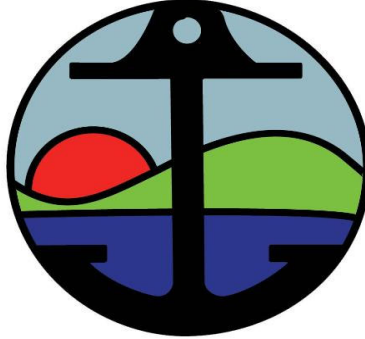


CITY OF PITTSBURG



NOTICE INVITING BIDS, BID PROPOSAL, SAMPLE CONTRACT DOCUMENTS,
GENERAL AND SPECIAL CONDITIONS, AND TECHNICAL SPECIFICATIONS

FOR THE CONSTRUCTION OF

Project NO. 3024

BUCHANAN ROAD SLOPE REPAIR PROJECT

IN

PITTSBURG, CALIFORNIA

TO BE USED IN CONJUNCTION WITH:

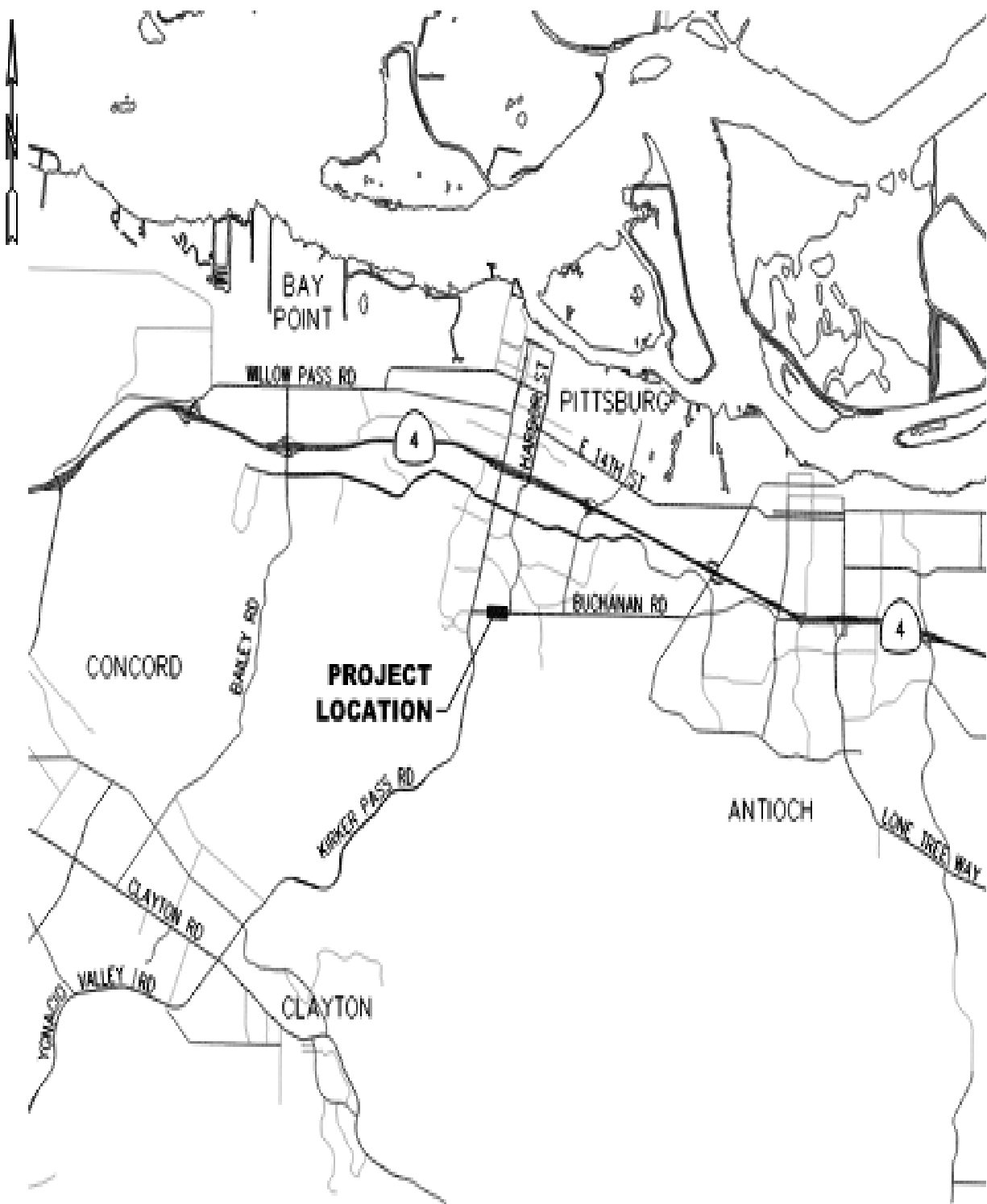
CITY OF PITTSBURG STANDARD PLANS
AND STANDARD SPECIFICATIONS

JANUARY 2024

ACCEPTED FOR USE:

A handwritten signature in blue ink, appearing to read 'John Samuelson', is written over a horizontal line.

JOHN SAMUELSON, PE
CE 67734
PUBLIC WORKS DIRECTOR/CITY ENGINEER



VICINITY MAP



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TECHNICAL SPECIFICATIONS

The following technical specifications shall be used in conjunction with, or supersede sections, of the City Standard Details and Specifications.

DIVISION 01 – GENERAL REQUIREMENTS

01 01 00	DEVELOP SITE ACCESS AND STAGING AREA
01 50 01	TEMPORARY SILT FENCE
01 55 26	TEMPORARY TRAFFIC CONTROL
01 57 23	STORM WATER POLLUTION PREVENTION
01 71 13	MOBILIZATION

DIVISION 02 – EXISTING CONDITIONS

02 41 00	DEMOLITION
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DIVISION 03 – CONCRETE

03 30 00	UTILITY CAST-IN-PLACE CONCRETE
03 40 00	MECHANICALLY STABILIZED EARTH RETAINING WALL
03 50 00	SHORING PILE (30")

DIVISION 31 – EARTHWORK

31 05 13	CLEARING AND GRUBBING, AND EARTHWORK
31 05 14	SUBGRADE ENHANCEMENT GEOSYNTHETIC
31 07 00	TEMPORARY FIBER ROLL
31 08 00	BONDED FIBER MATRIX
31 09 00	PERMEABLE FIBER MATRIX
31 10 00	MECHANICALLY STABILIZED EMBANKMENT
31 23 16	UTILITY TRENCHING

DIVISION 33 – STORM DRAIN SYSTEM

33 41 13	STORM DRAIN PIPING
33 41 20	GEOCOMPOSITE DRAIN

APPENDICES:

- APPENDIX A – CITY STANDARDS DETAILS AND SPECIFICATIONS
- APPENDIX B – GEOTECHNICAL MEMORANDUM FOR REFERENCE ONLY
- APPENDIX C – TEMPORARY TRAFFIC CONTROL PLAN CHECKLIST
- APPENDIX D – CONSTRUCTION WATER APPLICATION
- APPENDIX E – PSA/PLA AGREEMENT

Notice Inviting Bids

1. **Bid Submission.** The City of Pittsburg (“City”) will accept sealed bids for its Buchanan Road Slope Repair Project (“Project”), by or before January 30th, 2024, at 2:00 P.M, at its City Hall office, located at 65 Civic Avenue, First Floor, Pittsburg, California, at which time the bids will be publicly opened and read aloud.
2. **Project Information.**
 - 2.1 **Location and Description.** The Project is located at Buchanan Road, between Quercus Lane and Heights Ave and is described as follows:
The scope of work for this Contract includes, but is not limited to the repairing 2023 slope failure; and all other work necessary for a complete project in accordance with the Plans, and Specifications.
 - 2.2 **Time for Final Completion.** The Project must be fully completed within 120 calendar days from the start date set forth in the Notice to Proceed. City anticipates that the Work will begin on or about 03/04/2024, but the anticipated start date is provided solely for convenience and is neither certain nor binding.
3. **License and Registration Requirements.**
 - 3.1 **License.** This Project requires a valid California contractor’s license for the following classification(s): Class A
 - 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://www.pittsburgca.gov/business/current-bidding-opportunities>. A printed copy of the Contract Documents is not available.
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, valid Certificates of Reported Compliance as required under the California Air Resources Board’s In-Use Off-Road Diesel-Fueled Fleets Regulation (13 CCR § 2449 et seq.) (“Off-Road Regulation”), if applicable, 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.** The 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: 
John Samuelson, City Engineer/Public Works Director

Date: 1/9/2024

Publication Date: January 9th,2024

END OF NOTICE INVITING BIDS

Instructions to Bidders

Each Bid Proposal submitted to The City of Pittsburg ("City") for its Buchanan Road Slope Repair Project ("Project") must be submitted in accordance with the following instructions and requirements:

1. Bid Submission.

- 1.1 General.** Each Bid Proposal must be completed, using the form provided in the Contract Documents, signed, and submitted to City in a sealed envelope, with all required forms and attachments, 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 sealed envelope containing the Bid Proposal and all required forms and attachments must be clearly labeled and addressed as follows:

BID PROPOSAL:
Buchanan Road Slope Repair Project
Project No. 3024

City Clerk
65 Civic Avenue
Pittsburg, CA, 94565
Attn: Alice E. Evenson

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, and any other required enclosures, as applicable.

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 Corporations 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; submit the insurance certificates and endorsements; and submit valid Certificates of Reported Compliance as required by the Off-Road Regulation, if applicable, 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 Alex Ruiz, Assistant Engineer, at 3024bidinfo@pittsburgca.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.

A “NON-MANDATORY” PRE-BID MEETING SHALL BE HELD AT 65 CIVIC AVENUE, FIRST FLOOR, PITTSBURG, CA 94565, ON THURSDAY 01/16/2024 AT 11:00 A.M.

- 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 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://www.pittsburgca.gov/business/current-bidding-opportunities>.
- 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 3024bidinfo@pittsburgca.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. 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 successful 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 within (10) days 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. In-Use Off-Road Diesel-Fueled Fleets.** If the Project involves the use of vehicles subject to the California Air Resources Board's In-Use Off-Road Diesel-Fueled Fleets Regulation (13 CCR § 2449 et seq.) ("Off-Road Regulation"), then within ten calendar days following City's issuance of the Notice of Potential Award to the successful bidder, the bidder must submit to City valid Certificates of Reported Compliance for its fleet and its listed Subcontractors, if applicable, in accordance with the Off-Road Regulation, unless exempt under the Off-Road Regulation.

END OF INSTRUCTIONS TO BIDDERS

17. **Additive and Deductive Alternates.** As required by Public Contract Code § 20103.8, if this bid solicitation includes additive or deductive items, the method checked below will be used to determine the lowest bid. If no method is checked, subparagraph (A) will be used to determine the lowest bid. City retains the right to add to or deduct from the Contract any of the additive or deductive alternates included in the Bid Proposal.

(A) The lowest bid will be the lowest bid price on the base contract without consideration of the prices on the additive or deductive items.

(B) The lowest bid will be the lowest total of the bid prices on the base contract and those additive or deductive items that were specifically identified in the bid solicitation or Bid Proposal as being used for the purpose of determining the lowest bid price.

(C) The lowest bid will be the lowest total of the bid prices on the base contract and those additive or deductive items taken in order from a specifically identified list of those items that, when in the solicitation, and added to, or subtracted from, the base contract, are less than, or equal to, a funding amount publicly disclosed by City before the first bid is opened.

(D) The lowest bid will be determined in a manner that prevents any information that would identify any of the bidders or the proposed subcontractors or suppliers from being revealed to City before the ranking of all bidders from lowest to highest has been determined.

18. **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.

18.1 **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.

18.2 **Estimated Quantities.** Unless identified as a "Final Pay Quantity," 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.

19. **Bidder's Questionnaire.** A completed, signed Bidder's Questionnaire using the form provided with the Contract Documents and including all required attachments must be submitted within 48 hours following a request by City. A bid that does not fully comply with

this requirement may be rejected as nonresponsive. A bidder who submits a Bidder's Questionnaire which is subsequently determined to contain false or misleading information, or material omissions, may be disqualified as non-responsible.

Bid Proposal

Buchanan Slope Repair Project

_____ (“Bidder”) hereby submits this Bid Proposal to City of Pittsburg (“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 City issues the Notice of Potential Award to Bidder, then 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;
 - 4.3 **Insurance Requirements.** Submit to City the insurance certificate(s) and endorsement(s) as required by the Contract Documents; and
 - 4.4 **Certificates of Reported Compliance.** Submit to City valid Certificates of Reported Compliance for its fleet and its listed Subcontractors, if applicable, if the Project involves the use of vehicles subject to the Off-Road Regulation. (See Section 16 of the Instructions to Bidders.)
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 SF = Square Feet TON = Ton (2000 lbs)

BID ITEM NO.	ITEM DESCRIPTION	EST. QTY.	UNIT	UNIT COST	EXTENDED TOTAL AMOUNT
1	Mobilization (10%)	1	LS	\$	\$
2	Water Pollution Control	1	LS	\$	\$
3	Traffic Control	1	LS	\$	\$
4	Develop Site Access & Staging Area	1	LS	\$	\$
5	Temporary Silt Fence	400	LF	\$	\$
6	Clearing and Grubbing	0.4	ACRE	\$	\$
7	Shoring Pile (30")	750	LF	\$	\$
8	Structure Excavation	4000	CY	\$	\$
9	Mechanically Stabilized Earth Wall Blocks	2000	SQFT	\$	\$
10	4" Non-Perforated Plastic Pipe	30	LF	\$	\$
11	4" Perforated Plastic Pipe	360	LF	\$	\$
12	Permeable Material CI 2	60	CY	\$	\$
13	Geocomposite Drain	800	SQYD	\$	\$
14	Geogrid Reinforcement Type 1	4800	SQYD	\$	\$
15	Geogrid Reinforcement Type 2	2900	SQYD	\$	\$
16	Mechanically Stabilized Embankment	4000	CY	\$	\$
17	Temporary Fiber Roll (Straw Wattles)	720	LF	\$	\$
18	Bonded Fiber Matrix	0.3	ACRE	\$	\$
19	12" Plastic Pipe Downdrain	30	LF	\$	\$
20	Drainage Inlet	2	EA	\$	\$
21	Minor Concrete (Drainage Ditch and RW Gutter)	15	CY	\$	\$

TOTAL BASE BID: Items 1 through _____ 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 Base Bid,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

¹ For street or highway construction, this requirement applies to any subcontract of \$10,000 or more.

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.

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

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 City of Pittsburg (“City”) for work on the Buchanan Road Slope Repair 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;
 - 2.4 **Insurance.** The insurance certificate(s) and endorsement(s) required by the Contract Documents;
 - 2.5 **Certificates of Reported Compliance.** Valid Certificates of Reported Compliance for its fleet and its listed Subcontractors, if applicable, in accordance with the In-Use Off-Road Diesel-Fueled Fleets Regulation (13 CCR § 2449 et seq.) (“Off-Road Regulation”), if the Project involves the use of vehicles subject to the Off-Road Regulation; and any other documents required by the Instructions to Bidders or Notice of Potential Award.
3. **Enforcement.** If Bidder fails to execute the Contract or to submit the bonds, insurance certificates, and valid Certificates of Reported Compliance 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.

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

Bidder's Questionnaire

BUCHANAN ROAD SLOPE REPAIR PROJECT

Within 48 hours following a request by City, a bidder must submit to City a completed, signed Bidder's Questionnaire using this form and all required attachments, including clearly labeled additional sheets as needed. City may request the Questionnaire from one or more of the apparent low bidders following the bid opening, and may use the completed Questionnaire as part of its investigation to evaluate a bidder's qualifications for this Project. The Questionnaire must be filled out completely, accurately, and legibly. Any errors, omissions, or misrepresentations in completion of the Questionnaire may be grounds for rejection of the bid or termination of a Contract awarded pursuant to the bid.

Part A: General Information

Bidder Business Name: _____ ("Bidder")

Check One: Corporation (State of incorporation: _____)
 Partnership
 Sole Proprietorship
 Joint Venture of: _____
 Other: _____

Main Office Address and Phone: _____

Local Office Address and Phone: _____

Website Address: _____

Owner of Business: _____

Contact Name and Title: _____

Contact Phone and Email: _____

Bidder's California Contractor's License Number(s): _____

Bidder's DIR Registration Number: _____

Part B: Bidder Experience

1. How many years has Bidder been in business under its present business name? ____ years
2. Has Bidder completed projects similar in type and size to this Project as a general contractor?
____ Yes ____ No
3. Has Bidder ever been disqualified from a bid on grounds that it is not responsible, or otherwise disqualified or debarred from bidding under state or federal law?
____ Yes ____ No

If yes, provide additional information on a separate sheet regarding the disqualification or debarment, including the name and address of the agency or owner of the project, the type and size of the project, the reasons that Bidder was disqualified or debarred, and the month and year in which the disqualification or debarment occurred.

4. Has Bidder ever been terminated for cause, alleged default, or legal violation from a construction project, either as a general contractor or as a subcontractor?

_____ Yes _____ No

If yes, provide additional information on a separate sheet regarding the termination, including the name and address of the agency or owner of the subject project, the type and size of the project, whether Bidder was under contract as a general contractor or a subcontractor, the reasons that Bidder was terminated, and the month and year in which the termination occurred.

5. Provide information about Bidder’s past projects performed as general contractor as follows:

- 5.1 Six most recently completed public works projects within the last three years;
- 5.2 Three largest completed projects within the last three years; and
- 5.3 Any project which is similar to this Project including scope and character of the work.

6. Use separate sheets to provide all of the following information for each project identified in response to the above three categories:

- 6.1 Project name, location, and description;
- 6.2 Owner (name, address, email, and phone number);
- 6.3 Prime contractor, if applicable (name, address, email, and phone number);
- 6.4 Architect or engineer (name, email, and phone number);
- 6.5 Project and/or construction manager (name, email, and phone number);
- 6.6 Scope of work performed (as general contractor or as subcontractor);
- 6.7 Initial contract price and final contract price (including change orders);
- 6.8 Original scheduled completion date and actual date of completion;
- 6.9 Time extensions granted (number of days);
- 6.10 Number and amount of stop notices or mechanic’s liens filed;
- 6.11 Amount of any liquidated damages assessed against Bidder; and
- 6.12 Nature and resolution of any project-related claim, lawsuit, mediation, or arbitration involving Bidder.

Part C: Safety

1. Provide Bidder’s Experience Modification Rate (EMR) for the last three years:

Year	EMR

2. Complete the following, based on information provided in Bidder’s CalOSHA Form 300 or Form 300A, Annual Summary of Work-Related Illnesses and Injuries, from the most recent past calendar year:

- 2.1 Number of lost workday cases: _____
- 2.2 Number of medical treatment cases: _____
- 2.3 Number of deaths: _____

3. Has Bidder ever been cited, fined, or prosecuted by any local, state, or federal agency, including OSHA, CalOSHA, or EPA, for violation of any law, regulation, or requirements pertaining to health and safety?

_____ Yes _____ No

If yes, provide additional information on a separate sheet regarding each such citation, fine, or prosecution, including the name and address of the agency or owner of the project, the type and size of the project, the reasons for and nature of the citation, fine, or prosecution, and the month and year in which the incident giving rise to the citation, fine, or prosecution occurred.

4. Name, title, and email for person responsible for Bidder's safety program:

Name Title Email

Part D: Verification

In signing this document, I, the undersigned, declare that I am duly authorized to sign and submit this Bidder's Questionnaire on behalf of the named Bidder, and that all responses and information set forth in this Bidder's Questionnaire and accompanying attachments are, to the best of my knowledge, true, accurate and complete as of the date of submission. **I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.**

Signature: _____ Date: _____

By: _____
Name and Title

END OF BIDDER'S QUESTIONNAIRE

Contract

This public works contract ("Contract") is entered into by and between City of Pittsburg ("City") and _____ ("Contractor"), for work on the Buchanan Road Slope Repair 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. City has elected to include the following Project alternate(s) in the Contract:

_____ <If the bid documents request bid alternates and City elects to include alternates in the Contract, identify the additive or deductive alternates. If the Contract does not include alternates, write "No alternates" in the space above.>

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 and Performance 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:

_____. <List additional documents here, if any, including the formal title and document date. If there are no additional documents, write "No other documents" in the space above.>

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, meeting all requirements for Final Completion, within <_____> calendar days from the start date set forth in the Notice to Proceed (“Contract Time”). By signing below, Contractor expressly waives any claim for delayed early completion.
6. **Liquidated Damages.** As further specified in Section 5.4 of the General Conditions, if Contractor fails to complete the Work within the Contract Time, City will assess liquidated damages in the amount of \$<_____> per day for each day of unexcused delay in achieving Final 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:

Public Works Department/Engineering Division
65 Civic Avenue
Pittsburg, CA, 94565
Attn: Alex Ruiz
AlexRuiz@pittsburgca.gov

Copy to: Dayne Johnson, Assistant City Engineer
DBJohnson@pittsburgca.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 Contra Costa 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 Contra Costa 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 Corporations Code § 313.

[Signatures are on the following page.]

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

CITY:

Approved as to form:

s/ _____

s/ _____

Name, Title

Name, Title

Date: _____

Date: _____

Attest:

s/ _____

Name, Title

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 Pittsburg ("City") and _____ ("Contractor") have entered into a contract for work on the Buchanan Slope Repair 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 sent 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 Contra Costa 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 Pittsburg ("City") and _____ ("Contractor") have entered into a contract for work on the Buchanan Road Slope Repair 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, Surety's obligations under this Bond will become null and void. Otherwise, Surety's obligations will remain in full force and effect.
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 for completion of the Work prior to acceptance of the Project, 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 Contra Costa 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

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 and performance 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 other design professional 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 Pittsburg 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 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.

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, including health and safety requirements.

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, as modified by any Project alternates elected by City, if any.

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, 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 other Contract Documents, 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 records relating to the Project during Contractor's normal business hours. Contractor's records may also be subject to examination and audit by the California State Auditor, pursuant to Government Code § 8546.7. 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. If City determines that a Subcontractor is unacceptable to City based on the Subcontractor's failure to satisfactorily perform its Work, or for any of the grounds for substitution listed in Public Contract Code § 4107(a), City may request removal of the Subcontractor from the Project. Upon receipt of a written request from City to remove a Subcontractor pursuant to this paragraph, Contractor will immediately remove the Subcontractor from the Project and, at no further cost to City, will either (1) self-perform the remaining Work to the extent that Contractor is duly licensed and qualified to do so, or (2) substitute a Subcontractor that is acceptable to City, in compliance with Public Contract Code § 4107, as applicable.

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 Articles 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) Attachment B – Federal Contract Requirements (only if used);
- (F) Special Conditions;
- (G) General Conditions;
- (H) Payment and Performance Bonds;
- (I) Specifications;
- (J) Plans;
- (K) Notice of Potential Award;
- (L) Notice Inviting Bids;
- (M) Attachment 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 on the date that bids were due.

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 protective 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 equivalent form(s) 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.

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 order 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 five 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 40% 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 Delay 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 due to Contractor's Non-Excusable Delay, City will charge Contractor in the amount specified in the Contract for each calendar day that Final Completion is delayed beyond the Contract Time, as liquidated damages and not as a penalty. Any waiver of accrued liquidated damages, in whole or in part, is subject to approval of the City Council or its authorized delegee.

