CITY of EUREKA

CONTRACT DOCUMENTS

INCLUDING:

NOTICE TO CONTRACTORS,

PROPOSAL AND AGREEMENT,

GENERAL AND SPECIAL PROVISIONS,

AND DRAWINGS

FOR

Sewer Improvements 2020

BID NO. 2020-06

BID OPENING:

April 7, 2020

Eureka City Hall, Room 207

MANDATORY PRE-BID MEETING:

March 24, 2020

Eureka City Hall, Room 207

REGISTERED PROFESSIONAL ENGINEER
JESSE J. WILLOR
No. C81744
CIVIL
STATE OF CALIFORNIA

Jesse Willor
City Engineer

Gabriel Adame
Project Manager

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Notice Inviting Bids

1. **Bid Submission.** The City of Eureka ("City") will accept sealed bids for its Sewer Improvements 2020 Project ("Project"), by or before April 7, 2020, at 2:00 p.m., at its Finance Department office, located in the first floor of City Hall, 531 K Street, Eureka, California, at which time the bids will be publicly opened and read aloud.

   Bidders' Conference. A bidders' conference will be held on Tuesday, March 24, 2020 at 10:00 a.m., at the following location: Room 207, Eureka City Hall, 531 K Street, Eureka, CA to acquaint all prospective bidders with the Contract Documents and the Worksite. The bidders' conference is mandatory. A bidder who fails to attend a mandatory bidders' conference may be disqualified from bidding.

2. **Project Information.**

   2.1 **Location and Description.** The Project is located at various locations throughout the City of Eureka, and is described as follows: Rehabilitation or replacement of approximately 5,200 linear feet of sanitary sewer mains, 16 sanitary sewer manholes, and 50 sanitary sewer laterals with cleanout, 1,000 linear feet of storm sewer main, and 7 storm sewer manholes at various locations throughout Eureka. Construction methods include dig and replace, pipe bursting, and cured-in-place pipe lining.

   2.2 **Time for Completion.** The Project must be completed within 90 calendar days from the start date set forth in the Notice to Proceed. City anticipates that the Work will begin on or about June 7th, but the anticipated start date is provided solely for convenience and is neither certain nor binding.

   2.3 **Estimated Cost.** The estimated construction cost is $1,950,000.

   2.4 **Retention Percentage.** The percentage of retention that will be withheld from progress payments is 5%.

3. **License and Registration Requirements.**

   3.1 **License.** This Project requires a valid California contractor's license for the following classification(s): Class A, General Engineering Contractor, and a City of Eureka Business License.

   3.2 **DIR Registration.** City may not accept a Bid Proposal from or enter into the Contract with a bidder, without proof that the bidder is registered with the California Department of Industrial Relations ("DIR") to perform public work pursuant to Labor Code § 1725.5, subject to limited legal exceptions.

4. **Contract Documents.** The plans, specifications, bid forms and contract documents for the Project, and any addenda thereto ("Contract Documents") may be downloaded from City's website located at: https://ciplist.com/plans/?Eureka/city/10046.

5. **Bid Security.** The Bid Proposal must be accompanied by bid security of ten percent of the maximum bid amount, in the form of a cashier's or certified check made payable to City, or a bid bond executed by a surety licensed to do business in the State of California on the Bid Bond form included with the Contract Documents. The bid security must guarantee that within ten days after City issues the Notice of Potential Award, the successful bidder will execute the Contract and submit the payment and performance bonds, insurance certificates and endorsements, and any

other submittals required by the Contract Documents and as specified in the Notice of Potential Award.

6. Prevailing Wage Requirements.

6.1 General. Pursuant to California Labor Code § 1720 et seq., this Project is subject to the prevailing wage requirements applicable to the locality in which the Work is to be performed for each craft, classification or type of worker needed to perform the Work, including employer payments for health and welfare, pension, vacation, apprenticeship and similar purposes.

6.2 Rates. These prevailing rates are on file with the City and are available online at http://www.dir.ca.gov/DLSR. Each Contractor and Subcontractor must pay no less than the specified rates to all workers employed to work on the Project. The schedule of per diem wages is based upon a working day of eight hours. The rate for holiday and overtime work must be at least time and one-half.

6.3 Compliance. The Contract will be subject to compliance monitoring and enforcement by the DIR, under Labor Code § 1771.4.

7. Performance and Payment Bonds. The successful bidder will be required to provide performance and payment bonds, each for 100% of the Contract Price, as further specified in the Contract Documents.

8. Substitution of Securities. Substitution of appropriate securities in lieu of retention amounts from progress payments is permitted under Public Contract Code § 22300.

9. Subcontractor List. Each Subcontractor must be registered with the DIR to perform work on public projects. Each bidder must submit a completed Subcontractor List form with its Bid Proposal, including the name, location of the place of business, California contractor license number, DIR registration number, and percentage of the Work to be performed (based on the base bid price) for each Subcontractor that will perform Work or service or fabricate or install Work for the prime contractor in excess of one-half of 1% of the bid price, using the Subcontractor List form included with the Contract Documents.

10. Instructions to Bidders. All bidders should carefully review the Instructions to Bidders for more detailed information before submitting a Bid Proposal. The definitions provided in Article 1 of the General Conditions apply to all of the Contract Documents, as defined therein, including this Notice Inviting Bids.

By: _____ Date: ___03/15/2020___

Gabriel Adame, Project Manager

Publication Date: March 15, 2020

END OF NOTICE INVITING BIDS

Instructions to Bidders

Each Bid Proposal submitted to the City of Eureka ("City") for its Sewer Improvements 2020 Project ("Project") must be submitted in accordance with the following instructions and requirements:

1. Bid Submission.

1.1 General. Each Bid Proposal must be signed, sealed and submitted to City, using the form provided in the Contract Documents, by or before the date and time set forth in Section 1 of the Notice Inviting Bids, or as amended by subsequent addendum. Faxed or emailed Bid Proposals will not be accepted, unless otherwise specified. Late submissions will be returned unopened. City reserves the right to postpone the date or time for receiving or opening bids. Each bidder is solely responsible for all of its costs to prepare and submit its bid and by submitting a bid waives any right to recover those costs from City. The bid price(s) must include all costs to perform the Work as specified, including all labor, material, supplies, and equipment and all other direct or indirect costs such as applicable taxes, insurance and overhead.

1.2 Bid Envelope. The envelope containing the sealed Bid Proposal and all required forms and attachments must be clearly labeled and addressed as follows:

BID PROPOSAL:
Sewer Improvements 2020 Project
Bid No. 2020-06

Department of Finance – First Floor
531 K Street
Eureka, CA 95501

The envelope must also be clearly labeled, as follows, with the bidder's name, address, and its registration number with the California Department of Industrial Relations ("DIR") for bidding on public works contracts (Labor Code §§ 1725.5 and 1771.1):

Contractor Company Name
Street Address
City, State, Zip Code
DIR Registration No: _____

1.3 DIR Registration. Subject to limited legal exceptions for joint venture bids and federally-funded projects, City may not accept a Bid Proposal from a bidder without proof that the bidder is registered with the DIR to perform public work under Labor Code § 1725.5. If City is unable to confirm that the bidder is currently registered with the DIR, City may disqualify the bidder and return its bid unopened. (Labor Code §§ 1725.5 and 1771.1(a).)

2. Bid Proposal Form and Enclosures. Each Bid Proposal must be completed in ink using the Bid Proposal form included with the Contract Documents. The Bid Proposal form must be fully completed without interlineations, alterations, or erasures. Any necessary corrections must be clear and legible, and must be initialed by the bidder's authorized representative. A Bid Proposal submitted with exceptions or terms such as "negotiable," "will negotiate," or similar, will be considered nonresponsive. Each Bid Proposal must be accompanied by bid security, as set forth in Section 4 below, and by a completed Subcontractor List and Non-Collusion Declaration using the forms included with the Contract Documents.

3. **Authorization and Execution.** Each Bid Proposal must be signed by the bidder's authorized representative. A Bid Proposal submitted by a partnership must be signed in the partnership name by a general partner with authority to bind the partnership. A Bid Proposal submitted by a corporation must be signed with the legal name of the corporation, followed by the signature and title of two officers of the corporation with full authority to bind the corporation to the terms of the Bid Proposal, under California Corporation Code § 313.

4. **Bid Security.** Each Bid Proposal must be accompanied by bid security of ten percent of the maximum bid amount, in the form of a cashier's check or certified check, made payable to the City, or bid bond using the form included in the Contract Documents and executed by a surety licensed to do business in the State of California. The bid security must guarantee that, within ten days after issuance of the Notice of Potential Award, the bidder will: execute and submit the enclosed Contract for the bid price; submit payment and performance bonds for 100% of the maximum Contract Price; and submit the insurance certificates and endorsements and any other submittals, if any, required by the Contract Documents or the Notice of Potential Award. A Bid Proposal may not be withdrawn for a period of 60 days after the bid opening without forfeiture of the bid security, except as authorized for material error under Public Contract Code § 5100 et seq.

5. **Requests for Information.** Questions or requests for clarifications regarding the Project, the bid procedures, or any of the Contract Documents must be submitted in writing to Gabriel Adame, Infiltration and Inflow Manager, at gadame@ci.eureka.ca.gov. Oral responses are not authorized and are not binding on the City. Bidders should submit any such written inquiries at least five Working Days before the scheduled bid opening. Questions received any later might not be addressed before the bid deadline. An interpretation or clarification by City in response to a written inquiry will be issued in an addendum.

6. **Pre-Bid Investigation.**

   6.1 **General.** Each bidder is solely responsible at its sole expense for diligent and thorough review of the Contract Documents, examination of the Project site, and reasonable and prudent inquiry concerning known and potential site and area conditions prior to submitting a Bid Proposal. Each bidder is responsible for knowledge of conditions and requirements which reasonable review and investigation would have disclosed. However, except for any areas that are open to the public at large, bidders may not enter property owned or leased by the City or the Project site without prior written authorization from City.

   6.2 **Document Review.** Each bidder is responsible for review of the Contract Documents and any informational documents provided "For Reference Only," e.g., as-builts, technical reports, test data, and the like. A bidder is responsible for notifying City of any errors, omissions, inconsistencies, or conflicts it discovers in the Contract Documents, acting solely in its capacity as a contractor and subject to the limitations of Public Contract Code § 1104. Notification of any such errors, omissions, inconsistencies, or conflicts must be submitted in writing to the City no later than five Working Days before the scheduled bid opening. (See Section 5, above.) City expressly disclaims responsibility for assumptions a bidder might draw from the presence or absence of information provided by City.

   6.3 **Project Site.** Questions regarding the availability of soil test data, water table elevations, and the like should be submitted to the City in writing, as specified in Section 5, above. Any subsurface exploration at the Project site must be done at the bidder's expense, but only with prior written authorization from City. All soil data and analyses available for inspection or provided in the Contract Documents apply only to the test hole locations. Any water table elevation indicated by a soil test report existed on the date the test hole was drilled. The bidder is responsible for determining and allowing for any differing soil or water table conditions during construction. Because groundwater levels may fluctuate, difference(s) in elevation between ground water shown in soil boring logs and ground water actually encountered during Project construction will not be considered changed Project site

conditions. Actual locations and depths must be determined by bidder's field investigation. The bidder may request access to underlying or background information on the Project site in City's possession that is necessary for the bidder to form its own conclusions, including, if available, record drawings or other documents indicating the location of subsurface lines, utilities, or other structures.

6.4 Utility Company Standards. The Project must be completed in a manner that satisfies the standards and requirements of any affected utility companies or agencies (collectively, "utility owners"). The successful bidder may be required by the third party utility owners to provide detailed plans prepared by a California registered civil engineer showing the necessary temporary support of the utilities during coordinated construction work. Bidders are directed to contact the affected third party utility owners about their requirements before submitting a Bid Proposal.

7. Bidders Interested in More Than One Bid. No person, firm, or corporation may submit or be a party to more than one Bid Proposal unless alternate bids are specifically called for. However, a person, firm, or corporation that has submitted a subcontract proposal or quote to a bidder may submit subcontract proposals or quotes to other bidders.

8. Addenda. Any addenda issued prior to the bid opening are part of the Contract Documents. Subject to the limitations of Public Contract Code § 4104.5, City reserves the right to issue addenda prior to bid time. Each bidder is solely responsible for ensuring it has received and reviewed all addenda prior to submitting its bid. Bidders should check City's website periodically for any addenda or updates on the Project at: https://ciplist.com/plans/?Eureka/city/10046.

9. Brand Designations and "Or Equal" Substitutions. Any specification designating a material, product, thing, or service by specific brand or trade name, followed by the words "or equal," is intended only to indicate quality and type of item desired, and bidders may request use of any equal material, product, thing, or service. All data substantiating the proposed substitute as an equal item must be submitted with the written request for substitution. A request for substitution must be submitted within 35 days after Notice of Potential Award unless otherwise provided in the Contract Documents. This provision does not apply to materials, products, things, or services that may lawfully be designated by a specific brand or trade name under Public Contract Code § 3400(c).

10. Bid Protest. Any bid protest against another bidder must be submitted in writing and received by City at 531 K Street, Eureka CA 95501, or sent via email at gadame@ci.eureka.ca.gov before 5:00 p.m. no later than two Working Days following bid opening ("Bid Protest Deadline") and must comply with the following requirements:

10.1 General. Only a bidder who has actually submitted a Bid Proposal is eligible to submit a bid protest against another bidder. Subcontractors are not eligible to submit bid protests. A bidder may not rely on the bid protest submitted by another bidder, but must timely pursue its own protest. If required by City, the protesting bidder must submit a non-refundable fee in the amount specified by City, based upon City's reasonable costs to administer the bid protest. Any such fee must be submitted to City no later than the Bid Protest Deadline, unless otherwise specified. For purposes of this Section 10, a "Working Day" means a day that City is open for normal business, and excludes weekends and holidays observed by City. Pursuant to Public Contract Code § 4104, inadvertent omission of a Subcontractor's DIR registration number on the Subcontractor List form is not grounds for a bid protest, provided it is corrected within 24 hours of the bid opening or as otherwise provided under Labor Code § 1771.1(b).

10.2 Protest Contents. The bid protest must contain a complete statement of the basis for the protest and must include all supporting documentation. Material submitted after the Bid Protest Deadline will not be considered. The protest must refer to the *specific* portion or portions of the Contract Documents upon which the protest is based. The protest must

include the name, address, email address, and telephone number of the protesting bidder and any person submitting the protest on behalf of or as an authorized representative of the protesting bidder.

10.3 **Copy to Protested Bidder.** Upon submission of its bid protest to City, the protesting bidder must also concurrently transmit the protest and all supporting documents to the protested bidder, and to any other bidder who has a reasonable prospect of receiving an award depending upon the outcome of the protest, by email or hand delivery to ensure delivery before the Bid Protest Deadline.

10.4 **Response to Protest.** The protested bidder may submit a written response to the protest, provided the response is received by City before 5:00 p.m., within two Working Days after the Bid Protest Deadline or after actual receipt of the bid protest, whichever is sooner (the "Response Deadline"). The response must attach all supporting documentation. Material submitted after the Response Deadline will not be considered. The response must include the name, address, email address, and telephone number of the person responding on behalf of or representing the protested bidder if different from the protested bidder.

10.5 **Copy to Protesting Bidder.** Upon submission of its response to the bid protest to the City, the protested bidder must also concurrently transmit by email or hand delivery, by or before the Response Deadline, a copy of its response and all supporting documents to the protesting bidder and to any other bidder who has a reasonable prospect of receiving an award depending upon the outcome of the protest.

10.6 **Exclusive Remedy.** The procedure and time limits set forth in this Section are mandatory and are the bidder's sole and exclusive remedy in the event of a bid protest. A bidder's failure to comply with these procedures will constitute a waiver of any right to further pursue a bid protest, including filing a Government Code Claim or initiation of legal proceedings.

10.7 **Right to Award.** City reserves the right, acting in its sole discretion, to reject any bid protest that it determines lacks merit, to award the Contract to the bidder it has determined to be the responsible bidder submitting the lowest responsive bid, and to issue a Notice to Proceed with the Work notwithstanding any pending or continuing challenge to its determination.

11. **Reservation of Rights.** City reserves the unfettered right, acting in its sole discretion, to waive or to decline to waive any immaterial bid irregularities; to accept or reject any or all bids; to cancel or reschedule the bid; to postpone or abandon the Project entirely; or to perform all or part of the Work with its own forces. The Contract will be awarded, if at all, within 60 days after opening of bids or as otherwise specified in the Special Conditions, to the responsible bidder that submitted the lowest responsive bid. Any planned start date for the Project represents the City's expectations at the time the Notice Inviting Bids was first issued. City is not bound to issue a Notice to Proceed by or before such planned start date, and it reserves the right to issue the Notice to Proceed when the City determines, in its sole discretion, the appropriate time for commencing the Work. The City expressly disclaims responsibility for any assumptions a bidder might draw from the presence or absence of information provided by the City in any form. Each bidder is solely responsible for its costs to prepare and submit a bid, including site investigation costs.

12. **Bonds.** Within ten calendar days following City's issuance of the Notice of Potential Award to the apparent low bidder, the bidder must submit payment and performance bonds to City as specified in the Contract Documents using the bond forms included in the Contract Documents. All required bonds must be calculated on the maximum total Contract Price as awarded, including additive alternates, if applicable.

13. **License(s).** The successful bidder and its Subcontractor(s) must possess the California contractor's license(s) in the classification(s) required by law to perform the Work. The successful

bidder must also obtain a City business license following City's issuance of the Notice of Potential Award. Subcontractors must also obtain a City business license before performing any Work.

14. Ineligible Subcontractor. Any Subcontractor who is ineligible to perform work on a public works project under Labor Code §§ 1777.1 or 1777.7 is prohibited from performing work on the Project.

15. Safety Orders. If the Project includes construction of a pipeline, sewer, sewage disposal system, boring and jacking pits, or similar trenches or open excavations, which are five feet or deeper, each bid must include a bid item for adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life or limb, which comply with safety orders as required by Labor Code § 6707.

16. Bid Schedule. Each bidder must complete the Bid Schedule form with unit prices as indicated, and submit the completed Bid Schedule with its Bid Proposal.

16.1 Incorrect Totals. In the event a computational error for any bid item (base bid or alternate) results in an incorrect extended total for that item, the submitted base bid or bid alternate total will be adjusted to reflect the corrected amount as the product of the estimated quantity and the unit cost. In the event of a discrepancy between the actual total of the itemized or unit prices shown on the Bid Schedule for the base bid, and the amount entered as the base bid on the Bid Proposal form, the actual total of the itemized or unit prices shown on the Bid Schedule for the base bid will be deemed the base bid price. Likewise, in the event of a discrepancy between the actual total of the itemized or unit prices shown on the Bid Schedule for any bid alternate, and the amount entered for the alternate on the Bid Proposal form, the actual total of the itemized prices shown on the Bid Schedule for that alternate will be deemed the alternate price. Nothing in this provision is intended to prevent a bidder from requesting to withdraw its bid for material error under Public Contract Code § 5100 et seq.

16.2 Estimated Quantities. The quantities shown on the Bid Schedule are estimated and the actual quantities required to perform the Work may be greater or less than the estimated amount. The Contract Price will be adjusted to reflect the actual quantities required for the Work based on the itemized or unit prices provided in the Bid Schedule, with no allowance for anticipated profit for quantities that are deleted or decreased, and no increase in the unit price, and without regard to the percentage increase or decrease of the estimated quantity and the actual quantity.

END OF INSTRUCTIONS TO BIDDERS

Bid Proposal

Sewer Improvements 2020 Project

_____ ("Bidder") hereby submits this Bid Proposal to The City of Eureka ("City") for the above-referenced project ("Project") in response to the Notice Inviting Bids and in accordance with the Contract Documents referenced in the Notice.

1. **Base Bid.** Bidder proposes to perform and fully complete the Work for the Project as specified in the Contract Documents, within the time required for full completion of the Work, including all labor, materials, supplies, and equipment and all other direct or indirect costs including, but not limited to, taxes, insurance and all overhead for the following price ("Base Bid"):
$_____.

2. **Addenda.** Bidder agrees that it has confirmed receipt of or access to, and reviewed, all addenda issued for this Bid. Bidder waives any claims it might have against the City based on its failure to receive, access, or review any addenda for any reason. Bidder specifically acknowledges receipt of the following addenda:

Addendum:	Date Received:	Addendum:	Date Received:
#01	_____	#05	_____
#02	_____	#06	_____
#03	_____	#07	_____
#04	_____	#08	_____

3. **Bidder's Certifications and Warranties.** By signing and submitting this Bid Proposal, Bidder certifies and warrants the following:

   3.1 **Examination of Contract Documents.** Bidder has thoroughly examined the Contract Documents and represents that, to the best of Bidder's knowledge, there are no errors, omissions, or discrepancies in the Contract Documents, subject to the limitations of Public Contract Code § 1104.

   3.2 **Examination of Worksite.** Bidder has had the opportunity to examine the Worksite and local conditions at the Project location.

   3.3 **Bidder Responsibility.** Bidder is a responsible bidder, with the necessary ability, capacity, experience, skill, qualifications, workforce, equipment, and resources to perform or cause the Work to be performed in accordance with the Contract Documents and within the Contract Time.

   3.4 **Responsibility for Bid.** Bidder has carefully reviewed this Bid Proposal and is solely responsible for any errors or omissions contained in its completed Bid. All statements and information provided in this Bid Proposal and enclosures are true and correct to the best of Bidder's knowledge.

   3.5 **Nondiscrimination.** In preparing this Bid, the Bidder has not engaged in discrimination against any prospective or present employee or Subcontractor on grounds of race, color, ancestry, national origin, ethnicity, religion, sex, sexual orientation, age, disability, or marital status.

   3.6 **Iran Contracting Act.** If the Contract Price exceeds $1,000,000, Bidder is not identified on a list created under the Iran Contracting Act, Public Contract Code § 2200 et seq. (the "Act"), as a person engaging in investment activities in Iran, as defined in the Act, or is otherwise expressly exempt under the Act.

4. **Award of Contract**. By signing and submitting this Bid Proposal, Bidder agrees that if Bidder is awarded the Contract for the Project, within ten days following issuance of the Notice of Potential Award to Bidder, Bidder will do all of the following:

   4.1 Execute Contract. Enter into the Contract with City in accordance with the terms of this Bid Proposal, by signing and submitting to City the Contract prepared by City using the form included with the Contract Documents;

   4.2 Submit Required Bonds. Submit to City a payment bond and a performance bond, each for 100% of the Contract Price, using the bond forms provided and in accordance with the requirements of the Contract Documents; and

   4.3 Insurance Requirements. Submit to City the insurance certificate(s) and endorsement(s) as required by the Contract Documents.

5. **Bid Security.** As a guarantee that, if awarded the Contract, Bidder will perform its obligations under Section 4 above, Bidder is enclosing bid security in the amount of ten percent of its maximum bid amount in one of the following forms (check one):

   ____ A cashier's check or certified check payable to City and issued by _____ [Bank name] in the amount of $_____.

   ____ A bid bond, using the Bid Bond form included with the Contract Documents, payable to City and executed by a surety licensed to do business in the State of California.

This Bid Proposal is hereby submitted on _____, 20__.

s/ _____	_____ Name and Title
s/ _____ *[See Section 3 of Instructions to Bidders]*	_____ Name and Title
_____ Company Name	_____ License #, Expiration Date, and Classification
_____ Address	_____ DIR Registration #
_____ City, State, Zip	_____ Phone
_____ Contact Name	_____ Contact Email

END OF BID PROPOSAL

Bid Schedule

This Bid Schedule must be completed in ink and included with the sealed Bid Proposal. Pricing must be provided for each Bid Item as indicated. Items marked "(SW)" are Specialty Work that must be performed by a qualified Subcontractor. The lump sum or unit cost for each item must be inclusive of all costs, whether direct or indirect, including profit and overhead. The sum of all amounts entered in the "Extended Total Amount" column must be identical to the Base Bid price entered in Section 1 of the Bid Proposal form.

AL = Allowance CF = Cubic Feet CY = Cubic Yard EA = Each LB = Pounds
LF = Linear Foot LS = Lump Sum SY = Square Yard TON = Ton (2000 lbs)

BID ITEM NO.	ITEM DESCRIPTION	EST. QTY.	UNIT	UNIT COST	EXTENDED TOTAL AMOUNT
1	Mobilization/Demobilization	1	LS	$	$
2	Traffic Control	1	LS	$	$
3	Erosion and Sediment Control	1	LS	$	$
4	Temporary Sewer Bypassing	1	LS	$	$
5	CCTV Inspection and Cleaning of Sewer Mains to be lined with CIPP	2265	LF	$	$
6	Remove (E) 6" or 8" VCP Sanitary Sewer Main and Install (N) 8" PVC SDR35 Sanitary Sewer Main	297	LF	$	$
7	Remove (E) 12" VCP Sanitary Sewer Main and Install (N) 12" PVC SDR35 Sanitary Sewer Main	143	LF	$	$
8	Remove (E) 14" VCP Sanitary Sewer Main and Install (N) 14" PVC SDR35 Sanitary Sewer Main	30	LF	$	$
9	Remove (E) 16" VCP Sanitary Sewer Main and Install (N) 16" PVC SDR35 Sanitary Sewer Main	120	LF	$	$
10	CIPP Lining of (E) 8" VCP Sewer Main	1125	LF	$	$
11	CIPP Lining of (E) 14" VCP Sewer Main	490	LF	$	$
12	CIPP Lining of (E) 15" VCP Sewer Main	350	LF	$	$
13	CIPP Lining of (E) 16" VCP Sewer Main	300	LF	$	$
14	Burst and Pull (E) 6" VCP Sewer Main with 8" DR17 HDPE	1251	LF	$	$
15	Burst and Pull (E) 6" Cast Iron Sewer Main with 8" DR17 HDPE	405	LF	$	$

BID ITEM NO.	ITEM DESCRIPTION	EST. QTY.	UNIT	UNIT COST	EXTENDED TOTAL AMOUNT
16	Burst and Pull (E) 8” VCP Sewer Main with 8” DR17 HDPE	640	LF	$	$
17	Demolish (E) and Construct (N) 4’ Diameter Sanitary Sewer Manhole	17	EA	$	$
18	Abandon (E) 4’ Diameter Sanitary Sewer Manhole	4	EA	$	$
19	Locate and Remove (E) and Install (N) 4” PVC SDR35 Sanitary Sewer lateral, Less than 30’ in Non-Paved Area	7	EA	$	$
20	Locate and Remove (E) and Install (N) 4” PVC SDR35 Sanitary Sewer lateral, Less than 30’ in Paved Area	20	EA	$	$
21	Locate and Remove (E) and Install (N) 4” PVC SDR35 Sanitary Sewer lateral, More than 30’ in Paved Area	18	EA	$	$
22	Reestablish Connection of (E) Sanitary Sewer Lateral to (N) Sanitary Sewer Main	5	EA	$	$
23	CIPP Lining of (E) 18” CMP Storm Drain	980	LF	$	$
24	CIPM Lining of (E) Storm Drain Manholes and Junction Boxes	6	EA	$	$
25	Reconstruct Corner at North End of Garland Street	1	LS	$	$
26	Hot Mix Asphalt	1641	SY	$	$

TOTAL BASE BID: Items 1 through 26 inclusive: $_____

Note: The amount entered as the “Total Base Bid” should be identical to the Base Bid amount entered in Section 1 of the Bid Proposal form.

BIDDER NAME: _____

END OF BID SCHEDULE

Subcontractor List

For each Subcontractor that will perform a portion of the Work in an amount in excess of one-half of 1% of the Bidder's total Contract Price,[1] the bidder must list a description of the Work, the name of the Subcontractor, its California contractor license number, the location of its place of business, its DIR registration number, and the portion of the Work that the Subcontractor is performing based on a percentage of the Base Bid price.

DESCRIPTION OF WORK	SUBCONTRACTOR NAME	CALIFORNIA CONTRACTOR LICENSE NO.	LOCATION OF BUSINESS	DIR REG. NO.	PERCENT OF WORK

END OF SUBCONTRACTOR LIST

Noncollusion Declaration

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

The undersigned declares:

I am the _____ [title] of _____ [business name], the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder 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. 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. All statements contained in the bid are true. 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.

This declaration is intended to comply with California Public Contract Code § 7106 and Title 23 U.S.C § 112.

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].

s/_____

_____
Name [print]

END OF NONCOLLUSION DECLARATION

Bid Bond

_____ ("Bidder") has submitted a bid, dated _____, 20_____ ("Bid"), to the City of Eureka ("City") for work on the Sewer Improvements 2020 Project ("Project"). Under this duly executed bid bond ("Bid Bond"), Bidder as Principal and _____, its surety ("Surety"), are bound to City as obligee in the penal sum of ten percent of the maximum amount of the Bid (the "Bond Sum"). Bidder and Surety bind themselves and their respective heirs, executors, administrators, successors and assigns, jointly and severally, as follows:

1. **General.** If Bidder is awarded the Contract for the Project, Bidder will enter into the Contract with City in accordance with the terms of the Bid.

2. **Submittals.** Within ten days following issuance of the Notice of Potential Award to Bidder, Bidder must submit to City the following:

2.1 **Contract.** The executed Contract, using the form provided by City in the Project contract documents ("Contract Documents");

2.2 **Payment Bond.** A payment bond for 100% of the maximum Contract Price, executed by a surety licensed to do business in the State of California using the Payment Bond form included with the Contract Documents;

2.3 **Performance Bond.** A performance bond for 100% of the maximum Contract Price, executed by a surety licensed to do business in the State of California using the Performance Bond form included with the Contract Documents; and

2.4 **Insurance.** The insurance certificate(s) and endorsement(s) required by the Contract Documents, and any other documents required by the Instructions to Bidders or Notice of Potential Award.

3. **Enforcement.** If Bidder fails to execute the Contract and to submit the bonds and insurance certificates as required by the Contract Documents, Surety guarantees that Bidder forfeits the Bond Sum to City. Any notice to Surety may be given in the manner specified in the Contract and delivered or transmitted to Surety as follows:

Attn: _____
Address: _____
City/State/Zip: _____
Phone: _____
Fax: _____
Email: _____

4. **Duration and Waiver.** If Bidder fulfills its obligations under Section 2, above, then this obligation will be null and void; otherwise it will remain in full force and effect for 60 days following the bid opening or until this Bid Bond is returned to Bidder, whichever occurs first. Surety waives the provisions of Civil Code §§ 2819 and 2845.

[Signatures are on the following page.]

This Bid Bond is entered into and effective on _____, 20_____.

SURETY:

_____
Business Name

s/_____ _____
Date

_____
Name, Title

(Attach Acknowledgment with Notary Seal and Power of Attorney)

BIDDER:

_____
Business Name

s/_____ _____
Date

_____
Name, Title

END OF BID BOND

Contract

This public works contract ("Contract") is entered into by and between the City of Eureka ("City") and _____ ("Contractor"), for work on the Sewer Improvements 2020 Project ("Project").

The parties agree as follows:

1. **Award of Contract.** In response to the Notice Inviting Bids, Contractor has submitted a Bid Proposal to perform the Work to construct the Project. On _____, 20___, City authorized award of this Contract to Contractor for the amount set forth in Section 4, below.

2. **Contract Documents.** The Contract Documents incorporated into this Contract include and are comprised of all of the documents listed below. The definitions provided in Article 1 of the General Conditions apply to all of the Contract Documents, including this Contract.

   2.1 Notice Inviting Bids;
   2.2 Instructions to Bidders;
   2.3 Addenda, if any;
   2.4 Bid Proposal and attachments thereto;
   2.5 Contract;
   2.6 Payment, Performance, and Warranty Bonds;
   2.7 General Conditions;
   2.8 Special Conditions;
   2.9 Project Plans and Specifications;
   2.10 Change Orders, if any;
   2.11 Notice of Potential Award;
   2.12 Notice to Proceed; and
   2.13 The following:
   No Other Documents

3. **Contractor's Obligations.** Contractor will perform all of the Work required for the Project, as specified in the Contract Documents. Contractor must provide, furnish, and supply all things necessary and incidental for the timely performance and completion of the Work, including all necessary labor, materials, supplies, tools, equipment, transportation, onsite facilities, and utilities, unless otherwise specified in the Contract Documents. Contractor must use its best efforts to diligently prosecute and complete the Work in a professional and expeditious manner and to meet or exceed the performance standards required by the Contract Documents.

4. **Payment.** As full and complete compensation for Contractor's timely performance and completion of the Work in strict accordance with the terms and conditions of the Contract Documents, City will pay Contractor $_____ ("Contract Price") for all of Contractor's direct and indirect costs to perform the Work, including all labor, materials, supplies, equipment, taxes, insurance, bonds and all overhead costs, in accordance with the payment provisions in the General Conditions.

5. **Time for Completion.** Contractor will fully complete the Work for the Project within 90 calendar days from the commencement date given in the Notice to Proceed ("Contract Time"). By signing below, Contractor expressly waives any claim for delayed early completion.

6. **Liquidated Damages.** If Contractor fails to complete the Work within the Contract Time, City will assess liquidated damages in the amount of $1,500 per day for each day of

unexcused delay in completion, and such liquidated damages may be deducted from City's payments due or to become due to Contractor under this Contract.

7. Labor Code Compliance.

7.1 General. This Contract is subject to all applicable requirements of Chapter 1 of Part 7 of Division 2 of the Labor Code, including requirements pertaining to wages, working hours and workers' compensation insurance, as further specified in Article 9 of the General Conditions.

7.2 Prevailing Wages. This Project is subject to the prevailing wage requirements applicable to the locality in which the Work is to be performed for each craft, classification or type of worker needed to perform the Work, including employer payments for health and welfare, pension, vacation, apprenticeship and similar purposes. Copies of these prevailing rates are available online at http://www.dir.ca.gov/DLSR.

7.3 DIR Registration. City may not enter into the Contract with a bidder without proof that the bidder and its Subcontractors are registered with the California Department of Industrial Relations to perform public work pursuant to Labor Code § 1725.5, subject to limited legal exceptions.

8. Workers' Compensation Certification. Pursuant to Labor Code § 1861, by signing this Contract, Contractor certifies as follows: "I am aware of the provisions of Labor Code § 3700 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 on this Contract."

9. Conflicts of Interest. Contractor, its employees, Subcontractors and agents, may not have, maintain or acquire a conflict of interest in relation to this Contract in violation of any City ordinance or requirement, or in violation of any California law, including Government Code § 1090 et seq., or the Political Reform Act, as set forth in Government Code § 81000 et seq. and its accompanying regulations. Any violation of this Section constitutes a material breach of the Contract.

10. Independent Contractor. Contractor is an independent contractor under this Contract and will have control of the Work and the means and methods by which it is performed. Contractor and its Subcontractors are not employees of City and are not entitled to participate in any health, retirement, or any other employee benefits from City.

11. Notice. Any notice, billing, or payment required by or pursuant to the Contract Documents must be made in writing, signed, dated and sent to the other party by personal delivery, U.S. Mail, a reliable overnight delivery service, or by email as a PDF file. Notice is deemed effective upon delivery, except that service by U.S. Mail is deemed effective on the second working day after deposit for delivery. Notice for each party must be given as follows:

City:

City of Eureka Engineering Division
531 K Street
Eureka, CA 95501

Attn: Gabriel Adame, Infiltration and Inflow Manager
gadame@ci.eureka.ca.gov

Copy to: Jesse Willor
jwillor@ci.eureka.ca.gov

Contractor:

Name:_____
Address:_____
City/State/Zip:_____
Phone:_____
Attn:_____
Email:_____
Copy to:_____

12. General Provisions.

12.1 Assignment and Successors. Contractor may not assign its rights or obligations under this Contract, in part or in whole, without City's written consent. This Contract is binding on Contractor's and City's lawful heirs, successors and permitted assigns.

12.2 Third Party Beneficiaries. There are no intended third party beneficiaries to this Contract.

12.3 Governing Law and Venue. This Contract will be governed by California law and venue will be in the Humboldt County Superior Court, and no other place. Contractor waives any right it may have pursuant to Code of Civil Procedure § 394, to file a motion to transfer any action arising from or relating to this Contract to a venue outside of Humboldt County, California.

12.4 Amendment. No amendment or modification of this Contract will be binding unless it is in a writing duly authorized and signed by the parties to this Contract.

12.5 Integration. This Contract and the Contract Documents incorporated herein, including authorized amendments or Change Orders thereto, constitute the final, complete, and exclusive terms of the agreement between City and Contractor.

12.6 Severability. If any provision of the Contract Documents is determined to be illegal, invalid, or unenforceable, in whole or in part, the remaining provisions of the Contract Documents will remain in full force and effect.

12.7 Iran Contracting Act. If the Contract Price exceeds $1,000,000, Contractor certifies, by signing below, that it is not identified on a list created under the Iran Contracting Act, Public Contract Code § 2200 et seq. (the "Act"), as a person engaging in investment activities in Iran, as defined in the Act, or is otherwise expressly exempt under the Act.

12.8 Authorization. Each individual signing below warrants that he or she is authorized to do so by the party that he or she represents, and that this Contract is legally binding on that party. If Contractor is a corporation, signatures from two officers of the corporation are required pursuant to California Corporation Code § 313.

The parties agree to this Contract as witnessed by the signatures below:

CITY:

s/_____

_____
Susan Seaman, Mayor of the City of Eureka

Date: _____

Approved as to form:

s/_____

_____
City Attorney

Date: _____

Attest:

s/_____

_____
Pamela J. Powell, City Clerk

Date: _____

Approved as to Content:

s/_____

_____
Brian Gerving, Director of Public Works/
Chief Building Official

Date: _____

s/_____

_____
Jesse Willor, City Engineer

Date: _____

Approved as to Administration:

s/_____

_____
Dean Lotter, City Manager

Date: _____

CONTRACTOR: _____
Business Name

s/_____ Seal:

_____
Name, Title

Date: _____

Second Signature (See Section 12.8):

s/_____

_____
Name, Title

Date: _____

_____
Contractor's California License Number(s) and Expiration Date(s)

END OF CONTRACT

Payment Bond

City of Eureka ("City") and _____ ("Contractor") have entered into a contract, dated _____, 20___ ("Contract") for work on the Sewer Improvements 2020 Project ("Project"). The Contract is incorporated by reference into this Payment Bond ("Bond").

1. **General.** Under this Bond, Contractor as principal and _____, its surety ("Surety"), are bound to City as obligee in an amount not less than $_____, under California Civil Code § 9550 et seq., to ensure payment to authorized claimants. This Bond is binding on the respective successors, assigns, owners, heirs, or executors of Surety and Contractor.

2. **Surety's Obligation.** If Contractor or any of its Subcontractors fails to pay a person authorized in California Civil Code § 9100 to assert a claim against a payment bond, any amounts due under the Unemployment Insurance Code with respect to work or labor performed under the Contract, or any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of Contractor and its Subcontractors under California Unemployment Insurance Code § 13020 with respect to the work and labor, then Surety will pay the obligation.

3. **Beneficiaries.** This Bond inures to the benefit of any of the persons named in California Civil Code § 9100, so as to give a right of action to those persons or their assigns in any suit brought upon this Bond. Contractor must promptly provide a copy of this Bond upon request by any person with legal rights under this Bond.

4. **Duration.** If Contractor promptly makes payment of all sums for all labor, materials, and equipment furnished for use in the performance of the Work required by the Contract, in conformance with the time requirements set forth in the Contract and as required by California law, Surety's obligations under this Bond will be null and void. Otherwise, Surety's obligations will remain in full force and effect.

5. **Waivers.** Surety waives any requirement to be notified of alterations to the Contract or extensions of time for performance of the Work under the Contract. Surety waives the provisions of Civil Code §§ 2819 and 2845. City waives the requirement of a new bond for any supplemental contract under Civil Code § 9550. Any notice to Surety may be given in the manner specified in the Contract and delivered or transmitted to Surety as follows:

   Attn: _____
   Address: _____
   City/State/Zip: _____
   Phone: _____
   Email: _____

6. **Law and Venue.** This Bond will be governed by California law, and venue for any dispute pursuant to this Bond will be in the Humboldt County Superior Court, and no other place. Surety will be responsible for City's attorneys' fees and costs in any action to enforce the provisions of this Bond.

[Signatures are on the following page.]

7. Effective Date; Execution. This Bond is entered into and is effective on _____, 20__.

SURETY:

_____
Business Name

s/_____ _____
Date

_____
Name, Title

(Attach Acknowledgment with Notary Seal and Power of Attorney)

CONTRACTOR:

_____
Business Name

s/_____ _____
Date

_____
Name, Title

APPROVED BY CITY:

s/ _____ _____
Date

_____
Name, Title

END OF PAYMENT BOND

Performance Bond

City of Eureka ("City") and _____ ("Contractor") have entered into a contract, dated _____, 20____ ("Contract") for work on the Sewer Improvements 2020 Project ("Project"). The Contract is incorporated by reference into this Performance Bond ("Bond").

1. **General.** Under this Bond, Contractor as Principal and _____, its surety ("Surety"), are bound to City as obligee for an amount not less than $_____ to ensure Contractor's faithful performance of its obligations under the Contract. This Bond is binding on the respective successors, assigns, owners, heirs, or executors of Surety and Contractor.

2. **Surety's Obligations.** Surety's obligations are co-extensive with Contractor's obligations under the Contract. If Contractor fully performs its obligations under the Contract, including its warranty obligations under the Contract, and Contractor has timely provided a warranty bond as required under the Contract, Surety's obligations under this Bond will become null and void upon City's acceptance of the Project, excluding any exceptions to acceptance, if any. Otherwise, Surety's obligations will remain in full force and effect until expiration of the one-year warranty period under the Contract.

3. **Waiver.** Surety waives any requirement to be notified of and further consents to any alterations to the Contract made under the applicable provisions of the Contract Documents, including changes to the scope of Work or extensions of time for performance of Work under the Contract. Surety waives the provisions of Civil Code §§ 2819 and 2845.

4. **Application of Contract Balance.** Upon making a demand on this Bond, City will make the Contract Balance available to Surety for completion of the Work under the Contract. For purposes of this provision, the Contract Balance is defined as the total amount payable by City to Contractor as the Contract Price minus amounts already paid to Contractor, and minus any liquidated damages, credits, or backcharges to which City is entitled under the terms of the Contract.

5. **Contractor Default.** Upon written notification from City of Contractor's termination for default under Article 13 of the Contract General Conditions, time being of the essence, Surety must act within the time specified in Article 13 to remedy the default through one of the following courses of action:

   5.1 Arrange for completion of the Work under the Contract by Contractor, with City's consent, but only if Contractor is in default solely due to its financial inability to complete the Work;

   5.2 Arrange for completion of the Work under the Contract by a qualified contractor acceptable to City, and secured by performance and payment bonds issued by an admitted surety as required by the Contract Documents, at Surety's expense; or

   5.3 Waive its right to complete the Work under the Contract and reimburse City the amount of City's costs to have the remaining Work completed.

6. **Surety Default.** If Surety defaults on its obligations under the Bond, City will be entitled to recover all costs it incurs due to Surety's default, including legal, design professional, or delay costs.

7. **Notice.** Any notice to Surety may be given in the manner specified in the Contract and sent to Surety as follows:

Attn: _____
Address: _____
City/State/Zip: _____
Phone: _____
Fax: _____
Email: _____

8. **Law and Venue.** This Bond will be governed by California law, and venue for any dispute pursuant to this Bond will be in the Humboldt County Superior Court, and no other place. Surety will be responsible for City's attorneys' fees and costs in any action to enforce the provisions of this Bond.

9. **Effective Date; Execution.** This Bond is entered into and effective on _____, 20___.

SURETY:

_____
Business Name

s/_____ _____
Date

_____
Name, Title

(Attach Acknowledgment with Notary Seal and Power of Attorney)

CONTRACTOR:

_____
Business Name

s/_____ _____
Date

_____
Name, Title

APPROVED BY CITY:

s/ _____ _____
Date

_____
Name, Title

END OF PERFORMANCE BOND

Warranty Bond

City of Eureka ("City") and _____ ("Contractor") have entered into a contract, dated _____, 20___ ("Contract") for work on the Sewer Improvements 2020 Project ("Project"). The Contract is incorporated by reference into this Warranty Bond ("Bond").

1. **General.** Under this Bond, Contractor as principal and _____, its surety ("Surety"), are bound to City as obligee in the maximum amount of 15% of the final Contract Price, unless otherwise specified in the Contract Documents.

2. **Warranty Period.** The Contract requires Contractor to guarantee its work and that of its Subcontractors on the Project, against defects in materials or workmanship which are discovered during the one-year period commencing with City's acceptance of the Project ("Warranty Period").

3. **Surety's Obligations.** If Contractor faithfully carries out and performs its guarantee under the Contract, and, on due notice from City, repairs and remedies, at its sole expense, any and all defects in materials and workmanship in the Project which are discovered during the Warranty Period, or if Contractor promptly reimburses City for all loss and damage that City sustains because of Contractor's failure to makes such repairs in accordance with the Contract requirements, then Surety's obligations under this Bond will be null and void. Otherwise, Surety's obligations will remain in full force and effect.

4. **Waiver.** Surety waives the provisions of Civil Code §§ 2819 and 2845.

5. **Notice.** Any notice to Surety may be given in the manner specified in the Contract and delivered or transmitted to Surety as follows:

   Attn: _____
   Address: _____
   City/State/Zip: _____
   Phone: _____
   Fax: _____
   Email: _____

6. **Law and Venue.** This Bond will be governed by California law, and venue for any dispute pursuant to this Bond will be in the Humboldt County Superior Court, and no other place. Surety will be responsible for City's attorneys' fees and costs in any action to enforce the provisions of this Bond.

7. **Effective Date; Execution.** This Bond is entered into and is effective on _____, 20_____.

[Signatures are on the following page.]

SURETY:

_____
Business Name

s/_____ _____
Date

_____
Name, Title

(Attach Acknowledgment with Notary Seal and Power of Attorney)

CONTRACTOR:

_____
Business Name

s/_____ _____
Date

_____
Name, Title

APPROVED BY CITY:

s/ _____ _____
Date

_____
Name, Title

END OF WARRANTY BOND

General Conditions

Article 1 - Definitions

Definitions. The following definitions apply to all of the Contract Documents unless otherwise indicated, e.g., additional definitions that apply solely to the Specifications or other technical documents. Defined terms and titles of documents are capitalized in the Contract Documents, with the exception of the following (in any tense or form): “day,” “furnish,” “including,” “install,” “work day” or “working day.”

Allowance means a specific amount that must be included in the Bid Proposal for a specified purpose.

Article, as used in these General Conditions, means a numbered Article of the General Conditions, unless otherwise indicated by the context.

Change Order means a written document duly approved and executed by City, which changes the scope of Work, the Contract Price, or the Contract Time.

City means the municipality which has entered into the Contract with Contractor for performance of the Work, acting through its City Council, officers, employees, City Engineer, and any other authorized representatives.

City Engineer means the City Engineer for City and his or her authorized delegee(s).

Claim means a separate demand by Contractor for a change in the Contract Time or Contract Price, that has previously been submitted to City in accordance with the requirements of the Contract Documents, and which has been rejected by City, in whole or in part; or a written demand by Contractor objecting to the amount of Final Payment.

Contract means the signed agreement between City and Contractor for performing the Work required for the Project, and all documents expressly incorporated therein.

Contract Documents means, collectively, all of the documents listed as such in Section 2 of the Contract, including the Notice Inviting Bids; the Instructions to Bidders; addenda, if any; the Bid Proposal, and attachments thereto; the Contract; the Notice of Potential Award and Notice to Proceed; the payment, performance and warranty bonds; the General Conditions; the Special Conditions; the Project Plans and Specifications; any Change Orders; and any other documents which are clearly and unambiguously made part of the Contract Documents. The Contract Documents do not include documents provided “For Reference Only,” or documents that are intended solely to provide information regarding existing conditions.

Contract Price means the total compensation to be paid to Contractor for performance of the Work, as set forth in the Contract and as may be amended by Change Order or adjusted for an Allowance. The Contract Price is not subject to adjustment due to inflation or due to the increased cost of labor, material, supplies or equipment following submission of the Bid Proposal.

Contract Time means the time specified for complete performance of the Work, as set forth in the Contract and as may be amended by Change Order.

Contractor means the individual, partnership, corporation, or joint-venture that has signed the Contract with City to perform the Work.

Day means a calendar day unless otherwise specified.

Design Professional means the licensed individual(s) or firm(s) retained by City to provide architectural, engineering, or electrical engineering design services for the Project. If no Design Professional has been retained for this Project, any reference to Design Professional is deemed to refer to the Engineer.

DIR means the California Department of Industrial Relations.

Drawings has the same meaning as Plans.

Engineer means the City Engineer for the City of Eureka and his or her authorized delegees.

Excusable Delay is defined in Section 5.3(B), Excusable Delay.

Extra Work means new or unforeseen work added to the Project, as determined by the Engineer in his or her sole discretion, including Work that was not part of or incidental to the scope of the Work when the Contractor's bid was submitted; Work that is substantially different from the Work as described in the Contract Documents at bid time; or Work that results from a substantially differing and unforeseeable condition.

Final Completion means Contractor has fully completed all of the Work required by the Contract Documents to the City's satisfaction, including all punch list items and any required commissioning or training, and has provided the City with all required submittals, including the warranty bond, instructions and manuals, product warranties, and as-built drawings.

Final Payment means payment to Contractor of the unpaid Contract Price, including release of undisputed retention, less amounts withheld or deducted pursuant to the Contract Documents.

Furnish means to purchase and deliver for the Project.

Government Code Claim means a claim submitted pursuant to California Government Code § 900 et seq.

Hazardous Materials means any substance or material identified now or in the future as hazardous under any Laws, or any other substance or material that may be considered hazardous or otherwise subject to Laws governing handling, disposal, or cleanup.

Including, whether or not capitalized, means "including, but not limited to," unless the context clearly requires otherwise.

Inspector means the individual(s) or firm(s) retained or employed by City to inspect the workmanship, materials, and manner of construction of the Project and its components to ensure compliance with the Contract Documents and all Laws.

Install means to fix in place for materials, and to fix in place and connect for equipment.

Itemized means the breakdown of the constituent parts that make up the work performed: labor, material, equipment, taxes, insurance, subcontract amounts, ect.

Laws means all applicable local, state, and federal laws, regulations, rules, codes, ordinances, permits, orders, and the like enacted or imposed by or under the auspices of any governmental entity with jurisdiction over any of the Work or any performance of the Work.

Non-Excusable Delay is defined in Section 5.3(D), Non-Excusable Delay.

Plans means the City-provided plans, drawings, details, or graphical depictions of the Project requirements, but does not include Shop Drawings.

Project means the public works project referenced in the Contract.

Project Manager means the individual designated by City to oversee and manage the Project on City's behalf and may include his or her authorized delegee(s) when the Project Manager is unavailable. If no Project Manager has been designated for this Project, any reference to Project Manager is deemed to refer to the Engineer.

Recoverable Costs is defined in Section 5.3(F), Recoverable Costs.

Request for Information or **RFI** means Contractor's written request for information about the Contract Documents, the Work or the Project, submitted to City in the manner and format specified by City.

Section, when capitalized in these General Conditions, means a numbered section or subsection of the General Conditions, unless the context clearly indicates otherwise.

Shop Drawings means drawings, plan details or other graphical depictions prepared by or on behalf of Contractor, and subject to City acceptance, which are intended to provide details for fabrication, installation, and the like, of items required by or shown in the Plans or Specifications.

Specialty Work means Work that must be performed by a specialized Subcontractor with the specified license or other special certification, and that the Contractor is not qualified to self-perform.

Specifications means the technical, text specifications describing the Project requirements, which are prepared for and incorporated into the Contract by or on behalf of City, and does not include the Contract, General Conditions or Special Conditions.

Subcontractor means an individual, partnership, corporation, or joint-venture retained by Contractor directly or indirectly through a subcontract to perform a specific portion of the Work. The term Subcontractor applies to subcontractors of all tiers, unless otherwise indicated by the context. A third party such as a utility performing related work on the Project is not a Subcontractor, even if Contractor must coordinate its Work with the third party.

Technical Specifications has the same meaning as Specifications.

Work means all of the construction and services necessary for or incidental to completing the Project in conformance with the requirements of the Contract Documents.

Work Day or **Working Day**, whether or not capitalized, means a weekday when the City is open for business, and does not include holidays observed by the City.

Worksite means the place or places where the Work is performed, which includes, but may extend beyond the Project site, including separate locations for staging, storage, or fabrication.

Article 2 - Roles and Responsibilities

2.1 City.

(A) ***City Council.*** The City Council has final authority in all matters affecting the Project, except to the extent it has delegated authority to the Engineer.

(B) ***Engineer.*** The Engineer, acting within the authority conferred by the City Council, is responsible for administration of the Project on behalf of City, including

authority to provide directions to the Design Professional and to Contractor to ensure proper and timely completion of the Project. The Engineer's decisions are final and conclusive within the scope of his or her authority, including interpretation of the Contract Documents.

(C) ***Project Manager.*** The Project Manager assigned to the Project will be the primary point of contact for the Contractor and will serve as City's representative for daily administration of the Project on behalf of City. Unless otherwise specified, all of Contractor's communications to City (in any form) will go to or through the Project Manager. City reserves the right to reassign the Project Manager role at any time or to delegate duties to additional City representatives, without prior notice to or consent of Contractor.

(D) ***Design Professional.*** The Design Professional is responsible for the overall design of the Project and, to the extent authorized by City, may act on City's behalf to ensure performance of the Work in compliance with the Plans and Specifications, including any design changes authorized by Change Order. The Design Professional's duties may include review of Contractor's submittals, visits to any Worksite, inspecting the Work, evaluating test and inspection results, and participation in Project-related meetings, including any pre-construction conference, weekly meetings, and coordination meetings. The Design Professional's interpretation of the Plans or Specifications is final and conclusive.

2.2 Contractor.

(A) ***General.*** Contractor must provide all labor, materials, supplies, equipment, services, and incidentals necessary to perform and timely complete the Work in strict accordance with the Contract Documents, and in an economical and efficient manner in the best interests of City, and with minimal inconvenience to the public.

(B) ***Responsibility for the Work and Risk of Loss.*** Contractor is responsible for supervising and directing all aspects of the Work to facilitate the efficient and timely completion of the Work. Contractor is solely responsible for and required to exercise full control over the Work, including the construction means, methods, techniques, sequences, procedures, safety precautions and programs, and coordination of all portions of the Work with that of all other contractors and Subcontractors, except to the extent that the Contract Documents provide other specific instructions. Contractor's responsibilities extend to any plan, method or sequence suggested, but not required by City or specified in the Contract Documents. From the date of commencement of the Work until either the date on which City formally accepts the Project or the effective date of termination of the Contract, whichever is later, Contractor bears all risks of injury or damage to the Work and the materials and equipment delivered to any Worksite, by any cause including fire, earthquake, wind, weather, vandalism or theft.

(C) ***Project Administration.*** Contractor must provide sufficient and competent administration, staff, and skilled workforce necessary to perform and timely complete the Work in accordance with the Contract Documents. Before starting the Work, Contractor must designate in writing and provide complete contact information, including telephone numbers and email address, for the officer or employee in Contractor's organization who is to serve as Contractor's primary representative for the Project, and who has authority to act on Contractor's behalf. A Subcontractor may not serve as Contractor's primary representative.

(D) ***On-Site Superintendent.*** Contractor must, at all times during performance of the Work, provide a qualified and competent full-time superintendent acceptable to City, and assistants as necessary, who must be physically present at the Project site while any

aspect of the Work is being performed. The superintendent must have full authority to act and communicate on behalf of Contractor, and Contractor will be bound by the superintendent's communications to City. City's approval of the superintendent is required before the Work commences. If City is not satisfied with the superintendent's performance, City may request a qualified replacement of the superintendent. Failure to comply may result in temporary suspension of the Work, at Contractor's sole expense and with no extension of Contract Time, until an approved superintendent is physically present to supervise the Work. Contractor must provide written notice to City, as soon as practicable, before replacing the superintendent.

(E) ***Standards.*** Contractor must, at all times, ensure that the Work is performed in an efficient, skillful manner following best practices and in full compliance with the Contract Documents and Laws and applicable manufacturer's recommendations. Contractor has a material and ongoing obligation to provide true and complete information, to the best of its knowledge, with respect to all records, documents, or communications pertaining to the Project, including oral or written reports, statements, certifications, Change Order requests, or Claims.

(F) ***Meetings.*** Contractor, its project manager, superintendent and any primary Subcontractors requested by City, must attend a pre-construction conference, if requested by City, as well as weekly Project progress meetings scheduled with City. If applicable, Contractor may also be required to participate in coordination meetings with other parties relating to other work being performed on or near the Project site or in relation to the Project, including work or activities performed by City, other contractors, or other utility owners.

(G) ***Construction Records.*** Contractor will maintain up-to-date, thorough, legible, and dated daily job reports, which document all significant activity on the Project for each day that Work is performed on the Project. The daily report for each day must include the number of workers at the Project site; primary Work activities; major deliveries; problems encountered, including injuries, if any; weather and site conditions; and delays, if any. Contractor will take date and time-stamped photographs to document general progress of the Project, including site conditions prior to construction activities, before and after photographs at offset trench laterals, existing improvements and utilities, damage and restoration. Contractor will maintain copies of all subcontracts, Project-related correspondence with subcontractors, and records of meetings with Subcontractors. Upon request by the City, Contractor will permit review of and/or provide copies of any of these construction records.

(H) ***Responsible Party.*** Contractor is solely responsible to City for the acts or omissions of any Subcontractors, or any other party or parties performing portions of the Work or providing equipment, materials or services for or on behalf of Contractor or the Subcontractors. Upon City's written request, Contractor must promptly and permanently remove from the Project, at no cost to City, any employee or Subcontractor or employee of a Subcontractor who the Engineer has determined to be incompetent, intemperate or disorderly, or who has failed or refused to perform the Work as required under the Contract Documents.

(I) ***Correction of Defects.*** Contractor must promptly correct, at Contractor's sole expense, any Work that is determined by City to be deficient or defective in any way, including workmanship, materials, parts or equipment. Workmanship, materials, parts or equipment that do not conform to the requirements under the Plans, Specifications and every other Contract Document, as determined by City, will be considered defective and subject to rejection. Contractor must also promptly correct, at Contractor's sole expense, any Work performed beyond the lines and grades shown on the Plans or established by City, and any Extra Work performed without City's prior written approval. If Contractor

fails to correct or to take reasonable steps toward correcting defective Work within five days following notice from City, or within the time specified in City's notice to correct, City may elect to have the defective Work corrected by its own forces or by a third party, in which case the cost of correction will be deducted from the Contract Price. If City elects to correct defective Work due to Contractor's failure or refusal to do so, City or its agents will have the right to take possession of and use any equipment, supplies, or materials available at the Project site or any Worksite on City property, in order to effectuate the correction, at no extra cost to City. Contractor's warranty obligations under Section 11.2, Warranty, will not be waived nor limited by City's actions to correct defective Work under these circumstances. Alternatively, City may elect to retain defective Work, and deduct the difference in value, as determined by the Engineer, from payments otherwise due to Contractor. This paragraph applies to any defective Work performed by Contractor during the one-year warranty period under Section 11.2.

(J) ***Contractor's Records.*** Contractor must maintain all of its records relating to the Project in any form, including paper documents, photos, videos, electronic records, approved samples, and the construction records required pursuant to paragraph (G), above. Project records subject to this provision include complete Project cost records and records relating to preparation of Contractor's bid, including estimates, take-offs, and price quotes or bids.

(1) Contractor's cost records must include all supporting documentation, including original receipts, invoices, and payroll records, evidencing its direct costs to perform the Work, including, but not limited to, costs for labor, materials and equipment. Each cost record should include, at a minimum, a description of the expenditure with references to the applicable requirements of the Contract Documents, the amount actually paid, the date of payment, and whether the expenditure is part of the original Contract Price, related to an executed Change Order, or otherwise categorized by Contractor as Extra Work. Contractor's failure to comply with this provision as to any claimed cost operates as a waiver of any rights to recover the claimed cost.

(2) Contractor must continue to maintain its Project-related records in an organized manner for a period of five years after City's acceptance of the Project or following Contract termination, whichever occurs first. Subject to prior notice to Contractor, City is entitled to inspect or audit any of Contractor's Project records relating to the Project or to investigate Contractor's plant or equipment during Contractor's normal business hours. The record-keeping requirements set forth in this subsection 2.2(J) will survive expiration or termination of the Contract.

(K) ***Copies of Project Documents.*** Contractor and its Subcontractors must keep copies, at the Project site, of all Work-related documents, including the Contract, permit(s), Plans, Specifications, Addenda, Contract amendments, Change Orders, RFIs and RFI responses, Shop Drawings, as-built drawings, schedules, daily records, testing and inspection reports or results, and any related written interpretations. These documents must be available to City for reference at all times during construction of the Project.

2.3 Subcontractors.

(A) ***General.*** All Work which is not performed by Contractor with its own forces must be performed by Subcontractors. City reserves the right to approve or reject any and all Subcontractors proposed to perform the Work, for reasons including the subcontractor's poor reputation, lack of relevant experience, financial instability, and lack of technical ability or adequate trained workforce. Each Subcontractor must obtain a City business license before performing any Work.

(B) ***Contractual Obligations.*** Contractor must require each Subcontractor to comply with the provisions of the Contract Documents as they apply to the Subcontractor's portion(s) of the Work, including the generally applicable terms of the Contract Documents, and to likewise bind their subcontractors. Contractor will provide that the rights that each Subcontractor may have against any manufacturer or supplier for breach of warranty or guarantee relating to items provided by the Subcontractor for the Project, will be assigned to City. Nothing in these Contract Documents creates a contractual relationship between a Subcontractor and City, but City is deemed to be a third-party beneficiary of the contract between Contractor and each Subcontractor.

(C) ***Termination.*** If the Contract is terminated, each Subcontractor's agreement must be assigned by Contractor to City, subject to the prior rights of any surety, but only if and to the extent that City accepts, in writing, the assignment by written notification, and assumes all rights and obligations of Contractor pursuant to each such subcontract agreement.

(D) ***Substitution of Subcontractor.*** If Contractor requests substitution of a listed Subcontractor under Public Contract Code § 4107, Contractor is solely responsible for all costs City incurs in responding to the request, including legal fees and costs to conduct a hearing, and any increased subcontract cost to perform the Work that was to be performed by the listed Subcontractor.

2.4 Coordination of Work.

(A) ***Concurrent Work.*** City reserves the right to perform, have performed, or permit performance of other work on or adjacent to the Project site while the Work is being performed for the Project. Contractor is responsible for coordinating its Work with other work being performed on or adjacent to the Project site, including by any utility companies or agencies, and must avoid hindering, delaying, or interfering with the work of other contractors, individuals, or entities, and must ensure safe and reasonable site access and use as required or authorized by City. To the full extent permitted by law, Contractor must hold harmless and indemnify City against any and all claims arising from or related to Contractor's avoidable, negligent, or willful hindrance of, delay to, or interference with the work of any utility company or agency or another contractor or subcontractor.

(B) ***Coordination.*** If Contractor's Work will connect or interface with work performed by others, Contractor is responsible for independently measuring and visually inspecting such work to ensure a correct connection and interface. Contractor is responsible for any failure by Contractor or its Subcontractors to confirm measurements before proceeding with connecting Work. Before proceeding with any portion of the Work affected by the construction or operations of others, Contractor must give the Project Manager prompt written notification of any defects Contractor discovers which will prevent the proper execution of the Work. Failure to give notice of any known or reasonably discoverable defects will be deemed acknowledgement by Contractor that the work of others is not defective and will not prevent the proper execution of the Work. Contractor must also promptly notify City if work performed by others, including work or activities performed by City's own forces, is operating to hinder, delay, or interfere with Contractor's timely performance of the Work. City reserves the right to backcharge Contractor for any additional costs incurred due to Contractor's failure to comply with the requirements in this Section 2.4.

2.5 Submittals. Unless otherwise specified, Contractor must submit to the Engineer for review and acceptance, all schedules, Shop Drawings, samples, product data, and similar submittals required by the Contract Documents, or upon request by the Engineer.

Unless otherwise specified, all submittals, including Requests for Information, are subject to the general provisions of this Section, as well as specific submittal requirements that may be included elsewhere in the Contract Documents, including the Special Conditions or Specifications. The Engineer may require submission of a submittal schedule at or before a pre-construction conference, as may be specified in the Notice to Proceed.

(A) ***General.*** Contractor is responsible for ensuring that its submittals are accurate and conform to the Contract Documents.

(B) ***Time and Manner of Submission.*** Contractor must ensure that its submittals are prepared and delivered in a manner consistent with the current City-accepted schedule for the Work and within the applicable time specified in the Contract Documents, or if no time is specified, in such time and sequence so as not to delay the performance of the Work or completion of the Project.

(C) ***Required Contents.*** Each submittal must include the Project name and contract number, Contractor's name and address, the name and address of any Subcontractor or supplier involved with the submittal, the date, and references to applicable Specification section(s) and/or drawing and detail number(s).

(D) ***Required Corrections.*** If corrections are required, Contractor must promptly make and submit any required corrections as specified in full conformance with the requirements of this Section, or other requirements that apply to that submittal.

(E) ***Effect of Review and Acceptance.*** Review and acceptance of a submittal by City will not relieve Contractor from complying with the requirements of the Contract Documents. Contractor is responsible for any errors in any submittal, and review or acceptance of a submittal by City is not an assumption of risk or liability by City.

(F) ***Enforcement.*** Any Work performed or any material furnished, installed, fabricated or used without City's prior acceptance of a required submittal is performed or provided at Contractor's risk, and Contractor may be required to bear the costs incident thereto, including the cost of removing and replacing such Work, repairs to other affected portions of the Work or material, and the cost of additional time or services required of City, including costs for the Design Professional, Project Manager, or Inspector.

(G) ***Excessive RFIs.*** A RFI will be considered excessive or unnecessary if City determines that the explanation or response to the RFI is clearly and unambiguously discernable from the Contract Documents. City's costs to review and respond to excessive or unnecessary RFIs may be deducted from payments otherwise due to Contractor.

2.6 Shop Drawings. When Shop Drawings are required by the Specifications or requested by the Engineer, they must be prepared according to best practices at Contractor's expense. The Shop Drawings must be of a size and scale to clearly show all necessary details. Unless otherwise specified by City, Shop Drawings must be provided to the Engineer for review and acceptance at least 30 days before the Work will be performed. If City requires changes, the corrected Shop Drawings must be resubmitted to the Engineer for review within the time specified by the Engineer. For all Project components requiring Shop Drawings, Contractor will not furnish materials or perform any Work until the Shop Drawings for those components are accepted by City. Contractor is responsible for any errors or omissions in the Shop Drawings, shop fits and field corrections; any deviations from the Contract Documents; and for the results obtained by the use of Shop Drawings. Acceptance of Shop Drawings by City does not relieve Contractor of Contractor's responsibility.

2.7 Access to Work. Contractor must afford prompt and safe access to any Worksite by City and its employees, agents, or consultants authorized by City; and upon request by City, Contractor must promptly arrange for City representatives to visit or inspect manufacturing sites or fabrication facilities for items to be incorporated into the Work.

2.8 Personnel. Contractor and its Subcontractors must employ only competent and skillful personnel to perform the Work. Contractor and its Subcontractor's supervisors, security or safety personnel, and employees who have unescorted access to the Project site must possess proficiency in English sufficient to read, understand, receive, and implement oral or written communications or instructions relating to their respective job functions, including safety and security requirements. Upon written notification from the Engineer, Contractor and its Subcontractors must immediately discharge any personnel who are incompetent, disorderly, disruptive, threatening, abusive, or profane, or otherwise refuse or fail to comply with the requirements of the Contract Documents or Laws, including Laws pertaining to health and safety. Any such discharged personnel, may not be re-employed or permitted on the Project in any capacity without City's prior written consent.

Article 3 - Contract Documents

3.1 Interpretation of Contract Documents.

(A) ***Plans and Specifications.*** The Plans and Specifications included in the Contract Documents are complementary. If Work is shown on one but not on the other, Contractor must perform the Work as though fully described on both, consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. The Plans and Specifications are deemed to include and require everything necessary and reasonably incidental to completion of the Work, whether or not particularly mentioned or shown. Contractor must perform all Work and services and supply all things reasonably related to and inferable from the Contract Documents. In the event of a conflict between the Plans and Specifications, the Specifications will control, unless the drawing(s) at issue are dated later than the Specification(s) at issue. Detailed drawings take precedence over general drawings, and large-scale drawings take precedence over smaller scale drawings. Any arrangement or division of the Plans and Specifications into sections is for convenience and is not intended to limit the Work required by separate trades. A conclusion presented in the Plans or Specifications is only a recommendation. Actual locations and depths must be determined by Contractor's field investigation. Contractor may request access to underlying or background information in City's possession that is necessary for Contractor to form its own conclusions.

(B) ***Duty to Notify and Seek Direction.*** If Contractor becomes aware of a changed condition in the Project, or of any ambiguity, conflict, inconsistency, discrepancy, omission, or error in the Contract Documents, including the Plans or Specifications, Contractor must promptly submit a Request for Information to the Engineer and wait for a response from City before proceeding further with the related Work. The RFI must notify City of the issue and request clarification, interpretation or direction. The Engineer's clarification, interpretation or direction will be final and binding on Contractor. If Contractor proceeds with the related Work before obtaining City's response, Contractor will be responsible for any resulting costs, including the cost of correcting any incorrect or defective Work that results. Timely submission of a clear and complete RFI is essential to avoiding delay. Delay resulting from Contractor's failure to submit a timely and complete RFI to the Engineer is Non-Excusable Delay. If Contractor believes that City's response to an RFI justifies a change to the Contract Price or Contract Time, Contractor must perform the Work as directed, but may submit a timely Change Order request in accordance with the Contract Documents. (See Article 5 and 6.)

