. No such substitution shall be accepted until the escrow agreement, securities, and any other documents related to the substitution are executed by the CONTRACTOR and reviewed and accepted in writing by MCSD.

7.10. FINAL PAYMENT

CONTRACTOR shall, prior to Final Acceptance, prepare and submit an application for Final Payment to MCSD, in a form and manner approved by the ENGINEER.

The Final Payment including retention shall not be due and payable until after Final Acceptance occurs as more particularly set forth in Section “Final Completion and Final Acceptance” herein, MCSD’S receipt of all documentation, records, and releases as required by the Contract and executed by the CONTRACTOR, and the expiration of thirty-five (35) days from the date of the recordation of Notice of Completion by MCSD.

If the CONTRACTOR fails to complete the Work as specified in the Contract Documents and if the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including, but not limited to, all costs generated to insure or bond the Work of substituted contractors or Subcontractors utilized to complete the Work, such excess shall be paid to CONTRACTOR. If such costs exceed the unpaid balance, CONTRACTOR shall pay the difference to MCSD promptly upon demand. On failure of CONTRACTOR to pay, the Surety shall pay on demand by MCSD. Any portion of such difference not paid by CONTRACTOR or Surety within thirty (30) days following the mailing of a demand for such costs by MCSD shall earn interest at the maximum rate authorized by California law.

It is mutually agreed between the parties to the Contract that no certificate given or payment made, under the Contract, shall be conclusive evidence of performance of the Contract, and no payment shall be construed to be an acceptance of any defective Work or improper materials.

The CONTRACTOR further agrees that the payment of the final amount due, under the Contract, and the adjustments and payments for any Work done in accordance with any alterations of the same, shall release MCSD, the Board of Directors and the CONSULTANT, and each of their directors, officers, employees, and agents, from any and all claims or liability on account of Work performed under the Contract or any alteration thereof.

8. MISCELLANEOUS

8.1. GOVERNING LAW

The Contract Documents have been negotiated between MCSD and the CONTRACTOR and shall be subject to and interpreted under the laws of the State of California.

By entering into the Contract, the CONTRACTOR consents and submits to the jurisdiction of the Courts of the State of California, County of Orange, over any action at law, suit in equity, and/or other proceeding that may arise out of the Contract Documents.

APPENDIX B: PUBLIC CONTACT CODE SECTION 9204

CALIFORNIA PUBLIC CONTRACT CODE SECTION 9204

(a) The Legislature finds and declares that it is in the best interests of the state and its citizens to ensure that all construction business performed on a public works project in the state that is complete and not in dispute is paid in full and in a timely manner.

(b) Notwithstanding any other law, including, but not limited to, Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2, Chapter 10 (commencing with Section 19100) of Part 2, and Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, this section shall apply to any claim by a contractor in connection with a public works project.

(c) For purposes of this section:

(1) "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

(A) A time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.

(B) Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.

(C) Payment of an amount that is disputed by the public entity.

(2) "Contractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who has entered into a direct contract with a public entity for a public works project.

(3) (A) "Public entity" means, without limitation, except as provided in subparagraph (B), a state agency, department, office, division, bureau, board, or commission, the California State University, the University of California, a city, including a charter city, county, including a charter county, city and county, including a charter city and county, district, special district, public authority, political subdivision, public corporation, or nonprofit transit corporation wholly owned by a public agency and formed to carry out the purposes of the public agency.

(B) "Public entity" shall not include the following:

(i) The Department of Water Resources as to any project under the jurisdiction of that department.

(ii) The Department of Transportation as to any project under the jurisdiction of that department.

(iii) The Department of Parks and Recreation as to any project under the jurisdiction of that department.

(iv) The Department of Corrections and Rehabilitation with respect to any project under its jurisdiction pursuant to Chapter 11 (commencing with Section 7000) of Title 7 of Part 3 of the Penal Code.

(v) The Military Department as to any project under the jurisdiction of that department.

(vi) The Department of General Services as to all other projects.

(vii) The High-Speed Rail Authority.

(4) "Public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

(5) "Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.

(d) (1) (A) Upon receipt of a claim pursuant to this section, the public entity to which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.

(B) The claimant shall furnish reasonable documentation to support the claim.

(C) If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

(D) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

(2) (A) If the claimant disputes the public entity's written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written

statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

(C) For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

(D) Unless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

(E) This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this section does not resolve the parties' dispute.

(3) Failure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

(4) Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

(5) If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on their own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the contractor shall notify the subcontractor in writing as to whether the contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

(e) The text of this section or a summary of it shall be set forth in the plans or specifications for any public works project that may give rise to a claim under this section.

(f) A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

(g) This section applies to contracts entered into on or after January 1, 2017.

(h) Nothing in this section shall impose liability upon a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

(i) This section shall remain in effect only until January 1, 2027, and as of that date is repealed, unless a later enacted statute that is enacted before January 1, 2027, deletes or extends that date.

APPENDIX C: ADDITIONAL INSURED ENDORSEMENT

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**ADDITIONAL INSURED – OWNERS, LESSEES OR
CONTRACTORS (FORM B)**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART.

SCHEDULE

Name of person or Organization:

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

WHO IS AN INSURED (Section II) is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of "your work" for that insured by or for you.