(A) **Liquidated Damages.** Liquidated damages will not be assessed for any Excusable Delay 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. If Contractor believes it is necessary to perform Extra Work due to changed conditions, Contractor must promptly notify the Engineer in writing, specifically identifying the Extra Work and the reason(s) the Contractor believes it is Extra Work. This notification requirement does not constitute a Change Order request pursuant to Section 6.2, below. 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 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, 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 adjustment to compensation or 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, and 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 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 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 or service that is used solely for the purpose of describing the type of item or service 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 or service 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 at all locations during construction and/or fabrication, including at any Worksite, shops, and yards. 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 consultants retained by City, subject to the following exceptions:

- (1) Contractor will be responsible for the costs of any subsequent inspections or 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 or testing of the Work does not in any way relieve Contractor of its obligations to perform the Work as specified. Any Work done without the inspection(s) or testing required by the Contract Documents will 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. Contractor must comply with all Laws, including the California Air Resources Board's In-Use Off-Road Diesel-Fueled Fleets Regulation (13 CCR § 2449 et seq.).

(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, landscaping, 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 deduct the cost 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 et seq., which are incorporated by reference herein.

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 may be accessed online at: <https://www.conservation.ca.gov/smgb/Pages/AB-3098-List.aspx>.

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 deduct or 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 specified or 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 specified or 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 cost 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 of 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 (g) 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 for purposes of this paragraph, an event of default includes City's rights pursuant to these Contract Documents to withhold or deduct sums from retention, including withholding or deduction for liquidated damages, incomplete or defective Work, stop payment notices, or backcharges. It is further 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 delegatee 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, 1720.3, 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 thereof, 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 §§ 1771.4, 1776, and 1812 and all implementing regulations, which are fully incorporated by this reference, including requirements for monthly 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 thereof, 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 health and 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 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.

(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 notify City of the dispute and demand an informal conference to meet and confer 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) **Notice of Suspension.** Upon receipt of City's written notice to suspend the Work, in whole or in part, except as otherwise specified in the notice of suspension, Contractor and its Subcontractors must promptly stop Work as specified in the notice of suspension; comply with directions for cleaning and securing the Worksite; and protect the completed and in-progress Work and materials. Contractor is solely responsible for any damages or loss resulting from its failure to adequately secure and protect the Project.

(B) **Resumption of Work.** Upon receipt of the City's written notice to resume the suspended Work, in whole or in part, except as otherwise specified in the notice to resume, Contractor and its Subcontractors must promptly re-mobilize and resume the Work as specified; and within ten days from the date of the notice to resume, Contractor must submit a recovery schedule, prepared in accordance with the Contract Documents, showing how Contractor will complete the Work within the Contract Time.

(C) **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.

(D) **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, and subject to the provisions of Section 13.1(A) and (B), above. If Contractor submits a timely request for a Change Order in compliance with Articles 5 and 6, 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 the suspension notice or notice to resume. However, the Contract Time will only be extended if the suspension causes or will cause unavoidable delay in Final Completion. If Contractor disputes the terms of a Change Order issued for such equitable adjustment due to suspension for convenience, 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 Contractor 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, acting in its sole discretion, 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 demobilization costs 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 with 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 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
Tuesday
Wednesday
Thursday
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:

Weekdays: 7:30 a.m. to 4:30 p.m.
Special Weekend Work: 8:00am to 5:00pm
Weekend work are subject to approval by the City.

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** If required, 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;

2.10 If requested by City, Contractor's cash flow projections; and

2.11 Any other documents specified in the Special Conditions or Notice of Potential Award.

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 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.

3.2 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.

4. Construction Manager Role and Authority. Alex Ruiz is the Construction Manager for this Project. The Construction Manager will assist City in the management of the construction of the Project. The Construction Manager may perform services in the areas of supervision and coordination of the work of Contractor and/or other contractors, scheduling the Work, monitoring the progress of the Work, providing City with evaluations and recommendations concerning the quality of the Work, recommending the approval of progress payments to Contractor, or other services for the Project in accordance with the Construction Manager's contract with City.

4.1 Communications. Contractor must submit all notices and communications relating to the Work directly to the Construction Manager in writing, as follows:

Alex Ruiz

AlexRuiz@pittsburgca.gov

Public Works Department | Engineering Division

65 Civic Avenue, Pittsburg, CA 94565

Tel: (925) 252-6900 | Fax: (925) 252-4251

With a copy to the Inspector:

John Rose

JRose@pittsburgca.gov

Public Works Department | Engineering Division

65 Civic Avenue, Pittsburg, CA 94565

Tel: (925) 252-6900 | Fax: (925) 252-6973

4.2 On-Site Management and Communication Procedures. The Construction Manager will provide and maintain a management team on the Project site to provide contract administration as an agent of City, and will establish and implement coordination and communication procedures among City, the Design Professional, Contractor, and others.

4.3 Contract Administration Procedures. The Construction Manager will establish and implement procedures for reviewing and processing requests for clarifications and interpretations of the Contract Documents, Shop Drawings, samples, other submittals, schedule adjustments, Change Order proposals, written proposals for substitutions, payment applications, and maintenance of logs.

4.4 Pre-Construction Conference. Contractor will attend the pre-construction conference, during which the Construction Manager will review the Contract administration procedures and Project requirements.

4.5 Contractor's Construction Schedule. The Construction Manager will review Contractor's construction schedules and will verify that each schedule is prepared in accordance with the requirements of the Contract Documents.

5. Close Out Requirements. Contractor's close out requirements include the following, if applicable:

5.1 Contractor must replace, with thermoplastic, any existing striping within and adjacent to the Project site that is damaged during the Work. Partially damaged striping must be replaced in its entirety.

5.2 Contractor must replace any survey monuments that are damaged or removed during the Work, with a Record of Survey filed by a licensed land surveyor as required by California law.

5.3 Before removing any traffic control or street signs on the Project site, Contractor must take photographs showing their original locations. Upon completion of each phase of construction, Contractor must temporarily reset the signs at those locations. Contractor must then replace the signs permanently upon completion of the Work and the cost of their removal and replacement must be included in the Bid Proposal.

END OF SPECIAL CONDITIONS

TECHNICAL SPECIFICATIONS

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The following technical specifications shall be used in conjunction with, or supersede sections, of the City Standard Details and Specifications.

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DIVISION 01 – GENERAL REQUIREMENTS

01 01 00	DEVELOP SITE ACCESS AND STAGING AREA
01 50 01	TEMPORARY SILT FENCE
01 55 26	TEMPORARY TRAFFIC CONTROL
01 57 23	STORM WATER POLLUTION PREVENTION
01 71 13	MOBILIZATION

SECTION 01 01 00 – DEVELOP SITE ACCESS AND STAGING AREA

PART 1 - GENERAL

1.1 SUMMARY

- A. This work includes constructing, maintaining, and removing a temporary construction entrance to provide temporary access and staging area to be used during construction.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

- A. Develop Staging Area
 - 1. Basis of Measurement: Not applicable.
 - 2. Basis of Payment: The contract lump sum (LS) price paid for the bid item “Develop Site Access and Staging Area” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing and maintaining temporary construction entrance/exit, complete in place, including removal of temporary construction entrance/exit when no longer required, removal of accumulated soils clogging the rock voids, addition of additional rocks to maintain original grade, disposal of resulting materials after removal, restoring ground features to original conditions after removal, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

1.3 SUBMITTALS

- A. Not applicable.

PART 2 - PRODUCTS

2.1 NOT APPLICABLE

PART 3 - EXECUTION

3.1 STAGING AREAS

- A. The Contractor shall contain runoff that may potentially leave any staging area to within the staging area by any suitable means approved by the Engineer.

- B. Staging area BMPs shall be maintained throughout the duration of the work. Staging area BMPs shall be completely removed and disposed of outside the highway right of way in accordance with the provisions of Section 5-11, "Disposal of Material Outside the Highway Right-of-Way" of these Special Provisions, by the Contractor at his expense at the conclusion of the work. Attention is directed to Section 13, "Water Pollution Control," of these Special Provisions for provisions relating to tracking of mud from staging areas.

3.2 STAGING AREA FINISH

- A. The Contractor shall finish all staging areas as specified herein and as
- B. directed by the Engineer. All stockpiles, debris and exclusion fencing shall be completely removed and disposed of outside the highway right of way by the Contractor at the conclusion of construction operations. Staging area surfaces shall be smoothed and contoured to drain in the same manner as prior to their use. The smoothed and contoured surface shall be covered with not less than six (6) inches and not more than twelve (12) inches of three-inch (3") un-compacted drain rock unless other material is approved in advance in writing by the Engineer. Any adjacent areas disturbed by the Contractor's operations shall be smoothed and mulched as specified below.
- C. Loose soil and/or rock resulting from any grading work required to restore the pre-construction condition shall not be scattered or "flaked" on any slope.

END OF SECTION 01 01 00

SECTION 01 50 01 – TEMPORARY SILT FENCE**PART 1 - GENERAL**

1.1 SUMMARY

- A. This work includes furnishing, installing, maintaining, and removing temporary silt fence with silt fence fabric, posts, and fasteners assembled at the job site or with prefabricated silt fence.

The WPCP or SWPPP must describe and include the use of temporary silt fence as a water pollution control practice for sediment control.

B. Related Sections:

1. Section 01 01 00 – Develop Site Access and Staging Area
2. Section 01 50 01 – Temporary Silt Fence
3. Section 02 41 00 – Demolition
4. Section 03 30 00 – Utility Cast-in-Place Concrete
5. Section 03 40 00 – Mechanically Stabilized Earth Wall
6. Section 03 50 00 – Shoring Pile
7. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
8. Section 31 05 14 – Geogrid
9. Section 31 07 00 – Temporary Fiber Roll
10. Section 31 08 00 – Bonded Fiber Matrix
11. Section 31 09 00 – Permeable Material
12. Section 31 10 00 – Mechanically Stabilized Embankments
13. Section 31 23 16 – Utility Trenching
14. Section 33 41 13 – Storm Drainage Piping
15. Section 33 41 20 – Geocomposite Drain

16. Project Geotechnical report; borehole locations and findings of subsurface materials if applicable.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

A. Temporary Silt Fence

1. Basis of Measurement: By the linear foot along the centerline of the installed fence.
2. Basis of Payment: The contract linear foot (LF) price paid for the bid item "Temporary Silt Fence" shall include furnishing, storing, maintaining, placing, and relocating the Temporary Silt Fence as shown on the Drawings and as directed by the Engineer.

1.3 REFERENCES

A. State Standard Specifications:

1. Section 13-10.03F – Temporary Silt Fences

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Samples: Submit samples of the silt fence when requested by the Project Manager.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

PART 2 - PRODUCTS

2.1 TEMPORARY SILT FENCE

- A. Geosynthetic fabric for temporary silt fence must consist of one of the following:
 1. Polyester
 2. Polypropylene
 3. Combined polyester and polypropylene

PART 3 - EXECUTION**3.1 INSTALLATION**

- A. If prefabricated silt fence is used, attach the fabric to the posts by inserting the posts into the sewn pockets.
- B. If the fence is assembled at the job site:
 - 1. Fasten the fabric to the posts with staples or nails if wood posts are used.
 - 2. Fasten the fabric to the posts with tie wires or locking plastic fasteners if steel posts are used.
 - 3. Space the fasteners no more than 8 inches apart.
- C. Place a temporary silt fence parallel with the slope contour. For any 50-foot section of temporary silt.
- D. fence, do not allow the base elevation of the fence to vary by more than 1/3 of the height of the fence above the ground.
- E. Install a temporary silt fence as follows:
 - 1. Place the bottom of the fabric in a 6-inch-deep trench.
 - 2. Secure it with the posts placed on the downhill side of the fabric.
 - 3. Backfill the trench with soil and compact by hand or mechanical methods to secure the fabric in the trench.
- F. Connect sections of a temporary silt fence as follows:
 - 1. Join separate sections to form reaches not more than 500 feet without openings.
 - 2. Secure the end posts of each section by wrapping the tops of the posts with at least 2 wraps of 16-gauge tie wire.
- G. You may install the silt fence by mechanically pushing the silt fence fabric vertically into the soil. Mechanically installed fabric must not slip out of the soil or allow sediment to pass under it.

END OF SECTION 01 50 01

SECTION 01 55 26 – TEMPORARY TRAFFIC CONTROL**PART 1 - GENERAL**

1.1 SUMMARY

- A. Section Includes: temporary traffic control system including preparing and submitting temporary traffic control, pedestrian and bicycle access plans, temporary traffic signal, traffic control for utility trenching and backfill, utility coordination, vehicular traffic control, traffic control for adjacent property owners, traffic control for on-street parking, traffic control for bus stops and coordination with Tri Delta transit, maintaining traffic, temporary railing (type K), temporary crash cushion module, construction area signs, and temporary signing and striping.
- B. All temporary traffic control plans including temporary pedestrian and bicycle access plans submitted by the Contractor shall conform to California Manual of Uniform Traffic Control Devices (CA MUTCD) – Latest Edition.

1.2 REFERENCES

- A. California Manual of Uniform Traffic Control Devices (CA MUTCD) – Latest Edition.
- B. Cal/OSHA – California Division of Occupation Safety and Health
- C. Caltrans Standard Specifications
 - 1. Section 7 – Legal Relations and Responsibility to the Public
 - 2. Section 12 – Temporary Traffic Control

1.3 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.

1.4 MEASUREMENT AND PAYMENT

- A. Traffic Control
 - 1. Basis of Measurement: Not applicable.
 - 2. Basis of Payment: The contract lump sum (LS) price paid for the bid item “Traffic Control” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in implementing and maintaining temporary traffic control as shown

on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

PART 2 - (NOT USED)

PART 3 - EXECUTION

3.1 TEMPORARY TRAFFIC CONTROL SYSTEM

- A. A temporary traffic control system shall consist of closing traffic lanes in conformance with the CA MUTCD, details shown on the Drawings, the provisions in Section 12, "Temporary Traffic Control", of the State Standard Specifications, the provisions under "Maintaining Traffic", and "Construction Area Signs" of the State Standard Specifications and the General Conditions, Special Conditions, and Technical Specifications.
- B. The provisions in this section will not relieve the Contractor of responsibility for providing additional devices or taking measures as may be necessary to comply with the provisions in Section 7-1.04, "Public Safety," of the State Standard Specifications and CA MUTCD.
- C. During traffic striping and pavement marker placement activities using bituminous adhesive, traffic shall be controlled, at the option of the Contractor, with either stationary or moving lane closures. During other operations, traffic shall be controlled with stationary lane closures. Attention is directed to the provisions in Section 12-6.03, "Construction," of the State Standard Specifications.
- D. If components in the traffic control system are displaced or cease to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the components to the original condition or replace the components and shall restore the components to the original location.
- E. A traffic control system shall consist of closing traffic lanes in accordance with the details shown on T-9 through T-17 of the latest edition of the Caltrans Standard Plans, California Manual of Uniform Traffic Control Devices (CA MUTCD), the contract plans, the provisions of Section 12, " Temporary Traffic Control" of the State Standard Specifications and the General Conditions, Special Conditions, and Technical Specifications.
- F. Each vehicle used to place, maintain, and remove components of a traffic control system on multilane roadways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining, or removing said components. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion.

- G. The location of temporary traffic control devices shall be checked by the Contractor especially at the beginning of the work period and periodically throughout the work day, to ensure that the devices are properly placed and maintained.
- H. 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 notify the Project Manager and repair the said component to its original condition or replace said component and shall restore the component to its original location. The cost of providing temporary traffic control as required by the Project Manager shall be considered as included in the cost of traffic control. No additional compensation will be allowed therefor.
- I. The Contractor shall furnish competent Flaggers whose sole duties shall consist of directing the movement of traffic through or around the work. Flaggers shall not be used during the hours of darkness unless authorized by the City.
- J. The Contractor shall conduct all operations with the least possible obstruction and inconvenience to the public. The Contractor shall have under construction no greater length or amount of work than can be completed within a workday with due regards to the rights of the public.
- K. The Contractor shall provide and maintain all traffic control and safety items. The Contractor assumes sole and complete responsibility for the job and site conditions during the course of construction, including safety of all persons and property. This requirement shall apply continuously twenty-four (24) hours/day and shall not be limited to normal work hours.
- L. Personal and work vehicles of the Contractor, subcontractor or the Contractor's employees shall not be parked on the paved shoulders, sidewalk or the traveled way, including any section closed to public traffic. No vehicles of the Contractor shall be parked or driven on the sidewalk.
- M. All personnel occupying the roadway shall be required to wear approved safety vests with protective coloration.
- N. The Contractor shall notify local authorities of his intent to begin work at least five (5) working days before work is begun. The Contractor shall cooperate with local authorities relative to handling traffic through the area and shall make his own arrangements relative to keeping the working area clear of parked vehicles.
- O. Upon completion of all work requiring use of lane closures, the Contractor shall remove all temporary signs, barricades, and markers and shall return the roadway and roadside areas to a condition equal to that which existed prior to construction.

- P. All asphalt concrete and temporary pavement delineations including pavement markers at the end of each stage shall be considered as a part of Traffic Control work.
 - Q. No full road closures are allowed unless approved by the City Manager.
 - R. No lane closures will be allowed on weekdays from 6:00 AM to 8:30 AM, or from 3:00 PM to 6:00 PM, except for emergencies or unless otherwise approved by the City Traffic Engineer.
 - S. The full width of the traveled way shall be open for use by public traffic on Fridays after 3:00pm, Saturdays, Sundays and designated legal holidays, and when construction operations are not actively in progress.
 - T. Two or more lane closures and lane closures with reversible control will not be allowed on weekdays before 9:00 AM, or after 3:00 PM.
 - U. The lane closure(s) must be limited in duration and area as practicable and the times and dates of closure must be stated on the approved temporary traffic control plan.
 - V. Lane closures and lane reduction shall conform to the provisions in "Maintaining Traffic" of the State Standard Specifications and the CA MUTCD.
 - W. When lane closures are made for work periods only, at the end of each work period, all components of the traffic control system, except temporary portable delineators, K-rails and crash cushions placed along open trenches or excavation adjacent to the traveled way shall be removed from the traveled way and shoulder.
 - X. To minimize the disruption to traffic, the Contractor shall:
 - 1. Permit local traffic to pass through the work with the least possible inconvenience or delay.
 - 2. Maintain existing driveways, commercial and residential, within the vicinity of the work area, keeping them open and in good, safe condition at all times.
 - 3. Remove or repair any condition resulting from the work that might impede traffic or create a hazard.
 - 4. Keep existing traffic signal and roadway lighting systems in operation throughout the construction work.
 - 5. Maintain continuous ADA accessible pedestrian and bicycle routes.
- 3.2 TEMPORARY TRAFFIC CONTROL, PEDESTRIAN AND BICYCLE ACCESS PLANS
- A. The Contractor shall provide a Temporary Traffic Control, Pedestrian and Bicycle Access Plans for each stage of construction and for each location.

- B. Temporary Traffic Control, Pedestrian and Bicycle Access Plans will be hand drawn and legible with an approximate graphic scale.
- C. Temporary Traffic Control, Pedestrian and Bicycle Access Plans will show all temporary striping, cones, barricades, channelizers, signs, flaggers, temporary k-rail, crash cushion modules; temporary turn pockets, dimensions of all stripe segments and lane widths, street names, temporary signal modifications, temporary traffic loops, portable changeable message signs, detour signs, construction area signs on all side streets, construction schedule, work hours and all times the temporary traffic control plan will be in effect.
- D. Temporary Traffic Control, Pedestrian and Bicycle Access Plans will also show continuous pedestrian and bicycle path of travel arrows, pedestrian and bicycle signage, pedestrian ADA ramps, bike ramps, temporary pedestrian crosswalks, temporary bike crossings, temporary pedestrian push buttons for signals, pedestrian and bicycle signage on all side streets, pedestrian and bicycle crossing signs, and areas for temporary ADA upgrades along the pedestrian path of travel.
- E. Temporary Traffic Control, Pedestrian and Bicycle Access Plans will be submitted to the City Traffic Engineer two (2) weeks prior to commencement of each stage of construction. The Temporary Traffic Control, Pedestrian and Bicycle Access Plans shall be reviewed by the City Traffic Engineer. Contractor to incorporate all comments from the City Traffic Engineer and resubmit the plans for approval prior to implementation. Assume two (2) rounds of review and resubmittal for each stage of construction.
- F. Once any segment of sidewalk or trail or corner is commenced with sawcut and/or any segment of sidewalk/trail is closed to pedestrians and bicyclists, Contractor will backfill and complete the improvements unless an approved detour plan is provided and approved by the City Traffic Engineer.

3.3 TRAFFIC SIGNAL

- A. If traffic signal inductive vehicle loop detectors and lead-in wiring not designated to be replaced on the Plans are damaged during the course of the construction period, they shall be replaced within one (1) week or as directed by the Project Manager. The cost of replacing damaged loop detectors including detector handholes or any other necessary repairs to the components of the traffic signal system shall be included in the cost of traffic control. No additional compensation will be allowed therefore.

3.4 UTILITY COORDINATION

- A. Contractor shall notify the utility companies as a first order of work about the project and submit a detailed project schedule to all utility companies.

- B. Each stage of construction shall allow for utility companies to complete their work. If Utility company's utilities are to be constructed, adjusted or relocated. the Contractor shall provide four (4) week window during each stage of construction for utility companies to have unobstructed access to the site. This four (4) week period will likely occur after demolition and setting of curb forms by the Contractor. The related utility work shall be coordinated with the utility companies prior to the two (2) week window. The Contractor shall also allow utility companies to work on site during the remaining time of each construction stage.
- C. The construction schedule shall identify the related utility work during each stage and shall be submitted for approval. Changes during construction that will impact the related utility work shall be identified on the Progress Schedule.
- D. The Contractor shall notify to the utility companies and the Project Manager immediately of any changes to the schedule.

3.5 TEMPORARY TRAFFIC CONTROL FOR UTILITY TRENCHING & BACKFILL

- A. All excavations shall be backfilled or covered at the end of each workday. Trench covers will be constructed to withstand pedestrian, bicyclist and vehicle loads. Trench covers in the vehicle areas will be steel plated to withstand vehicle loads. All trench covers shall be non-skid. In sidewalk areas, AC cutback shall be used as temporary ramps. Contractor shall maintain temporary AC surface to provide safe and comfortable passage over or along same, for pedestrian, bicyclist and vehicular traffic to the satisfaction of the Inspector in the field. Items which will require trench plates include, but are not limited to: storm drain, sewer, water main trenches, and irrigation crossings. Contractor to submit shop drawings to demonstrate method of trench plating, anchoring and asphalt tapers.
- B. The Contractor shall comply with the provisions in Section 7-1.02K(6), "Occupational Safety and Health Standards" of the State Standard Specifications.
- C. Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately by the Contractor. The Contractor shall leave the project site in a neat, clean, and presentable state at the close of every workday.
- D. If material from the trench excavation spills onto the roadway, the roadway area shall be swept and washed with water to provide a safe and dust free surface before the lane is re-opened.
- E. The Contractor shall conform to the order of work requirements described on the plans and specifications. If the work items are not completed by the time specified, including any extension of time for excusable delays, the Contractor shall be liable to the City for any additional cost incurred by the City in its

completion of the work, and the Contractor shall also be liable to the City for liquidated damages for any delay in the completion of the work.