(C) ***Figures and Dimensions.*** Figures control over scaled dimensions.

(D) ***Technical or Trade Terms.*** Any terms that have well-known technical or trade meanings will be interpreted in accordance with those meanings, unless otherwise specifically defined in the Contract Documents.

(E) ***Measurements.*** Contractor must verify all relevant measurements in the Contract Documents and at the Project site before ordering any material or performing any Work, and will be responsible for the correctness of those measurements or for costs that could have been avoided by independently verifying measurements.

(F) ***Compliance with Laws.*** The Contract Documents are intended to comply with Laws and will be interpreted to comply with Laws.

3.2 Order of Precedence. Information included in one Contract Document but not in another will not be considered a conflict or inconsistency. Unless otherwise specified in the Special Conditions, in case of any conflict or inconsistency among the Contract Documents, the following order of precedence will apply, beginning from highest to lowest, with the most recent version taking precedent over an earlier version:

(A) Change Orders;
(B) Addenda;
(C) Contract;
(D) Notice to Proceed;
(E) Appendix B – Federal Contract Requirements (only if used);
(F) Special Conditions;
(G) General Conditions;
(H) Payment, Performance and Warranty Bonds;
(I) Specifications;
(J) Plans;
(K) Notice of Potential Award;
(L) Notice Inviting Bids;
(M) Appendix A – Federal Bidding Requirements (only if used);
(N) Instructions to Bidders;
(O) Contractor's Bid Proposal and attachments;
(P) the City's standard specifications, as applicable; and
(Q) Any generic documents prepared by and on behalf of a third party, that were not prepared specifically for this Project, such as the Caltrans Standard Specifications or Caltrans Special Provisions.

3.3 Caltrans Standard Specifications. Any reference to or incorporation of the Standard Specifications of the State of California, Department of Transportation ("Caltrans"), including "Standard Specifications," "Caltrans Specifications," "State Specifications," or "CSS," means the most current edition of Caltrans' Standard Specifications, unless otherwise specified ("Caltrans Standard Specifications"), including the most current amendments as of the date that Contractor's bid was submitted for this Project. The following provisions apply to use of or reference to the Caltrans Standard Specifications or Special Provisions:

(A) ***Limitations.*** The "General Provisions" of the Caltrans Standard Specifications, i.e., sections 1 through 9, do not apply to these Contract Documents with the exception of any specific provisions, if any, which are expressly stated to apply to these Contract Documents.

(B) ***Conflicts or Inconsistencies.*** If there is a conflict or inconsistency between any provision in the Caltrans Standard Specifications or Special Provisions and a provision of

these Contract Documents, as determined by City, the provision in the Contract Documents will govern.

(C) ***Meanings.*** Terms used in the Caltrans Standard Specifications or Special Provisions are to be interpreted as follows:

(1) Any reference to the "Engineer" is deemed to mean the City Engineer.

(2) Any reference to the "Special Provisions" is deemed to mean the Special Conditions, unless the Caltrans Special Provisions are expressly included in the Contract Documents listed in Section 2 of the Contract.

(3) Any reference to the "Department" or "State" is deemed to mean City.

3.4 **For Reference Only.** Contractor is responsible for the careful review of any document, study, or report provided by City or appended to the Contract Documents solely for informational purposes and identified as "For Reference Only." Nothing in any document, study, or report so appended and identified is intended to supplement, alter, or void any provision of the Contract Documents. Contractor is advised that City or its representatives may be guided by information or recommendations included in such reference documents, particularly when making determinations as to the acceptability of proposed materials, methods, or changes in the Work. Any record drawings or similar final or accepted drawings or maps that are not part of the Contract Documents are deemed to be For Reference Only. The provisions of the Contract Documents are not modified by any perceived or actual conflict with provisions in any document that is provided For Reference Only.

3.5 **Current Versions.** Unless otherwise specified by City, any reference to standard specifications, technical specifications, or any City or state codes or regulations means the latest specification, code or regulation in effect at the time the Contract is signed.

3.6 **Conformed Copies.** If City prepares a conformed set of the Contract Documents following award of the Contract, it will provide Contractor with two hard copy (paper) sets and one copy of the electronic file in PDF format. It is Contractor's responsibility to ensure that all Subcontractors, including fabricators, are provided with the conformed set of the Contract Documents at Contractor's sole expense.

3.7 **Ownership.** No portion of the Contract Documents may be used for any purpose other than construction of the Project, without prior written consent from City. Contractor is deemed to have conveyed the copyright in any designs, drawings, specifications, Shop Drawings, or other documents (in paper or electronic form) developed by Contractor for the Project, and City will retain all rights to such works, including the right to possession.

Article 4 - Bonds, Indemnity, and Insurance

4.1 **Payment and Performance Bonds.** Within ten days following issuance of the Notice of Potential Award, Contractor is required to provide a payment bond and a performance bond, each in the penal sum of not less than 100% of the Contract Price, and each executed by Contractor and its surety using the bond forms included with the Contract Documents.

(A) ***Surety.*** Each bond must be issued and executed by a surety admitted in California. If an issuing surety cancels the bond or becomes insolvent, within seven days following written notice from City, Contractor must substitute a surety acceptable to City. If Contractor fails to substitute an acceptable surety within the specified time, City may, at

its sole discretion, withhold payment from Contractor until the surety is replaced to City's satisfaction, or terminate the Contract for default.

(B) ***Supplemental Bonds for Increase in Contract Price.*** If the Contract Price increases during construction by five percent or more over the original Contract Price, Contractor must provide supplemental or replacement bonds within ten days of written notice from City pursuant to this Section, covering 100% of the increased Contract Price and using the bond forms included with the Contract Documents.

4.2 **Indemnity.** To the fullest extent permitted by law, Contractor must indemnify, defend, and hold harmless City, its Council, officers, officials, employees, agents, volunteers, and consultants (individually, an "Indemnitee," and collectively the "Indemnitees") from and against any and all liability, loss, damage, claims, causes of action, demands, charges, fines, costs, and expenses (including, without limitation, attorney fees, expert witness fees, paralegal fees, and fees and costs of litigation or arbitration) (collectively, "Liability") of every nature arising out of or in connection with the acts or omissions of Contractor, its employees, Subcontractors, representatives, or agents, in bidding or performing the Work or in failing to comply with any obligation of Contractor under the Contract, except such Liability caused by the active negligence, sole negligence, or willful misconduct of an Indemnitee. This indemnity requirement applies to any Liability arising from alleged defects in the content or manner of submission of Contractor's bid for the Contract. Contractor's failure or refusal to timely accept a tender of defense pursuant to this Contract will be deemed a material breach of the Contract. City will timely notify Contractor upon receipt of any third-party claim relating to the Contract, as required by Public Contract Code § 9201. Contractor waives any right to express or implied indemnity against any Indemnitee. Contractor's indemnity obligations under this Contract will survive the expiration or any early termination of the Contract.

4.3 **Insurance.** No later than ten days following issuance of the Notice of Potential Award, Contractor must procure and provide proof of the insurance coverage required by this Section in the form of certificates and endorsements acceptable to City. The required insurance must cover the activities of Contractor and its Subcontractors relating to or arising from the performance of the Work, and must remain in full force and effect at all times during the period covered by the Contract, through the date of City's acceptance of the Project. All required insurance must be issued by a company licensed to do business in the State of California, and each such insurer must have an A.M. Best's financial strength rating of "A" or better and a financial size rating of "VIII" or better. If Contractor fails to provide any of the required coverage in full compliance with the requirements of the Contract Documents, City may, at its sole discretion, purchase such coverage at Contractor's expense and deduct the cost from payments due to Contractor, or terminate the Contract for default. The procurement of the required insurance will not be construed to limit Contractor's liability under this Contract or to fulfill Contractor's indemnification obligations under this Contract.

(A) ***Policies and Limits.*** The following insurance policies and limits are required for this Contract, unless otherwise specified in the Special Conditions:

(1) *Commercial General Liability ("CGL") Insurance:* The CGL insurance policy must be issued on an occurrence basis, written on a comprehensive general liability form, and must include coverage for liability arising from Contractor's or its Subcontractor's acts or omissions in the performance of the Work, including contractor's protected coverage, contractual liability, products and completed operations, and broad form property damage, with limits of at least $2,000,000 per occurrence and at least $4,000,000 general aggregate. The CGL insurance coverage may be arranged under a single policy for the full limits required or by a combination of underlying policies with the balance provided by excess or

umbrella policies, provided each such policy complies with the requirements set forth in this Section, including required endorsements.

(2) *Automobile Liability Insurance:* The automobile liability insurance policy must provide coverage of at least $2,000,000 combined single-limit per accident for bodily injury, death, or property damage, including hired and non-owned auto liability.

(3) *Workers' Compensation Insurance and Employer's Liability:* The workers' compensation and employer's liability insurance policy must comply with the requirements of the California Labor Code, providing coverage of at least $1,000,000 or as otherwise required by the statute. If Contractor is self-insured, Contractor must provide its Certificate of Permission to Self-Insure, duly authorized by the DIR.

(4) *Pollution Liability Insurance:* The pollution liability insurance policy must be issued on an occurrence basis, providing coverage of at least $2,000,000 for all loss arising out of claims for bodily injury, death, property damage, or environmental damage caused by pollution conditions resulting from the Work.

(5) *Builder's Risk Insurance:* The builder's risk insurance policy must be issued on an occurrence basis, for all-risk or "all perils" coverage on a 100% completed value basis on the insurable portion of the Project for the benefit of City.

(B) ***Notice.*** Each certificate of insurance must state that the coverage afforded by the policy or policies will not be reduced, cancelled or allowed to expire without at least 30 days written notice to City, unless due to non-payment of premiums, in which case ten days written notice must be made to City.

(C) ***Waiver of Subrogation.*** Each required policy must include an endorsement providing that the carrier will waive any right of subrogation it may have against City.

(D) ***Required Endorsements.*** The CGL policy, automobile liability policy, pollution liability policy, and builder's risk policy must include the following specific endorsements:

(1) The City, including its Council, officials, officers, employees, agents, volunteers and consultants (collectively, "Additional Insured") must be named as an additional insured for all liability arising out of the operations by or on behalf of the named insured, and the policy must protect the Additional Insured against any and all liability for personal injury, death or property damage or destruction arising directly or indirectly in the performance of the Contract. The additional insured endorsement must be provided using ISO form CG 20 10 11 85 or an equivalent form approved by the City.

(2) The inclusion of more than one insured will not operate to impair the rights of one insured against another, and the coverages afforded will apply as though separate policies have been issued to each insured.

(3) The insurance provided by Contractor is primary and no insurance held or owned by any Additional Insured may be called upon to contribute to a loss.

(4) This policy does not exclude explosion, collapse, underground excavation hazard, or removal of lateral support.

(E) ***Contractor's Responsibilities.*** This Section 4.3 establishes the minimum requirements for Contractor's insurance coverage in relation to this Project, but is not

intended to limit Contractor's ability to procure additional or greater coverage. Contractor is responsible for its own risk assessment and needs and is encouraged to consult its insurance provider to determine what coverage it may wish to carry beyond the minimum requirements of this Section. Contractor is solely responsible for the cost of its insurance coverage, including premium payments, deductibles, or self-insured retentions, and no Additional Insured will be responsible or liable for any of the cost of Contractor's insurance coverage.

(F) ***Deductibles and Self-Insured Retentions***. Any deductibles or self-insured retentions that apply to the required insurance (collectively, "deductibles") in excess of $100,000 are subject to approval by the City's Risk Manager, acting in his or her sole discretion, and must be declared by Contractor when it submits its certificates of insurance and endorsements pursuant to this Section 4.3. If the City's Risk Manager determines that the deductibles are unacceptably high, at City's option, Contractor must either reduce or eliminate the deductibles as they apply to City and all required Additional Insured; or must provide a financial guarantee, to City's satisfaction, guaranteeing payment of losses and related investigation, claim administration, and legal expenses.

(G) ***Subcontractors.*** Contractor must ensure that each Subcontractor is required to maintain the same insurance coverage required under this Section 4.3, with respect to its performance of Work on the Project, including those requirements related to the Additional Insureds and waiver of subrogation, but excluding pollution liability or builder's risk insurance unless otherwise specified in the Special Conditions. A Subcontractor may be eligible for reduced insurance coverage or limits, but only to the extent approved in writing in advance by the City's Risk Manager. Contractor must confirm that each Subcontractor has complied with these insurance requirements before the Subcontractor is permitted to begin Work on the Project. Upon request by the City, Contractor must provide certificates and endorsements submitted by each Subcontractor to prove compliance with this requirement. The insurance requirements for Subcontractors do not replace or limit the Contractor's insurance obligations.

4.4 **Warranty Bond.** As a condition precedent to Final Completion, Contractor must submit a warranty bond, using the form included with the Contract Documents, to guarantee its Work as specified in Article 11, Completion and Warranty Procedures. The warranty bond must be issued by a surety admitted in California for 15% of the final Contract Price or as otherwise specified in the Contract Documents. If an issuing surety cancels the bond or becomes insolvent, within seven days following written notice from City, Contractor must substitute a surety acceptable to City.

Article 5 - Contract Time

5.1 **Time is of the Essence.** Time is of the essence in Contractor's performance and completion of the Work, and Contractor must diligently prosecute the Work and complete it within the Contract Time.

(A) ***General.*** Contractor must commence the Work on the date indicated in the Notice to Proceed and must fully complete the Work in strict compliance with all requirements of the Contract Documents and within the Contract Time. Contractor may not begin performing the Work before the date specified in the Notice to Proceed.

(B) ***Authorization.*** Contractor is not entitled to compensation or credit for any Work performed before the date specified in the Notice to Proceed, with the exception of any schedules, submittals, or other requirements, if any, that must be provided or performed before issuance of the Notice to Proceed.

(C) ***Rate of Progress.*** Contractor and its Subcontractors must, at all times, provide workers, materials, and equipment sufficient to maintain the rate of progress necessary to ensure full completion of the Work within the Contract Time. If City determines that Contractor is failing to prosecute the Work at a sufficient rate of progress, City may, in its sole discretion, direct Contractor to provide additional workers, materials, or equipment, or to work additional hours or days without additional cost to City, in order to achieve a rate of progress satisfactory to City. If Contractor fails to comply with City's directive in this regard, City may, at Contractor's expense, separately contract for additional workers, materials, or equipment or use City's own forces to achieve the necessary rate of progress. Alternatively, City may terminate the Contract based on Contractor's default.

5.2 Schedule Requirements. Contractor must prepare all schedules using standard, commercial scheduling software acceptable to the Engineer, and must provide the schedules in electronic and paper form as requested by the Engineer. In addition to the general scheduling requirements set forth below, Contractor must also comply with any scheduling requirements included in the Special Conditions or in the Technical Specifications.

(A) ***Baseline (As-Planned) Schedule.*** Within ten calendar days following City's issuance of the Notice to Proceed (or as otherwise specified in the Notice to Proceed), Contractor must submit to City for review and acceptance a baseline (as-planned) schedule using critical path methodology showing in detail how Contractor plans to perform and fully complete the Work within the Contract Time, including labor, equipment, materials and fabricated items. The baseline schedule must show the order of the major items of Work and the dates of start and completion of each item, including when the materials and equipment will be procured. The schedule must also include the work of all trades, reflecting anticipated labor or crew hours and equipment loading for the construction activities, and must be sufficiently comprehensive and detailed to enable progress to be monitored on a day-by-day basis. For each activity, the baseline schedule must be dated, provided in the format specified in the Contract Documents or as required by City, and must include, at a minimum, a description of the activity, the start and completion dates of the activity, and the duration of the activity.

(1) *Specialized Materials Ordering*. Within five calendar days following issuance of the Notice to Proceed, Contractor must order any specialized material or equipment for the Work that is not readily available from material suppliers. Contractor must also retain documentation of the purchase orders date(s).

(B) ***City's Review of Schedules.*** City will review and may note exceptions to the baseline schedule, and to the progress schedules submitted as required below, to assure completion of the Work within the Contract Time. Contractor is solely responsible for resolving any exceptions noted in a schedule and, within seven days, must correct the schedule to address the exceptions. City's review or acceptance of Contractor's schedules will not operate to waive or limit Contractor's duty to complete the Project within the Contract Time, nor to waive or limit City's right to assess liquidated damages for Contractor's unexcused failure to do so.

(C) ***Progress Schedules.*** After City accepts the final baseline schedule with no exceptions, Contractor must submit an updated progress schedule and three-week look-ahead schedule, in the format specified by City, for review and acceptance with each application for a progress payment, or when otherwise specified by City, until completion of the Work. The updated progress schedule must: show how the actual progress of the Work as constructed to date compares to the baseline schedule; reflect any proposed changes in the construction schedule or method of operations, including to achieve Project milestones within the Contract Time; and identify any actual or potential impacts

to the critical path. Contractor must also submit periodic reports to City of any changes in the projected material or equipment delivery dates for the Project.

(1) *Float*. The progress schedule must show early and late completion dates for each task. The number of days between those dates will be designated as the "float." Any float belongs to the Project and may be allocated by the Engineer to best serve timely completion of the Project.

(2) *Failure to Submit Schedule*. Reliable, up-to-date schedules are essential to efficient and cost-effective administration of the Project and timely completion. If Contractor fails to submit a schedule within the time periods specified in this Section, or submits a schedule to which City has noted exceptions that are not corrected, City may withhold up to ten percent from payment(s) otherwise due to Contractor until the exceptions are resolved, the schedule is corrected and resubmitted, and City has accepted the schedule. In addition, Contractor's failure to comply with the schedule requirements in this Section 5.2 will be deemed a material default and a waiver of any claims for Excusable Delay or loss of productivity arising during any period when Contractor is out of compliance, subject only to the limits of Public Contract Code § 7102.

(D) ***Recovery Schedule.*** If City determines that the Work is more than one week behind schedule, within seven days following written notice of such determination, Contractor must submit a recovery schedule, showing how Contractor intends to perform and complete the Work within the Contract Time, based on actual progress to date.

(E) ***Effect of Acceptance.*** Contractor and its Subcontractors must perform the Work in accordance with the most current City-accepted schedule unless otherwise directed by City. City's acceptance of a schedule does not operate to extend the time for completion of the Work or any component of the Work, and will not affect City's right to assess liquidated damages for Contractor's unexcused delay in completing the Work within the Contract Time.

(F) ***Posting.*** Contractor must at all times prominently post a copy of the most current City-accepted progress or recovery schedule in its on-site office.

(G) ***Reservation of Rights.*** City reserves the right to direct the sequence in which the Work must be performed or to make changes in the sequence of the Work in order to facilitate the performance of work by City or others, or to facilitate City's use of its property. The Contract Time or Contract Price may be adjusted to the extent such changes in sequence actually increase or decrease Contractor's time or cost to perform the Work.

(H) ***Authorized Working Days and Times.*** Contractor is limited to working Monday through Friday, excluding holidays, during City's normal business hours, except as provided in the Special Conditions or as authorized in writing by City. City reserves the right to charge Contractor for additional costs incurred by City due to Work performed on days or during hours not expressly authorized in the Contract Documents, including reimbursement of costs incurred for inspection, testing, and construction management services.

5.3 Delay and Extensions of Contract Time.

(A) ***Notice of Delay.*** If Contractor becomes aware of any actual or potential delay affecting the critical path, Contractor must promptly notify the Engineer in writing, regardless of the nature or cause of the delay, so that City has a reasonable opportunity to mitigate or avoid the delay.

(B) ***Excusable Delay.*** The Contract Time may be extended if Contractor encounters "Excusable Delay," which is an unavoidable delay in completing the Work within the Contract Time due to causes completely beyond Contractor's control, and which Contractor could not have avoided or mitigated through reasonable care, planning, foresight, and diligence, provided that Contractor is otherwise fully performing its obligations under the Contract Documents. Grounds for Excusable Delay may include fire, natural disasters including earthquake or unusually severe weather, acts of terror or vandalism, epidemic, unforeseeable adverse government actions, unforeseeable actions of third parties, encountering unforeseeable hazardous materials, unforeseeable site conditions, or suspension for convenience under Article 13. The Contract Time will not be extended based on circumstances which will not unavoidably delay completing the Work within the Contract Time based on critical path analysis.

(C) ***Weather Delays.*** A "Weather Delay Day" is a Working Day during which Contractor and its forces, including Subcontractors, are unable to perform more than 50% of the critical path Work scheduled for that day due to adverse weather conditions which impair the ability to safely or effectively perform the scheduled critical path Work that day. Adverse weather conditions may include rain, saturated soil, and Project site clean-up required due to adverse weather. Determination of what constitutes critical path Work scheduled for that day will be based on the most current, City-approved schedule. Contractor will be entitled to a non-compensable extension of the Contract Time for each Weather Delay Day in excess of the normal Weather Delay Days within a given month as determined by reliable records, including monthly rainfall averages, for the preceding ten years (or as otherwise specified in the Special Conditions or Specifications).

(1) Contractor must fully comply with the applicable procedures in Articles 5 and 6 of the General Conditions regarding requests to modify the Contract Time.

(2) Contractor will not be entitled to an extension of time for a Weather Delay Day to the extent Contractor is responsible for concurrent delay on that day.

(3) Contractor must take reasonable steps to mitigate the consequences of Weather Delay Days, including prudent workforce management and protecting the Work, Project Site, materials, and equipment.

(D) ***Non-Excusable Delay.*** Delay which Contractor could have avoided or mitigated through reasonable care, planning, foresight and diligence is "Non-Excusable Delay." Contractor is not entitled to an extension of Contract Time or any compensation for Non-Excusable Delay, or for Excusable Delay that is concurrent with Non-Excusable Delay. Non-Excusable Delay includes delay caused by:

(1) weather conditions which are normal for the location of the Project, as determined by reliable records, including monthly rainfall averages, for the preceding ten years;

(2) Contractor's failure to order equipment and materials sufficiently in advance of the time needed for completion of the Work within the Contract Time;

(3) Contractor's failure to provide adequate notification to utility companies or agencies for connections or services necessary for completion of the Work within the Contract Time;

(4) foreseeable conditions which Contractor could have ascertained from reasonably diligent inspection of the Project site or review of the Contract Documents or other information provided or available to Contractor;

(5) Contractor's failure, refusal, or financial inability to perform the Work within the Contract Time, including insufficient funds to pay its Subcontractors or suppliers;

(6) performance or non-performance by Contractor's Subcontractors or suppliers;

(7) the time required to respond to excessive RFIs (see Section 2.5(G));

(8) delayed submission of required submittals, or the time required for correction and resubmission of defective submittals;

(9) time required for repair of, re-testing, or re-inspection of defective Work;

(10) enforcement of Laws by City, or outside agencies with jurisdiction over the Work; or

(11) City's exercise or enforcement of any of its rights or Contractor's duties pursuant to the Contract Documents, including correction of defective Work, extra inspections or testing due to non-compliance with Contract requirements, safety compliance, environmental compliance, or rejection and return of defective or deficient submittals.

(E) ***Compensable Delay.*** Pursuant to Public Contract Code § 7102, in addition to entitlement to an extension of Contract Time, Contractor is entitled to compensation for costs incurred due to delay caused solely by City, when that delay is unreasonable under the circumstances involved and not within the contemplation of the parties ("Compensable Delay"). Contractor is not entitled to an extension of Contract Time or recovery of costs for Compensable Delay that is concurrent with Non-Excusable Delay. Delay due to causes that are beyond the control of either City or Contractor, including Weather Delay Days, discovery of Historic or Archeological Items pursuant to Section 7.18, or the actions or inactions of third parties or other agencies, is not Compensable Delay, and will only entitle Contractor to an extension of time commensurate with the time lost due to such delay.

(F) ***Recoverable Costs.*** Contractor is not entitled to compensation for Excusable Delay unless it is Compensable Delay, as defined above. Contractor is entitled to recover only the actual, direct, reasonable, and substantiated costs ("Recoverable Costs") for each working day that the Compensable Delay prevents Contractor from proceeding with more than 50% of the critical path Work scheduled for that day, based on the most recent progress schedule accepted by City. Recoverable Costs will not include home office overhead or lost profit.

(G) ***Request for Extension of Contract Time or Recoverable Costs.*** A request for an extension of Contract Time or any associated Recoverable Costs must be submitted in writing to City within ten calendar days of the date the delay is first encountered, even if the duration of the delay is not yet known at that time, or any entitlement to the Contract Time extension or to the Recoverable Costs will be deemed waived. In addition to complying with the requirements of this Article 5, the request must be submitted in compliance with the Change Order request procedures in Article 6 below. Strict compliance with these requirements is necessary to ensure that any delay or consequences of delay may be mitigated as soon as possible, and to facilitate cost-

efficient administration of the Project and timely performance of the Work. Any request for an extension of Contract Time or Recoverable Costs that does not strictly comply with all of the requirements of Article 5 and Article 6 will be deemed waived.

(1) *Required Contents.* The request must include a detailed description of the cause(s) of the delay and must also describe the measures that Contractor has taken to mitigate the delay and/or its effects, including efforts to mitigate the cost impact of the delay, such as by workforce management or by a change in sequencing. If the delay is still ongoing at the time the request is submitted, the request should also include Contractor's plan for continued mitigation of the delay or its effects.

(2) *Delay Days and Costs.* The request must specify the number of days of Excusable Delay claimed or provide a realistic estimate if the duration of the delay is not yet known. If Contractor believes it is entitled to Recoverable Costs for Compensable Delay, the request must specify the amount and basis for the Recoverable Costs that are claimed or provide a realistic estimate if the amount is not yet known. Any estimate of delay duration or cost must be updated in writing and submitted with all required supporting documentation as soon as the actual time and cost is known. The maximum extension of Contract Time will be the number of days, if any, by which an Excusable Delay or a Compensable Delay exceeds any concurrent Non-Excusable Delay. Contractor is entitled to an extension of Contract Time, or compensation for Recoverable Costs, only if, and only to the extent that, such delay will unavoidably delay Final Completion.

(3) *Supporting Documentation.* The request must also include any and all supporting documentation necessary to evidence the delay and its actual impacts, including scheduling and cost impacts with a time impact analysis using critical path methodology and demonstrating the unavoidable delay to Final Completion. The time impact analysis must be submitted in a form or format acceptable to City.

(4) *Burden of Proof.* Contractor has the burden of proving that: the delay was an Excusable or Compensable Delay, as defined above; Contractor has fully complied with its scheduling obligations in Section 5.2, Schedule Requirements; Contractor has made reasonable efforts to mitigate the delay and its schedule and cost impacts; the delay will unavoidably result in delaying Final Completion; and any Recoverable Costs claimed by Contractor were actually incurred and were reasonable under the circumstances.

(5) *Legal Compliance.* Nothing in this Section 5.3 is intended to require the waiver, alteration, or limitation of the applicability of Public Contract Code § 7102.

(6) *No Waiver.* Any grant of an extension of Contract Time, or compensation for Recoverable Costs due to Compensable Delay, will not operate as a waiver of City's right to assess liquidated damages for Non-Excusable Delay.

(7) *Dispute Resolution.* In the event of a dispute over entitlement to an extension of Contract Time or compensation for Recoverable Costs, Contractor may not stop Work pending resolution of the dispute, but must continue to comply with its duty to diligently prosecute the performance and timely completion of the Work. Contractor's sole recourse for an unresolved dispute based on City's rejection of a Change Order request for an extension of Contract Time or compensation for Recoverable Costs is to comply with the dispute resolution provisions set forth in Article 12 below.

5.4 Liquidated Damages. It is expressly understood that if Final Completion is not achieved within the Contract Time, City will suffer damages from the delay that are difficult to determine and accurately specify. Pursuant to Public Contract Code § 7203, if Contractor fails to achieve Final Completion within the Contract Time, City will charge Contractor in the amount specified in the Contract for each day that Final Completion is delayed beyond the Contract Time, as liquidated damages and not as a penalty.

(A) ***Liquidated Damages.*** Liquidated damages will not be assessed for any Excusable or Compensable Delay, as set forth above.

(B) ***Milestones.*** Liquidated damages may also be separately assessed for failure to meet milestones specified elsewhere in the Contract Documents.

(C) ***Setoff.*** City is entitled to deduct the amount of liquidated damages assessed against any payments otherwise due to Contractor, including progress payments, Final Payment, or unreleased retention. If there are insufficient Contract funds remaining to cover the full amount of liquidated damages assessed, City is entitled to recover the balance from Contractor or its performance bond surety.

(D) ***Occupancy or Use.*** Occupancy or use of the Project in whole or in part prior to Final Completion does not constitute City's acceptance of the Project and will not operate as a waiver of City's right to assess liquidated damages for Contractor's Non-Excusable Delay in achieving Final Completion.

(E) ***Other Remedies.*** City's right to liquidated damages under this Section applies only to damages arising from Contractor's Non-Excusable Delay or failure to complete the Work within the Contract Time. City retains its right to pursue all other remedies under the Contract for other types of damage, including damage to property or persons, costs or diminution in value from defective materials or workmanship, costs to repair or complete the Work, or other liability caused by Contractor.

Article 6 - Contract Modification

6.1 Contract Modification. Subject to the limited exception set forth in subsection (D) below, any change in the Work or the Contract Documents, including the Contract Price or Contract Time, will not be a valid and binding change to the Contract unless it is formalized in a Change Order, including a "no-cost" Change Order or a unilateral Change Order. Changes in the Work pursuant to this Article 6 will not operate to release, limit, or abridge Contractor's warranty obligations pursuant to Article 11 or any obligations of Contractor's bond sureties.

(A) ***City-Directed Changes.*** City may direct changes in the scope or sequence of Work or the requirements of the Contract Documents, without invalidating the Contract. Such changes may include Extra Work as set forth in subsection (C) below, or deletion or modification of portions of the Work. Contractor must promptly comply with City-directed changes in the Work in accordance with the original Contract Documents, even if Contractor and City have not yet reached agreement as to adjustments to the Contract Price or Contract Time for the change in the Work or for the Extra Work. Contractor is not entitled to extra compensation for cost savings resulting from "value engineering" pursuant to Public Contract Code § 7101, except to the extent authorized in advance by City in writing, and subject to any applicable procedural requirements for submitting a proposal for value engineering cost savings.

(B) ***Disputes.*** In the event of a dispute over entitlement to or the amount of a change in Contract Time or a change in Contract Price related to a City-directed change

in the Work, Contractor must perform the Work as directed and may not delay its Work or cease Work pending resolution of the dispute, but must continue to comply with its duty to diligently prosecute the performance and timely completion of the Work, including the Work in dispute. Likewise, in the event that City and Contractor dispute whether a portion or portions of the Work are already required by the Contract Documents or constitute Extra Work, or otherwise dispute the interpretation of any portion(s) of the Contract Documents, Contractor must perform the Work as directed and may not delay its Work or cease Work pending resolution of the dispute, but must continue to comply with its duty to diligently prosecute the performance and timely completion of the Work, including the Work in dispute, as directed by City. If Contractor refuses to perform the Work in dispute, City may, acting in its sole discretion, elect to delete the Work from the Contract and reduce the Contract Price accordingly, and self-perform the Work or direct that the Work be performed by others. Alternatively, City may elect to terminate the Contract for convenience or for cause. Contractor's sole recourse for an unresolved dispute related to changes in the Work or performance of any Extra Work is to comply with the dispute resolution provisions set forth in Article 12, below.

(C) ***Extra Work.*** City may direct Contractor to perform Extra Work related to the Project. Contractor must promptly perform any Extra Work as directed or authorized by City in accordance with the original Contract Documents, even if Contractor and City have not yet reached agreement on adjustments to the Contract Price or Contract Time for such Extra Work. Contractor must maintain detailed daily records that itemize the cost of each element of Extra Work, and sufficiently distinguish the direct cost of the Extra Work from the cost of other Work performed. For each day that Contractor performs Extra Work, or Work that Contractor contends is Extra Work, Contractor must submit no later than the following Working Day, a daily report of the Extra Work performed that day and the related costs, together with copies of certified payroll, invoices, and other documentation substantiating the costs ("Extra Work Report"). The Engineer will make any adjustments to Contractor's Extra Work Report(s) based on the Engineer's records of the Work. When an Extra Work Report(s) is agreed on and signed by both City and Contractor, the Extra Work Report(s) will become the basis for payment under a duly authorized and signed Change Order. Failure to submit the required documentation by close of business on the next Working Day is deemed a full and complete waiver for any change in the Contract Price or Contract Time for any Extra Work performed that day.

(D) ***Minor Changes and RFIs.*** Minor field changes, including RFI replies from City, that do not affect the Contract Price or Contract Time and that are approved by the Engineer acting within his or her scope of authority, do not require a Change Order. By executing an RFI reply from City, Contractor agrees that it will perform the Work as clarified therein, with no change to the Contract Price or Contract Time.

(E) ***Remedy for Non-Compliance.*** Contractor's failure to promptly comply with a City-directed change is deemed a material breach of the Contract, and in addition to all other remedies available to it, City may, at its sole discretion, hire another contractor or use its own forces to complete the disputed Work at Contractor's sole expense, and may deduct the cost from the Contract Price.

6.2 Contractor Change Order Requests. Contractor must submit a request or proposal for a change in the Work, compensation for Extra Work, or a change in the Contract Price or Contract Time as a written Change Order request or proposal.

(A) ***Time for Submission.*** Any request for a change in the Contract Price or the Contract Time must be submitted in writing to the Engineer within ten calendar days of the date that Contractor first encounters the circumstances, information or conditions giving rise to the Change Order request, even if the total amount of the requested change in the Contract Price or impact on the Contract Time is not yet known at that time. If City

requests that Contractor propose the terms of a Change Order, unless otherwise specified in City's request, Contractor must provide the Engineer with a written proposal for the change in the Contract Price or Contract Time within five working days of receiving City's request, in a form satisfactory to the Engineer.

(B) ***Required Contents.*** Any Change Order request or proposal submitted by Contractor must include a complete breakdown of actual or estimated costs and credits, and must itemize labor, materials, equipment, taxes, insurance, subcontract amounts, and, if applicable, Extra Work Reports. Any estimated cost must be updated in writing as soon as the actual amount is known.

(C) ***Required Documentation.*** All claimed costs must be fully documented, and any related request for an extension of time or delay-related costs must be included at that time and in compliance with the requirements of Article 5 of the General Conditions. Upon request, Contractor must permit City to inspect its original and unaltered bidding records, subcontract agreements, subcontract change orders, purchase orders, invoices, or receipts associated with the claimed costs.

(D) ***Required Form.*** Contractor must use City's form(s) for submitting all Change Order requests or proposals, unless otherwise specified by City.

(E) ***Certification.*** All Change Order requests must be signed by Contractor and must include the following certification:

> "The undersigned Contractor certifies under penalty of perjury that its statements and representations in this Change Order request are true and correct. Contractor warrants that this Change Order request is comprehensive and complete as to the Work or changes referenced herein, and agrees that any known or foreseeable costs, expenses, or time extension requests not included herein, are deemed waived."

6.3 Adjustments to Contract Price. The amount of any increase or decrease in the Contract Price will be determined based on one of the following methods listed below, in the order listed with unit pricing taking precedence over the other methods. Markup applies only to City-authorized time and material Work, and does not apply to any other payments to Contractor. For Work items or components that are deleted in their entirety, Contractor will only be entitled to compensation only for those direct, actual, and documented costs (including restocking fees), reasonably incurred before Contractor was notified of the City's intent to delete the Work, with no markup for overhead, profit, or other indirect costs.

(A) ***Unit Pricing.*** Amounts previously provided by Contractor in the form of unit prices, either in a bid schedule or in a post-award schedule of values pursuant to Section 8.1, Schedule of Values, will apply to determine the price for the affected Work, to the extent applicable unit prices have been provided for that type of Work. No additional markup for overhead, profit, or other indirect costs will be added to the calculation.

(B) ***Lump Sum.*** A mutually agreed upon, all-inclusive lump sum price for the affected Work with no additional markup for overhead, profit, or other indirect costs.

(C) ***Time and Materials.*** On a time and materials basis, if and only to the extent compensation on a time and materials basis is expressly authorized by City in advance of Contractor's performance of the Work and subject to any not-to-exceed limit. Time and materials compensation for increased costs or Extra Work (but not decreased costs or deleted Work), will include allowed markup for overhead, profit, and other indirect costs,

and which may include a not-to-exceed limit, calculated as the total of the following sums, the cumulative total of which may not exceed the maximum markup rate of 15%:

(1) All direct labor costs provided by the Contractor, excluding superintendence, project management, or administrative costs, plus 15% markup;

(2) All direct material costs provided by the Contractor, including sales tax, plus 15% markup;

(3) All direct plant and equipment rental costs provided by the Contractor, plus 15% markup;

(4) All direct additional subcontract costs plus 10% markup for Work performed by Subcontractors; and

(5) Increased bond or insurance premium costs computed at 1.5% of total of the previous four sums.

6.4 **Unilateral Change Order.** If the parties dispute the terms of a proposed Change Order, including disputes over the amount of compensation or extension of time that Contractor has requested, the value of deleted or changed Work, what constitutes Extra Work, or quantities used, City may elect to issue a unilateral Change Order, directing performance of the Work, and authorizing a change in the Contract Price or Contract Time for the amount of compensation or added time that the City believes is merited. Contractor's sole recourse to dispute the terms of a unilateral Change Order is to submit a timely Claim pursuant to Article 12, below.

6.5 **Non-Compliance Deemed Waiver.** Contractor waives its entitlement to any increase in the Contract Price or Contract Time if Contractor fails to fully comply with the provisions of this Article. Contractor will not be paid for unauthorized Extra Work.

Article 7 - General Construction Provisions

7.1 **Permits, Fees, Business License, and Taxes.**

(A) ***Permits, Fees, and City Business License.*** Contractor must obtain and pay for all permits, fees, or licenses required to perform the Work, including a City business license. Contractor must cooperate with and provide notifications to all government agencies with jurisdiction over the Project, as may be required. Contractor must provide City with copies of all records of permits and permit applications, payment of required fees, and any licenses required for the Work.

(B) ***Taxes.*** Contractor must pay for all taxes on labor, material and equipment, except Federal Excise Tax to the extent that City is exempt from Federal Excise Tax.

7.2 **Temporary Facilities.** Contractor must provide, at Contractor's sole expense, any and all temporary facilities for the Project, including an onsite staging area for materials and equipment, a field office, sanitary facilities, utilities, storage, scaffolds, barricades, walkways, and any other temporary structure required to safely perform the Work along with any incidental utility services. The location of all temporary facilities must be approved by the City prior to installation. Temporary facilities must be safe and adequate for the intended use and installed and maintained in accordance with Laws and the Contract Documents. Contractor must fence and screen the Project site and, if applicable, any separate Worksites, including the staging area, and its operation must

minimize inconvenience to neighboring properties. Additional provisions pertaining to temporary facilities may be included in the Specifications or Special Conditions.

(A) ***Utilities.*** Contractor must install and maintain the power, water, sewer and all other utilities required for the Project site, including the piping, wiring, internet and wifi connections, and any related equipment necessary to maintain the temporary facilities.

(B) ***Removal and Repair.*** Contractor must promptly remove all such temporary facilities when they are no longer needed or upon completion of the Work, whichever comes first. Contractor must promptly repair any damage to City's property or to other property caused by the installation, use, or removal of the temporary facilities, and must promptly restore the property to its original or intended condition.

7.3 **Noninterference and Site Management.** Contractor must avoid interfering with City's use of its property at or adjacent to the Project site, including use of roadways, entrances, parking areas, walkways, and structures. Contractor must also minimize disruption of access to private property in the Project vicinity. Contractor must coordinate with affected property owners, tenants, and businesses, and maintain some vehicle and pedestrian access to their residences or properties at all times. Temporary access ramps, fencing or other measures must be provided as needed. Before blocking access to a private driveway or parking lot, Contractor must provide effective notice to the affected parties at least 48 hours in advance of the pending closure and allow them to remove vehicles. Private driveways, residences and parking lots must have access to a roadway during non-Work hours.

(A) ***Offsite Acquisition.*** Unless otherwise provided by City, Contractor must acquire, use and dispose of, at its sole expense, any additional Worksites, licenses, easements, and temporary facilities necessary to access and perform the Work.

(B) ***Offsite Staging Area and Field Office.*** If additional space beyond the Project site is needed, such as for the staging area or the field office, Contractor may need to make arrangements with the nearby property owner(s) to secure the space. Before using or occupying any property owned by a third party, Contractor must provide City with a copy of the necessary license agreement, easement, or other written authorization from the property owner, together with a written release from the property owner holding City harmless from any related liability, in a form acceptable to the City Attorney.

(C) ***Traffic Management.*** Contractor must provide traffic management and traffic controls as specified in the Contract Documents, as required by Laws, and as otherwise required to ensure the public and worker safety, and to avoid interference with public or private operations or the normal flow of vehicular, bicycle, or pedestrian traffic.

7.4 **Signs.** No signs may be displayed on or about City's property, except signage which is required by Laws or by the Contract Documents, without City's prior written approval as to size, design, and location.

7.5 **Project Site and Nearby Property Protections**.

(A) ***General.*** Contractor is responsible at all times, on a 24-hour basis and at its sole cost, for protecting the Work, the Project site, and the materials and equipment to be incorporated into the Work, until the City has accepted the Project, excluding any exceptions to acceptance, if any. Except as specifically authorized by City, Contractor must confine its operations to the area of the Project site indicated in the Plans and Specifications. Contractor is liable for any damage caused by Contractor or its Subcontractors to the Work, City's property, the property of adjacent or nearby property

owners and the work or personal property of other contractors working for City, including damage related to Contractor's failure to adequately secure the Work or any Worksite.

(1) Subject to City's approval, Contractor will provide and install safeguards to protect the Work; any Worksite, including the Project site; City's real or personal property and the real or personal property of adjacent or nearby property owners, including plant and tree protections.

(2) City wastewater systems may not be interrupted. If the Work disrupts existing sewer facilities, Contractor must immediately notify City and establish a plan, subject to City's approval, to convey the sewage in closed conduits back into the sanitary sewer system. Sewage must not be permitted to flow in trenches or be covered by backfill.

(3) Contractor must remove with due care, and store at City's request, any objects or material from the Project site that City will salvage or reuse at another location.

(4) If directed by Engineer, Contractor must promptly repair or replace any property damage, as specified by the Engineer. However, acting in its sole discretion, City may elect to have the property damage remedied otherwise, and may deduct the cost to repair or replace the damaged property from payment otherwise due to Contractor.

(5) Contractor will not permit any structure or infrastructure to be loaded in a manner that will damage or endanger the integrity of the structure or infrastructure.

(B) ***Securing Project Site.*** After completion of Work each day, Contractor must secure the Project site and, to the extent feasible, make the area reasonably accessible to the public unless City approves otherwise. All excess materials and equipment not protected by approved traffic control devices must be relocated to the staging area or demobilized. Trench spoils must be hauled off the Project site daily and open excavations must be protected with steel plates. Contractor and Subcontractor personnel may not occupy or use the Project site for any purpose during non-Work hours, except as may be provided in the Contract Documents or pursuant to prior written authorization from City.

(C) ***Unforeseen Conditions.*** If Contractor encounters facilities, utilities, or other unknown conditions not shown on or reasonably inferable from the Plans or apparent from inspection of the Project site, Contractor must immediately notify the City and promptly submit a Request for Information to obtain further directions from the Engineer. Contractor must avoid taking any action which could cause damage to the facilities or utilities pending further direction from the Engineer. The Engineer's written response will be final and binding on Contractor. If the Engineer's subsequent direction to Contractor affects Contractor's cost or time to perform the Work, Contractor may submit a Change Order request as set forth in Article 6 above.

(D) ***Support; Adjacent Properties.*** Contractor must provide, install, and maintain all shoring, bracing, and underpinning necessary to provide support to City's property and adjacent properties and improvements thereon. Contractor must provide notifications to adjacent property owners as may be required by Laws. See also, Section 7.15, Trenching of Five Feet or More.

(E) ***Notification of Property Damage.*** Contractor must immediately notify the City of damage to any real or personal property resulting from Work on the Project. Contractor must immediately provide a written report to City of any such property damage in excess

of $500 (based on estimated cost to repair or replace) within 24 hours of the occurrence. The written report must include: (1) the location and nature of the damage, and the owner of the property, if known; (2) the name and address of each employee of Contractor or any Subcontractor involved in the damage; (3) a detailed description of the incident, including precise location, time, and names and contact information for known witnesses; and (4) a police or first responder report, if applicable. If Contractor is required to file an accident report with another government agency, Contractor will provide a copy of the report to City.

7.6 Materials and Equipment.

(A) ***General.*** Unless otherwise specified, all materials and equipment required for the Work must be new, free from defects, and of the best grade for the intended purpose, and furnished in sufficient quantities to ensure the proper and expeditious performance of the Work. Contractor must employ measures to preserve the specified quality and fitness of the materials and equipment. Unless otherwise specified, all materials and equipment required for the Work are deemed to include all components required for complete installation and intended operation and must be installed in accordance with the manufacturer's recommendations or instructions. Contractor is responsible for all shipping, handling, and storage costs associated with the materials and equipment required for the Work. Contractor is responsible for providing security and protecting the Work and all of the required materials, supplies, tools and equipment at Contractor's sole cost until City has formally accepted the Project as set forth in Section 11.1, Final Completion. Contractor will not assign, sell, mortgage, or hypothecate any materials or equipment for the Project, or remove any materials or equipment that have been installed or delivered.

(B) ***City-Provided.*** If the Work includes installation of materials or equipment to be provided by City, Contractor is solely responsible for the proper examination, handling, storage, and installation in accordance with the Contract Documents. Contractor must notify City of any defects discovered in City-provided materials or equipment, sufficiently in advance of scheduled use or installation to afford adequate time to procure replacement materials or equipment as needed. Contractor is solely responsible for any loss of or damage to such items which occurs while the items are in Contractor's custody and control, the cost of which may be offset from the Contract Price and deducted from any payment(s) due to Contractor.

(C) ***Intellectual Property Rights.*** Contractor must, at its sole expense, obtain any authorization or license required for use of patented or copyright-protected materials, equipment, devices or processes that are incorporated into the Work. Contractor's indemnity obligations in Article 4 apply to any claimed violation of intellectual property rights in violation of this provision.

7.7 Substitutions.

(A) ***"Or Equal."*** Any Specification designating a material, product, or thing (collectively, "item") or service by specific brand or trade name, followed by the words "or equal," is intended only to indicate the quality and type of item or service desired, and Contractor may request use of any equal item or service. Unless otherwise stated in the Specifications, any reference to a specific brand or trade name for an item that is used solely for the purpose of describing the type of item desired, will be deemed to be followed by the words "or equal." A substitution will only be approved if it is a true "equal" item in every aspect of design, function, and quality, as determined by City, including dimensions, weight, maintenance requirements, durability, fit with other elements, and schedule impacts.

(B) ***Request for Substitution.*** A post-award request for substitution of an item or service must be submitted in writing to the Engineer for approval in advance, within the applicable time period provided in the Contract Documents. If no time period is specified, the substitution request may be submitted any time within 35 days after the date of award of the Contract, or sufficiently in advance of the time needed to avoid delay of the Work, whichever is earlier.

(C) ***Substantiation.*** Any available data substantiating the proposed substitute as an equal item or service must be submitted with the written request for substitution. Contractor's failure to timely provide all necessary substantiation, including any required test results as soon as they are available, is grounds for rejection of the proposed substitution, without further review.

(D) ***Burden of Proving Equality.*** Contractor has the burden of proving the equality of the proposed substitution at Contractor's sole cost. City has sole discretion to determine whether a proposed substitution is equal, and City's determination is final.

(E) ***Approval or Rejection.*** If the proposed substitution is approved, Contractor is solely responsible for any additional costs or time associated with the substituted item or service. If the proposed substitution is rejected, Contractor must, without delay, install the item or use the service as specified by City.

(F) ***Contractor's Obligations.*** City's approval of a proposed substitution will not relieve Contractor from any of its obligations under the Contract Documents. In the event Contractor makes an unauthorized substitution, Contractor will be solely responsible for all resulting cost impacts, including the cost of removal and replacement and the impact to other design elements.

7.8 Testing and Inspection.

(A) ***General.*** All materials, equipment, and workmanship used in the Work are subject to inspection and testing by City at all times and locations during construction and/or fabrication and at any Worksite, including at shops and yards as well as at the Project site. All manufacturers' application or installation instructions must be provided to the Inspector at least ten days prior to the first such application or installation. Contractor must, at all times, make the Work available for testing or inspection. Neither City's inspection or testing of Work, nor its failure to do so, operate to waive or limit Contractor's duty to complete the Work in accordance with the Contract Documents.

(B) ***Scheduling and Notification.*** Contractor must cooperate with City in coordinating the inspections and testing. Contractor must submit samples of materials, at Contractor's expense, and schedule all tests required by the Contract Documents in time to avoid any delay to the progress of the Work. Contractor must notify the Engineer no

later than noon of the Working Day before any inspection or testing and must provide timely notice to the other necessary parties as specified in the Contract Documents. If Contractor schedules an inspection or test beyond regular Work hours, or on a Saturday, Sunday, or recognized City holiday, Contractor must notify the Engineer at least two Working Days in advance for approval. If approved, Contractor must reimburse City for the cost of the overtime inspection or testing. Such costs, including the City's hourly costs for required personnel, may be deducted from payments otherwise due to Contractor.

(C) ***Responsibility for Costs.*** City will bear the initial cost of inspection and testing to be performed by independent testing consultants retained by City, subject to the following exceptions:

(1) Contractor will be responsible for the costs of any subsequent tests which are required to substantiate compliance with the Contract Documents, and any associated remediation costs.

(2) Contractor will be responsible for inspection costs, at City's hourly rates, for inspection time lost because the Work is not ready or Contractor fails to appear for a scheduled inspection.

(3) If any portion of the Work that is subject to inspection or testing is covered or concealed by Contractor prior to the inspection or testing, Contractor will bear the cost of making that portion of the Work available for the inspection or testing required by the Contract Documents, and any associated repair or remediation costs.

(4) Contractor is responsible for properly shoring all compaction test sites deeper than five feet below grade, as required under Section 7.15 below.

(5) Any Work or material that is defective or fails to comply with the requirements of the Contract Documents must be promptly repaired, removed, replaced, or corrected by Contractor, at Contractor's sole expense, even if that Work or material was previously inspected or included in a progress payment.

(D) ***Contractor's Obligations.*** Contractor is solely responsible for any delay occasioned by remediation of defective or noncompliant Work or material. Inspection of the Work does not in any way relieve Contractor of its obligations to perform the Work as specified. Any Work done without the required inspection(s) will also be subject to rejection by City.

(E) ***Distant Locations.*** If required off-site testing or inspection must be conducted at a location more than 100 miles from the Project site, Contractor is solely responsible for the additional travel costs required for testing and/or inspection at such locations.

(F) ***Final Inspection.*** The provisions of this Section 7.8 also apply to final inspection under Article 11, Completion and Warranty Provisions.

7.9 Project Site Conditions and Maintenance. Contractor must at all times, on a 24-hour basis and at its sole cost, maintain the Project site and staging and storage areas in clean, neat, and sanitary condition and in compliance with all Laws pertaining to safety, air quality, and dust control. Adequate toilets must be provided, and properly maintained and serviced for all workers on the Project site, located in a suitably secluded area, subject to City's prior approval. Contractor must also, on a daily basis and at its sole cost, remove and properly dispose of the debris and waste materials from the Project site.

(A) ***Air Emissions Control.*** Contractor must not discharge smoke or other air contaminants into the atmosphere in violation of any Laws.

(B) ***Dust and Debris.*** Contractor must minimize and confine dust and debris resulting from the Work. Contractor must abate dust nuisance by cleaning, sweeping, and immediately sprinkling with water excavated areas of dirt or other materials prone to cause dust, and within one hour after the Engineer notifies Contractor that an airborne nuisance exists. The Engineer may direct that Contractor provide an approved water-spraying truck for this purpose. If water is used for dust control, Contractor will only use the minimum necessary. Contractor must take all necessary steps to keep waste water out of streets, gutters, or storm drains. See Section 7.19, Environmental Control. If City determines that the dust control is not adequate, City may have the work done by others and deduct the cost from the Contract Price. Contractor will immediately remove any excess excavated material from the Project site and any dirt deposited on public streets.

(C) ***Clean up.*** Before discontinuing Work in an area, Contractor must clean the area and remove all debris and waste along with the construction equipment, tools, machinery, and surplus materials.

(1) Except as otherwise specified, all excess Project materials, and the materials removed from existing improvements on the Project site with no salvage value or intended reuse by City, will be Contractor's property.

(2) Hauling trucks and other vehicles leaving the Project site must be cleaned of exterior mud or dirt before traveling on City streets. Materials and loose debris must be delivered and loaded to prevent dropping materials or debris. Contractor must immediately remove spillage from hauling on any publicly traveled way. Streets affected by Work on the Project must be kept clean by street sweeping.

(D) ***Disposal.*** Contractor must dispose of all Project debris and waste materials in a safe and legal manner. Contractor may not burn or bury waste materials on the Project site. Contractor will not allow any dirt, refuse, excavated material, surplus concrete or mortar, or any associated washings, to be disposed of onto streets, into manholes or into the storm drain system.

(E) ***Completion.*** At the completion of the Work, Contractor must remove from the Project site all of its equipment, tools, surplus materials, waste materials and debris, presenting a clean and neat appearance. Before demobilizing from the Project site, Contractor must ensure that all surfaces are cleaned, sealed, waxed, or finished as applicable, and that all marks, stains, paint splatters, and the like have been properly removed from the completed Work and the surrounding areas. Contractor must ensure that all parts of the construction are properly joined with the previously existing and adjacent improvements and conditions. Contractor must provide all cutting, fitting and patching needed to accomplish that requirement. Contractor must also repair or replace all existing improvements that are damaged or removed during the Work, both on and off the Project site, including curbs, sidewalks, driveways, fences, signs, utilities, street surfaces and structures. Repairs and replacements must be at least equal to the previously existing improvements, and the condition, finish and dimensions must match the previously existing improvements. Contractor must restore to original condition all property or items that are not designated for alteration under the Contract Documents and leave each Worksite clean and ready for occupancy or use by City.

(F) ***Non-Compliance.*** If Contractor fails to comply with its maintenance and cleanup obligations or any City clean up order, City may, acting in its sole discretion, elect to suspend the Work until the condition(s) is corrected with no increase in the Contract Time

or Contract Price, or undertake appropriate cleanup measures without further notice and the cost will be deducted from any amounts due or to become due to Contractor.

7.10 Instructions and Manuals. Contractor must provide to City three copies each of all instructions and manuals required by the Contract Documents, unless otherwise specified. These must be complete as to drawings, details, parts lists, performance data, and other information that may be required for City to easily maintain and service the materials and equipment installed for this Project.

(A) ***Submittal Requirements.*** All manufacturers' application or installation instructions must be provided to City at least ten days prior to the first such application. The instructions and manuals, along with any required guarantees, must be delivered to City for review.

(B) ***Training.*** Contractor or its Subcontractors must train City's personnel in the operation and maintenance of any complex equipment or systems as a condition precedent to Final Completion, if required in the Contract Documents.

7.11 As-built Drawings. Contractor and its Subcontractors must prepare and maintain at the Project site a detailed, complete and accurate as-built set of the Plans which will be used solely for the purpose of recording changes made in any portion of the original Plans in order to create accurate record drawings at the end of the Project.

(A) ***Duty to Update.*** The as-built drawings must be updated as changes occur, on a daily basis if necessary. City may withhold the estimated cost for City to have the as-built drawings prepared from payments otherwise due to Contractor, until the as-built drawings are brought up to date to the satisfaction of City. Actual locations to scale must be identified on the as-built drawings for all runs of mechanical and electrical work, including all site utilities installed underground, in walls, floors, or otherwise concealed. Deviations from the original Plans must be shown in detail. The exact location of all main runs, whether piping, conduit, ductwork or drain lines, must be shown by dimension and elevation. The location of all buried pipelines, appurtenances, or other improvements must be represented by coordinates and by the horizontal distance from visible above-ground improvements.

(B) ***Final Completion.*** Contractor must verify that all changes in the Work are depicted in the as-built drawings and must deliver the complete set of as-built drawings to the Engineer for review and acceptance as a condition precedent to Final Completion and Final Payment.

7.12 Existing Utilities.

(A) ***General.*** The Work may be performed in developed, urban areas with existing utilities, both above and below ground, including utilities identified in the Contract Documents or in other informational documents or records. Contractor must take due care to locate identified or reasonably identifiable utilities before proceeding with trenching, excavation, or any other activity that could damage or disrupt existing utilities. This may include excavation with small equipment, potholing, or hand excavation, and, if practical, using white paint or other suitable markings to delineate the area to be excavated. Except as otherwise provided herein, Contractor will be responsible for costs resulting from damage to identified or reasonably identifiable utilities due to Contractor's negligence or failure to comply with the Contract Documents, including the requirements in this Article 7.

(B) ***Unidentified Utilities.*** Pursuant to Government Code § 4215, if, during the performance of the Work, Contractor discovers utility facilities not identified by City in the

Contract Documents, Contractor must immediately provide written notice to City and the utility. City assumes responsibility for the timely removal, relocation, or protection of existing main or trunkline utility facilities located on the Project site if those utilities are not identified in the Contract Documents. Contractor will be compensated in accordance with the provisions of the Contract Documents for the costs of locating, repairing damage not due to Contractor's failure to exercise reasonable care, and removing or relocating utility facilities not indicated in the Plans or Specifications with reasonable accuracy, and for equipment on the Project necessarily idled during such work. Contractor will not be assessed liquidated damages for delay in completion of the Work, to the extent the delay was caused by City's failure to provide for removal or relocation of the utility facilities.

7.13 Notice of Excavation. Contractor must comply with all applicable requirements in Government Code §§ 4216 through 4216.5, which are incorporated by reference herein. Government Code § 4216.2 requires that, except in an emergency, Contractor must contact the appropriate regional notification center, or Underground Services Alert, at least two working days, but not more than 14 calendar days, before starting any excavation if the excavation will be conducted in an area that is known, or reasonably should be known, to contain subsurface installations. Contractor may not begin excavation until it has obtained and submitted to Engineer an inquiry identification number from Underground Services Alert.

7.14 Trenching and Excavations of Four Feet or More. As required by Public Contract Code § 7104, if the Work includes digging trenches or other excavations that extend deeper than four feet below the surface, the provisions in this Section apply to the Work and the Project.

(A) ***Duty to Notify.*** Contractor must promptly, and before the following conditions are disturbed, provide written notice to City if Contractor finds any of the following conditions:

(1) Material that Contractor believes may be a hazardous waste, as defined in § 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing Laws;

(2) Subsurface or latent physical conditions at the Project site differing from those indicated by information about the Project site made available to bidders prior to the deadline for submitting bids; or

(3) Unknown physical conditions at the Project site of any unusual nature, materially different from those ordinarily encountered and generally recognized as inherent in work of the character required by the Contract Documents.

(B) ***City Investigation.*** City will promptly investigate the conditions and if City finds that the conditions materially differ from those indicated, apparent, or reasonably inferred from information about the Project site made available to bidders, or involve hazardous waste, and cause a decrease or increase in Contractor's cost of, or the time required for, performance of any part of the Work, City will issue a Change Order.

(C) ***Disputes.*** In the event that a dispute arises between City and Contractor regarding any of the conditions specified in subsection (B) above, or the terms of a Change Order issued by City, Contractor will not be excused from completing the Work within the Contract Time, but must proceed with all Work to be performed under the Contract. Contractor will retain any and all rights provided either by the Contract or by Laws which pertain to the resolution of disputes between Contractor and City.

7.15 Trenching of Five Feet or More. As required by Labor Code § 6705, if the Contract Price exceeds $25,000 and the Work includes the excavation of any trench or trenches of five feet or more in depth, a detailed plan must be submitted to City for acceptance in advance of the excavation. The detailed plan must show the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation. If the plan varies from the shoring system standards, it must be prepared by a California registered civil or structural engineer. Use of a shoring, sloping, or protective system less effective than that required by the Construction Safety Orders is prohibited.

7.16 New Utility Connections. Except as otherwise specified, City will pay connection charges and meter costs for new permanent utilities required by the Contract Documents, if any. Contractor must notify City sufficiently in advance of the time needed to request service from each utility provider so that connections and services are initiated in accordance with the Project schedule.

7.17 Lines and Grades. Contractor is required to use any benchmark provided by the Engineer. Unless otherwise specified in the Contract Documents, Contractor must provide all lines and grades required to execute the Work. Contractor must also provide, preserve, and replace if necessary, all construction stakes required for the Project. All stakes or marks must be set by a California licensed surveyor or a California registered civil engineer. Contractor must notify the Engineer of any discrepancies found between Contractor's staking and grading and information provided by the Contract Documents. Upon completion, all Work must conform to the lines, elevations, and grades shown in the Plans, including any changes directed by a Change Order.

7.18 Historic or Archeological Items.

(A) ***Contractor's Obligations.*** Contractor must ensure that all persons performing Work at the Project site are required to immediately notify the Project Manager, upon discovery of any potential historic or archeological items, including historic or prehistoric ruins, a burial ground, archaeological or vertebrate paleontological site, including fossilized footprints or other archeological, paleontological or historical feature on the Project site (collectively, "Historic or Archeological Items").

(B) ***Discovery; Cessation of Work.*** Upon discovery of any potential Historic or Archeological Items, Work must be stopped within an 85-foot radius of the find and may not resume until authorized in writing by City. If required by City, Contractor must assist in protecting or recovering the Historic or Archeological Items, with any such assistance to be compensated as Extra Work on a time and materials basis under Article 6, Contract Modification. At City's discretion, a suspension of Work required due to discovery of Historic or Archeological Items may be treated as Excusable Delay pursuant to Article 5, or as a suspension for convenience under Article 13.

7.19 Environmental Control. Contractor must not pollute any drainage course or its tributary inlets with fuels, oils, bitumens, acids, insecticides, herbicides or other harmful materials. Contractor must prevent the release of any hazardous material or hazardous waste into the soil or groundwater, and prevent the unlawful discharge of pollutants into City's storm drain system and watercourses as required below. Contractor and its Subcontractors must at all times in the performance of the Work comply with all Laws concerning pollution of waterways.

(A) ***Stormwater Permit.*** Contractor must comply with all applicable conditions of the State Water Resources Control Board National Pollutant Discharge Elimination

System General Permit for Waste Discharge Requirements for Discharges of Stormwater Runoff Associated with Construction Activity ("Stormwater Permit").

(B) ***Contractor's Obligations.*** If required for the Work, a copy of the Stormwater Permit is on file in City's principal administrative offices, and Contractor must comply with it without adjustment of the Contract Price or the Contract Time. Contractor must timely and completely submit required reports and monitoring information required by the conditions of the Stormwater Permit. Contractor also must comply with all other Laws governing discharge of stormwater, including applicable municipal stormwater management programs.

7.20 **Noise Control.** Contractor must comply with all applicable noise control Laws. Noise control requirements apply to all equipment used for the Work or related to the Work, including trucks, transit mixers or transient equipment that may or may not be owned by Contractor.

7.21 **Mined Materials.** Pursuant to the Surface Mining and Reclamation Act of 1975, Public Resources Code § 2710 et seq., any purchase of mined materials, such as construction aggregate, sand, gravel, crushed stone, road base, fill materials, and any other mineral materials must originate from a surface mining operation included on the AB 3098 List, which is available online at: ftp://ftp.consrv.ca.gov/pub/omr/AB3098%20List/AB3908List.pdf.

Article 8 - Payment

8.1 **Schedule of Values.** Prior to submitting its first application for payment, Contractor must prepare and submit to the Project Manager a schedule of values apportioned to the various divisions and phases of the Work, including mobilization and demobilization. If a Bid Schedule was submitted with Contractor's bid, the amounts in the schedule of values must be consistent with the Bid Schedule. Each line item contained in the schedule of values must be assigned a value such that the total of all items equals the Contract Price. The items must be sufficiently detailed to enable accurate evaluation of the percentage of completion claimed in each application for payment, and the assigned value consistent with any itemized or unit pricing submitted with Contractor's bid.

(A) ***Measurements for Unit Price Work.*** Materials and items of Work to be paid for on the basis of unit pricing will be measured according to the methods specified in the Contract Documents.

(B) ***Deleted or Reduced Work.*** Contractor will not be compensated for Work that City has deleted or reduced in scope, except for any labor, material or equipment costs for such Work that Contractor reasonably incurred before Contractor learned that the Work could be deleted or reduced. Contractor will only be compensated for those actual, direct and documented costs incurred, and will not be entitled to any mark up for overhead or lost profits.

8.2 **Progress Payments.** Following the last day of each month, or as otherwise required by the Special Conditions or Specifications, Contractor will submit to the Project Manager a monthly application for payment for Work performed during the preceding month based on the estimated value of the Work performed during that preceding month.

(A) ***Application for Payment.*** Each application for payment must be itemized to include labor, materials, and equipment incorporated into the Work, and materials and equipment delivered to the Project site, as well as authorized and approved Change Orders. Each payment application must be supported by the unit prices submitted with

Contractor's Bid Schedule and/or schedule of values and any other substantiating data required by the Contract Documents.

(B) ***Payment of Undisputed Amounts.*** City will pay the undisputed amount due within 30 days after Contractor has submitted a complete and accurate payment application, subject to Public Contract Code § 20104.50. City will deduct a percentage from each progress payment as retention, as set forth in Section 8.5, below, and may withhold additional amounts as set forth in Section 8.3, below.

8.3 Adjustment of Payment Application. City may adjust or reject the amount requested in a payment application, including application for Final Payment, in whole or in part, if the amount requested is disputed or unsubstantiated. Contractor will be notified in writing of the basis for the modification to the amount requested. City may also deduct or withhold from payment otherwise due based upon any of the circumstances and amounts listed below. Sums withheld from payment otherwise due will be released when the basis for that withholding has been remedied and no longer exists.

(A) For Contractor's unexcused failure to perform the Work as required by the Contract Documents, including correction or completion of punch list items, City may withhold or deduct an amount based on the City's estimated cost to correct or complete the Work.

(B) For loss or damage caused by Contractor or its Subcontractors arising out of or relating to performance of the Work or any failure to protect the Project site, City may deduct an amount based on the estimated cost to repair or replace.

(C) For Contractor's failure to pay its Subcontractors and suppliers when payment is due, City may withhold an amount equal to the total of past due payments and may opt to pay that amount separately via joint check pursuant to Section 8.6(B), Joint Checks.

(D) For Contractor's failure to timely correct rejected, nonconforming, or defective Work, City may withhold or deduct an amount based on the City's estimated cost to correct or complete the Work.

(E) For any unreleased stop notice, City may withhold 125% of the amount claimed.

(F) For Contractor's failure to submit any required schedule or schedule update in the manner and within the time specified in the Contract Documents, City may withhold an amount equal to five percent of the total amount requested until Contractor complies with its schedule submittal obligations.

(G) For Contractor's failure to maintain or submit as-built documents in the manner and within the time specified in the Contract Documents, City may withhold or deduct an amount based on the City's cost to prepare the as-builts.

(H) For Work performed without Shop Drawings that have been accepted by City, when accepted Shop Drawings are required before proceeding with the Work, City may deduct an amount based on the estimated costs to correct unsatisfactory Work or diminution in value.

(I) For fines, payments, or penalties assessed under the Labor Code, City may deduct from payments due to Contractor as required by Laws and as directed by the Division of Labor Standards Enforcement.

(J) For any other costs or charges that may be withheld or deducted from payments to Contractor, as provided in the Contract Documents, including liquidated damages, City may withhold or deduct such amounts from payment otherwise due to Contractor.

8.4 Early Occupancy. Neither City's payment of progress payments nor its partial or full use or occupancy of the Project constitutes acceptance of any part of the Work.

8.5 Retention. City will retain five percent of the full amount due on each progress payment (i.e., the amount due before any withholding or deductions pursuant to Section 8.3, Adjustment to Payment Application), or the percentage stated in the Notice Inviting Bids, whichever is greater, as retention to ensure full and satisfactory performance of the Work. Contractor is not entitled to any reduction in the rate of withholding at any time, nor to release of any retention before 35 days following City's acceptance of the Project.

(A) ***Substitution of Securities.*** As provided by Public Contract Code § 22300, Contractor may request in writing that it be allowed, at its sole expense, to substitute securities for the retention withheld by City. Any escrow agreement entered into pursuant to this provision must fully comply with Public Contract Code § 22300 and will be subject to approval as to form by City's legal counsel. If City exercises its right to draw upon such securities in the event of default pursuant to section (7) of the statutory Escrow Agreement for Security Deposits in Lieu of Retention, pursuant to subdivision (f) of Public Contract Code § 22300 ("Escrow Agreement"), and if Contractor disputes that it is in default, its sole remedy is to comply with the dispute resolution procedures in Article 12 and the provisions therein. It is agreed that if any individual authorized to give or receive written notice on behalf of a party pursuant to section (10) of the Escrow Agreement are unavailable to give or receive notice on behalf of that party due to separation from employment, retirement, death, or other circumstances, the successor or delegee of the named individual is deemed to be the individual authorized to give or receive notice pursuant to section (10) of the Escrow Agreement.

(B) ***Release of Undisputed Retention.*** All undisputed retention, less any amounts that may be assessed as liquidated damages, retained for stop notices, or otherwise withheld pursuant to Section 8.3, Adjustment of Payment Application, will be released as Final Payment to Contractor no sooner than 35 days following recordation of the notice of completion, and no later than 60 days following acceptance of the Project by City's governing body or authorized designee pursuant to Section 11.1(C), Acceptance, or, if the Project has not been accepted, no later than 60 days after the Project is otherwise considered complete pursuant to Public Contract Code § 7107(c).

8.6 Payment to Subcontractors and Suppliers. Each month, Contractor must promptly pay each Subcontractor and supplier the value of the portion of labor, materials, and equipment incorporated into the Work or delivered to the Project site by the Subcontractor or supplier during the preceding month. Such payments must be made in accordance with the requirements of Laws pertaining to such payments, and those of the Contract Documents and applicable subcontract or supplier contract.

(A) ***Withholding for Stop Notice.*** Pursuant to Civil Code § 9358, City will withhold 125% of the amount claimed by an unreleased stop notice, a portion of which may be retained by City for the costs incurred in handling the stop notice claim, including attorneys' fees and costs, as authorized by law.

(B) ***Joint Checks.*** City reserves the right, acting in its sole discretion, to issue joint checks made payable to Contractor and a Subcontractor or supplier, if City determines this is necessary to ensure fair and timely payment for a Subcontractor or supplier who has provided services or goods for the Project. As a condition to release of payment by a joint check, the joint check payees may be required to execute a joint check agreement in

a form provided or approved by the City Attorney's Office. The joint check payees will be jointly and severally responsible for the allocation and disbursement of funds paid by joint check. Payment by joint check will not be construed to create a contractual relationship between City and a Subcontractor or supplier of any tier beyond the scope of the joint check agreement.

8.7 **Final Payment.** Contractor's application for Final Payment must comply with the requirements for submitting an application for a progress payment as stated in Section 8.2, above. Corrections to previous progress payments, including adjustments to estimated quantities for unit priced items, may be included in the Final Payment. If Contractor fails to submit a timely application for Final Payment, City reserves the right to unilaterally process and issue Final Payment without an application from Contractor in order to close out the Project. For the purposes of determining the deadline for Claim submission pursuant to Article 12, the date of Final Payment is deemed to be the date that City acts to release undisputed retention as final payment to Contractor, or otherwise provides written notice to Contractor of Final Payment or that no undisputed funds remain available for Final Payment due to offsetting withholdings or deductions pursuant to Section 8.3, Adjustment of Payment Application. If the amount due from Contractor to City exceeds the amount of Final Payment, City retains the right to recover the balance from Contractor or its sureties.

8.8 **Release of Claims.** City may, at any time, require that payment of the undisputed portion of any progress payment or Final Payment be contingent upon Contractor furnishing City with a written waiver and release of all claims against City arising from or related to the portion of Work covered by those undisputed amounts subject to the limitations of Public Contract Code § 7100. Any disputed amounts may be specifically excluded from the release.

8.9 **Warranty of Title.** Contractor warrants that title to all work, materials, or equipment incorporated into the Work and included in a request for payment will pass over to City free of any claims, liens, or encumbrances upon payment to Contractor.

Article 9 - Labor Provisions

9.1 **Discrimination Prohibited.** Discrimination against any prospective or present employee engaged in the Work on grounds of race, color, ancestry, national origin, ethnicity, religion, sex, sexual orientation, age, disability, or marital status is strictly prohibited. Contractor and its Subcontractors are required to comply with all applicable Laws prohibiting discrimination, including the California Fair Employment and Housing Act (Govt. Code § 12900 et seq.), Government Code § 11135, and Labor Code §§ 1735, 1777.5, 1777.6, and 3077.5.

9.2 **Labor Code Requirements.**

(A) ***Eight Hour Day.*** Pursuant to Labor Code § 1810, eight hours of labor constitute a legal day's work under this Contract.

(B) ***Penalty.*** Pursuant to Labor Code § 1813, Contractor will forfeit to City as a penalty, the sum of $25.00 for each day during which a worker employed by Contractor or any Subcontractor is required or permitted to work more than eight hours in any one calendar day or more than 40 hours per calendar week, except if such workers are paid overtime under Labor Code § 1815.

(C) ***Apprentices.*** Contractor is responsible for compliance with the requirements governing employment and payment of apprentices, as set forth in Labor Code § 1777.5, which is fully incorporated by reference.

(D) ***Notices.*** Pursuant to Labor Code § 1771.4, Contractor is required to post all job site notices prescribed by Laws.

9.3 Prevailing Wages. Each worker performing Work under this Contract that is covered under Labor Code §§ 1720 or 1720.9, including cleanup at the Project site, must be paid at a rate not less than the prevailing wage as defined in §§ 1771 and 1774 of the Labor Code. The prevailing wage rates are on file with the City and available online at http://www.dir.ca.gov/dlsr. Contractor must post a copy of the applicable prevailing rates at the Project site.

(A) ***Penalties.*** Pursuant to Labor Code § 1775, Contractor and any Subcontractor will forfeit to City as a penalty up to $200.00 for each calendar day, or portion a day, for each worker paid less than the applicable prevailing wage rate. Contractor must also pay each worker the difference between the applicable prevailing wage rate and the amount actually paid to that worker.

(B) ***Federal Requirements.*** If this Project is subject to federal prevailing wage requirements in addition to California prevailing wage requirements, Contractor and its Subcontractors are required to pay the higher of the currently applicable state or federal prevailing wage rates.

9.4 Payroll Records. Contractor must comply with the provisions of Labor Code §§ 1776 and 1812 and all implementing regulations, which are fully incorporated by this reference, including requirements for electronic submission of payroll records to the DIR.

(A) ***Contractor and Subcontractor Obligations***. Contractor and each Subcontractor must keep 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 in connection with the Work. Each payroll record must contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:

(1) The information contained in the payroll record is true and correct; and

(2) Contractor or the Subcontractor has complied with the requirements of Labor Code §§ 1771, 1811, and 1815 for any Work performed by its employees on the Project.

(B) ***Certified Record.*** A certified copy of an employee's payroll record must be made available for inspection or furnished to the employee or his or her authorized representative on request, to City, to the Division of Labor Standards Enforcement, to the Division of Apprenticeship Standards of the DIR, and as further required by the Labor Code.

(C) ***Enforcement.*** Upon notice of noncompliance with Labor Code § 1776, Contractor or Subcontractor has ten days in which to comply with the requirements of this section. If Contractor or Subcontractor fails to do so within the ten-day period, Contractor or Subcontractor will forfeit a penalty of $100.00 per day, or portion a day, for each worker for whom compliance is required, until strict compliance is achieved. Upon request by the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement, these penalties will be withheld from payments then due to Contractor.

9.5 Labor Compliance. Pursuant to Labor Code § 1771.4, the Contract for this Project is subject to compliance monitoring and enforcement by the DIR.

Article 10 - Safety Provisions

10.1 Safety Precautions and Programs. Contractor and its Subcontractors are fully responsible for safety precautions and programs, and for the safety of persons and property in the performance of the Work. Contractor and its Subcontractors must at all times comply with all applicable safety Laws and seek to avoid injury, loss, or damage to persons or property by taking reasonable steps to protect its employees and other persons at any Worksite, materials and equipment stored on or off site, and property at or adjacent to any Worksite.

(A) ***Reporting Requirements.*** Contractor must immediately notify the City of any death, serious injury or illness resulting from Work on the Project. Contractor must immediately provide a written report to City of each recordable accident or injury occurring at any Worksite within 24 hours of the occurrence. The written report must include: (1) the name and address of the injured or deceased person; (2) the name and address of each employee of Contractor or of any Subcontractor involved in the incident; (3) a detailed description of the incident, including precise location, time, and names and contact information for known witnesses; and (4) a police or first responder report, if applicable. If Contractor is required to file an accident report with a government agency, Contractor will provide a copy of the report to City.

(B) ***Legal Compliance.*** Contractor's safety program must comply with the applicable legal and regulatory requirements. Contractor must provide City with copies of all notices required by Laws.

(C) ***Contractor's Obligations.*** Any damage or loss caused by Contractor arising from the Work which is not insured under property insurance must be promptly remedied by Contractor.

(D) ***Remedies.*** If City determines, in its sole discretion, that any part of the Work or Project site is unsafe, City may, without assuming responsibility for Contractor's safety program, require Contractor or its Subcontractor to cease performance of the Work or to take corrective measures to City's satisfaction. If Contractor fails to promptly take the required corrective measures, City may perform them and deduct the cost from the Contract Price. Contractor agrees it is not entitled to submit a Claim for damages, for an increase in Contract Price, or for a change in Contract Time based on Contractor's compliance with City's request for corrective measures pursuant to this provision.

10.2 Hazardous Materials. Unless otherwise specified in the Contract Documents, this Contract does not include the removal, handling, or disturbance of any asbestos or other Hazardous Materials. If Contractor encounters materials on the Project site that Contractor reasonably believes to be asbestos or other Hazardous Materials, and the asbestos or other Hazardous Materials have not been rendered harmless, Contractor may continue Work in unaffected areas reasonably believed to be safe, but must immediately cease work on the area affected and report the condition to City. No asbestos, asbestos-containing products or other Hazardous Materials may be used in performance of the Work.

10.3 Material Safety. Contractor is solely responsible for complying with § 5194 of Title 8 of the California Code of Regulations, including by providing information to Contractor's employees about any hazardous chemicals to which they may be exposed in the course

of the Work. A hazard communication program and other forms of warning and training about such exposure must be used. Contractor must also maintain Safety Data Sheets ("SDS") at the Project site, as required by Laws, for materials or substances used or consumed in the performance of the Work. The SDS will be accessible and available to Contractor's employees, Subcontractors, and City.

(A) ***Contractor Obligations.*** Contractor is solely responsible for the proper delivery, handling, use, storage, removal, and disposal of all materials brought to the Project site and/or used in the performance of the Work. Contractor must notify the Engineer if a specified product or material cannot be used safely.

(B) ***Labeling.*** Contractor must ensure proper labeling on any material brought onto the Project site so that any persons working with or in the vicinity of the material may be informed as to the identity of the material, any potential hazards, and requirements for proper handling, protections, and disposal.

10.4 Hazardous Condition. Contractor is solely responsible for determining whether a hazardous condition exists or is created during the course of the Work, involving a risk of bodily harm to any person or risk of damage to any property. If a hazardous condition exists or is created, Contractor must take all precautions necessary to address the condition and ensure that the Work progresses safely under the circumstances. Hazardous conditions may result from, but are not limited to, use of specified materials or equipment, the Work location, the Project site condition, the method of construction, or the way any Work must be performed.

10.5 Emergencies. In an emergency affecting the safety or protection of persons, Work, or property at or adjacent to any Worksite, Contractor must take reasonable and prompt actions to prevent damage, injury, or loss, without prior authorization from the City if, under the circumstances, there is inadequate time to seek prior authorization from the City.

Article 11 - Completion and Warranty Provisions

11.1 Final Completion.

(A) ***Final Inspection and Punch List.*** When the Work required by this Contract is fully performed, Contractor must provide written notification to City requesting final inspection. The Engineer will schedule the date and time for final inspection, which must include Contractor's primary representative for this Project and its superintendent. Based on that inspection, City will prepare a punch list of any items that are incomplete, missing, defective, incorrectly installed, or otherwise not compliant with the Contract Documents. The punch list to Contractor will specify the time by which all of the punch list items must be completed or corrected. The punch list may include City's estimated cost to complete each punch list item if Contractor fails to do so within the specified time. The omission of any non-compliant item from a punch list will not relieve Contractor from fulfilling all requirements of the Contract Documents. Contractor's failure to complete any punch list item within the time specified in the punch list will not waive or abridge its warranty obligations for any such items that must be completed by the City or by a third party retained by the City due to Contractor's failure to timely complete any such outstanding item.

(B) ***Requirements for Final Completion.*** Final Completion will be achieved upon completion or correction of all punch list items, as verified by City's further inspection, and upon satisfaction of all other Contract requirements, including any commissioning required under the Contract Documents and submission of all final submittals, including a

warranty bond as required under Section 4.4, instructions and manuals as required under Section 7.10, and complete, final as-built drawings as required under Section 7.11, all to City's satisfaction.

(C) ***Acceptance.*** The Project will be considered accepted upon City Council action during a public meeting to accept the Project, unless the Engineer is authorized to accept the Project, in which case the Project will be considered accepted upon the date of the Engineer's issuance of a written notice of acceptance. In order to avoid delay of Project close out, the City may elect, acting in its sole discretion, to accept the Project as complete subject to exceptions for punch list items that are not completed within the time specified in the punch list.

(D) ***Final Payment and Release of Retention.*** Final Payment and release of retention, less any sums withheld pursuant to the provisions of the Contract Documents, will not be made sooner than 35 days after recordation of the notice of completion. If Contractor fails to complete all of the punch list items within the specified time, City may withhold up to 150% of City's estimated cost to complete each of the remaining items from Final Payment and may use the withheld retention to pay for the costs to self-perform the outstanding items or to retain a third party to complete any such outstanding punch list item.

11.2 Warranty.

(A) ***General.*** Contractor warrants that all materials and equipment will be new unless otherwise specified, of good quality, in conformance with the Contract Documents, and free from defective workmanship and materials. Contractor further warrants that the Work will be free from material defects not intrinsic in the design or materials required in the Contract Documents. Contractor warrants that materials or items incorporated into the Work comply with the requirements and standards in the Contract Documents, including compliance with Laws, and that any Hazardous Materials encountered or used were handled as required by Laws. At City's request, Contractor must furnish satisfactory evidence of the quality and type of materials and equipment furnished. Contractor's warranty does not extend to damage caused by normal wear and tear, or improper use or maintenance.

(B) ***Warranty Period.*** Contractor's warranty must guarantee its Work for a period of one year from the date of Project acceptance (the "Warranty Period"), except when a longer guarantee is provided by a supplier or manufacturer or is required by the Specifications or Special Conditions. Contractor must obtain from its Subcontractors, suppliers and manufacturers any special or extended warranties required by the Contract Documents.

(C) ***Warranty Documents.*** As a condition precedent to Final Completion, Contractor must supply City with all warranty and guarantee documents relevant to equipment and materials incorporated into the Work and guaranteed by their suppliers or manufacturers.

(D) ***Subcontractors.*** The warranty obligations in the Contract Documents apply to Work performed by Contractor and its Subcontractors, and Contractor agrees to be co-guarantor of such Work.

(E) ***Contractor's Obligations.*** Upon written notice from City to Contractor of any defect in the Work discovered during the Warranty Period, Contractor or its responsible Subcontractor must promptly correct the defective Work at its own cost. Contractor's obligation to correct defects discovered during the Warranty Period will continue past the expiration of the Warranty Period as to any defects in Work for which Contractor was

notified prior to expiration of the Warranty Period. Work performed during the Warranty Period ("Warranty Work") will be subject to the warranty provisions in this Section 11.2 for a one-year period that begins upon completion of such Warranty Work to City's satisfaction.

(F) ***City's Remedies.*** If Contractor or its responsible Subcontractor fails to correct defective Work within ten days following notice by City, or sooner if required by the circumstances, City may correct the defects to conform with the Contract Documents at Contractor's sole expense. Contractor must reimburse City for its costs in accordance with subsection (H), below.

(G) ***Emergency Repairs.*** In cases of emergency where any delay in correcting defective Work could cause harm, loss or damage, City may immediately correct the defects to conform with the Contract Documents at Contractor's sole expense. Contractor or its surety must reimburse City for its costs in accordance with subsection (H), below.

(H) ***Reimbursement.*** Contractor must reimburse City for its costs to repair under subsections (F) or (G), above, within 30 days following City's submission of a demand for payment pursuant to this provision. If City is required to initiate legal action to compel Contractor's compliance with this provision, and City is the prevailing party in such action, Contractor and its surety are solely responsible for all of City's attorney's fees and legal costs expended to enforce Contractor's warranty obligations herein in addition to any and all costs City incurs to correct the defective Work.

11.3 **Use Prior to Final Completion.** City reserves the right to occupy or make use of the Project, or any portions of the Project, prior to Final Completion if City has determined that the Project or portion of it is in a condition suitable for the proposed occupation or use, and that it is in its best interest to occupy or make use of the Project, or any portions of it, prior to Final Completion. City will notify Contractor in writing of its intent to occupy or make use of the Project or any portions of the Project, pursuant to this provision.

(A) ***Non-Waiver.*** Occupation or use of the Project, in whole or in part, prior to Final Completion will not operate as acceptance of the Work or any portion of it, nor will it operate as a waiver of any of City's rights or Contractor's duties pursuant to these Contract Documents, and will not affect nor bear on the determination of the time of substantial completion with respect to any statute of repose pertaining to the time for filing an action for construction defect.

(B) ***City's Responsibility.*** City will be responsible for the cost of maintenance and repairs due to normal wear and tear with respect to those portions of the Project that are being occupied or used before Final Completion. The Contract Price or the Contract Time may be adjusted pursuant to the applicable provisions of these Contract Documents if, and only to the extent that, any occupation or use under this Section actually adds to Contractor's cost or time to complete the Work within the Contract Time.

11.4 **Substantial Completion.** For purposes of determining "substantial completion" with respect to any statute of repose pertaining to the time for filing an action for construction defect, "substantial completion" is deemed to mean the last date that Contractor or any Subcontractor performs Work on the Project prior to City acceptance of the Project, except for warranty work performed under this Article.

Article 12 - Dispute Resolution

12.1 **Claims.** This Article applies to and provides the exclusive procedures for any Claim arising from or related to the Contract or performance of the Work.

(A) ***Definition.*** "Claim" means a separate demand by Contractor, submitted in writing by registered or certified mail with return receipt requested, for a change in the Contract Time, including a time extension or relief from liquidated damages, or a change in the Contract Price, when the demand has previously been submitted to City in accordance with the requirements of the Contract Documents, and which has been rejected or disputed by City, in whole or in part. A Claim may also include that portion of a unilateral Change Order that is disputed by the Contractor.

(B) ***Limitations.*** A Claim may only include the portion of a previously rejected demand that remains in dispute between Contractor and City. With the exception of any dispute regarding the amount of money actually paid to Contractor as Final Payment, Contractor is not entitled to submit a Claim demanding a change in the Contract Time or the Contract Price, which has not previously been submitted to City in full compliance with Article 5 and Article 6, and subsequently rejected in whole or in part by City.

(C) ***Scope of Article.*** This Article is intended to provide the exclusive procedures for submission and resolution of Claims of any amount and applies in addition to the provisions of Public Contract Code § 9204 and § 20104 et seq., which are incorporated by reference herein.

(D) ***No Work Delay.*** Notwithstanding the submission of a Claim or any other dispute between the parties related to the Project or the Contract Documents, Contractor must perform the Work and may not delay or cease Work pending resolution of a Claim or other dispute, but must continue to diligently prosecute the performance and timely completion of the Work, including the Work pertaining to the Claim or other dispute.

(E) ***Informal Resolution.*** Contractor will make a good faith effort to informally resolve a dispute before initiating a Claim, preferably by face-to-face meeting between authorized representatives of Contractor and City.

12.2 Claims Submission. The following requirements apply to any Claim subject to this Article:

(A) ***Substantiation.*** The Claim must be submitted to City in writing, clearly identified as a "Claim" submitted pursuant to this Article 12 and must include all of the documents necessary to substantiate the Claim including the Change Order request that was rejected in whole or in part, and a copy of City's written rejection that is in dispute. The Claim must clearly identify and describe the dispute, including relevant references to applicable portions of the Contract Documents, and a chronology of relevant events. Any Claim for additional payment must include a complete, itemized breakdown of all known or estimated labor, materials, taxes, insurance, and subcontract, or other costs. Substantiating documentation such as payroll records, receipts, invoices, or the like, must be submitted in support of each component of claimed cost. Any Claim for an extension of time or delay costs must be substantiated with a schedule analysis and narrative depicting and explaining claimed time impacts.

(B) ***Claim Format and Content.*** A Claim must be submitted in the following format:

(1) Provide a cover letter, specifically identifying the submission as a "Claim" submitted under this Article 12 and specifying the requested remedy (e.g., amount of proposed change to Contract Price and/or change to Contract Time).

(2) Provide a summary of each Claim, including underlying facts and the basis for entitlement, and identify each specific demand at issue, including the specific

Change Order request (by number and submittal date), and the date of City's rejection of that demand, in whole or in part.

(3) Provide a detailed explanation of each issue in dispute. For multiple issues included within a single Claim or for multiple Claims submitted concurrently, separately number and identify each individual issue or Claim, and include the following for each separate issue or Claim:

a. A succinct statement of the matter in dispute, including Contractor's position and the basis for that position;

b. Identify and attach all documents that substantiate the Claim, including relevant provisions of the Contract Documents, RFIs, calculations, and schedule analysis (see subsection (A), Substantiation, above);

c. A chronology of relevant events; and

d. Analysis and basis for claimed changes to Contract Price, Contract Time, or any other remedy requested.

(4) Provide a summary of issues and corresponding claimed damages. If, by the time of the Claim submission deadline (below), the precise amount of the requested change in the Contract Price or Contract Time is not yet known, Contractor must provide a good faith estimate, including the basis for that estimate, and must identify the date by which it is anticipated that the Claim will be updated to provide final amounts.

(5) Include the following certification, executed by Contractor's authorized representative:

"The undersigned Contractor certifies under penalty of perjury that its statements and representations in this Claim submittal are true and correct. Contractor warrants that this Claim submittal is comprehensive and complete as to the matters in dispute, and agrees that any costs, expenses, or delay not included herein are deemed waived."

(C) ***Submission Deadlines.***

(1) A Claim disputing rejection of a request for a change in the Contract Time or Contract Price must be submitted within 15 days following the date that City notified Contractor in writing that a request for a change in the Contract Time or Contract Price, duly submitted in compliance with Article 5 and Article 6, has been rejected in whole or in part. A Claim disputing the terms of a unilateral Change Order must be submitted within 15 days following the date of issuance of the unilateral Change Order. These Claim deadlines apply even if Contractor cannot yet quantify the total amount of any requested change in the Contract Time or Contract Price. If the Contractor cannot quantify those amounts, it must submit an estimate of the amounts claimed pending final determination of the requested remedy by Contractor.

(2) With the exception of any dispute regarding the amount of Final Payment, any Claim must be filed on or before the date of Final Payment or will be deemed waived.

(3) A Claim disputing the amount of Final Payment must be submitted within 15 days of the effective date of Final Payment, under Section 8.7, Final Payment.

(4) Strict compliance with these Claim submission deadlines is necessary to ensure that any dispute may be mitigated as soon as possible, and to facilitate cost-efficient administration of the Project. ***Any Claim that is not submitted within the specified deadlines will be deemed waived by Contractor.***

12.3 City's Response. City will respond within 45 days of receipt of the Claim with a written statement identifying which portion(s) of the Claim are disputed, unless the 45-day period is extended by mutual agreement of City and Contractor or as otherwise allowed under Public Contract Code § 9204. However, if City determines that the Claim is not adequately substantiated pursuant to Section 12.2(A), Substantiation, City may first request in writing, within 30 days of receipt of the Claim, any additional documentation supporting the Claim or relating to defenses to the Claim that City may have against the Claim.

(A) ***Additional Information.*** If additional information is thereafter required, it may be requested and provided upon mutual agreement of City and Contractor. If Contractor's Claim is based on estimated amounts, Contractor has a continuing duty to update its Claim as soon as possible with information on actual amounts in order to facilitate prompt and fair resolution of the Claim.

(B) ***Non-Waiver.*** Any failure by City to respond within the times specified above will not be construed as acceptance of the Claim, in whole or in part, or as a waiver of any provision of these Contract Documents.

12.4 Meet and Confer. If Contractor disputes City's written response, or City fails to respond within the specified time, within 15 days of receipt of City's response or within 15 days of City's failure to respond within the applicable 45-day time period under Section 12.3, respectively, Contractor may notify City of the dispute in writing sent by registered or certified mail, return receipt requested, and demand an informal conference to meet and confer for settlement of the issues in dispute. If Contractor fails to dispute City's response in writing within the specified time, Contractor's Claim will be deemed waived.

(A) ***Schedule Meet and Confer.*** Upon receipt of the demand to meet and confer, City will schedule the meet and confer conference to be held within 30 days, or later if needed to ensure the mutual availability of each of the individuals that each party requires to represent its interests at the meet and confer conference.

(B) ***Location for Meet and Confer.*** The meet and confer conference will be scheduled at a location at or near City's principal office.

(C) ***Written Statement After Meet and Confer.*** Within ten working days after the meet and confer has concluded, City will issue a written statement identifying which portion(s) of the Claim remain in dispute, if any.

(D) ***Submission to Mediation.*** If the Claim or any portion remains in dispute following the meet and confer conference, within ten working days after the City issues the written statement identifying any portion(s) of the Claim remaining in dispute, the Contractor may identify in writing disputed portion(s) of the Claim, which will be submitted for mediation, as set forth below.

12.5 Mediation and Government Code Claims.

(A) ***Mediation.*** Within ten working days after the City issues the written statement identifying any portion(s) of the Claim remaining in dispute following the meet and confer, City and Contractor will mutually agree to a mediator, as provided under Public Contract Code § 9204. Mediation will be scheduled to ensure the mutual availability of the selected mediator and all of the individuals that each party requires to represent its interests. If there are multiple Claims in dispute, the parties may agree to schedule the mediation to address all outstanding Claims at the same time. The parties will share the costs of the mediator and mediation fees equally, but each party is otherwise solely and separately responsible for its own costs to prepare for and participate in the mediation, including costs for its legal counsel or any other consultants.

(B) ***Government Code Claims*.**

(1) Timely presentation of a Government Code Claim is a condition precedent to filing any legal action based on or arising from the Contract. Compliance with the Claim submission requirements in this Article 12 is a condition precedent to filing a Government Code Claim.

(2) The time for filing a Government Code Claim will be tolled from the time Contractor submits its written Claim pursuant to Section 12.2, above, until the time that Claim is denied in whole or in part at the conclusion of the meet and confer process, including any period of time used by the meet and confer process. However, if the Claim is submitted to mediation, the time for filing a Government Code Claim will be tolled until conclusion of the mediation, including any continuations, if the Claim is not fully resolved by mutual agreement of the parties during the mediation or any continuation of the mediation.

12.6 Tort Claims. This Article does not apply to tort claims and nothing in this Article is intended nor will be construed to change the time periods for filing tort-based Government Code Claims.

12.7 Arbitration. It is expressly agreed, under Code of Civil Procedure § 1296, that in any arbitration to resolve a dispute relating to this Contract, the arbitrator's award must be supported by law and substantial evidence.

12.8 Burden of Proof and Limitations. Contractor bears the burden of proving entitlement to and the amount of any claimed damages. Contractor is not entitled to damages calculated on a total cost basis, but must prove actual damages. Contractor is not entitled to speculative, special, or consequential damages, including home office overhead or any form of overhead not directly incurred at the Project site or any other Worksite; lost profits; loss of productivity; lost opportunity to work on other projects; diminished bonding capacity; increased cost of financing for the Project; extended capital costs; non-availability of labor, material or equipment due to delays; or any other indirect loss arising from the Contract. The Eichleay Formula or similar formula will not be used for any recovery under the Contract. The City will not be directly liable to any Subcontractor or supplier.

12.9 Legal Proceedings. In any legal proceeding that involves enforcement of any requirements of the Contract Documents, the finder of fact will receive detailed instructions on the meaning and operation of the Contract Documents, including conditions, limitations of liability, remedies, claim procedures, and other provisions bearing on the defenses and theories of liability. Detailed findings of fact will be requested to verify enforcement of the Contract Documents. All of the City's remedies under the Contract Documents will be construed as cumulative, and not exclusive, and the City reserves all rights to all remedies available under law or equity as to any dispute arising from or relating to the Contract Documents or performance of the Work.

12.10 Other Disputes. The procedures in this Article 12 will apply to any and all disputes or legal actions, in addition to Claims, arising from or related to this Contract, including disputes regarding suspension or early termination of the Contract, unless and only to the extent that compliance with a procedural requirement is expressly and specifically waived by City. Nothing in this Article is intended to delay suspension or termination under Article 13.

Article 13 - Suspension and Termination

13.1 Suspension for Cause. In addition to all other remedies available to City, if Contractor fails to perform or correct Work in accordance with the Contract Documents, including non-compliance with applicable environmental or health and safety Laws, City may immediately order the Work, or any portion of it, suspended until the circumstances giving rise to the suspension have been eliminated to City's satisfaction.

(A) ***Failure to Comply.*** Contractor will not be entitled to an increase in the Contract Time or Contract Price for a suspension occasioned by Contractor's failure to comply with the Contract Documents.

(B) ***No Duty to Suspend.*** City's right to suspend the Work will not give rise to a duty to suspend the Work, and City's failure to suspend the Work will not constitute a defense to Contractor's failure to comply with the requirements of the Contract Documents.

13.2 Suspension for Convenience. City reserves the right to suspend, delay, or interrupt the performance of the Work in whole or in part, for a period of time determined to be appropriate for City's convenience. Upon notice by City pursuant to this provision, Contractor must immediately suspend, delay, or interrupt the Work and secure the Project site as directed by City except for taking measures to protect completed or in-progress Work as directed in the suspension notice. The Contract Price and the Contract Time will be equitably adjusted by Change Order pursuant to the terms of Articles 5 and 6 to reflect the cost and delay impact occasioned by such suspension for convenience, except to the extent that any such impacts were caused by Contractor's failure to comply with the Contract Documents or the terms of suspension notice. However, the time for completing the Project will only be extended if the suspension causes or will cause delay in Final Completion. If Contractor disputes the terms of a Change Order issued for such equitable adjustment due to suspension, its sole recourse is to comply with the Claim procedures in Article 12.

13.3 Termination for Default. City may declare that Contractor is in default of the Contract for a material breach of or inability to fully, promptly, or satisfactorily perform its obligations under the Contract.

(A) ***Default.*** Events giving rise to a declaration of default include Contractor's refusal or failure to supply sufficient skilled workers, proper materials, or equipment to perform the Work within the Contract Time; Contractor's refusal or failure to make prompt payment to its employees, Subcontractors, or suppliers or to correct defective Work or damage; Contractor's failure to comply with Laws, or orders of any public agency with jurisdiction over the Project; evidence of Contractor's bankruptcy, insolvency, or lack of financial capacity to complete the Work as required within the Contract Time; suspension, revocation, or expiration and nonrenewal of Contractor's license or DIR registration; dissolution, liquidation, reorganization, or other major change in Contractor's organization, ownership, structure, or existence as a business entity; unauthorized assignment of Contractor's rights or duties under the Contract; or any material breach of the Contract requirements.

(B) ***Notice of Default and Opportunity to Cure.*** Upon City's declaration that Contractor is in default due to a material breach of the Contract Documents, if City determines that the default is curable, City will afford Contractor the opportunity to cure the default within ten days of City's notice of default, or within a period of time reasonably necessary for such cure, including a shorter period of time if applicable.

(C) ***Termination.*** If Contractor fails to cure the default or fails to expediently take steps reasonably calculated to cure the default within the time period specified in the notice of default, City may issue written notice to Contractor and its performance bond surety of City's termination of the Contract for default.

(D) ***Waiver.*** Time being of the essence in the performance of the Work, if Contractor's surety fails to arrange for completion of the Work in accordance with the Performance Bond within seven calendar days from the date of the notice of termination pursuant to paragraph (C), City may immediately make arrangements for the completion of the Work through use of its own forces, by hiring a replacement contractor, or by any other means that City determines advisable under the circumstances. Contractor and its surety will be jointly and severally liable for any additional cost incurred by City to complete the Work following termination, where "additional cost" means all cost in excess of the cost City would have incurred if Contactor had timely completed Work without the default and termination. In addition, City will have the right to immediate possession and use of any materials, supplies, and equipment procured for the Project and located at the Project site or any Worksite on City property for the purposes of completing the remaining Work.

(E) ***Compensation.*** Within 30 days of receipt of updated as-builts, all warranties, manuals, instructions, or other required documents for Work installed to date, and delivery to City of all equipment and materials for the Project for which Contractor has already been compensated, Contractor will be compensated for the Work satisfactorily performed in compliance with the Contract Documents up to the effective date of the termination pursuant to the terms of Article 8, Payment, subject to City's rights to withhold or deduct sums from payment otherwise due pursuant to Section 8.3, and excluding any costs Contractor incurs as a result of the termination, including any cancellation or restocking charges or fees due to third parties. If Contractor disputes the amount of compensation determined by City, its sole recourse is to comply with the Claim Procedures in Article 12, by submitting a Claim no later than 30 days following notice from City of the total compensation to be paid by City.

(F) ***Wrongful Termination.*** If Contractor disputes the termination, its sole recourse is to comply with the Claim procedures in Article 12. If a court of competent jurisdiction or an arbitrator later determines that the termination for default was wrongful, the termination will be deemed to be a termination for convenience, and Contractor's damages will be strictly limited to the compensation provided for termination for convenience under Section 13.4, below. Contractor waives any claim for any other damages for wrongful termination including special or consequential damages, lost opportunity costs, or lost profits, and any award of damages is subject to Section 12.8, Burden of Proof and Limitations.

13.4 Termination for Convenience. City reserves the right to terminate all or part of the Contract for convenience upon written notice to Contractor.

(A) ***Compensation to Contractor.*** In the event of City's termination for convenience, Contractor waives any claim for damages, including for loss of anticipated profits from the Project. The following will constitute full and fair compensation to Contractor, and Contractor will not be entitled to any additional claim or compensation:

(1) *Completed Work.* The value of its Work satisfactorily performed as of the date notice of termination is received, based on Contractor's schedule of values and unpaid costs for items delivered to the Project site that were fabricated for incorporation in the Work;

(2) *Demobilization.* Demobilization costs specified in the schedule of values, or if demobilizations cost were not provided in a schedule of values pursuant to Section 8.1, then based on actual, reasonable, and fully documented demobilization costs; and

(3) *Termination Markup.* Five percent of the total value of the Work performed as of the date of notice of termination, including reasonable, actual, and documented costs to comply with the direction in the notice of termination for convenience, and demobilization costs, which is deemed to cover all overhead and profit to date.

(B) ***Disputes.*** If Contractor disputes the amount of compensation determined by City pursuant to paragraph (A), above, its sole recourse is to comply with the Claim procedures in Article 12, by submitting a Claim no later than 30 days following notice from City of total compensation to be paid by City.

13.5 Actions Upon Termination for Default or Convenience. The following provisions apply to any termination under this Article, whether for default or convenience, and whether in whole or in part.

(A) ***General.*** Upon termination City may immediately enter upon and take possession of the Project and the Work and all tools, equipment, appliances, materials, and supplies procured or fabricated for the Project. Contractor will transfer title to and deliver all completed Work and all Work in progress to City.

(B) ***Submittals.*** Unless otherwise specified in the notice of termination, Contractor must immediately submit to City all designs, drawings, as-built drawings, Project records, contracts with vendors and Subcontractors, manufacturer warranties, manuals, and other such submittals or Work-related documents required under the terms of the Contract Documents, including incomplete documents or drafts.

(C) ***Close Out Requirements.*** Except as otherwise specified in the notice of termination, Contractor must comply with all of the following:

(1) Immediately stop the Work, except for any Work that must be completed pursuant to the notice of termination and comply with City's instructions for cessation of labor and securing the Project and any other Worksite(s).

(2) Comply with City's instructions to protect the completed Work and materials, using best efforts to minimize further costs.

(3) Contractor must not place further orders or enter into new subcontracts for materials, equipment, services or facilities, except as may be necessary to complete any portion of the Work that is not terminated.

(4) As directed in the notice, Contractor must assign to City or cancel existing subcontracts that relate to performance of the terminated Work, subject to any prior rights, if any, of the surety for Contractor's performance bond, and settle all outstanding liabilities and claims, subject to City's approval.

(5) As directed in the notice, Contractor must use its best efforts to sell any materials, supplies, or equipment intended solely for the terminated Work in a manner and at market rate prices acceptable to City.

(D) ***Payment Upon Termination.*** Upon completion of all termination obligations, as specified herein and in the notice of termination, Contractor will submit its request for Final Payment, including any amounts due following termination pursuant to this Article 13. Payment will be made in accordance to the provisions of Article 8, based on the portion of the Work satisfactorily completed, including the close out requirements, and consistent with the previously submitted schedule of values and unit pricing, including demobilization costs. Adjustments to Final Payment may include deductions for the cost of materials, supplies, or equipment retained by Contractor; payments received for sale of any such materials, supplies, or equipment, less re-stocking fees charged; and as otherwise specified in Section 8.3, Adjustment of Payment Application.

(E) ***Continuing Obligations.*** Regardless of any Contract termination, Contractor's obligations for portions of the Work already performed will continue and the provisions of the Contract Documents will remain in effect as to any claim, indemnity obligation, warranties, guarantees, submittals of as-built drawings, instructions, or manuals, record maintenance, or other such rights and obligations arising prior to the termination date.

Article 14 - Miscellaneous Provisions

14.1 Assignment of Unfair Business Practice Claims. Under Public Contract Code § 7103.5, Contractor and its Subcontractors agree to assign to City 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. § 15) or under the Cartwright Act (Chapter 2 (commencing with § 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the Contract or any subcontract. This assignment will be effective at the time City tenders Final Payment to Contractor, without further acknowledgement by the parties.

14.2 Provisions Deemed Inserted. Every provision of law required to be inserted in the Contract Documents is deemed to be inserted, and the Contract Documents will be construed and enforced as though such provision has been included. If it is discovered that through mistake or otherwise that any required provision was not inserted, or not correctly inserted, the Contract Documents will be deemed amended accordingly.

14.3 Waiver. City's waiver of a breach, failure of any condition, or any right or remedy contained in or granted by the provisions of the Contract Documents will not be effective unless it is in writing and signed by City. City's waiver of any breach, failure, right, or remedy will not be deemed a waiver of any other breach, failure, right, or remedy, whether or not similar, nor will any waiver constitute a continuing waiver unless specified in writing by City.

14.4 Titles, Headings, and Groupings. The titles and headings used and the groupings of provisions in the Contract Documents are for convenience only and may not be used in the construction or interpretation of the Contract Documents or relied upon for any other purpose.

14.5 Statutory and Regulatory References. With respect to any amendments to any statutes or regulations referenced in these Contract Documents, the reference is deemed to be the version in effect on the date that that bids were due.

14.6 **Survival.** The provisions that survive termination or expiration of this Contract include Contract Section 11, Notice, and subsections 12.1, 12.2, 12.3, 12.4, 12.5, and 12.6, of Section 12, General Provisions; and the following provisions in these General Conditions: Section 2.2(J), Contractor's Records, Section 2.3(C), Termination, Section 3.7, Ownership, Section 4.2, Indemnity, Article 12, Dispute Resolution, and Section 11.2, Warranty.

END OF GENERAL CONDITIONS

Special Conditions

1 Authorized Work Days and Hours.

1.1 **Authorized Work Days.** Except as expressly authorized in writing by City, Contractor is limited to performing Work on the Project on the following days of the week, excluding holidays observed by City:
Monday through Friday

1.2 **Authorized Work Hours.** Except as expressly authorized in writing by City, Contractor is limited to performing Work on the Project during the following hours:
8:00 a.m. to 5:00 p.m.

2 ***Pre-Construction Conference.*** City will designate a date and time for a pre-construction conference with Contractor following Contract execution. Project administration procedures and coordination between City and Contractor will be discussed, and Contractor must present City with the following information or documents at the meeting for City's review and acceptance before the Work commences:

2.1 Name, 24-hour contact information, and qualifications of the proposed on-site superintendent;

2.2 List of all key Project personnel and their complete contact information, including email addresses and telephone numbers during regular hours and after hours;

2.3 Staging plans that identify the sequence of the Work, including any phases and alternative sequences or phases, with the goal of minimizing the impacts on residents, businesses and other operations in the Project vicinity;

2.4 Traffic control plans associated with the staging plans that are signed and stamped by a licensed traffic engineer;

2.5 Draft baseline schedule for the Work as required under Section 5.2, to be finalized within ten days after City issues the Notice to Proceed;

2.6 Breakdown of lump sum bid items, to be used for determining the value of Work completed for future progress payments to Contractor;

2.7 Schedule with list of Project submittals that require City review, and list of the proposed material suppliers;

2.8 Plan for coordination with affected utility owner(s) and compliance with any related permit requirements;

2.9 Videotape and photographs recording the conditions throughout the pre-construction Project site, showing the existing improvements and current condition of the curbs, gutters, sidewalks, signs, landscaping, streetlights, structures near the Project such as building faces, canopies, shades and fences, and any other features within the Project area limits;

3. Insurance Requirements. The insurance requirements under Section 4.3 of the General Conditions are modified for this Contract, as set forth below. Except as expressly stated below, all other provisions in Section 4.3 are unchanged and remain in full force and effect.

3.1 Pollution Liability Insurance Waived. The pollution liability insurance policy requirement set forth in subsection 4.3(A)(4) of the General Conditions is hereby waived and does not apply to this Contract.

3.2 Builders Risk Insurance Waived. The builder's risk insurance policy requirement set forth in subsection 4.3(A)(5) of the General Conditions is hereby waived and does not apply to this Contract.

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Sewer improvements 2020

Bid No. 2020-06

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APPENDIX

A. Disposal Site Agreement Form
B. Submittal Review Request Form
C. Waste Diversion and Material Recycling Form
D. City of Eureka Sidewalk Resolution No. 6219
E. Reduced Scale Project Drawings

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SECTION 01010

GENERAL

PART 1 – GENERAL

1.01 STANDARD SPECIFICATIONS ADOPTED

The work covered under this contract shall be performed in accordance with the appropriate provisions of the specifications entitled **'Standard Specifications, State of California, Department of Transportation'**, current edition. These specifications are hereinafter referred to as the Caltrans Standard Specifications.

In case of conflict between the Caltrans Standard Specifications and these Special Provisions, these Special Provisions shall take precedence and be used wherever conflicts arise.

The Caltrans Standard Specifications may be reviewed at:

http://www.dot.ca.gov/hq/esc/oe/construction_contract_standards/std_specs/2018_StdSpecs/2018_StdSpecs.pdf

Whenever the following terms are used in the Caltrans Standard Specifications, they shall be understood to mean and refer to the following:

1. Department of Transportation – City of Eureka Engineering Department

2. Director of Transportation – City Engineer of the City of Eureka, or authorized representative

3. Engineer – City Engineer of the City of Eureka, or authorized representative, acting either directly or through properly authorized agents, with such agents acting within the scope of the particular duties delegated to them.

4. Laboratory – The designated laboratory authorized by the City Engineer of the City of Eureka, or authorized representative, to test materials and work involved in the contract.

5. State – City of Eureka.

Other terms appearing in the Caltrans Standard Specifications shall have the intent and meaning as specified therein.

1.02 PROJECT DRAWINGS

The Project Drawings (**15 *each)*** are contained in Appendix E.

1.03 WORK COVERED BY CONTRACT DOCUMENTS

1. Description:

   The work to be done under this contract consists of furnishing all labor, equipment, and materials necessary to perform and complete all work shown on the Plans and called for in these specifications, including all incidental work.

2. Location of the Project:

   The project is located in various locations throughout Eureka, as indicated on the Vicinity Map on Sheet 1 of the Drawings.

3. Contractor's Duties:

   It shall be the responsibility of the Contractor to examine the job site before submitting his bid. No allowance will be made on the Contractor's behalf for any extra expense he may incur due to his failure to acquaint himself with the full extent of work to be done and the conditions under which the work is to be performed.

   Except as specifically noted, the Contractor shall provide and pay for:

   1. Labor, materials, and equipment.
   2. Tools, construction equipment, and machinery.
   3. Water, heat, and utilities required for construction.
   4. All insurance required by the City and as necessary to perform the work.
   5. All other facilities and services necessary for proper execution and completion of the work.

   The Contractor shall conform to the requirements of all permits and licenses applicable to the work, and shall comply with all applicable codes, City of Eureka and Humboldt County ordinances, rules, regulations, orders, and other legal requirements of appropriate regulatory agencies.

   The Contractor shall promptly submit to the Engineer written notice of any observed variance of Plans or Contract Documents from legal requirements.

   The Contractor shall provide unencumbered access to the work area at all times to authorized representatives of the Engineer, the City of Eureka, and other appropriate regulatory agencies, and shall provide proper facilities for such access and inspection.

1.04 AS-BUILT INFORMATION

The Contractor shall keep accurate and up-to-date records on a set of project drawings. As-built information shall include additions to and deletions from the work, as well as any variation from information either shown on the Drawings or specified in the Contract Documents. As-built project drawing information shall be submitted to City prior to final payment.

1.05 CONTRACTOR'S USE OF PROJECT SITE AND PRIVATE PROPERTY

The Contractor shall not use the public right-of-way for long-term staging or material storage. During the work day, the Contractor may use the work area for storage of project materials and equipment to be used during that day; however, at the end of the day, the work site shall be cleaned per **Section 01560, 'Project Site Cleanup'**.

The Contractor's use of private property for any purpose associated with this project will require a written agreement between the property owner and the Contractor. The agreement shall grant the Contractor permission to use the private property and shall absolve the City of all responsibility for consequences of such usage. A copy of all such agreements shall be filed with the Engineer prior to the use of the property.

1.06 DISPOSAL AND SALVAGE OF MATERIALS

Disposal of materials shall not be permitted within the public right-of-way. The Contractor shall make his own arrangements for disposal sites outside the right-of-way, shall pay all costs involved, and shall obtain all required permits. See **Section 1.12** below for permit requirements.

The following materials shall be salvaged from this project and delivered to the City of Eureka Corporation Yard at 945 W. 14th Street, Eureka:

- No items will be salvaged from this project.

All items to be salvaged shall be removed from the job to a secure area, and delivered to the City of Eureka Corporation Yard within 5 working days of salvage. Only the items listed as "to be salvaged" shall be delivered to the Corp Yard (i.e., all excess backfill or concrete thrust block material, pipe, etc., shall be removed prior to delivery).

Contractors are encouraged to recycle materials on this project to the greatest extent possible. A Waste Diversion and Material Recycling Form has been included in the Appendix to assist in documenting all materials recycled from this project.

1.07 CONTRACTOR'S RESPONSIBILITY FOR UTILITIES AND SERVICES

Utilities on the Plans may be shown incorrectly or not at all. The Contractor shall contact Underground Service Alert (USA) at 1-800-642-2444 at least forty-eight (48) hours, but not less than two (2) working days, prior to any demolition or excavation and request field markings of all underground utilities.

The Contractor shall locate, expose, and provide temporary support as needed for all existing underground facilities encountered during the work. Hand tools shall be used when locating and exposing underground utilities.

The Contractor shall be solely responsible for damage done to any existing utilities, structures, or improvements (including traffic detection loops), unless otherwise provided for on the Plans, in these Contract Documents, or by direction from the Engineer. Replacement and/or repair shall restore damaged improvements to their

original (or better) condition. The Engineer shall be the sole judge of the adequacy of the restoration. Repairs to facilities performed by forces other than those of the Contractor shall be billed to the Contractor on a time and materials basis plus twenty percent (20%).

Traffic flow shall be maintained at all times during working hours unless otherwise specified on the Plans or in these Contract Documents. See **Section 01570, 'Control of Traffic'** (if included herein) for additional requirements and information.

1.08 MAJOR PUBLIC UTILITIES SERVING THE AREA OF WORK

Following is a list of the major public utilities serving the Eureka area. The list indicates the name and telephone number of the responsible agency of the various utilities which should be notified if conflicts or emergencies arise during the progress of the work:

Name of Utility	Address	Telephone No.
USA Cable Locating Service	N/A	800-642-2444
Pacific Gas & Electric	2555 Myrtle Avenue Eureka, CA 95501	800-743-5000
AT&T	1818 F Street Eureka, CA 95501	707-445-4069
Suddenlink Communications	911 W. Wabash Avenue Eureka, CA 95501	707-443-3128
City of Eureka	531 K Street Eureka, CA 95501	707-441-4192
Humboldt Community Services District	5055 Walnut Drive Eureka, CA 95503	707-443-4558

1.09 CONTRACTOR'S SEQUENCE OF CONSTRUCTION

The following schedules and plans shall be provided by the Contractor to the Engineer at the Preconstruction Meeting:

1. Preliminary Work Schedule
2. Preliminary Traffic Control Plan
3. Schedule of Values for all lump sum bid items
4. Names and contact information of all significant project personnel

In order to minimize the impact on existing facilities, it may be necessary to perform certain parts of the construction work outside normal City working hours (Monday through Friday, from 8:00 a.m. to 5:00 p.m.) Such work shall be performed only when authorized by the Engineer, and shall conform to the requirements of the **General Provisions, Section III, 'Control of Work', Subsection N**.

Work on existing structures and facilities shall be performed on a schedule and in a

manner that will permit the existing structure or facility to operate continuously unless otherwise approved by the Engineer.

1.10 PROJECT SAFETY

The Contractor shall submit both his and the project superintendent's night emergency telephone numbers to the City of Eureka Police/Fire Communications Center (441-4044) prior to starting work on the project so contact may be made at all times in case of emergency.

The Contractor shall be solely responsible for the safety of his work, including, but not limited to, the conditions of the project site and construction equipment, the safety of all persons involved in the work, the general public within the work area, and the surrounding private and public property. This requirement shall apply continuously, and shall not be limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor Occupational Safety and Health Act (OSHA), the California Occupational Safety and Health Act (CAL-OSHA), and all other applicable federal, state, county, and local laws, ordinances, and codes. Where any of these are in conflict, the more stringent requirement, as determined by the Engineer, shall be followed. The Contractor's failure to thoroughly familiarize himself with these safety provisions shall not relieve him from compliance with the obligations set forth under these provisions.

The control of traffic is crucial. The work area MUST be arranged such that pedestrian, bicycle, and automobile traffic may pass through the work area safely.

The Contractor shall provide safety and first aid equipment at the job site as required by the applicable regulatory agency. In addition, all workers shall be familiar with the procedure for summoning emergency medical personnel to the project site should an injury occur.

If, during the course of the project, serious damage, injury, or death occurs, the Contractor shall notify the Engineer as soon as possible. The Contractor shall document, in writing, details of any incidents involving property damage and/or personal injury which arise within the project area. This documentation shall include statements from all known witnesses, and shall be provided to the Engineer as soon as possible after any such incident.

Claims made by any person against the Contractor or subcontractor as a result of an accident related to this project shall be reported as soon as possible to the Engineer.

1.11 CONDUCT OF CONTRACTORS AND WORKERS

Whenever the Contractor, subcontractor, or workers come into contact with property owners or the general public at the job site, they shall conduct themselves in a courteous, professional, and non-abusive manner. If any subcontractor or person employed by the Contractor shall appear to the Engineer to be incompetent or to act in a disorderly or improper manner, that individual shall be discharged immediately at the direction of the Engineer and shall not be employed again on the project.

The City reserves the right to terminate this contract if, in the opinion of the Engineer, the Contractor, subcontractor, or workers fail to comply with this requirement. If the contract is terminated as a result of this provision, no compensation will be made for bid items which have not been satisfactorily completed.

1.12 PERMIT REQUIREMENTS

1. General

   All permits required for the Work shall be obtained and paid for by the Contractor prior to commencement of any work. The Contractor shall file a copy of all permits with the Engineer, and shall comply with all performance requirements and restrictions imposed on his work by these permits.

2. Material Disposal

   When any material is to be disposed of outside the project work area, the Contractor shall obtain both a written agreement between the property owner and the Contractor and a copy of the permit that allows material disposal at the subject site. The agreement shall grant the Contractor permission to use the private property as a disposal site, and shall absolve the City of all responsibility for consequences of such usage. The permit copy shall be obtained from the property owner, the Humboldt County Building Department, the City of Eureka Building Department, or other regulatory agency as appropriate. Both the agreement and permit shall be filed with the Engineer <u>prior</u> to the use of the property, and the Contractor shall obtain permission from the Engineer to dispose of the material at the proposed location designated in the agreement and on the permit before any material is disposed of on said property. A “Disposal Site Agreement” form is included in the **Special Provisions Appendix**.

3. Encroachment Permit

   Any work performed on this project outside the City Right-of-Way or the City Limits of the City of Eureka may require that the Contractor obtain an Encroachment Permit from either Humboldt County or the State of California. The Contractor shall be responsible for verifying whether or not such permits are required, and for paying whatever costs are associated with obtaining said permits.

1.13 BACKFLOW PREVENTION

If the Contractor wishes to use water from the City of Eureka water distribution system during the course of this project, he shall obtain and attach a double check valve at the point where he connects to the City water system (i.e. at a hydrant, water service, blow-off, etc.). The double check valve shall be tested and certified by either a certified tester or the City of Eureka Public Works Department and approved by the Engineer prior to use. The Contractor shall be responsible for the maintenance and protection of the double check valve.

1.14 USE OF FIRE HYDRANTS

If the Contractor wishes to use City of Eureka fire hydrants during the course of this project, he shall obtain and attach either an approved, fixed mechanical air-gap device or a double check valve approved by the Engineer to the fire hydrant PRIOR to its use (See **Section 1.13** above.).

Only special hydrant operating wrenches shall be used to open hydrants. Hydrants shall only be operated with the hydrant valve in the “full open” position. If any hydrants are damaged as a result of the Contractor's operation, the Contractor shall notify the Engineer immediately to allow for rapid damage repair. The Contractor shall pay all costs associated with said repair. Fire hydrants used for temporary water service shall be maintained by the Contractor in a completely accessible condition available to the Fire Department at all times.

1.15 “OR APPROVED EQUAL” PROVISION

The Engineer shall be the sole judge of what materials or components are acceptable under the “Or Approved Equal” provision shown on the Plans and listed in these Special Provisions. Refer to **Section 01300, ‘Shop Drawings and Submittals’** and **Section 01410, ‘Materials Testing’** for submittal, materials testing, and materials certification requirements of items submitted for review under this provision.

1.16 SPECIFICATION REFERENCES

Various Sections of these Special Provisions refer to other Sections that may not be present. If the Special Provision Section referred to is not present, then this project does not include any work covered by the referenced Section, and the Contractor may disregard that reference.

1.17 ARCHAEOLOGICALLY SENSITIVE AREAS

The City and its contractors are subject to State laws relative to the discovery of archaeological sites containing cultural resources and/or human remains (Section 7050.5 of the Health and Safety Code and Sections 5097.94 and 5097.98 of the Public Resources Code). The Contractor shall monitor all construction for the appearance of archaeologically significant materials.

If, during construction, subsurface archaeological resources (or materials that may be considered to be archaeological resources) are encountered, City staff shall be notified immediately and all ground-disturbing work in the immediate area shall cease and not resume until a qualified archaeologist or cultural resources specialist has been contacted to evaluate the materials and recommend appropriate action.

If buried human remains are discovered, they shall be treated in a manner consistent with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code. The County Coroner shall be contacted to determine whether further investigations are warranted, and the remains shall be turned over to the Coroner, who may contact the Native American Heritage Council and Native American representatives as required or appropriate.

1.18 ENVIRONMENTAL MITIGATION MEASURES

Contractor shall perform all work in conformance with all permit requirements and mitigation measures mandated for this project, and shall schedule the work to incorporate and accommodate all required environmental mitigation measures.

**** END OF SECTION ****

SECTION 01039

COORDINATION AND MEETINGS

PART 1 **GENERAL**

1.01 SECTION INCLUDES

1. Pre-bid meeting.
2. Preconstruction meeting.
3. Progress meetings.
4. As-Built Information.

1.02 PRE-BID MEETING

A pre-bid meeting will be held Tuesday March 24th, 2020 at 10:00 a.m.

1.03 PRECONSTRUCTION MEETING

1. Owner will schedule a meeting after Notice of Award.
2. Attendance Required: City, Engineer and Contractor.
3. Agenda:
    1. Designation of personnel representing the parties in Contract, City, and the Engineer.
    2. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
    3. Scheduling and construction sequence.

1.04 PROGRESS MEETINGS

1. Engineer will schedule and administer meetings throughout progress of the work at no less than weekly intervals.
2. Engineer will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies of minutes to the meeting participants.
3. Attendance Required: Job superintendent, major subcontractors and suppliers, City, and Engineer, as appropriate to agenda topics for each meeting.

4. Agenda (typical - as required):

    1. Review minutes of previous meetings.

    2. Review of work progress.

    3. Field observations, problems, and decisions.

    4. Identification of problems which impede planned progress.

    5. Review of submittals schedule and status of submittals.

    6. Review of off-site fabrication and delivery schedules.

    7. Review of Contractor's record drawings.

    8. Maintenance of progress schedule.

    9. Corrective measures to regain projected schedules.

    10. Review of Contractor's schedule which details the planned progress during the succeeding work period.

    11. Coordination of projected progress.

    12. Maintenance of quality and work standards.

    13. Effect of proposed changes on progress schedule and coordination.

    14. Other business relating to work.

1.05 AS-BUILT INFORMATION

1. The Contractor shall contemporaneously maintain a set of Contract Drawings at the work site which details the as-constructed construction conditions. The set shall be updated weekly by the Contractor and shall be available for review by the Engineer at the progress meetings.

2. If, in the opinion of the Engineer, as-built information is not contemporaneously maintained as work proceeds, partial payments within the construction period shall not be processed until information is satisfactorily completed.

3. As-built information shall be submitted to the City or Engineer at the completion of work for Engineer’s use in preparation of final Record Drawings for the Owner.

1.06 COMPENSATION

Full compensation for Section 01039, Coordination and Meetings, shall be considered as included in the prices paid for the various contract items of work requiring Section 01309, Coordination and Meetings, and no additional compensation will be allowed therefor.

**** END OF SECTION ****

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SECTION 01150

MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 DESCRIPTION

Measurement and payment for work performed under this contract shall be made in accordance with the provisions of **Section 9, 'Measurement and Payment,'** of the Caltrans Standard Specifications, except as they may be superseded or modified by the General or Special Provisions for this contract.

Payment shall be made at the bid prices and shall be considered as full compensation for furnishing all labor, materials, tools, supplies, and services as required for proper completion of the work described in the following bid items, complete in place, and to the satisfaction of the Engineer.

Items of work or other services which the Contractor is required to supply, such as final clean-up or other incidental items, and which are not listed as separate bid items shall be included in the related bid items and shall be considered as paid in those items, whether or not specifically identified in the following descriptions. Also considered to be included in such costs are any costs associated with the repair of damage which may occur to existing improvements as a result of the Contractor's operations.

1.02 LUMP SUM BREAKDOWN SUBMITTALS

After award of the Contract and prior to approval of initial progress payment requests, the Contractor shall submit a cost breakdown list to the Engineer for all Lump Sum bid items. The list shall consist of the major elements of work that make up each of the lump sum bid items and shall be used for determining progress pay estimates. The Contractor shall provide amounts for each element of interest to the City. The distribution breakdown that the contractor indicates for any lump sum bid item may be revised as deemed necessary by the Engineer if it appears such items are unbalanced, unless the Contractor can substantiate these costs. Only elements of work of value to the City shall be included in the list.

PART 2 – BID ITEMS

Bid Item 1 – Mobilization/Demobilization:

Payment for mobilization/demobilization shall be on the basis of the lump sum bid price, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to establish and maintain a physical presence at the project site for the duration of the work, including, but not limited to, mobilization, temporary shelters, temporary fencing as required, utilities, costs associated with acquiring additional work areas as necessary, and demobilization. Two-thirds (67%) of the bid amount for this item shall be paid to the Contractor in the first progress payment. Upon completion of demobilization and complete project clean-up satisfactory to the Engineer, one-third

(33%) of the bid amount for this item shall be paid to the Contractor in the final progress payment.

Bid Item 2 - Traffic Control:

Payment for traffic control shall be on the basis of the lump sum bid price, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary for the control of traffic, complete and in place, including, but not limited to, preparing required traffic control plans, furnishing, placing, and maintaining traffic signs, safety warning devices, and delineators, providing all required personnel and flaggers to control traffic, and maintaining traffic safety at all times in accordance with the approved traffic control plan and as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 3 – Erosion and Sediment Control:

Payment for Erosion and Sediment Control shall be included in the unit price bid and measured as a lump sum item. Payment shall be considered full compensation for all materials, labor, equipment, and performance of all work necessary as shown on the Drawings and specified for Erosion and Sediment Control. Work shall include, but is not limited to environmental site controls, sediment barriers as required for the control of water and prevention of construction related pollution, drainage inlet protection, stockpile covers, cleaning streets/alleys, gravel bags, fiber rolls, maintenance and upkeep of all sediment control measures, and site and area cleanup.

Bid Item 4 – Temporary Sewer Bypassing:

Payment for installing temporary sanitary sewer bypasses shall be on the basis of the lump sum bid price, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to bypass and contain all sewer flows away from the immediate construction area as necessary to complete all work shown on the plans, including, but not limited to, conducting all research necessary to determine the flow rates in the pertinent sewer mains, providing the City with a sewer bypass plan, spill plan, furnishing adequately sized and functioning pumps and temporary piping, and temporary sewage storage as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 5 – CCTV Inspection and Cleaning of Sewer Mains to be lined with CIPP:

Payment for pipe cleaning and CCTV, including furnishing all equipment needed to perform work as shown on the Drawings shall be on the basis of the bid price per linear foot from upstream manhole to downstream manhole. Work shall include, but is not limited to, pre- and post-high–pressure cleaning, pre- and post-CCTV, testing, and all incidental work for a complete installation as shown on the Plans, and as specified in the Contract Documents and these Specifications, and as directed by the Engineer.

Bid Item 6 – Remove (E) 6” or 8” VCP Sanitary Sewer Main and Install (N) 8” PVC SDR35 Sanitary Sewer Main:

Payment for removing existing 6” or 8" vitrified clay pipe sanitary sewer main and installing new 8" PVC SDR35 sanitary sewer main shall be on the basis of the bid price per linear foot of sewer main installed, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to supply and install the sewer pipe, complete and in place, including, but not limited to, full depth sawcutting or grinding and removal of asphalt concrete, excavation to design subgrade, shoring, de-watering, removal and disposal of existing sewer main pipe and fittings, installation of new pipe at design grade, trace wire, lateral wye fittings as required, connections to manholes and other sewer mains as required, video inspection of completed main work, Class 2 aggregate base bedding and initial backfill and compaction, and temporary and permanent asphalt concrete resurfacing as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 7 – Remove (E) 12” VCP Sanitary Sewer Main and Install (N) 12” PVC SDR35 Sanitary Sewer Main:

Payment for removing existing 12" vitrified clay pipe sanitary sewer main and installing new 12" PVC SDR35 sanitary sewer main shall be on the basis of the bid price per linear foot of sewer main installed, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to supply and install the sewer pipe, complete and in place, including, but not limited to, full depth sawcutting or grinding and removal of asphalt concrete, excavation to design subgrade, shoring, de-watering, removal and disposal of existing sewer main pipe and fittings, installation of new pipe at design grade, trace wire, lateral wye fittings as required, connections to manholes and other sewer mains as required, video inspection of completed main work, Class 2 aggregate base bedding and initial backfill and compaction, and temporary and permanent asphalt concrete resurfacing as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 8 – Remove (E) 14” VCP Sanitary Sewer Main and Install (N) 14” PVC SDR35 Sanitary Sewer Main:

Payment for removing existing 14" vitrified clay pipe sanitary sewer main and installing new 14" PVC SDR35 sanitary sewer main shall be on the basis of the bid price per linear foot of sewer main installed, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to supply and install the sewer pipe, complete and in place, including, but not limited to, full depth sawcutting or grinding and removal of asphalt concrete, excavation to design subgrade, shoring, de-watering, removal and disposal of existing sewer main pipe and fittings, installation of new pipe at design grade, trace wire, lateral wye fittings as required, connections to manholes and other sewer mains as required, video inspection of completed main work, Class 2 aggregate base bedding and initial backfill and compaction, and temporary and permanent asphalt concrete resurfacing as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 9 – Remove (E) 16” VCP Sanitary Sewer Main and Install (N) 16” PVC SDR35 Sanitary Sewer Main:

Payment for removing existing 16" vitrified clay pipe sanitary sewer main and installing new 16" PVC SDR35 sanitary sewer main shall be on the basis of the bid price per linear foot of sewer main installed, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to supply and install the sewer pipe, complete and in place, including, but not limited to, full depth sawcutting or grinding and removal of asphalt concrete, excavation to design subgrade, shoring, de-watering, removal and disposal of existing sewer main pipe and fittings, installation of new pipe at design grade, trace wire, lateral wye fittings as required, connections to manholes and other sewer mains as required, video inspection of completed main work, Class 2 aggregate base bedding and initial backfill and compaction, and temporary and permanent asphalt concrete resurfacing as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 10 – CIPP Lining of (E) 8” Sewer Main:

Payment for installation of 8” cured-in-place pipe lining shall be on the basis of the bid price per linear foot of pipe lined, measured from the upstream manhole to the downstream manhole for all 8” diameter pipe shown and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to perform all work involved in furnishing and installing the CIPP lining for the mainline and siphon sizes and lengths, including, but not limited to, testing, inspection, and appurtenances and incidentals as shown in the Plans and as specified in the Contract Documents and these Specifications, and as directed by the Engineer. Control of sanitary sewer flows through bypass pumping or other means shall be paid for in Bid Item 4.

Bid Item 11 – CIPP Lining of (E) 14” Sewer Main:

Payment for installation of 14” cured-in-place pipe lining shall be on the basis of the bid price per linear foot of pipe lined, measured from the upstream manhole to the downstream manhole for all 14” diameter pipe shown and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to perform all work involved in furnishing and installing the CIPP lining for the mainline and siphon sizes and lengths, including, but not limited to, testing, inspection, and appurtenances and incidentals as shown in the Plans and as specified in the Contract Documents and these Specifications, and as directed by the Engineer. Control of sanitary sewer flows through bypass pumping or other means shall be paid for in Bid Item 4.

Bid Item 12 – CIPP Lining of (E) 15” Sewer Main:

Payment for installation of 15” cured-in-place pipe lining shall be on the basis of the bid price per linear foot of pipe lined, measured from the upstream manhole to the downstream manhole for all 15” diameter pipe shown and shall be considered as full

compensation for furnishing all labor, equipment, and materials necessary to perform all work involved in furnishing and installing the CIPP lining for the mainline and siphon sizes and lengths, including, but not limited to, testing, inspection, and appurtenances and incidentals as shown in the Plans and as specified in the Contract Documents and these Specifications, and as directed by the Engineer. Control of sanitary sewer flows through bypass pumping or other means shall be paid for in Bid Item 4.

Bid Item 13 – CIPP Lining of (E) 16" Sewer Main:

Payment for installation of 16" cured-in-place pipe lining shall be on the basis of the bid price per linear foot of pipe lined, measured from the upstream manhole to the downstream manhole for all 16" diameter pipe shown and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to perform all work involved in furnishing and installing the CIPP lining for the mainline and siphon sizes and lengths, including, but not limited to, testing, inspection, and appurtenances and incidentals as shown in the Plans and as specified in the Contract Documents and these Specifications, and as directed by the Engineer. Control of sanitary sewer flows through bypass pumping or other means shall be paid for in Bid Item 4.

Bid Item 14 – Burst and Pull (E) 6" VCP Sewer Main with 8" DR17 HDPE:

Payment for burst and pull replacement of 6" vitrified clay pipe sewer main with 8" DR17 HPDE shall be on the basis of the bid price per linear foot of sewer main installed, complete and in place, as measured in the field by the Engineer, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary, including, but not limited to, excavation and maintenance of entry/receiving pits, replacement of 6" VCP via pipe bursting, pressure testing of new main, connections to existing manholes, and backfill, grading, and compaction of Class 2 aggregate base backfill material as specified in these Special Provisions and as directed by the Engineer.

Bid Item 15 – Burst and Pull (E) 6" Cast Iron Sewer Main with 8" DR17 HDPE:

Payment for burst and pull replacement of 6" Cast Iron sewer main with 8" DR17 HPDE shall be on the basis of the bid price per linear foot of sewer main installed, complete and in place, as measured in the field by the Engineer, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary, including, but not limited to, excavation and maintenance of entry/receiving pits, replacement of 6" cast iron pipe via pipe bursting, pressure testing of new main, connections to existing manholes, and backfill, grading, and compaction of Class 2 aggregate base backfill material as specified in these Special Provisions and as directed by the Engineer.

Bid Item 16 – Burst and Pull (E) 8" VCP Sewer Main with 8" DR17 HDPE:

Payment for burst and pull replacement of 6" vitrified clay pipe sewer main with 8" DR17 HPDE shall be on the basis of the bid price per linear foot of sewer main installed,

complete and in place, as measured in the field by the Engineer, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary, including, but not limited to, excavation and maintenance of entry/receiving pits, replacement of 8” VCP via pipe bursting, pressure testing of new main, connections to existing manholes, and backfill, grading, and compaction of Class 2 aggregate base backfill material as specified in these Special Provisions and as directed by the Engineer.