3.6 TRAFFIC CONTROL FOR ADJACENT PROPERTY OWNERS

- A. The Contractor shall notify residents/businesses within a closed section by door hanger of sidewalk closures stating the date(s) of closure, limits of sidewalk closure, hours of construction, and detours. The door hangers shall be delivered no later than two (2) working days prior to sidewalk closure. Prior to dissemination, the Contractor shall present a copy to the Project Manager and get approval from the Project Manager for the door hanger.
- B. Work shall be accomplished in such a manner as to provide access to all intersecting streets and adjacent properties whenever possible. If during the course of the work, it is necessary to restrict access to certain driveways for an extended period of time, the Contractor shall
1. Notify the affected residents, in writing, at least two (2) working days in advance.
 2. Provide signage and provide continuous Flaggers to direct traffic in and out of the parking.
 3. Maintain 11' minimum width.
 4. Reopen driveway by the end of the work day.
 5. Include the signage and Flaggers on the Traffic Control and Pedestrian Access Plans.
- C. To protect the rights of abutting property owners, the Contractor shall
1. Conduct the construction so that the least inconvenience as possible is caused to abutting property owners.
 2. Maintain ready access to houses or businesses along the line of work, including ramps over work area.
 3. Notify all parties at least five (5) days, and again two (2) working days, in advance of work which would affect their property. The Contractor shall coordinate with City to obtain Right of Entry for any work within private property.
 4. The Contractor shall maintain access to adjacent private property at all times, and shall address driveway access on approved Traffic Control Plans.
 5. For Utility company and Developer projects, permittee shall obtain right of entry for any work in private properties.
 6. The Contractor shall maintain safe pedestrian and bicycle access at all times, including crosswalks, when it is required to close sidewalks.
 7. Contractor shall provide Temporary Pedestrian and Bicycle Access Plan for any change in pedestrian and bicycle movements. All openings shall be covered or steel plated at the end of each workday, when working in an intersection and traffic lane. Covers in pedestrian areas shall be non-skid and ADA compliant. Contractor shall maintain temporary AC surface to

provide safe and comfortable passage over or along same, for pedestrian, bicyclist and vehicular traffic to the satisfaction of the Inspector in the field.

8. The Contractor shall provide temporary pedestrian bridges and walkways as shown on Contractor's approved Temporary Traffic Control Plans. Temporary pedestrian bridges shall be provided to each affected doorway.

3.7 TRAFFIC CONTROL FOR ON-STREET PARKING:

- A. To maintain On-Street parking, the Contractor shall provide temporary signs for any existing On-Street parking closure and coordinate with adjacent businesses. Contractor shall restripe the existing On-Street Parking impacted by construction in-kind as required by the Project Manager within the project limits.
- B. The Contractor shall post City approved parking restrictions a minimum two (2) working days before work begins. All legal parking areas must be maintained and access to legally parked vehicles doors and storage areas must be maintained.
- C. Parking restrictions must be limited in time as practicable.

3.8 TRAFFIC CONTROL FOR BUS STOPS AND COORDINATION WITH TRANSIT AGENCY (TRI DELTA TRANSIT)

- A. If construction shall obstruct a bus stop, the Contractor shall notify the Transit Agency two (2) working days in advance. The Contractor shall be responsible for providing temporary bus stop with temporary bench, bus stop signs posts and no parking signs at locations specified by Transit Agency within a distance of maximum of 400' from existing bus stop.
- B. The Contractor shall be responsible for providing adequate safeguards, safety devices, protective equipment, and any other needed actions to protect life, health, and safety of the public, and to protect property in connection with the performance of the work covered by the contract. The Contractor shall perform any measures or actions the Project Manager may deem necessary to protect the public and property. Contractor shall install K-rail at all new bus stop pad construction areas.

3.9 MAINTAINING TRAFFIC

- A. Maintaining traffic shall conform to CA MUTCD, the provisions in Sections 7-1.03, "Public Convenience," Section 7-1.04, "Public Safety," and Section 12, "Temporary Traffic Control," of the State Standard Specifications, and the City Standard Specifications.
- B. Closure is defined as the closure of a traffic lane or lanes, including shoulder, ramp or connector lanes, within a single traffic control system.

- C. The full width of the traveled way shall be open for use by public traffic as specified in Part 3.1 above, when construction operations are not actively in progress.
- D. Personal and work vehicles of the Contractor, subcontractor or the Contractor's employees shall not be parked on the traveled way or shoulders including sections closed to public traffic.
- E. The Contractor shall immediately restore to the original position and location a temporary traffic cone or delineator that is displaced or overturned, during the progress of work.
- F. If minor deviations from the Contractor's approved lane closure requirements are required, a written request shall be submitted to the City Traffic Engineer at least 15 days before the proposed date of the closure. The City Traffic Engineer may approve the deviations if there is no increase in the cost to the City and if the work can be expedited and better serve the public traffic.
- G. Designated legal holidays are:

Holidays

Holiday	Date observed
New Year's Day	January 1 st
Martin Luther King Jr. Day	3 rd Monday in January
Lincoln's Birthday	February 12 th
Washington's Birthday	3 rd Monday in February
Cesar Chavez Day	March 31 st
Memorial Day	Last Monday in May
Independence Day	July 4 th
Labor Day	1 st Monday in September
Columbus Day	2 nd Monday in October
Veterans Day	November 11 th
Thanksgiving Holidays	4 th Thursday and Friday in November
Christmas Day	December 25 th

If a designated holiday falls on a Sunday, the following Monday is a designated holiday. If November 11th falls on a Saturday, the preceding Friday is a designated holiday.

- H. Pedestrian and Bicycle access facilities shall be provided through construction areas within the public right of way as shown on the Contractor's approved Temporary Traffic control, Pedestrian and Bicycle Access plans and as specified herein. Pedestrian walkway shall be surfaced with asphalt concrete, Portland cement concrete or timber. The surface shall be skid resistant and free of irregularities. Hand railings shall be provided on each side of pedestrian

walkways as necessary to protect pedestrian traffic from hazards due to construction operations or adjacent vehicular traffic. Protective overhead covering shall be provided as necessary to insure protection from falling objects and drip from overhead structures. If the Contractor's operations require the closure of one walkway, then another walkway shall be provided nearby, off the traveled roadway.

3.10 CONTINGENCY PLAN: A detailed contingency plan shall be prepared for reopening closures to public traffic. The contingency plan shall be submitted to the Project Manager within one (1) business day of the Project Manager's request.

3.11 LATE REOPENING OF CLOSURES

- A. If a closure is not reopened to traffic by the specified time, work shall be suspended in conformance with the provisions in Section 8-1.06, "Suspensions" of the State Standard Specifications. No further closures are to be made until the City Traffic Engineer has accepted a work plan, submitted by the Contractor that will insure that future closures will be reopened to traffic at the specified time. The City Traffic Engineer will have two (2) business days to accept or reject the Contractor's proposed work plan. The Contractor will not be entitled to compensation for the suspension of work resulting from the late reopening of closures.
- B. For each 10-minute interval, or fraction thereof past the time specified to reopen the closure, City will deduct payments per interval from moneys due or that may become due the Contractor under the contract. See deductible schedule below:
 - 1. Residential Streets - \$50 per 10 minutes
 - 2. Collector Streets - \$100 per 10 minutes
 - 3. Arterial Streets - \$400 per 10 minutes.

3.12 TEMPORARY RAILING (TYPE K)

- A. Temporary railing (Type K) shall be placed as shown on the Contractor's approved Temporary Traffic Control, Pedestrian and Bicycle Access plans, as specified in the Drawings or where ordered by the Project Manager and shall conform to CA MUTCD, the provisions in Section 12, "Temporary Traffic Control" of the State Standard Specifications and the City Standard Specifications.
- B. Temporary railing (Type K) shall consist of interconnected new or undamaged used precast concrete barrier units as shown on the Contractor's approved Temporary Traffic Control, Pedestrian and Bicycle Access plans. Exposed surfaces of new and used units shall be freshly coated with a white color paint prior to their first use on the project. The paint shall conform to the provisions in

Section 91-4.02B, "Acrylic Emulsion Paint for Exterior Masonry" of the State Standard Specification.

- C. Concrete shall conform to the provisions in Section 90-2, "Minor Concrete" of the State Standard Specifications. Load tickets and a Certificate of Compliance will not be required.
- D. Reinforcing steel shall conform to the provisions in Section 52, "Reinforcement" of the State Standard Specifications.
- E. Steel bars to receive bolts at ends of concrete panels shall conform to the requirements in ASTM Designation: A 36. The bolts shall conform to the requirements in ASTM Designation: A 307.
- F. The final surface finish of temporary railings (Type K) shall conform to the provisions in Section 51-1.03F(2), "Ordinary Surface Finish" of the State Standard Specifications. Exposed surfaces of concrete elements shall be cured by the water method, the forms in place method, or the pigmented curing compound method. The pigmented curing compound shall be curing compound (1) as specified in Section 90-1.03B(3), "Curing Compound Method" of the State Standard Specifications. The Contractor shall furnish a Certificate of Compliance to the Project Manager in conformance with the provisions in Section 6-2.03C "Certificates of Compliance" of the State Standard Specification, for all new or used temporary railing (Type K) that is not cast on the project.
- G. Temporary railing (Type K) shall be set on firm, stable foundation. The foundation shall be graded to provide a uniform bearing throughout the entire length of the railing. Any excavation and backfill shall conform to the provisions in Section 19-3, "Structure Excavation and Backfill" of the State Standard Specification except that compaction of earth fill placed behind the temporary railing (Type K) in a curved layout will not be required.
- H. Abutting ends of precast concrete units shall be placed and maintained in alignment without substantial offset to each other. The precast concrete units shall be positioned straight on tangent alignment and on a true arc on curved alignment.
- I. At the locations required on the plans, threaded rods or dowels shall be bonded in holes drilled in the existing concrete. Drilling of holes and bonding of threaded rods or dowels shall conform to the provisions for bonding dowels in Section 83-3.01A, "Summary" of the State Standard Specifications. After removal of the temporary railing (Type K), all threaded rods or dowels shall be removed to a depth of at least one inch below the surface of the concrete. The resulting holes shall be filled with mortar in conformance with the provisions in Section 51-1.02F, "Mortar" of the State Standard Specification, except that the mortar shall be cured by either the water method or by the curing compound method. If the curing compound method is used, the curing shall conform to the provisions for curing

concrete barrier in Section 83-3.03A(8), "Curing" of the State Standard Specifications.

- J. Each rail unit shall have a reflector installed on top of the rail. Reflectors shall be as specified in the technical specifications, and adhesive shall conform to the reflector manufacturer's recommendations. A Type P marker panel shall also be installed at each end of railing installed adjacent to a two lane, two-way highway and at the end facing traffic of railing installed adjacent to a one-way roadbed. If the railing is placed on a skew, the marker shall be installed at the end of the skew nearest the traveled way. Type P marker panels shall conform to the provisions in Section 82, "Signs and Markers" of the State Standard Specifications, except that the Contractor shall furnish the marker panels.
- K. When temporary railings (Type K) are removed, any area where temporary excavation or embankment was used to accommodate the temporary railing shall be restored to its previous condition or constructed to its planned condition.
- L. Prior to each stage of construction Contractor will provide a layout of the proposed temporary railing, crash cushion locations, and temporary striping/signing for the railing.
- M. Water filled barriers will be considered in lieu of temporary railings (Type K), upon a written request from the contractor along with proposed details, layout plan, temporary signing & striping and installation.

3.13 TEMPORARY CRASH CUSHION MODULE

- A. This work shall consist of furnishing, installing, and maintaining sand filled temporary crash cushion modules in groupings or arrays at each location shown on the Contractor's approved traffic control plans, as specified in the technical specifications or where designated by the Project Manager. The grouping or array of sand filled modules shall form a complete sand filled temporary crash cushion in conformance with the details shown on the plans and the technical specifications.
- B. Temporary crash cushions shall be secured in place prior to commencing work for which the temporary crash cushions are required.
- C. Whenever the work or the Contractor's operations establishes a fixed obstacle, the exposed fixed obstacle shall be protected with a sand filled temporary crash cushion. The sand filled temporary crash cushion shall be in place prior to opening the lanes adjacent to the fixed obstacle to public traffic.
- D. Sand filled temporary crash cushions shall be maintained in place at each location, including times when work is not actively in progress. When no longer required, as determined by the Project Manager, sand filled temporary crash cushions shall be removed from the site of the work.

- E. Modules contained in each temporary crash cushion shall be of the same type at each location. The color of the modules shall be the standard yellow color, as furnished by the vendor, with black lids. The modules shall exhibit good workmanship free from structural flaws and objectionable surface defects. The modules need not be new. Good used undamaged modules conforming to color and quality of the types specified herein may be utilized.
- F. Modules shall be filled with sand in conformance with the manufacturer's directions, and to the sand capacity in pounds for each module shown on the plans. Sand for filling the modules shall be clean washed concrete sand of commercial quality. At the time of placing in the modules, the sand shall contain no more than 7 percent water as determined by California Test 226.
- G. Modules damaged due to the Contractor's operations shall be repaired immediately by the Contractor at the Contractor's expense. Modules damaged beyond repair, as determined by the Project Manager, due to the Contractor's operations shall be removed and replaced by the Contractor at the Contractor's expense.
- H. A Type R or P marker panel shall be attached to the front of the crash cushion. The marker panel, when required, shall be firmly fastened to the crash cushion with commercial quality hardware or by other methods determined by the Project Manager.
- I. At the completion of the project, temporary crash cushion modules, sand filling, pallets or frames, and marker panels shall become the property of the Contractor and shall be removed from the site of the work. Temporary crash cushion modules shall not be installed in the permanent work.
- J. Repairing modules damaged by public traffic and modules damaged beyond repair by public traffic, when ordered by the Project Manager, shall be removed and replaced immediately by the Contractor. Modules replaced due to damage by public traffic will be not be measured and paid for and shall be considered as included in the lump sum price paid for Temporary Traffic Control.
- K. Include allowance for Project Manager to order a lateral move of the sand filled temporary crash cushions where the repositioning is not shown on the Contractor's approved traffic control plans. Moving the sand filled temporary crash cushion will be considered as included in the lump sum price paid for Temporary Traffic Control and no additional compensation will be allowed therefore and these temporary crash cushion modules will not be counted for payment in the new position.

3.14 CONSTRUCTION AREA SIGNS

- A. Construction area signs shall be furnished, installed, maintained, and removed when no longer required in accordance with CA MUTCD, the provisions in

Section 12-3.11, "Construction Area Signs," of the State Standard Specifications, the contract drawings, and the General Conditions, Special Conditions, and Technical Specifications. The base material of construction area signs shall not be plywood. This includes but not limited to furnishing and installation of Pedestrian and Bicycle Signs.

END OF SECTION 01 55 26

SECTION 01 57 23 – STORM WATER POLLUTION PREVENTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: requirements for temporary utilities, support facilities, storm water pollution prevention, erosion control, traffic control, support, and security and protection facilities.
- B. Projects that have a soil disturbance of one acre or greater are subject to the State Water Resources Control Board's (SWRCBs) Construction General Permit. The appropriate Legally Responsible Person (LRP), or approved representative must obtain coverage by filing the Permit Registration Documents (PRDs) prior to commencement of any construction activity. A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared by a Qualified SWPPP Developer (QSD) and submitted to the City prior to issuance of a grading permit. Contractor shall comply with all requirements of SWRCBs Construction General Permit Order No. 2009-0009-DWQ, and amended Orders 2010-0014-DWQ, and 2012-0006-DWQ.
- C. Projects that are less than one acre and are Caltrans related (State Highway Projects) are required to have a Water Pollution Control Plan (WPCP) prepared in accordance with Caltrans' standard WPCP template.
- D. Projects that are less than one acre and are not Caltrans related are required to have an Erosion and Sedimentation Control Plan prepared and submitted to the City for approval prior to issuance of a grading permit.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

- A. Water Pollution Control
 - 1. Basis of Measurement: Not applicable.
 - 2. Basis of Payment: The contract lump sum (LS) price paid for the bid item "Water Pollution Control" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in implementing water pollution control measures as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

1.3 REFERENCES:

- A. California Stormwater Quality Association (CASQA) has developed a standard SWPPP template for traditional Risk 1,2, and 3 projects that is prevalent in California and can be downloaded from www.CASQA.org. (Note: An annual subscription is required to access to access the CASQA construction portal.)
- B. SWPPP: The Stormwater Pollution Prevention Plan (SWPPP) shall be designed to comply with California's General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Permit) Order No. 2009-0009-DWQ as amended by Order No. 2010-0014-DWQ (NPDES No. CAS000002) and 2012-0006-DWQ, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activity (herein after referred to as General Permit) issued by the State Water Resources Control Board (State Water Board). In accordance with the General Permit, Section XIV, designed to address the following:
 - 1. Pollutants and their sources, including sources of sediment associated with construction, construction site erosion and other activities associated with construction activity are controlled.
 - 2. Where not otherwise required to be under a Regional Water Quality Control Board (Regional Water Board) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated.
 - 3. Site Best Management Practices (BMPs) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology/Best Control Technology (BAT/BCT) standard.
 - 4. Calculations and design details as well as BMP controls are complete and correct.
 - 5. Stabilization BMPs will be installed to reduce or eliminate pollutants after construction is completed.

1.4 SUBMITTALS

- A. Notice of Intent (NOI): The Legally Responsible Person shall file the Notice of Intent (NOI) and submit all PRDs to the SWRCB prior issuance of a grading permit. For City Capital Improvement Projects, the Contractor shall file the NOI and submit all PRDs to the SWQRB on behalf of the City. Contractor to obtain the Waste Discharge Identification Number (WDID #) on behalf of the City, or as otherwise directed by the City Engineer.
- B. SWPPP:
 - 1. Contractor shall submit SWPPP for Project Manager's review within ten (10) calendar days after award of project.
 - 2. The Contractor shall submit a site-specific Storm Water Pollution Prevention Plan (SWPPP) prepared by a Qualified SWPPP Developer (QSD) the Contractor shall amend the SWPPP when required, prepare a Construction

- Site Monitoring Plan (CSMP), and perform water pollution control work under the oversight of a Qualified SWPPP Practitioner (QSP), as specified in the General Permit. The Contractor shall identify an individual to be a Data Submitter (DS) for this contract. All reports and data that must be submitted to the State Water Resources Control Board will be uploaded by the Contractor's DS to the Stormwater Multi-Application and Report Tracking System (SMARTS) website for certification to the state by the City Legally Responsible Person (LRP) or their Approved Signatory (A/S).
3. The QSD, QSP, and DS designated by the Contractor may be different individuals.
 4. Storm Water Pollution Prevention Plan (SWPPP):
The Contractor shall prepare and submit a site-specific Storm Water Pollution Prevention Plan (SWPPP) to the City Engineer for approval. The SWPPP shall be prepared and certified by a Qualified SWPPP Developer (QSD) holding one of the certifications or registrations listed in Section VII of the Construction General Permit. Within seven (7) working days after contract award, the Contractor shall submit two (2) printed copies of the SWPPP and Site Map and one electronic copy in electronic file (.pdf) format to the Project Manager for review. The Contractor shall allow five (5) working days for the Project Manager's review. If revisions are required, the Project Manager will provide comments, and the Contractor shall revise and resubmit the SWPPP and Site Map in printed and electronic form within five (5) working days of receipt of the Project Manager's comments. Within three (3) working days of receipt of the City Engineer's approved SWPPP, the Contractor shall submit three (3) paper copies of the approved SWPPP to the City Engineer. Once the City Engineer has approved the SWPPP for the project, the Contractor may proceed with construction activities requiring coverage under the General Permit.
 5. WDID Number: The Contractor shall not perform work that may cause water pollution until the state has issued a WDID number for the project. The City Engineer's review and approval of the SWPPP shall not waive any contract requirements and shall not relieve the Contractor from complying with Federal, State and local laws, regulations, and requirements. Working days shall not be counted if the controlling item of work cannot be performed during the initial preparation and review of the SWPPP and Site Map and between the date that the approved SWPPP has been received by the City Engineer, and the date the City Engineer has notified the Contractor that a WDID number has been assigned to the project.
 6. Approved SWPPP: The Contractor shall keep a copy of the approved SWPPP at the job site at all times during construction. The SWPPP shall be made available when requested by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or the local storm water management agency. Requests from the public shall be directed to the Project Manager.

C. WPCP

1. General: Contractor shall submit WPCP for City review within ten (10) calendar days after award of project.
2. Water Pollution Control Plan:
The Contractor shall prepare and submit a site-specific Water Pollution Control Plan (WPCP) to the Project Manager and Construction for approval. Within seven (7) working days after contract award, the Contractor shall submit two (2) printed copies of the WPCP and Site Map and one electronic copy in electronic file (.pdf) format to the Project Manager for review. The Contractor shall allow five (5) working days for the Project Manager's review. If revisions are required, the Project Manager will provide comments, and the Contractor shall revise and resubmit the WPCP and Site Map in printed and electronic form within five (5) working days of receipt of the Project Manager's comments. Within three (3) working days of receipt of the Project Manager's approved WPCP, the Contractor shall submit three (3) paper copies of the approved WPCP to the Project Manager. Once the Project Manager has approved the WPCP for the project, the Contractor may proceed with construction activities.

The Contractor shall keep a copy of the approved WPCP at the job site. The WPCP shall be made available when requested by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or the local storm water management agency. Requests from the public shall be directed to the Project Manager.

1.5 WATER POLLUTION CONTROL DRAWING/EROSION CONTROL PLAN

- A. General: Contractor shall include a Water Pollution Control Drawing (WPCD) / Erosion and Sediment Control Plan (ESCP) as a part of the SWPPP/WPCP. Revisions and Amendments to the WPCDs shall be prepared and uploaded to SMARTS by Contractor's QSP and/or QSD.
- B. For any State Highway projects, Contractor shall provide a Water Pollution Control Drawing as required by Caltrans. Contractor to provide an Erosion and Sedimentation Control Plan to the Engineering Division for review and approval prior to issuance of a grading permit.
- C. Deficiencies: The Contractor shall construct, inspect, maintain, remove, and dispose of the water pollution control measures. If the Contractor, the Contractor's QSP, or the City Engineer and/or his representative identifies a deficiency in the implementation of the approved SWPPP/WPCP, the deficiency shall be corrected immediately, and at a minimum of 72 Hours. The deficiency shall be corrected before the onset of precipitation. If the Contractor fails to

correct the deficiency by the 72-hour timeframe or before the onset of precipitation, the Project Manager may correct the deficiency and deduct the cost of correcting deficiencies from payments. If the Contractor fails to conform to the provisions of this section, the Project Manager may order the suspension of work until the project complies with the requirements of the Construction General Permit and this section.

- D. Weather Forecasts: The Contractor shall monitor the National Oceanic and Atmospheric Administration (NOAA) weather forecast on a daily basis during the contract. The Contractor shall perform SWPPP/WPCP Inspections according to the Risk Level. The Contractor will provide soil stabilization and sediment control practices whenever there is a 50% probability of rain within 48 hours as predicted by the NOAA. The Contractor shall maintain soil stabilization and sediment control materials on site to protect disturbed soil areas throughout the life of construction project.

1.6 IMPLEMENTATION REQUIREMENTS

- A. QSP: The Contractor shall designate in writing a Qualified SWPPP Practitioner (QSP) who shall be responsible for non-storm water and storm water visual observations and inspections, and for ensuring that all BMP required by the SWPPP/WPCP and General Construction Permit are properly implemented and maintained. The QSP shall meet the training and certification requirements in the Construction General Permit.
- B. SWPPP Requirements: All measures required by the SWPPP/WPCP shall be implemented concurrent with the commencement of construction. No construction may start without all BMPs in place. Pollution practices and devices shall be followed or installed as early in the construction schedule as possible with frequent upgrading of devices as needed as construction progresses to protect water quality at all times.
- C. Inspection and Maintenance: The Contractor's Qualified SWPPP Developer (QSD) shall develop and implement a written site-specific Construction Site Monitoring Program (CSMP) in accordance with the requirements of the General Permit and the Technical Specifications, and Contractor's QSP shall monitor the water pollution control practices identified in the General Permit and SWPPP as follows:
 - 1. Visual Inspections, Quarterly Non-storm water discharge
 - 2. Minimum of Weekly Visual Inspections of all Best Management Practices (BMP) that need maintenance to operate effectively, that have failed or that could fail to operate as intended.
 - 3. BMP Inspections, Baseline Pre-storm event
 - 4. Rain Event Action Plan (REAP)
 - 5. BMP Inspections, 24-Hours during extended rain events
 - 6. BMP Inspections, Post-storm event.