Bid Item 17 – Demolish (E) and Construct (N) 4’ Diameter Sanitary Sewer Manhole:

Payment for demolishing existing sanitary sewer manholes and constructing new 4' diameter sanitary sewer manholes shall be on the basis of the unit bid price per each manhole constructed, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to supply and construct the manhole, complete and in place, including, but not limited to, full-depth sawcutting or grinding and removal of asphalt concrete, warrenite, cement-treated base, and/or concrete, excavation, shoring, de-watering, demolition and complete removal of existing manhole, Class 2 aggregate base bedding and compaction, form work, cast-in-place concrete base, precast manhole sections, connection and grouting of all sanitary sewer piping, waterstops, grade rings, manhole frame and lid, concrete collar, Class 2 aggregate base bedding and initial backfill and compaction, and temporary and permanent asphalt concrete or crushed rock trench resurfacing (as required) as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 18 – Abandon (E) 4’ Diameter Sanitary Sewer Manhole:

Payment for abandoning existing sanitary sewer manholes shall be on the basis of the unit bid price per each manhole deconstructed, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to deconstruct the manhole, complete and in place, including, but not limited to, excavation, shoring, cleaning, demolition and complete removal of upper concrete or brick manhole rings, cone, ring and lid, backfill of remaining manhole facilities with pea gravel, Class 2 aggregate base bedding and compaction to 6” from finished grade, 6” of topsoil and hydroseeding as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 19 - Locate and Remove (E) and Install (N) 4” PVC SDR35 Sanitary Sewer Lateral, Less Than 30’ in Non-Paved Area:

Payment for locating and removing existing sanitary sewer laterals and installing new 4” PVC SDR35 sanitary sewer laterals shall be on the basis of the bid price per each sewer lateral installed, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to locate and remove the existing sewer lateral and install the new sewer lateral, complete and in-place, including, but not limited to, sewage bypass and flow containment as approved by the Engineer, excavation to design subgrade, shoring, de-watering, location and removal of existing sanitary sewer

lateral and cleanout, installation of new SDR35 lateral pipe at design grade, trace wire, pipe fittings, caulder-type couplings, Class 2 aggregate base bedding and initial backfill and compaction, installation of cleanout with traffic box set to finished sidewalk grade, restoration of disturbed areas, and connection to existing lateral at the property line as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 20 - Locate and Remove (E) and Install (N) 4" PVC SDR35 Sanitary Sewer Lateral, Less Than 30' in Paved Area:

Payment for locating and removing existing sanitary sewer laterals and installing new 4" PVC SDR35 sanitary sewer laterals less than 30' shall be on the basis of the bid price per each sewer lateral installed, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to locate and remove the existing sewer lateral and install the new sewer lateral, complete and in-place, including, but not limited to, sewage bypass and flow containment as approved by the Engineer, full-depth sawcutting or grinding and removal of asphalt concrete, demolition, removal, and replacement of entire square of existing concrete sidewalk between nearest scorelines, excavation to design subgrade, shoring, de-watering, location and removal of existing sanitary sewer lateral and cleanout, installation of new SDR35 lateral pipe at design grade, trace wire, pipe fittings, caulder-type couplings, Class 2 aggregate base bedding and initial backfill and compaction, temporary and permanent asphalt concrete trench resurfacing, installation of cleanout with traffic box set to finished sidewalk grade, restoration of disturbed areas behind the sidewalk, and connection to existing lateral at the property line as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 21 - Locate and Remove (E) and Install (N) 4" PVC SDR35 Sanitary Sewer Lateral, More Than 30' in Paved Area:

Payment for locating and removing existing sanitary sewer laterals and installing new 4" PVC SDR35 sanitary sewer laterals more than 30' shall be on the basis of the bid price per each sewer lateral installed, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to locate and remove the existing sewer lateral and install the new sewer lateral, complete and in-place, including, but not limited to, sewage bypass and flow containment as approved by the Engineer, full-depth sawcutting or grinding and removal of asphalt concrete, demolition, removal, and replacement of entire square of existing concrete sidewalk between nearest scorelines, excavation to design subgrade, shoring, de-watering, location and removal of existing sanitary sewer lateral and cleanout, installation of new SDR35 lateral pipe at design grade, trace wire, pipe fittings, caulder-type couplings, Class 2 aggregate base bedding and initial backfill and compaction, temporary and permanent asphalt concrete trench resurfacing, installation of cleanout with traffic box set to finished sidewalk grade, restoration of disturbed areas behind the sidewalk, and connection to existing lateral at the property line as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 22 – Reestablish Connection of (E) Sanitary Sewer Lateral to (N) Sanitary Sewer Main:

Payment for reestablishing the connection of the existing sewer lateral to the new sewer main shall be on the basis of the bid price per each sewer lateral reconnected, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to locate and remove the existing sewer lateral tap and install the new sewer lateral tap, complete and in-place, including, but not limited to, sewage bypass and flow containment as approved by the Engineer, full-depth sawcutting or grinding and removal of asphalt concrete, excavation to connection point, shoring, de-watering, installation of new lateral tap, reconnection of trace wire, caulder-type couplings, Class 2 aggregate base bedding and initial backfill and compaction, temporary and permanent asphalt concrete trench resurfacing, and restoration of disturbed non-paved areas as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

Bid Item 23 – CIPP Lining of (E) 18” RCP Storm Drain:

Payment for installation of 18” cured-in-place pipe lining shall be on the basis of the bid price per linear foot of pipe lined, measured from the upstream manhole to the downstream manhole for all 18” diameter pipe shown and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to perform all work involved in furnishing and installing the CIPP lining for the mainline and siphon sizes and lengths, including, but not limited to, testing, inspection, appurtenances and incidentals, and bypass pumping as shown in the Plans and as specified in the Contract Documents and these Specifications, and as directed by the Engineer.

Bid Item 24 – CIPM Lining of (E) Storm Drain Manholes and Junction Boxes:

Payment for installation of cured-in-place manhole lining shall be on the basis of the bid price per each manhole/junction box lined and shall be considered as full compensation for furnishing all labor, equipment, materials, and tools to install the CIPM including, but not limited to, testing, inspection, appurtenances and incidentals, bypass pumping, and reconnection of all inlets as shown in the Plans and as specified in the Contract Documents and these Specifications, and as directed by the Engineer.

Bid Item 25 – Reconstruct Corner at North End of Garland Street:

Payment for reconstructing the corner at the North end of Garland Street shall be on the basis of the lump sum bid price, and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary to supply and construct the corner at the North end of Garland Street, including, but not limited to, full depth sawcutting of asphalt concrete, excavation, shoring, installation of 8” PVC SDR35 45 degree elbow with end of line sewer cleanout, de-watering, demolition and complete removal of the existing storm sewer riser and lid, removing existing asphalt, installation

of (N) junction box, placing and compacting class 2 aggregate base to 95% relative compaction to design grade, placing new curb and sidewalk with type 'GO' storm sewer drainage inlet (DI), connecting the (N) Junction box and (E) 18" RCP storm sewer main, paving the first course of asphalt concrete a minimum of 0.15', and placement of 6" by 2" AC berm as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer. Note, final paving of this item will be paid for in item 26.

Bid Item 26 – Hot Mix Asphalt:

Payment for hot mix asphalt shall be on the basis of the bid price per square yard of hot mix asphalt placed (in the final lift created by the cold planning operation), as measured in the field, and shall be considered as full compensation for furnishing all labor, equipment and materials necessary, including, but not limited to: surface preparation, application of binder (tack coat), furnishing, placing, grading and compacting 0.20' hot mix asphalt pavement to the lines and grades shown on the Drawings, as specified in these Special Provisions, and as directed by the Engineer.

**** END OF SECTION ****

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SECTION 01300

SHOP DRAWINGS AND SUBMITTALS

PART 1 – GENERAL

1.01 DESCRIPTION

This Section covers shop drawings and other submittals that are required to be submitted to the Engineer during the course of this project. Additional submittals outlined in the City of Eureka Quality Assurance Program may be required if the QAP is included in these Specifications (see **Special Provision Appendix**).

PART 2 – CONSTRUCTION MATERIALS

2.01 SHOP DRAWINGS, SUBMITTALS, and PRODUCT INFORMATION

The Contractor shall submit a minimum of 1 electronic copy of all shop drawings, manufacturer's cut sheets, material and product information proposed for use on the project, and all submittals required by these specifications and required by the Engineer. Upon approval, the digital copy will be retained by the Engineer, and the submittal will be returned to the Contractor.

2.02 SUBSTITUTIONS

The Engineer will consider proposals for substitution of materials, equipment, and methods only when said proposals are accompanied by full and complete technical data required to evaluate the proposed substitution.

The Contractor is responsible for determining in advance of the Bid Submission that all required materials and equipment will be available for installation within the Contract Time. In the event specified item or items will not be available, the Contractor shall notify the Engineer prior to submission of bids.

2.03 SUBMITTAL FORM

All submittals shall include a copy of the submittal review request form, which is included in the **Special Provisions Appendix**.

PART 3 – EXECUTION

3.01 ORGANIZATION OF SUBMITTALS:

Unless otherwise directed by the Engineer, the Contractor shall make all submittals in groups by each Section of these Special Provisions (for example, all submittals pertaining to cured-in-place pipe lining shall be made as a single group).

Shop drawings shall be submitted only by the Contractor, who shall ensure that the

work shown is in conformance with the Contract Documents and has been checked for dimensions and relationship with the work of all other trades involved. The Engineer may reject a submittal if evidence of Contractor review and approval is not presented.

3.02 TIMING OF SUBMITTALS

The Contractor shall allow at least ten working days for the Engineer's review following his receipt of the submittal.

3.03 RESUBMITTALS

The Engineer shall complete two detailed reviews of each submittal at no cost to the Contractor. The cost of additional reviews resulting from improper submission or completion of shop drawings shall be deducted by the City from Progress Payments.

3.04 SUBMITTALS REQUIRED

This list is the minimum list of required submittals. Additional materials tests and certifications may be required by the City of Eureka QAP (if attached) or at the direction of the Engineer.

Section	Description
01010 – General	Disposal Site Agreement(s) Record Drawings Construction Schedule & Sequence Fill Permit (if required) Storm Water Pollution Prevention Plan (SWPPP) Final Summary of Recycled Materials
01150 – Measurement and Payment	Cost Breakdown for Lump Sum Bid Items
01570 – Control of Traffic	Traffic Control Plan
01700 – Contract Closeout	Waste Diversion and Material Recycling Form Operation and Maintenance (O&M) Manuals and Parts Lists Record Drawings
02150 – Shoring and Trench Safety	Gradation Curves for all Aggregate Mixes Trench Shoring and Bracing Plan Load Slips Erosion Control Plan Dewatering and Sediment Control Plan
02200 – Earthwork	Gradation Curves for all Aggregate Mixes Load Slips for all Material Deliveries

	Excavation Shoring and Bracing Plan
02610 – Hot Mix Asphalt Pavement and Overlays	Job Mix Formula Load Slips for all Material Deliveries
02690 – Pavement Striping and Marking	Certificate of Compliance Material Safety Data Sheets Method of Temporary Striping Application and Removal
02900 – Hydroseeding	Seed Mix and Certification Innoculate Certification
03020 – Minor Concrete	Mix Designs Load Slips for all Material Deliveries Mfgr's Literature for Coloring, Imprinting, Patterns, Curing, and Sealing Materials Test Plot of nine (9) square feet minimum To be approved by Engineer
03310 – Minor Concrete	Mix Designs Load Slips for all Material Deliveries Mfgr's Literature for Non-Concrete Items Precast Concrete Vaults, Manholes, etc.
15300 – Sanitary Sewer Piping and Appurtenances	Manufacturer's Certifications Product Information Hydrostatic Pressure Test Plan
15311 – Trenchless Sanitary Sewer Rehabilitation	Manufacturer's Certifications and Material Safety Data Sheets (MSDS) Certification of worker's training Sewer Bypass Plan Sewer Main Acceptance Testing Plan Contingency Plan
15320 – Cured-in-Place Pipe	Manufacturer's Certifications and Material Safety Data Sheets (MSDS) Certification of worker's training Sewer Bypass Plan Sewer Main Acceptance Testing Plan
15400 – Storm Drain Piping and Appurtenance	Manufacturer's Certifications and Material Safety Data Sheets (MSDS) Certification of worker's training Sewer Bypass Plan Sewer Main Acceptance Testing Plan

**** END OF SECTION ****

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SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 DESCRIPTION

This Section covers the work necessary to mobilize the personnel, equipment, and facilities required to prepare and maintain the work area in a manner suitable for construction. Temporary facilities and controls required for this work include, but are not limited to:

1. Temporary utilities such as water, electricity, gas, and telephone.
2. Field offices.
3. Sanitary facilities.
4. Erosion Control.
5. Maintenance of City-Supplied Survey Control.

1.02 MEASUREMENT AND PAYMENT

Payment for temporary facilities and controls shall be considered as included in the bid price for the various contract items of work, and no additional payment will be made.

1.03 SECURITY OF TEMPORARY FACILITIES

The Contractor is responsible for the security of temporary facilities at all times.

1.04 TEMPORARY UTILITIES

The Contractor shall make arrangements for, and pay all costs of, providing water, sanitary facilities, electricity, gas, telephone, and other utility services required for the work, up to the time of final acceptance by the Engineer and the City of Eureka.

Water will be available at fire hydrants located near the project area. See **Section 01010, "General,"** regarding the use of fire hydrants.

1.05 FIELD OFFICES

The Contractor is responsible for the security and maintenance of field offices, where required, at all times.

1.06 SANITARY FACILITIES

The Contractor shall make arrangements for, and pay all costs of, providing temporary sanitary facilities for use by all workers. All sanitary facilities shall comply with all requirements of the Humboldt County Health Department, and shall be maintained in a sanitary condition at all times.

1.07 EROSION CONTROL

The City's wastewater collection system may be available to the Contractor for disposal of groundwater but only after the groundwater or excess surface water has been treated onsite by Contractor-provided facilities to remove sediment prior to discharge to the City's system.

Contractor to provide erosion control plan. Plan to include any and all best management practices (BMP's) to control all sediment in or near the work area. BMP's such as inlet protection are considered a minimum requirement for this project.

1.08 SURVEY CONTROL

Horizontal and vertical survey control points shall be established by the City, and shall be used by the Contractor to assist in locating facilities and setting grades. When survey control on the project is established by the City, and when additional surveying is required, the Contractor shall notify the Engineer at least forty-eight (48) hours in advance.

When the City sets survey control, the points will be placed in locations accessible to the Contractor. The Contractor shall coordinate with the Engineer to locate points in specific locations for the Contractor's use; points destroyed by the Contractor shall be reset at the Contractor's sole expense.

****END OF SECTION****

SECTION 01560

PROJECT SITE CLEANUP

PART 1 – GENERAL

1.01 DESCRIPTION

This Section covers the maintenance and cleanup of all project areas.

1.02 SAFETY REQUIREMENTS

See **Section 01570, "Control of Traffic"** for safety requirements to be observed during cleanup operations.

1.03 MEASUREMENT AND PAYMENT

Payment for cleaning, dust suppression, disposal of material, and final cleanup shall be considered as included in the bid price for the various contract bid items, and no additional payment shall be made.

1.04 WATER

Water may be available at City of Eureka fire hydrants located near the project area. See **Section 01010, "General",** regarding the use of fire hydrants.

1.05 CLEANUP DURING CONSTRUCTION

During construction, the Contractor shall not allow debris to build up in the work area, and shall avoid creating excessive dust at the work site. If excessive dust is being generated, the Contractor shall use water sprays, vacuum sweepers, or other methods or equipment approved by the Engineer to alleviate the problem. Dirt and debris on the roadway shall be kept to a minimum, and shall be swept off at the end of each workday.

At the end of each working day, the Contractor shall remove accumulations of dust, mud, and other debris from all traveled ways (including sidewalks).

If, in the opinion of the Engineer, the Contractor has not sufficiently cleaned the project area, the Engineer shall issue a written notice to the Contractor stating that the Contractor shall clean the project area to the satisfaction of the Engineer within forty-eight (48) hours. If the Contractor does not comply with this notice, the Engineer shall have the option of employing whatever forces he deems necessary to satisfactorily clean the project area. The costs associated with the employment of such forces and the cleanup of the project area shall be paid for solely by the Contractor.

1.06 FINAL CLEANING

Before final inspection of the work, the Contractor shall clean the project area and all other areas occupied by him in connection with the work of all debris, excess materials, and equipment. All traveled ways (including sidewalks) shall be thoroughly swept clean

of all dirt, dust, and other debris. All parts of the work shall be left in a neat and presentable condition.

****END OF SECTION****

SECTION 01570

CONTROL OF TRAFFIC

PART 1 - GENERAL

1.01 DESCRIPTION

This Section covers the materials, equipment, and labor required to provide traffic control throughout the project area.

1.02 CODES AND STANDARDS

All traffic control devices and the locations of said devices shall conform to the appropriate provisions of the most recent edition of the **California Supplement of the "Manual on Uniform Traffic Control Devices" (MUTCD)**.

1.03 SUBMITTALS

1. Traffic Control Plan

2. Modifications to Traffic Control Plan

   The Contractor shall notify the Engineer at least two (2) working days in advance of implementing changes in any approved traffic control plan. No changes shall be made until approved by the Engineer, unless immediately required for the safe passage of vehicular, bicycle, or pedestrian traffic through the work area due to emergency conditions.

1.04 SAFETY

The Contractor is solely responsible for traffic safety for the duration of the work. Refer to **Section 7-1.03, "Public Convenience"**, **Section 7-1.04, "Public Safety"**, and **Section 12, "Temporary Traffic Control"**, of the Caltrans Standard Specifications. Nothing in these Special Provisions shall be construed as relieving the Contractor from his responsibility as listed in **Section 7-1.03**.

PART 2 - CONSTRUCTION MATERIALS

2.01 GENERAL

The Contractor shall furnish, install, and maintain cones, fences, barricades, lights and signs, and other devices as required under the approved traffic control plan. In addition, flaggers shall be used where conditions warrant, where required under the approved traffic control plan, and as directed by the Engineer.

2.02 CONSTRUCTION AREA SIGNS

Where indicated on the Plans, or where conditions warrant, construction area signs shall be furnished, installed, and maintained to alert drivers, bicyclists, and pedestrians to the construction zone and shall be removed when no longer required, in accordance with the provisions in **Section 12**, **"Temporary Traffic Control,"**, of the Caltrans Standard Specifications and these Special Provisions.

All construction area signs shall conform to the dimensions, color, and legend requirements of the Plans, Part 6 of the California Supplement of the MUTCD, and these specifications.

Portable signs shall be Type VI retroreflective sheeting or shall be cotton drill fabric, flexible industrial nylon fabric, or other approved fabric. Fabric signs shall not be used during the hours of darkness.

2.03 PLATING OVER ROADWAY EXCAVATIONS

When backfilling operations of an excavation in the traveled way cannot be completed within a single work day, steel plate bridging with a non-skid surface and shoring may be placed over the excavation to allow unobstructed traffic flow. The contractor shall be solely responsible for the placement and maintenance of steel plates, shoring, and asphalt concrete paving.

Where plating is used, the following conditions shall apply:

1. Steel plates used for bridging must extend a minimum of 12" beyond the edges of the excavation.

2. Steel plates shall be installed to operate with minimum noise, and shall not "rock".

3. The trench shall be adequately shored (see **Section 02210, "Trench Excavation and Backfill"**) to support the bridging and traffic loads.

4. Temporary paving with cold-mix asphalt concrete shall be used to feather the edges of the plates.

5. Plating shall be secured against movement by using cleats, shims, or other devices as necessary.

The following table shall be used as a guideline for determining the required plate thickness based upon the width of the trench.

Trench Width	Min. Plate Thickness*
10"	1/2"
1' 11"	3/4"
2' 7"	7/8"
3' 5"	1.0"
5' 3"	1 1/4"

* Table above is based on A-36 grade steel and H20-44 truck loading.

Note: Widths greater than 5' 3" shall require a structural design by a Registered Civil Engineer.

All steel plates used within the right-of-way shall not be deformed. Any plates arriving at the project site showing permanent deformation will be rejected by the Engineer.

All steel plates used within the right-of-way shall have a surface with a nominal Coefficient of Friction of 0.35, as determined by California Test Method 342.

6. The contractor must inset the steel plates flush with the road in drive and/or bike lanes if:
    a. The speed limit is 30 mph or higher; or,

    b. Steel plates will be in roadway for more than 14 days.

All cold patch A.C. shall be replaced with final hot patch A.C. within 45 calendar days of completion of construction. Additionally, all cold patch A.C. shall be maintained to the satisfaction of the City prior to final A.C. hot patching.

PART 3 - CONSTRUCTION METHODS

3.01 GENERAL

Upon approval of the Traffic Control Plan by the Engineer, the Contractor shall install all required construction, warning, and directional signage.

3.02 PUBLIC NOTIFICATIONS

1. General

   All public notifications made by the Contractor shall be in writing and may be in the form of a door hanger or other appropriate literature. Failure to comply with this Section will prevent the City from towing vehicles parked in the proposed work area. Work will not proceed if vehicles are parked in the proposed work area. Personal vehicles of the Contractor's employees shall not be parked on the traveled way, including any section closed to public traffic.

2. Street Closures and Detours

   Street closures and detours shall require at least **FOUR (4) WORKING DAYS** advanced notice by the Contractor to property owners within the limits of work affected by the street closure or detour. In addition, the Contractor shall notify the Eureka Police and Fire Departments, phone 441-4054; City Ambulance, phone 445-4907; the Humboldt County Office of Education Transportation Department, phone 445-7089; the Eureka City Schools, phone 441-2400; and Humboldt Transit Authority, phone 443-0826. The amount of time the street or alley may be closed or detoured shall be subject to approval by the Engineer.

3. Temporary “No Parking” Zones

   Temporary “No Parking” zones shall require placement of barricades signed "NO PARKING – Specific Time and Date(s)” at 50 to 60 foot intervals in the work area at least **TWO (2) WORKING DAYS** in advance. "NO PARKING" signs shall be approved by the Engineer prior to their use, the Contractor shall notify the Engineer immediately after the "NO PARKING" signs are in place, and the "NO PARKING" signs and barricades shall be supplied by the Contractor.

3.03 GENERAL TRAFFIC CONTROL

Public traffic flow shall be maintained on public roadways adjacent to the work unless otherwise approved by the Engineer. Traffic delays due to construction shall be minimized.

The Contractor shall expedite the passage of public traffic through and around the work; shall furnish and install signs, detours, lights, flares, and barricades; and shall furnish flaggers and other facilities for the convenience and direction of public traffic.

Whenever the Contractor's operations require one-way traffic or create a condition hazardous to the public traffic, he shall provide and station competent flagger(s) whose sole duty shall consist of directing the movement of public traffic through or around the work.

Contractor shall maintain all components in the traffic control system in working order at all times. Components shall include traffic cones, portable delineators, portable signs, barriers, and warning lights.

Trenches and excavations shall be left uncovered at night only with the approval of the Engineer and shall be surrounded by temporary fencing secure enough to prevent pedestrian traffic from entering the trench or excavation.

3.04 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

Traffic control systems for lane closures shall be utilized in accordance with the provisions of **Section 12, “Temporary Traffic Control,”** of the Caltrans Standard Specifications and with the approved traffic control plan.

The provisions in this Section shall not relieve the Contractor from his responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in **Section 7-1.04, “Public Safety,”** of the Caltrans Standard Specifications.

On multilane roadways, a minimum of one paved traffic lane, not less than 12 feet wide, shall be open for use by public traffic in each direction of travel.

When traffic cones are used to delineate a temporary edge of traffic lane, the line of

cones or delineators shall be considered to be the edge of the traffic lane. However, the Contractor shall not reduce the width of an existing lane to less than 10 feet without the approval of the Engineer.

A minimum of 16 feet shall be available to facilitate moving of oversized loads through the work area. On two-lane, two-way roadways, a minimum of one traffic lane, not less than 12 feet wide, shall be open for use by public traffic at all times.

If any component in the traffic control system is displaced or ceases to operate or function as specified from any cause during the progress of the work, the Contractor shall immediately repair said component to its original condition or replace said component and shall restore the component to its original location.

When lane closures are made for work periods only, at the end of each work period, all components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder.

The full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, designated legal holidays and the day preceding designated legal holidays, after 3:00 p.m. on Fridays, and when construction operations are not actively in progress, unless otherwise approved by the Engineer.

When a designated legal holiday falls on a Monday, the full width of the traveled way shall be open for use by public traffic on the preceding Friday.

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

Minor deviations from the requirements of this Section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the Contractor if in the opinion of the Engineer public traffic will be better served and the work expedited. Such deviations shall not be adopted until the Engineer has indicated approval in writing. All other modifications will be made by contract change order.

3.05 PUBLIC CONVENIENCE

The Contractor shall conduct the work with the least possible inconvenience to the general public and adjacent property owners and shall not have more work in progress than he can complete in a reasonable period of time.

Convenient access to driveways, houses, and buildings adjacent to the work shall be maintained, and temporary approaches to driveways or intersecting streets shall be provided and kept in good condition.

3.06 MATERIAL STORAGE

Materials shall be staged and stored in a manner that protects the material, workers, and general public from damage or injury. See **Section 01010, "General," Subsection 1.05,** for additional requirements.

3.07 DETOURS

Any and all detours shall be included in the approved traffic control plan (see **Subsection 1.03** above). The Contractor shall provide access to all public facilities at all times and shall make provisions for passage of emergency vehicles through the work area.

**** END OF SECTION ****

SECTION 01700

CONTRACT CLOSEOUT

PART 1 – GENERAL

1.01 FINAL INSPECTION

When the Contractor considers the project nearly complete, he shall notify the Engineer in writing that the work is ready for final inspection. Once the Engineer inspects the project, he will prepare a final punchlist of items to be completed (consisting of field work that must be completed and paperwork that must be submitted). The Contractor shall complete the items on the punchlist prior to project acceptance.

1.02 PROJECT COMPLETION AND FINAL PAYMENT

When the Contractor has completed all the items on the final punchlist and made all of the required final submittals (see below), the Contractor shall notify the Engineer that the project is complete. When the Engineer finds the work acceptable and fully complete in accordance with the Contract Documents and the punchlist, the Engineer will recommend that the City issue a Notice of Completion, accept the Contractor's work, and authorize the release of the contract retention.

Final submittals may include:

1. Operation and Maintenance Manuals and Parts Lists
2. As-Built Information
3. Record Drawings
4. Extra Materials as specified in the Contract Documents
5. Completed Waste Diversion and Material Recycling Form
6. Any other submittals required by the Contract Documents and not previously received

The City will record the Notice of Final Completion at the County Recorder's Office upon acceptance by the City Council, and shall release the contract retention to the Contractor 35 days after recording the Notice of Completion, provided no liens have been filed against the project.

****END OF SECTION****

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SECTION 02150

SHORING AND TRENCH SAFETY

PART 1 – GENERAL

1.01 DESCRIPTION

This Section covers requirements for trench and excavation shoring and construction techniques for general safety, worker protection, and protection of adjacent property from the hazards of caving ground. These requirements include all items covered by the U.S. Department of Labor and the California Occupational Safety and Health Act, including, but not limited to, the following:

1. Trench excavations
2. Structure excavations

1.02 CONTRACTOR'S RESPONSIBILITIES FOR SAFETY

The Contractor shall be solely responsible for conditions of the project site, the safety of all workmen and the general public, and property for the duration of the project. This responsibility shall be in effect 24 hours a day, 7 days a week.

Safety provisions shall conform to U.S. Department of Labor (FED-OSHA), the California Occupational Safety and Health Act (CAL-OSHA), Chapters 18, 32, and 33 of the latest edition of the Uniform Building Code as adopted by the City of Eureka, and all other applicable Federal, State, county, and local laws, ordinances, codes, the requirements set forth herein, and any other regulations detailed in other Sections of these Special Provisions.

The Contractor is hereby advised that Part 1926 of 29 CFR (Code of Federal Regulations), subpart P, has been revised and is effective January 2, 1990. This regulation governs excavations, trenching, and protective systems, sloping, benching, wood, and aluminum shoring for various types of soils and depths of excavations. The Contractor shall follow these regulations for this project.

Where conflicts are found between any of the provisions above, the more stringent requirement, as determined by the Engineer, shall be followed.

1.03 PERMITS REQUIRED

The Contractor shall obtain a permit from the State Division of Industrial Safety (CAL-OSHA for any excavation that falls under their jurisdiction, and shall file a copy of the approved permit to the Engineer prior to initiating any work covered under the permit.

If the Contractor has obtained an annual permit covering the work being done, a copy of the annual permit shall be filed with the Engineer. In addition, the issuer of the permit shall be notified of the type of work being done under this Contract.

1.04 SAFETY ORDERS

The Contractor shall have at the project site either complete copies or suitable extracts of both the Construction Safety Orders of Cal-OSHA and Part 1926 of 29 CFR, subpart P.

1.05 TRENCH SAFETY PLAN

For trenches and excavations requiring protection, the Contractor shall submit to the Engineer a detailed plan showing the proposed design of shoring, bracing, or other provisions to be made to protect the work area from caving ground. Shoring and bracing plans shall be submitted at least 10 working days before the Contractor intends to begin trenching or excavation work.

If shoring and bracing plans vary from the shoring system standards established by the Construction Safety Orders, or Part 1926 of 29 CFR, subpart P, the plans shall be prepared, sealed and signed by a Civil or Structural Engineer currently registered in California. Signed and sealed copies of calculations necessary to qualify the system shall be included with the plans.

No shoring and bracing plan shall be submitted to the Engineer that does not meet the requirements of the Construction Safety Orders of the Division of Industrial Safety, or Part 1926 of 29 CFR, subpart P.

If the Contractor proposes to use trench jacks or speed shores, shoring and bracing plans shall show the length and type of shoring, vertical and horizontal spacing, and any vertical or horizontal wales. Trench shields, when proposed or used, shall specify maximum allowed depth for the soils expected to be encountered.

1.06 ENGINEER'S REVIEW

The Engineer shall review the Contractor’s shoring and bracing plans to verify the general scope of the work only. This review is not intended to include approval of the shoring system, or a review of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site. This review shall not in any way relieve the Contractor from sole responsibility for the design, construction or installation, proper maintenance, and safety of such shoring.

1.07 CONTRACTOR'S SUPERVISOR

The Contractor shall appoint a qualified supervisory employee who shall be responsible for determining the type of shoring system to be used depending on local soil type, water table, etc. This supervisor shall have a minimum of five years experience in the directing of such trenching, excavation and shoring work.

1.08 MEASUREMENT AND PAYMENT

Full compensation for conforming to the requirements of this section shall be considered as included within the lump sum or unit prices bid for individual items requiring shoring and trench safety equipment, and no additional compensation will be made.

**** END OF SECTION ****

SECTION 02200

EARTHWORK

PART 1 – GENERAL

1.01 DESCRIPTION

This Section covers construction of excavations, embankments, shoring, dewatering, unsuitable subgrade removal and replacement, subgrade preparation and placement, placement, grading and compaction of backfill materials, and all other associated work involved in excavations, embankments, and engineered earthwork.

Refer to **Section 02610,** "**Asphalt Concrete Pavement and Overlays**" for specifications and additional requirements for asphalt concrete material.

Note: Trench excavation, backfill, compaction, and all other associated work involved in trench excavations is not covered in this section. Refer to **Section 02210,** "**Trench Excavation and Backfill**" for information and additional requirements for this type of work.

1.02 QUALITY ASSURANCE

All materials shall conform to the applicable sections of the Caltrans Standard Specifications unless otherwise specified in these Specifications or on the Plans. In addition, all materials testing performed to provide quality assurance shall be performed in accordance with **Section 01410**, "**Materials Testing**" and the City of Eureka Quality Assurance Program (QAP). In the event that neither of the above items are included in the Special Provisions for this project, the Contractor is required to provide only selected materials certificates and testing data as listed in **Section 01300**, "**Shop Drawings and Submittals**" and as listed below in **Section 1.03**.

1.03 SUBMITTALS

Submittals shall include, but not be limited to, the following items:

1. Gradation curves for all aggregate material being used on the project.

2. Load slips for all material delivery trucks shall be delivered to the job site with the truck. The Contractor shall retain all load slips, and shall make them available to the Engineer upon request.

3. Excavation shoring and bracing plan.

4. Proposed methodology of excavation and embankment for reconstruction of slopes, and any proposed embankment material substitutions.

1.04 UNDERGROUND UTILITY MARKINGS

Utilities on the Plans may be shown incorrectly or not at all. The Contractor shall

contact Underground Service Alert (USA) at 1-800-227-2600 at least forty-eight (48) hours, but not less than two (2) working days, prior to any demolition or excavation and request field markings of all underground utilities.

PART 2 – CONSTRUCTION MATERIALS

2.01 GENERAL

Material specifications listed on the Plans, where applicable, shall supercede those listed in this Section.

2.02 AGGREGATE BASE

Aggregate base shall be Class 2 aggregate base (3/4-inch maximum) and shall conform to **Section 26,** "**Aggregate Bases**" of the Caltrans Standard Specifications.

2.03 RIVER RUN GRAVEL

River run gravel shall consist of non-native natural or crushed rock that is free of organic and other deleterious material. River run gravel shall conform to the following gradation requirements:

Sieve Size	Percent Passing
6"	100
3"	75-100
No. 4	35-100
No. 30	10-50
No. 200	0-10

2.04 NATIVE BACKFILL

Native backfill shall consist of material excavated during the course of the project, shall be free of organic and other deleterious material, and shall have a Sand Equivalent (SE) greater than 15.

2.05 NATIVE TOPSOIL

Native topsoil shall consist of material excavated from the upper soil layer (from the surface to a depth of approximately six inches) during the course of the project. Native topsoil shall be stockpiled separately from native subsoil.

2.06 NATIVE SUBSOIL

Native subsoil shall consist of material excavated below the native topsoil (below a depth of approximately six inches). Native subsoil shall be stockpiled separately from native topsoil.

2.07 IMPORTED BACKFILL

Imported backfill shall closely match the composition of the material that was removed from the excavation, shall be free of organic and other deleterious material, and shall have a Sand Equivalent (SE) greater than 15.

2.08 IMPORTED TOPSOIL

Imported topsoil shall be sandy loam, shall be friable, shall have a high degree of fertility, and shall be free of weeds, clods, roots, rocks, gravel, sticks, brush, and other deleterious material. An imported topsoil analysis shall be submitted to the Engineer for approval prior to delivery of any imported topsoil to the project site. Should the Engineer reject any portion of the delivered soil for any reason, it shall be removed immediately at no cost to the City. The Contractor shall be responsible for maintaining all placed topsoil until the project has been accepted.

2.09 SLURRY CEMENT BACKFILL

Slurry cement backfill shall conform to **Section 19-3.062,** "**Slurry Cement Backfill**" of the Caltrans Standard Specifications and shall consist of a fluid, workable mixture of aggregate, cement, and water. Slurry cement backfill shall be either 1-sack, 1-1/2-sack, or 2-sack mix, depending on the application. 1-sack mix shall contain 94 pounds of Portland cement per cubic yard of material; 1-1/2 sack shall contain 141 pounds of Portland cement per cubic yard; 2-sack mix shall contain 188 pounds of Portland cement per cubic yard of material. Mix type used for each specific application shall be as indicated on the plans or as directed by the Engineer.

2.10 PERVIOUS BACKFILL MATERIAL

Pervious backfill material shall be used for backfill behind bridge abutments, retaining walls, wingwalls, and gabions, and shall conform to **Section 19-3.065,** "**Pervious Backfill Material**" of the Caltrans Standard Specifications. Pervious backfill material shall consist of gravel, crushed gravel, crushed rock, natural sands, manufactured sands, or combinations thereof. Pervious backfill material, except for sacked material at drain outlets, shall conform to the following grading requirements:

Sieve Sizes	Percentage Passing
2"	100
No. 50	0 -100
No. 100	0 - 8
No. 200	0 - 4

Wall drain outlets shall be backed with sacked pervious backfill material, except that the grading for the sacked material shall conform to the grading for the 1-1/2" x 3/4" primary aggregate size specified in **Section 90-3.02,** "**Course Aggregate Grading**" of the Caltrans Standard Specifications.

2.11 PERMEABLE MATERIAL

Permeable material shall consist of crushed rock conforming to the following gradation requirements, unless otherwise approved by the Engineer:

Sieve Size	Percent Passing
3/4”	90-100
1/2"	30-60
3/8”	0-20
No. 4	0-5

The portion of the material that is retained on a 3/8” sieve shall contain at least 50% of particles having 3 or more fractured faces. Not over 5% shall be pieces that show no fractured faces. Rounded rock material (commonly called ‘washed rock’) that shows little evidence of the crushing process is not acceptable and will be rejected.

2 .12 ENGINEERING FABRICS

Engineering fabrics used for filtering and rock slope protection applications shall conform to **Section 88,** “**Engineering Fabrics**” of the Caltrans Standard Specifications.

PART 3 – CONSTRUCTION METHODS

3.01 STORAGE OF MATERIALS

It shall be the sole responsibility of the Contractor to store all earthwork material in a safe location out of the traveled way.

3.02 SHORING, SHEETING AND BRACING

All excavations requiring shoring, sheeting, or bracing shall conform to the requirements of the California Occupational Safety and Health Act (CAL-OSHA). The Contractor shall furnish and install all shoring and bracing required to support the excavation walls for the protection of all personnel working in the excavation. Shoring and bracing shall be removed in a manner that protects the workers, prevents sloughing of the excavation walls, and prevents damage to aboveground property and underground utilities.

Contractor’s Responsibilities

The Contractor is solely responsible for the safety of all workers, the general public, and private and public property within the project site for the duration of the project. This responsibility shall be in effect at all times.

Excavation Safety

For excavations requiring shoring or bracing, the Contractor shall submit to the Engineer a detailed plan showing the proposed design of shoring, bracing, or other provisions to be made to protect the excavation from sloughing or collapse. Shoring and bracing plans shall be submitted at least 10 working days before the Contractor

intends to begin trenching work.

If shoring and bracing plans vary from the shoring system standards established by the Construction Safety Orders of CAL-OSHA, the plans shall be prepared, sealed, and signed by a Civil or Structural Engineer currently registered in California. Signed and sealed copies of calculations necessary to qualify the system shall be included with the plans. If the Contractor proposes to use trench jacks or speed shores, shoring and bracing plans shall show the length and type of shoring, vertical and horizontal spacing, and any vertical or horizontal wales. Excavation shields, when proposed or used, shall specify the maximum allowed depth for the soils expected to be encountered.

It is the sole responsibility of the Contractor to submit shoring and bracing plans that either conform to the Construction Safety Orders of CAL-OSHA, or are approved by a California-licensed Civil or Structural Engineer. No shoring or bracing plans shall be submitted to the Engineer that do not meet either of these requirements.

Engineer's Review

The Engineer shall review the Contractor's shoring and bracing plans to verify the general scope of the work only. This review is not intended to include approval of the shoring system, or a review of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site. This review shall not in any way relieve the Contractor from sole responsibility for the design, construction or installation, proper maintenance, and safety of shoring and bracing systems.

3.03 PAVEMENT REMOVAL

Refer to **Section 02610,** "**Asphalt Concrete Pavement and Overlays**" for asphalt concrete sawcutting and grinding information and requirements.

3.04 TOPSOIL REMOVAL, STOCKPILING, AND STORAGE

Prior to beginning any excavation or fill, the Contractor shall remove the topsoil and stockpile it for future use (if applicable). Stockpiled topsoil shall be stored clear of the construction area. The Contractor shall take reasonable care to prevent the topsoil from becoming mixed with subsoil.

3.05 GENERAL EXCAVATION

The Contractor shall perform all excavation work required to accomplish the construction, regardless of the type, nature, or condition of material encountered. The method of excavation used is optional; however, no equipment shall be operated near existing structures or newly completed construction if such operation will endanger these structures. Excavation that cannot be accomplished using power equipment without endangering these structures, or those within 24" of marked underground utilities, shall be dug with hand tools.

The Contractor shall complete all excavations to the elevations, lines, and grades shown on the Plans or as shown on survey staking cut sheets provided by the Engineer

or Project Surveyor. Allowances shall be made within the excavation for shoring, forms, working space, bedding, and backfill. Overexcavation below the grade lines shown on the Plans or established by the Engineer shall be backfilled at the Contractor's sole expense with Class 2 Aggregate Base, compacted to 95% relative compaction (see **Section 3.12** below), unless otherwise directed by the Engineer (including overexcavation required to remove existing utilities shown on the Plans as to be removed). Overexcavation required due to unsuitable subgrade soils shall be covered under **Section 3.07** below.

The Contractor shall control excavations through careful backfill and shoring placement that prevents excavation wall sloughing, and shall remove all material that sloughs into the excavation. In addition, all voids or cavities that result from sloughing excavation walls shall be backfilled and compacted with the same material at the same compaction/vibration requirements as shown on the excavation detail for that excavation. If, in the opinion of the Engineer, additional asphalt, concrete, or other surface material must be removed to adequately compact or vibrate the backfill placed in these voids or cavities, the Contractor shall sawcut and remove the surface material to the limits of the voids or cavities as directed by the Engineer. All costs associated with the removal of material that has sloughed into the trench, placement and compaction of the additional backfill material, and the sawcutting, removal, and patching of additional surface material shall be the sole responsibility of the Contractor, and no additional payment will be made to the Contractor for this work.

3.06 EXCAVATION DEWATERING

The Contractor shall provide and install sufficient means and facilities to divert, remove, and properly dispose of all water in the area of the excavation from any source, and shall maintain all work areas and excavations in a clean, dry, and safe condition.

The Contractor shall dewater all excavations to keep groundwater out of the excavation. Water shall not be allowed in excavations during concrete pours, or bedding, backfill and compaction operations. Dewatering shall be accomplished by methods that will ensure a water-free excavation, that will preserve the design lines and grades of the bottom of the excavations, that will maintain the groundwater level at least one (1) foot below the excavation design grade, that will prevent the loss of fines from the bottom of the excavation. Dewatering shall be a continuous 24-hours-a-day, 7-days-a-week operation until construction and backfilling are complete.

If excessive groundwater is present and cannot be adequately controlled, or if 'pumping' of the subgrade material occurs during compaction, the Engineer may deem the bottom of the excavation unsuitable for placement of bedding material (see **Section 3.07** below).

3.07 UNSUITABLE SUBGRADE EXCAVATION AND BACKFILL

Unsuitable subgrade is native excavation material at subgrade that, in the opinion of the Engineer, is unsuitable to use as a subgrade layer and must be removed to provide a solid construction surface. Examples of this type of subgrade are plant material, logs, trash, wood chips and debris, mud, soft or spongy soil, and the like. It DOES NOT refer to material that sloughs into the excavation from the sidewalls due to insufficient

shoring and must be dug out (see **Section 3.05** above). If unsuitable material is encountered at the bottom of the excavation, the Engineer shall direct the Contractor as to the total volume of unsuitable material to be removed PRIOR to its' removal from the excavation.

Once the unsuitable material has been excavated to the satisfaction of the Engineer, the Contractor shall backfill the overexcavation up to the elevations, lines, and grades shown on the Plans or as shown on survey staking cut sheets provided by the Engineer or Project Surveyor. Backfill material shall be Class 2 Aggregate Base, compacted to 95% relative compaction (see **Section 3.12** below), unless otherwise directed by the Engineer.

If, upon overexcavation, the resulting subgrade, in the opinion of the Engineer, is still unsuitable to use as a compaction bed, the Contractor shall backfill the overexcavation up to the elevations, lines, and grades shown on the Plans or as shown on survey staking cut sheets provided by the Engineer or Project Surveyor with Permeable Material (see **Section 2.11** above), Slurry Cement (see **Section 2.09** above), or concrete (see **Section 03310**, "**Minor Concrete**") as directed by the Engineer.

3.08 SEDIMENT CONTROL

All construction activities involving water, including excavation dewatering and drainage structure construction, shall have a sediment management plan approved by the City. Sediments or turbid waters generated from any construction activities, rainfall or other unforeseen circumstances shall not be permitted to enter into sloughs, drainage channels, creeks, or other tributaries, unless sediments are removed first.

Equipment operations near wetland channels shall require installation of sediment catchment dams, offsite settling basins for pumped water with turbidity, or other equivalent methods to remove sediment in water encountered.

Any bare soil areas or stockpiled soils adjacent to either a drainage inlet, drainage ditch, or other watercourse shall be covered and/or surrounded with mulch, fabric or other protective covering prior to heavy rainfall. The Contractor shall address the type of materials to be used in the sediment management plan.

The Contractor shall address sediment management, dewatering, bypass pumping operations in conjunction with excavation shoring and safety plans.

3.09 SUBGRADE PREPARATION

Prior to placement and compaction of embankment and road structural sections, the Contractor shall compact the upper 6 inches of exposed native subgrade soils to a minimum relative compaction of 90%.

3.10 BACKFILL

Slurry cement backfill shall be consolidated using motor-driven vibrators to remove all voids and shall be placed in the work within one hour after mixing. The vibrator used shall be large enough to vibrate the slurry cement to the satisfaction of the Engineer. In

addition, the slurry cement mixture shall contain enough water that it “flows” into the hole left when the vibrator is removed. Slurry material that does not “flow” into the hole left by the vibrator shall have water added to it in the truck in an amount sufficient to attain a “flowing” behavior. Slurry cement shall not be covered with other material for at least 4 hours after placement.

Class 2 aggregate base backfill shall be placed in lifts as directed by the Engineer. The maximum lift thickness will be determined by the Engineer based upon the compaction method being employed; however, the maximum lift thickness when hand-operated compaction devices are used shall not exceed one (1) foot.

The Contractor shall obtain the Engineer's approval of concrete work, and shall remove all trash and other debris from the excavation, prior to backfilling.

The Contractor shall not operate wheeled or tracked equipment within 5 feet of the walls of concrete structures for the purpose of depositing or compacting backfill material.

In non-paved areas where native material backfill is specified, the backfill shall be placed in lifts as directed by the Engineer. The allowable lift depth will be determined by the Engineer based upon the compaction method being employed. Backfill depth for hand-operated compaction devices shall not exceed one (1) foot. All loose soil within the excavation shall be removed prior to fill placement.

3.11 EMBANKMENT CONSTRUCTION

Subgrade Preparation - After clearing and grubbing operations are completed, native soils beneath embankments shall be scarified to a minimum depth of 8 inches, moisture conditioned to between 2% and 4% above optimum moisture and compacted to a minimum of 90% relative compaction.

Unless otherwise directed, all embankments shall be placed and compacted before any required excavation for installation of structures is performed in embankment areas. For pipelines to be installed in embankments, embankment shall be placed and compacted to a minimum of two feet above the top of the pipe before the pipe trench excavation will be allowed.

Placing Embankment - Embankments shall be constructed in layers of uniform thickness, and each layer shall be compacted in accordance with the requirements specified in Section 19-6, “Embankment Construction” of the Caltrans Standard Specifications, with the following 2 exceptions:

A. Sidehill embankments, where the width including bench cuts for bonding existing and new embankments is too narrow to accommodate compacting equipment, may be constructed by end dumping when approved by the Engineer, until the embankment, including benching, is wide enough to permit the use of compacting equipment, after which the remainder of the embankment shall be placed in layers and compacted as specified.

B. Where embankments are to be constructed across low, swampy ground which will not support the weight of hauling equipment, the lower part of the embankment may be constructed by dumping successive loads in a uniformly distributed layer of a thickness not greater than that necessary to support the equipment while placing subsequent layers, after which the remainder of the embankment shall be constructed in layers and compacted as specified.

Rocks, broken concrete, or other solid materials, which are larger than 0.33-foot in greatest dimension, shall not be placed in embankment areas where piles are to be placed or driven.

When embankment is to be made and compacted on hillsides, or where new embankment is to be compacted against existing embankments or where embankment is built one-half width at a time, the slopes of the original hillsides and old or new embankments shall be cut into a minimum of 6 feet horizontally as the work is brought up in layers. Material thus cut out shall be recompacted along with the new embankment material at the Contractor's expense, unless the width of excavation required by the Engineer exceeds 6 feet, in which case the excavation will be measured and paid for as roadway excavation.

Where embankment is to be made and compacted on original hillsides, old or new embankments, and end dumping is permitted, the slopes of the original ground or embankment shall be plowed or cut into before starting end dumping.

When embankment is to be placed on an existing roadway, the existing roadbed shall be scarified, watered, graded and rolled in advance of placing new material thereon.

Whenever selection is possible, borrow or excavation material having a Sand Equivalent value less than 10 shall not be placed within 2.5 feet of finished grade, and shall be placed in the lower portions of embankments.

Clods or hard lumps of earth over 6" in greatest dimensions shall be broken up before compacting the material in embankment, except as provided in the following paragraph.

When the embankment material consists of large rocky material, or hard lumps, such as hardpan or cemented gravel which cannot be broken readily, such material shall be well distributed throughout the embankment. Sufficient earth or other fine material shall be placed around the larger material as it is deposited so as to fill the voids and produce a dense, compact embankment.

When bridge footings are to be constructed in embankment, the embankment shall be constructed to the elevations of the grading plane and the finished slope extended to the grading plane before excavating for the footing, or, when foundation piling is shown on the plans, before driving the piles or excavating for the footing.

3.12 COMPACTION OF EARTHWORK

Compaction testing may be performed by the Engineer to determine whether or not the Contractor's compaction efforts are meeting the minimum compaction requirements (see **Section 01410,** "**Materials Testing**"). Excavation backfill that fails compaction

tests shall be re-compacted as necessary to meet the minimum compaction requirements at the sole expense of the Contractor.

Embankments shall be constructed in layers. **The loose thickness of each layer of embankment material before compaction shall not exceed 8”.**

Fill materials shall be mechanically compacted. Jetting is not allowed. Care shall be taken not to damage pipe, conduit, or other facilities with compacting equipment.

Relative Compaction (95 Percent) - Relative compaction of not less than 95 percent shall be obtained for a minimum depth of 6” below the grading plane (bottom of roadway structural section) for the width between the outer edges of shoulders, whether in excavation or embankment.

In addition, relative compaction of not less than 95 percent shall be obtained for a minimum depth of 2.5 feet below finished grade for the width of the traveled way plus 3 feet on each side thereof, whether in excavation or in embankment.

Except for the outer 5 feet measured horizontally from the embankment side slopes, the full width of embankment within 150 feet of bridge abutments shall be compacted to a relative compaction of not less than 95 percent. The 150 foot limit of 95 percent compaction will be measured horizontally from the bridge abutment and either parallel or concentric with the roadway centerline. In addition, a relative compaction of not less than 95 percent shall be obtained for embankment under retaining wall footings without pile foundations within the limits established by inclined planes sloping 1.5:1 out and down from lines one foot outside the bottom edges of the footing.

Relative Compaction (90 Percent) - Relative compaction of not less than 90 percent shall be obtained in all material in embankment, except as specified herein to be 95 percent.

3.13 COMPACTION OF STRUCTURE BACKFILL

Compaction testing may be performed by the Engineer to determine whether or not the Contractor’s compaction efforts are meeting the minimum compaction requirements (see **Section 01410,** “**Materials Testing**”). Structure backfill that fails compaction tests shall be re-compacted as necessary to meet the minimum compaction requirements at the sole expense of the Contractor.

All structure backfill shall be placed in layers not to exceed 8” feet before compaction.

Fill materials shall be mechanically compacted. Jetting is not allowed. Care shall be taken not to damage pipe, conduit, or other facilities with compacting equipment.

Backfill adjacent to concrete walls shall be compacted with hand operated tampers or similar equipment that will not damage the structure.

Structure backfill placed at the following locations shall be compacted to a relative compaction of not less than 90 percent:

1. Overside drains
2. Footings for slope protection, slope paving, and slope aprons.
3. All headwalls, endwalls, and culvert wingwalls.
4. Retaining walls, except for portion under any surfacing.

All other structure backfill shall be compacted to a relative compaction of not less than 95 percent unless otherwise shown on the Plans or approved by the Engineer.

3.14 WORKMANSHIP GUARANTY

The Contractor shall guarantee all earthwork, including excavation, embankment, backfill, and slope reconstruction work against failure for a period of one year after the work has been formally accepted by the Engineer in writing, or until the Notice of Completion has been filed as specified in **Section VIII,** "**General Guaranty**" of the contract **General Provisions**, whichever comes first. During this time, the Contractor shall repair, at his own expense and to the satisfaction of the Engineer, all failed earthwork excavation, backfill, reconstruction, and resurfacing. For the purpose of this contract, failure shall be deemed to have occurred if any of the following conditions exists:

1. On paved streets, a depression in a pavement patch of 1/8" (0.01') below the sides of the uncut portion of pavement.

2. Along shoulder areas, behind sidewalks, and in other unpaved portions of the right-of-way, a depression of 3/4" (0.06') below the average of the sides of the uncut portion.

3. Across all fields, pastures, or areas untraveled by automotive equipment, a depression causing the ponding of water between the sides of the uncut portion.

4. Any other settlement that causes drainage problems or concentrations of water to run along the excavation line.

5. On reconstructed slopes, any irregularities or unevenness resulting in concentrations of runoff that cause or contribute to erosion of the slope. Erosion of the slope is defined as any washout or rill exceeding two inches in depth.

If any of these conditions exist, the Contractor shall correct the backfill failure within a time frame acceptable to the City.

****END OF SECTION****

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SECTION 02210

TRENCH EXCAVATION AND BACKFILL

PART 1 – GENERAL

1.01 DESCRIPTION

This Section covers trench excavation, shoring, dewatering, unsuitable subgrade removal and replacement, trench backfill and compaction, and all other associated work involved in trench excavations.

Refer to **Section 02610, "Asphalt Concrete Pavement and Overlays"** for specifications and additional requirements for asphalt concrete material.

Note: Excavations, embankments, and other related engineered earthwork is not covered in this section. Refer to **Section 02200, "Earthwork"** of the City of Eureka Special Provisions (if included herein) for information and additional requirements for this type of work.

1.02 QUALITY ASSURANCE

All materials shall conform to the applicable sections of the Caltrans Standard Specifications unless otherwise specified in these Specifications or on the Plans. In addition, all materials testing performed to provide quality assurance shall be performed in accordance with **Section 01410**, "**Materials Testing**" and the City of Eureka Quality Assurance Program (QAP). In the event that neither of the above items are included in the Special Provisions for this project, the Contractor is required to provide only selected materials certificates and testing data as listed in **Section 01300**, "**Shop Drawings and Submittals**" and as listed below in **Section 1.03**.

1.03 SUBMITTALS

Submittals shall include, but not be limited to, the following items:

1. Erosion control plan describing materials and methods proposed to contain sediment on the project.

2. Gradation curves for all aggregate material being used on the project.

3. Mix design for all types of slurry cement being used on the project.

4. Trench shoring and bracing plan.

5. Load slips for all material delivery trucks shall be delivered to the job site with the truck. The Contractor shall retain all load slips, and shall make them available to the Engineer upon request.

1.04 UNDERGROUND UTILITY MARKINGS

Utilities on the Plans may be shown incorrectly or not at all. The Contractor shall contact Underground Service Alert (USA) at 1-800-227-2600 at least forty-eight (48) hours, but not less than two (2) working days, prior to any demolition or excavation and request field markings of all underground utilities.

PART 2 – CONSTRUCTION MATERIALS

2.01 GENERAL

Material specifications listed on the Plans, where applicable, shall supersede those listed in this Section.

2.02 AGGREGATE BASE

Aggregate base shall be Class 2 aggregate base (3/4-inch maximum) and shall conform to **Section 26,** "**Aggregate Bases**" of the Caltrans Standard Specifications.

2.03 RIVER RUN GRAVEL

River run gravel shall consist of non-native natural or crushed rock that is free of organic and other deleterious material. River run gravel shall conform to the following gradation requirements:

Sieve Size	Percent Passing
6"	100
3"	75-100
No. 4	35-100
No. 30	10-50
No. 200	0-10

2.04 SLURRY CEMENT BACKFILL

Slurry cement backfill shall conform to **Section 19-3.062,** "**Slurry Cement Backfill**" of the Caltrans Standard Specifications and shall consist of a fluid, workable mixture of aggregate, cement, and water. Slurry cement backfill shall be either 1-sack, 1-1/2-sack, or 2-sack mix, depending on the application. 1-sack mix shall contain 94 pounds of Portland cement per cubic yard of material; 1-1/2 sack shall contain 141 pounds of Portland cement per cubic yard; 2-sack mix shall contain 188 pounds of Portland cement per cubic yard of material. Mix type used for each specific application shall be as indicated on the plans or as directed by the Engineer.

2.05 PERMEABLE MATERIAL

Permeable material shall consist of crushed rock conforming to the following gradation requirements, unless otherwise approved by the Engineer:

Sieve Size	Percent Passing
3/4”	90-100
1/2"	30-60
3/8”	0-20
No. 4	0-5

The portion of the material that is retained on a 3/8” sieve shall contain at least 50% of particles having 3 or more fractured faces. Not over 5% shall be pieces that show no fractured faces. Rounded rock material (commonly called ‘washed rock’) that shows little evidence of the crushing process is not acceptable and will be rejected.

2.06 NATIVE BACKFILL

Native backfill shall consist of material excavated during the course of the project, shall be free of organic and other deleterious material, and shall have a Sand Equivalent (SE) greater than 15.

2.07 IMPORTED TOPSOIL

Imported topsoil shall be sandy loam, shall be friable, shall have a high degree of fertility, and shall be free of weeds, clods, roots, rocks, gravel, sticks, brush, and other deleterious material. An imported topsoil analysis shall be submitted to the Engineer for approval prior to delivery of any imported topsoil to the project site. Should the Engineer reject any portion of the delivered soil for any reason, it shall be removed immediately at no cost to the City. The Contractor shall be responsible for maintaining all placed topsoil until the project has been accepted.

2.08 NATIVE TOPSOIL

Native topsoil shall consist of material excavated from the upper soil layer (from the surface to a depth of approximately six inches) during the course of the project. Native topsoil shall be stockpiled separately from native subsoil.

PART 3 – CONSTRUCTION METHODS

3.01 STORAGE OF MATERIALS

It shall be the sole responsibility of the Contractor to store all trench excavation and backfill material in a safe location out of the traveled way, and in a manner that does not allow sediment to migrate into storm drains or waterways.

3.02 NOTIFICATION OF SERVICE INTERRUPTION

If water or sewer service to any residents within the work area will be interrupted during portions of the work, the Contractor shall notify all affected residents at least 2 (two) full working days in advance of anticipated water or sewer shutdowns. Unless otherwise noted on the Plans, the maximum duration for water shutdown is 8 hours.

3.03 PAVEMENT REMOVAL

Refer to **Section 02610,** ”**Asphalt Concrete Pavement and Overlays**” for trench sawcutting and grinding information and requirements.

3.04 TRENCH EXCAVATION

The Contractor shall perform all excavation required to accomplish the construction, regardless of the type, nature, or condition of material encountered. Excavations within 24" of marked underground utilities shall be dug with hand tools.

The Contractor shall excavate the trench to the elevations, lines, and grades shown on the Plans or as shown on survey staking cut sheets provided by the Engineer or Project Surveyor. Allowance shall be made within the excavation for shoring, forms, working space, bedding, and backfill. Overexcavation below the grade lines shown on the Plans or established by the Engineer shall be backfilled at the Contractor’s sole expense with trench backfill material approved by the Engineer and compacted to specified densities (including overexcavation required to remove existing utilities shown on the Plans as to be removed). Overexcavation required due to unsuitable subgrade soils shall be covered under **Section 3.07** below.

The Contractor shall control excavations through careful backfill and shoring placement that prevents trench wall sloughing, and shall remove all material that sloughs into the trench. In addition, all voids or cavities that result from sloughing trench walls shall be backfilled and compacted with the same material at the same compaction/vibration requirements as shown on the trench detail for that section of trench. If, in the opinion of the Engineer, additional asphalt, concrete, or other surface material must be removed to adequately compact or vibrate the backfill placed in these voids or cavities, the Contractor shall sawcut and remove the surface material to the limits of the voids or cavities as directed by the Engineer. All costs associated with the removal of material that has sloughed into the trench, placement and compaction of the additional backfill material, and the sawcutting, removal, and patching of additional surface material shall be the sole responsibility of the Contractor, and no additional payment will be made to the Contractor for this work.

3.05 TRENCH SHORING and SAFETY

All trench excavations requiring shoring shall conform to the requirements of the California Occupational Safety and Health Act (CAL-OSHA). The Contractor shall furnish and install all shoring and bracing required to support the trench walls for the protection of all personnel working in the excavation. Shoring and bracing shall be removed in a manner that protects the workers and prevents sloughing of trench walls.

Contractor's Responsibilities

The Contractor is solely responsible for the safety of all workers, the general public, and private and public property within the project site for the duration of the project. This responsibility shall be in effect at all times.

Trench Safety

For trenches requiring shoring or bracing, the Contractor shall submit to the Engineer a detailed plan showing the proposed design of shoring, bracing, or other provisions to be made to protect the trench from sloughing or collapse. Shoring and bracing plans shall be submitted at least 10 working days before the Contractor intends to begin trenching work.

If shoring and bracing plans vary from the shoring system standards established by the Construction Safety Orders of CAL-OSHA, the plans shall be prepared, sealed, and signed by a Civil or Structural Engineer currently registered in California. Signed and sealed copies of calculations necessary to qualify the system shall be included with the plans. If the Contractor proposes to use trench jacks or speed shores, shoring and bracing plans shall show the length and type of shoring, vertical and horizontal spacing, and any vertical or horizontal wales. Trench shields, when proposed or used, shall specify maximum allowed depth for the soils expected to be encountered.

It is the sole responsibility of the Contractor to submit shoring and bracing plans that either conform to the Construction Safety Orders of CAL-OSHA, or as approved by a California-licensed Civil or Structural Engineer. No shoring or bracing plans shall be submitted to the Engineer that do not meet either of these requirements.

Engineer's Review

The Engineer shall review the Contractor's shoring and bracing plans to verify the general scope of the work only. This review is not intended to include approval of the shoring system, or a review of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site. This review shall not in any way relieve the Contractor from sole responsibility for the design, construction or installation, proper maintenance, and safety of shoring and bracing systems.

3.06 TRENCH DEWATERING

The Contractor shall dewater all excavations for pipelines, sewer laterals, water main fittings and valves, and other underground items to keep groundwater out of the excavation. Water and residual sewage will not be allowed in excavations during bedding, concrete pours, or backfill and compaction. If excessive groundwater is present and cannot be adequately controlled, the Engineer may deem the bottom of the trench unsuitable for placement of bedding material (see **Section 3.07** below).

The Contractor shall have pumps on hand of sufficient capacity and horsepower to pump all residual water and sewage from sewer mains, laterals, and services that may

be anticipated entering the trench, from existing water mains and services as they drain, and from existing sewer laterals downstream from the bypass point.

The Contractor shall provide/construct sedimentation measures to contain sediment from dewatering operations from migrating into the storm drain system of waterways.

3.07 UNSUITABLE SUBGRADE EXCAVATION AND BACKFILL

Unsuitable subgrade is native trench material at subgrade that, in the opinion of the Engineer, is unsuitable to use as a pipe bed and must be removed to provide a solid construction surface. Examples of this type of subgrade are plant material, logs, trash, wood chips and debris, mud, soft or spongy soil, and the like. It DOES NOT refer to material that sloughs into the trench from the sidewalls due to insufficient trench shoring and must be dug out (see **Section 3.04** above). If unsuitable material is encountered under the pipe, the Engineer shall direct the Contractor as to the total volume of unsuitable material to be removed PRIOR to its removal from the trench.

Once the unsuitable material has been excavated to the satisfaction of the Engineer, the Contractor shall backfill the overexcavation up to the elevations, lines, and grades shown on the Plans or as shown on survey staking cut sheets provided by the Engineer or Project Surveyor. Backfill material for unsuitable overexcavations shall be River Run Gravel, or Class 2 Aggregate Base, as approved by the Engineer, compacted to 95% relative compaction (see **Section 3.11** below), unless otherwise directed by the Engineer or indicated on the plans.

If, upon overexcavation, the resulting subgrade, in the opinion of the Engineer, is still unsuitable to use as a compaction bed, the Contractor shall backfill the overexcavation up to the elevations, lines, and grades shown on the Plans or as shown on survey staking cut sheets provided by the Engineer or Project Surveyor with Class 1 permeable material (3/4” maximum), (see **Section 2.05** above). If the length of the Permeable Material placement exceeds 20 feet as measured along the trench, the Contractor shall construct slurry cement waterstops that extend from 12" above the top of the pipe to the bottom of the overexcavation every 20 feet measured along the trench. Slurry cement waterstops placed under these conditions shall be considered as trench backfill, and no additional payment shall be made to the Contractor for their inclusion in the trench backfill.

If, in the opinion of the Engineer, an excessive amount of groundwater is flowing (not seeping) in the trench and cannot be removed from the trench by pumping, the Engineer may deem the trench subgrade unsuitable - however, this condition will not require removal of the unsuitable subgrade. Instead, the Engineer may opt to require the Contractor to place Permeable Material for pipe bedding in the section of trench that the groundwater is flowing into. If the length of the Permeable Material placement exceeds 20 feet measured along the trench, the Contractor shall construct slurry cement waterstops that extend from 12" above the top of the pipe to the bottom of the trench every 20 feet. Slurry cement waterstops placed under these conditions shall be considered as trench backfill, and no additional payment shall be made to the Contractor for their inclusion in the trench backfill.

3.08 INCOMPATIBLE AREAS

When pipelines cross through areas where compaction cannot occur (underneath large conduits or other obstacles), the Contractor shall bed and backfill the pipe (up to 12" above the top of the pipe or to the bottom of the obstacle, whichever is less) with Permeable Material. If the length of the Permeable Material placement exceeds 20 feet measured along the trench, the Contractor shall construct slurry cement waterstops that extend from 12" above the top of the pipe to the bottom of the bedding material every 20 feet. Slurry cement waterstops placed under these conditions shall be considered as trench backfill, and no additional payment shall be made to the Contractor for their inclusion in the trench backfill.

3.09 BEDDING AND BACKFILL

In general, 6” inches of pipe bedding shall be laid on firm, undisturbed native material true to line and grade. Bedding material shall be placed into the trench prior to pipe placement, shall be compacted to a minimum of 95% relative compaction, and shall be of the thickness specified on the trench detail on the Plans. Bedding material under the coupling bells shall be hand-excavated so that there is a minimum clearance under the bell of 1 inch.

Backfill material in the pipe haunching zone between the bottom of the pipe and the springline of the pipe shall be “shovel-sliced” underneath the pipe overhang, then hand-tamped with ‘J’ bars or pneumatic “pogo stick” to a relative compaction of 90% along the entire length of the pipe. Tamping with a shovel is not sufficient, and does not meet this requirement.

Backfill material from the springline of the pipe to the bottom of the trench patch shall be of the material, thickness, and compaction shown in the trench detail on the Plans and as listed in **Part 2,** “**Construction Materials**” above.

Slurry cement backfill shall be consolidated using motor-driven vibrators to remove all voids and shall be placed in the work within one hour after mixing. The vibrator used shall be large enough to vibrate the slurry cement to the satisfaction of the Engineer. In addition, the slurry cement mixture shall contain enough water that it “flows” into the hole left when the vibrator is removed. Slurry material that does not “flow” into the hole left by the vibrator shall have water added to it in the truck in an amount sufficient to attain a “flowing” behavior. Slurry cement shall not be covered with other material for at least 4 hours after placement.

Class 2 aggregate base backfill shall be placed in lifts as directed by the Engineer. The maximum lift thickness will be determined by the Engineer based upon the compaction method being employed; however, the maximum lift thickness when hand-operated compaction devices are used shall not exceed one (1) foot.

In non-paved areas where native material backfill is specified, the backfill shall be placed in lifts as directed by the Engineer. The maximum lift thickness will be determined by the Engineer based upon the compaction method being employed; however, the maximum lift thickness when hand-operated compaction devices are used shall not exceed one foot. All loose soil within the excavation shall be removed prior to fill placement.

3.10 TRENCH BEDDING AND BACKFILL COMPACTION

Trench bedding and backfill shall be compacted to the densities shown on the trench detail on the Plans, and as specified in this Section.

Compaction testing may be performed by the Engineer to determine whether or not the Contractor's compaction efforts are meeting the minimum compaction requirements (see **Section 01410,** "**Materials Testing**"). Trench bedding and backfill that fails compaction tests shall be re-compacted as necessary to meet the minimum compaction requirements at the sole expense of the Contractor.

3.11 WORKMANSHIP GUARANTY

The Contractor shall guarantee his trench work against settlement for a period of one year after the Notice of Completion has been filed as specified in **Section VIII,** "**General Guaranty**" of the contract **General Provisions**. During this time, the Contractor shall repair, at his own expense and to the satisfaction of the Engineer, all failed trench backfill and resurfacing. For the purpose of this contract, failure shall be deemed to have occurred if any of the following conditions exists:

1. On paved streets, a depression in a pavement patch of 1/8" (0.01') below the sides of the uncut portion of pavement (includes trench lines and pavement widening).

2. Along shoulder areas, behind sidewalks, and in other unpaved portions of the right-of-way, a depression of 3/4" (0.06') below the average of the sides of the uncut portion.

3. Across all fields, pastures, or areas untraveled by automotive equipment, a depression causing the ponding of water between the sides of the uncut portion.

4. Any other settlement that causes drainage problems or concentrations of water to run along the excavation line.

If any of these conditions exist, the Contractor shall correct the trench failure within a time frame acceptable to the City.

****END OF SECTION****

SECTION 02610

HOT MIX ASPHALT PAVEMENT and OVERLAYS

PART 1 – GENERAL

1.01 DESCRIPTION

This section covers all material, equipment and labor required to construct hot mix asphalt pavement, including, but not limited to, placement of hot mix asphalt paving, tack coat, temporary pavement, and adjustment to grade of all traffic boxes and manhole frames and grates.

Note: Aggregate base placed for street reconstruction is not covered in this section. Refer to **Section 39-1.09B,** "**Subgrade**" of the Caltrans Standard Specifications, and **Section 02200,** "**Earthwork**" of the City of Eureka Special Provisions (when included in these specifications) for aggregate base roadbed specifications and additional requirements.

1.02 QUALITY ASSURANCE

All materials shall conform to the applicable sections of the Caltrans Standard Specifications unless otherwise specified in these Specifications or on the Plans. In addition, all materials testing performed to provide quality assurance shall be performed in accordance with **Section 01410,** "**Materials Testing**" and the City of Eureka Quality Assurance Program (QAP). In the event that neither of the above items is included in the Special Provisions for this project, the Contractor is required to provide only selected materials certificates and testing data as listed in **Section 01300,** "**Shop Drawings and Submittals**" and as listed below in **Section 1.03**.