- D. The QSP shall oversee the maintenance of the water pollution control practices. The QSP shall document all visual inspection activities with written reports according to the requirements of the Construction General Permit. The format of the reports shall be approved by the Project Manager.
- E. A copy of all written reports documenting implementation of the CSMP shall be submitted to the Project Manager within 48 hours of finishing the inspection and shall remain on site during construction.
- F. Reporting Requirements: If the Contractor identifies discharges into surface waters or drainage systems causing or potentially causing pollution, or if the project receives a written notice or order from a regulatory agency, the Contractor shall immediately inform the Project Manager. The Contractor shall submit a written report to the Project Manager within 24 hours of the discharge, notice or order. The report shall include the following information:
 - 1. The date, time, location, nature of the operation, type of discharge; and the cause of the notice or order.
 - 2. The water pollution control practices used before the discharge, or before receiving the notice or order.
 - 3. The date of placement and type of additional or altered water pollution control practices placed after the discharge, or after receiving the notice or order.
 - 4. A maintenance schedule for affected water pollution control practices.
- G. Annual Report: The Contractor shall complete and submit to the City Engineer an Annual Report, as required by the current State Water Board Industrial General Permit. The Contractor shall submit the Annual Report prior to acceptance of the project. Contractor shall submit the annual report to the SWRCB directly on SMARTS.

1.7 COMPLETION OF WORK

- A. Maintenance: Clean-up shall be performed as each portion of the work progresses. All refuse, excess material, and possible pollutants shall be disposed of in a legal manner off-site and all temporary and permanent BMP devices shall be in place and maintained in good condition.
- B. Records: At completion of work, inspect installed BMP devices, and present the currently implemented SWPPP/WPCP with all backup records to the Project Manager.
- C. BMPs: Contractor must remove all construction materials, temporary facilities, temporary BMPs, equipment and construction related materials from the site.
- D. NOTICE OF TERMINATION (NOT): A Notice of Termination (NOT) must be submitted by the Contractor to the City Engineer for electronic submittal by the LRP via SMARTS to terminate coverage under the General Permit. The NOT

must include a final Site Map and representative photographs of the project site that demonstrate final stabilization has been achieved. The NOT shall be submitted to the City Engineer within 10 days of completion of construction. The NOT will be reviewed and submitted to SMARTS by the City Engineer within 90 days of completion of construction. The Regional Water Board will consider a construction site complete when the conditions of the General Permit, Section II.D have been met. Notice of Termination should be filed by the Contractor via the SMARTS system. The City will allow the Contractor to enter data in SMARTS on the City's behalf.

1.8 QUALITY ASSURANCE

- A. Performance: Perform work in accordance with SWPPP/WPCP. Maintain one copy of document on jobsite.
- B. Quality Control and Assurance: Train all employees and subcontractors in these subjects:
 - 1. Material pollution prevention and control
 - 2. Waste management
 - 3. Non-storm water management
 - 4. Identifying and handling hazardous substances
 - 5. Potential dangers to humans and the environment from spills and leaks or exposure to toxic or hazardous substances
- C. Training Requirements: Training must take place before starting work on this job. New employees must receive the complete training before starting work on this job. Conduct weekly meetings to discuss and reinforce spill prevention and control; material delivery, storage, use, and disposal; waste management; and non-storm water management procedures.

1.9 PRE-INSTALLATION CONFERENCE

- A. Timing: Convene a conference one week prior to commencing work at the site
- B. Attendance: Require attendance of parties directly affecting the work of this Section.
- C. Agenda: Review requirements of the SWPPP/WPCP.

1.10 PERFORMANCE REQUIREMENTS

- A. General: The SWPPP/WPCP is a minimum requirement. Revisions and modifications to the SWPPP/WPCP are acceptable only if they maintain levels of protection equal to or greater than originally specified.

- B. Requirements: Read and be thoroughly familiar with all of the requirements of the SWPPP/WPCP.
- C. Compliance: Inspect and monitor all work and storage areas for compliance with the SWPPP/WPCP prior to any anticipated rain.
- D. Corrective Measures: Complete any and all corrective measures as may be directed by the regulatory agency.
- E. Penalties: Contractor to pay any fees and be liable for any other penalties that may be imposed by the regulatory agency for non-compliance with SWPPP during the course of work.
- F. Costs: Contractor to pay all costs associated with the implementation of the requirements of the SWPPP/WPCP in order to maintain compliance with the Permit. This includes installation of all Housekeeping BMPs, General Site and Material Management BMPs, Inspection requirements, maintenance requirements, sampling, monitoring, reporting and all other requirements specified in the SWPPP/WPCP and as required by the General Permit, local, state and federal regulations.

1.11 MATERIALS:

- A. General: All temporary and permanent storm water pollution prevention facilities, equipment, and materials as required by or as necessary to comply with the SWPPP/WPCP as described in the current California Stormwater Quality Association (CASQA) BMP Handbook.

1.12 STORM WATER POLLUTION PREVENTION PLAN

- A. Plan Preparation and Compliance
 1. The Contractor shall conform to Section 13, Water Pollution Control, of the State Standard Specifications and the General Conditions, Special Conditions, and Technical Specifications.
 2. The Contractor shall prepare a Storm Water Pollution Prevention Plan (SWPPP) and the necessary Project Registration Documents to be digitally filed with the California State Water Resources Control Board (SWRCB) through the Stormwater Multi-Application and Report Tracking System (SMARTS database). The Contractor will be responsible to provide the Permit Registration Documents (PRDs) to the City; the QSD will submit the PRDs for the WDID number through SMARTS. The SWPPP shall be prepared based upon the most current California Stormwater Quality Association (CASQA) standard SWPPP Template. The Contractor shall perform the role of "Qualified SWPPP Developer" (QSD) and shall be responsible for all formal amendments to the SWPPP. The Contractor shall also perform the role of "Qualified SWPPP Practitioner" (QSP) and shall be

- responsible for all field SWPPP implementation, monitoring, sampling, and reporting. The completed SWPPP shall be created by the Contractor as necessary to reflect the necessary sequence and staging of field operations.
3. The SWPPP shall conform to SWRCB Order 2009-0009-DWQ (“The Construction General Permit” or “CGP”), San Francisco Bay Regional Water Quality Control Board Order R2-2009-0074 (“Municipal Regional Stormwater NPDES Permit” or “MRP”), Provisions in Section 13, Water Pollution Control, of the State Standard Specifications, the details, operating procedures, and maintenance guidelines of the California Regional Water Quality Control Board San Francisco Bay Region’s Guidelines for Construction Projects (Guidelines), the California Regional Water Control Board San Francisco Bay Region’s Erosion and Sediment Control Field Manual (Manual), the project plans and the General Conditions, Special Conditions, and Technical Specifications. The SWPPP shall be deemed to fulfill the requirements set forth in Section 13 of the State Standard Specifications for development and submittal of a Water Pollution Control Program.
 4. Prior to the Notice to Proceed (with field activities), the State Project Registration Documents (PRDs) will have been filed digitally through SMARTS, and confirmation from the SWRCB will have been received authorizing coverage of this project under the CGP. Construction cannot commence until a WDID has been received.
- B. Risk Based Contractor Requirements and City Responsibilities (Applicable for all project risk levels/types) – The following minimum items shall be included within the SWPPP, as prepared by the Contractor
1. Risk Level Determination (to be performed by Contractor)
 2. WDID Number (to be obtained by Contractor through coordination with City)
 3. Certification by City “Legally Responsible Party” (LRP) (to be provided by City)
 4. Placeholder for Contractor SWPPP training throughout construction
 5. Name and contact information of Contractor QSD (to be provided by Contractor)
 6. Name and contact information of Contractor QSP (to be provided by Contractor)
 7. Schedule of Construction and Deployment of BMPs for each phase of work (to be provided by Contractor)
 8. Description of minimum year round sediment control measures per Order 2009-009- DWQ
 9. Dates and description of all formal SWPPP amendments (to be prepared by Contractor)
 10. Description of Construction Site Monitoring Plan (CSMP) per Order 2009-009-DWQ (to be done by Contractor) including, but not limited to the following:
 - a. Sampling preparation,
 - b. Collection,
 - c. Quality assurance and quality control,

- d. Sample labeling,
 - e. Collection documentation,
 - f. Sample shipping,
 - g. Chain of custody,
 - h. Sample numbering,
 - i. Precautions from the construction site health and safety plan, and
 - j. Providing and maintaining a function rain gauge at all times.
11. Minimum required monitoring activities:
 - a. Post storm event (0.5" or greater) visual discharge inspection (within 48 hours).
 - b. Sampling for non-visible pollutants:
 - Take one or more sample during any breach, spill, malfunction, or leakage that could discharge non visible pollutants into storm-water.
 - Samples taken must be large enough to accurately categorize site conditions.
 - Samples taken must be within the first 2 hours of rain events that occur during scheduled business hours that produce runoff.
 - Samples shall be analyzed for pollutants in accordance with warrant as necessary for protection of surface waters.
 - An uncontaminated (control) sample must be taken as a basis of comparison.
 - Samples must be received by the laboratory within 48 hours of physical sampling. The Contractor must use containers provided by the laboratory.
 - c. Quarterly inspections for non-stormwater discharges.
 12. Minimum scheduled BMP inspections with appropriate documentation:
 - a. Weekly, on a year round basis, throughout the duration of construction.
 - b. Daily (once every 24 hours) BMP inspection during extended storm events.
 - c. Inspect drainage areas and BMPs within 48 hours of predicted rainfall event (0.5" or greater).
 13. Intent of compliance with the following analytical methods and sampling protocol:
 - a. Standard Methods for the Examination of Water and Wastewater (American Public Health Association).
 - b. 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants."
 - c. Surface Water Ambient Monitoring Program's (SWAMP) 2008 Quality Assurance Program Plan.
 14. Potential sources of non-visible pollutants
 15. Description of all minimum source control measures, "good housekeeping", and non stormwater management per Order 2009-009-DWQ
 16. Other measures as necessary for Order 2009-009-DWQ

- C. Risk Based Contractor Requirements and City Responsibilities (Applicable to Risk Level 2/LUP Type 2 or higher)
1. All requirements for Risk Level 1/Type 1 above
 2. Description of applicable Numeric Action Levels for pH and turbidity (to be included in SWPPP by Contractor)
 - a. pH –levels must be maintained within a range of 6.5-8.5.
 - b. Turbidity – 250 NTU maximum.
 3. Description of additional provisions within the CSMP for stormwater effluent monitoring and reporting and non-stormwater discharges (to be included within SWPPP by Contractor):
 - a. Numeric Action Level (NAL) sampling:
 - Water quality grab samples shall be taken at a minimum 3 times a day during each rain event of ½ an inch or more, where runoff occurs. The grab samples shall be representative of the flow and characteristic of the discharges. The contractor shall forward grab sampling results to the City within 24 hours of when they are taken.
 - All discharge points must be sampled, including the one considered to be the “worst case.” Discharge from a silt fence or sheet flow area shall be considered one discharge point.
 - All points of run on. A sheet flow area shall be considered one point of run on.
 - Sampling to comply with analytical methods and protocol described in EPA Test Method 180.1.or Standard Method 2130 for turbidity sampling, ASTM D1293- 99(2005) for pH sampling, and Standard Methods for the Examination of Water and Wastewater (American Public Health Association).
 - c. Sampling for non-stormwater discharges.
 4. Description of requirement to create and implement of “Rain Event Action Plans” for each of the following phases of construction (REAPs to be prepared by Contractor’s QSP):
 - a. Grading and Land Development,
 - b. Streets and Utilities,
 - c. Vertical Construction,
 - d. Final Landscaping and Stabilization,
 - e. Inactive Construction Status.
 - f. The Contractor shall create and implement Rainfall Event Action Plans for inclusion within approved SWPPP at least 48 hours prior to any likely (forecast by National Weather Service as 50% or greater chance) precipitation event.
 5. Description of year round effective erosion control measures to supplement minimum sediment control measures within active, inactive, and completed areas. Erosion control measures shall be provided to the extent necessary for compliance with Order 2009-009- DWQ.

6. Description of additional Annual Reporting Requirements (Annual reporting information to be prepared by Contractor for review and approval of City prior to submittal):
 - a. Creation and submittal of NAL exceedance reports, if applicable,
 - b. Creation and submittal of sampling logs for pH and turbidity.
- D. Risk Based Contractor Requirements and City Responsibilities (Applicable to Risk Level 3/LUP Type 3 only)
1. All requirements for Risk Level 2 projects described above.
 2. Description of Required Compliance with State Board criteria for technology-based numeric effluent limitations for discharge of pH and turbidity (Description of requirements and physical achievement provided by Contractor):
 - a. For Projects that employ Advanced Treatment Systems (ATS) - Maximum 10 NTU Daily Weighted Average & Maximum 20 NTU for any single sample, applicable for events up to 24 hour events of ½ inches¹. The ATS system must be able to treat this volume within a maximum 72-hour period.
 - b. For Projects that do not employ ATS - Maximum 500 NTU for any single sample, applicable for events up to 24 hour events up to ½ inches².
 - c. Project discharges must maintain pH within a range of 6.0 to 9.0.
 3. Description of additional provisions within the CSMP (description of monitoring provided by Contractor, additional monitoring performed by Contractor):
 - a. Receiving water monitoring, if applicable, based upon the standards of Order 2009- 009-DWQ.
 - b. Bioassessment, if applicable, based upon the standards of Order 2009-009-DWQ.
 - c. Sampling for Suspended Sediment Concentration, if applicable, based upon the standards of Order 2009-009-DWQ. Sampling to comply with analytical methods and protocol described within ASTM Designation: D 3977 for suspended sediment concentration (SSC).
 - d. Inspection of ATS facilities, if applicable. Sampling of ATS discharge points.
 4. Placeholder for Creation of ATS Plan, if applicable, consisting of the following (to be provided by Contractor):
 - a. ATS Operation and Maintenance Manual for All Equipment.
 - b. ATS Monitoring, Sampling & Reporting Plan, including Quality Assurance/Quality Control (QA/QC).
 - c. ATS Health and Safety Plan.
 - d. ATS Spill Prevention Plan.

5. Description of Additional annual reporting requirements (Description provided by Contractor, Annual Reporting information to be prepared by Contractor for review and approval of City)
 - a. Creation and submittal of NEL violation reports, if applicable within 6 hours of occurrence. Reports and related corrective action measures to be reviewed and approved by City prior to submittal to Regional Board
 - b. Completed ATS records, if applicable.

PART 2 - PRODUCTS

2.1 BEST MANAGEMENT PRACTICE (BMP) PRODUCTS

- A. Shall be as specified in the most current CASQA BMP Handbook.
- B. SWPPP as prepared by Qualified SWPPP Developer (QSD)
- C. Risk Level Determination
- D. Notice of Intent/Notice of Substantial Completion
- E. Shall include but is not limited to sampling, reports and other miscellaneous items as determined by the State of California and all pertaining regional and local permits.

PART 3 - EXECUTION

3.1 EROSION AND SEDIMENTATION CONTROL

- A. Temporary erosion and sediment control work shall consist of applying erosion control materials to embankment slopes, excavation slopes and other areas designated on the plans, installing silt fence, inlet protection, gravel bags, headwall protection and stabilized construction entrance ways, or other measures as specified in the project SWPPP/WPCP or necessary for compliance with the CGP.
- B. All temporary erosion and sediment control for the project shall conform to the provisions in Section 13, Water Pollution Control, of the State Standard Specifications and the General Conditions, Special Conditions, and Technical Specifications. All permanent erosion and sediment control for the project shall conform to the provision in Section 21, Erosion Control, of the State Standard Specifications and the General Conditions, Special Conditions, and Technical Specifications.

3.2 INSTALLATION

A. Construction Requirements

1. The Contractor shall design, implement and maintain the SWPPP/WPCP for the project in full compliance with the SWRCB Order 2009-009-DWQ to control the discharge of storm water pollutants. The Contractor shall perform the monitoring and reporting required to comply with all the state regulations regarding the SWPPP/WPCP for the project. All monitoring, sampling, and reporting information collected by the Contractor shall be subject to the review of the City prior to uploading through the SMARTS database.

B. Storm Water Pollution Prevention Plan and Water Pollution Control Plan

1. The SWPPP/WPCP shall identify construction activities that may adversely affect the quality of storm water discharges associated with the project and shall identify water pollution control measures, hereinafter referred to as control measures, to be constructed, implemented, and maintained in order to reduce, to the maximum extent feasible, storm water discharges from the construction site both during and after construction is completed under this contract.
2. The Contractor's "QSD" shall amend the SWPPP/WPCP, graphically and in narrative form, whenever there is a change in construction activities or operations which may affect the discharge of significant quantities of pollutants to surface waters, ground waters, municipal storm drain systems, whenever there is a change in disturbed area, and/or or when deemed necessary by the City. The SWPPP/WPCP shall be amended if, at any time, the implementation of the SWPPP/WPCP is not effectively achieving the objective of compliance with the CGP. Amendments shall show additional control measures or revised operations, including those in areas not shown in the initial SWPPP/WPCP, which are required on the project to control water pollution effectively. Amendments to the SWPPP/WPCP shall be closely coordinated with the Contractor's Qualified SWPPP Practitioner (QSP) within five (5) working days. In emergency situations that require immediate changes at the project site, the Contractor's QSP shall implement the necessary measures and notify the Project Manager and Contractor's QSD of the changes.
3. The Contractor shall give immediate notice to the Project Manager of any planned changes in construction activity that may result in non-compliance with the General Conditions, Special Conditions, and Technical Specifications or the CGP.
4. By the last day of each month, the Contractor shall submit an affidavit to the Project Manager certifying conformance with the SWPPP/WPCP. The monthly partial payment may be withheld if the affidavit is not received and accepted by the Project Manager. If at any time the project is in non-compliance with the SWPPP/WPCP or the CGP, the Contractor shall submit a written report to the Project Manager immediately upon identifying the

non-compliance. The report shall specify the time and nature of the non-compliance and include a course of action to correct the deficiency.

5. The Contractor shall keep a copy of the State of California Construction Activity General Permit (SWRCB Order No. 2009-009-DWQ), the SWPPP/WPCP, and any approved amendments at the project site. The SWPPP/WPCP shall be made available upon request of any representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or any City representative. Public requests for copies of the SWPPP/WPCP shall be directed to the Project Manager.

C. Erosion and Sediment Control

1. The facilities shown on the SWPPP/WPCP are designed to effectively control erosion and sediment on a year-round basis.
 - a. Construction operations shall be carried out in such a manner that erosion and water pollution will be minimized. Contractor shall comply with state and local laws concerning pollution abatement.
 - b. Contractor shall be responsible for monitoring erosion and sediment control measures prior, during, and after storm events. Monitoring and sampling (as applicable) shall follow the protocol described in the CGP and Project SWPPP/WPCP.
 - a. Extreme care shall be taken when hauling any earth, sand, gravel, stone, debris, paper, or any other substance over any public street, alley or other public place. Occurrences of material blown, spilled, or tracked over and upon said public or adjacent private property are prohibited and shall be immediately remedied. Discharge of debris is prohibited. Non-stormwater discharge is prohibited, except as specified in SWRCB Order 2009-009-DWQ. Discharge of hazardous substances is prohibited.
 - b. Inlet protection shall be installed at open inlets to prevent sediment from entering the storm drain system. Inlets not used in conjunction with erosion control are to be blocked to prevent entry of sediment.
 - c. All paved areas shall be kept clear of earth material and debris. The site shall be maintained so as to prevent sediment-laden runoff to any storm drainage system, including existing drainage swales and watercourse, to the extent necessary for compliance with applicable numeric action or effluent levels specified in the CGP and Project SWPPP/WPCP.
 - d. Contractor shall install and maintain construction entrances prior to commencement of grading. All construction vehicle traffic entering onto the paved roads must cross stabilized construction entrance ways. Entrance ways may be constructed of two inch to six-inch drain rock, metal grating, or metal cattle-guard, or equivalent material, or may include vehicle wash stations as needed, in sufficient quantity and size to prevent tracking of mud and debris from the construction site. Tracking of mud or debris onto public streets, or onto adjacent public

- or private property, is prohibited and shall be removed immediately as required by the City.
- e. Grading operations which leave denuded slopes shall be protected with erosion control measures within 14 days of completion or suspension of activity. If hydroseeding is not used or is not effective within this 14-day period, then other immediate methods shall be implemented, such as erosion control blankets, blown straw, or a three step application of 1) seed, mulch, fertilizer, 2) blown straw, and 3) tackifier and mulch.
 - f. Sanitary facilities shall be maintained on the site in a manner to prevent inadvertent discharge or leakage of sanitary wastes into the storm drain system either by placing sanitary facilities in locations that do not drain to the storm drain system or by providing secondary containment systems to capture leaked wastes.
 - g. Contractor shall provide dust control as required by the appropriate federal, state and City requirements and the City Standard Specifications.
 - h. The erosion and sediment control plan may not cover all the situations that may arise during construction due to unanticipated field conditions. Variations and additions may be made to the plan in the field. That Contractor's QSP shall notify the Contractor's QSD of any field changes.
- D. Maintenance: The SWPPP/WPCP shall include a plan for maintenance that shall include at a minimum.
1. Immediate repair of damage caused by soil erosion or construction.
 2. Inspection of sediment traps, berms, rills, gullies, and swales before, during, and after each storm event or predicted rainfall in accordance with the CGP and project SWPPP/WPCP. This also includes repair or cleaning as needed.
 3. Removal of sediment from sediment traps and restoration to original dimensions when sediment has accumulated to a depth of one foot. Sediment removed from trap shall be deposited in a suitable area and in such a manner that it will not erode.
 4. Regular cleaning of gravel bag inlet protection so that sediment depth never exceeds a maximum of three inches.
- E. Risk Based Contractor Requirements and City Responsibilities (Applicable for all project risk levels/types) – The following minimum items shall be performed by the Contractor during field implementation of the Project SWPPP/WPCP throughout the duration of construction until final Notice of Termination
1. Coordinate and conduct periodic SWPPP/WPCP and Erosion and Sediment Control training throughout construction
 2. Update schedule of construction and deployment of BMPs for each phase of work on an as-needed basis
 3. Physically install and maintain minimum year-round sediment control measures per Order 2009-009-DWQ

4. Perform and file all formal SWPPP/WPCP amendments. All SWPPP/WPCP amendments to be reviewed and approved by the City and the Contractor's QSD prior to submittal.
5. Physically perform and implement all measures found within the SWPPP/WPCP Construction Site Monitoring Plan (CSMP) per Order 2009-009-DWQ including, but not limited to the following:
 - a. Sampling preparation,
 - b. Collection,
 - c. Quality assurance and quality control,
 - d. Sample labeling,
 - e. Collection documentation,
 - f. Sample shipping,
 - g. Chain of custody,
 - h. Sample numbering,
 - i. Precautions from the construction site health and safety plan, and
 - j. Providing and maintaining a function rain gauge at all times.
6. Minimum required monitoring activities:
 - a. Post storm event (0.5" or greater) visual discharge inspection (within 48 hours).
7. Sampling for non-visible pollutants:
 - a. Take one or more sample during any breach, spill, malfunction, or leakage that could discharge nonvisible pollutants into stormwater.
 - Samples taken must be large enough to accurately categorize site conditions.
 - Samples taken must be within the first 2 hours of rain events that occur during scheduled business hours that produce runoff.
 - Samples shall be analyzed for pollutants in accordance with an appropriate pollutant source assessment, or as conditions warrant as necessary for protection of surface waters.
 - An uncontaminated (control) sample must be taken as a basis of comparison.
 - Samples must be received by the laboratory within 48 hours of physical sampling. The Contractor must use containers provided by the laboratory.
 - b. Quarterly inspections for non-stormwater discharges.
8. Minimum scheduled BMP inspections with appropriate documentation:
 - a. Weekly, on a year-round basis, throughout the duration of construction.
 - b. Daily (once every 24 hours) BMP inspection during extended storm events.
 - c. Inspect drainage areas and BMPs within 48 hours of predicted rainfall event (0.5" or greater).
9. Compliance with the following analytical methods and sampling protocol:
 - a. Standard Methods for the Examination of Water and Wastewater

- (American Public Health Association).
 - b. 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants."
 - c. Surface Water Ambient Monitoring Program's (SWAMP) 2008 Quality Assurance Program Plan.
10. Identify and eliminate potential sources of non-visible pollutants
 11. Implementation of all minimum source control measures, "good housekeeping", and non-stormwater management per Order 2009-009-DWQ
 12. Other measures as necessary for Order 2009-009-DWQ
- F. Risk Based Contractor Requirements and City Responsibilities (Applicable to Risk Level 2/LUP Type 2 or higher)
1. All requirements for Risk Level 1/Type 1 above
 2. Maintain tolerance of site discharge within applicable Numeric Action Levels for pH and turbidity
 - a. pH –levels must be maintained within a range of 6.5-8.5.
 - b. Turbidity – 250 NTU maximum.
 3. Numeric Action Level (NAL) sampling:
 - a. Water quality grab samples shall be taken at a minimum 3 times a day during each rain event of ½ an inch or more, where runoff occurs. The grab samples shall be representative of the flow and characteristic of the discharges. The contractor shall forward grab sampling results to the City within 24 hours of when they are taken.
 - b. All discharge points must be sampled, including the one considered to be the "worst case." Discharge from a silt fence or sheet flow area shall be considered one discharge point.
 - c. All points of run on. A sheet flow area shall be considered one point of run on.
 - d. Sampling to comply with analytical methods and protocol described in EPA Test Method 180.1 or Standard Method 2130 for turbidity sampling, ASTM D1293- 99(2005) for pH sampling, and Standard Methods for the Examination of Water and Wastewater (American Public Health Association).
 4. Sampling for non-stormwater discharges
 5. Create and physically implement of "Rain Event Action Plans" for each of the following phases of construction:
 - a. Grading and Land Development,
 - b. Streets and Utilities,
 - c. Vertical Construction,
 - d. Final Landscaping and Stabilization,
 - e. Inactive Construction Status.

6. The Contractor shall create and implement Rainfall Event Action Plans for inclusion within approved SWPPP/WPCP at least 48 hours prior to any likely (forecast by National Weather Service as 50% or greater chance) precipitation event.
 7. Physically implement and maintain year-round effective erosion control measures to supplement minimum sediment control measures within active, inactive, and completed areas. Erosion control measures shall be provided to the extent necessary for compliance with Order 2009-009-DWQ.
 8. Maintain and compile documents to meet Annual Reporting Requirements (Annual reporting information to be prepared by Contractor for review and approval of City prior to submittal):
 - a. Creation and submittal of NAL exceedance reports within 48 hours, if applicable, based upon review and approval of City.
 - b. Creation and submittal of sampling logs for pH and turbidity.
- G. Risk Based Contractor Requirements and City Responsibilities (Applicable to Risk Level 3/LUP Type 3 only)
1. All requirements for Risk Level 2 projects described above.
 2. Maintain physical compliance with State Board criteria for technology-based numeric effluent limitations for discharge of pH and turbidity
 3. For Projects that employ Advanced Treatment Systems (ATS) - Maximum 10 NTU Daily Weighted Average & Maximum 20 NTU for any single sample, applicable for events up to 24-hour events of ½ inches³. The ATS system must be able to treat this volume within a maximum 72-hour period.
 4. For Projects that do not employ ATS - Maximum 500 NTU for any single sample, applicable for events up to 24-hour events up to ½ inches⁴.
 5. Project discharges must maintain pH within a range of 6.0 to 9.0.
 6. Perform additional provisions within the CSMP:
 - a. Receiving water monitoring, if applicable, based upon the standards of Order 2009- 009-DWQ.
 - b. Bioassessment, if applicable, based upon the standards of Order 2009-009-DWQ.
 - c. Sampling for Suspended Sediment Concentration, if applicable, based upon the standards of Order 2009-009-DWQ. Sampling to comply with analytical methods and protocol described within ASTM Designation: D 3977 for suspended sediment concentration
 - d. Inspection of ATS facilities, if applicable. Sampling of ATS discharge points.
 7. Creation and implementation of ATS Plan, if applicable, consisting of the following:
 - a. ATS Operation and Maintenance Manual for All Equipment.
 - b. ATS Monitoring, Sampling & Reporting Plan, including Quality Assurance/Quality Control (QA/QC).
 - c. ATS Health and Safety Plan.

- d. ATS Spill Prevention Plan.
8. Maintain and compile additional annual reporting requirements (Annual Reporting information to be prepared by Contractor for review and approval of City prior to submittal)
- a. Creation and submittal of NEL violation reports, if applicable within 6 hours of occurrence. Reports and related corrective action measures to be reviewed and approved by City prior to submittal to Regional Board
 - b. Completed ATS records, if applicable.

3.3 STREET SWEEPING

- A. Street sweeping: Street sweeping will be implemented everywhere where sediment is tracked from the project site onto public roads. Sweeping will be done during all construction activities to control tracking of sediments as required as per the guidelines provided in the SWPPP document and as directed in this section.

3.4 DUST CONTROL

- A. Contractor's Responsibility: Use equipment that will generate the least amount of dust. Provide dust control at all times including Saturdays, Sundays, and holidays as ordered by the Project Manager. Whenever the Contractor, in the opinion of the Project Manager, is negligent in controlling dust, the Project Manager may direct attention to the existence of a dust hazard and instruct the Contractor to immediately alleviate the dust hazard. The Contractor shall be responsible for any damage cause by dust generated as a result of its operations.
- B. Street Vacuum/Sweeper: Have a commercial standard street vacuum/sweeper operational and in operation during each working day. The street vacuum/sweeper shall be able to pick up sand, gravel, dust, and debris, and other things, shall minimize dust generation, and shall also be available during the day and shall sweep as outlined below and as directed by the Project Manager.
- C. Sweeping: If the Contractor is performing work that generates dust and debris then during the day (including weekends and holidays) the sweeper shall sweep the project area (full length, width, and all lanes) twice a day sometime between 9:00a.m. and 11:00a.m. and also between 2:00p.m. and 4:00p.m. Hardscape surfaces (including pavers, sidewalks, and areas inaccessible by a mechanical sweeper) shall have dirt, dust, and debris removed by hand sweeping. If the Contractor fails to fulfill the responsibilities of this Section the City will perform or contract with others to perform the work and all costs incurred to the City shall be withheld from future payments to the Contractor.

- D. Additional Sweeping: Clean the sidewalk and gutter as many times as needed to make sure the sidewalk and gutter are out of dirt, debris and small rocks at all times. Be prepared to sweep surfaces immediately at the request of the Project Manager should it be deemed necessary for public safety and to avoid damage to properties. If streets are not satisfactorily cleaned within 12 hours from verbal or written notice by City personnel, the City will hire an independent sweeping company and deduct the cost for such work from payments due to the Contractor.
- E. Payment for Dust Control and Clean Up: Shall be included in the prices paid for Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP) as shown in the Bid Schedule or considered incidental to the items most closely related to when there is no bid item. This Item shall be considered as full compensation for all labor, materials, tools, equipment and incidentals and for doing the work of Dust Control and Clean Up and no additional compensation shall be made therefor.

3.5 EMERGENCY EROSION AND SEDIMENT CONTROL

- A. Shall consist of any measures not addressed in the SWPPP/WPCP that the Project Manager or QSD deems necessary for compliance with the CGP including, but not limited to all erosion control measures necessary to prevent degradation to water quality.
- B. Sediment Control including unforeseen measures not addressed in the Storm Water Pollution Plan pay item in accordance with the National Pollution Discharge Elimination System (NPDES), the City of Pittsburg and the Plans and Specifications and to the satisfaction of the Project Manager. Work under this item shall be considered as extra work paid for on a force account basis.

END OF SECTION 01 57 23

SECTION 01 71 13 – MOBILIZATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes but not limited to:
1. mobilization and demobilization;
 2. preparatory work and activities those necessary for the movement of personnel, equipment, supplies, and incidentals to the job site;
 3. for the establishment of all offices, building, trailers, and other facilities necessary for work on the project;
 4. submittals, bonding and insurance requirements;
 5. public notifications in English and Spanish;
 6. contacting and notifying the utility companies;
 7. fabricating and installing project identification signs;
 8. private property owner agreement for storage facilities;
 9. and for all other work and activities which must be performed or costs incurred prior to beginning work on the various contract items on the project site.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

- A. Basis of Measurement: Not applicable.
- B. Basis of Payment: The contract lump sum (LS) price paid for the bid item "Mobilization" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in mobilization and demobilization including the items listed in Part 1.1 of this Section as specified herein, and no additional compensation shall be made therefor.
- C. Mobilization shall be considered as a non-adjustable contract item. Any contract change orders shall be considered as including full compensation for mobilization.

1.3 REFERENCES

- A. Cal/OSHA – California Division of Occupation Safety and Health
- B. Underground Services Alert (USA)

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 MOBILIZATION

- A. Mobilization shall consist of preparatory work and activities listed in Part 1.1 above.
- B. The Contractor shall insure that adequate existing sanitation facilities are available or the Contractor shall provide and maintain adequate sanitation facilities. All wastes and refuse from sanitary facilities provided by the Contractor's operations shall be disposed of away from the site in accordance with all laws and regulations pertaining thereto.
- C. Mobilization shall also include demobilization upon completion of work and cleanup of the site.
- D. The contractor shall provide all labor, materials, equipment and incidentals to prepare the site for the timely start and efficient completion of all work. This includes obtaining all necessary licenses and permits, providing required submittals including but not limited to a detailed project schedule.
- E. Mobilization shall also include notifications to all existing utility companies as shown on the Drawings as first order of work.

END OF SECTION 01 71 13

DIVISION 02 – EXISTING CONDITIONS

02 41 00 DEMOLITION

SECTION 02 41 00 - DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes but not limited to:

1. Demolition & Permits
2. Removal and Disposal
3. Recycling & Salvaging

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Demolition:

1. Basis of Measurement: Not a measured item, unless specified otherwise on the Drawings.
2. Basis of Payment: Full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all work involved in Demolition, including obtaining demolition permits, permit fees, sawcut, remove asphalt and concrete paving and base to design subgrade, remove foundation and base; terminating and removing utilities to be demolished and other items of work as specified in the plans, Standard Specification and the Technical Specifications shall be considered included in the prices bid for the various other items of work and no additional compensation will be allowed.

B. Related Sections:

1. Section 01 01 00 – Develop Site Access and Staging Area
2. Section 01 50 01 – Temporary Silt Fence
3. Section 02 41 00 – Demolition
4. Section 03 30 00 – Utility Cast-in-Place Concrete
5. Section 03 40 00 – Mechanically Stabilized Earth Wall
6. Section 03 50 00 – Shoring Pile

7. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
8. Section 31 05 14 – Geogrid
9. Section 31 07 00 – Temporary Fiber Roll
10. Section 31 08 00 – Bonded Fiber Matrix
11. Section 31 09 00 – Permeable Material
12. Section 31 10 00 – Mechanically Stabilized Embankments
13. Section 31 23 16 – Utility Trenching
14. Section 33 41 13 – Storm Drainage Piping
15. Section 33 41 20 – Geocomposite Drain
16. Project Geotechnical report; borehole locations and findings of subsurface materials if applicable.

1.3 REFERENCES & RELATED WORK SPECIFIED ELSEWHERE

- A. Bay Area Air Quality Management District (BAAQMD) – <http://www.baaqmd.gov/>
 1. Regulation 11 (Hazardous Pollutants) and Rule 2 (Asbestos Demolition, Renovation, and Manufacturing).
- B. CALGreen Construction Waste Management Requirements
 1. https://www.calrecycle.ca.gov/lgcentral/library/canddmodel/instruction/new_structures
- C. California Occupational Safety and Health (Cal/OSHA)
 1. General Requirements
- D. Commercial
 1. USA Underground Service Alert
- E. Division 1
 1. General Requirements

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.

- B. The Contractor shall submit to the City a haul route for approval, prior to commencing any work. Truck traffic movement is limited between the hours of 9am to 3pm, unless approved by the Project Manager.
- C. Before disposing of any demolished material prior to any work
 - 1. Submit a written agreement from the property owner
 - a. For the use of the property
 - b. absolving the City from responsibility in connection with the property.
 - 2. Obtain authorization to start
- D. Before Contract acceptance, submit a document signed by the owner of the material disposal site stating that the Contractor has complied with the Contractor-Owner agreement.
- E. Demolition Schedule: The Contractor shall submit a complete coordination schedule for demolition work including shut-off and continuation of utility services prior to start of the work. The schedule shall indicate proposed methods and operations of facility demolition, and provide a detailed sequence of demolition and removal work to ensure uninterrupted operation of occupied areas.
- F. All affected private properties will receive door hanger notices two (2) weeks prior to any utility shutoffs or frontage demolition and improvements.

1.5 JOB SITE CONDITIONS

- A. The Contractor shall visit the site and inspect the existing facilities. The City assumes no responsibility for actual condition of facilities to be demolished.
- B. Contractor shall use all means necessary to prevent the spread of dust during performance of the work. Thoroughly moisten all surfaces as required to prevent the generation of dust. No washing of streets is permitted.
- C. All liquid, and slurry generated during pavement sawcutting shall be collected and removed from the site. These liquids shall not be washed into the area storm drainage system.
- D. Contractor shall remove hazardous materials as described per the Project Asbestos and Lead Inspection Report.
- E. The Contractor prior to the commencement of the demolition or renovation, thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos, including Category I and Category II nonfriable Asbestos Containing Materials (ACM).
- F. The Contractor must also provide the Environmental Protection Agency (EPA) with a 10 working day advance notice for any disturbance of Regulated Asbestos-Containing Material (RACM) greater than 160 square feet or 260 lineal feet, and

as specified in Code of Federal Regulations (CFR) Title 40, Chapter I, Subchapter C, Part 61, Subpart M, Section 61.145.

1.6 DELIVERY, STORAGE AND HANDLING

- A. [Section 01 60 00 - Product Requirements](#): Requirements for transporting, handling, storing, and protecting products.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Notify anyone to be affected by demolition and construction activities including but not limited to: all schools, residences, businesses, garbage collection (Pittsburg Disposal Service-a Garaventa company), utility companies (PG&E-Gas Distribution, PG&E Gas Transmission, PG&E-Electric, AT&T, Comcast, Verizon, Chevron Pipeline Co, Shell Pipeline Co, Kinder Morgan, Calpine etc.), Delta Diablo (Sewer District), BART, County Connection (bus transit agency), the Owner, etc. at least ten (10) working days prior to commencing the work of this section.
- B. Site Inspection:
1. Prior to all work of this section, carefully inspect the site and all objects designated to be removed and to be preserved.
 2. Locate all existing active utility lines traversing the site and determine the requirements for their removal and/or protection.
- C. Clarification:
1. The Drawings do not purport to show all objects existing on the site.
 2. Before commencing the work of this section, verify with the Owner all objects to be removed and all objects to be preserved.
- D. Scheduling:
1. Schedule all work in a careful manner with all necessary consideration for neighbors, operation of the existing facilities, and the public.
 2. Avoid interference with the use of, and passage to and from, residences and adjacent facilities.
- E. Protection of Utilities: Preserve in operating condition all active utilities traversing the site and designated to remain.

3.2 WATER POLLUTION CONTROL

- A. Water sprinkling, temporary enclosures, chutes and other suitable methods shall be used to limit dust and dirt rising and scattering in the air. The Contractor shall comply with all government regulations pertaining to environmental protection.
- B. The Contractor shall use equipment that will generate the least amount of dust. The Contractor shall provide dust control at all times including Saturdays, Sundays, and holidays unless directed otherwise by the Project Manager.
- C. Whenever the Contractor, in the opinion of the Project Manager, is negligent in controlling dust, the Project Manager may direct attention to the existence of a dust hazard and instruct the Contractor to immediately alleviate the dust hazard. The Contractor shall be responsible for any damage cause by dust generated as a result of the Contractor's operations.
- D. The Contractor shall have a commercial standard street vacuum/sweeper operational and in operation during each working day. The street vacuum/sweeper shall be able to pick up sand, gravel, dust, and debris, and other things, shall minimize dust generation, and shall also be available during the day and shall sweep as outlined below and as directed by the Project Manager.
- E. If the Contractor is performing work that generates dust and debris then during the day (including weekends and holidays) the sweeper shall sweep the project area (full length, width, and all lanes) twice a day sometime between 9:00a.m. and 11:00a.m. and also between 2:00p.m. and 4:00p.m. Hardscape surfaces (including pavers, sidewalks, and areas inaccessible by a mechanical sweeper) shall have dirt, dust, and debris removed by hand sweeping. If the Contractor fails to fulfill the responsibilities of this section, the City will perform or contract with others to perform the work and all costs incurred to the City shall be withheld from future payments to the Contractor.
- F. The Contractor shall clean the sidewalk and gutter as many times as needed to make sure the sidewalk and gutter are out of dirt, debris and small rocks at all times. The Contractor shall be prepared to sweep surfaces immediately at the request of the Project Manager, should the Project Manager deem it necessary for public safety and to avoid damage to properties. If streets are not satisfactorily cleaned within 12 hours from verbal or written notice by City personnel, the City will hire an independent sweeping company and deduct the cost for such work from payments due to the Contractor.
- G. Water shall not be used in a manner that creates hazardous or objectionable conditions such as ice, flooding, or pollution.
- H. The site shall be kept neat and orderly during the demolition to the maximum extent practical.
- I. Public right-of-way and private property shall be kept free of debris at all times.

- J. Stockpiles of demolished items or materials shall be removed from the site on a daily basis or stored in waste containers which shall be emptied on a weekly basis or as conditions require in order to manage the accumulation of waste.
- K. Accumulations of flammable materials shall not be permitted.

3.3 PROTECTION

- A. Safe passage of persons around area of demolition shall be provided in accordance with all safety and regulatory requirements. Operations shall be conducted to prevent damage to adjacent buildings, structures, other facilities, people and property. Safe passage provided by Contractor will be ADA complaint.
- B. Interior and exterior shoring, bracing, or supports shall be provided to prevent movement, settlement or collapse of structures to be demolished and to adjacent facilities to remain.
- C. Existing landscaping materials, structures, and appurtenances which are not to be demolished shall be protected and maintained as necessary.
- D. The Contractor shall protect and maintain conduits, drains, sewers, pipes and wires that are not to be demolished.
- E. Use all means necessary to protect existing objects designated to remain or to be preserved must remain operational during installation of the replacement pipeline. In the event of damage, immediately notify the Owner and make all repairs and replacements necessary for approval by the Owner at no additional cost to the Owner.

3.4 SURFACE DEMOLITION

- A. All asphalt concrete and all Portland cement concrete curbs, gutters, sidewalks, access ramps and driveways shall be saw-cut at the nearest scoreline or deep joint and removed entirely to the saw-cut limits.
- B. Where adjacent pavement or concrete is broken or damaged sufficiently to prohibit a sound replacement the entire damaged section shall be removed to the limits determined by the Project Manager.
- C. Asphalt concrete, sidewalk, concrete curb, and gutter materials to be demolished shall be broken up and removed from the site by the Contractor at no additional cost to the City.

- D. Where shown on the Drawings, the Contractor shall remove required pavement section including base material. Subsoil removal is also included where required to achieve design subgrade.

3.5 DEMOLITION BELOW THE SURFACE

- A. Existing structures, pavement slabs and structural sections to be abandoned shall be demolished to an elevation three feet below finished grade. Their bottoms (if any remain) shall be broken thoroughly to prevent entrapment of water and all voids backfilled with suitable backfill.
- B. Demolition areas and voids resulting from demolition of structures below the surface shall be completely filled.
- C. All fill, compaction, and holes created by demolition work shall be backfilled with imported clean fill. Lay fill down in layers not exceeding 6" thickness and compact per the earthwork specifications. Grade the site to drain to the nearest storm drainage system without any low points.
- D. All fill and compaction surfaces shall be graded to meet adjacent contours and to provide flow to surface drainage structures, or as shown on the Drawings.
- E. Pipes to be demolished that require no future connection shall be removed to the extent required, sealed and capped. Pipe sections shall be removed either by sawcutting, removing a complete pipe section to an existing joint, or other adequate means which results in a clean joint.
- F. The Contractor shall demolish or dismantle and remove all items that are noted for demolition and removal in the Contract Documents and that will interfere with the planned construction, or as otherwise directed by the Project Manager.
- G. The Contractor shall demolish or dismantle and remove all abandoned conduits or structures that are encountered during the prosecution of the work and which interfere with the construction of the work upon the approval of the Project Manager.

3.6 REMOVAL OF EXISTING WATER AND SEWER-SERVICES

- A. The Contractor shall submit to the City for approval a detailed sequence and method of work for staking, abandonment of existing sewer services, water services, water meters, boxes, and cleanouts. The submittal shall include an overview and general sequence of work; time and dates for each removal; and method and procedure for each removal.
- B. ABANDONMENT OF SEWERS:

1. Contractor shall request an encroachment permit with Delta Diablo (District) for abandoning any existing sanitary sewer lateral pipes.

C. ABANDONMENT OF WATER LINES:

1. For service lines less than 4" diameter:
 - (a) Contractor shall pothole, cut out at the main, remove the corporation stop and saddle, and install a minimum 12" full circle 316 stainless steel repair clamp with 316 accessories around the pipe.
 - (b) Abandon unused existing water service lines in place, if at least 18" below grade to the Project Manager's satisfaction.
2. Contact City Water Department in writing 48 hours in advance of abandonment, to check the condition of the existing services prior to abandonment.

D. GENERAL ABANDONMENT:

1. When salvage materials are shown on the Drawings; salvage and arrange the existing facilities (i.e., meters, manhole covers, manhole frames, etc.) to be dropped off at the City's Corporation Yard by prior arrangement.
2. Properly remove or abandon in place unused existing City utility service lines discovered that were left in place by others.
3. Contact utility companies for removal, abandonment, adjustment or relocation of their facilities.
4. Contractor is responsible for verifying the location of any existing utilities.
5. Abandonment of pipes will include filling pipe with slurry as specified in Section 19-3.02G – Controlled Low-Strength Material of the State Standard Specification and capping the pipes at the ends.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. See [Section 01 74 19 – Construction Waste Management and Disposal](#) for disposal, salvaging and recycling of demolished materials.
- B. Demolition and removal of debris shall be conducted to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities which shall not be closed or obstructed without permission from the City. Alternate routes shall be provided to circumvent closed or obstructed traffic ways.
- C. The Contractor shall comply with all pertinent regulations of Cal/OSHA and local codes and practices.
- D. All existing materials that are designated to be salvaged shall be removed, cleaned and hauled to the City Corporation Yard, unloaded and stockpiled unless otherwise directed by the Project Manager.
- E. Site debris, rubbish and other materials resulting from demolition operations shall become the property of the Contractor and shall be removed by the Contractor at the Contractor's expense. The proper and legal disposal of demolished

materials shall be the responsibility of the Contractor. All disposal sites and recycling facilities shall be approved by the City prior to initiation of the Work.

1. Concrete debris shall be transported to a recycler of such materials.
2. Hazardous materials shall be handled and disposed of in accordance with all applicable laws, codes, and regulations.

3.8 PATCHING AND REPAIRING

- A. The Contractor shall provide patching, replacing, repairing and refinishing of damaged areas or damaged adjacent facilities involved in the demolition.
- B. New concrete shall match the existing adjacent surfaces, in kind, or of better quality, to the satisfaction of the Project Manager, at no cost to the City or to the owners of the facilities.