Depending on the size and complexity of the project, the City may require a field operation specific Paving and Quality Control (QC) Plan be submitted and approved in advance of the paving operation. At a minimum, the plan shall include a detailed list of equipment to be used during the paving operation (model, type, size, etc.) and the method used to meet the project's specifications. The method should include information such as spread rates, thickness verification, slope control, temperature ranges, number of passes, static or vibratory rolling, etc. In addition, the plan will need to provide information regarding the individual responsible for verifying that the operation follows the submitted plan, thresholds at which corrective actions are required and procedures for those corrective actions (including a "out of control/stop work" threshold).

The City may also require a pre-paving meeting at least 24 hours prior to paving. At a minimum, the pre-paving meeting shall include the Contractor designated employee responsible for field operations quality control.

1.03 SUBMITTALS

Submittals shall include, but not be limited to, the following items:

1. Job mix formula per Caltrans Standard Specifications Section 39-1.03C for all hot mix asphalt material being used on the project.

2. Load slips for all material delivery trucks shall be delivered to the job site with the truck. The Contractor shall retain all load slips, and shall make them available to the Engineer upon request.

PART 2 – CONSTRUCTION MATERIALS

2.01 TEMPORARY HOT MIX ASPHALT PAVEMENT

Temporary pavement shall be hot mix asphalt conforming to the provisions of **Section 39,** "**Hot Mix Asphalt**" of the Caltrans Standard Specifications, plant mixed method. "Cold mix" asphalt concrete containing SC-800 liquid asphalt may be used for temporary pavement.

2.02 TYPE "A" HOT MIX ASPHALT

Type "A" hot mix asphalt shall conform to the requirements for Type "A" hot mix asphalt with 1/2-inch HMA Type grading as specified in Section 39-2.02, of the Caltrans Standard Specifications.

Asphalt binder for Type "A" hot mix asphalt shall be PG 64-16, as specified in **Section 92,** "**Asphalts**" of the Caltrans Standard Specifications. The amount of asphalt binder shall be determined by California Test 367 and provide a mix in conformance with Section 39-1.03B and approved by the Engineer.

2.03 OPEN GRADED FRICTION COURSE

Open graded friction course (OGFC), when specified, shall conform to the provisions of **Section 39,** "**Hot Mix Asphalt**" of the Caltrans Standard Specifications. Aggregate for OGFC shall conform to **Section 39-1.02E** OGFC table per the size shown on the plans.

Asphalt binder used for Open Graded hot mix asphalt pavement shall be PG 64-16 as specified in **Section 92: "Asphalts"** of the Caltrans Standard Specifications. The optimum amount of asphalt binder shall be determined by California Test 368 and approved by the Engineer.

2.04 PRIME COAT

Prime coat on aggregate base course will not be required.

2.05 TACK COAT

Paint binder (tack coat) shall be applied in one application at a rate of from 0.02-gallon to 0.10-gallon per square yard of surface covered. Tack coat shall conform with, and

applied in conformance with **Section 94,** "**Asphaltic Emulsions**" of the Caltrans Standard Specifications. Tack Coat shall be type SS1 or RS1, and shall be applied to all vertical surfaces of existing pavement, curbs, gutters and construction joints.

2.06 SEAL COAT

No seal coat will be required.

2.07 PAVEMENT REINFORCING FABRIC

Pavement reinforcing fabric, if required, shall conform to **Section 88-1.02J,** "**Paving Fabric**" of the Caltrans Standard Specifications.

2.08 AGGREGATE BASE and SUBBASE

Aggregate base shall be Class 2 aggregate base and shall conform to the provisions in **Section 26 "Aggregate Bases"** of the Caltrans Standard Specifications and in addition the aggregate shall have at least 50% crushed coarse particles with at least one fractured face using Caltrans Test Method 205.

Aggregate for Class 2 aggregate base shall be free from organic matter and other deleterious substances and shall be of such nature that it can be compacted readily under watering and rolling to form a firm, stable base.

2.09 CRACK TREATMENT

Crack Seal, if required, shall conform to **Section 37-6, "Crack Treatment,"** and **Section 41-5, "Joint Seals"** of the Caltrans Standard Specifications.

Crack seal treatment shall be "hot-applied" type.

The Contractor shall provide the Engineer with a Certificate of Compliance for each shipment of crack sealant. The certificate shall certify that the sealant conforms to the specifications, and shall be accompanied with storage and heating instructions and calculations for the material.

PART 3 – CONSTRUCTION METHODS

3.01 PAVEMENT REMOVAL

1. PAVEMENT GRINDING

Pavement grinding, when required, shall be performed in accordance with the requirements of Section 39-3.04 and **Section 42-3,** of the Caltrans Standard Specifications, as specified in these Special Provisions, and as directed by the Engineer.

The Contractor shall exercise care to avoid damaging existing concrete curbs and drainage facilities during all grinding operations. Damage to existing improvements

shall be repaired at the Engineer's direction, and at the sole expense of the Contractor.

Prior to conducting grinding operations, the Contractor shall remove all weeds and dirt in the gutters and in cracks in the existing pavement surface to the satisfaction of the Engineer. The Contractor will not be permitted to use herbicides, and the method of weed removal shall be subject to the approval of the Engineer.

The Contractor shall completely remove all existing raised reflective markers from the street areas being ground.

The street shall be swept throughout the course of the grinding operations and shall be left thoroughly clean and clear of all grindings at the end of each working day. The Contractor shall exercise care to avoid spilling grindings into drainage inlets and cross-corner or cross-street` culverts, and shall promptly clean out any grindings that do spill into inlets or culverts.

Prior to initiation of grinding operations, the Contractor shall lower all traffic boxes and manhole lids and frames within the limits of the work.

Abrupt edges shall not be left in place when traffic is allowed back into the grinding area. Where abrupt edges exist (mid-block or on cross streets or alleys), or where directed by the Engineer, the Contractor shall build a transition ramp no shorter than 25 feet long that spans the entire length or width of the abrupt edge, lifting traffic out of the ground area and onto the surrounding pavement.

All A.C. grindings shall be delivered to the City of Eureka's Corporation Yard as directed by the Engineer.

2. PAVEMENT SAWCUTTING

General

Pavement sawcutting shall be performed with a wheel roller, pneumatic pavement cutter, or other sawcutting equipment approved by the Engineer. Depending upon the nature of the work, the sawcutting may be divided into two parts - initial sawcutting and final sawcutting.

Initial Sawcutting

All initial pavement sawcutting shall be to the full width required for the excavation, and to the full depth of the pavement, regardless of depth. All pavement material inside the sawcut limits shall be completely removed.

Initial pavement sawcuts shall be straight and shall provide clean, solid, vertical faces free from loose or cracked material. All damaged or disturbed adjoining pavement shall be sawcut and removed.

Final Sawcutting

Final sawcutting shall only be required where “T”-section trenches are shown on the Plans.

All final sawcutting shall be made 6 inches wider on all sides than the width of the excavation, to the full depth of the pavement, regardless of depth, and after excavations have been backfilled. All pavement material inside the sawcut limits shall be completely removed. Final sawcutting shall be performed on all cross-street and cross-corner culverts, curbs, gutters, sidewalks, driveways, as shown on the Plans, and as directed by the Engineer.

Final pavement sawcuts shall be straight and shall provide clean, solid, vertical faces free from loose or cracked material. All damaged or disturbed adjoining pavement shall be sawcut and removed. When possible, sawcuts shall be either parallel or perpendicular to the roadway centerline.

The number of jogs in the sawcut lines shall be held to minimum and shall be subject to approval by the Engineer. The Contractor may be required to remove additional undisturbed pavement if, in the opinion of the Engineer, the lines are too erratic or contain too many jogs.

3.02 TEMPORARY PAVEMENT CONSTRUCTION

In all paved areas disturbed by the work, the Contractor shall install a minimum of 2 inches of temporary pavement before traffic is allowed back onto the area. The temporary surface shall be maintained by the Contractor at all hours of the day including non-working hours. The grade of temporary pavement shall be maintained to within one-half inch of the grade of adjacent roadway pavement until final pavement is installed, and shall be compacted such that the surface of the temporary pavement is flat. Temporary pavement shall be provided even if the existing pavement is to be removed later in street reconstruction. Installation of temporary pavement by the Contractor prior to the obtaining of final compaction tests by the Engineer will in no way relieve the Contractor of obtaining final compaction before the required final paving is started. Temporary paving shall be removed in its entirety prior to placement of final pavement.

3.03 PERMANENT PAVEMENT CONSTRUCTION

Subgrade Preparation

Subgrade shall be prepared in accordance with **Section 39-1.09,** “**Subgrade, Tack Coat, and Geosynthetic Pavement Interlayer**” of the Caltrans Standard Specifications and **Section 02200,** “**Earthwork**” of the City of Eureka Special Provisions (when included in these specifications).

Roadway Base Placement

Roadway base shall be placed and compacted in accordance with **Section 26,** “**Aggregate Bases**” of the Caltrans Standard Specifications and **Section 02200,** “**Earthwork**” of the City of Eureka Special Provisions, (when included in these specifications).

Tack Coat

Prior to placing tack coat on existing pavement surfaces, the existing surface shall be swept clean of all dirt and dust.

Tack coat (paint binder) shall be applied to all surfaces against which new hot mix asphalt pavement is to be placed in accordance with **Section 39-1.09,** "**Subgrade, Tack Coat, and Geosynthetic Pavement Interlayer**" of the Caltrans Standard Specifications. When being applied for paving fabric installation, tack coat shall extend 3 inches beyond the width of the paving fabric on all sides.

Pavement Reinforcing Fabric

Pavement reinforcing fabric, when specified, shall be installed immediately after the tack coat is applied, in accordance with **Section 39-1.09,** "**Subgrade, Tack Coat, and Geosynthetic Pavement Layer**" of the Caltrans Standard Specifications. The fabric shall be aligned and placed with no wrinkles that lap. Adjacent borders of the fabric shall be lapped 2 to 4 inches.

Seating of the fabric with rolling equipment after placement will be permitted. Turning of material trucks and the paving machine shall be kept to a minimum to avoid pulling the fabric away from the tack coat.

Hot Mix Asphalt Construction

All hot mix asphalt shall be installed in accordance with **Section 39-2.01C,** "**Construction**" of the Caltrans Standard Specifications. Unless lower temperatures are approved by the Engineer, all mixtures (except OGFC) shall be spread, and the first coverage of initial and breakdown compaction performed, when the temperature is not less than 250°F (120°C), and all breakdown compaction shall be completed before the temperature of the mixture drops below 200°F (95°C). Type "A" hot mix asphalt shall be placed only when the atmospheric temperature is above 50°F (10°C). Failure to meet temperature restrictions is grounds for rejection of the work by the Engineer.

OGFC shall be spread at a temperature of not less than 200°F (95°C) and not more than 250°F(120°C), measured in the hopper of the paving machine. OGFC shall be placed only when the atmospheric temperature is above 50°F (10°C). Failure to meet temperature restrictions is grounds for rejection of the work by the Engineer.

Method Compaction may only be used if it is requested and approved by the engineer in advance of the paving operation; meets the Method Compaction conditions; and is performed in accordance with the Method Compaction standards specified in Section 39-2.01C(15)b.

When spreading hot mix asphalt, the maximum screed width of any one pass shall be as directed by the Engineer.

Compaction shall conform to Section 39-2.01A(4) of the Caltrans Standard Specifications.

The completed surface shall be thoroughly compacted, smooth, and free from ruts, humps, depressions, or irregularities. Any ridges, indentations or other objectionable marks left in the surface of the hot mix asphalt by rollers, rakes, or other equipment shall be eliminated immediately.

Contractor shall schedule and attend a pre-paving meeting at least 2 hours in advance of the paving operation.

3.04 ADJUSTMENT OF MANHOLE COVERS AND TRAFFIC BOXES

Manhole frames and covers, and traffic boxes for water valves, sewer cleanouts, and survey monuments shall be brought to new finish grade and shall be secured in place with a concrete collar in accordance with the details on the Plans. Refer to **Section 03310,** "**Minor Concrete**" for additional information and requirements regarding the installation of concrete collars.

When specified on the Plans or in these Special Provisions, new Christy G5 traffic boxes shall be furnished and installed, and the existing traffic boxes shall be salvaged by the Contractor and delivered to the Engineer on the jobsite.

3.05 HOT MIX ASPHALT ACCEPTANCE

Acceptance of Hot Mix Asphalt shall be as specified in Section 39, ASPHALT CONCRETE, under subsection "Quality Assurance", except as modified below.

Pavement Deficiencies

The City's Pavement Condition Survey, along with observations by the Engineer, will be used as the basis for determining the extent and the magnitude of the pavement distresses occurring on the project. In the event the level of distress exceeds any of the tolerances defined below, Corrective Action by the Contractor will be required.

The City will monitor the pavement for distresses and may require corrective action at any time. For evaluation purposes, the project will generally be subdivided into lots representing each 250 tons or production thereof of HMA placed; however, the city may decide to adjust the size of the lots depending on the situation. Lots less than the specified tonnage will be called a partial lot. For purposes of tolerances and corrective actions, partial lots and lots will be treated as lots. The City may conduct a Pavement Condition Survey of the pavement following the final acceptance of the project. Contractor participation is not required however, attendance is recommended. Lack of Contractor attendance does not constitute the need for a re-survey. If granted however, the Contractor will be responsible for the costs associated with the re-survey. After the survey has been completed, the Engineer will provide the results to the Contractor with detailed list of locations and deficiency types which are out of tolerance. The Contractor will be required to submit a Corrective Action Plan within 7 calendar days. Corrective Action Plan shall be submitted and approved by the City prior to implementation. Any corrective measures implemented prior to receiving city approval shall be at the Contractor's risk.

Deficiency Types, Tolerances and associated Corrective Actions are specified in the Table below.

Table A – Tolerances and Corrective Actions

Deficiency Type (Measurement Frequencies)	Tolerances	Corrective Action
Densities (1 per lot)	91% to 97% (full payment) 89.0% to 90.9% & 97.1% to 99.0% (partial payment)	See Table B below
Longitudinal Smoothness (measured with a 12 ft straight edge, in the wheel path, at 50' intervals)	Depth ≤ 1/4 inch	Remove and replace full depth and full lane width for the deficient length plus 10' on each end

Table A – Tolerances and Corrective Actions (continued)

Deficiency Type (Measurement Frequencies)	Tolerances	Corrective Action
Transverse Smoothness and joint construction (measured with a 12 ft straight edge at joints and at 50' intervals)	Depth ≤ 1/4 inch	Remove and replace full depth and full lane width for the deficient length plus 10' on each end
Roadway Cross Slopes along Tangent Sections, turn lanes and Supereletated Curves (measured at 50' intervals)	Individual Deviation ≤ 0.4% Average Deviation ≤ 0.2%	*Remove and replace full depth and full lane width for the deficient length plus 10' on each end
Roadway Cross Slopes along the shoulder and bike lanes (measured at 50' intervals)	Individual Deviation ≤ 0.5% Average Deviation ≤ 0.5%	*Remove and replace full depth and width for the deficient length plus 10' on each end
Ponding (measured at individual locations after 30 minutes of being sprayed with a water truck or rain event)	Along curb flowline ≤ 1/4 inch Within travel way or pedestrian path ≤ 1/8 inch	Propose a method of correction to the Engineer
Target Elevations (measured at 50' intervals or where specified on the plans)	Individual Deviation ≤ 1/2 inch Average Deviation ≤ 1/4 inch	*Remove and replace full depth and width for the deficient area plus 10' on each end
Pavement Thickness (1 per lot)	Target thickness ± 1/4 inch	Propose a method of correction to the Engineer
Cracking/Checking (measured at individual locations)	Cumulative length of cracking > 100 ft for cracks > 1/8 inch	*Remove and replace full depth and width for the deficient area plus 10' on each end
Raveling, Delamination, Segregation, Slippage, bleeding and/or Potholes (measured at individual	Any length observed by the Engineer	*Remove and replace full depth and width for the deficient area plus 2' directly adjacent to the deficient area

locations)		

Note 1: The measurement frequencies are listed to provide guidance for general consistency however, adjustments in frequency or the need for location specific spot checks, shall be as determined by the City.

Note 2: Contractor may request alternate corrective actions for review; however, approval shall be at the sole discretion of the Engineer. Approved alternate corrective actions which, result in surface disturbances may still be subject to payment deductions as specified in the Table B below.

Deficiencies Left in Place

If requested by the Contractor, the Engineer may choose to allow certain deficiencies to remain in place. If granted, the Engineer shall assess payment deductions in accordance with the table below. If the Contractor does not agree with the Engineer's Payment Deduction assessment for the deficiencies left in place, the contractor shall repair the deficiency in accordance with the Corrective Action specified in Table A above.

Table B – Payment Deductions for deficiencies left in place

Deficiency Type	**Payment Deduction**
Densities	• Partial payment for the lot will be based on the "Reduced Payment Factors for Percent of Maximum Theoretical Density" as specified in Section 39 of CTSS. • Densities outside of tolerance limits may be left in place at no pay.
Longitudinal Smoothness	Deficient area(s) may remain in place with a 25% Payment Deduction
Transverse Smoothness and joint construction	Deficient area(s) may remain in place with a 25% Payment Deduction
Roadway Cross Slopes along Tangent Sections, turn lanes and Supereletated Curves	• Deficient area(s) exceeding Design Standards for Cross Slope shall be removed and replaced • All other Deficient area(s) may remain in place with a 25% Payment Deduction
Roadway Cross Slopes along the shoulder and bike lanes	• Deficient area(s) exceeding Design Standards for Cross Slope shall be removed and replaced • All other Deficient area(s) may remain in place with a 25% Payment Deduction
Ponding	• Deficient area(s) within a pedestrian path or areas with higher speeds and traffic volumes shall be removed and replaced • All other Deficient area(s) may remain in place with any range of Payment Deduction percentages as deemed appropriate by the Engineer
Target Elevations	• Deficient area(s) that result in ADA compliance issues or negatively impact other aspects of a project shall be removed and replaced • All other Deficient area(s) may remain in place with any range of Payment Deduction percentages as deemed appropriate by the Engineer

Pavement Thickness	• Deficient area(s) resulting in thinner pavement thicknesses may remain in place with any range of Payment Deduction percentages as deemed appropriate by the Engineer • Deficient area(s) resulting in thicker pavement thicknesses may remain in place at no additional cost to the City
Cracking/Checking	Deficient area(s) may remain in place with a 5% to 25% Payment Deduction as deemed appropriate by the Engineer
Raveling, Delamination, Segregation, Slippage, bleeding, Patches, Surface Grinds and/or Potholes	• Deficient area(s) that result in significant surface disturbances as determined by the Engineer shall be removed and replaced • All other Deficient area(s) may remain in place with a 5% to 25% Payment Deduction as deemed appropriate by the Engineer

Warranty Period Surveys

Additional, intermediate Pavement Condition Surveys may be conducted at times throughout the warranty period with findings provided when considered by the City to be the obligation of the Contractor. The contractor will not be notified of subsequent warranty period surveys unless requested in advance and in writing.

The final survey, if determined by the Engineer to be necessary, will be conducted before the end of the warranty period with results provided to the Contractor for those conditions exceeding contract tolerances requiring corrective action that the City believes to be an obligation of the Contractor. The City will be responsible for all costs associated with the surveys.

If the survey findings, intermediate or final, are to be disputed by the Contractor, written notification must be provided to the Engineer within 30 calendar days of the date of receipt of the information from the City.

During the warranty period, the Contractor may monitor the project using nondestructive methods. The Contractor shall not conduct any coring, milling or other destructive methods without prior approval by the Engineer.

**** END OF SECTION ****

SECTION 02690

PAVEMENT STRIPING AND MARKING

PART 1 - GENERAL

1.01 DESCRIPTION

This Section covers all pavement striping and pavement marking placement and removal, and raised retroreflective pavement marker placement.

All striping or pavement markings damaged during construction shall be repaired at the Contractor's expense. Repairs shall consist of complete replacement of markings or legends, replacement of sections of thermoplastic striping, and replacement of damaged or missing markers as directed by the Engineer.

1.02 QUALITY ASSURANCE

All pavement striping, pavement marking, thermoplastic marking, and raised reflective pavement marker work shall conform to **Section 84,** "**Traffic Stripes and Pavement Markings**" and **Section 85,** "**Pavement Markers**", of the Caltrans Standard Specifications, and **Chapter 6,** "**Markings**", of the Caltrans Traffic Manual unless otherwise specified in these Specifications or on the Plans. In addition, all materials testing performed to provide quality assurance shall be performed in accordance with **Section 01410,** "**Materials Testing**" and the City of Eureka Quality Assurance Program (QAP). In the event that neither of the above items is included in the Special Provisions for this project, the Contractor is required to provide only selected materials certificates and testing data as listed in **Section 01300,** "**Shop Drawings and Submittals**" and as listed below in **Section 1.03**.

1.03 SUBMITTALS

Submittals shall include, but not be limited to, the following items:

1. Certificates of Compliance for all paint and marking materials certifying that all paint used on the project complies with Caltrans Specifications.

2. Certificates of Compliance for all types of raised retroreflective pavement markers certifying that the pavement markers used on the project comply with Caltrans Specifications.

1.04 REGULATORY AGENCIES

Prior to beginning work that is covered in this section, the Contractor shall contact the North Coast Unified Air Quality Management District, 2389 Myrtle Avenue, Eureka, telephone 707-443-3093, to determine what, if any, local air pollution control regulations apply to this work, and to obtain any required permits, provide any required notices, or comply with any other requirement prior to starting the work.

PART 2 - CONSTRUCTION MATERIALS

2.01 FAST DRY TRAFFIC PAINT

Fast dry traffic paint for traffic stripes and pavement markings shall conform to one or more of the following State specifications:

Fast Dry Solvent Borne -	White, Yellow, and Black.....	8010-51K-04
Rapid Dry Solvent Borne -	White, Yellow, and Black.....	8010-51K-02
Rapid Dry Water Borne -	White, Yellow, and Black.....	8010-91D-30
Glass Beads.....		8010-21C-22 (Type II)

The type of paint to be applied shall be determined by the Contractor based upon the time of year and any local air pollution control regulations as specified in **Section 1.04** above. All paint materials shall be included on the Caltrans qualified products list.

2.02 MARKING TEMPLATES

Marking templates shall be constructed of either metal or plywood, shall fit closely to the surface being sprayed, and shall be dimensioned and lettered as shown on the Plans. All marking templates shall conform to those utilized by the City of Eureka Maintenance crews.

2.03 THERMOPLASTIC MARKINGS

Thermoplastic marking material shall conform to one or more of the following State specifications (as applicable):

Thermoplastic Material.....	8010-21C-21
Thermoplastic Material.....	8010-21C-19
Glass Beads.....	8010-11E-22 (Type II)

2.04 RAISED RETROREFLECTIVE MARKERS

Raised retroreflective markers shall be manufactured by Stimsonite, Niles, Illinois, or approved equal, and shall be of the following types:

Type D - 2-Way yellow Retroreflective Markers
Type C – Red-Clear Retroreflective Markers
2-Way Blue Reflective Markers

2.05 MARKER ADHESIVE

Marker adhesive for raised reflective pavement markers shall be either Rapid Set Type epoxy conforming to **Section 95-2.04,** "**Rapid Set Epoxy Adhesive for Pavement Markers**", or Hot Melt Bituminous Adhesive conforming to **Section 85-1.055,** "**Adhesives**" of the Caltrans Standard Specifications.

2.06 MIXING EQUIPMENT

Automatic mixing equipment for the marker adhesive shall use positive displacement pumps and shall properly meter the 2 components in the specified ratio, ∀5 percent by volume of either component.

PART 3 - CONSTRUCTION METHODS

3.01 SURFACE PREPARATION

The portion of the roadway surface to receive paint, thermoplastic markings, or pavement markers shall be free of dirt, curing compound, grease, oil, moisture, loose or unsound layers, paint and any other material which would adversely affect the bond of the adhesive.

3.02 CONTROL OF ALIGNMENT AND LAYOUT

The Contractor shall establish alignments for striping and shall perform all layout work required for all pavement markings using methods that will not damage the pavement, conflict with traffic control devices, or impede the normal flow of traffic during striping, pavement marking, and raised reflective marker installations.

3.03 PAINT TOLERANCES AND APPEARANCE

Traffic stripes and pavement markings shall conform to the dimensions and details shown on the Plans. Stencils shall be used for all pavement markings.

Completed traffic stripes and pavement markings shall have clean and well-defined edges without running or deformation, shall be uniform, shall be straight on tangent alignments, and shall be on a true arc on curved alignments.

The widths of completed traffic stripes shall not deviate more than one-quarter (1/4) inch on tangent, nor more than one-half (1/2) inch on curves from the widths shown on the plans.

Broken traffic stripes shall also conform to the following requirements:

1. The lengths of the gaps and individual stripes that form broken traffic stripes shall not deviate more that 2 inches from the lengths shown on the Plans.
2. The lengths of the gaps and individual stripes shall be of such uniformity throughout the entire length of each broken traffic stripe that a normal striping machine will be able to repeat the pattern and superimpose additional stripes upon the traffic stripe being applied.

Any drips, overspray, improper markings, and paint material tracked by traffic shall be immediately removed from the pavement surface by methods approved by the Engineer. All such removal work shall be performed at the Contractor's sole expense.

3.04 PAINT APPLICATION EQUIPMENT

All of the equipment used in the application of traffic stripes shall produce stripes of uniform quality that conform to the specified requirements.

Stencils and hand spray equipment shall be used to paint pavement markings.
The striping machine shall consist of a rubber-tired vehicle that is maneuverable to the extent that straight lines can be followed and normal curves can be made in true arcs. It shall be capable of applying traffic paints and glass beads at the rate specified herein. The striping machine shall be equipped with the following:

1. a pointer or sighting device not less than 5 feet long and extending from the front of the machine

2. a pointer or sighting device extending from the side of the machine to gauge the distance from the centerline for painting shoulder stripes

3. a positive acting cut-off device to prevent depositing paint in gaps of broken stripes

4. shields or an adjustable air curtain for line control

5. pressure regulators and gages (if pneumatically operated) that are in full view of the operator

6. a paint strainer in the paint supply line

7. a paint storage tank with a mechanical agitator that operates continuously during painting operations

8. a glass bead dispenser located behind the paint applicator nozzle and which is controlled simultaneously with the paint applicator nozzle

9. calibrated rods for measuring the volumes of paint and glass beads in the paint and glass bead tanks.

All spray equipment shall be of a proper type and of adequate capacity for the work. Air atomized spray equipment shall be equipped with oil and water extractors and pressure regulators and shall have adequate air volume and compressor recovery capacity.

Spray gun tip needle assemblies and orifices shall be of the proper sizes.

3.05 PAINT APPLICATION

The first coat of traffic stripe and pavement marking paint shall be applied at least 7 days after completion of paving operations.

Traffic stripes and pavement markings shall be applied only on dry surfaces and during periods of favorable weather. Painting shall not be performed when the atmospheric temperature is below 40°F. when using solvent borne paint, or below 50EF. when using water borne paint; when freshly painted surfaces may become damaged by rain, fog or

condensation; or when it can be anticipated that the atmospheric temperature will drop below said 40°F or 50°F temperatures during the drying period.

Surfaces which are to receive traffic stripes and pavement markings shall be dry and shall be mechanically wire brushed to remove all dirt and loose material.

Solvent borne paint shall not be heated to a temperature greater than 160°F. Water borne paint shall not be heated to a temperature greater than 150°F.

A one-coat 3-inch wide black stripe shall be painted between the two 4-inch wide yellow stripes of a double traffic stripe. If the two 4-inch wide yellow stripes are to be applied in 2 coats, the black stripe shall be applied concurrently with the second coat of yellow stripes.

On new surfacing, traffic stripes and pavement markings (except the black stripe between the yellow stripes of a double traffic stripe) shall be applied in 2 coats, unless otherwise shown on the Plans. The first coat of paint shall be dry before application of the second coat.

On existing surfacing, traffic stripes and pavement markings shall be applied in one coat where existing traffic stripes and pavement markings are unchanged. All new traffic stripes and pavements markings shall be applied in 2 coats as for new surfacing.

Unless otherwise directed by the Engineer, glass spheres shall be incorporated in both coats of paint immediately after application of the paint, except that glass spheres shall not be applied to black paint.

Application Rates

Paint to be applied in one coat shall be applied at an approximate rate of one gallon per 107 square feet.

Paint to be applied in two coats shall be applied according to the following rates:

Square Foot Coverage (per gallon):

	First Coat	Second Coat
Solvent Borne Paint	360	150
Water Borne Paint	215	215

The dry paint film thickness for each coat of traffic stripe and pavement marking shall be 8 to 10 mils.

Glass beads shall be applied at an approximate rate of 5 pounds per gallon of paint. The exact rate may be as determined or revised by the Engineer based upon observations made during the application of the glass beads. The amount of glass beads applied shall be measured by stabbing the glass bead tank with a calibrated rod.

Glass beads shall be embedded in the coat of traffic paint being applied to a depth of one-half of their diameters.

3.06 THERMOPLASTIC MARKING APPLICATION

Thermoplastic material shall be applied only to dry pavement surfaces and only when the pavement surface temperature is above 50°F. All thermoplastic markings shall conform to the dimensions and details shown on the Plans. Stencils shall be used for all pavement markings.

A primer of the type recommended by the manufacturer of the thermoplastic material shall be applied to al asphaltic surfaces over 6 months old and to all Portland cement concrete surfaces. The primer shall be applied immediately in advance of the application of thermoplastic material, and shall be applied at the application rate recommended by the manufacturer.

The thermoplastic material shall be applied to the pavement at a temperature between 400°F and 425°F, unless a different temperature is recommended by the manufacturer and approved by the Engineer.

The thermoplastic material shall be applied by either spray or extrusion methods in a single uniform layer. The minimum thickness of material for traffic striping is 0.060", and pavement markers shall be applied at a thickness of 0.100" to 0.150". The pavement surface shall be completely coated by the thermoplastic material, and the voids in the surface shall be filled.

Glass beads shall be applied immediately to the surface of the molten thermoplastic material at a rate of not less that 8 pounds per 100 square feet.

3.07 TEMPORARY STRIPING AND MARKING

When temporary striping and marking is required for the work or proposed by the Contractor, the Contractor shall submit to the Engineer for approval, details and methodology for placing and permanently removing the temporary striping and marking at the termination of the project. Temporary striping and marking shall be removed by low impact grinding or other approved methods that will not permanently scar or damage the pavement.

3.08 REMOVAL OF STRIPING AND MARKINGS

Sandblasting of traffic stripes and markings shall not be permitted. Removal of traffic stripes and markings shall be by grinding, or by other methods approved in writing by the Engineer. Drain inlets adjacent to areas to be ground shall be protected from grindings entering the storm drain system. Painting over existing pavement markings does not qualify as removal and shall not be allowed, unless as a temporary measure only during construction, for a limited time duration, and only if approved by the engineer.

Note: Yellow traffic paint that was installed prior to 1999 may contain lead chromate. The debris produced when this older yellow striping is ground from the pavement will likely meet the definition of hazardous waste, unless it is substantially diluted with the underlying paving material – as is the case where extensive pavement milling is being done. Refer to Caltrans Standard Special Provisions #15-300 for instructions for removal and disposal of lead chromate containing yellow striping.

**** END OF SECTION ****

SECTION 02900

HYDROSEEDING, SOD, AND EROSION CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall provide the following as indicated on the Plans and as herein specified:

Grading, installation of new imported sod, hydroseeding, mulching, fertilizer, and furnishing maintenance service. Grading and installation of sod shall be done in yard area as specified on the Plans. Hydroseeding shall be done for all other areas disturbed by construction activities, including private yard areas, unimproved alley and street right-of-way, and unimproved private property.

Removal, preservation and replanting or removal and replacement in kind of landscaping materials other than grass in private yard areas.

In addition to the above, all *slope areas* which are disturbed by the Contractor's operations shall be covered with bale straw and excelsior blankets after hydroseeding as specified herein and as shown on the Plans.

All areas where the Contractor's trenching operation, trucks, and other equipment have significantly reduced or harmed the existing grass, weed, brush, or other plant cover shall be considered to have been disturbed and shall require hydroseeding.

The Engineer shall have the sole authority to determine which areas have been disturbed and therefore require hydroseeding or hydroseeding with straw and erosion matting or blankets.

1.02 QUALITY ASSURANCE

Seed mixture shall be provided in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

Manufacturers spec sheets shall be provided for all erosion matting or blankets.

1.03 DELIVERY, STORAGE, AND HANDLING

Grass seed mixture shall be delivered in sealed containers. Seed in damaged packaging will not be acceptable.

PART 2 - PRODUCTS

2.01 SEED MIXTURE

Grass seed shall be certified quality, or better, new crop seed. Minimum germination of seed shall not be less than 90%. Minimum purity shall be at least 98%.

Hydroseed mix shall consist of:

1. In private yard lawn areas and pastures, a seed mix which matches the grasses of the existing lawn or pasture being hydroseeded. Seed application rate shall be 9 lbs. of seed per 1,000 sq. ft.
2. In unimproved alley and street rights-of-way, and unimproved property and fill slopes, a Caltrans approved erosion control seed mix with a seed application rate as approved by Caltrans
3. All hydroseed mix shall also include:
   - Appropriate amount of balanced fertilizer
   - Appropriate amount of wood cellulose fiber mulch
   - An innoculate meeting the seed manufacturers recommendations. The Contractor shall provide to the Engineer written evidence or a certificate stating compliance with this requirement.
   - A tackifier or stabilizer

NOTE: It shall be the Contractor's responsibility to determine the type(s) of grasses in the existing private yard lawn or pasture, and to ensure that the new hydroseed mix matches those grasses. Should the hydroseed grass, after it is established, not match the existing lawn grass, the Contractor shall take whatever corrective measures are necessary, including complete reseeding, to provide a lawn which is acceptable and approved by the City and the property owner.

2.02 IMPORTED TOPSOIL

See **Section 02210**, "**Trench Excavation and Backfill**", **Subsection 2.07,** or **Section 02200**, "**Earthwork**", **Subsection 2.08** (if included herein).

2.03 BALED STRAW

Straw shall be dry and free of mold, rot, and deleterious material.

2.04 EROSION CONTROL BLANKETS

Erosion control blankets or matting shall consist of a wood machined mat of curled wood excelsior of 80% six-inch or longer fiber length, of a combination of or agricultural straw and coconut fiber matrix, stitch bonded with biodegradable thread to a standard photodegradable polypropylene netting. Blankets shall have a consistent thickness, with the fibers evenly distributed over the entire area of the blanket. The blanket materials shall not contain any chemical additives.

Erosion control blankets or matting shall consist of rolls either 4 feet wide or 8 feet wide and shall be Curlex Blankets as manufactured by American Excelsior Company, SC150 Extended-Term Blanket as manufactured by North American Green, or approved equal.

2.05 SOD

All shall be freshly cut sod grown from high-quality, propogative material, and shall be free of weeds, diseases, and insects. All sod shall be machine-cut at a uniform thickness, width, and length, and shall be well enough developed to resist tearing during handling operations. Sod should not be held or stored for a period of time that allows for decomposition of the grass and roots.

PART 3 - EXECUTION

3.01 PREPARATION APPROVAL REQUIRED

No seeding shall take place until the Engineer has approved the subsoil and topsoil grading and preparation. On slope areas, no straw or erosion control blankets shall be installed until the Engineer has first approved the hydroseeding where the blankets are to be placed.

3.02 PREPARATION OF SUBSOIL AND TOPSOIL

Subsoil and topsoil shall be graded to eliminate uneven areas and low spots. Lines, levels, profiles and contours shall be maintained. All dirt clods shall be removed by rolling or other means. The minimum thickness of imported topsoil after grading shall be six inches (6"). Changes in grade shall be made gradual. Slopes shall be blended into level areas.

Foreign materials, weeds, undesirable plants and their roots and contaminated soil shall be removed from the subsoil prior to placement of the topsoil.

3.03 HYDROSEEDING

Hydroseed shall be applied evenly at the rate described in Section 2.01 above, and in accordance with seed supplier recommendations for methodology.

Seeding shall be supplied with adequate moisture to establish a healthy stand of grass.

3.04 STRAW AND EXCELSIOR BLANKET INSTALLATION

Straw and excelsior blankets shall be installed on all disturbed slopes in accordance with the details shown on the Plans.

3.05 SOD INSTALLATION

Approval Required: All sod shall be subject to approval by the Engineer. The Contractor shall submit to the Engineer for approval a sample of the proposed sod material prior to delivery of any sod to the jobsite.

All areas which are to receive new sod shall be cultivated to a minimum depth of six inches to completely break up any compacted soil. All additives and amendments shall be uniformly placed and incorporated into the soil as required.

After soil preparation is complete, the finish grade of areas to be sodded shall be approximately one inch below the surface of adjacent paving or other edging.

A suitable fertilizer shall be applied, following the manufacturer's recommendations, and the soil moistened prior to sodding.

Sod shall be laid with staggered, butted joints and shall be in firm contact with the soil, with no spaces between joints.

Sod shall be rolled immediately following installation and prior to initial watering. Heavy water saturation of the sod, in lieu of rolling, will be acceptable if a tight bond can be insured.

Proper moisture shall be provided throughout the sod installation operations, to avoid unnecessary stress to the plant material. Sod shall be thoroughly watered upon completion of installation and proper soil moisture level shall be maintained thereafter.

The first mowing shall be done before the grass reaches four inches in height and when the soil is in a relatively firm condition. No more than one-third of the leaf surface shall be removed with any single mowing.

3.06 MAINTENANCE AND MAINTENANCE PERIOD

The Contractor shall protect and maintain all sodded and hydroseeded areas throughout an eight-week establishment period by watering, feeding, re-seeding and repairing, as necessary, to establish thick, uniform growth acceptable to the Engineer. Areas which fail to produce uniform growth shall be re-sodded or re-hydroseeded. Areas which require re-sodding or re-hydroseeding will necessitate the initiation of a new eight-week maintenance period, beginning at the time of re-seeding or re-sodding.

The Contractor shall coordinate all maintenance watering in private yard areas with the property owner. The Contractor shall not enter the private yard area for the purpose of maintenance watering without first having obtained permission from the property.

The Contractor shall supply water, as needed, especially in abnormally hot or dry weather. Water application rates shall be supplied to provide adequate moisture without causing runoff.

**** END OF SECTION** **

SECTION 03020

COLORED AND PATTERNED CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

This section covers minor concrete work having a colored and/or patterned surface, hereinafter called “stamped concrete”, including placement, finishing, and curing of concrete. Unless otherwise specified on the Plans, all sidewalks, curbs, curbs and gutters, and drop curb entrances shall be constructed, replaced, and/or repaired in accordance with the standards and specifications set forth in the **City of Eureka Sidewalk Resolution 6219**, most recent revision, and with **Section 73, “Concrete Curbs and Sidewalks”** and **Section 90-10, “Minor Concrete”** of the Caltrans Standard Specifications.

Aggregate for stamped concrete shall conform to the grading specified for fine aggregate in **Section 90-3.03, “Fine Aggregate Grading”**, of the Caltrans Standard Specifications.

All related work, including but not limited to sub-grade preparation, finish grading, constructing formwork, placing and setting screeds, and furnishing and placing reinforcement, shall be performed by a qualified contractor in accordance with the standards and specifications set forth in the applicable sections of these Special Provisions.

1.02 QUALITY ASSURANCE

1. Stamped concrete shall be installed in accordance with industry standards and specifications and the American Concrete Institute (ACI).

2. Stamped concrete shall be installed by a licensed contractor who is trained and equipped to install stamped concrete per industry standards. The Contractor shall have a minimum of three (3) years of practical experience in installing stamped concrete.

3. The Contractor shall provide a qualified foreman or supervisor who has a minimum of three (3) years of experience with stamped concrete similar in quality and scope to the installation specified herein. Evidence that the contractor is qualified to complete the project in a professional manner as specified herein shall be submitted to and approved by the Engineer.

4. The Contractor shall provide a test plot of nine (9) square feet minimum to be approved by the Engineer prior to placement of stamped concrete on the project. Said test plot shall be the standard for construction of the work and shall be protected against damage until final approval from the Engineer.

5. All outside edges of stamp imprinted slabs shall be left uncolored, with clean, sharp lines unless otherwise specified in the drawings.

1.03 SUBMITTALS

Submittals shall include, but not be limited to, the following items:

1. Concrete mix design for all types of Portland cement concrete proposed for use on the project.

2. Load slips for concrete trucks shall be delivered to the job site with the truck. The Contractor shall retain all load slips, and shall make them available to the Engineer upon request.

3. Manufacturer's product information cut sheets for all coloring, imprinting, patterns, curing, and sealing materials proposed for use on the project.

4. Test plot of nine (9) square feet minimum to be approved by the Engineer prior to placement of stamped concrete on the project.

PART 2 – CONSTRUCTION MATERIALS

2.01 CONCRETE MIX DESIGN

The concrete mix shall be as specified in **Section 03310**, "**Minor Concrete**".

2.02 COLORING, IMPRINTING, AND SEALING MATERIALS

1. Color: Stamped concrete shall be colored with dry-shake, Cortez Red QC Color Hardener manufactured by QC Construction Products or Engineer-approved equal. Coloring shall be integral, chemically inert, fade resistant mineral oxide or synthetic type. Samples of the color specified are available for review by prospective bidders at Myrtle and 6th Streets.

2. Pattern: Imprinting tools shall be capable of imprinting the surface of the concrete with a uniform and aligned pattern and/or texture. The pattern shall be as shown on the Plans and as approved by the Engineer. Samples of the pattern specified are available for review by prospective bidders at Myrtle and 6th Streets.

3. Reinforcement: All stamped concrete slabs shall conform to the guidelines and recommendations of the American Concrete Institute for reinforcement of cast-in-place concrete slabs, and as specified elsewhere in the Plans and Specifications.

4. All materials used shall meet the applicable manufacturer's specifications and recommendations for an installation of this type.

PART 3 – CONSTRUCTION METHODS

The sub-grade of the area to receive stamped concrete shall be prepared as specified in the Plans and Specifications.

The outline of the area to receive the stamped concrete shall be cut on a neat line that is parallel to the existing edge of pavement (where applicable) with a power-driven saw.

The slab thickness and installation of reinforcement and formwork shall be as specified in the Plans and Specifications.

Control joints and/or construction joints shall be provided in accordance with the guidelines established by the American Concrete Institute and as shown on the Plans. Score or saw cut the surface to a minimum depth of one-fourth (¼) of the thickness of the slab at intervals of five (5) feet. Edges, joints, and scored areas shall be tooled in a manner consistent with the imprinting pattern. If the saw cut option is used, the Contractor shall be responsible for performing the saw cut operation at such time as to minimize the possibility of spalling and/or cracking.

The respective pattern types and colors of concrete for stamped concrete shall be placed at the locations shown on the Plans, struck off and compacted until a layer of mortar is brought to the surface. The concrete shall be screeded to the required grade and cross section and floated to a uniform surface using standard finishing techniques.

Forming tools for stamped concrete shall be applied to form the patterned surfaces while the concrete is still in the plastic stage of set.

Color hardener shall be applied at the manufacturer's recommended dosage rate and as soon as possible following final finishing operations. The dosage rate shall remain constant for all batches of concrete produced.

Finished stamped, colored, concrete work shall match Myrtle and 6th Streets.

**** END OF SECTION ****

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SECTION 03310

MINOR CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION

This Section covers minor concrete work, including construction and stripping of forms, placement of reinforcement and embedded items, and placement, consolidation, finishing, and curing of concrete. All sidewalks, curbs, curbs and gutters, and drop curb entrances shall be constructed, replaced, and/or repaired in accordance with the standards and specification set forth in the **City of Eureka Sidewalk Resolution 6219**, most recent revision, and with **Section 73, "Concrete Curbs and Sidewalks"** and **Section 90-2, "Minor Concrete"** of the Caltrans Standard Specifications.

Specific non-concrete construction specifications for minor concrete items (where applicable) are located in their respective Sections of these Special Provisions.

Note: Slurry cement backfill is not covered in this Section. Refer to **Section 02210,** "**Trench Excavation and Backfill**" for slurry cement specifications and additional requirements.

1.02 QUALITY ASSURANCE

All concrete shall conform to the applicable sections of the Caltrans Standard Specifications unless otherwise specified in these Specifications or on the Plans. In addition, all materials testing performed to provide quality assurance shall be performed in accordance with **Section 01410**, "**Materials Testing**" and the City of Eureka Quality Assurance Program (QAP). In the event that neither of the above items are included in the Special Provisions for this project, the Contractor is required to provide only selected materials certificates and testing data as listed in **Section 01300**, "**Shop Drawings and Submittals**" and as listed below in **Section 1.03**.

1.03 SUBMITTALS

Submittals shall include, but not be limited to, the following items:

1. Concrete mix design for all types of Portland cement concrete being used on the project.
2. Aggregate being used on the project for exposed aggregate finishes.
3. Load slips for concrete trucks shall be delivered to the job site with the truck. The Contractor shall retain all load slips, and shall make them available to the Engineer upon request.

Requirements for other non-concrete materials certifications for minor concrete items (where applicable) are located in their respective Sections of these Special Provisions.

PART 2 – CONSTRUCTION MATERIALS

2.01 GENERAL

Minor concrete shall conform to **Section 90,** "**Concrete,**" of the Caltrans Standard Specifications. High early-strength (Type III) concrete may be substituted if the Contractor is planning to allow traffic loads onto concrete pours within three (3) days after pouring.

All cast-in-place concrete shall contain a minimum of 564 pounds of Portland cement per cubic yard of concrete (6-sack mix), shall have a minimum 28-day compressive strength of 3000 psi, and shall have a slump range of 2"-4".

All concrete shall be plant-mixed and delivered by truck, unless concrete mixed on-site is specifically approved by the Engineer.

Material specifications listed on the Plans, where applicable, shall supersede those listed in this Section.

2.02 CEMENT

Cement shall be Portland cement and shall be either Type II or high early strength Type III.

2.03 AGGREGATE

Aggregates used for Portland cement concrete shall contain less than 1% asbestos by weight or volume and shall be free from any substances that will react with the cement alkalies.

Aggregates used for exposed aggregate finishes shall be uniformly graded ¾", smooth, rounded, red colored pebbles and shall be approved by the Engineer prior to use.

2.04 WATER

Water used for curing, washing aggregates, and mixing shall not contain more than 1000 parts per million (ppm) of chlorides as Cl, or more than 1300 ppm of sulfates as SO_4. All water shall be clean and free from oils and other deleterious matter in accordance with ASTM C-94.

2.05 ADMIXTURES

Admixtures shall be used only when approved with the mix design. Calcium chloride or admixtures containing any amount of calcium chloride will not be permitted.

All concrete to be placed by pumping may contain a water-reducing admixture conforming to ASTM C-494, Type A. Additionally, pumped concrete shall contain an air-entraining admixture conforming to ASTM C-260, be nontoxic after 30 days, and shall contain no chlorides.

2.06 CURE-SEAL COMPOUND

Cure-seal compound for slabs shall be "RES-X, All Resin Base" or wax base by Burke Concrete Accessories, "Masterseal" by Master Builders, or approved equal.

2.07 MORTAR

Mortar shall be standard premixed mortar conforming to ASTM C-387, Type S, or shall be proportioned 1 part Portland cement to 2 parts clean, well-graded sand that passes a 1/8 inch screen, with water added only as necessary to produce a stiff, workable mortar. Admixtures may be used not exceeding the following percentages by weight of cement:

1. Hydrated lime, 10%
2. Diatomaceous earth or other inert materials, 5%

The consistency of mortar shall be such that it will adhere to concrete, pipe, gaskets, and weep ring surfaces. Mortar mixed for longer than 30 minutes shall not be used.

2.08 GROUT AND CONCRETE PATCH REPAIR

“Dry Pack” grout shall contain 1 part Portland cement and 2 parts clean sand, by weight. Non-shrink grout used for grouting anchor bolts and steps shall be Masterflow 713, or approved equal. Non-shrink grout used for final grading of frames shall be Embeco 885, or approved equal.

In areas designated to be patched or grouted, concrete patch or grout material used for filling holes and cracks in sidewalks and curbs shall be a high-strength cementitious mortar specifically formulated for achieving permanent patching of portland cement concrete without shrinkage or cracking. Areas to be patched or grouted must be cleaned to patch or grout product specifications. Upon final curing, Patch or Grout shall substantially blend with existing concrete being repaired in both color and texture. Products shall meet the latest ASTM specifications for concrete repair products. The following is a list of suggested products; however, it shall be the Contractor’s responsibility to verify that the chosen product will meet the intent of these specifications.

Chem Patch V01 or V02, mfg. by Chem Masters,
Durapatch Highway, mfg. by L&M Construction Chemicals
Quickrete Rapid Road Repair, mfg. by The Quikrete Companies
Sikaset Roadway Patch, mfg. by Sika Corp.
Set Instant Concrete, mfg. by Master Builders
Moxie 2000 Super Patch, mfg. by Moxie international
Repair Patch, mfg. by Symons Corp.

2.09 EPOXY BONDING COMPOUND

Epoxy mixtures shall be used as listed below:

Grout	Application
Type I	Bonding hardened concrete to hardened concrete
Type II	Bonding freshly mixed concrete to hardened concrete
Type III	Binder in epoxy mortar or concrete Bonding skid-resistant materials to hardened concrete
Grade 1/2	Horizontal surfaces
Grade 3	Vertical surfaces
Class A	Placement temperature is below 40°F
Class B	Placement temperature is between 40 and 60°F
Class C	Placement temperature is above 60°F

2.10 REINFORCEMENT STEEL

Reinforcement steel shall be new and free from rust. Bars for reinforcement shall conform to ASTM A-615, Grade 60.

2.11 WELDED WIRE MESH

Welded wire mesh shall conform to ASTM A-185.

2.12 WATERSTOPS

Where plastic pipes penetrate concrete walls, the penetration shall be sealed by a full-circumference rubber gasket having a minimum thickness of one-half inch centered in the concrete wall. Gaskets shall fit tightly around the pipe so as to form a water-tight seal after the pipe is grouted into the wall with non-shrink grout (see **Section 2.08** above).

2.13 EXPANSION JOINT MATERIAL

Pre-molded expansion joint fillers shall conform to ASTM D-1751.

2.14 THRUST BLOCKS

Where applicable, thrust blocks shall be sized and located as indicated on the Plans. The concrete mix used for thrust blocks shall conform to **Section 2.01** above.

Note: Thrust blocks shall be installed ONLY where specifically shown on the Plans. For water pipe restraint requirements and thrust block sizing see City of Eureka specification "**Section 15200, Water Main Piping and Appurtenances.**"

2.15 MANHOLES AND DRAINAGE INLETS

Manholes and drainage inlets shall be constructed to the lines and grades shown on the Plans. The concrete mix used for these items shall conform to **Section 2.01** above.

2.16 TRAFFIC BOX COLLARS

Traffic box collars shall be constructed to the lines and grades shown on the Plans. The concrete mix used for these items shall conform to **Section 2.01** above.

2.17 OTHER MATERIALS

Other materials not specifically described above or shown on the Plans shall be as selected by the Contractor and approved by the Engineer.

PART 3 – CONSTRUCTION METHODS

3.01 PROTECTION OF FINISHED CONCRETE WORK

The Contractor shall protect all finished concrete work from vandalism or other damage. See **Section 3.11**, below, relating to defective concrete. Damaged or defective concrete shall be repaired or replaced by the Contractor at the Contractor's sole expense.

3.02 USE OF FIRE HYDRANTS

Refer to **Section 01010,** "**General,**" for information regarding the use of fire hydrants.

3.03 CONCRETE CURBS, SIDEWALKS, AND WHEELCHAIR RAMPS

All curb, sidewalk, and wheelchair ramp work shall conform to the Plans, with **City of Eureka Resolution No. 6219** entitled, "A Resolution Adopting Standards and Specifications for Construction of Sidewalks, Curbs and Gutters and Drop Curb Entrances in the City of Eureka," and with **Section 73, 'Concrete Curbs and Sidewalks'** of the Caltrans Standard Specifications.

3.04 SAWCUTTING

Where shown on the Plans, existing concrete structures (including walls and slabs) shall be sawcut full depth in a straight and true manner, leaving a flat vertical surface. Sawcuts shall not extend beyond the specific dimensions of openings as shown on the Plans. Refer to **Section 02610,** "**Asphalt Concrete Pavement and Overlays**", for information regarding pavement sawcutting.

All sections of concrete sidewalks and curbs being demolished and removed shall be sawcut full depth at the nearest sidewalk scoreline or joint. Any sections of existing sidewalk or curb not being demolished that are damaged by the Contractor during the course of construction shall be repaired or replaced to the satisfaction of the Engineer at the sole expense of the Contractor.

3.05 FORMS AND FALSEWORK

The Contractor shall notify the Engineer a **minimum of 24 hours prior** to any concrete placement to allow the Engineer to inspect concrete forms, and shall give the Engineer full access to all concrete forms for inspection. Structural serviceability of the forms shall be the sole responsibility of the Contractor.

For curb and sidewalk form details, refer to **City of Eureka Resolution No. 6219**. Finished lumber for form work shall be used where concrete is exposed. All exposed corners shall have a 3/4-inch chamfer unless noted otherwise.

3.06 CONCRETE PLACEMENT

Minor concrete placement shall conform to **Section 51,** "**Concrete Structures**" of the Caltrans Standard Specifications. Concrete shall be placed and consolidated by methods that will not cause segregation of the aggregates and that will result in a dense homogeneous concrete that fills the forms and is free of voids and rock pockets.

The Contractor shall maintain the following minimum cover around reinforcing steel:

Concrete cast directly against earth:	3"
Concrete exposed to earth or weather:	
No. 6 bars and larger	2"
No. 5 bars and smaller	1 ½"
Concrete in slabs and wall not exposed to weather or earth:	¾"
Concrete beams and columns not exposed to earth or weather:	1 ½"

3.07 CONCRETE COLLARS

All traffic boxes and manhole frames and grates within the paved street section shall be secured in place with concrete collars. The concrete mix used for all collars shall conform to **Section 2.01** above, and they shall be constructed as shown on the Plans. No color shall be added.

3.08 CONCRETE FINISHES

Unless otherwise shown on the Plans or listed below, all concrete shall have a Class 1 Surface Finish in accordance with **Section 51,** "**Concrete Structures**" of the Caltrans Standard Specifications. In general, curbs and sidewalks shall be float finished and medium broomed to provide a non-slip surface, in accordance with **Section 73,** "**Concrete Curbs and Sidewalks**" of the Caltrans Standard Specifications.

Where required, exposed aggregates shall be placed uniformly on the just poured concrete at a rate of approximately three (3) pounds per square foot and then floated and allowed to set slowly. The surface shall be kept moist at all times and shall not be allowed to dry out. After the concrete has set sufficiently, the grout shall be hosed and brushed in a manner that provides a uniformly patterned surface of exposed aggregate pebbles. Concrete curbs shall be poured and sufficiently cured prior to the exposed aggregate pour.

Prior to construction activities, the Contractor shall demonstrate the exposed aggregate sidewalk construction process to the Engineer at a location outside the project area until two acceptable exposed aggregate samples are constructed. The samples shall be constructed to the size requested by the Engineer. The approved samples shall be included in the bid item for exposed aggregate sidewalk, and no additional payment shall be made by the City for any expenses incurred by the Contractor to provide the required samples.

3.09 JOINTS & SCORELINES

In general, joints and scorelines shall match contiguous sidewalks and shall be approved by the Engineer prior to construction. Refer to **Section 3.03** above for information regarding curb, sidewalk, and wheelchair ramp joint and scoreline work.

3.10 CONCRETE CURING

Minor concrete shall be cured in accordance with **Section 90,** "**Concrete**" of the Caltrans Standard Specifications.

Immediately after placement, the Contractor shall protect the concrete from premature drying, excessively hot or cold temperatures, and damage. He shall maintain the concrete with minimal moisture loss at relatively constant temperatures for period of time needed for hydration of cement and hardening of concrete to occur.

3.11 DEFECTIVE CONCRETE

The Contractor shall allow the Engineer to inspect concrete surfaces immediately upon removal of the forms. The Engineer shall have sole discretion over what defects are classified as "minor defects" and what defects are classified as "major defects", as listed below, and over what methods the Contractor may use to correct the defects.

Minor defects may, at the sole discretion of the Engineer, be repaired with cement mortar by the Contractor at his sole expense. Patching material shall be thoroughly compacted into place, shall be flush with the surrounding surface, and shall be kept damp for at least forty-eight (48) hours.

Major defects may include (but are not limited to) voids, rock pockets, honeycombing, surface defects, poor finish work, poor lines and grades, and embedded debris. Major defects are not acceptable and are grounds for rejection of the work by the Engineer.

3.12 PATCHING OR GROUTING

The Contractor shall thoroughly clean the area to be patched or grouted. Bonding agents or other surface preparations shall be applied in accordance with product manufacturer's recommendations. Concrete patching or grouting products shall be mixed and applied in accordance with product manufacturer's recommendations. All patches shall be kept damp for a minimum of 48 hours by sealing, spraying, or applying cure seal compound. Upon final curing Patch or Grout shall substantially blend with existing concrete being repaired in both color and texture.

3.13 DETECTABLE WARNING SURFACES

Detectable warning surfaces shall consist of raised truncated domes installed in or on sidewalks in conformance with the details shown on the Plans and in accordance with **Section 73, 'Concrete Curbs and Sidewalks'** of the Caltrans Standard Specifications. The detectable warning surface shall be prefabricated, raised truncated domes, and the color shall be yellow, conforming to Federal Standard 595B, Color No. 33538.

Prefabricated detectable warning surface shall conform with the requirements established by the Department of General Services, Division of State Architect, listed on Caltrans' Detectable Warning Surface Authorized Material List, and shall be attached in conformance with the manufacturer's recommendations.

The finished surfaces of the detectable warning surface shall be free from blemishes.

The manufacturer shall provide a written 5-year warranty for prefabricated detectable warning surfaces, guaranteeing replacement when there is defect in the dome shape, color fastness, sound-on-cane acoustic quality, resilience, or attachment. The warranty period shall begin upon acceptance of the contract.

**** END OF SECTION ****

SECTION 15300

SANITARY SEWER PIPING and APPURTENANCES (GRAVITY SYSTEMS)

PART 1 – GENERAL

1.01 GENERAL

This Section covers the installation of new sanitary sewer mains, laterals, cleanouts, connection of new sewer lines to existing sewer improvements, construction and modification of manholes, and all other associated work involving sanitary sewer gravity system improvements. Refer to **Section 15310, 'Sanitary Sewer Piping and Appurtenances (Pressure Systems)**' for pressure sewer specifications.

1.02 QUALITY ASSURANCE

All materials shall be new, of current factory manufacture (unless otherwise shown on the Plans), shall be the product of a supplier regularly engaged in the manufacturing of pipe and sanitary sewer products, and shall be guaranteed against defects in workmanship in accordance with the General Provisions, unless more stringently specified herein. The materials and work performed in this Section shall conform to the following standards:

1. The American National Standards Institute (ANSI)
2. The American Society for Testing and Materials (ASTM)
3. Plumbing and Drainage Institute (PDI)
4. Underwriters Laboratories, Inc. (UL)
5. Uniform Plumbing Code (UPC)
6. Occupational Safety and Health Administration (OSHA)
7. California Department of Industrial Relations (CAL OSHA)
8. The American Association of State Highway Officials (AASHTO)

All materials testing performed to provide quality assurance shall be performed in accordance with **Section 01410,** "**Materials Testing**" and the City of Eureka Quality Assurance Program (QAP). In the event that neither of the above items is included in the Special Provisions for this project, the Contractor is required to provide only selected materials certificates and testing data as listed in **Section 01300,** "**Shop Drawings and Submittals**" and as listed below in **Section 1.03**.

1.03 SUBMITTALS

Submittals shall include, but not be limited to, the following items:

1. Manufacturer's product information cut sheets for all manufactured and precast items proposed for use indicating dimensions. This information shall include specific manufacturer's certification that piping materials and appurtenances meet all specification requirements as stated in this Section.

2. Sewer bypass plan for work on active sanitary sewers (if applicable).

1.04 EXISTING CITY OF EUREKA WATER SYSTEM

Water used for hydrostatic testing of sanitary sewer improvements may only be introduced to the improvement through a backflow prevention device. Refer to **Section 01010,** "**General,**" **Subsection 1.13** for backflow prevention information and requirements.

1.05 LINES AND GRADES

The Contractor shall construct all sanitary sewer improvements to the lines and grades shown on the Plans. At the direction of the Engineer, the City may produce survey staking cut sheets for portions of the work. If present, these cut sheets supersede the lines and grades shown on the Plans.

No matter which method listed above is used for establishing final lines and grades for sanitary sewer improvements, the Contractor shall verify that the grades match the field conditions. In addition, the Contractor shall notify the Engineer immediately if conditions are found to exist that prevent the Contractor from constructing the improvements to the final lines and grades.

PART 2 – CONSTRUCTION MATERIALS

2.01 GENERAL

All materials shall be from new stock, delivered in new condition. Where no method of tests for materials is specified, the latest applicable test specified by ASTM shall be followed.

Material specifications listed on the Plans, where applicable, shall supersede those listed in this Section.

2.02 PVC SEWER PIPE

PVC sewer main line and lateral piping shall meet the requirements of ASTM D3034 or F679 (as applicable) and shall have integral bell and spigot push-on elastomeric gasketed joints meeting the requirements of ASTM F477. The SDR of the pipe shall be as shown on the Plans.

2.03 FITTINGS

All sewer fittings shall be factory manufactured and shall conform to the plastic pipe specification above.

Sewer laterals shall connect to the sewer with wye fittings. Unless otherwise approved by the Engineer, saddle-type fittings shall not be used.

2.04 MANHOLES

Refer to **Section 03310,** "**Minor Concrete**" for specific concrete mix requirements for all concrete and grout materials used for manhole and concrete collar construction.

Unless otherwise approved by the Engineer, all manhole bases shall be cast-in-place. Where precast manhole bases are approved, the manhole bases shall be manufactured to the lines and grades shown on the Plans by Hilfiker Pipe Company, Eureka, CA; Cook Concrete Products, Redding, CA; or approved equal.

Precast manhole barrel and cone sections shall be manufactured by Hilfiker Pipe Company, Eureka, CA; Cook Concrete Products, Redding, CA; or approved equal.

Joint sealant for sealing precast barrel and cone sections shall be Ram-Nek, Kent Seal, or approved equal.

Manhole steps shall be made from ½ -inch Grade 60 steel and shall be shaped as shown on the Plans. Steps shall be OSHA-approved and shall be coated with polypropylene plastic or an equal coating capable of resisting corrosion by sulfuric acid.

Frames and covers shall be Phoenix Model P-1090 or approved equal, with the raised letters "SANITARY SEWER" cast into the cover. Covers shall have a vented pick-hole. The horizontal bearing surfaces between the frame and cover shall be machined smooth and true, ensuring a close, flush fit. After installation, the covers shall not be loose fitting, wobbly, or subject to noise or uplift when driven over by vehicular traffic.

Rubber gasket waterstops shall be installed on all sanitary sewer pipes where they penetrate the manhole wall as shown on the Plans. Waterstops shall have a snug, watertight fit on the pipe, and shall have a minimum thickness of ½-inch measured perpendicular to the pipe surface.

2.05 CLEANOUTS

Refer to **Section 03310,** "**Minor Concrete**" for specific concrete mix requirements for all concrete and grout materials used for cleanouts and concrete collar construction.

Cleanout plugs shall be "Gripper"-type plugs, manufactured by Cherne or approved equal. Two-way cleanout fittings shall be used for all 4" sanitary sewer laterals, shall be gasketed (solvent-welded fittings will not be allowed), and shall be as manufactured by Plastic Trends, Inc. or approved equal.

2.06 BEDDING AND BACKFILL MATERIALS

Bedding and backfill material for pipelines and sanitary sewer structures shall be as shown on the Plans. Refer to **Section 3.09** below and **Section 02210,** "**Trench Excavation and Backfill**" for specific bedding, backfill, and compaction requirements.

2.07 TRAFFIC BOXES

Cleanout traffic boxes and covers shall be Christy Model G5 or approved equal, with

the word “SEWER” cast into the top of the cover. All other traffic boxes shall be as specified on the Plans, with the word “SEWER” cast into the tops of all lids.

2.07 PIPE PLUGS

Pipe plugs shall be “Gripper”-type plugs, manufactured by Cherne or approved equal.

2.08 TRACE WIRE

Trace wire installed on sewer mains and laterals shall be 10-gauge copper wire with green insulation.

2.09 OTHER MATERIALS

Other sanitary sewer-related materials not specifically described above shall be as selected by the Contractor and approved by the Engineer.

PART 3 – CONSTRUCTION METHODS

3.01 MAINTENANCE OF SEWAGE FLOWS

All new sewer lines, laterals, and manholes shall be installed in such a manner as to not interrupt the normal flow of wastewater or cause surcharging of upstream lines. Sewer lines shall not be installed in flowing sewage. Where existing sanitary sewer structures on active sanitary sewers are being modified, relocated, or replaced, the Contractor may divert wastewater that would normally flow through the work area and pump it around the work area into a manhole or other approved location adjacent to the work area. Bypass pumping shall consist of furnishing, installing, and maintaining all power, primary and standby pumps, appurtenances, and bypass piping required to maintain existing flows and services. All pumped sewage shall be in an enclosed structure (such as a pump hose) that is adequately protected from damage.

The Contractor is solely responsible for maintaining existing wastewater flows through the project area at all times during the project. The Contractor’s operations shall not cause a public health hazard or discharge of untreated wastewater to the ground surface or to groundwater at any time during the project. The Contractor shall take all necessary precautions including constant monitoring of bypass pumping to ensure that no private residences or properties are subjected to a sewage backup or spill, and the Contractor shall be liable for all cleanup, damages, and any fines in the event of a spill. After the work is completed, flow shall be restored to normal.

When a bypass is required, the Contractor shall submit a wastewater bypass plan to the Engineer prior to commencement of sewer line work. The bypass plan shall be subject to approval by the Engineer and shall insure that all bypass pumping shall be performed in such a manner as not to damage public or private property or create a public nuisance

With the written approval of the property owner, flows from service laterals may be blocked for a period of time not to exceed 8 hours. The Contractor shall be responsible

for coordinating with property owners to obtain approval for blockages and to ensure that any backups in the service laterals do not result in overflow or sewage spill. The Contractor shall be responsible for all cleanup, damages and any fines in the event of a spill. Service laterals that are blocked shall be re-opened immediately upon completion of the lateral installation work.

3.02 STORAGE OF MATERIALS

Pipe, fittings, and other related materials shall be stored in a safe location out of the traveled way.

3.03 NOTIFICATION OF SERVICE INTERRUPTION

If continuous sanitary sewer service in the work area will be interrupted during portions of the work, the Contractor shall notify all affected residents at least 2 (two) full working days in advance of the anticipated sewer work.

3.04 BACKFLOW PREVENTION

Refer to **Section 01010,** "**General,**" **Subsection 1.13** information and requirements for backflow prevention.

3.05 USE OF FIRE HYDRANTS

Refer to **Section 01010,** "**General,**" **Subsection 1.14** for information and requirements regarding the use of fire hydrants.

3.06 TRENCH DEWATERING

Dewatering of excavations for sanitary sewer pipes, manholes, and other sanitary sewer structures may be required to keep groundwater out of the excavation. Water will not be allowed in excavations during bedding, concrete pours, or backfill and compaction. If excessive groundwater is present and cannot be adequately controlled, the Engineer may deem the bottom of the trench unsuitable for placement of bedding material and require that the subgrade material be removed and replaced per **Section 02210,** "**Trench Excavation and Backfill**".

3.07 SANITARY SEWER PIPE INSTALLATION

Plastic pipe shall be installed in conformance with the manufacturer's recommendations and the trench detail shown on the Plans. All pipe shall be centered in the trench.

All pipe shall be carefully lowered into the trench to prevent damage. Under no circumstances shall pipe be dropped, rolled, or dumped into trenches.

Pipe ends shall be carefully cleaned before the pipe is joined. Whenever work ceases for any reason, the end of the pipe shall be closed with a watertight fitting, plug, or cover. The interior of the pipe shall be kept free from dirt and debris as the work progresses.

All pipe field cuts shall be made in accordance with the manufacturer's recommendations and at right angles to the axis of the pipe, except where pipes terminate at a skewed angle in manholes.

All joints shall be made in accordance with the manufacturer's recommendations. Pipe lubricant shall be applied to all pipe gaskets prior to joint assembly. Lubricant shall be of a type specifically made for the type of pipe being jointed. The Contractor shall provide all tools, equipment, and devices, such as special jacks, chains, chokers, and similar items, to make all joint connections.

Ten gauge copper wire with green insulation shall be taped to the pipe along the full length of all new mains and laterals. The wire shall be looped around each main line fitting and shall be extended to the top of each traffic box and manhole. Splices shall be made with water-tight, corrosion-resistant connectors approved by the Engineer.

3.08 SEWER LATERALS

All new laterals shall be installed to the property line and perpendicular to the sewer main unless otherwise directed by the Engineer or shown on the Plans. Cleanouts with traffic boxes set to finished grade shall be installed on all new laterals as shown on the Plans. Cleanout riser pipe shall not end in a bell flange or a "Caulder"-type coupling. Riser shall terminate with a level cut at the required clearance below the traffic box lid.