3.9 CLEAN UP

- A. During and upon completion of work the Contractor shall promptly remove unused tools and equipment, surplus materials, rubbish, debris and dust and shall leave areas affected by work in a clean, approved condition.
- B. The Contractor shall clean adjacent structures and facilities of dust, dirt and debris caused by demolition, as directed by the Project Manager, and return adjacent areas to condition existing prior to start of work.
- C. The Contractor shall clean and sweep daily all street and roads affected by its operation.

END OF SECTION 02 41 00

DIVISION 03 – CONCRETE

03 30 00	UTILITY CAST-IN-PLACE CONCRETE
03 40 00	MECHANICALLY STABILIZED EARTH RETAINING WALL
03 50 00	SHORING PILE (30")

SECTION 03 30 00 – UTILITY CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes Utility Cast-in-Place Concrete for Following Items:

1. Concrete pads around Utility facilities
2. Miscellaneous concrete footings for signs, street lighting, retaining walls, fence posts.
3. Thrust blocks.
4. Manhole Base.
5. Concrete aprons around water valves and manholes
6. Concrete Cap for shallow cover:
7. Retaining Walls
8. Survey Monuments
9. Electrical or Communications Duct Banks
10. Drainage Inlets
11. Concrete Headwalls
12. Concrete Ditches

B. Related Sections:

1. Section 01 01 00 – Develop Site Access and Staging Area
2. Section 01 50 01 – Temporary Silt Fence
3. Section 02 41 00 – Demolition
4. Section 03 30 00 – Utility Cast-in-Place Concrete
5. Section 03 40 00 – Mechanically Stabilized Earth Wall
6. Section 03 50 00 – Shoring Pile

7. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
8. Section 31 05 14 – Geogrid
9. Section 31 07 00 – Temporary Fiber Roll
10. Section 31 08 00 – Bonded Fiber Matrix
11. Section 31 09 00 – Permeable Material
12. Section 31 10 00 – Mechanically Stabilized Embankments
13. Section 31 23 16 – Utility Trenching
14. Section 33 41 13 – Storm Drainage Piping
15. Section 33 41 20 – Geocomposite Drain
16. Project Geotechnical report; borehole locations and findings of subsurface materials if applicable.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Drainage Inlet:

1. Basis of Measurement: The bid item “Drainage Inlet” will be measured by each (EA) unit installed complete in place as shown on the plans.
2. Basis of Payment: The contract price bid per each (EA) for the bid item “Drainage Inlet” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in installing the drainage inlets as shown on the plans.

B. Minor Concrete (Drainage Ditch and RW Gutter)

1. Basis of Measurement: The bid item “Minor Concrete (Drainage Ditch and RW Gutter)” shall be measured for payment by the cubic yard (CY) as shown on the plans.
Basis of Payment: The Contract price bid per cubic yard (CY) for the bid item “Minor Concrete (Drainage Ditch and RW Gutter)” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work associated with this bid item (as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

1.3 REFERENCE STANDARDS

- A. [Section 01 29 00 - Payment Procedures](#): Contract Sum/Price modification procedures.

- B. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
 2. ACI 305R - Guide to Hot Weather Concreting.
 3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
 4. ACI 308.1 - Specification for Curing Concrete.
 5. ACI 318 - Building Code Requirements for Structural Concrete.
- C. ASTM International:
1. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 2. ASTM C33 - Standard Specification for Concrete Aggregates.
 3. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 4. ASTM C42 - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
 5. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
 6. ASTM C143 - Standard Test Method for Slump of Hydraulic-Cement Concrete.
 7. ASTM C150 - Standard Specification for Portland Cement.
 8. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
 9. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
 10. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 11. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
 12. ASTM C330 - Standard Specification for Lightweight Aggregates for Structural Concrete.
 13. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
 14. ASTM C595 - Standard Specification for Blended Hydraulic Cements.
 15. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
 16. ASTM C685 - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing.
 17. ASTM C845 - Standard Specification for Expansive Hydraulic Cement.
 18. ASTM C989 - Standard Specification for Slag Cement for Use in Concrete and Mortars.
 19. ASTM C1017 - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
 20. ASTM C1064 - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
 21. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
 22. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete.
 23. ASTM C1157 - Standard Performance Specification for Hydraulic Cement.
 24. ASTM C1218 - Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.

25. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.
26. ASTM D994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
27. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
28. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.
29. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
30. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
31. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
32. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
33. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

D. California Department of Public Health:

1. Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1 (2010)

E. Caltrans Standard Specifications

1. Section 51 – Concrete Structures
2. Section 90 – Concrete

F. Bay Area Air Quality Management District:

1. BAAQMD Rule 8-51 - Adhesive and Sealant Applications.

1.4 COORDINATION

- A. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

1.5 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Product Data: Submit data on mix design, joint devices, attachment accessories, and admixtures.

- C. Design Data:
 - 1. Submit concrete mix design for each concrete strength.
 - 2. Submit separate mix designs if admixtures are required for following:
 - a. Hot and cold weather concrete Work.
 - b. Air entrained concrete Work.
 - 3. Identify mix ingredients and proportions, including admixtures.
 - 4. Identify chloride content of admixtures and whether or not chlorides were added during manufacture.

- D. Delivery Tickets: Provide delivery tickets at the time of delivery of each load of concrete. Each delivery ticket shall be accompanied by batch tickets automatically produced by the batching equipment, indicating quantities of each ingredient. Each delivery ticket shall, in addition, state the mix number, total yield in cubic yards, date and the time of day, to the nearest minute, corresponding to when the batch was loaded, when it was dispatched, when it arrived at the job, and the time that unloading began.

1.6 CLOSEOUT SUBMITTALS

- A. [Section 01 78 00 – Closeout Submittals](#): Requirements for submittals.

1.7 QUALITY ASSURANCE

- A. Comply with ACI 305R when pouring concrete during hot weather in [Section 32 13 13 - Concrete Surface Improvements](#) of the City Standard Specifications.
- B. Comply with ACI 306.1 when pouring concrete during cold weather and as specified in [Section 32 13 13 - Concrete Surface Improvements](#) of the City Standard Specifications.
- C. Acquire cement and aggregate from one source for Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Concrete:
 - 1. Cement:
 - a. Comply with ASTM C150, Type II - Moderate Sulfate Resistant.
 - b. Type: Portland.
 - 2. Fine and Coarse Aggregates:

- a. Conform to the requirements of Section 90-1.02C, "Aggregates", of the State Standard Specifications.
3. Water:
 - a. Conform to Section 90-1.02D, "Water" of the State Standard Specifications.
 - b. Potable
- B. Admixtures:
 1. Air Entrainment: Conform to the requirements of Section 90-1.02E(3), "Air-Entraining Admixtures" of the State Standard Specifications.
 2. Chemical: Conform to the requirements of Section 90-1.02E(2), "Chemical Admixtures" of the State Standard Specifications.
 3. Supplementary Cementitious Materials – Fly Ash: Conform to the requirements of Section 90-1.02B(3), "Supplementary Cementitious Materials" of the State Standard Specifications.
 4. Supplementary Cementitious Materials – Slag: Conform to the requirements of Section 90-1.02B(3), "Supplementary Cementitious Materials" of the State Standard Specifications

2.2 CONCRETE MIX

- A. Concrete shall conform to Section 90, "Concrete" of the State Standard Specifications.
- B. Minimum 28-day compressive strength is **4,000 psi**.
- C. Concrete shall contain not less than 564 pounds of cementitious material per cubic yard, except for Cast-in-place Pipe.
- D. Ready-Mixed Concrete: Mix and deliver concrete according to ASTM C94.

2.7 CONSISTENCY

- A. The consistency of the concrete in successive batches shall be determined by slump tests in accordance with ASTM C 143. Unless otherwise specified the slump for all concrete shall be in 4 inches maximum.
- B. Retempering of concrete will not be permitted.

2.8 MIXING AND TRANSPORTING

- A. All concrete shall be mixed in mechanically operated mixers.

- B. Ready-mix concrete shall meet the requirements as to materials, batching, mixing, transporting and placing as specified herein and in accordance with ASTM C94.
- C. Ready-mixed concrete shall be delivered to the site of the work, and discharge shall be completed within one and one-half hours after the addition of the cement to the aggregates or before the drum has been revolved 250 revolutions, whichever is first. If the completion of delivery and discharge exceeds the above requirements, concrete shall be rejected and shall not be used for the project.
- D. Truck mixers shall be equipped with electrically-actuated counters by which the number of revolutions of the drum or blades may be readily verified. The counter shall be of the resettable, recording type, and shall be mounted in the driver's cab. The counters shall be actuated at the time of starting mixers at mixing speeds.
- E. Each batch of concrete shall be mixed in a truck mixer for not less than 70 revolutions of the drum or blades at the rate of rotation designated by the manufacturer of equipment. Additional mixing, if any, shall be at the speed designated by the manufacturer of the equipment as agitating speed. All materials including mixing water shall be in the mixer drum before actuating the revolution counter for determining the number of revolution of mixing.
- F. Each batch of ready-mixed concrete delivered at the job site shall be accompanied by a delivery ticket furnished to the Project Manager.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify requirements for concrete cover over reinforcement.
- B. Verify that anchors, bolts, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

3.2 PREPARATION

- A. [Section 01 70 00 - Execution](#): Requirements for installation preparation.
- B. Previously Placed Concrete:
 - 1. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent.
 - 2. Remove laitance, coatings, and unsound materials.

- C. In locations where new concrete is doweled to existing work, scan for existing rebar locations, drill the holes 1/4-inch larger than the nominal dowel diameter in existing concrete to avoid existing rebar, clean and prepare the holes in accordance with the anchoring system manufacturer's instructions and thoroughly saturate with water, have all free water removed, and be dried to a saturated surface dry condition, coat the surface of the dowel, place epoxy inside the holes and insert steel dowels as specified per Section 51-1.03E(4) of the State Standard Specification. Cure epoxy at least three (3) days or until the dowels are completely encased in epoxy. Replace dowels that fail to bond or are damaged.
- D. Remove debris and ice from formwork, reinforcement, and concrete substrates.
- E. Remove water from areas receiving concrete before concrete is placed.
- F. Thoroughly moisten forms, subgrade and earth surfaces with water immediately before placing concrete. An approved form release agent may be used in lieu of water for the forms. These surfaces shall be kept moist by frequent sprinkling up to the time of placing concrete thereon. The surface shall be free from standing water, mud and debris at the time of placing concrete.
- G. Hardened concrete surfaces upon or against which concrete is to be placed, are defined as construction joints. The surfaces of horizontal joints shall be given a compacted, roughened surface to a minimum 1/4-inch amplitude for good bond. Before new concrete is placed, the joint surfaces shall be cleaned of all laitance, loose or defective concrete and foreign material. Any water shall be removed from the surface of construction joints before the new concrete is placed.
- H. Interruptions in placing concrete will not be allowed without the written approval of the City. The Contractor shall submit its proposed method of joint construction to the City for review and approval. When interruption of concrete placement operations has been approved the working face shall be given a shape by the use of forms or other means, that will secure proper union with subsequent work.
- I. All reinforcement, anchor bolts, sleeves, inserts and similar items shall be set and secured in the forms where shown on the Drawings or by shop drawings and shall be acceptable to the City before any concrete is placed. Accuracy of placement is the responsibility of the Contractor.
- J. No concrete shall be placed in any structure until all water entering the space to be filled with concrete has been properly cut off or has been diverted by pipes, or other means, and carried out of the forms, clear of the work. No concrete shall be deposited underwater nor shall the Contractor allow still water to rise on any concrete until the concrete has attained its initial set. Water shall not be permitted to flow over the surface of any concrete in such manner and at such velocity as will injure the surface finish of the concrete. Pumping or other necessary

dewatering operations for removing ground water, shall be the responsibility of Contractor.

- K. Anchor bolts shall be accurately set and shall be maintained in position by templates while being embedded in concrete.

3.3 PLACING

- A. Placing of concrete shall conform to the requirements of Section 51-1.03D, "Placing Concrete", of the State Standard Specification and the requirements of this Section. All concrete which does not conform to the requirements of this Section shall be removed from the work.
- B. Concrete shall not be dropped through reinforcement steel into any form deeper than three (3) feet. In such cases, hoppers and, if necessary, vertical ducts of canvas, rubber or metal shall be used for placing concrete. In no case shall the free fall of concrete exceed three (3) feet below the ends of ducts, chutes or buggies.
- C. Concrete in forms shall be deposited in uniform horizontal layers not deeper than 2 feet and care shall be taken to avoid inclined layers. Each layer shall be placed while the previous layer is still soft. The surface of the concrete shall be level whenever a run of concrete is stopped. The temperature of concrete when it is being placed shall be in conformance with [Section 32 13 13 - Concrete Surface Improvements](#) of the City Standard Specifications.

3.4 PUMPING OF CONCRETE

- A. If the pumped concrete does not produce satisfactory end results as determined by the Project Manager, the Contractor shall discontinue the pumping operation and proceed with the placing of concrete using conventional methods.

3.5 CONSOLIDATION

- A. As concrete is placed in the forms or in excavations, it shall be thoroughly settled and compacted in general conformance with Section 51-1.03D, "Placing Concrete," of the Caltrans Standard Specifications.

3.6 FINISHING CONCRETE SURFACES

- A. Exposed surfaces shall be free from fins, bulges, ridges, offsets, honeycombing, or roughness of any kind, and shall present a finished, smooth, continuous hard surface.

- B. No treatment is required after form removal except for curing, repair of defective concrete and treatment of surface defects.
- C. After proper and adequate vibration and tamping, all exposed un-formed surfaces of pads and slabs, shall be brought to a uniform surface with suitable tools. The finish for all unformed concrete surfaces shall be a soft broom finish.

3.7 CURING

- A. All exposed concrete top surfaces of pads, shall be cured in conformance with [Section 32 13 13 - Concrete Surface Improvements](#) of the City Standard Specifications.

3.8 PROTECTION

- A. The Contractor shall protect all concrete against injury until final acceptance by the City. Holes left by form-tying and other minor imperfections as defined herein shall be repaired in an approved manner with cement grout in conformance with [Section 03 60 00 - Grouting](#).

3.9 FIELD QUALITY CONTROL

- A. [Section 01 45 00 - Quality Control](#): Requirements for inspecting and testing.
- B. Patching:
 - 1. Allow Project Manager to inspect concrete surfaces immediately upon removal of forms.
 - 2. Honeycombing or Embedded Debris in Concrete:
 - a. Not acceptable.
 - b. Notify the Project Manger upon discovery.
 - 3. Patch imperfections according to ACI 301 when directed by the Project Manager.
- C. Defective Concrete:
 - 1. Description: Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements.
 - 2. Repair or replacement of defective concrete will be determined by the Project Manager.
 - 3. Do not patch, fill, touch up, repair, or replace exposed concrete except upon express direction of the Project Manager for each individual area.

END OF SECTION 03 30 00

SECTION 03 40 00 – MECHANICALLY STABILIZED EARTH RETAINING WALL**PART 1 - GENERAL**

1.1 SUMMARY

- A. Mechanically Stabilized Earth Wall (MSEW) shall consist of constructing a compacted aggregate base leveling pad and placing dry stacked concrete wall units with unit fill in conjunction with compacted SRW backfill stabilized by horizontal layers of geogrid reinforcement. Segmental Retaining Wall shall conform to details shown on the plans, as specified in Section 19 “Earthwork” of the Standard Specifications, these special provisions, and as directed by the Engineer.
- B. Related Sections
 - 1. Section 01 01 00 – Develop Site Access and Staging Area
 - 2. Section 01 50 01 – Temporary Silt Fence
 - 3. Section 02 41 00 – Demolition
 - 4. Section 03 30 00 – Utility Cast-in-Place Concrete
 - 5. Section 03 50 00 – Shoring Pile
 - 6. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
 - 7. Section 31 05 14 – Geogrid
 - 8. Section 31 07 00 – Temporary Fiber Roll
 - 9. Section 31 08 00 – Bonded Fiber Matrix
 - 10. Section 31 09 00 – Permeable Material
 - 11. Section 31 10 00 – Mechanically Stabilized Embankments
 - 12. Section 31 23 16 – Utility Trenching
 - 13. Section 33 41 13 – Storm Drainage Piping
 - 14. Section 33 41 20 – Geocomposite Drain

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

A. Segmental Block Retaining Wall

1. Basis of Measurement: The MSEW will be measured and paid for by the square foot of projected wall facing. The square foot area for payment will be based on the height and length as shown on the plans and any additional area as directed by the Engineer. The height will be taken as the difference in elevation on the outer face from the bottom of the lowest block to the top of the uppermost block.
2. Full compensation for placing and compacting MSEW backfill and placing geogrid reinforcement shall be included in the price bid for the other various items of work involved, and no additional compensation will be made therefor.
3. Basis of Payment: The Contract price paid per square foot (SQFT) for the bid item, "Mechanically Stabilized Earth Wall Blocks," shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals and for doing all work associated with this item as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.
4. No additional payment shall be made for wall heights greater than shown on the plans.

1.3 REFERENCES

A. State Standard Specifications:

1. Section 19 Earthwork
2. Section 20 Landscape
3. Section 21 Erosion Control
4. Section 26 Aggregate Bases
5. Section 47 Earth Retaining Systems
6. Section 49 Piling
7. Section 51 Concrete Structures
8. Section 52 Reinforcement
9. Section 60 Existing Structures
10. Section 64 Plastic Pipe
11. Section 68 Subsurface Drains
12. Section 89 Aggregate
13. Section 90 Concrete
14. Section 96 Geosynthetics

PART 2 - PRODUCTS**2.1 MATERIALS****A. Wall Units**

1. Wall units shall be machine-formed precast concrete blocks specifically designed for retaining wall applications
2. Wall units shall meet the following architectural requirements:
 - a. Color of units shall be tan.
 - b. Finish of units shall be split-faced.
 - c. Units shall be erected with a running bond configuration.
3. Wall units shall meet the following structural requirements:
 - a. Wall unit concrete shall have a minimum 28-day compressive strength of 3,000 psi in accordance with ASTM C90. The concrete shall have adequate freeze/thaw protection with a maximum moisture absorption rate of 8% by weight.
 - b. units shall have a mechanical interlocking mechanism between adjacent units, such as formed lips, pins, or keys that will resist horizontal movement normal to the wall. Units shall interlock to provide a minimum shear capacity between units of $V_u = 5.8 \text{ kN}$ and $\phi_u = 30\phi$ as tested in accordance with NCMA (National Concrete Masonry Association) SRWU-2.
4. Wall units shall meet the following constructability and geometric requirements:
 - a. Units shall be capable of attaining convex and concave curves and/or corners.
 - b. Units shall be positively engaged to the units below so as to provide the wall batter as shown on the plans.
 - c. Standard units shall have a minimum depth of 20 inches measured from the front face of the unit to the furthest extension of the rear of the unit. Cap units shall have a nominal depth of 12 inches measured from the front face of the unit to the furthest extension of the rear of the unit.
 - d. All units shall be clean, sound, and free of cracks, excessive chipping, or other defects that would interfere with the proper placement of the unit or significantly impair the strength or performance of the construction.

B. Leveling Pad Material

1. Material for the leveling pad shall consist of Class 2 Aggregate Base.

C. Wall Unit Fill Material

1. Material for the wall unit fill shall consist of Class 4 Permeable Material. Class 4 permeable material for the wall unit fill shall consist of hard, durable, clean gravel, or crushed stone, and shall be free of organic material, clay balls, or other deleterious materials. Class 3 permeable material shall conform to the following grading requirements:

Class 4 Permeable Material Gradation Requirements

Sieve size	Percentage passing
2"	100
1-1/2"	95-100
3/4"	50-100
3/8"	15-55
No. 4	0-25
No. 8	0-5
No. 100	0

D. MSEW Backfill Material

1. SRW backfill material shall be free of organics or other deleterious material and shall conform to the following:
 - a. Plasticity Index shall be less than or equal to 10 as determined by California Test Method 204.
 - b. Angle of internal friction shall be a minimum of 32 degrees as determined by a remolded shear test or triaxial compression test (California Test Method 230).
 - c. Soil pH shall be between 3 and 9 as determined by California Test Method 643.
 - d. Gradation shall be determined by California Test Method 202 and shall meet the following requirements:

Sieve size	Percentage passing
3"	100
No. 4	35-100
No. 30	20-100

E. Geogrid Reinforcement

1. Geogrid reinforcement material shall be designed for use in subsurface embankment reinforcement applications and have a regular and defined open area. Geogrid reinforcement shall obtain pullout resistance from the soil by a combination of soil shearing friction on the plane surfaces parallel to the direction of shearing and soil bearing on transverse grid surfaces normal to the direction of grid movement. The percentage of the open area for geogrid reinforcement shall not vary from the range of 50 to 90 percent of the total projection of a section of the material. Geogrid reinforcement shall consist of high density polyethylene or high tenacity polyester yarn configured into a grid and shall meet one of the applicable material requirements below:

- a. Geogrid reinforcement shall be manufactured from high density polyethylene (HDPE) which conforms to ASTM D 1248 or
 - b. Geogrid reinforcement shall be manufactured from high tenacity polyester yarn as determined by ASTM D 629 and shall be encapsulated in an acrylic latex coating or similar.
2. Geogrid reinforcement shall meet the following strength and durability requirements:
 - a. Long Term Design Strength (LTDS) for geogrid reinforcement shall be equal to or greater than values shown on the plans as determined in accordance with the requirements for geogrid reinforcement included in the Federal Highway Administration Publication No. FHWA-NHI-00-043 titled, "Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines." LTDS for geogrid reinforcement are minimum average roll values.
 - b. Geogrid shall be resistant to naturally occurring alkaline and acidic soil conditions, and to attack by bacteria.
 3. Geogrid reinforcement shall be handled and stored in accordance with the manufacturer's recommendations and these special provisions. Geogrid reinforcement shall be furnished in an appropriate protective cover which shall protect it from ultraviolet radiation and abrasion during shipping and handling and shall remain in said cover until installed. Only as much geogrid reinforcement shall be placed as can be covered with backfill in the same work shift.

F. Filter Fabric

1. Filter fabric shall conform to the requirements in Section 88, "Engineering Fabrics," of the Standard Specifications and these special provisions. Filter fabric shall type shall be for underdrains.

G. Certification

1. A. The Engineer shall be furnished a Certificate of Compliance according to the provisions found in Section 6-1.07, "Certificate of Compliance," of the Standard Specifications for the wall units and geogrid reinforcement supplied for the project within two weeks after the award of the contract. The Certificate of Compliance shall be prepared and signed by representative(s) of the manufacturer(s) who are registered Civil Engineers. The certificate, as a minimum, shall include the following:
 - a. 1. A copy of these Special Provisions and the relevant Retaining Wall sheets of the contract plans.
 - b. 2. A statement that the wall units and geogrid reinforcement meet the requirements of this specification.
 - c. 3. Test results which contributed to the determination of the LTDS. All test results which contributed to the determination of the LTDS shall be reviewed and signed by a registered Civil Engineer.

PART 3 - PART III CONSTRUCTION**3.1 EXECUTION****A. Foundation**

1. The foundation for the Segmental Retaining Wall shall be excavated to the lines and grades shown on the plans. Relative compaction of not less than 95% relative compaction and within plus or minus 2 percentage points of the optimum moisture shall be obtained in the foundation to a minimum depth of 6 inches. Any subgrade soil determined to be unsuitable shall be removed and replaced as directed by the Engineer.

B. Leveling Pad

1. The leveling pad shall be prepared after the subgrade soils have been approved by the Engineer. Class 2 Aggregate Base Material shall be placed to the dimensions, 95% relative compaction and within plus or minus 2 percentage points of the optimum moisture, as shown on the plans. The finished surface of the leveling pad shall be smooth and devoid of any significant bumps or irregularities greater than 1/4 inch. The leveling pad should be level from front to back and between steps along the length of the retaining wall.