The Contractor shall have equipment on hand during sanitary sewer main and lateral installation operations that will allow the Contractor to determine the location of the lateral at the point where it crosses the property line. Once this location is determined, unless specifically shown otherwise on the Plans, the new lateral shall be installed perpendicularly between this point and the new sewer main. In the event that the existing lateral does not run perpendicular to the main, the existing lateral shall be reconnected to the new main via a new wye and an additional wye shall be installed at a point perpendicular to the point that the existing lateral crosses the property line. A new lateral shall then be installed from the additional wye to the property line. After the new lateral is installed, the Contractor shall remove the existing lateral and plug the wye to which it is connected.

Particular attention shall be paid by the Contractor to the above requirements for installing laterals perpendicular to the new sanitary sewer main and property line when preparing his bid for the work. The above work is considered as being a part of sanitary sewer lateral installation items as listed in **Section 01150,** "**Measurement and Payment**", and no additional payment shall be made for this work.

Existing skewed laterals that do not lie in the same trench as the new laterals shall be removed as directed by the Engineer. Cost for this removal shall be paid for under Contract Change Order unless specifically addressed in the Bid Schedule in the Contract Documents or in **Section 01150,** "**Measurement and Payment**".

New laterals installed for future connections shall be plugged at the property line.

3.09 BEDDING AND BACKFILL

Pipe shall be laid on an unyielding bed true to line and grade with compacted bedding material under the full length of the pipe. Bedding material shall be placed into the trench prior to pipe placement, shall be compacted to a minimum of 95% relative compaction, and shall be of the thickness specified on the trench detail on the Plans. Bedding material under the coupling bells shall be hand-excavated to provide a minimum clearance under the bell of 1 inch.

Backfill material in the pipe haunching zone between the bottom of the pipe and the springline of the pipe shall be ”shovel-sliced” underneath the pipe overhang, then hand-tamped with ‘J’ bars or a pneumatic “pogo” stick to a relative compaction of 90% along the entire length of the pipe. Tamping with a shovel is not sufficient and does not meet this requirement.

Backfill material from the springline of the pipe to the bottom of the trench patch shall be of the material, thickness, and compaction shown in the trench detail on the Plans and as specified in **Section 02210,** “**Trench Excavation and Backfill**”.

3.10 SANITARY SEWER MANHOLE CONSTRUCTION

Manholes shall conform to the details shown on the Plans. All manholes shall be water-tight. Precast barrel and cone sections shall be sealed with two continuous beads of approved plastic sealant on the upper and lower shelf of each tongue-and-groove joint.

New manhole bases shall be cast-in-place. Precast manhole bases will not be allowed unless shown on the Plans or approved by the Engineer. Cast-in-place manhole base pours shall be allowed to set up for a minimum of 4 hours before placement of the first precast barrel section on the base.

A groove, shaped to match the tongue of the first precast concrete barrel section, shall be formed in the manhole base slab. A circular metal form suited to the particular shape of the precast barrel section’s joint shall be used to form the groove. The form shall be set level and create a uniform bearing surface for the full circumference of the first barrel section.

Manhole inverts shall have smooth troughs with circular cross-sections. Changes in invert flow direction shall be accomplished with smooth, horizontal curves of constant radii. Where a full section of pipe or multiple branch fittings are laid through a manhole, the top one-half section of the pipe shall be sawcut and removed after the concrete is cured. The inner base section of the manhole shall then be built up with concrete to the elevation of the top of the pipes, forming benches as shown on the details on the Plans. Benches shall be smoothly finished with concrete or a grout approved by the Engineer.

Where possible, manhole steps shall be installed on the face of the manhole opposite the outlet pipe.

All grade rings and the base of the manhole frame and cover shall be sealed with a watertight layer of non-shrink grout. The grout used shall be subject to approval by the Engineer.

In paved areas, manhole frames and covers shall be set to finished grade with a concrete collar in accordance with the detail on the Plans.

In non-paved areas, the elevation of the manhole frame and cover shall be as noted on the Plans. Concrete collars shall be omitted only if so noted on the Plans.

Manhole excavations shall be backfilled as shown on the Plans and as specified in **Section 02210,** "**Trench Excavation and Backfill.**"

3.11 PIPE CONNECTIONS TO EXISTING MANHOLES

Pipe connections to existing manholes shall be made by drilling a hole in the manhole wall and grouting the new pipe into the wall. The drilled hole shall provide a minimum clearance between the pipe and the manhole wall of one inch around the full circumference of the pipe. All space between the pipe and the manhole wall shall be completely filled with grout and smoothly finished to the satisfaction of the Engineer.

Where plastic pipes penetrate manhole walls, the penetration shall be sealed by a full-circumference rubber gasket having a minimum thickness of one-half inch centered in the structure wall. Gaskets shall fit tightly around the pipe so as to form a water-tight seal after the pipe is grouted into the wall.

3.12 SEWER MAIN CLEANOUTS

Sewer main cleanouts shall be constructed in accordance with the Plan details. Cleanout riser pipe shall terminate with a level cut at the required clearance below the traffic box lid and shall not end in a bell flange or a "Caulder"-type coupling. Circular concrete collars around cleanout boxes shall be constructed following final trench asphalt concrete resurfacing.

3.13 SEWER MANHOLE ACCEPTANCE

When new sewer manholes can be isolated from the sewer system without causing backups, they shall be tested for acceptance by the Contractor under the direction of the Engineer. The Contractor shall furnish all materials, labor, and water needed for acceptance testing (refer to **Section 01010,** "**General,**" **Subsection 1.13** for backflow prevention information and requirements and to **Section 01010,** "**General**", **Subsection 1.14** for information and requirements regarding the use of fire hydrants).

<u>Manhole Acceptance Testing:</u>

Acceptance testing of new sanitary sewer manholes (where required; see above) shall be performed after completion of backfilling and compaction. Completion of permanent asphalt concrete patching is not required. Manholes failing the acceptance test shall be repaired as needed by the Contractor using an approved method and retested. Manholes shall be repaired and retested at the Contractor's sole expense until a satisfactory test is obtained.

The Contractor may test manholes using either hydrostatic or vacuum testing.

1. Hydrostatic Testing

A. The Contractor shall plug all inlets and outlets and fill the manhole with water. Each manhole shall be filled to the rim at the start of the test.

B. Leakage in each manhole shall not exceed 0.2 gallons per hour per foot of head above the manhole invert. Leakage shall be determined by refilling the manhole to the rim using a calibrated known-volume container. Manholes may be filled with water 24 hours prior to the time of testing to permit normal absorption into the manhole walls to take place.

2. Vacuum testing

A. Vacuum testing shall be performed in accordance with ASTM C1244-93. The Contractor shall plug all pipe inlets and outlets, and shall brace all plugs.

B. The test head shall be placed in or on top of the manhole frame. A vacuum of 10 inches of mercury shall be drawn on the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off.

C. The time shall be measured for the vacuum to drop to 9 inches of mercury. The manhole shall be deemed as passing the test if the time for the vacuum reading to drop from 10 inches of mercury to 9 inches of mercury meets or exceeds the time (in seconds) indicated in the table below:

	Manhole Barrel Section Diameter (inches)					
Depth (ft)	42	48	54	60	66	72
8' or less	17s	20s	23s	26s	29s	33s
10	21s	25s	29s	33s	36s	41s
12	25s	30s	35s	39s	43s	49s
14	30s	35s	41s	46s	51s	57s
16	34s	40s	46s	52s	58s	67s

Notes: 1. Depth is measured from the top of the manhole frame to the lowest invert.
2. Test times for manhole depths between those shown in table shall be calculated by interpolation.

3.14 SEWER MAIN AND LATERAL ACCEPTANCE

All sanitary sewer mains and laterals shall be tested for acceptance by the Contractor under the direction of the Engineer. The Contractor shall furnish all materials, labor, and water needed for acceptance testing (refer to **Section 01010,** "**General**", **Subsection 1.13** for backflow prevention information and requirements and to **Section 01010,** "**General,**" **Subsection 1.14** for information and requirements regarding the use of fire hydrants).

Sewer Main and Lateral Acceptance Testing:

Following installation of new sanitary sewer mains and laterals, the Contractor shall conduct the following acceptance tests of the new mains and laterals at the direction of the Engineer:

1. Video Inspection – Required on all mains; requires completion of trench backfill and compaction; permanent asphalt concrete patching is not required.

2. Exfiltration Test – Required on mains and laterals that can be isolated from the collection system without causing backups; requires completion of backfill and compaction; permanent asphalt concrete patching is not required. Laterals shall not be connected to private service lines until after successful exfiltration testing.

3. Deflection Test – Required on all mains; requires completion of trench backfill and compaction, and permanent asphalt concrete patching.

Sewer mains and laterals failing any required acceptance test shall be repaired as needed by the Contractor using a method approved by the Engineer and retested at the Contractor's sole expense until a satisfactory test is obtained.

1. Video Inspection

Prior to acceptance of the sewer main installation and other improvements by the Engineer, the Contractor shall pay for and provide to the Engineer video inspection tapes or disks of the new sewer main (video of lateral runs is not required).

All video inspection shall be performed by a competent pipeline video service provider and shall be recorded on either VHS video tape or DVD digital format. The video inspection shall be in color, shall pan in all directions so that all joints and lateral connections can be thoroughly examined, and shall be of sufficient resolution to allow the Engineer to clearly see all pipe joints, wyes, manhole connections, and other fittings.

The video inspection tapes shall be reviewed by the Engineer. If any irregularities are observed on the tapes (open or offset joints, grade problems, etc.), the Engineer MAY elect to have the main in question re-inspected using City forces and equipment, including an inclinometer attached to the video camera that records pipe grade. If, in the opinion of the Engineer, any of the following tolerances are found to be exceeded in any section of sewer main, that section shall be deemed to have failed the video inspection acceptance test.

Joint Offset: ≥ ¼" in any direction

Design Grade:	0.00% - 0.50%	+/- 20% of the Design Grade
	0.51% - 1.00%	+/- 10% of the Design Grade
	1.01% - 2.00%	+/- 10% of the Design Grade
	2.01% - 5.00%	+/- 5% of the Design Grade
	5.01% -	+/- 5% of the Design Grade

The City may also perform a video inspection of any new pipeline after backfilling and resurfacing are completed or at any time during the contract guaranty period. Where infiltration, excessive deflection, or any structural failure of the pipe is observed during said inspection, that section shall be deemed to have failed the video inspection acceptance test, and the Contractor shall be responsible for repairing or replacing the failed section of pipe at his own expense, including removal and replacement of all affected improvements and any and all other costs incurred in order to repair the pipe, as well as for all costs incurred by the City for the re-inspection of the sewer main.

2. Exfiltration Test

The Contractor may test sanitary sewer mains for exfiltration using either the water exfiltration test or the air exfiltration test.

Water Exfiltration Test:

A. Each section of sanitary sewer pipe shall be isolated between successive manholes by plugging both ends of the sewer pipe being tested at the nearest upstream and downstream manholes and by plugging the sewer laterals at a point upstream of the cleanout.

B. The pipeline shall be filled with water from the cleanout riser pipe that is at the highest point on the pipeline. The Contractor shall remove all air from the pipeline by leaving all cleanout riser pipes along the pipeline uncapped until water begins to flow out of each riser pipe.

C. Once the entire pipeline is full of water and all air has been removed from the pipeline, the Contractor shall plug the cleanout used for filling and leave the pipeline plugged for 1 hour. Under no circumstances shall the plugged pipeline be unplugged at any time during this 1 hour period.

D. After 1 hour has elapsed, the Engineer shall remove the plug from the cleanout used to fill the pipeline. Leakage shall be determined by refilling the pipeline to the top of the cleanout riser pipe using a calibrated known-volume container. The pipeline shall be deemed as passing the test if the leakage over a 1 hour period does not exceed the allowable leakage as calculated using the following formula:

$$E = CLD\,(\sqrt{H})\,(t)$$

Where:

E = allowable pipeline leakage (gallons)
C = 0.000161 (constant)
L = total length of sewer pipeline tested (feet)
D = internal diameter of pipe (inches)
H = difference in elevation between the water surface at the cleanout used to fill the pipeline and the invert of the pipe at it's lowest point within the testing length (feet)
t = duration of test (hours)

*Where pipe diameters vary, the allowable leakage shall be calculated for each pipe diameter separately. The total allowable pipeline leakage will be the allowable leakage total for all pipe diameters.

Air Exfiltration Test (Timed Pressure Drop Method)

A. At the Contractor's option, he may wet the pipeline with water prior to testing. Each section of sanitary sewer pipe shall be isolated between successive manholes by plugging both ends of the sewer pipe being tested at the nearest upstream and downstream manholes, by plugging the sewer laterals at a point upstream of the cleanout, and by plugging all cleanout riser pipes. All plugs shall be braced as needed.

B. If groundwater is present at an elevation higher than the sanitary sewer pipeline being tested, the average elevation difference between the top of the pipe and the groundwater table shall be calculated, and the average backpressure due to groundwater shall be calculated using the following formula:

$$B = (0.433)\ E$$

Where:

B = average backpressure (psi)
E = average elevation difference between the top of the pipe and the groundwater table (feet)

For example, if the average elevation difference between the top of the pipe and the groundwater table is 4 feet, the calculated back pressure would be 1.732 psi.

C. The pipeline shall be slowly filled with air through a pressure cap installed on the cleanout riser pipe that is at the highest point on the pipeline. Air shall be added until the internal air pressure of the pipeline is raised to 3.5 psi greater than the backpressure calculated in (B) above. For example, if the backpressure is 1.732 psi (above example), then the internal pressure of the pipeline shall be raised to 5.232 psi (3.5 psi + 1.732 psi).

D. Once the required internal air pressure of the pipeline is reached, the Contractor shall allow 2 minutes for the air temperature inside the pipe to stabilize. During this time, the Contractor shall add air to the pipeline as required to maintain the required internal air pressure.

E. After the temperature stabilization period, the air supply shall be disconnected. The Engineer shall begin recording time when the internal pressure drops to 3.5 psi. The pipeline shall be deemed as passing the test if the pressure drop is less than one psi for the time period calculated from the following table for the size and length of pipe being tested:

Nominal Pipe Diameter	Minimum Test Time for Pressure Drop / 100 ft.
6"	0.7 seconds
8"	1.2 seconds
10"	1.5 seconds
12"	1.8 seconds
15"	2.1 seconds
18"	2.4 seconds

3. Deflection Testing

A. All main line PVC & HDPE sanitary sewer pipe installed on the project shall be deflection tested by the Contractor for vertical deflection using a 9-rod mandrel provided by the Contractor and approved by the Engineer.

B. Vertical deflection exceeding 5 percent of the average inside diameter shall be cause for rejection of the pipeline and all related work. The use of a re-rounder will not be permitted at any time. The average inside diameters shall be in accordance with the table shown below:

SDR35:

Pipe Size	**Average I.D.**	**Min. I.D. @ 5% Deflection**
6”	5.84”	5.55”
8”	7.89”	7.50”
10”	9.86”	9.37”
12”	11.74”	11.15”
15”	14.37”	13.66”

C. If the mandrel is not able to travel unobstructed through the pipe and stops at any point, that section of pipeline will have failed the acceptance test. When failure is observed, the Contractor shall be responsible for repairing or replacing the failed section of pipe at his own expense, including removal and replacement of all affected improvements and any and all other costs incurred in order to repair the pipe. Note that the use of a re-rounder will not be permitted at any time.

**** END OF SECTION ****

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SECTION 15311

TRENCHLESS SANITARY SEWER REHABILITATION

PART 1 - GENERAL

1.01 DESCRIPTION

This Section covers the trenchless rehabilitation and installation of sanitary sewer mains, laterals, cleanouts, connection of new sewer lines to existing sewer improvements, and all other associated work involving replacing sewer mains by trenchless methods, including (but not limited to) burst and pull and horizontal directional drilling.

The Contractor shall hold the City and Engineer harmless in any legal action resulting from patent infringements.

1.02 QUALITY ASSURANCE

REFERENCE SPECIFICATIONS, CODES, AND STANDARDS:
The materials and work performed in this Section shall conform to the following standards. In case of conflict between the requirements of this Specification and those of the listed documents, the requirements of this Specification shall prevail.

- The American National Standards Institute (ANSI).
- The American Society for Testing and Materials (ASTM)
  - ASTM D543 - Standard Test Methods for Resistance of Plastics to Chemical Reagents
  - ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
  - ASTM F1216 - Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of Resin-Impregnated Tube
- Plumbing and Drainage Institute (PDI).
- Underwriters Laboratories, Inc. (UL).
- Uniform Plumbing Code (UPC).
- Occupational Safety and Health Administration (OSHA).
- California Department of Industrial Relations (CAL OSHA).
- The American Association of State Highway Officials (AASHTO).

Polyethylene pipe jointing shall be performed by personnel trained in the use of thermal butt-fusion equipment and recommended methods for new pipe connections. Personnel directly involved with installing the new pipe shall receive training in the proper methods for handling and installing the polyethylene pipe. A qualified representative shall perform all training.

CONTRACTOR QUALIFICATIONS:

The Contractor or Sub-Contractor shall be certified by the Pipe Bursting System Manufacturer as a licensed installer of their system.

The Contractor or Sub-Contractor shall have a minimum of 2 years experience using the pipe-bursting method and shall have installed no less than two thousand feet.

The Contractor, or Sub-Contractor, must have successfully completed at least one job, similar in scope, to the requirements of pipe bursting set forth in these bid documents.

All materials shall be new, of current factory manufacture (unless otherwise shown on the Plans), shall be the product of a supplier regularly engaged in the manufacturing of pipe and sanitary sewer products, and shall be guaranteed against defects or workmanship in accordance with the General Provisions, unless more stringently specified herein.

All materials testing performed to provide quality assurance shall be performed in accordance with **Section 01410, 'Materials Testing'** and the City of Eureka Quality Assurance Program (QAP). In the event that neither of the above items are included in the Special Provisions for this project, the Contractor is required to provide only selected materials certificates and testing data as listed in **Section 01300, 'Shop Drawings and Submittals'** and as listed below in **Subsection 1.03.**

1.03 SUBMITTALS

The Contractor shall provide the following submittals to the Engineer at the Preconstruction meeting, and shall allow 10-days between providing the submittals to the Engineer and commencing work:

Material Safety Data Sheets (MSDS) for drilling mud and additives.

Manufacturer's product information cut sheets with dimensions for all manufactured and precast items proposed for use. This information shall include specific manufacturer's certification that piping materials and appurtenances meet all specification requirements as stated in this Section, and manufacturer's recommendation for handling, storage, and repair of installed pipe and related appurtenances.

Certification of worker's training and certification for the specific methods of pipe installation to be used.

Detailed and specific drawings and descriptions of entire construction procedure, including but not limited to pipe installation layout, sewer bypass plans, and lateral reconnection plan.

Contingency plans as detailed below in **Section 15310.3.01 'Contingency Plans'** of these Special Provisions.

The Contractor shall provide the following submittals to the Engineer *prior to acceptance of the job by the City*:

Video-inspection tapes of sewer main after new pipe installation. See sub-section **15310.3.13 'Manhole and Sewer Main Acceptance'** for details about video inspection.

1.04 EXISTING CITY OF EUREKA WATER SYSTEM

Water used for hydrostatic testing of sanitary sewer improvements may only be introduced to the improvement through a backflow prevention device. Refer to **Section 01010, General, Subsection 1.13** for backflow prevention information and requirements.

1.05 PRELIMINARY TESTING REQUIREMENTS

When working in the CalTrans Right-of-Way, The Contractor shall provide all soil reports required by Section 600 'Utilities Permits' of the CalTrans' Encroachment Permits Manual.

1.06 DELIVERY. STORAGE. AND HANDLING

Transportation, handing, and storage of all pipe and fittings shall be as recommended by the manufacturer.

If new pipe and fittings become damaged before or during installation, they shall be replaced at the Contractor's expense, before proceeding further.

1.07 APPROVED METHODS FOR NEW PIPE INSTALLATION

The methods approved for rehabilitation of existing sanitary sewers by pipe bursting and installation of new polyethylene pipe are hydraulic pipe-bursting, pneumatic pipe-bursting, impact-moling, or prior approved equal.

PART 2 - CONSTRUCTION MATERIALS

2.01 GENERAL

All materials shall be from new stock, delivered in new condition. Where no method of

tests for materials is specified, the latest applicable test specified by ASTM shall be followed.

Material specifications listed on the Plans, where applicable, shall supercede those listed in this Section.

2.02 PVC AND HDPE SEWER PIPE

The SDR of all pipe shall be as shown on the Plans.

PVC Sewer main line and lateral piping to be used in open trench construction shall meet the requirements of ASTM D3034 or F679 (as applicable), and shall have integral bell and spigot push-on elastomeric gasketed joints meeting the requirements of ASTM F477.

Polyethylene Plastic Pipe to be used in trenchless construction shall be high-density polyethylene pipe and meet the applicable requirements of ASTM F714 Polyethylene (PE) Plastic Pipe (SDR-PR) based on outside diameter, ASTM D1248, or ASTM D3550.

Material color polyethylene plastic pipe shall be black on the outside for ultraviolet protection and have 10 mils of light-colored inner layer for enhanced television inspection.

The pipe shall be homogenous throughout and shall be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.

2.03 FITTINGS

All sewer fittings shall be factory manufactured, and shall conform to the plastic pipe specifications above.

Sewer laterals shall connect to the sewer with wye fittings. Unless otherwise approved by the Engineer, saddle-type fittings shall not be used.

2.04 BEDDING AND BACKFILL MATERIALS

Bedding and backfill material for pipelines and sanitary sewer structures shall be as shown on the Plans. Refer to **Subsection 3.09** below and **Section 02210, 'Trench Excavation and Backfill'** for specific bedding, backfill, and compaction requirements.

2.05 OTHER MATERIALS

Other sanitary sewer-related materials not specifically described above or in the Plans shall be as selected by the Contractor and shall be subject to approval by the Engineer.

PART 3 - CONSTRUCTION METHODS

3.01 CONTINGENCY PLANS

At the Preconstruction meeting the Contractor shall furnish a contingency plan to the Engineer, which shall address the following:

- Inadvertent return, spill (e.g., drilling fluids, and hydraulic fluids), including measures to contain and clean the affected area.
- Clean up of surface seepage of drilling fluids and spoils (i.e., “Frac-out”).
- Recovery of the boring head if it gets stuck during the burst and pull or jack and bore process.
- Containment, disposal, and continued diversion of sewage in the event of sewer bypass and/or diversion plan failure.

3.02 MAINTENANCE OF SEWAGE FLOWS

The Contractor’s operations shall not cause a public health hazard or discharge of untreated wastewater to the ground surface or to groundwater.

Where existing sanitary sewer structures on active sanitary sewers are being modified or relocated, the Contractor shall submit a sewage bypass plan to the Engineer prior to commencement of sewer line work (as detailed in Section 3.03 below). The bypass plan shall be subject to approval by the Engineer. Sewer lines shall not be installed in flowing sewage.

At the Engineer’s discretion, and with the written approval of all effected property owners, flows from service laterals may be blocked for a period of time not to exceed 24 hours. The Contractor shall be responsible for coordinating with property owners to obtain approval for blockages and to ensure that any backups in the service laterals do not result in overflow or spill of sewage. Contractor shall be responsible for all cleanup, damages and resultant fines in the event of a spill. Service laterals that are blocked shall be re-opened immediately upon completion of trenchless mainline installation.

3.03 BYPASSING SEWAGE

The Contractor shall provide by-pass pumping of sewage during the pipe bursting/replacement process. The pumps and by-pass lines shall be of adequate capacity and size to handle all flows. All costs for by-pass pumping, required during installation of the pipe, manhole lining, and lateral reconnection shall be on the basis of the lump sum bid price for sewage bypass pumping.

The Contractor is solely responsible for ensuring that all bypass pumps and pipes are of adequate capacity and size to handle all sewage flows during the entire period that the sewer main is out of service. The Contractor shall also have adequately sized back-up pumps on the job site in the event that a bypass pump fails.

The Contractor shall be solely responsible for continuity of sanitary sewer service to

each facility connected to the section of sewer during the execution of the work.

If sewage backup occurs, the Contractor shall be responsible for all clean up, repair, and property damage.

3.04 STORAGE OF MATERIALS

Pipe, fittings, and other related materials shall be stored in a safe location out of the traveled way.

3.05 BORE AND RECEIVING PITS

Bore and receiving pits shall be shored according to Cal-OSHA standards.

Insertion or launching pits shall only be allowed at locations of existing or proposed manholes, unless previously approved by the Engineer as part of the Construction Plan submitted at the Preconstruction meeting.

All bore and receiving pits shall have crushed rock sump areas to clear groundwater and water used to clean the casing. Pits shall be lined with filter fabric when groundwater is found and pumping is required.

Bore and Receiving pits shall be backfilled according to **Section 02210, 'Trench Excavation and Backfill'** of these Special Provisions.

3.06 BURST AND PULL SANITARY SEWER PIPE INSTALLATION

This section covers requirements to rehabilitate existing sanitary sewers by the pipe bursting method. This method involves splitting the existing pipe and immediately installing a new polyethylene pipe, reconnecting existing sewer lateral connections, television inspection of the polyethylene pipe, and complete installation in accordance with the Contract documents.

If the Contractor encounters obstructions that cannot be burst through during the burst and pull operation, then the Contractor shall locate and expose the obstruction. The City will pay the Contractor at the lump sum bid price for Excavation and Removal of Obstructions.

Upon commencement, pipe insertion shall be continuous and without interruption from one manhole to another, except as approved by the Engineer.

Terminal sections of pipe that are joined within the insertion pit shall be connected with a full circle pipe repair clamp. The butt gap between pipe ends shall not exceed one-half (1/2) inch.

3.07 SEWER LATERALS

All sewer service connections shall be identified, located and excavated prior to the pipe insertion to expedite reconnection.

Sewer service connections shall be connected to the new pipe by either mechanical methods or Electro-fusion methods. Once the saddle is secured in place, a hole shall be drilled in the pipe liner that is the full inside diameter of saddle outlet.

Mechanical saddles shall be made of polyethylene pipe compound that meets the requirements of ASTM D1248, Class C, have stainless steel straps and fasteners, neoprene gasket and backup plate. Mechanical saddles shall be Strap-On-Saddle Type as manufactured by Driscopipe or Tapping Saddle manufactured by Fernco Joint Sealer Co., DFW Plastics, Inc. or approved equal. Inserta Tee gasketed joint taps are also an acceptable method of re-establishing lateral connection.

An HDPE branch saddle may be sidewall fused onto the O.D. of the installed HDPE pipe. This may be done with a commercially available sidewall Fusion machine or installed with a "Unicore" HDPE splice under the base of the saddle.

3.08 BACKFLOW PREVENTION

Refer to **Section 01010, 'General', Subsection 1.13** for backflow prevention information and requirements.

3.09 USE OF FIRE HYDRANTS

Refer to **Section 01010, 'General', Subsection 1.14** for information and requirements regarding the use of fire hydrants.

3.010 TRENCH AND PIT DEWATERING

The Contractor shall dewater all excavations for sanitary sewer pipes, manholes, and other sewer structures to keep groundwater out of the excavation. Water will not be allowed in excavations during bedding, concrete pours, drilling operations, or backfill and compaction. If excessive groundwater is present and cannot be adequately controlled, the Engineer may deem the bottom of the trench or pit unsuitable for placement of bedding material, and require that the subgrade material be removed and replaced per **Section 02210, 'Trench Excavation and Backfill'**.

3.011 DRILLING FLUID COLLECTION AND DISPOSAL

The Contractor shall fully contain all drilling fluids, and shall keep said fluids out of streams, streets and municipal sewer lines. The Contractor shall provide complete clean up of all drilling mud overflows or spills.

Drilling mud and additives to be used on a particular job should be identified in the submittal package, and their Material Safety Data Sheets (MSDS) shall be provided to the Engineer.

Excess drilling mud slurry shall be contained in a lined pit or containment pound at exit and entry points, until recycled or removed from the site. Entrance and exit pits should be of sufficient size to contain the expected return of drilling mud and spoils.

Methods to be used in the collections, transportation and disposal of drilling fluids, spoils, and excess drilling fluids shall be in compliance with local ordinances, regulations and environmentally sound practices in an approved disposal site.

When working in an area of contaminated ground, the slurry shall be tested for contamination and disposed of in a manner, which meets government requirements.

Precautions should be taken to keep drilling fluids out of the streets, manholes, sanitary and storm sewers, and other drainage systems, including streams and rivers.

Recycling of drilling fluids is an acceptable alternative to disposal.

3.012 SEWER MAIN ACCEPTANCE TESTING

The Contractor under the direction of the Engineer shall test all new sewer mains for acceptance. Acceptance testing of sanitary sewer pipelines shall consist of an exfiltration (leakage) test and a video inspection. The Contractor shall furnish all materials, labor, and water needed for acceptance.

Pipeline sections that fail any portion of the acceptance test shall be repaired as needed by the Contractor using an approved method and retested. Pipelines shall be repaired and retested at the Contractor's sole expense until a satisfactory test is obtained.

<u>Water Exfiltration Test</u>

1. Each section of sanitary sewer pipe shall be isolated between successive manholes by plugging both ends of the sewer pipe being tested at the nearest upstream and downstream manholes, and by plugging the sewer laterals at a point upstream of the cleanout.

2. The pipeline shall be filled with water from the cleanout riser pipe that is at the highest point on the pipeline. The Contractor shall remove all air from the pipeline by leaving all cleanout riser pipes along the pipeline uncapped until water begins to flow out of the riser pipe.

3. Once the entire pipeline is full of water and all air has been removed from the pipeline, the Contractor shall plug the cleanout used for filling and leave the pipeline plugged for 1 hour. Under no circumstances shall the plugged pipeline be

unplugged at any time during this 1-hour period.

4. After 1 hour has elapsed, the Engineer shall remove the plug from the cleanout used to fill the pipeline. Leakage shall be determined by refilling the pipeline to the top of the cleanout riser pipe using a calibrated known-volume container. The pipeline shall be deemed as passing the test if the leakage over a 1-hour period does not exceed the allowable leakage as calculated using the following formula:

$$E = 0.000161\ (L)(D)(\square\sqrt{H})\ (t)$$

Where:

E = allowable pipeline leakage, gallons

L = total length of sewer pipeline tested, feet

D = internal diameter of pipe, inches

H = difference in elevation between the water surface at the cleanout used to fill the pipeline and the invert of the pipe at it's lowest point within the testing length, feet

t = duration of test, hours

*Where pipe diameters vary, the allowable leakage will need to be calculated for each pipe diameter separately. The total allowable pipeline leakage will be the allowable leakage total for all pipe diameters.

Video Inspection

Prior to acceptance of the sewer main installation and other improvements by the Engineer, the Contractor shall pay for and provide to the City video inspection tapes of the new sewer main (videotape of laterals is not required). Experienced personnel, who are trained in locating breaks, obstacles, and service connections by closed circuit color television, shall perform the video inspection.

This video inspection shall be in color, shall be free from visual blemishes and shall be of sufficient resolution to allow the Engineer to clearly see all pipe joints, wyes, manhole connections, and other fittings. If any portion of the inspection tapes is of inadequate quality or coverage, as determined by the Engineer, then the Contractor shall have the portion re-inspected and videotaped at no additional expense to the City.

The finished tape shall be continuous over the entire length of the sewer between two manholes. Stationing or distance shall be graphically indicated on the videotape. Physical pipe defects that, in the opinion of the Engineer, may affect the integrity or strength of the pipe shall be repaired or the pipe replaced at the Contractor's expense.

The City may make additional television inspections of any new pipeline after backfilling and resurfacing is completed or at any time during the contract guarantee period. Where infiltration, excessive deflection, or any structural failure of the pipe is observed

during said inspection, the Contractor shall be responsible for repairing or replacing the failed section of pipe at its own expense, including removal and replacement of all affected improvements and any and all other costs incurred in order to repair the pipe according to these Plans and Specifications.

**** END OF SECTION ****

SECTION 15320

CURED-IN-PLACE PIPE

PART 1 - GENERAL

1.01 GENERAL

This Section covers the installation of cured-in-place pipe (CIPP), including cleaning and television inspection of pipe to be lined, liner installation and curing, reconnection of service connections, and final television inspection and testing of lined pipe.

1.02 QUALITY ASSURANCE

All materials shall be new, of current factory manufacture (unless otherwise shown on the Plans), shall be the product of a supplier regularly engaged in the manufacturing of pipe and sanitary sewer products, and shall be guaranteed against defects or workmanship in accordance with the General Provisions, unless more stringently specified herein. The materials and work performed in this Section shall conform to the following standards:

The following references are part of this Specification. In case of conflict between the requirements of this Specification and those of the listed documents, the requirements of this Specification shall prevail. The latest edition of the following references shall be used:

The following American Society for Testing and Materials (ASTM) Standards:

ASTM D543 Standard Test Methods for Resistance of Plastics to Chemical Reagents

ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

ASTM F1216 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of Resin-Impregnated Tube **(With the exception of Section 7.1.3 *Inspection of Pipelines*)**

ASTM F1743 Rehabilitation of Pipelines by Pulled-in-Place Installation of a Cured-in-Place Thermosetting Resin Pipe

1.03 CONTRACTOR QUALIFICATIONS:

Both the contracting company and the job supervisor shall have a minimum of three years of experience in the performance of the type of work specified.

The Contractor shall submit documentation that he has successfully completed at least two projects of the type and magnitude equivalent to the work contained in this contract with names, titles, and telephone numbers of contact persons associated with each of these projects.

1.04 SUBMITTALS

The Contractor shall provide the following submittals to the Engineer at the Preconstruction meeting, and shall allow 10-days between providing the above submittals to the Engineer and commencing work.

A. Manufacturer certification, data sheets, and construction details for all liner materials and resins, including details of all component materials and complete manufacturer's recommendations for storage procedures and temperature control, handling and inserting the liner, curing details, service connection methods, and trimming and finishing.

B. Documentation that the Contractor has successfully completed at least two projects of the type and magnitude equivalent to the work contained in this contract with names, titles, and telephone numbers of contact persons associated with each of these projects.

C. Manufacturer's certification, field measurements, and pipe sizing calculations, which demonstrate that the liner has been properly undersized to avoid the creation of wrinkles or folds.

D. Sewer bypass pumping and/or diversion plans that identify the liner insertion and bypass pumping locations and methods with sufficient detail to assure that the work can be accomplished without sewage spill. These plans shall include an emergency response plan to be followed in the event of a failure of the bypass pumping system.

E. The sewer bypass plan shall be satisfactory to the Engineer before the Contractor shall be allowed to commence bypass pumping. The Contractor shall also notify the Engineer 24 hours prior to commencing with the bypass pumping operation.

F. Shop drawings and construction plans that include the liner insertion locations.

G. A Traffic Control Plan if specified by the Engineer.

H. The resin manufacture's heating requirements. (Additionally, the Contractor shall conceptually discuss with the Engineer the general curing guidelines.)

1.05 WARRANTY

The Contractor shall provide a warranty to be in force and effect for a period of one year from the date of FORMAL ACCEPTANCE of the contract by the City Council. The warranty shall cause the Contractor to repair or replace the liner should failure result from faulty materials or installation.

PART 2 - CONSTRUCTION MATERIALS

2.01 GENERAL

All materials shall be from new stock, delivered in new condition. Where no method of tests for materials is specified, the latest applicable test specified by ASTM shall be followed.

Material specifications listed on the Plans, where applicable, shall supercede those listed in this Section.

The CIPP system shall conform to and comply with the minimum standards listed below.

Characteristic	Test Method	Polyester Resin	Vinylester and Epoxy Resins
Flexural Strength	ASTM D790	4,500 psi	5,000 psi
Flexural Modulus (short term)	ASTM D790	250,000 psi	300,000 psi
Flexural Modulus (long term)		125,000 psi	150,000 psi

The liner thickness shall be a minimum of 4.5 mm for 6-inch pipe and 6 mm for 8-inch and larger pipe. The Contractor shall submit calculations of proposed liner thickness for review by the Engineer.

2.02 LINER TUBE

The liner tube shall consist of one or more layers of flexible needled felt or and equivalent woven and/or nonwoven material capable of carrying resin, withstanding installation pressures and curing temperatures, and is compatible with the resin system used. The liner shall be fabricated to a size that, when installed, will fit the internal circumference of the existing pipe without any annular space between the liner and existing pipe wall.

The resin used shall be compatible with the rehabilitation process, shall be able to cure in the presence or absence of water and the initiation temperature for cure shall be as recommended by the resin manufacturer and reviewed by the Engineer.

The liner shall be fabricated from materials which when cured, will be chemically resistant to withstand internal exposure to sewage gases containing quantities of hydrogen sulfide, carbon monoxide, methane, petroleum hydrocarbons, saturation with moisture, diluted sulfuric acid, and other chemical reagents determined by the Engineer.

The liner shall be fabricated from materials which when cured, will be chemically resistant to withstand internal exposure to sewage gases containing quantities of hydrogen sulfide, carbon monoxide, methane, petroleum hydrocarbons, saturation with moisture, diluted sulfuric acid, and other chemical reagents determined by the Engineer.

The minimum tube length shall be that deemed necessary by the Contractor to effectively span the distance from the inlet to the outlet of the respective manholes, or

access points, unless otherwise specified. The Contractor shall verify the lengths in the field before impregnation of the tube with resin. Individual insertion runs may be made over one or more manhole sections as determined in the field by the Contractor and reviewed by the Engineer.

Prior to insertion, the liner shall be free of all visible tears, holes, cuts, foreign materials, and other defects.

Prior to insertion, the Contractor shall provide data on the maximum allowable stresses and elongation of the tube. The exterior of the manufactured tube shall be marked along its length at regular intervals not to exceed five feet. These marks shall be used as a gauge to measure elongation during insertion. Should the overall elongation of a reach exceed five percent, the liner tube shall be rejected and replaced.

2.03 RESIN

Unless otherwise specified, provide a general purpose, unsaturated, thermosetting, polyester, vinylester, or epoxy resin able to cure in the presence or absence of water, and a catalyst system compatible with the insertion process.

Resin shall not be subjected to ultraviolet light and shall form no excessive bubbling or wrinkling during lining.

PART 3 - CONSTRUCTION METHODS

3.01 PREPARATION

A. Bypass Pumping:

The Contractor shall provide bypass pumping and/or diversion when required for acceptable completion of the liner installation. Bypass pumping shall consist of furnishing, installing, and maintaining all power, primary and standby pumps, appurtenances and bypass piping required to maintain existing flows and services.

With the written approval of the property owner, flows from service laterals may be blocked for a period of time not to exceed 8 hours. The Contractor shall be responsible for coordinating with property owners to obtain approval for blockages and to ensure that any backups in the service laterals do not result in overflow or spill of sewage. The Contractor shall be responsible for all cleanup, damages and resultant fines in the event of a spill. Service laterals that are blocked shall be re-opened immediately upon completion of liner installation.

Bypass pumping shall be done in such a manner as not to damage private or public property, or create a nuisance or public menace. The pumped sewage shall be in an enclosed hose or pipe that is adequately protected from traffic, and shall be redirected into the sanitary sewer system. Dumping or free flow of sewage on private property, gutters, streets, sidewalks, or into storm sewers is prohibited.

The Contractor shall take all necessary precautions including constant monitoring of bypass pumping to insure that no private residences or properties are subjected to a sewage backup or spill. The Contractor shall be liable for all cleanup, damages, and resultant fines in the event of a spill. After the work is completed, flow shall be restored to normal.

B. Cleaning and Inspection of Existing Sewer:

The Contractor shall be responsible for cleaning, inspecting, confirming the inside diameter, length and determining the condition of each manhole-to-manhole segment to be lined. The cleaning process shall include the removal of all roots. A television inspection shall be performed by the Contractor after the sewer cleaning operation, point repairs, and grouting if necessary. The television inspection shall be completed in the same direction each time and shall be done with a CCTV color camera recorded in VHS format. A pivot head camera shall be used for all pipelines that are 6-inches in diameter or greater to allow detailed lateral inspection. A copy of the television inspection videotapes from all televising operations shall be provided to the Engineer for review prior to the liner installation.

C. Point Repairs:

The Contractor shall repair the pipe where point repairs are identified on the Plans. If this is not shown on the Plans, such repairs will constitute extra work when approved by the Engineer.

It shall be the responsibility of the Contractor to clear the line of obstructions such as solids, offset joints, protruding service connections or collapsed pipe that will, in the opinion of the Engineer, prevent liner insertion. If inspection reveals an obstruction that cannot be removed by conventional sewer cleaning equipment or by remotely performed point repair methods acceptable to the Engineer, then the Contractor shall notify the Engineer immediately. Protruding laterals shall be removed internally with a hydro-jet cutter or other Engineer-approved method.

If video inspection reveals an offset joint that, in the opinion of the Engineer, exceeds the following criteria, then the Contractor shall expose and repair that offset joint under a contract change order.

Pipe Diameter	Offset Tolerance
≤ 6”	½”
≥ 8”	¾”

D. Manholes:

The Contractor shall protect the manholes to withstand forces generated by equipment, water, or air pressure used while inserting the tube. The Contractor shall be fully responsible for any damages to existing utilities caused by the Contractor’s operations.

3.02 INSTALLATION

A. Resin Impregnation:

The uncured resin in the original containers and the unimpregnated fiber-felt tube shall be impregnated by vacuum or other means prior to installation. The materials and "wet-out" procedure shall be subject to inspection by the Engineer. A resin and catalyst system that is compatible with the requirements of the method shall be used.

The impregnated liner bag shall be transported to and stored at the site in such a manner that it will not be damaged, exposed to direct sunlight, or result in any public safety hazard. The impregnated liner bag shall be kept cool during shipment and storage. All materials shall be subject to inspection and review prior to installation.

B. Liner Installation:

The impregnated tube shall be inserted through an existing manhole or other access approved by the Engineer by means of the installation process. The application of hydrostatic head, compressed air, or other Engineer approved method shall fully extend the liner to the next designated manhole or termination point and inflate and firmly adhere the liner to the pipe wall.

The liner shall be installed at a rate less than 10 feet per minute at all times.

C. Curing:

After placement is completed, a suitable heat source and distribution equipment shall be provided. The equipment shall be capable of circulating hot water, air, and/or steam throughout the section by means of a pre-strung hose that has been perforated in accordance with the manufacturer's recommendations or other methods acceptable by the Engineer to raise the temperature uniformly above the temperature required to affect a resin cure. The manufacturer shall determine this temperature based on the specific resin/catalyst system employed.

The heat source piping shall be fitted with continuous monitoring thermocouples to gauge the temperature of the incoming and outgoing water, steam, and/or air supply. Water, steam, or air temperature during the cure period shall meet the requirements of the resin manufacturer as measured at the heat source inflow and outflow return lines. At the request of the Engineer, the Contractor shall provide a plan for maintaining the heat source supply should the equipment fail. An additional continuous monitoring thermocouple shall be placed between the impregnated felt tube and the pipe invert at the remote manhole and at an intermediate manhole if possible between the upstream and downstream manholes to determine the temperature during the cure. The temperature during the cure shall not be less than 130 degrees F at the boundary between the pipe wall and the liner unless otherwise directed by the Engineer because of the resin system used.

The initial cure shall be deemed complete when exposed portions of the liner appear hard and sound upon inspection, and the remote temperature sensors indicate that an exotherm has occurred. The cure period shall be of duration recommended by the resin manufacturer during which time the recirculation of the water, steam, and/or air and cycling of the heat exchanger continuously maintain the required temperature.

Temperature shall be maintained during the curing period as recommended by the resin manufacturer, and shall follow the heating schedule supplied by the manufacturer and reviewed by the Engineer.

D. Cool Down:

The hardened liner shall be cooled to a temperature below 100 degrees F before relieving the static head or pressure in the lined pipe and returning normal flow back into the system. The cool down may be accomplished by introducing cool water or air into the lined pipe. Care shall be taken in the release of the static head or pressure so that a vacuum will not develop which could damage the newly installed liner.

If the liner fails to make a tight seal at the manhole walls, a seal consisting of a resin mixture compatible with the liner/resin system shall be applied in accordance with manufacturer Specifications and approved by the Engineer.

3.03 SEWER LATERAL RECONNECTION

The Contractor shall be responsible for reconnecting service connections to the lined pipe. The service connections shall be reconnected by one of the following methods as specified on the Plans, or as approved by the Engineer.

A. Internally reconnected by using a pivot-head CCTV camera and a remote cutting tool to locate the service connections from inside the lined pipe, cutting a hole matching the service connection diameter, and grouting the area where the service connection enters the lined pipe to produce a water tight seal approved by the Engineer. The Contractor shall provide a nearly full-diameter hole, free from burrs or projections and with a smooth and crack-free edge. The hole shall be 95 percent minimum and 100 percent maximum of the original service connection diameter. The invert of the service connection shall match the bottom of the reinstated service opening.

B. As shown on the Plans, and at those laterals where infiltration is identified by the Engineer during review of the preliminary sewer line cleaning and CCTV inspections, a CIPP service connection seal (CIPP-SCS) shall be installed. The Contractor shall submit the proposed method and may be asked to demonstrate the sealing method prior to approval. CIPP-SCS shall consist of a “top hat” formed of shaped CIPP that conforms to the specifications iterated above and in Section 02768 of these Specifications. The brim of the hat shall be held tightly against the lined pipe forming a complete 360-degree seal to the sewer main at

the service connection opening. The riser portion of the top hat shall extend from the brim one foot up into the service connection to sufficiently cover the annular gap surrounding the liner. It shall then be inflated tightly against the lateral pipe. The CIPP-SCS shall then be cured in place in conformance with these specifications. After curing the apparatus shall be deflated and the connection video taped with CCTV to verify that the lateral is unobstructed and no leakage is observed. Payment shall be on a per each basis for all CIPP-SCS installed.

C. Other remote methods as approved by the Engineer.

D. In the event that the service connection either cannot be reconnected by internal means, or the plans call for excavation and reconnection of the lateral, the service shall be reconnected by excavating by hand and/or mechanical equipment to the location of the service connection tie-in, cutting the existing pipe and liner material, installing a saddle acceptable to the Engineer, replacement of the remainder of the lateral to the property line (or as shown on the Plans), and installation of a cleanout at the property line. Where the existing pipe and liner are cut, if the liner is not tightly sealed to the pipe wall, a seal consisting of a resin mixture compatible with the liner/resin system shall be applied in accordance with manufacturer specifications and as approved by the Engineer. The excavation process shall be completed by mechanical means as defined in the project documents or by hand digging as required.

3.04 TESTING AND ACCEPTANCE

A. <u>Material testing:</u>

A registered independent, third party laboratory shall perform all materials testing.

The Contractor shall provide certified test results of the short-term properties of the cured lining material from the installed liner at a minimum of one location per each liner insertion setup or every thousand feet.

The cured liner shall be sampled and tested for flexural strength and flexural modulus (short term). Flexural strength and modulus shall conform to the requirements of ASTM D790. A certificate of compliance shall be provided for long-term flexural modulus.

Corrosion resistance shall conform to the requirements of ASTM F1216, Section X2, Chemical Resistance Tests.

Delamination testing shall conform to the requirements of ASTM F1216, Section 8.4 if required by the Engineer.

B. <u>Field Testing:</u>

The Contractor shall test the new sewer line for exfiltration using the following

water exfiltration test. Leakage testing may be performed either during the last hour of the curing process or at any time following curing with the provision that the water temperature must be constant during the test.

C. Video Inspection:

Prior to acceptance of the sewer main installation and other improvements by the Engineer, the Contractor shall pay for and provide to the City video inspection tapes of the new sewer main (videotape of laterals is not required). Experienced personnel, who are trained in locating breaks, obstacles, and service connections by closed circuit color television, shall perform the video inspection.

The finished liner shall be continuous over the entire length of an insertion run between two manholes or access points and shall be free from visual defects such as foreign inclusions, dry spots, pinholes, and delamination.

With the exception of wrinkles caused by defects in the pipe, such as offset joints, protruding taps and broken or missing pipe, wrinkles in the finished liner pipe shall not exceed 5% of the pipe diameter. In no case shall wrinkles that would result in a reduction of pipe capacity of 10% be allowed. Wrinkles that exceed either of these criteria shall be removed and repaired by the Contractor at the Contractor's expense. The Contractor shall remove a section of pipe, if so directed by the Engineer, to determine if a void between the wrinkle and pipe wall exists. If a void does exist, than the Contractor shall repair and replace that section of pipe at the Contractor's expense. If a void does not exist, the Contractor shall repair and replace that section of pipe at the CITY's expense (paid for by Contract Change Order). Methods of repair shall be proposed by the Contractor and submitted to the Engineer for review.

**** END OF SECTION ****

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SECTION 15400

STORM DRAIN PIPING and APPURTENANCES

PART 1 – GENERAL

1.01 GENERAL

This Section covers the installation of new storm drain pipes, drainage inlets, and all other associated work involving storm drain improvements.

1.02 QUALITY ASSURANCE

All materials shall be new and of current factory manufacture (unless otherwise shown on the Plans), shall be the product of a supplier regularly engaged in the manufacturing of pipe and storm drain products, and shall be guaranteed against defects or workmanship in accordance with the General Provisions, unless more stringently specified herein. The materials and work performed in this Section shall conform to the following standards:

1. The American National Standards Institute (ANSI)
2. American Society For Testing and Materials (ASTM)
3. Plumbing and Drainage Institute (PDI)
4. Underwriters' Laboratories Inc. (UL)
5. Uniform Plumbing Code (UPC)
6. Occupational Safety and Health Administration (OSHA)
7. California Department of Industrial Relations (CAL OSHA)
8. The American Association of State Highway Officials (AASHTO)

All materials testing performed to provide quality assurance shall be performed in accordance with **Section 01410**, "**Materials Testing**" and the City of Eureka Quality Assurance Program (QAP). In the event that neither of the above items is included in the Special Provisions for this project, the Contractor is required to provide only selected materials certificates and testing data as listed in **Section 01300**, "**Shop Drawings and Submittals**" and as listed below in **Section 1.03**.

1.03 SUBMITTALS

The Contractor shall file with the Engineer manufacturer's certification that piping materials and appurtenances meet all specification requirements as stated in this Section.

Submittals shall include, but not be limited to, the following items:

1. Manufacturer's product information cut sheets for all manufactured and precast items proposed for use indicating dimensions.

2. Storm drain bypass plan for active storm drains.

PART 2 – CONSTRUCTION MATERIALS

2.01 GENERAL

All materials shall be from new stock, delivered in new condition. Where no method of tests for materials is specified, the latest applicable test specified by ASTM shall be followed. Material specifications listed on the Plans, where applicable, shall supersede those listed in this Section.

2.02 HDPE STORM DRAIN PIPE

High Density Polyethylene (HDPE) pipe shall meet the requirements of AASHTO M294, Type S or MP6-95, Type S (as applicable); shall have integral bell joints; and shall utilize a rubber gasket to form a silt-tight connection. HDPE pipe shall be Hancor Hi-Q Sure-Lok, ADS N-12 ProLink Ultra, or approved equal.

HDPE pipe shall have a smooth interior wall surface and a Manning's "n" design value of 0.010 or less. Gaskets shall be installed in the bell by the pipe manufacturer. Joints shall remain silt-tight when subjected to 1.5-degree axial misalignment.

2.03 PVC STORM DRAIN PIPE

PVC storm drain pipe shall meet the requirements of ASTM D3034 or F679 (as applicable) and shall have integral bell-and-spigot push-on elastomeric gasketed joints meeting the requirements of ASTM F477. The standard dimension ratio of the pipe shall be as shown on the Plans.

2.04 FITTINGS

All storm drain fittings shall be manufactured of HDPE, meeting the requirements of ASTM D3350 cell classification 324420C, and shall be factory-manufactured conforming to AASHTO M294.

2.05 BAND COUPLERS

All storm drain band couplers used to join fittings to each other or to HDPE pipe shall be premium-type band couplers with integrated elastomeric gaskets. Note that band couplers shall <u>not</u> be used to join sections of pipe (see **Section 2.02** above for pipe specification).

2.06 SLOPE ANCHOR ASSEMBLIES

Slope anchor assemblies (used for anchoring non-buried HDPE pipe as shown on the Plans) shall conform to Caltrans Standard Specification Section 69 and the detail shown on the Plans. Circular steel bands shall be modified to fit HDPE pipe corrugations. Unless specifically shown on the Plans, cables and cable clamps will not be required on this project.

All components of the anchor assemblies, including hardware, shall be hot-dip galvanized after fabrication.

2.07 DRAINAGE INLETS

Refer to **Section 03310,** "**Minor Concrete**" for specific concrete mix requirements for all concrete and grout materials used for drainage inlet construction.

Unless otherwise approved by the Engineer, all drainage inlets shall be cast-in-place. Where precast drainage inlets are approved, the precast section shall be limited to the vertical walls of the inlet; the wall sections shall be formed with a keyway at the bottom of all walls to allow the floor to key into the walls; and the drainage inlet shall be manufactured to the lines and grades shown on the Plans by Hilfiker Pipe Company, Eureka, CA; Cook Concrete Products, Redding, CA; or approved equal.

Inlet grates shall be Type 24-12X as shown on the Plans. Frames shall be rectangular frames as shown on the Plans. All grates and frames shall be hot-dip galvanized after fabrication in accordance with ASTM A-123 and shall have a zinc coating with a minimum thickness of 3.4 mil, equivalent to 2.0 oz. per square foot of grate surface.

Steps shall be made from ½-inch Grade 60 steel and shall be shaped as shown on the Plans. Steps shall be OSHA-approved and shall be coated with polypropylene plastic or an equal coating capable of resisting corrosion by sulfuric acid. Rubber gasket waterstops shall be installed on all smooth-walled storm drain pipes where they penetrate the drainage inlet wall as shown on the Plans.

2.08 STORM DRAIN MANHOLES

Refer to **Section 03310,** "**Minor Concrete**" for specific concrete mix requirements for all concrete and grout materials used for manhole and concrete collar construction.

Unless otherwise approved by the Engineer, all manhole bases shall be cast-in-place. Where precast manhole bases are approved, the manhole bases shall be manufactured to the lines and grades shown on the Plans by Hilfiker Pipe Company, Eureka, CA; Cook Concrete Products, Redding, CA; or approved equal.

Precast manhole barrel and cone sections shall be manufactured by Hilfiker Pipe Company, Eureka, CA; Cook Concrete Products, Redding, CA; or approved equal.

Joint sealant for sealing precast barrel and cone sections shall be Ram-Nek, Kent Seal, or approved equal.

Manhole steps shall be made from ½-inch Grade 60 steel and shall be shaped as shown on the Plans. Steps shall be OSHA-approved and shall be coated with polypropylene plastic or an equal coating capable of resisting corrosion by sulfuric acid.

Frames and covers shall be Phoenix Model P-1090 or approved equal, with the raised letters "STORM DRAIN" cast into the cover. Covers shall have a vented pick-hole. The horizontal bearing surfaces between the frame and cover shall be machined smooth and true, ensuring a close, flush fit. After installation, the covers shall not be loose fitting, wobbly, or subject to noise or uplift when driven over by vehicular traffic.

Rubber gasket waterstops shall be installed on all smooth-walled storm drain pipes

where they penetrate the manhole wall as shown on the Plans. Waterstops shall have a snug, watertight fit on the pipe, and shall have a minimum thickness of ½-inch measured perpendicular to the pipe surface.

2.09 STREET CULVERTS

Refer to **Section 03310,**"**Minor Concrete**" for specific concrete mix requirements for all concrete material used for street culvert and headwall construction.

Metal culvert sections shall be fabricated of 3/8" thick steel plate conforming to ASTM grade A-36 steel.

2.10 BEDDING AND BACKFILL MATERIALS

Bedding and backfill material for pipelines and storm drain structures shall be as shown on the Plans. Refer to **Section 3.05** below and **Section 02210,** "**Trench Excavation and Backfill**" for specific bedding, backfill, and compaction requirements.

2.11 OTHER MATERIALS

Other storm drain-related materials not specifically described above shall be as selected by the Contractor and approved by the Engineer.

PART 3 – CONSTRUCTION METHODS

3.01 MAINTENANCE OF STORM DRAIN FLOWS

All new storm drain lines, drainage inlets, and manholes shall be installed in such a manner as to not interrupt the normal flow of storm water or cause surcharging of upstream lines. Where existing storm drain structures on active storm drains are being modified or relocated, the Contractor shall submit a sewage bypass plan to the Engineer prior to commencement of sewer line work. The bypass plan shall be subject to approval by the Engineer. The installation of storm drain lines in flowing water is not allowed.

3.02 STORAGE OF MATERIALS

Pipe, fittings, and other related materials shall be stored in a safe location out of the traveled way.

3.03 TRENCH DEWATERING

Dewatering of excavations for trenches, manholes, or drainage inlets may be required to keep groundwater out of the excavation. Water will not be allowed in excavations during bedding, concrete pours, or backfill and compaction. If excessive groundwater is present and cannot be adequately controlled, the Engineer may deem the bottom of the trench unsuitable for placement of bedding material and require that the subgrade material be removed and replaced per **Section 02210,** "**Trench Excavation and Backfill**".

3.04 STORM DRAIN PIPE INSTALLATION

Plastic pipe shall be installed in conformance with the manufacturer's recommendations and the trench details shown on the Plans. All pipe shall be centered in the trench.

All pipe shall be carefully lowered into the trench to prevent damage. Under no circumstances shall pipe be dropped, rolled, or dumped into trenches.

Pipe ends shall be carefully cleaned before the pipe is joined. Whenever work ceases for any reason, the end of the pipe shall be closed with a watertight fitting, plug, or cover. The interior of the pipe shall be kept free from dirt and debris as the work progresses.

All pipe field cuts shall be made in accordance with the manufacturer's recommendations and at right angles to the axis of the pipe, except where pipes terminate in manholes or at a skewed angle in a drainage inlet.

All joints shall be made in accordance with the manufacturer's recommendations. Pipe lubricant shall be applied to all pipe gaskets prior to joint assembly. Lubricant shall be of a type specifically made for the type of pipe being jointed. The Contractor shall provide all tools, equipment, and devices, such as special jacks, chains, chokers, and similar items, to make all joint connections.

3.05 BEDDING AND BACKFILL

Pipe shall be laid on an unyielding bed true to line and grade with compacted bedding material under the full length of the pipe. Bedding material shall be placed into the trench prior to pipe placement, shall be compacted to a minimum of 95% relative compaction, and shall be of the thickness specified on the trench detail on the Plans. Bedding material under the coupling bells shall be hand-excavated to provide a minimum clearance under the bell of 1 inch.

Backfill material in the pipe haunching zone between the bottom of the pipe and the springline of the pipe shall be hand-tamped with 'J' bars or a pneumatic "pogo" stick to a relative compaction of 90% along the entire length of the pipe. Tamping with a shovel is not sufficient and does not meet this requirement.

Backfill material from the springline of the pipe to the bottom of the trench patch shall be of the material, thickness, and compaction shown in the trench detail on the Plans and as specified in **Section 02210,** "**Trench Excavation and Backfill**".

3.06 SLOPE ANCHOR ASSEMBLIES

Where storm drain pipe is installed exposed on the ground surface, anchor assemblies conforming to the details on the Plans shall be installed on the pipe at locations 2 feet downstream from each pipe joint. Unless specifically shown on the Plans, cables and cable clamps will not be required on this project. Steel anchor pipes shall be driven full-depth. If necessary, the Contractor shall drill pilot holes to allow for full depth embedment of the anchor pipes.

3.07 DRAINAGE INLETS

Drainage inlets shall conform to the details shown on the Plans. All drainage inlets shall be cast-in-place unless otherwise approved by the Engineer.

Type “GO”, “GOL-7”, and related drainage inlets shall have the top and ‘window’ of the inlet poured monolithically with surrounding curb and sidewalk. Inlet windows shall be constructed with the top edge of the opening parallel to the top of the curb.

Pipes connecting to new drainage inlets shall terminate flush with the inside face of the structure wall. If pipes are not installed monolithically with the inlet walls, they shall be neatly and smoothly grouted into the wall to the satisfaction of the Engineer. All voids between the pipe and the structure wall shall be filled with grout.

Rubber gasket waterstops shall be installed on all smooth-walled storm drain pipes where they penetrate the drainage inlet wall as shown on the Plans.

Where possible, drainage inlet steps shall be installed on a short-dimension wall without an opening.

Drainage inlet excavations shall be backfilled as shown on the Plans and as specified in **Section 02200,** “**Earthwork**” or **Section 02210,** “**Trench Excavation and Backfill.**”

3.08 STORM DRAIN MANHOLE CONSTRUCTION

Manholes shall conform to the details shown on the Plans. All manholes shall be water-tight. Precast barrel and cone sections shall be sealed with two continuous beads of approved plastic sealant on the upper and lower shelf of each tongue-and-groove joint.

New manhole bases shall be cast-in-place. Precast manhole bases will not be allowed unless shown on the Plans or approved by the Engineer. Cast-in-place manhole base pours shall be allowed to set up for a minimum of 4 hours before placement of the first precast barrel section on the base.

A groove, shaped to match the tongue of the first precast concrete barrel section, shall be formed in the manhole base slab. A circular metal form suited to the particular shape of the precast barrel section’s joint shall be used to form the groove. The form shall be set level and create a uniform bearing surface for the full circumference of the first barrel section.

Manhole inverts shall have smooth troughs with circular cross-sections. Changes in invert flow direction shall be accomplished with smooth, horizontal curves of constant radii. Where a full section of pipe or multiple branch fittings are laid through a manhole, the top one-half section of the pipe shall be sawcut and removed after the concrete is cured. The inner base section of the manhole shall then be built up with concrete to the elevation of the top of the pipes, forming benches as shown on the details on the Plans. Benches shall be smoothly finished with concrete or a grout approved by the Engineer.

Where possible, manhole steps shall be installed on the face of the manhole opposite the outlet pipe.

All grade rings and the base of the manhole frame and cover shall be sealed with a watertight layer of non-shrink grout. The grout used shall be subject to approval by the Engineer.

In paved areas, manhole frames and covers shall be set to finished grade with a concrete collar in accordance with the detail on the Plans.

In non-paved areas, the elevation of the manhole frame and cover shall be as noted on the Plans. Concrete collars shall be omitted only if so noted on the Plans.

Manhole excavations shall be backfilled as shown on the Plans and as specified in **Section 02200, "Earthwork"** or **Section 02210, "Trench Excavation and Backfill"**.

3.09 PIPE CONNECTIONS TO EXISTING MANHOLES

Pipe connections to existing manholes shall be made by drilling a hole in the manhole wall and grouting the new pipe into the wall. The drilled hole shall provide a minimum clearance between the pipe and the manhole wall of one inch around the full circumference of the pipe. All space between the pipe and the manhole wall shall be completely filled with grout and smoothly finished to the satisfaction of the Engineer.

Where plastic pipes penetrate manhole walls, the penetration shall be sealed by a full-circumference rubber gasket having a minimum thickness of one-half inch centered in the structure wall. Gaskets shall fit tightly around the pipe so as to form a water-tight seal after the pipe is grouted into the wall.

3.10 STREET CULVERTS

All street culverts (cross-street and cross-corner) shall be constructed as shown on the Plans and as directed by the Engineer.

3.11 MANHOLE AND STORM DRAIN MAIN ACCEPTANCE

When new storm drain mains and manholes can be isolated from the storm drain system without causing backups, they shall be tested for acceptance by the Contractor under the direction of the Engineer. The Contractor shall furnish all materials, labor, and water needed for acceptance testing (refer to **Section 01010,** "**General",** for backflow prevention information and requirements and to **Section 01010,** "**General**", for information and requirements regarding the use of fire hydrants).

Storm Drain Manhole Acceptance Testing:

Acceptance testing of new storm drain manholes (where required; see above) shall be performed after completion of backfilling and compaction. Completion of permanent asphalt concrete patching is not required. Manholes failing the acceptance test shall be repaired as needed by the Contractor using an approved method and retested. Manholes shall be repaired and retested at the Contractor's sole expense until a satisfactory test is obtained.

The Contractor may test manholes using either hydrostatic or vacuum testing.

1. Hydrostatic Testing

   A. The Contractor shall plug all inlets and outlets and fill the manhole with water. Each manhole shall be filled to the rim at the start of the test.

   B. Leakage in each manhole shall not exceed 0.2 gallons per hour per foot of head above the manhole invert. Leakage shall be determined by refilling the manhole to the rim using a calibrated known-volume container. Manholes may be filled with water 24 hours prior to the time of testing to permit normal absorption into the manhole walls to take place.

2. Vacuum Testing

   A. Vacuum testing shall be performed in accordance with ASTM C1244-93. The Contractor shall plug all pipe inlets and outlets, and shall brace all plugs.

   B. The test head shall be placed in or on top of the manhole frame. A vacuum of 10 inches of mercury shall be drawn on the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off.

   C. The time shall be measured for the vacuum to drop to 9 inches of mercury. The manhole shall be deemed as passing the test if the time for the vacuum reading to drop from 10 inches of mercury to 9 inches of mercury meets or exceeds the time (in seconds) indicated in the table below:

	Manhole Barrel Section Diameter (inches)					
Depth (ft)	42	48	54	60	66	72
8' or less	17s	20s	23s	26s	29s	33s
10	21s	25s	29s	33s	36s	41s
12	25s	30s	35s	39s	43s	49s
14	30s	35s	41s	46s	51s	57s
16	34s	40s	46s	52s	58s	67s

Notes: 1. Depth is measured from the top of the manhole frame to the lowest invert.
2. Test times for manhole depths between those shown in table shall be calculated by interpolation.

Storm Drain Main Acceptance Testing:

Acceptance testing of storm drain mains (where required; see above) shall be performed after completion of backfilling and compaction. Completion of permanent asphalt concrete patching is required for deflection testing. Pipeline sections that fail any portion of the acceptance test shall be repaired as needed by the Contractor using an approved method and retested. Pipelines shall be repaired and retested at the Contractor's sole expense until a satisfactory test is obtained.

Acceptance testing of storm drain pipelines shall consist of a deflection test and a video inspection.

1. Deflection Testing

   A. All main line PVC & HDPE storm drain pipe installed on the project shall be deflection tested by the Contractor for vertical deflection using a 9-rod mandrel provided by the Contractor and approved by the Engineer.

   B. Vertical deflection exceeding 5 percent of the average inside diameter shall be cause for rejection of the pipeline and all related work. The use of a re-rounder will not be permitted at any time. The average inside diameters shall be in accordance with the table shown below:

SDR26:

Pipe Size	Average I.D.	Min. I.D. @ 5% Deflection
4"	3.89"	3.70"
6"	5.79"	5.50"
8"	7.75"	7.37"
10"	9.69"	9.21"
12"	11.54"	10.96"

SDR35:

Pipe Size	Average I.D.	Min. I.D. @ 5% Deflection
4"	3.98"	3.78"
6"	5.92"	5.62"
8"	7.92"	7.52"
10"	9.90"	9.41"
12"	11.78"	11.19"
15"	14.43"	13.70"

HDPE:

Pipe Size	Average I.D.	Min. I.D. @ 5% Deflection
12"	12.00"	11.40"
15"	15.00"	14.25"
18"	18.00"	17.10"
24"	24.00"	22.80"
30"	30.00"	28.50"

2. Video Inspection

Prior to acceptance of the storm drain main installation and other improvements by the Engineer, the Contractor shall pay for and provide to the Engineer video inspection tapes or disks of the new storm drain main.

All video inspection shall be performed by a competent pipeline video service provider and shall be recorded on either VHS video tape or DVD digital format. The video inspection shall be in color, shall pan in all directions so that all joints can be thoroughly examined, and shall be of sufficient resolution to allow the Engineer to clearly see all pipe joints, manhole connections, and other fittings.

The video inspection tapes shall be reviewed by the Engineer. If any irregularities are observed on the tapes (open or offset joints, grade problems, etc.), the Engineer MAY elect to have the main in question re-inspected using City forces and equipment, including an inclinometer attached to the video camera that records pipe grade. If, in the opinion of the Engineer, any of the following tolerances are found to be exceeded in any section of the storm drain main, that section shall be deemed to have failed the video inspection acceptance test.

Joint Offset:	≥ ¼" in any direction	
Design Grade:	0.00% - 0.50%	+/- 20% of the Design Grade
	0.51% - 1.00%	+/- 10% of the Design Grade
	1.01% - 2.00%	+/- 10% of the Design Grade
	2.01% - 5.00%	+/- 5% of the Design Grade
	5.01% -	+/- 5% of the Design Grade

When failure is observed, the Contractor shall be responsible for repairing or replacing the failed section of pipe at his own expense, including removal and replacement of all affected improvements and any and all other costs incurred in order to repair the pipe, as well as for all costs incurred by the City for re-inspection of the storm drain main.

The City may also perform a video inspection of any new pipeline after backfilling and resurfacing are completed or at any time during the contract guaranty period. Where infiltration, excessive deflection, or any structural failure of the pipe is observed during said inspection, that section shall be deemed to have failed the video inspection acceptance test, and the Contractor shall be responsible for repairing or replacing the failed section of pipe at his own expense, including removal and replacement of all affected improvements and any and all other costs incurred in order to repair the pipe, as well as for all costs incurred by the City for the re-inspection of the sewer main.

3.12 ENERGY DISSIPATER

Where shown on the Plans, the Contractor shall construct an energy dissipater in accordance with the details shown on the Plans. All materials and construction shall be as specified in **Section 02200,** "**Earthwork**".

**** END OF SECTION ****

Sewer Improvements 2020

BID NO. 2020-06

<u>SPECIAL PROVISIONS APPENDIX</u>

A. Disposal Site Agreement

B. Submittal Review Request Form

C. Waste Diversion and Material Recycling Form

D. City of Eureka Sidewalk Resolution No. 6219

E. Reduced Scale Project Drawings

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Appendix A

Disposal Site Agreement

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DISPOSAL SITE AGREEMENT

This agreement between the property owner and the Contractor shall be in accordance with Part 1.12 of Section 01560 of the Project Special Provisions, Section 7-1.13 of the Caltrans Standard Specifications, Chapter 33 of the 1994 Uniform Building Code, the City of Eureka Municipal Code, and any County Code.

Project Name: _____

Types of Disposal Material: _____

To: City Engineer
City of Eureka Engineering Department
531 K Street, Third Floor
Eureka, CA 95501

Dear Sir or Madam,

The undersigned, by separate agreement with _____, Contractor, hereby agrees to permit the disposal of material from the City of Eureka project described above onto my property, located at:

_____

_____,
(provide property address(es))

Assessor's Parcel(s) Number(s)

As owner of the above described property(ies), I hereby relieve the City of Eureka, including its officers, officials, employees, and volunteers, of any and all responsibility in connection with the disposal of the type(s) of material(s) as listed above by the Contractor.

Furthermore as owner of the above described property(ies), I shall indemnify, defend, and hold harmless the City of Eureka, it officers, officials, employees, and volunteers from and against any and all liability, loss, damage, expense, costs (including without limitation costs and fees of litigation) of every nature arising out of or in connection with the disposal of said material(s) by the Contractor, except such loss or damage which was caused by the sole negligence or willful misconduct of the CITY.

As owner of the above described property(ies), I hereby state that all necessary permits have been obtained for the disposal of said materials as described by the Contractor on the property(ies) described above.

Signed: _____, Property Owner

Date: _____

Address

Copies forwarded to_____, Contractor
Property Owner
Project Engineer

Attach current Fill Permit for disposal site to this Agreement.

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Appendix B

Submittal Review Request Form

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SUBMITTAL REVIEW REQUEST FORM

INSTRUCTIONS: Complete this form and attach to each specific Shop Drawing submittal. Provide the same number of completed forms as specific Shop Drawing copies.

1. Submission No. _____

2. Resubmittal? Yes _____ No _____

3. Previous Submission No. (if any) _____

4. Date of this Submittal: _____

5. Date of Receipt by Engineer: _____

6. Contractor: _____

7. Submitted by: _____ _____
Signature Date

8. Item	Special Provisions Section and Paragraph Nos.	Description of Material (Name, Type, Model, Cat. No., Mfg, etc.)
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____

9. Comments:
Include all drawing titles and numbers, specific information not on drawings, information coming later, etc.

For Use of Engineer Only:

10. Action taken* _____

11. Reviewed by: _____ _____
Signature Date

*See review comments on individual items.

CITY OF EUREKA
ENGINEERING DEPARTMENT
SUBMITTAL REVIEW

☐ 1. NO EXCEPTIONS TAKEN
☐ 2. MAKE CORRECTIONS NOTED
☐ 3. AMEND AND RESUBMIT
☐ 4. REJECT – RESUBMIT

THIS SUBMITTAL REVIEW IS FOR THE LIMITED PURPOSE OF CONFORMANCE WITH THE CONTRACT DOCUMENTS AND DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.

SIGNED: _____ DATE: _____

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Appendix C

Waste Diversion and Material Recycling Form

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WASTE DIVERSION AND MATERIAL RECYCLING
PROJECT COMPLETION SUBMITTAL FORM

PROJECT:_____

Bid No:_____

INSTRUCTIONS: Complete this form at the close of project construction as part of the project closeout submittal documents. Attach appropriate material weigh tickets.

The City of Eureka has established several waste diversion and recycling programs as mandated by California legislation AB 939 (1989 CA Integrated Waste Management Act). The legislation requires all cities and counties in California to divert 50% of their waste stream out of landfills through recycling, reuse and reduction programs. In helping the City to meet this mandate, this form is being provided to assist the contractor in tracking construction debris from this project that has been diverted away from landfills.

MATERIAL TYPE	TONNAGE DIVERTED OR RECYCLED	DESTINATION & ADDRESS	DATE

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Appendix D

City of Eureka Sidewalk Resolution No. 6219

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RESOLUTION NO. 6219 *(rev. 11/8/2006)*

A RESOLUTION ADOPTING STANDARDS AND SPECIFICATIONS FOR THE CONSTRUCTION OF SIDEWALKS, CURBS, GUTTERS, AND DROP CURB ENTRANCES IN THE CITY OF EUREKA.

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF EUREKA, as follows:

SECTION 1: PURPOSE

All sidewalks, curbs, curbs and gutters, and drop curb entrances shall be constructed, replaced, and/or repaired in accordance with the standards and specification set forth in this resolution and in Eureka Standard Details on file in the Office of the Director of Engineering.

SECTION 2: MATERIALS

All construction shall be of Portland Cement concrete composed of Portland Cement, fine aggregate, coarse aggregate, and water, so proportioned and mixed as to produce a plastic, workable mixture. Unless otherwise specified or required, the following are the cement requirement, strength requirement, and maximum size of aggregate for Portland Cement concrete sidewalks:

Specified quantity of Cement per cubic yard of concrete - 5 ½ cubic feet
Strength, 28 days - 3,000 psi (lbs. per square inch)
Maximum size of aggregate - 1 ½ inches

The Cement per cubic yard of concrete is defined as the cubic feet of cement for each cubic yard of concrete in place. A cubic foot of cement shall be considered as weighing ninety-four (94) pounds and shall conform to the requirements of the standard specifications for Portland Cement of the American Society for Testing Materials.

The strength is defined as the average of compressive strength at twenty-eight (28) days, as determined by breaking of three (3) consecutive standard six inch (6") diameter by twelve inch (12") height test specimens.

The maximum size of aggregate indicates the maximum size of screen openings permitted in grading the aggregate. The screens used for test purposes shall be standard square opening screens.

Water and aggregate used in mixing the concrete shall be clean, free from oil, acid, alkali, or vegetable matter. No salt or sea water shall be used in mixing of concrete. **Do not use Caltrans' spec. concrete containing flyash.**

Lamp black (about 2 lbs of liquid lamp black per cubic yard, or equivalent) **shall be added to the concrete mix** to conform to the color of adjacent concrete. Except to conform to the color of existing concrete, coloring additives shall not be included in the mix.

No covering such as paint, opaque colored concrete sealer or coating, anti-skid coating, plaster, carpet, tile, etc., shall be added to the surface of any concrete sidewalk.

SECTION 3: CONSTRUCTION STANDARDS

A. OFFICIAL GRADES: All sidewalks shall be constructed to official grades unless otherwise directed by the City Engineer. Any new or replaced sidewalk and curb exceeding sixty feet (60') in length, or with any vertical or horizontal curvature, shall require a sidewalk survey prior to placing forms.

B. SUBGRADE: The subgrade shall be free from all grass, roots, wood, or other material subject to decay, and shall be constructed true to grade and cross-section at least four inches (4") below the finished grade at all points throughout the sidewalk width. It shall be thoroughly watered and rolled or hand-tamped until hard and solid before placing the concrete. All soft or spongy soil within the curb or sidewalk area shall be removed to a depth of six inches (6") below subgrade elevation, the resulting space filled with sand or gravel and compacted until a firm and solid foundation is secured.

C. FORMS: Timber forms for Portland Cement concrete sidewalks and curbs shall be at least one and one-half inches (1½") thick after being surfaced with a true upper edge and shall have a width of at least three and one-half inches (3½") at the back of the sidewalk and sixteen inches (16") at the face of the curb.

Forms shall be set with the upper edge true to line and grade and shall be held rigidly in place by stakes placed on the outside of the forms and set flush with the top edge of the form. Rigid forms shall be provided for all curb returns, except that benders or thin plank forms, rigidly placed, may be used.

All forms shall be set to provide a transverse slope of one-quarter inch (¼") per foot of sidewalk width, measured from the outer curb line.

Immediately after removing the front curb forms, all holes, rock pockets, and depressions shall be cleaned and filled with cement mortar, with care being exercised to obtain a perfect bond with the concrete and to obtain the same color as the surrounding concrete. All fins and other projections shall be removed.

D. CURB RADIUS: Curb returns at all right angle intersections of streets, unless otherwise specified by the Director of Engineering , shall have a radius of eight feet (8'), except where walk areas are seven feet (7') or less in width the radius shall be equal to the width of the walk area. The curb returns at all right angle intersections of alleys and streets shall have a radius of four feet (4').

At curb returns where the intersecting angle is other than a right angle, the radius shall be determined by the Director of Engineering.

E. BACK OF WALK RADIUS: The back edge of sidewalks at right angle intersections of streets, unless otherwise specified by the Director of Engineering , shall be formed to have a radius of two feet (2'), except where both walk areas are equal to the width of the sidewalk, in which case a back of walk radius shall not be constructed.

F. SIDEWALKS: All Portland Cement concrete sidewalks shall be not less than four inches (4") thick. After the concrete for sidewalks has been placed between the side forms it shall first be tamped with a heavy tamper until a layer of mortar has been brought to the surface. After the above tamping has been completed, the surface shall be floated to a true and even surface and finished with a fine-hair push broom drawn over the surface transverse to the line of traffic. Whenever the grade exceeds ten percent (10%), the finished surface shall be floated to a true and even surface and finished with a coarse-hair push broom drawn over the surface transverse to the line of traffic. If necessary, water shall be applied to the surface immediately in advance of brooming.

The surface of sidewalks constructed six feet (6') wide, or less, shall be scored every five and one-half feet (5½') with lines at right angles to the curb. The surface of sidewalks of greater width shall be scored in squares of not more than nine (9) square feet. The scoring shall be done with a tool that will leave the edges rounded. When sidewalks or curbs are to be constructed adjacent to existing sidewalk, match the existing scoring pattern. The finished surface shall be free from blemishes, and when a ten-foot (10') straight edge is placed thereon, the surface shall not vary more than one-eighth inch (□") from the edge, except at grade changes.

When sidewalks or curbs are to be reconstructed and the limit of new work specified does not fall on a scoring line, the entire section shall be sawcut and removed and the new curb or sidewalk shall join the old curb and sidewalk at the <u>first scoring line beyond</u> said specified limits.

Reinforcing steel shall be used when sidewalks are to be constructed adjacent to existing curb and/or sidewalk. Two-foot (2') lengths of three-eighths-inch (□") deformed steel bars spaced on three-foot (3') centers (for sidewalk) **or on four-foot (4') centers** (for curb) **shall be installed to tie the old and new concrete together. Six-inch-deep (6") holes shall be drilled into the existing curb and/or sidewalk** (unless adjacent sidewalk is crumbly)**, and rebar shall be glued into place before pouring the new sidewalk.**

G. SIDEWALKS WITHIN THE RADIUS AT STREET INTERSECTIONS: All sidewalk constructed within the radius of street intersections shall have a **minimum thickness of six inches (6")** and be finished to appropriate ADA standards.

H. JOINTS: Weakened plane joints shall be installed in all Portland Cement concrete sidewalks and curbs at intervals **between twelve feet (12') to fifteen feet (15')**, at the extension of property lines at street intersections, at both ends of all drop curb entrances, and at the property line where concrete is continuous across the property line (i.e., at driveways). Weakened plane joints shall be installed in the curbs continuously with the weakened plane joints in the adjacent sidewalk.

Weakened plane joints shall be formed by **cutting completely through the concrete with a steel trowel** or other suitable instrument, or by inserting an oiled steel plate one-eighth inch (□") thick. **No other spacer materials shall be used.** The plate shall be shaped to conform to the full cross section of the concrete, and it shall be loosened and removed as soon as the concrete has stiffened sufficiently to hold its shape. All weakened plane joints shall be so placed as to coincide with the rectangular markings on the sidewalk.

I. CURBS: All Portland Cement concrete sidewalks shall have a curb which shall be an integral part of the sidewalk, except in cases where the curbs have previously been constructed.

Battered curbs shall be constructed in all new locations, with a four-inch (4") batter on the face of the curb. Such curbs shall be sixteen inches (16") in depth and have a width of ten inches (10") at the base and six inches (6") on top of the curb grade. **When connecting to existing curbs, the existing design shall be used if replaced section is less than 60'** unless the existing curb is undercut in which case the replaced curb shall be vertical**. If more than 60' (continuous) of curb is replaced, the curb shall have a 4" batter**.

A curb delineation score line shall be made on all sidewalks with an integral curb. Such score shall be parallel with and six inches (6") from the top of the curb grade.

Reinforcing steel shall be used when curb is to be constructed adjacent to existing sidewalk. Two-foot (2') lengths of three-eighths-inch (□") deformed steel bars spaced on four-foot (4') centers shall be installed to tie the old and new concrete together. Six-inch-deep (6") holes shall be drilled into the existing curb and/or sidewalk (unless adjacent sidewalk is crumbly)**, and rebar shall be glued into place before pouring the new curb.**

K. CURBS AND GUTTERS: Portland Cement concrete curbs and gutters may be constructed in accordance with City Standards in areas where these types have been established.

L. DROP CURB ENTRANCES: All drop curb entrances for driveways across any public sidewalk shall be constructed according to the following specifications:

CONSTRUCTION: All drop curb entrances shall have a minimum thickness of six inches (6"). The curb shall be dropped to seven inches (7") below curb grade, for standard eight inch (8") curbs. **If curb height is less than eight inches (8"), contact the Engineering Dept. for drop dimension.** The curb in all drop curb entrances shall slope uniformly for a distance of three feet (3') to the entrance apron measured on a line parallel with the curb. The entrance apron shall be sloped back a distance of six feet (6'), measured at right angles to the line of the curb.

All drop curb entrances which are constructed for public use or to serve a business establishment (i.e., commercial drop curb) shall be reinforced with three-eighths-inch (□") deformed steel bars spaced on twelve- inch (12") centers both ways and extending to within three inches (3") of the edge of both drop curb entrances. Six-inch (6") by six-inch (6") mesh of ten (10) gauge wire may be used as reinforcement in place of the three-eighths-inch (□") steel bars. When reinforcing steel is placed in the slab it shall be placed two inches (2") from the bottom of the slab, and shall be held in place by "dobies." The curb shall be reinforced with one (1) three-eighths-inch (□") deformed steel bar placed in the center of the curb and two inches (2") from the bottom of the curb, and shall be held in place by "dobies."

ADA WALKWAYS: When drop curb entrances are constructed in sidewalks of less than ten feet (10') in width, an Americans with Disabilities Act (ADA) approved walkway shall be installed behind the back of walk. Said walkway shall create a continuous four foot (4') passageway around the drop curb entrance that shall have a transverse slope not exceeding two percent (2%) per the attached details. The ADA walkway shall have a minimum thickness of six inches (6") in the throat of the drop curb entrance, although a minimum thickness of four inches (4") shall be permitted behind the drop curb wings. ADA walkways behind commercial drop curbs shall include steel reinforcement as required for commercial drop curbs.

LOCATION: Drop curb entrances, including ADA walkways if required, shall be confined within the limits of the frontage of the property. **No part of a drop curb entrance shall be constructed within eight feet (8')** of the property line produced at street intersections, **or within five feet (5') of an abutting property line**. Drop curb entrances **shall not be constructed within three feet (3') of street light or traffic signal standards, poles, sign posts, fire hydrants, or other appurtenances**.

No drop curb entrance or other obstruction shall extend out into the street further than the face of the curb. Any existing drop curb entrance violating any of the provisions of this resolution shall be altered to conform to said provisions, whenever the public interest, convenience, or safety requires such alterations. The owner or owners shall be subject to the same penalties for failure to carry out these requirements as are set forth in the Municipal Code for new sidewalks.

Where multiple drop curb entrances are provided for the same property, a safety island of not less than twenty-two feet (22'), measured along the face of the curb, shall be provided between said drop curb entrances.

LENGTH AND QUANTITY: The length of drop curb entrances shall be measured from the top of curb at each end of the entrance on a line parallel with the curb. The total maximum length of drop curb entrances permitted by this resolution shall be governed as follows:

For a private residence where the drop curb entrance is a means of access for the owner's personal use only, and not the general public, a maximum twenty-foot (20') drop curb entrance shall be permitted for a single car garage, a maximum twenty-four-foot (24') drop curb shall be permitted for a two-car garage, a maximum thirty-foot (30') drop curb shall be permitted for a three-car garage, with a maximum allowable length of thirty-four feet (34') for private residence drop curb construction, but in no case shall drop curb entrances exceed sixty percent (60%) of the street frontage.

For commercial establishments where drop curb entrances are a means of access for commercial vehicles only and not the general public, a maximum of one (1) twenty-five-foot (25') drop curb entrance shall be permitted.

For commercial establishments where drop curb entrances are a means of access for the general public (service stations, parking lots, etc.) and the establishment has frontage on one street only, a maximum of two (2) thirty-five-foot (35') drop curb entrances shall be permitted, but in no case shall the sum of drop curb entrances exceed seventy percent (70%) of the property frontage.

For commercial establishments where drop curb entrances are a means of access for the general public (service stations, parking lots, etc.) and the establishment has frontage on two or more streets, a maximum of one (1) thirty-foot (30') and one (1) thirty-five-foot (35') drop curb entrances shall be permitted on the major street frontage, but in no case shall the sum of drop curb entrances exceed sixty-five percent (65%) of the street frontage, and a maximum of one (1) thirty-foot (30') drop curb entrance on each secondary street frontage. In such cases where the designation of major and secondary streets is not apparent from traffic volume and stop signs, the property owner shall have the privilege of designating his major frontage.

In planned commercial developments where more than one business will occupy a site, or on any site with frontage on three or more streets, the Director of Engineering shall have the authority to regulate the number, location, and length of drop curb entrances. In this type of development, the sum of drop curb entrances shall not exceed thirty percent (30%) of the total street frontage.

M. CLEAN UP: Any person or persons, contractor, or contracting firm who shall construct sidewalks and curbs in the City of Eureka shall remove all excess dirt, sand and gravel, boards, or any other rubbish accumulated during the process of construction of such sidewalk and curb; and shall leave the premises in a clean condition. When forms are removed the contractor or contracting firm, or owner, shall clean out where the forms were and fill between the curb and pavement with Type B hot mix asphalt pavement. The spreading of excess materials upon the street area shall not be permitted.

SECTION 4: SIDEWALK WIDTHS

The width of the sidewalk area is defined as being the distance from the curb line to the property line, measured at right angles thereto.

The sidewalk widths within the following described portion of the City of Eureka shall be constructed the full width from curb line, as such is established by City ordinance, to the property line:

Beginning at a point where the West line of 'A' Street if extended would intersect
the waterfront of Humboldt Bay;
thence South along the West line of 'A' Street to the South line of Sixth Street;
thence East along the South line of Sixth Street to the East line of 'J' Street;
thence North along the East line of 'J' Street to Humboldt Bay; and
thence West along the shoreline of Humboldt Bay to the point of beginning.

All sidewalks hereinafter constructed outside of the area described above shall be either six feet (6'), nine feet (9'), or twelve feet (12') in width, measured from the face of the curb and at right angles thereto, except within certain sections of streets where the sidewalk area as defined above is less than six feet (6') in width, where the sidewalk shall be constructed to the full width of the sidewalk area.

The width of new sidewalks shall match the width of existing sidewalks within the same block unless otherwise directed by the Director of Engineering.

RESOLUTION NO. 6420 .

RESOLUTION TO AMEND RESOLUTION NO. 6219 RELATING TO STANDARDS AND SPECIFICATIONS FOR SIDEWALKS, CURBS, CURBS AND GUTTERS, AND DROP CURB ENTRANCES BY ADDING SECTION 6 THERETO TO AUTHORIZE THE DIR4ECTOR OF PUBLIC WORKS TO DEVIATE FROM SUCH PLANS AND SEPCIFICATIONS FOR CAUSE.

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF EUREKA, as follows:

SECTION 1: ADDITION TO RESOLUTION NO. 6219.

SECTION 6 is hereby added to Resolution No. 6219 to read as follows:

All sidewalks, curbs, curbs and gutters, and drop curb entrances shall be constructed, replaced, and/or repaired in accordance with the standards and specification set forth in this resolution and in Eureka Standard Details on file in the Office of the Director of Engineering.

SECTION 6: DEVIATION FOR CAUSE

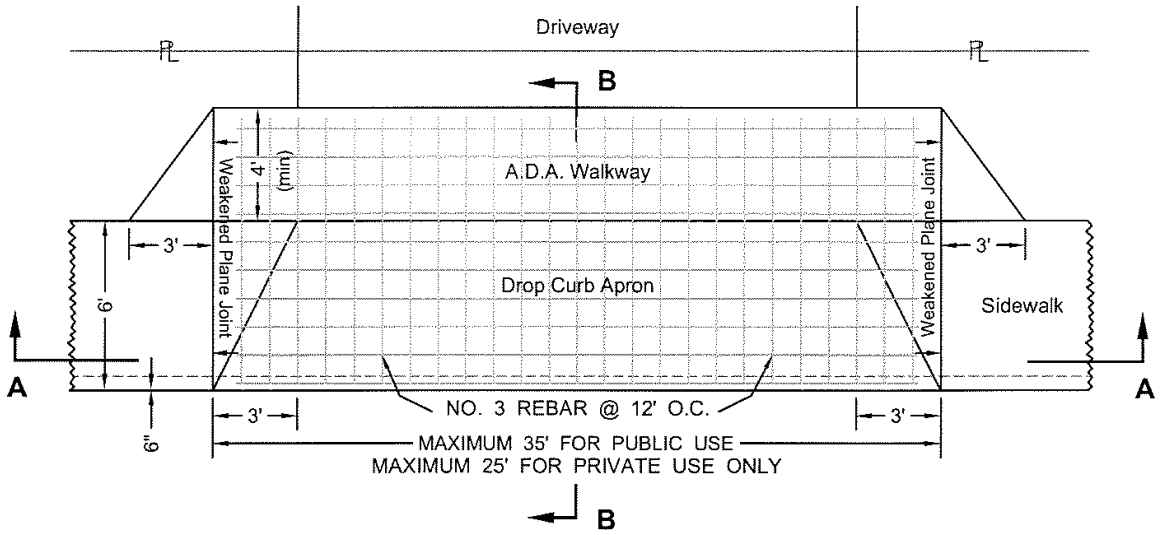
Deviations from these Standards and Specifications may be approved by the Director of Public Works upon receipt of a written statement showing economic and/or engineering justification therefore. Minor deviations as may be required by the exigencies of construction, may be approved by the Director of Public Works or his designated representative.

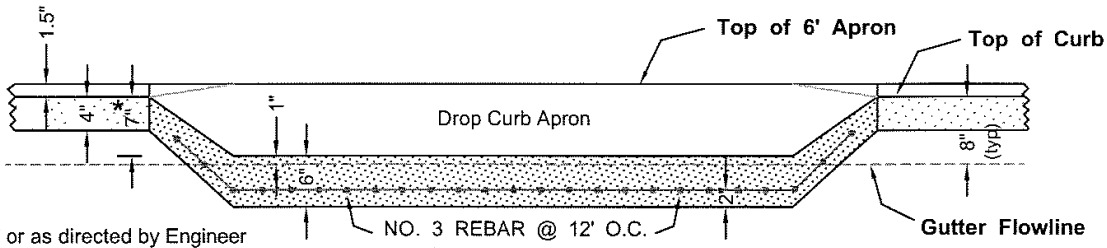
Passed, adopted and approved by the Council of the City of Eureka, County of Humboldt, State of California, on the 4th say of September, 1973, by the following vote:

AYES:	COUNCILMEN	Howard, Goodwin, Cobine, Diltz, Dawson
NOES:	COUNCILMEN	None
ABSENT:	COUNCILMEN	None

/s/ Gilbert S. Trood
MAYOR OF THE CITY OF EUREKA

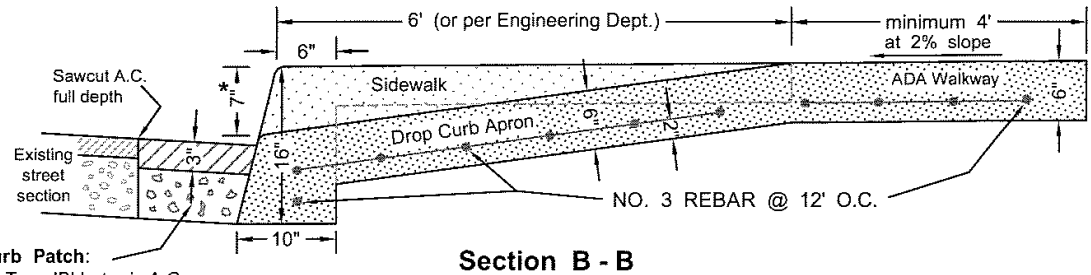
ATTEST: /s/ Patricia A. Banducci
City Clerk of the City of Eureka





* = max 7" or as directed by Engineer to provide ¾" - 1" lip above A.C.

Section A - A



Curb Patch:
3" Type 'B' hot-mix A.C. over
8" Class 2 Agg. Base
(at 95% relative compaction)

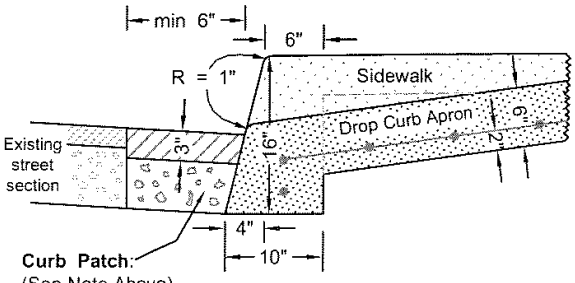
Section B - B

(See details below for curb construction dimensions)

* = max 7" or as directed by Engineer to provide ¾" - 1" lip above A.C.

NOTES:

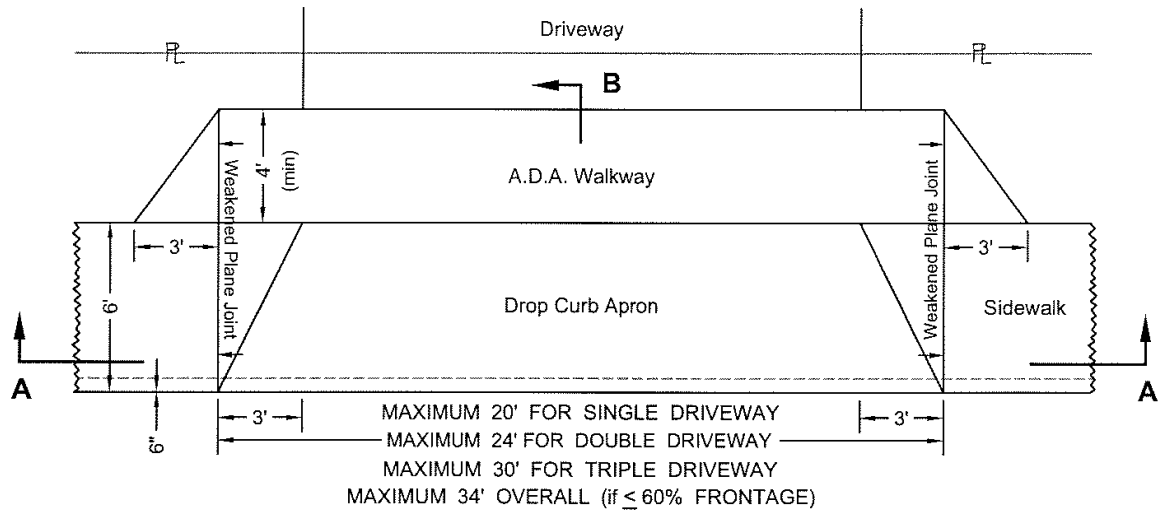
1. Refer to City Resolution No. 6219 for additional information regarding concrete curb and sidewalk specifications.
2. All existing sidewalk areas being replaced shall be sawcut along and replaced to the nearest scoreline.
3. Where new concrete curb or sidewalk is constructed adjacent to existing curb or sidewalk, 2' long #3 rebar dowels at 3' - 4' O.C. shall be drilled and set in epoxy into the existing curb or sidewalk with embedment of 6".

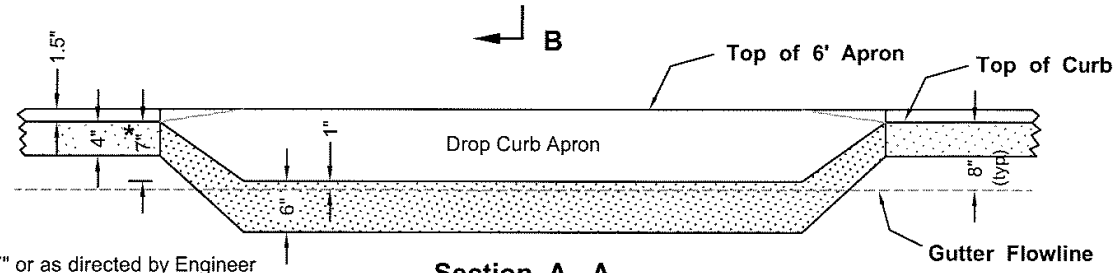


Curb Patch:
(See Note Above)

Drop Curb Detail

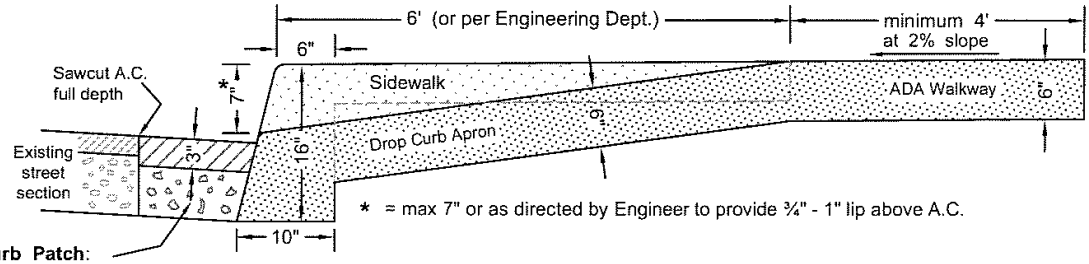
COMMERCIAL DRIVEWAYS





* = max 7" or as directed by Engineer to provide ¾" - 1" lip above A.C.

Section A - A



* = max 7" or as directed by Engineer to provide ¾" - 1" lip above A.C.

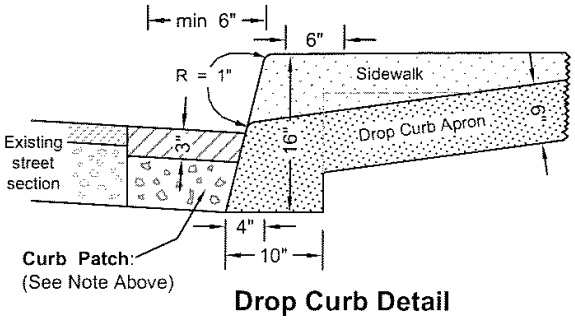
Curb Patch:
3" Type 'B' hot-mix A.C. over
8" Class 2 Agg. Base
(at 95% relative compaction)

Section B - B

(See details below for curb construction dimensions)

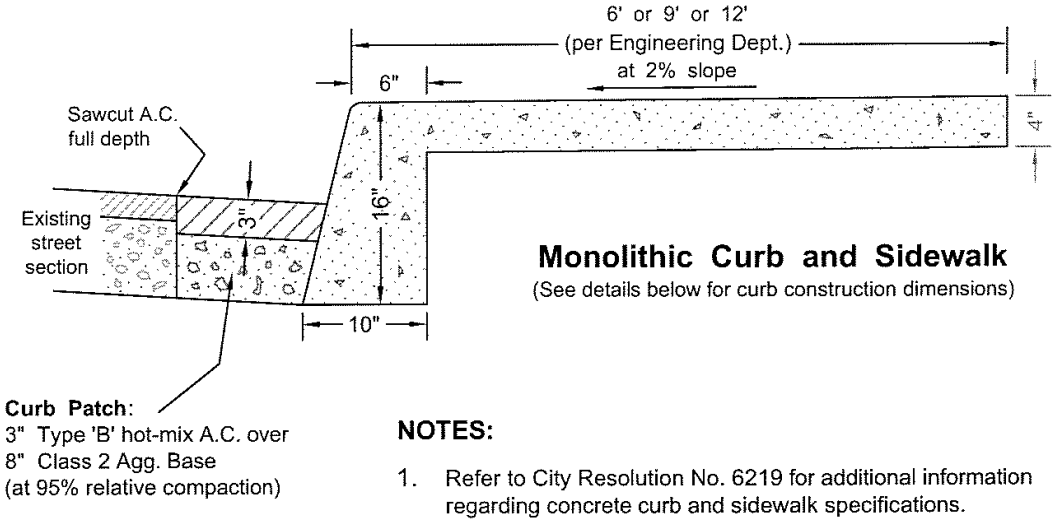
NOTES:

1. Refer to City Resolution No. 6219 for additional information regarding concrete curb and sidewalk specifications.
2. All existing sidewalk areas being replaced shall be sawcut along and replaced to the nearest scoreline.
3. Where new concrete curb or sidewalk is constructed adjacent to existing curb or sidewalk, 2' long #3 rebar dowels at 3' - 4' O.C. shall be drilled and set in epoxy into the existing curb or sidewalk with embedment of 6".



Drop Curb Detail

RESIDENTIAL DRIVEWAYS

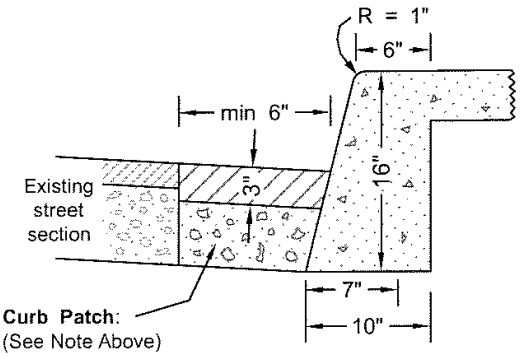


Monolithic Curb and Sidewalk

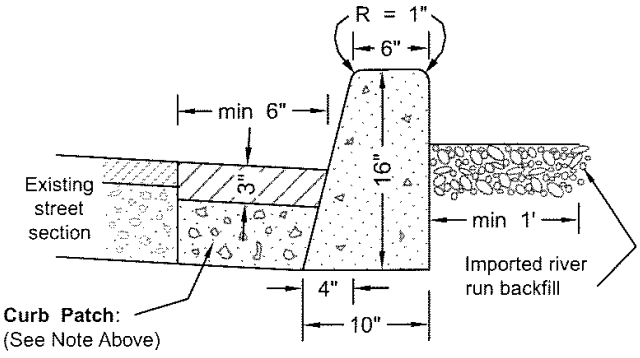
(See details below for curb construction dimensions)

NOTES:

1. Refer to City Resolution No. 6219 for additional information regarding concrete curb and sidewalk specifications.
2. All existing sidewalk areas being replaced shall be sawcut along and replaced to the nearest scoreline.
3. Forms shall extend the full depth of face of curb.
4. Where new concrete curb or sidewalk is constructed adjacent to existing curb or sidewalk, 2' long #3 rebar dowels at 3' - 4' O.C. shall be drilled and set in epoxy into the existing curb or sidewalk with minimum diagonal embedment of 6".



Monolithic Curb Detail



Curb Only Detail

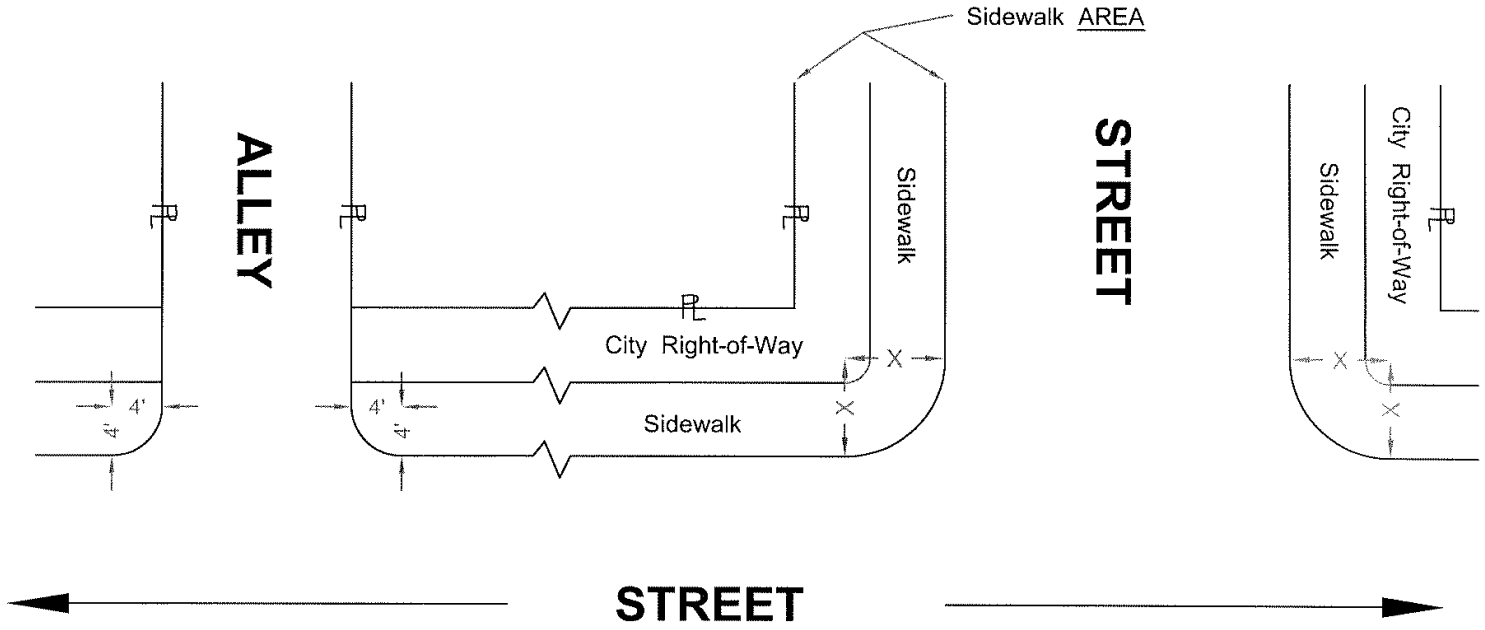
CONCRETE SIDEWALKS & CURBS

RADIUS DIMENSIONS:

The radius at all street / alley intersections is 4'.

The radius at all street / street intersections (X) is 8' provided the sidewalk area on either street is at least 8' wide.
Most sidewalk areas are 12' wide, although the sidewalk may be only 6', 9', or 12' wide.
The sidewalk area is the distance between the top face of curb and the property line.
Call Engineering at 441-4397 to determine the width of sidewalk areas for a particular location.

For street-street intersections where both streets have sidewalk areas less than 8' wide, the radius dimension (X) shall equal the width of the sidewalk area.



CURB RADII AT STREETS AND/OR ALLEY INTERSECTIONS

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Appendix E

Reduced Scale Project Drawings

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CITY OF EUREKA
ENGINEERING DEPARTMENT

SEWER IMPROVEMENTS 2020

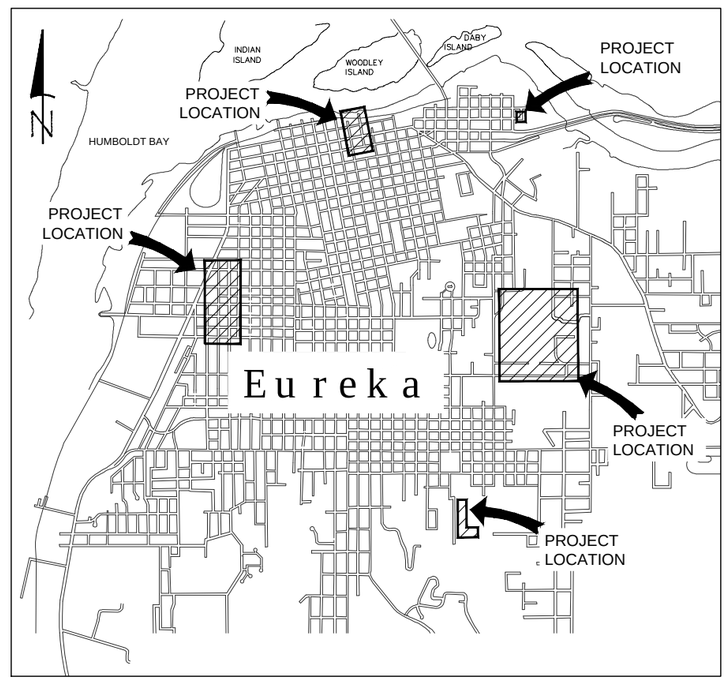
BID NO. 2020-06

Legend

- Center Line
- Right-of-Way Line
- Lot Line
- Easement
- (E) Water Main
- (N) Water Main
- (E) Sanitary Sewer Main & Lateral
- (N) Sanitary Sewer Main & Lateral
- (E) Storm Drain & Culvert
- (N) Storm Drain & Culvert
- (E) Gas Main
- (N) Gas Main
- (E) Telephone Conduit
- (E) Electrical Conduit
- (E) Overhead Electrical Conduit
- (E) Joint Trench
- (E) Edge of Pavement
- (N) Edge of Pavement
- (E) Fence
- (N) Fence
- Grass
- Pavement
- Concrete
- Earth
- (E) Survey Monument
- (E) Gate Valve
- (N) Gate Valve
- (E) Fire Hydrant
- (N) Fire Hydrant
- (E) Water Meter
- (N) Water Meter
- (E) Manhole
- (N) Manhole
- (E) Drainage Inlet
- (N) Type 'G1' Drainage Inlet
- (N) Type 'GO' Drainage Inlet
- (N) Type 'GOL7' Drainage Inlet

Bid Opening Date: April 7, 2020

Mandatory Pre-Bid Meeting, Tuesday, March 24, 2020
10:00 a.m., Room 207, Eureka City Hall



VICINITY MAP
No Scale

DRAWING INDEX

SHT	DWG	DESCRIPTION
1	G1	Title and Index
2	G2	Project Notes
3	G3	Project Notes
4	C1	Spot Repair - 3rd and Y Streets
5	C2	Spot Repair - Garland and Spring Streets
6	C3	CIPP Lining - Albee, Vine, and Union Streets
7	C4	CIPP Lining - Spring Street
8	C5	Pipe Bursting - 18th-Sunny Line
9	C6	Pipe Bursting - Hillside-McFarland Line
10	C7	Pipe Bursting - Munson-Hillside Street
11	C8	Pipe Bursting - Duck Pond Line
12	C9	Pipe Bursting - Madrone Line
13	C10	CIPP Lining - J Street Storm Drain
14	C11	Details
15	C12	Details
16	C13	Details
17	C14	Details
18	C15	Erosion and Sediment Control

ENGINEER/DESIGNER:

Gabriel Adame
Infiltration and Inflow Manager
RCE No. 90889

Date

APPROVED:

Jesse Willor
City Engineer
RCE No. 81744

Date

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No.	Date	Revisions	By	App.

Designed By: GSA
Drawn By: GSA / DCT
Checked By: JJW
Graphic Scale
Measures one inch on Full Size Drawings

REGISTERED PROFESSIONAL ENGINEER GABRIEL S. ADAME No. C90889 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER JESSE J. WILLOR No. C81744 CIVIL STATE OF CALIFORNIA

CITY OF EUREKA
Public Works Dept.
Engineering Division
531 K Street, Eureka, CA 95501
(707) 441-4194 ph
(707) 441-4202 fax

TITLE AND INDEX

SEWER IMPROVEMENTS 2020

Scale: No Scale
Drawing: G1
Sheet 1 of 18

P:\Engineering\Projects\Sewer Projects\Mains\Sewer 2020\dwg\Sewer Imp 2020 - G1-G4.dwg - Plotted 3/3/20

General Project Notes:

1. This project consists of the replacement or rehabilitation of several sections of sewer main, associated sewer laterals, and manholes, via dig and replace, pipe lining, and pipe bursting, as shown on these Plans and called:

   · Sewer Improvements 2020 - Bid No. 2020-06

2. The Contractor is hereby notified that historical information regarding the project sites exists and is available for public inspection in the City of Eureka Engineering Department offices. This historical information may include survey field notes, Sanborn maps, and miscellaneous utility maps and plans, among other things. The historical information listed below was specifically consulted during the design phase of this project:

   · City of Eureka Block Maps

   · City of Eureka Water Maps

   · City of Eureka Drainage Maps

3. It is the responsibility of the Contractor to thoroughly examine the job sites, the Contract Specifications, and these Plans prior to submitting their bid. No additional payment shall be made by the City for any expense the Contractor may incur as a result of their failure to adequately acquaint theirself with the extent of the work to be done, the general site conditions, or the requirements of the Plans, Contract Documents, General Provisions, Special Provisions, and referenced specifications (AWWA, Caltrans, CAL/OSHA, etc.).

4. The Contractor shall contact Underground Service Alert (USA) at (800) 227-2600 at least forty-eight (48) hours, but not less than two (2) working days, PRIOR to any demolition or excavation and request field markings of all underground utilities.

5. For utility relocations work by the Contractor, the Contractor shall coordinate his work with PG&E (Alex Mossman at 707 445-5594), AT&T (Marlene Allen at 707 445-4069) and SuddenLink (Mark Larsen at 707 268-5333) to determine extent of the excavation and backfill.

6. The City of Eureka does not guarantee the completeness or accuracy of the existing underground utilities shown on these Plans. The Contractor is solely responsible for field verifying any potential utility conflicts between existing underground utilities and the work shown on these Plans, including both potential utility conflicts shown on these Plans and potential utility conflicts not shown on these Plans but either located, found, or marked in the field. Where potential conflicts are found, the Contractor shall take whatever measures are needed (including preliminary potholing of the utilities at the potential conflict location) prior to performing work in the area to allow time for the responsible agency to correct the conflict. No additional payment shall be made by the City for any expense the Contractor may incur as a result of his failure to adequately explore, in the opinion of the Engineer, potential utility conflicts.

7. The Contractor shall possess a Class 'A' (General Engineering) contractor's license, as well as a City of Eureka business license, at the time the contract is awarded. Any subcontractor shall have the appropriate license for the work being performed. In addition, for any work involving pipe lining or pipe bursting, the Contractor (or Subcontractor if the work involving the lining or bursting portion of the project is being performed by a Subcontractor) shall provide verifiable experience of working with these technologies. This experience requirement may be met in two ways:

   Satisfactory completion of at least three (3) projects within the last ten (10) years involving lining or bursting sewer mains,

   OR

   Satisfactory lining or bursting of at least 2,000 linear feet of sewer main under contract with the City of Eureka. Said work must have involved repairs or reconnections to sewer laterals.

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General Project Notes (cont.):

8. The Contractor shall take all necessary precautions and measures to prevent the flow of water, including groundwater, from entering all excavations within the work area. If water does enter an excavation, such water, when removal is necessary to proceed with the work, shall be pumped to a Contractor supplied holding tank for disposal.

9. Extreme caution shall be exercised by the Contractor when working on or near survey monuments. MONUMENTS SHALL NOT BE DISTURBED! At Contractor's expense, a licensed Land Surveyor shall reference all survey corners and monuments prior to beginning any construction activities. After final street paving, the Land Surveyor shall place Christy G5 traffic boxes marked "Monument" over protected and/or reset corners and monuments in accordance with the Standard Details. The Land Surveyor shall record Corner Cards referencing all corner and monument changes with the County Surveyor or record a Record of Survey if so required by the County Surveyor.

10. If the Contractor wishes to use water from the City of Eureka water distribution system during the course of this project, he shall obtain and attach a double check valve at the point where he connects to the City water system (i.e. at a hydrant, water service, blow-off, etc.). The double check valve shall be tested and certified by either a certified tester or the City of Eureka Public Works Department and approved by the Engineer prior to use. The Contractor shall be responsible for the maintenance and protection of the double check valve.

11. The Contractor shall make arrangements for disposal sites and shall pay any and all costs involved. When any material is to be disposed of outside the project work area, the Contractor shall obtain both a written agreement between the property owner and the Contractor and a copy of the permit that allows material disposal at the subject site. The agreement shall grant the Contractor permission to use the private property as a disposal site and shall absolve the City of all responsibility for consequences of such usage. The permit copy shall be obtained from the property owner, the Humboldt County Building Department, the City of Eureka Building Department, or other regulatory agency as appropriate. Both the agreement and permit shall be filed with the Engineer PRIOR to the use of the property, and the Contractor shall obtain permission from the Engineer to dispose of the material at the proposed location designated in the agreement and on the permit before any material is disposed of on said property. Refer to the Contract Special Provisions for additional requirements.

    Disposal of materials is not permitted within the public right-of-way unless otherwise specified on the Plans.

12. The Contractor shall not use the public right-of-way for long term staging or material storage. During the work day, the Contractor may use the work area for storage of project materials and equipment that will be used that day; however, at the end of the day, the work site shall be cleaned to the satisfaction of the Engineer.

13. The Contractor shall employ standard Best Management Practices (BMPs) for erosion control, including but not limited to, implementing construction during the dry season, removal of the minimum amount of vegetation necessary to accomplish the work, placement of straw bales or fiber rolls downstream during construction.

14. This IS a prevailing wage project.

15. The Contractor shall secure the construction site during non-working hours as approved by the Engineer.

16. The Contractor shall submit to the Engineer for review a minimum of four (4) copies of the manufacturers' product information cut sheets indicating dimensions for all manufactured and precast items proposed for use. The City will keep three (3) copies and return the remaining copies to the Contractor after approval.

17. All equipment shall be installed per manufacturers' recommendations.

18. All grades shown on the Plans shall be subject to adjustment in the field by the Engineer.

General Project Notes (cont.):

18. All elevations shown on these Plans are on City of Eureka datum.

19. Archaeologically Sensitive Area

    The City and its contractors are subject to State laws relative to the discovery of archaeological sites containing cultural resources and/or human remains (Section 7050.5 of the Health and Safety Code and Sections 5097.94 and 5097.98 of the Public Resources Code). The Contractor shall monitor all construction for the appearance of archaeologically significant materials.

    The Contractor shall also hire a Wiyot cultural monitor to be present during all ground disturbing activities where ground has not been disturbed previously or for excavations over one foot in depth. Said monitoring shall be undertaken to the satisfaction of all three named Wiyot area Tribal Historic Officers and the City of Eureka.

    If, during construction, subsurface archaeological resources (or materials that may be considered to be archaeological resources) are encountered, City staff shall be notified immediately and all ground-disturbing work in the immediate area shall cease and not resume until a qualified archaeologist or cultural resources specialist has been contacted to evaluate the materials and recommend appropriate action.

    If buried human remains are discovered, they shall be treated in a manner consistent with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code. The County Coroner shall be contacted to determine whether further investigations are warranted, and the remains shall be turned over to the coroner, who may contact the Native American Heritage Council and Native American representatives as required or appropriate.

General Order of Work:

1. The Contractor shall submit a proposed construction schedule to the Engineer at or prior to the Preconstruction Meeting showing the order in which he intends to construct all portions of this project. The Engineer shall provide either approval of the Contractor's schedule or a list of proposed changes to the schedule prior to construction, and the Contractor shall abide by that approved schedule throughout the course of the project unless otherwise directed by the Engineer.

2. The anticipated order of construction for this project is as follows:

   a. Cleaning and CCTV Televising of all sewer mains.

   b. Determine which sewer laterals are active, requiring replacement.

   c. Pothole existing potential utility conflicts to determine locations, sizes, and elevations and verify final fitting requirements.

   d. Replace manholes where required.

   e. Install sewer lateral cleanouts.

   f. Perform work to replace/rehabilitate sewer main.

   g. Re-establish sewer lateral connection to the sewer main.

   h. Replace lateral section in public right of way.

   i. Pressure test sewer main and laterals to the cleanout.

   j. Final paving, with paving of entire travel lane where 15% of the street was damaged by trenching.

   k. CIPP and CIPM of storm sewer mains and manholes.

No.	Date	Revisions	By	App.

Designed By: GSA
Drawn By: GSA / DCT
Checked By: JJW
Graphic Scale
Measures one inch on Full Size Drawings

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PROJECT NOTES

SEWER IMPROVEMENTS 2020

Scale: No Scale

Drawing: G2

Sheet 2 of 18

P:\Engineering\Projects\Sewer Projects\Mains\Sewer 2020\dwg\Sewer imp 2020 - G1-G4.dwg - Plotted 3/3/20

General Sewer Notes:

1. All new Sanitary Sewer (SS) laterals shall be installed to the property line unless otherwise directed by the Engineer. If work is to be performed on private property, a separate agreement will need to be entered into between the Contractor and property owner.

2. The Contractor shall utilize lasers or other methods acceptable to the Engineer to construct grades on (N) sewer mains.

3. The Contractor shall construct all sanitary sewer improvements to the lines and grades shown on the Plans. At the direction of the Engineer, the City may produce survey staking cut sheets for portions of the work. If produced, these cut sheets shall supersede the lines and grades shown on these Plans.

4. Prior to the Engineer's acceptance of the gravity sewer main installation and other improvements, the Contractor shall pay for and provide to the Engineer video inspection records and written reports of the new sewer main (video of laterals is not required) performed by a competent sewer video service provider. This video inspection shall be in color and shall be of sufficient resolution to allow the Engineer to clearly see all pipe joints, wyes, manhole connections, and other fittings. Sewer reports shall conform to National Association of Sewer Service Companies (NASSCO) Pipe Assessment Certification Program (PACP) standards.

5. When sewer service interruption is necessary, the Contractor shall notify all affected persons at least forty-eight (48) hours in advance of the anticipated service interruption. Refer to the Contract Special Provisions for additional requirements.

6. At any location where the Contractor's activities may expose an adjacent water main, the Contractor shall either restrain the water main or request that the City shut off water service in the area and depressurize the water main. Any water shutdown will require that the Contractor notify ALL affected residents and businesses within both the primary shutdown area and the backup shutdown area at least two (2) working days in advance of the anticipated service interruption. The City will provide the shutdown notification fliers (one for primary areas, one for backup areas); however, the Contractor shall be responsible for correctly filling out, duplicating, and distributing the fliers as listed above. The Contractor shall make an allowance in both his Bid and his project schedule to allow for notification of residents and businesses, and no additional payment will be made by the City for any expenses incurred by the Contractor to complete the required notifications.

7. The Contractor is responsible for repairing and/or replacing, to the satisfaction of the Engineer, any utilities that are damaged by his activities.

8. The Contractor is solely responsible for maintaining existing wastewater flows through the project area at all times during the project. The Contractor's operations shall not cause a public health hazard or discharge of untreated wastewater to the ground surface or to groundwater at any time during the project. The Contractor shall take all necessary precautions including constant monitoring of bypass pumping to insure that no private residences or properties are subjected to a wastewater backup or spill, and the Contractor shall be liable for all cleanup and damages and any fines in the event of a spill. After the work is completed, flow shall be restored to normal.

9. When a bypass is required, the Contractor shall submit a wastewater bypass plan to the Engineer prior to commencement of sewer line work. The bypass plan shall be subject to approval by the Engineer and shall insure that all bypass pumping shall be performed in such a manner as not to damage public or private property or create a public nuisance.

10. With the written approval of the property owner, flows from service laterals may be blocked for a period of time not to exceed eight (8) hours. The Contractor shall be responsible for coordinating with property owners to obtain approval for blockages and to ensure that any backups in the service laterals do not result in overflow or wastewater spill. The Contractor shall be responsible for all cleanup and damages and any fines in the event of a spill. Service laterals that are blocked shall be re-opened immediately upon completion of the lateral installation work.

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General Traffic Control Notes:

1. The contractor shall provide temporary traffic control in accordance with the california manual of uniform traffic control devices (mutcd). A traffic control plan will need to be submitted and approved by the city prior to any work taking place. the plan shall provide access at all times for residents and emergency vehicles and comply with all required permits and other guidelines listed on these plans and in the specifications.

2. The contractor shall not damage or disturb any part of the traffic signal system at any signalized intersection. If any part of the system is damaged or disturbed, the contractor shall be solely responsible for the costs of having the system repaired by a qualified electrical/signal contractor to the satisfaction of the engineer.

3. Contractor shall provide and maintain sufficient temporary barriers to provide for the safety of the staff and public to the satisfaction of the engineer.

General Street Notes:

A.C. Grinding & Paving

1. The Contractor shall have a minimum of one vacuum sweeper available for use at all times after grinding is completed, and shall use the sweeper(s) as directed by the Engineer to control dust.

2. The Contractor shall protect, in place, all concrete curb and sidewalk except where sewer lateral and cleanout improvements are required.

3. Maintain existing drainage as directed by the Engineer.

Grinding

1. Contractor shall grind or saw-cut A.C. pavement to create a smooth line for which to pave back.
2. Initial grinding shall be allowed to be the width of the trench, but final paving will require the grinding/saw-cutting to be the full width of the "T" section, as shown on these Plans.

Paving

1. A.C. paving work shall be performed as follows:
   a. Grinding and patching shall conform to the widths and areas shown on these Plans.
   b. Pavement shall be a minimum of 0.30'.
   c. Pave leveling course at locations as shown on the plans and as directed by the Engineer.
2. All A.C. pavement shall be Type 'A', and shall conform to the specifications listed in the Special Provisions.

Striping

1. All pavement striping and markings shall be thermoplastic and shall be as shown on these Plans and as listed in the Special Provisions.
2. Pavement striping shall match existing type and location.

General Concrete Sidewalk Notes:

1. Exact quantity and locations of sidewalk repairs are subject to change.

2. Concrete curb and sidewalk work shall conform to City of Eureka Resolution No. 6219 in the Contract Special Provisions.

3. Detectable warning surfaces shall be installed on all new corners of each intersection.

General Landscaping Notes:

1. The Contractor shall provide the following as indicated on the Plans and as herein specified:
   a. Grading, installation of 6-inches of topsoil, mulching, fertilizer, salvaged sod, and furnishing maintenance service. Grading and installation of sod shall be done as specified on the Plans.
   b. In addition to the above, all *slope areas* which are disturbed by the Contractor's operations shall be covered with bale straw as specified herein and as shown on the Plans.
2. Subsoil and topsoil shall be graded to eliminate uneven areas and low spots. Lines, levels, profiles and contours shall be maintained. All dirt clods shall be removed by rolling or other means. The minimum thickness of topsoil after grading shall be six inches (6"). Changes in grade shall be made gradual. Slopes shall be blended into level areas.

   Foreign materials, weeds, undesirable plants and their roots, and contaminated soil shall be removed from the subsoil prior to placement of the topsoil.
3. Topsoil shall be salvaged from unsuitable excavation areas as directed by the Engineer.
4. All sod shall be freshly cut from the site prior to grading of the slope. All sod shall be machine-cut at a uniform thickness, width, and length, and shall be sufficiently developed to resist tearing during handling operations. Sod shall be placed/replaced within two days of being cut, and should not be held or stored for a period of time that allows for decomposition of the grass and roots.

No.	Date	Revisions	By	App.

Designed By: GSA
Drawn By: GSA / DCT
Checked By: JJW
Graphic Scale
Measures one inch on Full Size Drawings

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PROJECT NOTES

SEWER IMPROVEMENTS 2020

Scale: No Scale

Drawing: G3

Sheet 3 of 18

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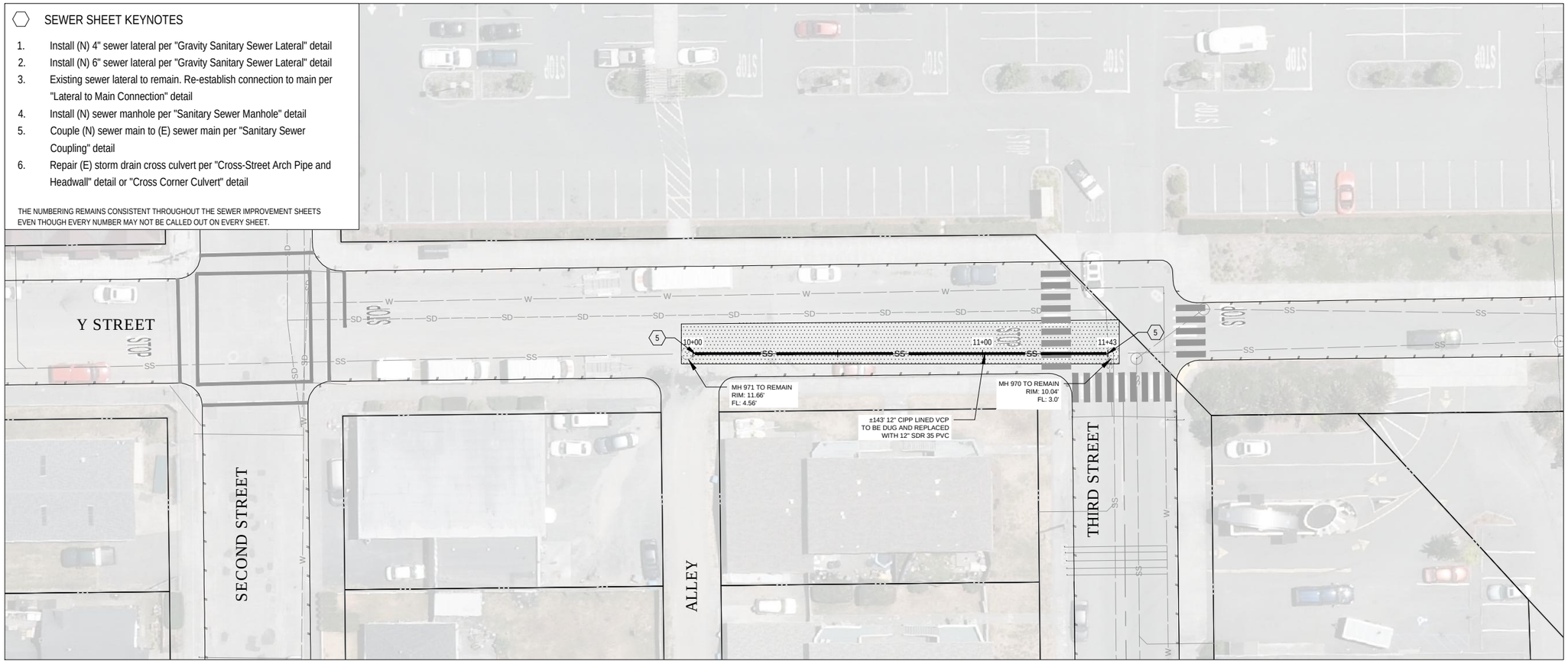
SEWER SHEET KEYNOTES

1. Install (N) 4" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
2. Install (N) 6" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
3. Existing sewer lateral to remain. Re-establish connection to main per "Lateral to Main Connection" detail
4. Install (N) sewer manhole per "Sanitary Sewer Manhole" detail
5. Couple (N) sewer main to (E) sewer main per "Sanitary Sewer Coupling" detail
6. Repair (E) storm drain cross culvert per "Cross-Street Arch Pipe and Headwall" detail or "Cross Corner Culvert" detail

THE NUMBERING REMAINS CONSISTENT THROUGHOUT THE SEWER IMPROVEMENT SHEETS EVEN THOUGH EVERY NUMBER MAY NOT BE CALLED OUT ON EVERY SHEET.



SUMMARY OF QUANTITIES

Item	Units	Qty.
12" SDR 35 PVC Sewer Main	LF	143
Hot Mix Asphalt	SY	243

N

Spot Repair 3rd and Y

Scale: 1" = 20'

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No.	Date	Revisions	By	App.

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Drawn By: GSA / DCT
Checked By: JJW

Graphic Scale
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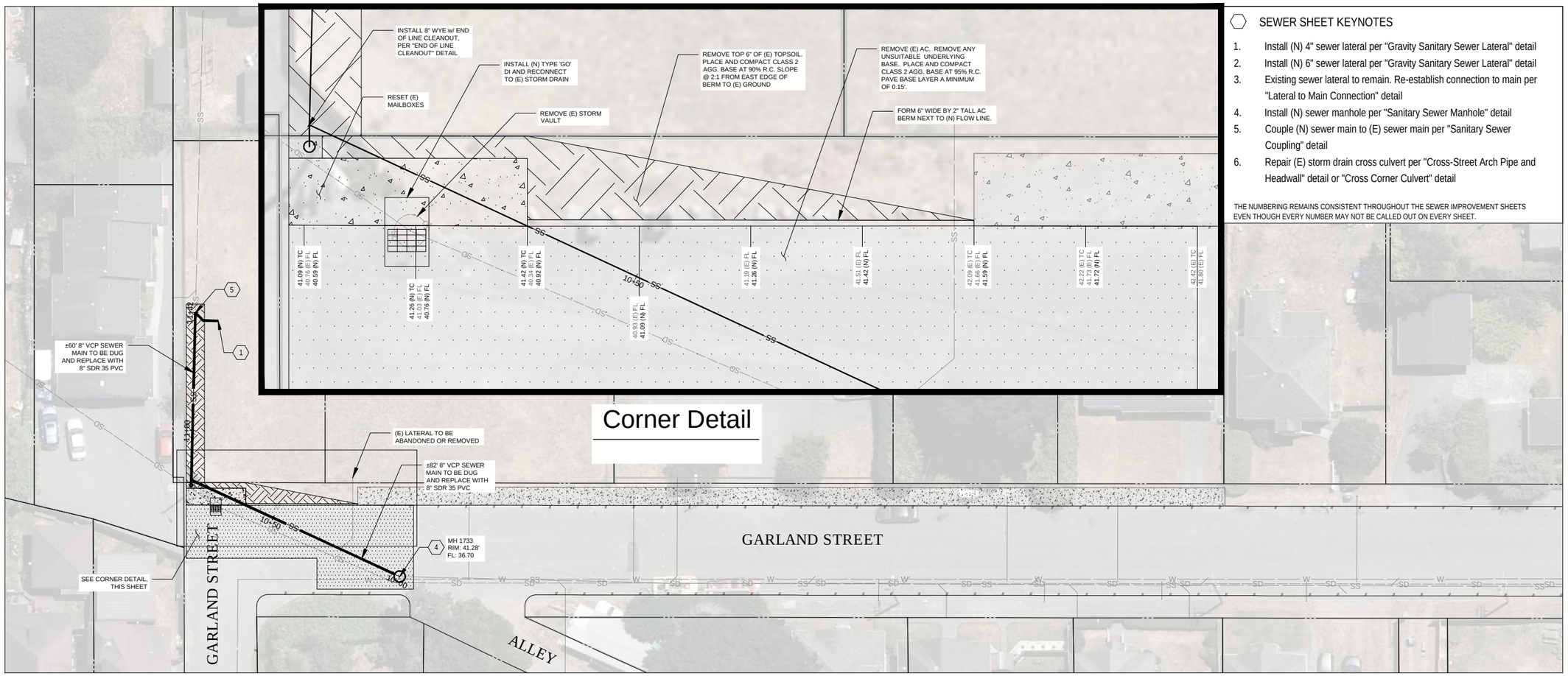
SPOT REPAIR
3RD AND Y

SEWER IMPROVEMENTS 2020

Scale: As Noted

Drawing: C1

Sheet 4 of 18



SEWER SHEET KEYNOTES

1. Install (N) 4" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
2. Install (N) 6" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
3. Existing sewer lateral to remain. Re-establish connection to main per "Lateral to Main Connection" detail
4. Install (N) sewer manhole per "Sanitary Sewer Manhole" detail
5. Couple (N) sewer main to (E) sewer main per "Sanitary Sewer Coupling" detail
6. Repair (E) storm drain cross culvert per "Cross-Street Arch Pipe and Headwall" detail or "Cross Corner Culvert" detail

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Spot Repair Garland St

Scale: 1" = 20'

SUMMARY OF QUANTITIES

Item	Units	Qty.
8" SDR 35 PVC Sewer Main	LF	142
Manholes	EA	1
Laterals < 30' in Length (Non-Paved)	EA	1
Final Paving	SY	215
Corner Reconstruction	LS	1

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No.	Date	Revisions	By	App.