C. Unit Placement

1. The first course of wall units shall be placed on the leveling pad such that the units are in full contact with the pad. The units shall be checked for level and alignment. Unit fill material shall be placed in and behind the wall units. All unit fill material and debris shall be cleaned from the top of units prior to the installation of the next course. The Contractor shall ensure that each course is completely filled prior to proceeding to the next course. The uppermost row of wall units (caps units) shall be glued to the underlying units with adhesive conforming to Standard Specification 95-2.01.

D. Geogrid Placement

1. Geogrid reinforcement shall be handled and placed in accordance with the manufacturer's recommendations. The geogrid reinforcement shall be laid horizontally at the elevation specified on the plans, on smoothly compacted fill. The geogrid shall be placed such that the direction of the required tensile strength (LTDS) is oriented perpendicular to the retaining wall layout line. Overlapping of geogrid reinforcement shall not be allowed. The grade to receive the layer of geogrid reinforcement shall conform to the compaction requirements shown on the plans and elevation tolerances described in the Standard Specifications and shall be free of loose or extraneous material and objects that may damage the reinforcement during installation.
2. The geogrid shall be attached to the wall units as recommended by the manufacturer and approved by the Engineer. The geogrid reinforcement

shall be pulled taut, aligned, and placed in a wrinkle-free manner. Slack in geogrid reinforcement shall be removed in a manner, and to such a degree, as approved by the Engineer. Geogrid reinforcement shall be secured in place with staples, pins, sand bags, or backfill material as required by construction conditions, weather conditions, or as directed by the Engineer to prevent the displacement of the geogrid reinforcement during compaction and placement of the fill material.

3. During spreading and compacting of the backfill material, equipment or vehicles shall not be operated or driven directly on the geogrid reinforcement. At least 6 inches of backfill material shall be maintained between the geogrid reinforcement and the Contractor's equipment. Only lightweight compaction equipment shall be allowed within 3 feet of the wall face. If the geogrid reinforcement is damaged during construction operations, the entire damaged section or sections shall be removed and placed at the Contractor's expense.

3.2 COMPACTION

- A. The various materials used in the Segmental Retaining Wall shall be compacted to the relative compaction shown on the plans and within plus or minus 2 percentage points of the optimum moisture content according to ASTM D-1557

END OF SECTION 03 40 00

SECTION 03 50 00 – SHORING PILE (30”)**PART 1 - GENERAL**

1.1 SUMMARY

- A. Cast-In-Drilled-Hole (CIDH) concrete pile work shall conform to the provisions of Section 49, “Piling,” of the Standard Specifications and these Special Provisions.

Work shall include, but not be limited to, drilling of holes, removal and disposal of drilling spoils including tree roots that may be encountered, furnishing and installing reinforcement steel, and concrete backfill.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

- A. Shoring Pile (30”)
1. Basis of Measurement: Shoring Piles will be measured by the linear foot as determined from the dimensions shown on the Plans adjusted by the amount of any change ordered by the Engineer.
 2. Basis of Payment: The Contract price bid per linear foot (LF) for the bid item “SHORING PILE (30-inch)” shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals and for doing all work associated with this item as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

1.3 REFERENCES

- A. State Standard Specifications:

1. Section 49 – Piling

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.
- C. Pile Installation Plan
1. Concrete mix design, certified test data, and trial batch reports
 2. Drilling or coring methods and equipment
 3. Proposed method for casing installation and removal, if necessary

4. Methods for placing, positioning, and supporting bar reinforcement.
 5. Methods and equipment for determining:
 - a. 5.1. Depth of concrete
 - b. 5.2. Theoretical volume of concrete to be placed, including the effects on volume if casings are withdrawn
 - c. 5.3. Actual volume of concrete placed
 6. Methods and equipment for verifying the bottom of the drilled hole is clean before placing concrete
 7. Methods and equipment for preventing upward movement of reinforcement, including the means of detecting and measuring upward movement during concrete placement operations
 8. Drilling plan and sequence
 9. Concrete sequence and placement plan
- D. If plastic spacers are proposed for use, submit the manufacturer's data and a sample of the plastic spacer. Allow 10 days for the review.

PART 2 - PRODUCTS

2.1 SPACERS

1. Spacers must comply with section 52-1.03D, except you may use plastic spacers.
2. Plastic spacers must:
 - a. Comply with sections 3.4 and 3.5 of the Concrete Reinforcing Steel Institute's Manual of Standard Practice
 - b. Have at least 25 percent of their gross plane area perforated to compensate for the difference in the coefficient of thermal expansion between the plastic and concrete
 - c. Be of commercial quality

2.2 CONCRETE

2.3 STEEL REINFORCEMENT

PART 3 - EXECUTION

3.1 PRECONSTRUCTION MEETING

1. Schedule and hold a preconstruction meeting for CIDH concrete pile construction (1) at least 5 business days after submitting the pile installation plan and (2) at least 10 days before the start of CIDH concrete pile construction. You must provide a meeting facility.

2. The meeting must include the Engineer, your representatives, and any subcontractors involved in CIDH concrete pile construction.
3. The purpose of this meeting is to:
 - a. Establish contacts and communication protocol between you and your representatives, any subcontractors, and the Engineer
 - b. Review the construction process, acceptance testing, and anomaly mitigation of CIDH concrete piles
4. The Engineer conducts the meeting. Be prepared to discuss:
 - a. Pile placement plan, dry and wet
 - b. Acceptance criteria, including concrete strength, diameter, plumbness, clear cover, etc.
 - c. Pile Design Data Form
 - d. 4. Mitigation process
 - e. 5. Timeline and critical path activities

3.2 GENERAL

- A. Unless otherwise authorized, drilling the hole and placing reinforcement and concrete in the hole must be performed in a continuous operation.

3.3 CONSTRUCTION

A. General

1. Unless otherwise authorized, drilling the hole and placing reinforcement and concrete in the hole must be performed in a continuous operation.
2. Except for CIDH concrete piles for sound walls and retaining walls, you may propose to increase the
3. diameter and revise the pile tip elevation of CIDH concrete piles with a diameter less than 2 feet.
4. For CIDH concrete piles for sound walls and retaining walls, you may propose to increase the diameter of
5. CIDH concrete piles with a diameter less than 2 feet, except pile tip elevations must not be revised.
6. You may construct CIDH concrete piles 24 inches in diameter or larger by excavating and depositing.
7. concrete under slurry.

B. Drilled Holes

1. The axis of the drilled hole must not deviate from plumb more than 1-1/2 inches per 10 feet of length.
2. For CIDH concrete piles with a pile cap, the horizontal tolerance at the center of each pile at pile cut-off is the larger of 1/24 of the pile diameter or 3 inches. The horizontal tolerance for the center-to-center spacing of 2 adjacent piles is the larger of 1/24 of the pile diameter or 3 inches.

3. During excavation, do not disturb the foundation material surrounding the pile. Equipment or methods used for excavating holes must not cause quick soil conditions or cause scouring or caving of the hole.
4. For rock sockets, equipment and drill methods must not result in softened materials on the borehole walls.
5. If slurry is used during excavation, maintain the slurry level at a height required to maintain a stable hole, but not less than 10 feet above the piezometric head.
6. After excavation has started, construct the pile expeditiously to prevent deterioration of the surrounding foundation material from air slaking or from the presence of water. Remove and dispose of deteriorated foundation material, including material that has softened, swollen, or degraded, from the sides and the bottom of the hole.
7. Just before placing reinforcement or concrete, clean the bottom of the hole to remove any loose sand, gravel, dirt, and drill cuttings.
8. If caving occurs or deteriorated foundation material accumulates on the bottom of the hole, clean the bottom of the hole after placing reinforcement and before placing concrete in the hole. You must verify that the bottom of the hole is clean.
9. Remove water that has infiltrated the dewatered hole before placing concrete, as required for dewatered hole. Do not allow fluvial or drainage water to enter the hole.
10. If authorized, to control caving or water seepage, you may enlarge portions of the hole, backfill the hole with slurry cement backfill, concrete, or other material, and redrill the hole to the diameter shown. Backfill material at enlarged piles must be chemically compatible with concrete and steel, be drillable, and have the necessary strength required for the conditions.
11. Dispose of material resulting from placing concrete

C. Reinforcement

1. Reinforcement for CIDH concrete piles with increased diameters and revised tip elevations must comply with the following:
 - a. Size and number of the reinforcing bars and hoops, the percentage of bars required to extend to the pile tip, and the size and pitch of spiral reinforcement must be the same as shown for the original piles.
 - b. Required length of the spiral reinforcement and of any reinforcing bars that do not extend to the pile tip must be at least the length that would have been required for the original specified or ordered tip elevation.
 - c. Diameter of the spiral or hoop reinforcement must remain the same as required for the original pile or may be increased to provide not less than the concrete cover required for the original pile. Provide positive means to ensure that the reinforcement is centered in the pile.
2. Unless otherwise shown, the bar reinforcing steel cage must have at least 3 inches of clear cover measured from the outside of the cage to the sides of the hole or casing.
3. Place spacers at least 5 inches clear from any inspection tubes.

4. Place plastic spacers around the circumference of the cage and at intervals along the length of the cage under the manufacturer's instructions.
5. For a single CIDH concrete pile supporting a column:
 - a. If the pile and the column share the same reinforcing cage diameter, this cage must be accurately
 - b. placed as shown
 - c. If the pile reinforcing cage is larger in diameter than the column cage:
 - 1) Maintain a clear horizontal distance of at least 3.5 inches between the two cages, if the
 - 2) concrete is placed under dry conditions
 - 3) Maintain a clear horizontal distance of at least 5 inches between the two cages if the concrete
 - 4) is placed under slurry
 - 5) The offset between the centerlines of the two cages must not exceed 6 inches

END OF SECTION 03 50 00

DIVISION 31 – EARTHWORK

31 05 13	CLEARING AND GRUBBING, AND EARTHWORK
31 05 14	SUBGRADE ENHANCEMENT GEOSYNTHETIC
31 07 00	TEMPORARY FIBER ROLL
31 08 00	BONDED FIBER MATRIX
31 09 00	PERMEABLE FIBER MATRIX
31 10 00	MECHANICALLY STABILIZED EMBANKMENT
31 23 16	UTILITY TRENCHING

SECTION 31 05 13 – CLEARING & GRUBBING, EXCAVATION, AND EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Clearing and Grubbing
2. Excavation
3. Earthwork
4. Grading and Compaction
5. Subsoil materials – Import Fill and Select Fill
6. Topsoil materials.

B. Related Sections:

1. Section 01 01 00 – Develop Site Access and Staging Area
2. Section 01 50 01 – Temporary Silt Fence
3. Section 02 41 00 – Demolition
4. Section 03 30 00 – Utility Cast-in-Place Concrete
5. Section 03 40 00 – Mechanically Stabilized Earth Wall
6. Section 03 50 00 – Shoring Pile
7. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
8. Section 31 05 14 – Geogrid
9. Section 31 07 00 – Temporary Fiber Roll
10. Section 31 08 00 – Bonded Fiber Matrix
11. Section 31 09 00 – Permeable Material
12. Section 31 10 00 – Mechanically Stabilized Embankments
13. Section 31 23 16 – Utility Trenching
14. Section 33 41 13 – Storm Drainage Piping
15. Section 33 41 20 – Geocomposite Drain

16. Project Geotechnical report; borehole locations and findings of subsurface materials if applicable.
17. Project Geotechnical report; bore hole locations and findings of subsurface materials if applicable.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

A. Clearing and Grubbing:

1. Basis of Measurement: The bid item "Clearing and Grubbing" will be measured by the acre (ACRE) determined from the dimensions shown on the Plans adjusted by the amount of any change ordered by the Engineer.
2. Basis of Payment: The contract price bid per acre (ACRE) for the bid item "Clearing and Grubbing" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in clearing and grubbing as shown on the plans, as specified and as directed by the Project Manager, including the removal and disposal of all the resulting material.
 - a. When the Contract does not include a pay item for Clearing and Grubbing and removal work, as specified above, and unless noted otherwise in the Technical Specifications, full compensation for any necessary Clearing and Grubbing and removal work shall be considered as included in the unit price paid for the type of earthwork involved, and no additional compensation will be allowed therefor.

B. Structure Excavation

1. Basis of Measurement: The bid item "Structure Excavation" is a final pay item as defined in Section 9-1.015, "Final Pay Items," of the Standard Specifications. The quantity of structure excavation shall be measured for payment by the cubic yard (CY) determined from the amount set forth on the Bidding Sheet.

Basis of Payment: The Contract price bid per cubic yard (CY) for the bid item "Structure Excavation" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work associated with this bid item (including, but not limited to, structure excavation, re-use suitable excavated materials on-site, off haul, disposal, import backfill materials, structure backfill, spreading, moisture conditioning and compacting to the finished grade lines as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

1.3 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. City of Pittsburg - Environmental Services Department
- C. ASTM International:
 - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).
 - 2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).
 - 3. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- D. California Building Code – Appendix J - Grading
- E. State Standard Specifications:
 - 1. Section 19 Earthwork
 - 2. Section 20 Landscape
 - 3. Section 21 Erosion Control
 - 4. Section 26 Aggregate Bases
 - 5. Section 47 Earth Retaining Systems
 - 6. Section 49 Piling
 - 7. Section 51 Concrete Structures
 - 8. Section 52 Reinforcement
 - 9. Section 60 Existing Structures
 - 10. Section 64 Plastic Pipe
 - 11. Section 68 Subsurface Drains
 - 12. Section 89 Aggregate
 - 13. Section 90 Concrete
 - 14. Section 96 Geosynthetics

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Samples: Submit results of the soil samples by a certified testing laboratory prior to importing onto the site for approval by the Project Manager.
- C. Materials Source: Submit name of imported materials source.
- D. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Furnish each subsoil material from single source throughout the Work.

PART 2 - PRODUCTS

2.1 SUSTAINABILITY CHARACTERISTICS

- A. Materials and Resources Characteristics:
 - 1. Regional Materials: Furnish materials extracted, processed, and manufactured within 250 miles of jobsite.

2.2 SUBSOIL MATERIALS

- A. Select Fill Material:
 - 1. Subsoil material is on-site excavated material meeting the requirements of the appurtenant Geotechnical Report.
 - 2. Graded
 - 3. Non-hazardous
 - 4. Free of lumps larger than three (3) inches, rocks larger than two (2) inches, organic matter, frozen or other deleterious materials and debris.
 - 5. Selected material encountered in excavation within the right of way shall be used for finishing the top portion of the roadbed, constructing shoulders, structure backfill; as shown on the Drawings; as specified in the Technical Specifications, or as directed by the Project Manager.

- B. Import Fill Material:
 - 1. Subsoil material imported from sources outside the project site meeting the requirements of the appurtenant Geotechnical Report.
 - 2. Graded
 - 3. Non-hazardous
 - 4. Free of lumps larger than three (3) inches, rocks larger than two (2) inches, organic matter, frozen or other deleterious materials and debris.
 - 5. Unless otherwise specified, the Contractor shall obtain from the owners the right to procure material, pay all royalties and other charges involved, and bear all expense of developing the sources, including rights of way for hauling.
 - 6. No import fill material shall be delivered to the site until approved by the Project Manager. Approval of import fill material shall be based on the testing of representative samples submitted by the contractor meeting the appurtenant Geotechnical Report and approved by the Project Manager. Such representative samples shall be submitted to the Project Manager not less than 15 days prior to commencing the work.

7. Imported fill, delivered to the site, that significantly differs from the submitted samples shall be subject to rejection. Rejected materials shall be removed from the site at the Contractor's expense
8. Approval of a particular import fill material shall constitute approval of only that portion of the proposed borrow source represented by the submitted sample.
10. Except as otherwise permitted, borrow pits and other excavation areas shall be excavated in such manner as will afford adequate drainage. Overburden and other spoil material shall be transported to designated spoil areas or otherwise disposed of as directed, local borrow pits shall be neatly trimmed and left in such shape as will facilitate accurate measurement after the excavation is completed.

2.3 FILL MATERIALS:

The following import fill parameters may be used for small City sidewalk and pavement rehabilitation projects; or for site improvements less than 5,000 square feet excluding any buildings or structures and do not have a geotechnical report included:

- A. Fill material shall conform to the following as determined by ASTM C 117 and ASTM C 136:
 1. Maximum particle size 3 inches
 2. Percent passing 1-inch sieve 90-100 percent
 3. Percent passing No. 200 sieve less than 20 percent
- B. Imported non-expansive fill shall consist of a well-graded, slightly cohesive soil with relatively impervious characteristics when compacted.
- C. Plasticity Index for acceptable import fill materials shall be a maximum of 15 when determined by the procedure set forth in ASTM D 4318.
- D. The liquid limit shall not exceed 40 percent as determined by the procedures set forth in ASTM D 4318.
- E. Import fill material shall have an R-value of 25 or greater as determined by ASTM D 2844.

2.4 TOPSOIL MATERIALS

- A. Topsoil shall be imported top soil as specified in [Section 32 90 00 "Landscape Work"](#) and Project Specifications.
- B. Topsoil excavated within the limits of the project meeting the requirements shown in Section 32 90 00, "Landscape Work", and as shown in the Project

Specifications will be considered as a material only for the purpose of backfilling areas to be planted.

2.5 SOURCE QUALITY CONTROL

- A. [Section 01 45 00 – Quality Control](#): Testing and Inspection Services Testing and analysis of soil material.
- B. Testing and Analysis of Subsoil and Topsoil Materials: Perform in accordance with ASTM D698, ASTM D1557, and AASHTO T180.
- C. When tests indicate materials do not meet specified requirements, provide alternate materials and retest.
- D. Furnish materials of each type from same source throughout the Work.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Call USA not less than three (3) working days before performing Work that can be marked by USA in a timely manner.
- B. Request underground utilities to be located and marked within and surrounding construction areas.
- C. Identify required lines, levels, contours and datum.
- D. Notify utility companies to remove and relocate utilities where shown on the Drawings.
- E. Protect utilities indicated to remain from damage.
- F. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- G. Protect benchmarks or monuments, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- H. The ground shall be prepared to received select fill by removing vegetation, topsoil and other unsuitable materials, scarifying the ground to provide a bond with the fill material, and compacting the fill at optimum moisture content.

3.2 CLEARING AND GRUBBING

- A. Clearing and grubbing shall be per Section 17-2, "Clearing and Grubbing", of the State Standard Specifications.
- B. Clear and grub before performing earthwork in an area.
- C. Do not injure standing trees, plants, and improvements shown to be protected.
- D. Clear and grub the entire length of the job site to the following widths:
 - 1. 5 feet outside of excavation and embankment slope lines where slopes are not rounded
 - 2. Outside limits of slopes where slopes are rounded
 - 3. 5 feet outside of structures
 - 4. 2 feet outside of slope lines for ditches and channels with a bottom width of less than 12 feet
 - 5. 5 feet outside of slope lines for ditches and channels with a bottom width of 12 feet or more
- E. Clearing and grubbing shall consist of removing all objectionable material from within the limits of the project. The limits of clearing and grubbing shall be of sufficient area and depth to complete the work shown on the Drawings or as described herein in.
- F. Clear all construction areas above original ground of the following to a minimum depth of eight (8) inches below subgrade or eight (8) inches below original ground, or as required by the appurtenant geotechnical report, whichever is lower:
 - 1. all vegetation such as trees, logs, upturned stumps, roots of downed trees, brush, grass, and weeds and
 - 2. other objectionable material including concrete, masonry, and debris.
- G. No burning of materials is allowed.
- H. The site shall be stripped and cleared of all vegetation, debris, and organic-laden top soil as required by the appurtenant Geotechnical Report.
- I. Trees within the limits of work including any traffic control work beyond the limits of work and within the area of influence shall be evaluated by the City or; a City approved Landscape Architect or certified Arborist to assess protection measures. No trees will be removed until they have been tagged, numbered and a written release for the tree has been issued by the City.
- J. Tree which are designated to be removed, shall be excavated and removed 30" down to remove the tree trunk, roots, and backfill with fill material and compact as required in this section, unless specified otherwise on the Drawings.

- K. Grub all construction areas to a depth of at least 0.50 feet, necessary to remove all existing tree stumps, roots, buried logs and other objectionable material, unless noted otherwise on the Plans. In embankment areas where the grading plane is 2 feet or more above original ground, cut off trees, stumps, and roots not more than 1 foot above original ground, except, remove trees, stumps, and roots completely where work includes any of the following:
1. Structure construction
 2. Pile construction
 3. Subdrainage trench excavation
 4. Removal of unsuitable material
 5. Cutting into slopes of original hillsides, old or new fill
 6. Utility line construction

3.3 EXCAVATION

- A. Work under this section shall consist of performing all operations necessary to excavate earth and rock, regardless of character and subsurface conditions, from the roadway prism or adjacent thereto, to excavate all materials, of whatever nature, necessary for the construction of foundations for structures and other facilities; to excavate drainage and irrigation ditches; to excavate drainage channels; to excavate selected material and import material for use as specified; to construct embankments including the placing of selected fill or import fill material in connection therewith as specified; to place backfill for structures, and other facilities; to backfill trenches and depressions resulting from the removal of obstructions; to backfill holes, pits and other depressions; to remove and replace unsuitable material; to excavate and grade road approaches, driveways, sidewalks, curb ramps, curb and gutters, plazas, parking lots, and connections; to construct protection dikes; to remove unstable material, slide material which has come into the graded area, and material which has slipped from embankments; all as shown on the plans and as specified in these Specifications and the Technical Specifications and as directed by the Project Manager; and furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work that may be required to construct and maintain the project facilities, except excavation, trenching and backfilling for pipe, culverts, utility systems, and other subsurface pipes. Excavation, trenching and backfilling for pipe, culverts, utility systems, and other subsurface pipes is specified in [Section 31 23 16 – Utility Trenching](#) of the City Standard Specifications.
- B. Excavate subsoil and topsoil from areas designated. Strip topsoil to full depth of topsoil in designated areas.
- C. Stockpile excavated material meeting requirements for subsoil fill materials and topsoil materials approved by the Project Manager.

- D. If practicable and unless processing of material is required, haul selected material directly from the excavation to its final position in the roadway prism and compact it in place.
- E. Excavate to the described or authorized grade. If the Contractor over excavates, backfill with an authorized material and compact it at the Contractor's own expense.
- F. Do not excavate wet subsoil unless directed by the Project Manager.
- G. The temporary slope of cut surfaces shall be no steeper than is safe for the intended use, and shall not be more than one-unit vertical in two units horizontal (50-percent slope) unless approved by the Project Manager or appurtenant geotechnical report.
- H. Archaeological Resources: Contractor shall conform to Section 14, "Environmental Stewardship", of the State Standard Specifications. If archaeological resources are discovered within or near construction limits, do not disturb the resources and immediately:
 - 1. Stop all work within a 60-foot radius of the discovery
 - 2. Secure the area
 - 3. Notify the Project Manager.
- I. City will investigate the discovery. Do not move archaeological resources or take them from the job site. Do not resume work within the radius of discovery until authorized.
- J. Environmentally Sensitive Areas (ESA): If an ESA is shown on the Drawings, the boundaries are approximate. Do not enter an ESA unless authorized. If an ESA is breached, immediately:
 - 1. Stop all the work within 60 feet of the ESA boundary
 - 2. Secure the area
 - 3. Notify the Project Manager

If an ESA is damaged, the Project Manager determines the necessary remediation and the party to perform the work. The City deducts the cost for this work from the Contractor bid price.
- K. Notify the Project Manager when buried man-made objects are encountered in an excavation as part of the excavation work and wait for direction from Project Manager unless shown on the plans for removal. All surplus material shall be disposed offsite.
- L. Remove excess excavated materials, subsoil and topsoil not intended for reuse, from site.