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SPOT REPAIR GARLAND STREET

SEWER IMPROVEMENTS 2020

Scale: As Noted

Drawing: C2

Sheet 5 of 18

SEWER SHEET KEYNOTES

1. Install (N) 4" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
2. Install (N) 6" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
3. Existing sewer lateral to remain. Re-establish connection to main per "Lateral to Main Connection" detail
4. Install (N) sewer manhole per "Sanitary Sewer Manhole" detail
5. Couple (N) sewer main to (E) sewer main per "Sanitary Sewer Coupling" detail
6. Repair (E) storm drain cross culvert per "Cross-Street Arch Pipe and Headwall" detail or "Cross Corner Culvert" detail

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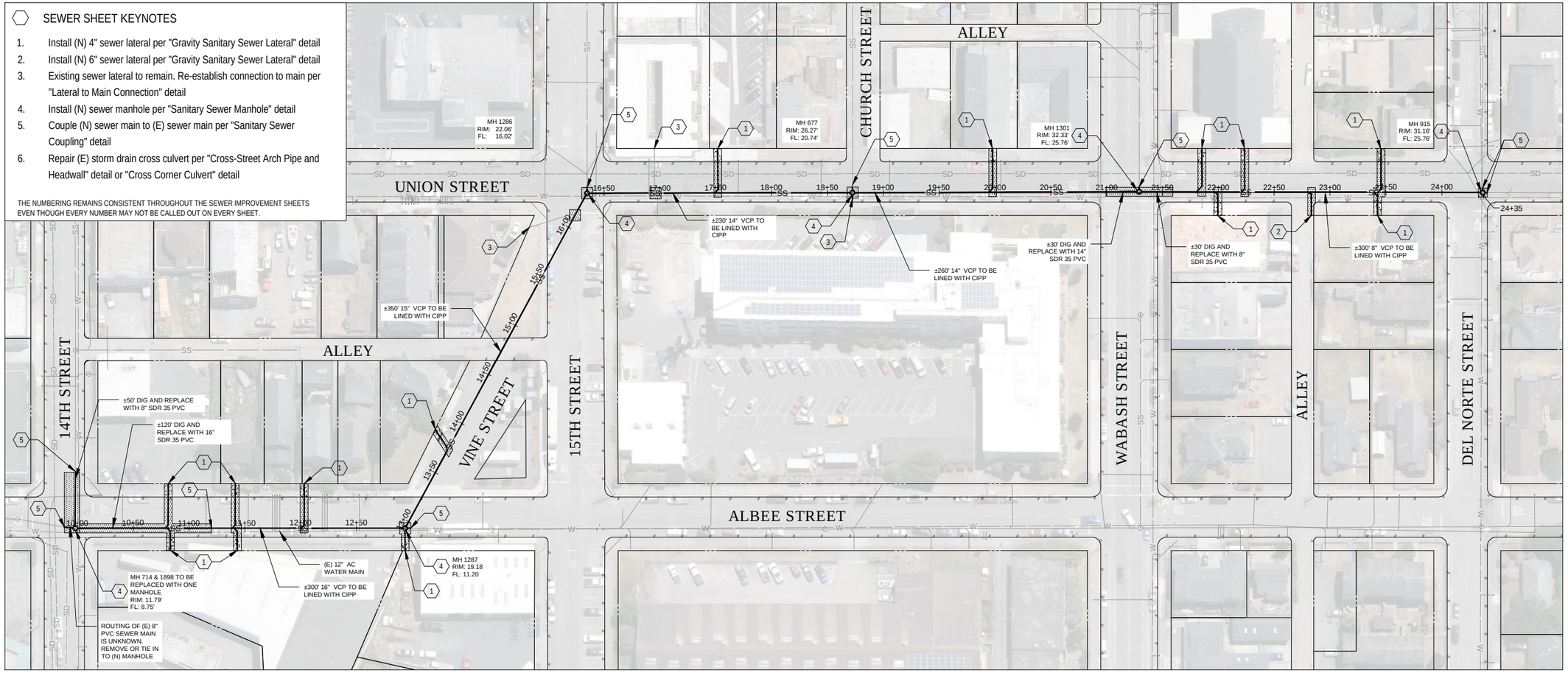

CIPP Lining Albee, Vine, and Union

Scale: 1" = 50'

SUMMARY OF QUANTITIES

Item	Units	Qty.
8" SDR 35 PVC Sewer Main	LF	80
14" SDR 35 PVC Sewer Main	LF	30
16" SDR 35 PVC Sewer Main	LF	120
8" CIPP Lined Sewer Main	LF	300
14" CIPP Lined Sewer Main	LF	490
15" CIPP Lined Sewer Main	LF	350
16" CIPP Lined Sewer Main	LF	300
Manholes	EA	6
Laterals < 30' in Length (Paved)	EA	7
Laterals > 30' in Length (Paved)	EA	8
Reconnect (E) Lateral	EA	3
Final Paving	SY	552

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Drawn By: GSA / DCT
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Graphic Scale
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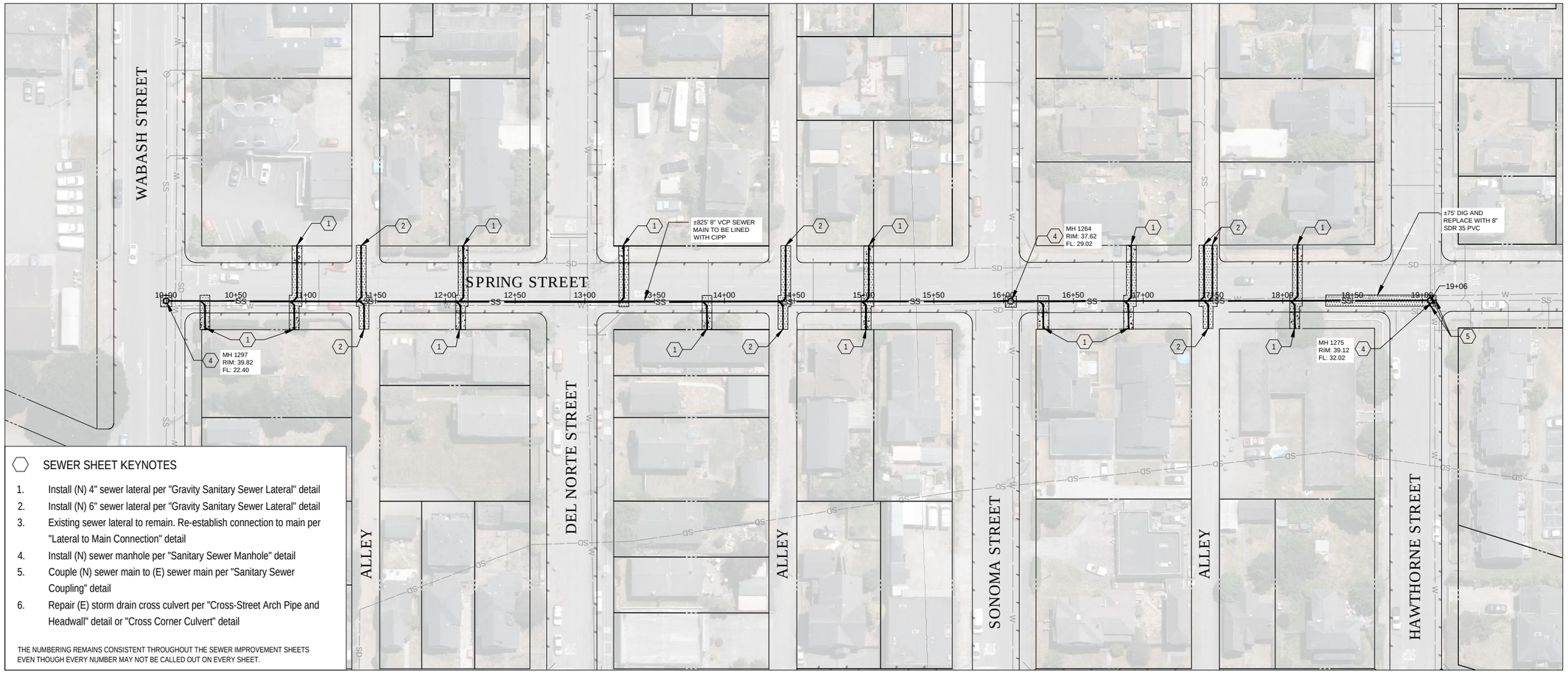
CIPP LINING
ALBEE, VINE, AND UNION

SEWER IMPROVEMENTS 2020

Scale: As Noted

Drawing: C3

Sheet 6 of 18



SEWER SHEET KEYNOTES

1. Install (N) 4" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
2. Install (N) 6" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
3. Existing sewer lateral to remain. Re-establish connection to main per "Lateral to Main Connection" detail
4. Install (N) sewer manhole per "Sanitary Sewer Manhole" detail
5. Couple (N) sewer main to (E) sewer main per "Sanitary Sewer Coupling" detail
6. Repair (E) storm drain cross culvert per "Cross-Street Arch Pipe and Headwall" detail or "Cross Corner Culvert" detail

THE NUMBERING REMAINS CONSISTENT THROUGHOUT THE SEWER IMPROVEMENT SHEETS EVEN THOUGH EVERY NUMBER MAY NOT BE CALLED OUT ON EVERY SHEET.

N

CIPP Lining Spring St

Scale: 1" = 40'

SUMMARY OF QUANTITIES

Item	Units	Qty.
8" SDR 35 PVC Sewer Main	LF	75
8" CIPP Lined Sewer Main	LF	825
Manholes	EA	3
Laterals < 30' in Length (Paved)	EA	11
Laterals > 30' in Length (Paved)	EA	10
Final Paving	SY	500

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Graphic Scale
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CIPP LINING
SPRING STREET

SEWER IMPROVEMENTS 2020

Scale: As Noted

Drawing: C4

Sheet 7 of 18

SEWER SHEET KEYNOTES

1. Install (N) 4" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
2. Install (N) 6" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
3. Existing sewer lateral to remain. Re-establish connection to main per "Lateral to Main Connection" detail
4. Install (N) sewer manhole per "Sanitary Sewer Manhole" detail
5. Couple (N) sewer main to (E) sewer main per "Sanitary Sewer Coupling" detail
6. Repair (E) storm drain cross culvert per "Cross-Street Arch Pipe and Headwall" detail or "Cross Corner Culvert" detail

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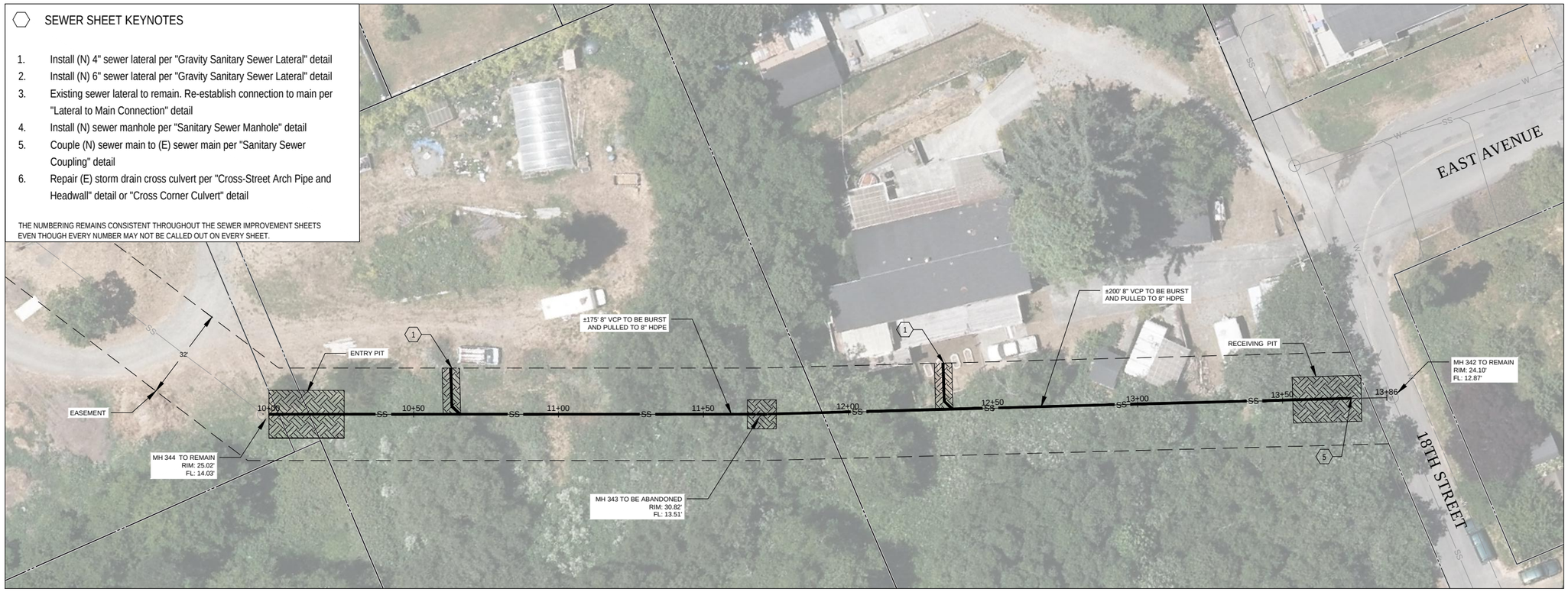

SUMMARY OF QUANTITIES

Item	Units	Qty.
8" HDPE Sewer Main (VCP)	LF	375
Abandon Manhole	EA	1
Laterals < 30' in Length (Non-Paved)	EA	2

Sunny and 18th Section

Scale: 1" = 20'

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No.	Date	Revisions	By	App.

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Drawn By: GSA / DCT
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PIPE BURSTING
18th-SUNNY LINE

SEWER IMPROVEMENTS 2020

Scale: As Noted

Drawing: C5

Sheet 8 of 18

SEWER SHEET KEYNOTES

1. Install (N) 4" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
2. Install (N) 6" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
3. Existing sewer lateral to remain. Re-establish connection to main per "Lateral to Main Connection" detail
4. Install (N) sewer manhole per "Sanitary Sewer Manhole" detail
5. Couple (N) sewer main to (E) sewer main per "Sanitary Sewer Coupling" detail
6. Repair (E) storm drain cross culvert per "Cross-Street Arch Pipe and Headwall" detail or "Cross Corner Culvert" detail

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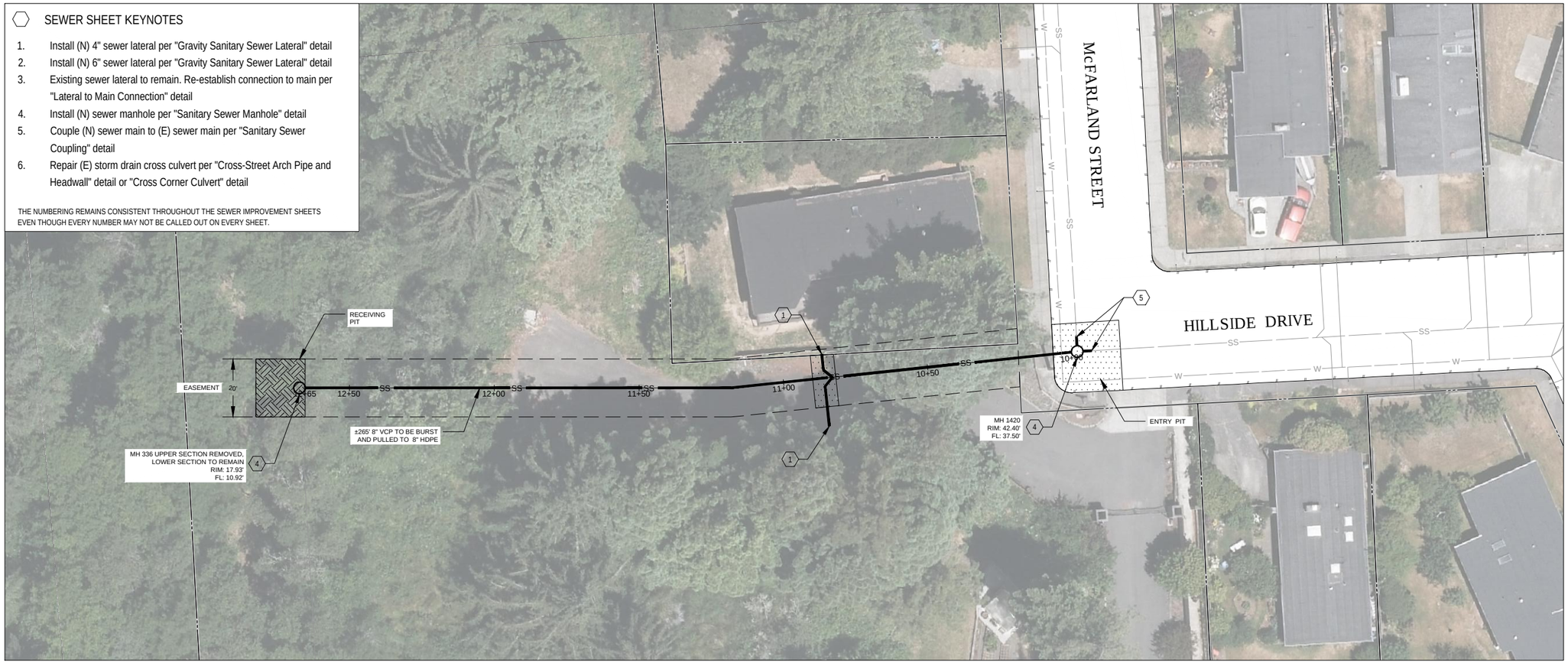

SUMMARY OF QUANTITIES

Item	Units	Qty.
8" HDPE Sewer Main (VCP)	LF	265
Manholes	EA	2
Laterals < 30' in Length	EA	2
Final Paving	SY	76

N

Hillside and McFarland Section

Scale: 1" = 20'

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No.	Date	Revisions	By	App.

Designed By: GSA
Drawn By: GSA / DCT
Checked By: JJW

Graphic Scale
Measures one inch on Full Size Drawings

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PIPE BURSTING
HILLSIDE-McFARLAND LINE

SEWER IMPROVEMENTS 2020

Scale: As Noted

Drawing: C6

Sheet 9 of 18

SEWER SHEET KEYNOTES

1. Install (N) 4" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
2. Install (N) 6" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
3. Existing sewer lateral to remain. Re-establish connection to main per "Lateral to Main Connection" detail
4. Install (N) sewer manhole per "Sanitary Sewer Manhole" detail
5. Couple (N) sewer main to (E) sewer main per "Sanitary Sewer Coupling" detail
6. Repair (E) storm drain cross culvert per "Cross-Street Arch Pipe and Headwall" detail or "Cross Corner Culvert" detail

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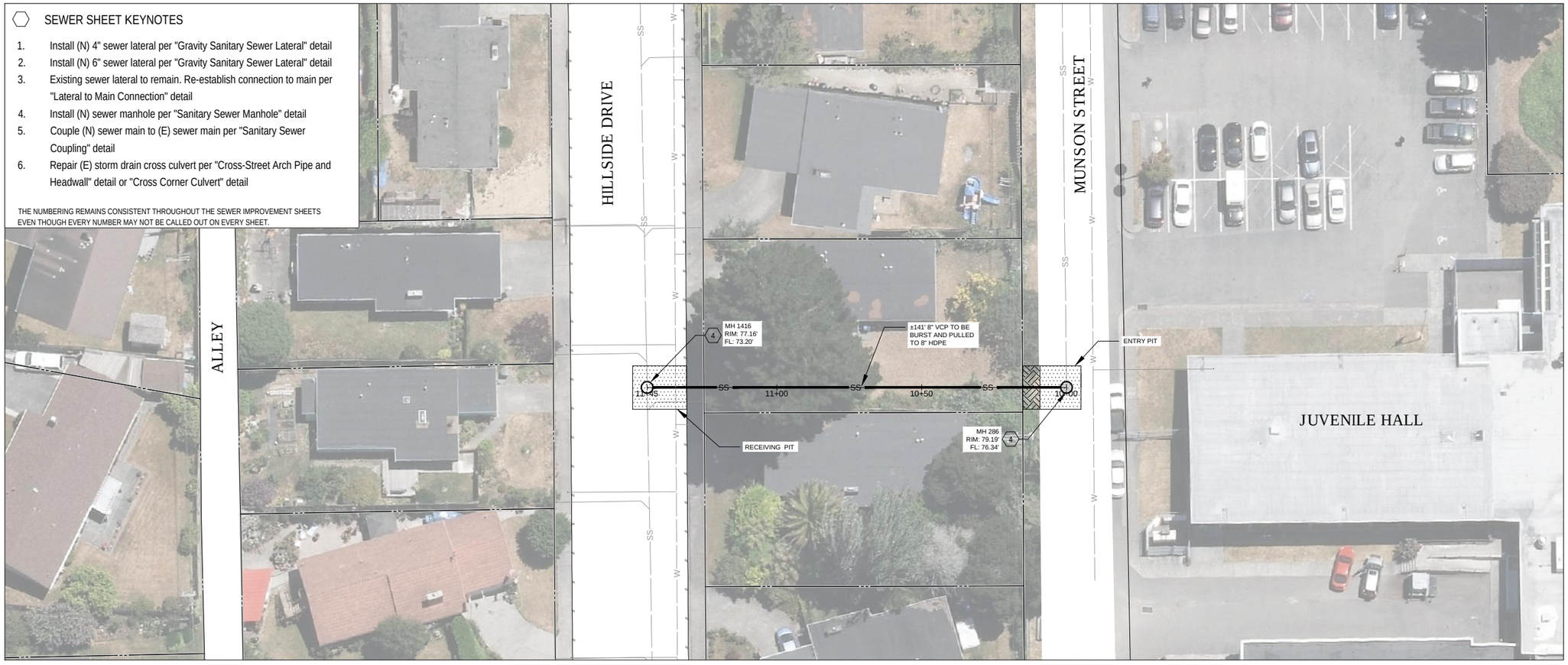

SUMMARY OF QUANTITIES

Item	Units	Qty.
8" HDPE Sewer Main (VCP)	LF	141
Manholes	EA	2
Final Paving	SY	55

Munson to Hillside Section

Scale: 1" = 20'

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No.	Date	Revisions	By	App.

Designed By: GSA
Drawn By: GSA / DCT
Checked By: JJW
Graphic Scale
Measures one inch on Full Size Drawings

REGISTERED PROFESSIONAL ENGINEER GABRIEL S. ADAME No. C80889 CIVIL STATE OF CALIFORNIA

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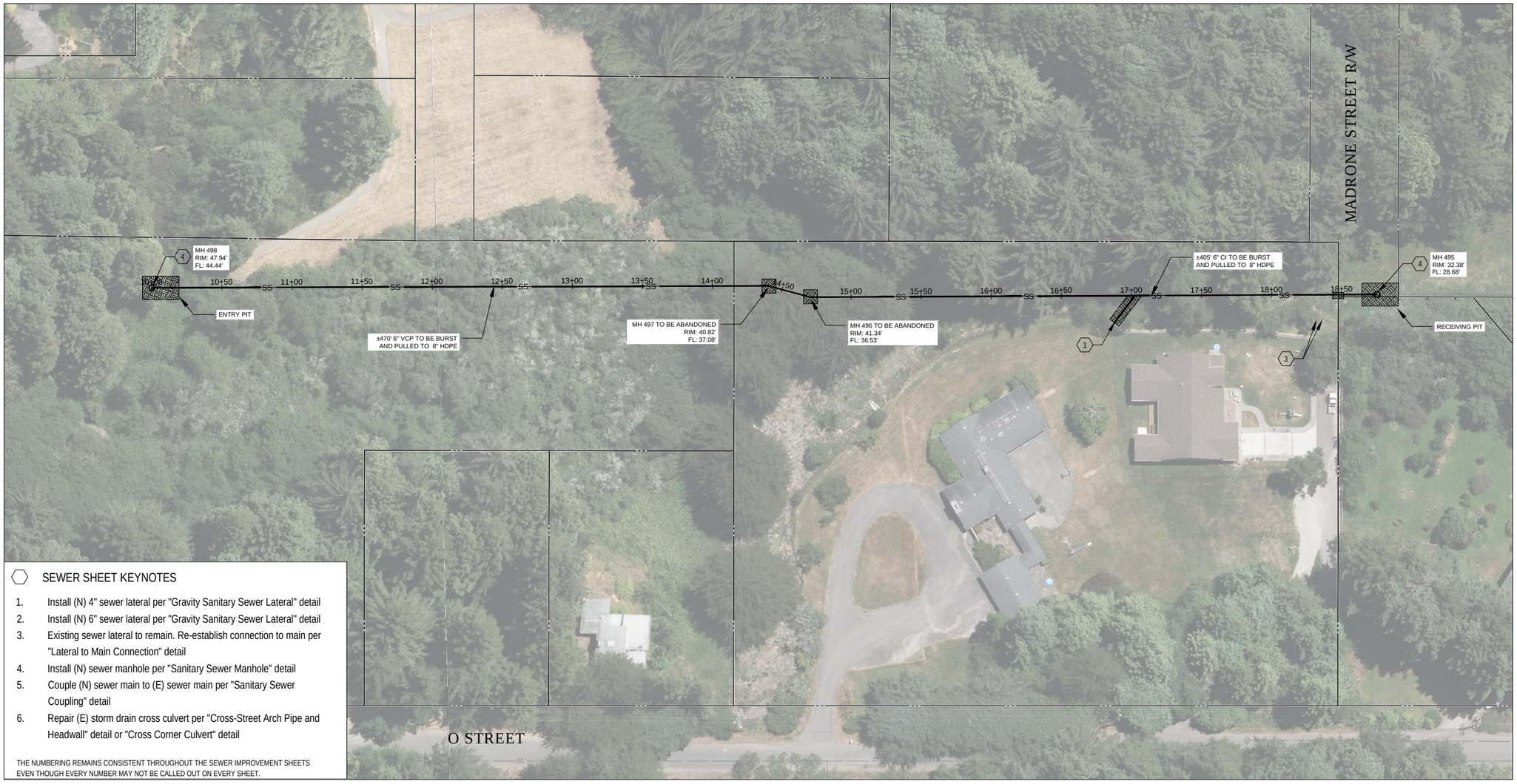
PIPE BURSTING
MUNSON-HILLSIDE STREET

SEWER IMPROVEMENTS 2020

Scale: As Noted

Drawing: C7

Sheet 10 of 18



SEWER SHEET KEYNOTES

1. Install (N) 4" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
2. Install (N) 6" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
3. Existing sewer lateral to remain. Re-establish connection to main per "Lateral to Main Connection" detail
4. Install (N) sewer manhole per "Sanitary Sewer Manhole" detail
5. Couple (N) sewer main to (E) sewer main per "Sanitary Sewer Coupling" detail
6. Repair (E) storm drain cross culvert per "Cross-Street Arch Pipe and Headwall" detail or "Cross Corner Culvert" detail

THE NUMBERING REMAINS CONSISTENT THROUGHOUT THE SEWER IMPROVEMENT SHEETS EVEN THOUGH EVERY NUMBER MAY NOT BE CALLED OUT ON EVERY SHEET.

SUMMARY OF QUANTITIES

Item	Units	Qty.
8" HDPE Sewer Main (VCP)	LF	470
8" HDPE Sewer Main (CI)	LF	405
Reconstruct Manholes	EA	2
Abandon Manholes	EA	2
Laterals < 30' in Length (Non-Paved)	EA	1

Duck Street Gulch Sewer Line

Scale: 1" = 100'

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REGISTERED PROFESSIONAL ENGINEER ADAME No. C60889 CIVIL STATE OF CALIFORNIA

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PIPE BURSTING
DUCK POND LINE

SEWER IMPROVEMENTS 2020

Scale: As Noted

Drawing: C8

Sheet 11 of 18

SEWER SHEET KEYNOTES

1. Install (N) 4" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
2. Install (N) 6" sewer lateral per "Gravity Sanitary Sewer Lateral" detail
3. Existing sewer lateral to remain. Re-establish connection to main per "Lateral to Main Connection" detail
4. Install (N) sewer manhole per "Sanitary Sewer Manhole" detail
5. Couple (N) sewer main to (E) sewer main per "Sanitary Sewer Coupling" detail
6. Repair (E) storm drain cross culvert per "Cross-Street Arch Pipe and Headwall" detail or "Cross Corner Culvert" detail

THE NUMBERING REMAINS CONSISTENT THROUGHOUT THE SEWER IMPROVEMENT SHEETS EVEN THOUGH EVERY NUMBER MAY NOT BE CALLED OUT ON EVERY SHEET.

SUMMARY OF QUANTITIES

Item	Units	Qty.
8" HDPE Sewer Main (VCP)	LF	640
Reconstruct Manholes	EA	1
Abandon Manholes	EA	1
Laterals < 30' in Length (Non-Paved)	EA	3

N

Madrone Street Gulch Sewer Line

Scale: 1" = 40'

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PIPE BURSTING
MADRONE STREET LINE

SEWER IMPROVEMENTS 2020

Scale:

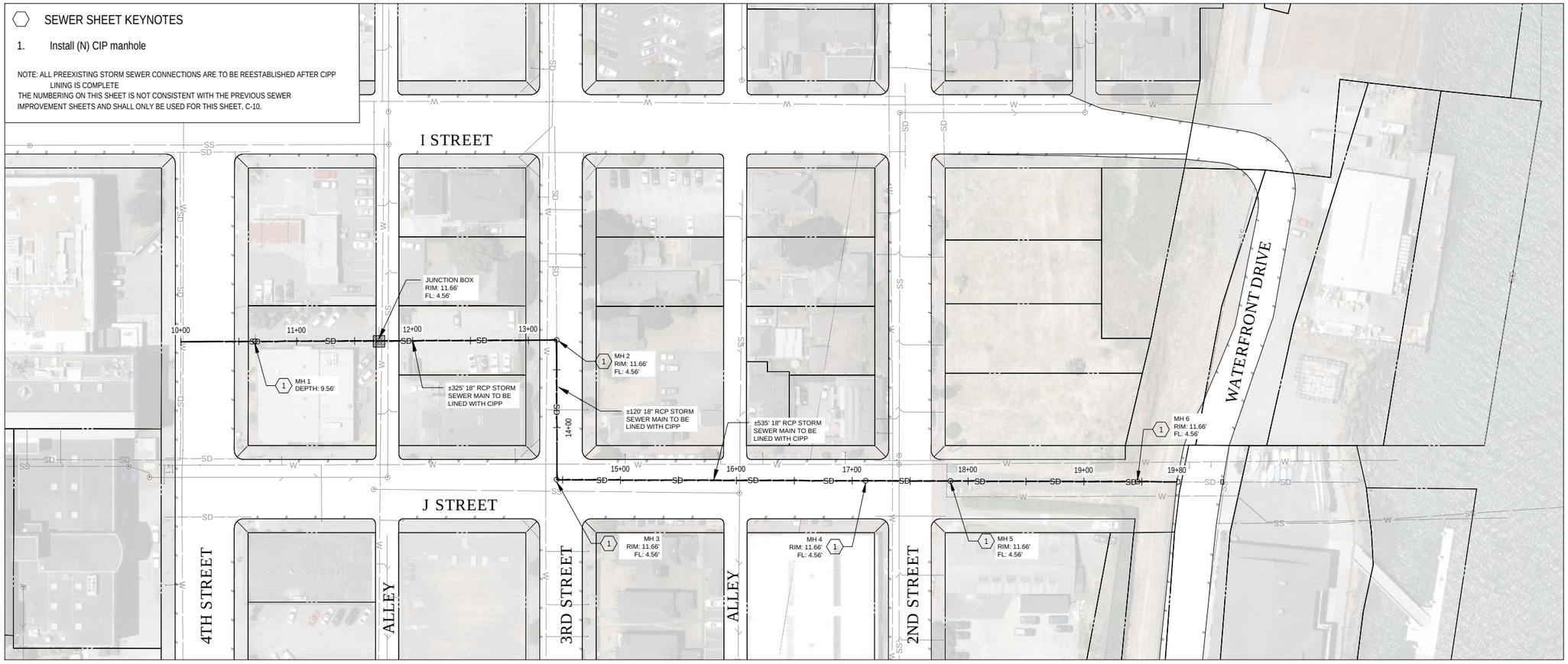
Drawing: C9

Sheet 12 of 18

SEWER SHEET KEYNOTES

1. Install (N) CIP manhole

NOTE: ALL PREEXISTING STORM SEWER CONNECTIONS ARE TO BE REESTABLISHED AFTER CIPP LINING IS COMPLETE
THE NUMBERING ON THIS SHEET IS NOT CONSISTENT WITH THE PREVIOUS SEWER IMPROVEMENT SHEETS AND SHALL ONLY BE USED FOR THIS SHEET, C-10.



SUMMARY OF QUANTITIES

Item	Units	Qty.
18" CIPP Lined Storm Sewer Main	LF	811
CIPP Lined Storm Sewer Manhole	EA	6
Paving	SY	11

CIPP LINING J STREET STORM SEWER

Scale: 1" = 50'

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Graphic Scale
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EUREKA CALIFORNIA

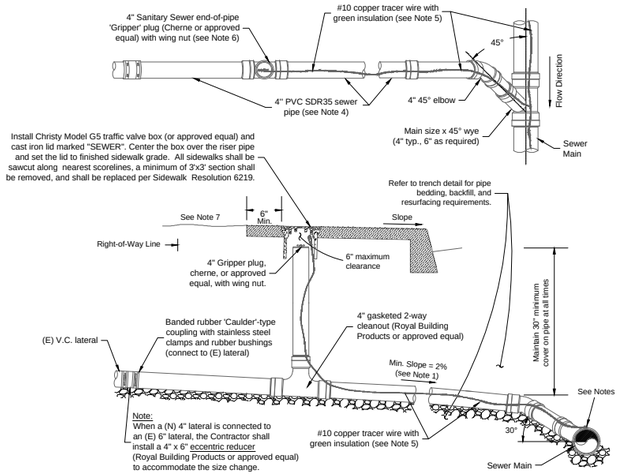
CIPP LINING - J STREET STORM DRAIN

SEWER IMPROVEMENTS 2020

Scale: As Noted

Drawing: C10

Sheet 13 of 18

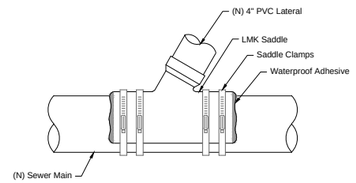


NOTES:

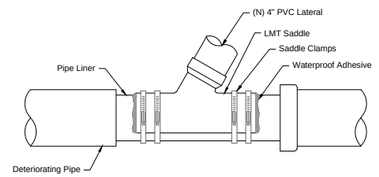
1. Minimum pipe slope shall be 2% (1/4" per foot) unless otherwise approved by the Engineer.
2. Factory manufactured fittings shall be used exclusively.
3. Sewer saddles shall only be used after approval by the Engineer.
4. All fittings and lateral piping shall be 4" (min) PVC SDR35 sewer pipe.
5. All laterals shall be installed with a #10 copper tracer wire with green insulation taped to the sanitary sewer pipe. Lateral tracer wire shall be securely connected to and electrically continuous with the sewer main tracer wire at one end with waterproof, corrosion resistant connector, and shall terminate in a loop just below the lid in the cleanout box at the other end.
6. PVC riser shall NOT end in a bell flange or 'Caulder'-type coupling. Riser shall terminate at the required clearance with a level cut.
7. All areas behind the sidewalk that are disturbed by the installation of sewer laterals shall be restored to a condition that is as good, in the opinion of the Engineer, as when the Contractor began construction, which may include the installation of topsoil, grass seed, AC pavement, or other materials.

GRAVITY SANITARY SEWER LATERAL

No Scale



HDPE/PVC - LMK SADDLE SYSTEM



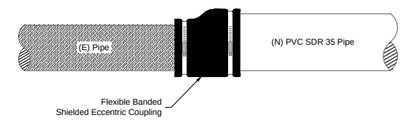
CIPP - LMT SADDLE SYSTEM

NOTES:

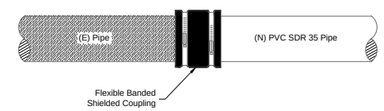
1. Follow Manufacturer's installation procedures to ensure fully sealed connection.

LATERAL TO MAIN CONNECTION

No Scale



DIFFERENT SIZED PIPES



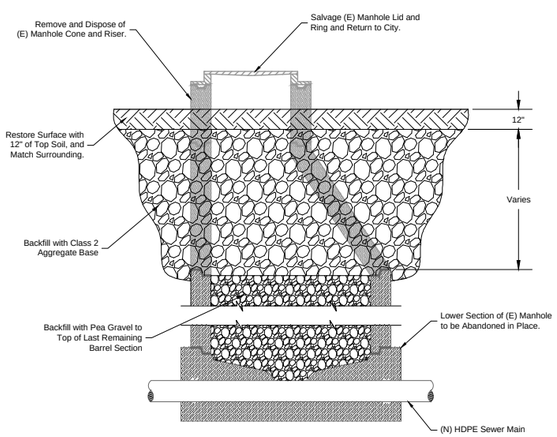
SAME SIZED PIPES

NOTES:

1. Coupling shall be sized to join existing pipe to PVC SDR 35 pipe.
2. When coupling different sized pipes, use eccentric reducer to maintain flowline.

BANDED RUBBER 'CAULDER'-TYPE COUPLING DETAIL

No Scale



SANITARY SEWER MANHOLE ABANDONEMENT

No Scale

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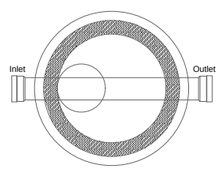
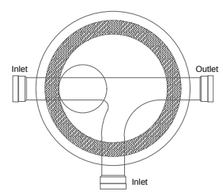
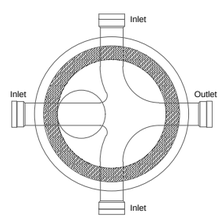


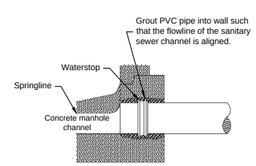
Manhole Base, One Inlet
NTS



Manhole Base, Two Inlets
NTS



Manhole Base, Three Inlets
NTS



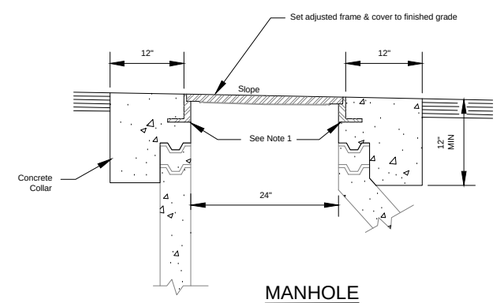
Waterstop Detail
NTS

NOTES:

1. Where existing pipes and fittings are present, they shall be sawcut along the springline to form the flow channel within the manhole. Manhole base sections shall be filled with concrete to a level equal to the springline of the exposed pipes, and shall be formed to drain into the flow channel toward the outlet pipe.
2. Where existing pipes and fittings are not present within the manhole, the flow channel shall be hand-formed to drain into the flow channel toward the outlet pipe. Manhole base sections shall be fitted with concrete to the approximate level of the top of the pipe.
3. Manhole base sections shall be filled with concrete to the approximate level of the top of the pipe. Water stops shall be installed per detail as shown.

SANITARY SEWER MANHOLE BASE CHANNELS

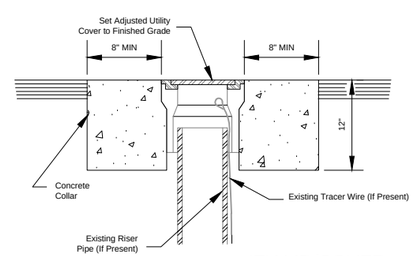
No Scale



NOTES:

1. Shims shall be placed under the manhole frame & lid on top of the highest grade ring as needed such that the frame & lid are flush with the finished grade of the street. The minimum shim height is one inch. Concrete shall be placed in between the highest grade ring and the shimmed frame & lid when the concrete collar is constructed, in effect creating a 'cast-in-place' grade ring of varying thickness.
2. All grade rings shall be sealed with non-shrink grout on both inner and outer faces of each joint.

MANHOLE



NOTES:

1. The Contractor shall completely demolish existing concrete collar to a depth of 12 inches.

UTILITY LID/COVER

UTILITY LID/MANHOLE CONCRETE COLLAR DETAIL

No Scale

No.	Date	Revisions	By	App.

Designed By: GSA
Drawn By: GSA / DCT
Checked By: JJW
Graphic Scale
Measures one inch on Full Size Drawings

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DETAILS

SEWER IMPROVEMENTS 2020

Scale: No Scale

Drawing: C11

Sheet 14 of 18

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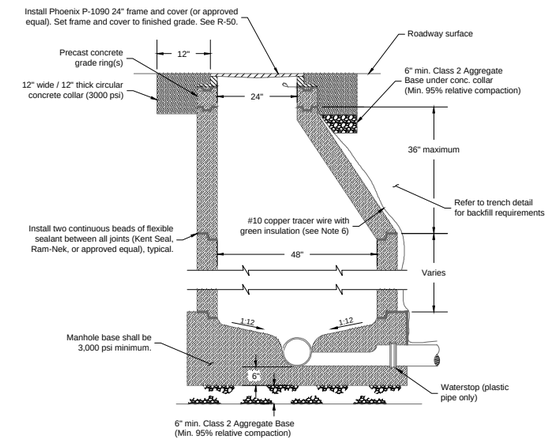
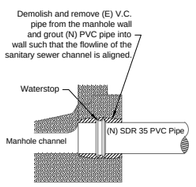




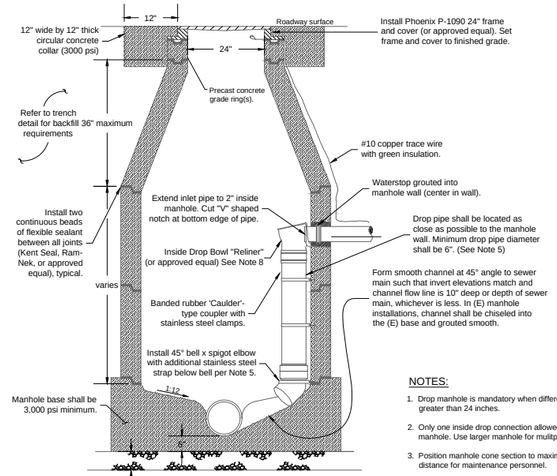
WATERSTOP DETAIL
NTS

NOTES:

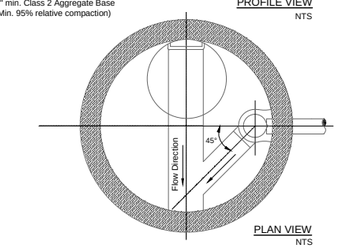
1. Where (E) pipes and fittings are present, they shall be sawcut along the springline to form the flow channel within the manhole. Manhole base sections shall be filled with concrete to a level equal to the springline of the exposed pipes, and shall be formed at the slope shown to drain into the flow channel toward the outlet pipe.
2. Where (E) pipes and fittings are not present within the manhole, the flow channel shall be hand-formed at the slope shown to drain into the flow channel toward the outlet pipe. Manhole base sections shall be filled with concrete to the approximate level of the top of the pipe.
3. Waterstops shall be installed as shown in this Detail.
4. All joints shall be sealed with Class B mortar on both the inner and outer faces of each joint.
5. Manholes shall be constructed with a 0.10' elevation drop (or as shown on the Plans) between the inlet and outlet pipes, if possible.
6. #10 copper tracer wire with green insulation shall be installed at all new and existing manhole locations. Tracer wire shall either be continuous along (N) sanitary pipe and up to the manhole frame or shall be securely connected to the (E) tracer wire where pipe replacement is not performed. Note that tracer wire is NOT required on manholes when the (E) sewer main has no tracer wire.

SANITARY SEWER MANHOLE

No Scale



PROFILE VIEW
NTS



PLAN VIEW
NTS

NOTES:

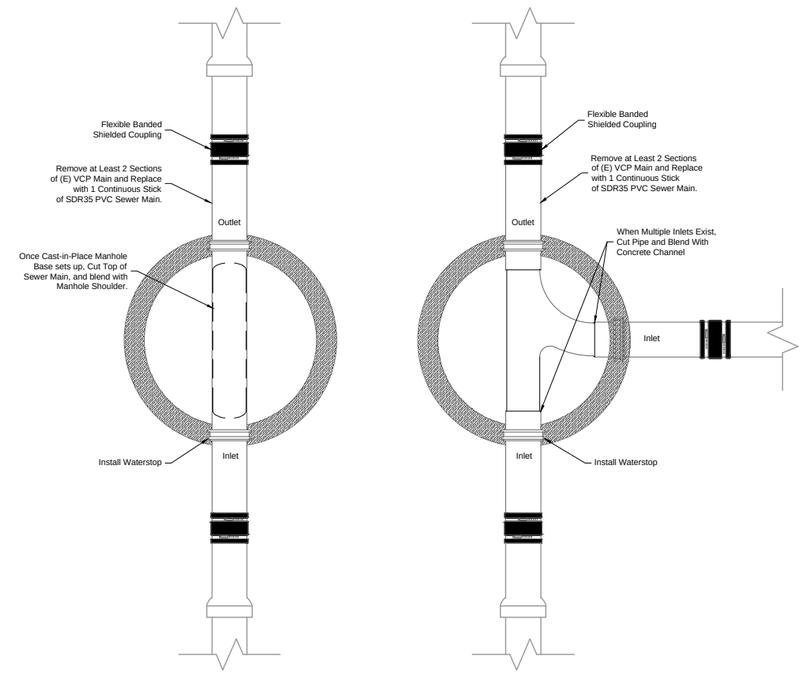
1. Drop manhole is mandatory when differential between inverts is greater than 24 inches.
2. Only one inside drop connection allowed per 48 inch diameter manhole. Use larger manhole for multiple drop connections.
3. Position manhole cone section to maximize the horizontal clear distance for maintenance personnel.
4. All holes for pipe and bolts shall be either drilled or sawcut.
5. Secure drop pipe to the wall with adjustable brackets of 1 1/2" minimum width, 11 gauge type 304 stainless steel. Pinch bolts and nuts shall be 3/8" diameter, 18-8 stainless, spaced 3' O.C. with a 2 strap minimum.
6. All inside drop pipe and fittings shall be SDR35 PVC.
7. Manholes shall be constructed with a 0.10' elevation drop (or as shown on the Plans) between the sewer main inlet and outlet, if possible.
8. Inside drop bowl shall be sized according to inlet pipe diameter as follows:

Inlet pipe	Drop bowl
6"	Reliner A6
8"	Reliner B8
10"	Reliner B10
12" & greater	By Special design

9. For force mains use "Reliner" force line hood on drop bowl.

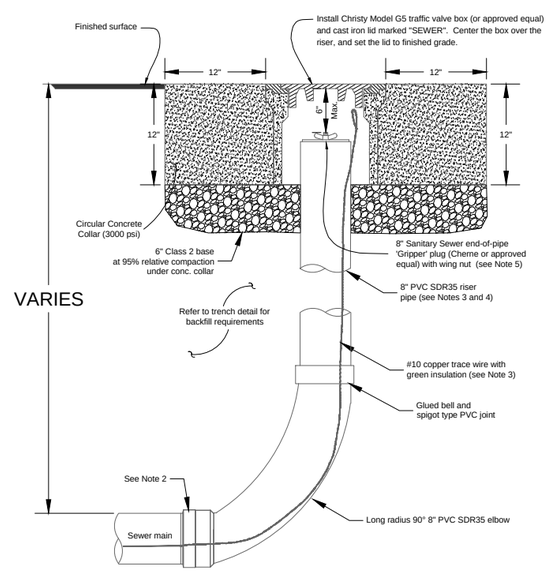
SANITARY SEWER INSIDE DROP MANHOLE

No Scale



MAIN REPLACEMENT AROUND MANHOLE

No Scale



NOTES:

1. Factory manufactured fittings shall be used exclusively. Sewer saddles shall only be used after approval of the City.
2. All fittings and cleanout piping shall be 8" SDR26 PVC sewer pipe.
3. All cleanouts shall be installed with a #10 copper trace wire with green insulation taped to the sanitary sewer pipe. Cleanout trace wire shall be securely connected to the sewer main trace wire at one end with water proof, corrosion resistant connector, and shall terminate in a loop just below the lid in the cleanout box at the other end.
4. PVC riser shall NOT end in a bell flange or 'Caulder'-type coupling.
5. Riser shall terminate at the required clearance with a level cut.

END OF LINE CLEANOUT

No Scale

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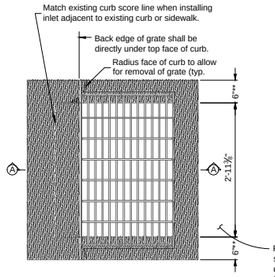
DETAILS

SEWER IMPROVEMENTS 2020

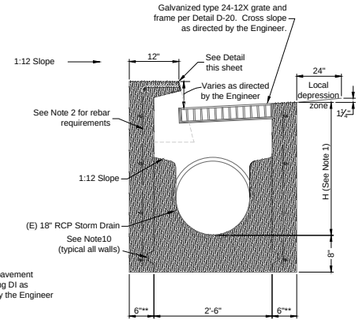
Scale: No Scale

Drawing: C12

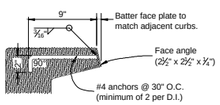
Sheet 15 of 18



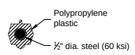
DRAINAGE INLET PLAN
NTS



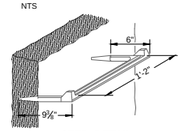
SECTION A-A
NTS



FACE ANGLE ANCHOR DETAIL
NTS



STEP TYPICAL SECTION
NTS



STEP DETAIL
NTS

NOTES:

1. "H" is the difference in elevation between the outlet pipe flow line and normal gutter grade line undepressed.
2. Wall reinforcing is not required when H=8' or less and the unsupported width or length = 7' or less. Walls exceeding these limits shall be reinforced with #4 bars at 18" O.C. placed 1.5" clear to the inside of the box unless otherwise shown. When 'H' is greater than 8'-0", wall thickness shall be increased to 8".
3. Steps - No steps are required where H<30". Where H is 30" or greater, steps shall be installed with the lowest rung 12" above the floor, and the highest rung not more than 6" below the top of the inlet. The distance between steps shall not exceed 12", and shall be uniform throughout the entire length of the wall. Steps shall be placed in a wall without a pipe opening. Steps shall be OSHA approved polypropylene coated steel.
4. Pipes can be placed in any wall.
5. Basin floors shall have wood trowel finish and a minimum slope of 12:3 from all directions towards the outlet pipe.
6. Grates and grate frames shall be hot-dipped galvanized after fabrication.
7. Set inlet so that grate bars are parallel to direction of principal surface flow.
8. All inlets shall be cast-in-place. Precast inlets will not be allowed.
9. Curb section shall match adjacent curb sections.
10. Where the floor of the DI is poured separately from the walls, the walls shall be formed with a keyway as shown. If the floor is poured monolithically with the walls, the keyway may be omitted.
11. The top and windows of all Type 'GO' and Type 'GOL-7' drainage inlets shall be poured monolithically with the adjacent curb and sidewalk.
12. 24" wide (minimum 36" long) local gutter depression.
13. Embossed ss "No Dumping" sign, 1½" x 5". Attach to DI face with ss screws or rivets, as manufactured by Hillfiker Pipe Co., or approved equal.

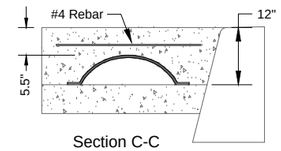
** When 'H' is greater than 8'-0", wall thickness shall be increased to 8".

TYPE GO DRAINAGE INLET

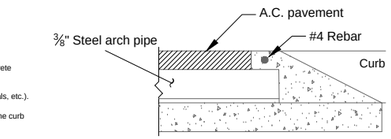
No Scale

NOTES:

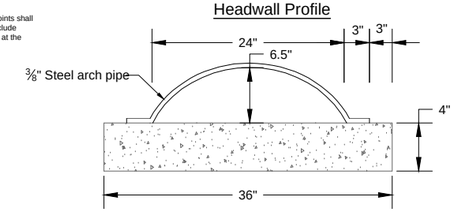
1. Metal sections shall be fabricated of ⅜" plate steel conforming to ASTM grade A-36 steel.
2. Form boards shall be used to form the sides of the concrete base.
3. All joints between metal sections shall be completely sealed with duct tape prior to placement of concrete sidewalk.
4. Horizontal adjustments may be made in the field as needed to avoid (E) structures (poles, signs, signals, etc.).
5. Inlet and outlet ends of the culvert shall be field cut parallel to, and 1" inside of, the face of the curb. The curb shall be formed with a 1" fillet at the culvert inlet and outlet.
6. Concrete flowline shall be smooth steel-troweled (not wood-troweled).
7. All concrete used for headwalls and culvert footing shall be 5-sack concrete (3000 psi minimum).
8. Mid section repairs shall include 8" long, #4 rebar dowels @ 12" o.c. within the concrete base. Metal joints shall be butt together or shall overlap the existing (6" min) and welded. An alternate joining method may include sealing joints with duct tape and encasing in concrete, however; this method will be case specific and at the Engineer's discretion.



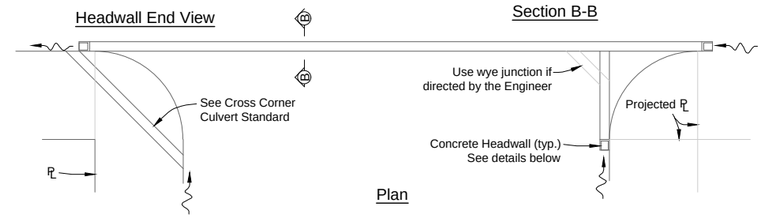
Section C-C
Headwall End View



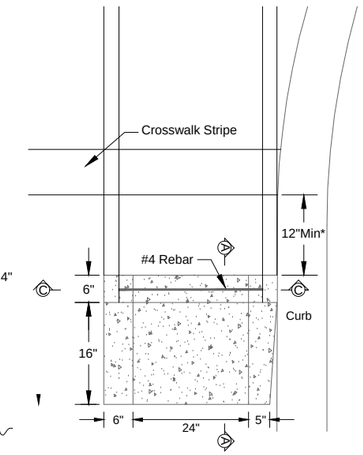
Section A-A
Headwall Profile



Section B-B



Plan

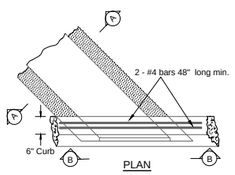


Headwall Plan

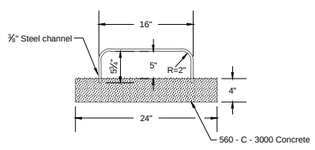
* 7' from the EOP of the extended cross street when no crosswalk is present

CROSS-STREET ARCH PIPE AND HEADWALL

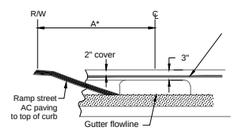
No Scale



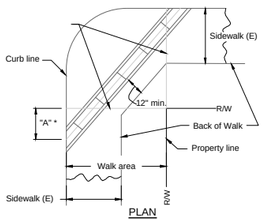
PLAN



SECTION A-A



SECTION B-B
ELEVATION AT FACE OF CURB



PLAN

6"thick concrete curb return

Walk Area	"A"
12'	5'
10'	5'
9'	5'
8'	5'
6'	4'
5'	3'

NOTES

1. Metal sections shall be fabricated of 3/8" plate steel conforming to ASTM grade A-36 steel.
2. Form boards shall be used to form the sides of the concrete base.
3. All joints between metal sections shall be completely sealed with duct tape prior to placement of concrete sidewalk.
4. Horizontal adjustments may be made in the field as approved by the City Engineer to avoid existing structures (poles, signs, signals, etc.).
5. Inlet and outlet ends of the culvert shall be field cut parallel to, and 1" inside the face of the curb. The curb shall be formed with a 1" fillet at the culvert inlet and outlet.
6. Concrete flowline shall be smooth steel-troweled (not wood-troweled).
7. All concrete used for headwalls and culvert footing shall be 5-sack concrete (3000 psi min.).

CROSS CORNER CULVERT

No Scale

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No.	Date	Revisions	By	App.

Designed By: GSA
Drawn By: GSA / DCT
Checked By: JJW
Graphic Scale — Measures one inch on Full Size Drawings

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EUREKA CALIFORNIA

DETAILS

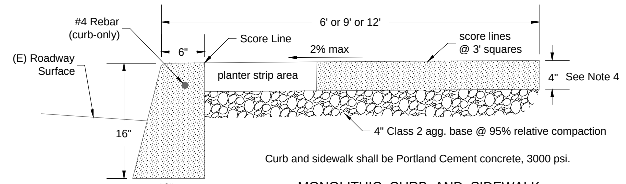
SEWER IMPROVEMENTS 2020

Scale: No Scale

Drawing: C13

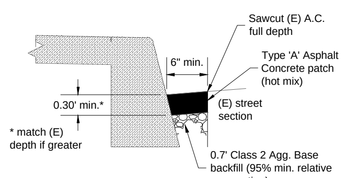
Sheet 16 of 18

P:\Engineering\Projects\Sewer Projects\Mains\Sewer 2020\dwg\Sewer Imp 2020 Details.dwg - Plotted 3/3/20



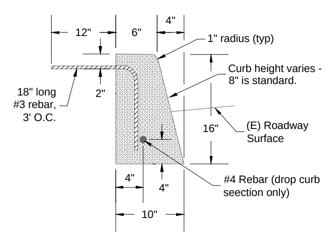
MONOLITHIC CURB AND SIDEWALK

NTS



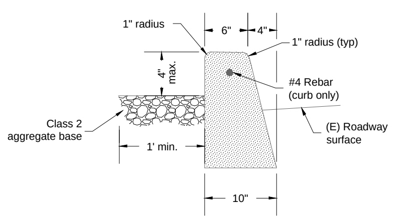
CURB PATCH

NTS



CONCRETE CURB NON-MONOLITHIC

NTS



CONCRETE CURB-ONLY

NTS

NOTES:

1. Refer to City Resolution No. 6219 for additional information regarding concrete curb and sidewalk specifications.
2. All existing sidewalk areas being replaced shall be sawcut along and replaced to the nearest scoreline. Thoroughly tack coat all vertical surfaces prior to paving with AC.
3. Forms shall extend the full depth of the face of curb.
4. Sidewalk constructed within the radius of street intersections shall have a minimum thickness of 6" and be finished to appropriate ADA standards.
5. Weakened plane joints shall be installed in all sidewalks and curbs at intervals between 10' and 15', at the extension of property lines at street intersections, at both ends of all drop curb entrances, and at the property line where concrete is continuous across the property line. Weakened plane joints shall be installed in the curbs continously with the weakened plane joints in the adjacent sidewalk.

CONCRETE CURB & SIDEWALK

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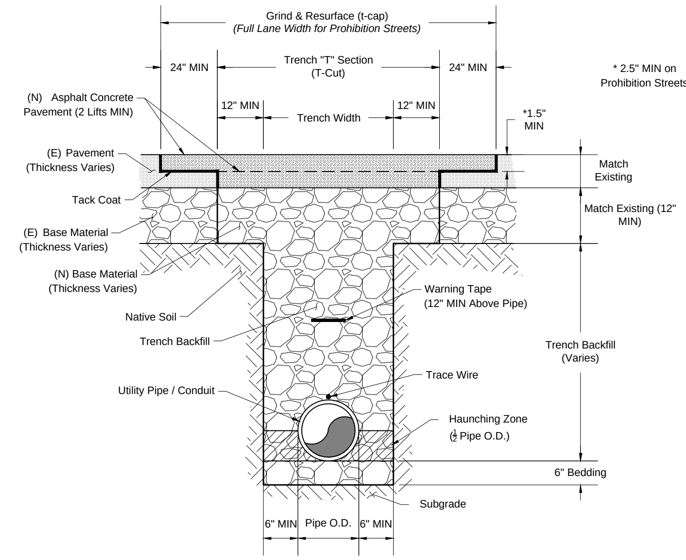

GENERAL NOTES:

1. All work shall be constructed in accordance with the latest city and caltrans standards.
2. Compaction tests shall be ordered and paid by the contractor in each layer (lift), type or class of backfill that requires compaction, at 50 foot intervals. Copies of the field test results shall be submitted to the city prior to paving. Tests shall be performed by and independent geotechnical engineering firm acceptable to the City Engineer.
3. The contractor shall adequately shore the excavation to prevent the trench walls from sloughing into the trench. No additional payment will be made by the City to the contractor for additional backfill that may be required due to sloughing trench walls.
4. #10 insulated copper trace wire (taped in place at 5' intervals) shall be colored as follows:
   - Water mains & services - blue insulation
   - Sewer mains & laterals - green insulation
   - Storm drain mains - green insulation
5. All water main fittings shall have all exposed nuts and bolts completely covered with spray-on rubberized undercoating, and all fittings shall be wrapped with 6 mil polyethylene plastic prior to trench backfill.

T-CUT PAVEMENT REMOVAL:

6. Full depth pavement removal shall be by saw cutting or grinding and shall be neat, straight, vertical cuts with no broken edges.
7. All longitudinal pavement cuts shall be uninterrupted and approximately parallel to the trench. Changes in direction shall result in 90 degree angles, or larger.

T-CAP PAVEMENT REMOVAL:

8. Existing asphalt concrete shall be ground down 1-1/2 inches within the limits of the t-cap and shall be neat, straight, vertical cuts with no broken edges.
9. T-Cap limits shall be in accordance with figure 1 (Sheet 3 of this detail), unless otherwise approved by the City Engineer.
10. T-Cap limits shall extend at least 2 feet beyond the trench T-Cut limits. minimum T-Cap dimensions shall be 6 feet x 6 feet.
11. Full multiple excavations within 5 feet of each other, the T-Cap limits shall encompass all the excavations within one rectangular area.
12. T-Cap limits shall fully encompass any bike or pedestrian facility (bike lane, crosswalk, etc.) impacted by the trench, and shall have a length that extends at least 2 feet beyond the T-Cut asphalt removal limits in the direction of the bike or pedestrian traffic.
13. If pavement removal falls within 2 feet of an existing curb, gutter or edge of pavement, the additional pavement shall be removed and reconstructed.
14. T-Cap limits for pot holes / core holes shall extend 1 foot beyond the pot holes/core holes.

ASPHALT CONCRETE PAVEMENT:

15. Asphalt Concrete shall be Type A.
16. Thickness within the T-Cut section shall match (E) pavement thickness (up to 6" max) and be placed in uniform lifts no greater than 3".
17. Thickness within the T-Cap section shall be 1-1/2" min ($2\frac{1}{2}$" in prohibition streets).
18. If (E) street is showing concrete, new pavement shall be 6" thick and consist of 3,000 psi, 6-sack concrete, doweled and epoxied into the (E) concrete pavement, brushed (and colored if black) to match. Dowels shall be #4 rebar at 24" o.c. with 6"-12"embedment into the (E) and (N) concrete.

BASE MATERIAL:

19. Base material shall be $\frac{3}{4}$" max class 2 aggregate base compacted to 95% relative compaction.
20. Finished surface shall be free of ruts, bumps, depressions or irregularities and allow for a uniform thickness of asphalt concrete across the full width of the trench.

TRENCH BACKFILL:

21. Trench backfill shall be $\frac{3}{4}$" max class 2 aggregate base placed in lifts no greater than 12" thick. Native soil or slurry mix may only be used with City Engineer's approval.
22. The upper 18" of material shall be compacted to 95% relative compaction. Subsequent layers shall meet 90% relative compaction. Compaction within the haunching zone shall be with 'j' bar or pneumatic 'pogo' stick.
23. Trench backfill for service laterals and pipes 2" and smaller in diameter may consist of sand within the pipe zone and up to 6" above the pipe, followed with compacted class 2 aggregate base as shown.

BEDDING:

24. Bedding material shall be placed on firm and unyielding subgrade (no soft, spongy, unstable or unsuitable material).
25. Trench bedding shall be $\frac{3}{4}$" max class 2 aggregate base compacted to 95% relative compaction.
26. During the pipe installation, the bedding material beneath fittings/couplings shall be removed as necessary to uniformly support the full length of the pipe.

TEMPORARY TRENCH COVERS AND RESURFACING:

27. Every trench must be backfilled or covered by trench plates the same day. When used, plates shall be secured from movement and shall include temporary asphalt ramps sloped at 1:20 (or flatter).
28. Pavement shall be restored within fourteen (14) calendar days from the time the trench is backfilled, unless delay is excused due to circumstances beyond the contractor's control, such as inclement weather.
29. Steel plates that will remain in place for more than 14 calendar days shall be inset into the (E) paved surface (when located within the travel lane, bicycle lane or pedestrian facility).

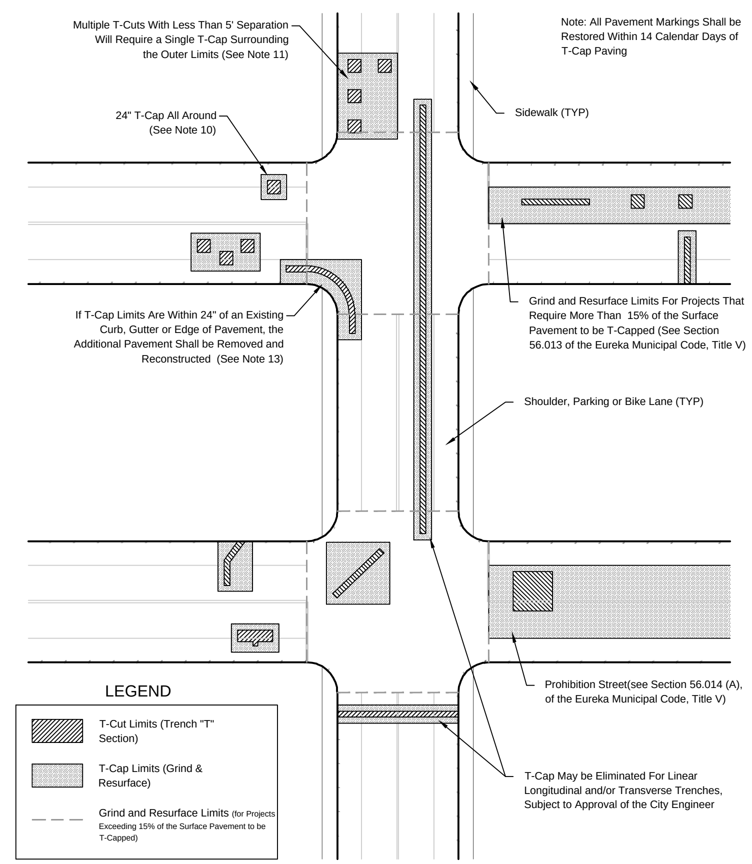

Figure 1: Examples of Grind and Resurface T-Cap Limits

"T" TRENCH AND RESURFACING

No.	Date	Revisions	By	App.

Designed By: GSA
Drawn By: GSA / DCT
Checked By: JJW

Graphic Scale
Measures one inch on Full Size Drawings

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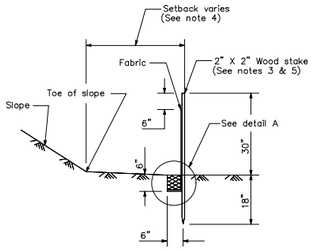
EUREKA CALIFORNIA

DETAILS

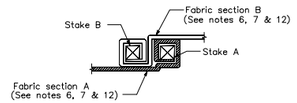
SEWER IMPROVEMENTS 2020

Scale: No Scale

Drawing: C14



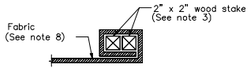
SECTION A–A



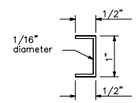
JOINING SECTION DETAIL (TOP VIEW)

LEGEND

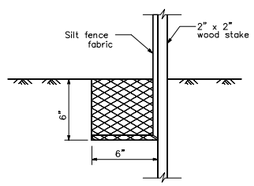
Tamped backfill
Slope direction
Direction of flow



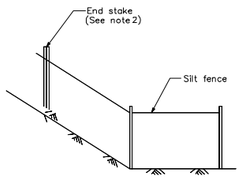
END STAKE DETAIL (TOP VIEW)



STAPLE DETAIL
(SEE NOTE 9)



DETAIL A



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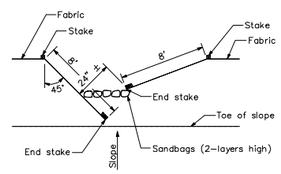
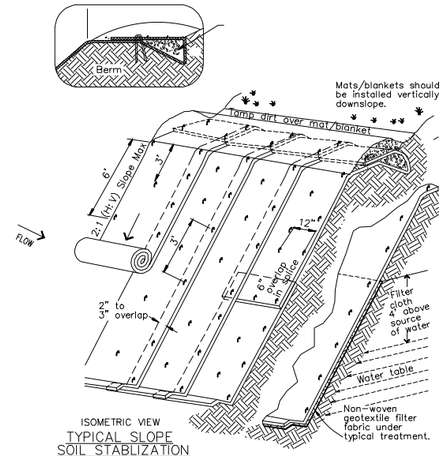


OPTIONAL MAINTENANCE OPENING DETAIL
(SEE NOTE 11)

SILT FENCE DETAIL

No Scale



ISOMETRIC VIEW
TYPICAL SLOPE
SOIL STABLIZATION
NTS

WET SLOPE LINING
NTS

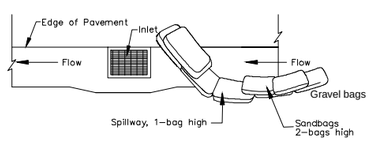
NOTES:

1. Slope surface shall be free of rocks, clods, sticks and grass. Mats/blankets shall have good soil contact.
2. Lay blankets loosely and stake or staple to maintain direct contact with the soil. Do not stretch.
3. Install per manufacturer's recommendations
4. Broadcast seed prior to placing jute matt.
5. Jute matt shall be Rolanka Bio–D–Matt 70 or approved equal

TYPICAL INSTALLATION DETAIL

JUTE MATT DETAIL

No Scale



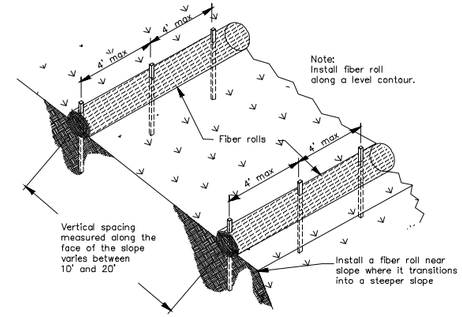
TYPICAL PROTECTION FOR INLET ON GRADE

NOTES:

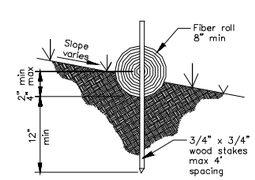
1. Intended for short-term use.
2. Use to inhibit non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed.
5. Not applicable in areas with high silts and clays without filter fabric.
6. Protection can be effective even if it is not immediately adjacent to the inlet provided that the inlet is protected from potential sources of pollution.

STORM DRAIN INLET PROTECTION DETAIL

No Scale



TYPICAL FIBER ROLL INSTALLATION
N.T.S.



ENTRENCHMENT DETAIL
N.T.S.

STRAW WATTLE DETAIL

No Scale

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EUREKA CALIFORNIA

EROSION AND SEDIMENT CONTROL

SEWER IMPROVEMENTS 2020

Scale: No Scale

Drawing: C15

Sheet 18 of 18