- M. Remove excavated materials not meeting requirements for subsoil materials and topsoil materials from site.
- N. When hauling is done over highways or City streets, and when directed by the Project Manager the loads shall be trimmed and all material removed from shelf areas of vehicles in order to eliminate spilling of material. If directed by the Project Manager, the loads shall be watered down or covered after trimming to eliminate dust.
- O. Excavation shall include the satisfactory removal and disposition of all materials not classified as rock excavation.
- P. Earth and rock, regardless of character and subsurface conditions, shall be excavated to the lines and grades as established by the plans.
- Q. All existing materials that are designated to be salvaged shall be removed, cleaned and hauled to the City Corporation Yard, unloaded and stockpiled, by the Contractor unless otherwise directed by the Project Manager.
- R. Existing pipes to be abandoned shall be filled with slurry, minimum of thirty (30) feet from either ends of the pipe and capped with concrete at the ends.
- S. Existing structures, pavement slabs, and structural sections to be abandoned shall be demolished to an elevation three (3) feet below finished grade, unless specified otherwise on the Drawings. The bottom (if any remains) shall be broken thoroughly to prevent entrapment of water and all voids backfilled with suitable backfill.
- T. Operations shall be conducted in such a manner that existing street, facilities, utilities, railroad tracks and other non-street facilities which are to remain in place will not be damaged.
- U. The Contractor, at his expense, shall furnish and install sheet piling, cribbing, bulkheads, shores or whatever means may be necessary to adequately support material carrying such facilities, or to support the facilities themselves, and shall maintain such supports until they are no longer needed. Temporary pavements, facilities, utilities and installations shall also be protected until they are no longer required. When temporary supports and other protective means are no longer required, they shall become the property of the Contractor and shall be removed and disposed of from the job site.
- V. Prior to placing import fill material, all areas to receive fill shall be scarified and compacted. Unless otherwise stated in the appurtenant Geotechnical report, the area shall be scarified to a minimum of eight (8) inches, material shall be moisture conditioned by wetting or drying to optimum moisture content, and compacted.

3.4 ROCK EXCAVATION

- A. Rock excavation shall include excavating, grading, and disposing of materials classified as rock and shall include the satisfactory removal and disposition of rock 1/2 cubic yard or more in volume.
- B. No blasting is allowed.

3.5 GRADING

- A. Grading shall consist of placing fill materials on site to contours and elevations with select fill or import fill materials.
- B. Place fill material in continuous layers of maximum lifts of 8 inches (0.67 feet) and compact in accordance with schedule shown in this section, unless otherwise shown on the appurtenant Geotechnical Report.
- C. Maintain optimum moisture content of fill materials to attain required compaction density.
- D. Construct slopes to the lines and grades shown on the Drawings.
- E. Slope grade away from the building minimum 2% slope for a minimum distance of 10 feet, unless noted otherwise.
- F. Make grade changes gradual. Blend slopes into level areas.
- G. Round the tops of excavation slopes and ends of excavation.
- H. Maintain completed slopes. Repair any slopes damaged by erosion.
- I. Repair or replace items indicated to remain that are damaged by excavation or filling.
- J. Identify any site low points which need positive drainage and make adjustments with approval from Project Manager prior to pouring concrete.
- K. Protection of existing slopes using erosion control measures as required in [Section 01 57 23 – Storm Water Pollution Prevention](#).

3.6 TOLERANCES

- A. [Section 01 45 00 – Quality Control](#): Tolerances.
- B. Immediately before placing subsequent layers of material, prepare the grading plane such that the grading plane:

1. Does not vary more than 0.05 foot above or below the grade established by the Engineer where Hot Mix Asphalt (HMA) or aggregate base are to be placed.
2. Does not extend above the grade established by the Engineer where concrete base or pavement is to be placed.
3. Beneath structural approach slabs or the thickened portion of sleeper slabs do not extend above the grade established by the Engineer.
4. At any point is within 0.05 foot above the grade established by the Engineer if the material to be placed on the grading plane is paid by the cubic yard.

3.7 COMPACTION

- A. Relative compaction specifications apply to material whether in an excavation or an embankment.
- B. The moisture content of material to be compacted to at least 95 percent must be such that the specified relative compaction is attained, unless specified otherwise in the appurtenant Geotechnical Report.
- C. Compact earthwork to a relative compaction of at least 95 percent for at least a depth of:
 1. 0.5 foot below the grading plane for the width between the outer edges of shoulders
 2. 2.5 feet below the finished grade for the width of the traveled way including any parking lots or other vehicular areas; to extend plus two (2) feet on each side.
- D. All fill material shall be compacted to at least 90 percent of maximum density as determined by ASTM D1557, Modified Proctor, beyond the depth specified above in 3.7.C, unless otherwise shown in the appurtenant Geotechnical Report.

3.8 STOCKPILING

- A. Stockpile materials on site at locations indicated on the plans or as designated by Project Manager.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Prevent intermixing of soil types or contamination.
- E. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

- F. Stockpile unsuitable or hazardous materials on impervious material and cover to prevent erosion and leaching, until disposed of. Dispose unsuitable or hazardous material within 48 hours of removal.

3.9 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.
- B. Leave unused materials in neat, compact stockpile.
- C. When borrow area is indicated, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

3.10 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- C. Protect structures, utilities, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION 31 05 13

SECTION 31 05 14 – SUBGRADE ENHANCEMENT GEOSYNTHETIC

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Geogrid

B. Related Sections:

1. [Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork](#)
2. Project Geotechnical report (if available).

C. Related Sections:

1. Section 01 01 00 – Develop Site Access and Staging Area
2. Section 01 50 01 – Temporary Silt Fence
3. Section 02 41 00 – Demolition
4. Section 03 30 00 – Utility Cast-in-Place Concrete
5. Section 03 40 00 – Mechanically Stabilized Earth Wall
6. Section 03 50 00 – Shoring Pile
7. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
8. Section 31 05 14 – Geogrid
9. Section 31 07 00 – Temporary Fiber Roll
10. Section 31 08 00 – Bonded Fiber Matrix
11. Section 31 09 00 – Permeable Material
12. Section 31 10 00 – Mechanically Stabilized Embankments
13. Section 31 23 16 – Utility Trenching
14. Section 33 41 13 – Storm Drainage Piping
15. Section 33 41 20 – Geocomposite Drain

16. Project Geotechnical report; borehole locations and findings of subsurface materials if applicable.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

A. Geogrid

1. Basis of Measurement: The bid items "Geogrid Reinforcement Type 1" and "Geogrid Reinforcement Type 2" will be measured by the square yard (SQYD) along the ground surface, excluding the quantity for overlaps.
2. Basis of Payment: The contract bid price per square yard (SQYD) for the bid items "Geogrid Reinforcement Type 1" and "Geogrid Reinforcement Type 2" shall include furnishing, storing, maintaining, and placing geogrid layers as shown on the Drawings and as directed by the Engineer.

1.3 REFERENCES

A. State Standard Specifications:

1. Section 19-10 – Subgrade Enhancement Geosynthetic
2. Section 96 - Geosynthetics

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Samples: Submit samples of the geogrid when requested by the Project Manager.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

PART 2 - PRODUCTS

2.1 GEOGRID

- A. Geogrid must be Mirafi Miragrid 3XT manufactured by TenCate, or equivalent.

PART 3 - EXECUTION**3.1 INSTALLATION**

- A. Before placing subgrade enhancement geogrid, remove loose or extraneous material and sharp objects that may come in contact with the geosynthetic material.
- B. Place the geosynthetic:
 - 1. under the manufacturer's instructions,
 - 2. with roll direction perpendicular to slope contours, and
 - 3. without wrinkles.
- C. Overlap the adjacent edges of the rolls at least two (2) feet. Overlap the ends of rolls at least two (2) feet in the direction of spread covering the subgrade enhancement geosynthetic. Geogrid or Geotextile should be extended all the way to the gutter lip.
- D. Fold or cut the geogrid to conform to curves. Overlap any cut material at least two (2) feet. Hold the overlap in place with staples, pins, or small piles of material placed on the subgrade enhancement material.
- E. Make any repairs to the geogrid material by placing a new piece of material over the damaged areas with at least three (3) feet of overlap from the edges of the damaged area.
- F. Compact the aggregate base with either a
 - 1. Smooth wheeled roller with no vibrations
 - 2. Rubber tire roller
- G. Do not stockpile material on the geogrid.
- H. Do not place any geogrid material that cannot be covered on the same day.
- I. Do not operate equipment or vehicles directly on geogrid material unless one of the following conditions are met:
 - 1. Vehicles and equipment are
 - a. Equipped with rubber tires
 - b. Operated under 10 miles per hour
 - c. Operated in a manner to avoid sudden braking and sharp turns
 - 2. At least 0.35 feet of aggregate base had been placed, spread, and compacted on the geogrid.
- J. Do not compact the subgrade geogrid material with a sheepsfoot or other non-smooth roller.

- K. Do not turn vehicles on material placed directly over geogrid material.
- L. Before operating equipment on areas where geogrid material has been placed, spread and compact 0.5 feet of material on the geogrid.

END OF SECTION 31 05 14

SECTION 31 07 00 – TEMPORARY FIBER ROLL**PART 1 - GENERAL**

1.1 SUMMARY

- A. This work includes furnishing, constructing, maintaining, and removing temporary fiber roll.

The SWPPP or WPCP must describe and include the use of temporary fiber roll as a water pollution control practice for sediment control.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

A. Temporary Fiber Roll

1. Basis of Measurement: The bid item "Temporary Fiber Roll (Straw Wattles)" will be measured by the linear foot (LF) along the centerline of the installed roll. Where temporary fiber roll is joined and overlapped, the overlap is measured as a single installed roll.
2. Basis of Payment: The contract price paid per linear foot (LF) for the bid item "Temporary Fiber Roll (Straw Wattles)" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing and maintaining the temporary fiber roll, complete in place, including removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

B. Related Sections:

1. Section 01 01 00 – Develop Site Access and Staging Area
2. Section 01 50 01 – Temporary Silt Fence
3. Section 02 41 00 – Demolition
4. Section 03 30 00 – Utility Cast-in-Place Concrete
5. Section 03 40 00 – Mechanically Stabilized Earth Wall
6. Section 03 50 00 – Shoring Pile

7. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
8. Section 31 05 14 – Geogrid
9. Section 31 07 00 – Temporary Fiber Roll
10. Section 31 08 00 – Bonded Fiber Matrix
11. Section 31 09 00 – Permeable Material
12. Section 31 10 00 – Mechanically Stabilized Embankments
13. Section 31 23 16 – Utility Trenching
14. Section 33 41 13 – Storm Drainage Piping
15. Section 33 41 20 – Geocomposite Drain
16. Project Geotechnical report; borehole locations and findings of subsurface materials if applicable.

1.3 REFERENCES

A. State Standard Specifications:

1. Section 13-10.03B – Temporary Fiber Rolls

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Samples: Submit samples of the silt fence when requested by the Project Manager.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

PART 2 - PRODUCTS

2.1 FIBER ROLL

- A. Type 1 fiber rolls shall not be used. Fiber rolls must last for at least one year after installation.
 1. Type 2 fiber roll must:

2. Be filled with rice or wheat straw, wood excelsior, or coconut fiber,
3. Be covered with a photodegradable plastic netting or a biodegradable jute, sisal, or coir fiber netting,
4. Have the netting secured tightly at each end,
5. Be finished to be either:
6. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 1.1 pounds per linear foot,
7. From 10 to 12 inches in diameter, at least 10 feet long, and at least 3 pounds per linear foot.

B. WOOD STAKES

1. Must be Untreated fir, redwood, cedar, or pine and cut from sound timber,
2. Straight and free of loose or unsound knots and other defects which would render the stakes unfit for use
3. Pointed on the end to be driven into the ground.
4. For fiber roll, wood stakes must be at least 1inch by 2 inches by 24 inches in size for Type 2 installation

C. ROPE

1. Be biodegradable, such as sisal or manila,
2. Have a minimum diameter of 1/4inch

PART 3 - EXECUTION

3.1 INSTALLATION

Before placing fiber roll, remove obstructions including rocks, clods, and debris greater than one inch in diameter from the ground.

If fiber roll is to be placed in the same area as erosion control blanket, install the blanket before placing the fiber roll. For other soil stabilization practices such as hydraulic mulch or compost, place the fiber roll and then apply the soil stabilization practice.

Place fiber roll on slopes at the following spacing unless the plans show a different spacing:

1. 10 feet apart for slopes steeper than 2:1 (horizontal:vertical)
2. 15 feet apart for slopes from 2:1 to 4:1 (horizontal:vertical)
3. 20 feet apart for slopes from 4:1 to 10:1 (horizontal:vertical)
4. 50 feet apart for slopes flatter than 10:1 (horizontal:vertical)

Place fiber roll approximately parallel to the slope contour. For any 20 foot section of fiber roll, do not allow the fiber roll to vary more than 5 percent from level.

B. Install fiber roll by:

1. Securing with rope and notched wood stakes.

2. Driving stakes into the soil until the notch is even with the top of the fiber roll.
3. Lacing the rope between stakes and over the fiber roll. Knot the rope at each stake.
4. Tightening the fiber roll to the surface of the slope by driving the stakes further into the soil.

3.2 MAINTENANCE

Maintain temporary fiber roll to provide sediment holding capacity and to reduce runoff velocities.

Remove sediment deposits, trash, and debris from temporary fiber roll as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Maintain temporary fiber roll by:

- A. Removing sediment from behind the fiber roll when sediment is 1/3 the height of the fiber roll above ground,
- B. Repairing or adjusting the fiber roll when rills and other evidence of concentrated runoff occur beneath the fiber roll,
- C. Repairing or replacing the fiber roll when they become split, torn, or unraveled,
- D. Adding stakes when the fiber roll slump or sag,
- E. Replacing broken or split wood stakes.

Repair temporary fiber roll within 24 hours of discovering damage unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary fiber roll, repair temporary fiber roll at your expense.

The city does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

3.3 REMOVAL

- A. When the Engineer determines that temporary fiber roll is not required, they must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary fiber roll must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

END OF SECTION 31 07 00

SECTION 31 08 00 – BONDED FIBER MATRIX

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Bonded Fiber Matrix.

B. Related Sections:

1. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
2. Section 01 01 00 – Develop Site Access and Staging Area
3. Section 01 50 01 – Temporary Silt Fence
4. Section 02 41 00 – Demolition
5. Section 03 30 00 – Utility Cast-in-Place Concrete
6. Section 03 40 00 – Mechanically Stabilized Earth Wall
7. Section 03 50 00 – Shoring Pile
8. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
9. Section 31 05 14 – Geogrid
10. Section 31 07 00 – Temporary Fiber Roll
11. Section 31 08 00 – Bonded Fiber Matrix
12. Section 31 09 00 – Permeable Material
13. Section 31 10 00 – Mechanically Stabilized Embankments
14. Section 31 23 16 – Utility Trenching
15. Section 33 41 13 – Storm Drainage Piping
16. Section 33 41 20 – Geocomposite Drain

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Bonded Fiber Matrix:

1. Basis of Measurement: The bid item "Bonded Fiber Matrix" will be measured by the acre (ACRE) determined from the dimensions shown on the Plans adjusted by the amount of any change ordered by the Engineer.
2. Basis of Payment: The contract price bid per acre (ACRE) for the bid item "Bonded Fiber Matrix" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, for supplying and placing the bonded fiber material as shown on the Plans and as directed by the Engineer.

1.3 REFERENCES

A. Caltrans Standard Specifications:

1. Section 21-2.02J Bonded Fiber Matrix
2. Section 21-2.03H Bonded Fiber Matrix

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Materials Source: Submit the name of materials suppliers.
- C. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Furnish each aggregate material from a single source throughout the Work.
- B. Perform Work according to City Standards.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Bonded fiber matrix must be a hydraulically-applied material composed of fiber and tackifier and may also include seed and fertilizer as shown.
- B. Fiber for bonded fiber matrix must be 100 percent wood fiber and comply with the specifications for fiber under section 21-2.02D, except that at least 50 percent is retained when passed through a no. 25 sieve.
- C. Tackifier for bonded fiber matrix must:
 - 1. Be bonded to the fiber or prepackaged with the fiber by the manufacturer.
 - 2. Contain a minimum of 10 percent of the combined weight of the dry fiber, activating agents, and additives.
 - 3. Be an organic, high viscosity colloidal polysaccharide with activating agents or a blended hydrocolloid-based binder Class 4 permeable material must consist of sand, gravel, or crushed stone that is hard, durable, and clean.

PART 3 - CONSTRUCTION

3.1 EXECUTION

- A. Apply bonded fiber matrix materials in the locations, rates, and number of applications shown and as follows:
 - 1. Apply fiber-reinforced matrix with hydraulic spray equipment.
 - 2. Apply in successive passes as necessary to achieve the specified application rate.
 - 3. Form a continuous uniform mat with no gaps between the mat and the soil surface as follows:
 - a. Apply in 2 or more directions if necessary.
 - b. Apply in layers as necessary to avoid slumping and aid drying.
 - 4. Start application within 60 minutes after adding seed to the tank.

3.2 WATER

- A. Add water to fiber reinforced matrix as recommended by the manufacturer and mix sufficiently to ensure an even application. A dispersing agent may be added to the mixture if authorized.

3.3 EQUIPMENT

- A. Equipment must have a built-in continuous agitation and discharge system capable of producing a homogeneous mixture and uniform application rate.
- B. The tank must have a minimum capacity of 1,000 gallons. You may use a smaller tank if authorized.

3.4 FIELD QUALITY CONTROL

- A. Not used.

END OF SECTION 31 08 00

SECTION 31 09 00 – PERMEABLE MATERIAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Class 2 Permeable Material.

B. Related Sections:

C. Related Sections:

1. Section 01 01 00 – Develop Site Access and Staging Area
2. Section 01 50 01 – Temporary Silt Fence
3. Section 02 41 00 – Demolition
4. Section 03 30 00 – Utility Cast-in-Place Concrete
5. Section 03 40 00 – Mechanically Stabilized Earth Wall
6. Section 03 50 00 – Shoring Pile
7. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
8. Section 31 05 14 – Geogrid
9. Section 31 07 00 – Temporary Fiber Roll
10. Section 31 08 00 – Bonded Fiber Matrix
11. Section 31 09 00 – Permeable Material
12. Section 31 10 00 – Mechanically Stabilized Embankments
13. Section 31 23 16 – Utility Trenching
14. Section 33 41 13 – Storm Drainage Piping
15. Section 33 41 20 – Geocomposite Drain
16. Project Geotechnical report; borehole locations and findings of subsurface materials if applicable.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Permeable Material:

1. Basis of Measurement: The bid item "Permeable Material CI 2" will be measured by the cubic yard (CY) determined from the dimensions shown on the Plans. No allowance will be made for aggregate rejected or placed outside said dimensions unless otherwise ordered by the Project Manager.
2. Basis of Payment: The Contract price bid per cubic yard (CY) for the bid item "Permeable Material CI 2" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, for supplying and placing permeable material as shown on the Plans and as directed by the Engineer.

1.3 REFERENCES

A. Caltrans Standard Specifications:

1. Section 62-1.02B Class 4 Permeable Material

B. CalRecycle

1. <http://www.calrecycle.ca.gov/ConDemo/Aggregate/>

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Samples: Submit, in air-tight containers, 5 lbs sample of each type of permeable material to the testing laboratory or as required by the City.
- C. Submit permeable material gradation test results and other tests required by the State Standard Specifications.
- D. Materials Source: Submit the name of aggregate materials suppliers.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- F. Field survey and certify the bottom and top of permeable design grades as specified in [Section 01 71 23 - Construction Surveying](#).
- G. Supplier shall submit certification data that permeable material meets the requirements per Caltrans Testing Methods.

1.5 SUSTAINABLE DESIGN SUBMITTALS

- A. Manufacturer's Certificate: Certify products meet or exceed specified sustainable design requirements.

- 1. Materials Resources Certificates:
 - a. Certify source and origin for salvaged and reused products.
 - b. Certify recycled material content for recycled content products.
 - c. Certify source for regional materials and distance from the job site.

1.6 QUALITY ASSURANCE

- A. Furnish each aggregate material from a single source throughout the Work.
- B. Perform Work according to City Standards.

PART 2 - PRODUCTS

2.1 SUSTAINABILITY CHARACTERISTICS

- A. Materials and Resources Characteristics:
 - 1. Recycled Content Materials: Furnish materials with maximum available recycled content.
 - 2. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles of the job site.

2.2 AGGREGATE MATERIALS

- A. Class 4 permeable material must consist of sand, gravel, or crushed stone that is hard, durable, and clean
- B. The material must be free from organic material, clay balls, or other deleterious substances.
- C. The percentage composition by weight of Class 4 permeable material in place must comply with the gradation requirements shown in the following table:

Class 4 Permeable Material Gradation Requirements

Sieve size	Percentage passing
2"	100
1-1/2"	95-100
3/4"	50-100
3/8"	15-55
No. 4	0-25
No. 8	0-5
No. 100	0

D. Class 4 permeable material must have a durability index of not less than 40.

E. EXECUTION

2.3 EXAMINATION

A. Verify compacted subgrade is dry and ready to support paving and imposed loads.

1. Proof roll subgrade with a minimum of two perpendicular passes to identify soft spots unless specified otherwise in the Project Geotechnical Report.
2. Remove soft subgrade and replace with compacted fill unless specified otherwise in the Project Geotechnical Report or as ordered by the Project Manager.

B. Immediately before spreading permeable material, the subgrade must comply with the specified compaction and elevation tolerance for the material involved and be free from loose or extraneous materials.

C. Contractor may use aggregate base to fill areas of the subgrade that are lower than the grade as shown on the Drawings.

2.4 PREPARATION

A. Correct subgrade gradient and elevation irregularities by scarifying, reshaping, and re-compacting.

B. Do not place fill on soft, muddy, or frozen surfaces.

2.5 AGGREGATE PLACEMENT

A. Deposit permeable material in layers or windrows parallel to subdrains.

- B. Permeable material must be free from pockets of coarse or fine material.
- C. At locations inaccessible to spreading equipment, place permeable material by any means that will attain the specified requirements by hand compaction if needed.
- D. Correct areas of permeable material that do not comply with the described thickness.

2.6 TOLERANCES

- A. [Section 01 45 00 - Quality Control](#): Tolerances.
- B. Maximum Variation from Flat Surface: 2 inches measured with a 10-foot straight edge.
- C. Maximum Variation from Thickness: 2-inches.
- D. Maximum Variation from Elevation: 1 inch.

2.7 FIELD QUALITY CONTROL

- A. Not used.

END OF SECTION 31 09 00

SECTION 31 10 00 – MECHANICALLY STABILIZED EMBANKMENT**PART 1 - GENERAL**

1.1 SUMMARY

- A. This work shall consist of placing compacted fill between geosynthetic reinforcement layers in accordance with the details shown on the Plans, as specified in Section 19, "Earthwork," of the Standard Specifications and these special provisions.
- B. Drainage system and other facilities shall be constructed in the geosynthetic reinforced embankment in conformance with the details shown on the plans and these special provisions.
- C. Related Sections:
 - 1. Section 01 01 00 – Develop Site Access and Staging Area
 - 2. Section 01 50 01 – Temporary Silt Fence
 - 3. Section 02 41 00 – Demolition
 - 4. Section 03 30 00 – Utility Cast-in-Place Concrete
 - 5. Section 03 40 00 – Mechanically Stabilized Earth Wall
 - 6. Section 03 50 00 – Shoring Pile
 - 7. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
 - 8. Section 31 05 14 – Geogrid
 - 9. Section 31 07 00 – Temporary Fiber Roll
 - 10. Section 31 08 00 – Bonded Fiber Matrix
 - 11. Section 31 09 00 – Permeable Material
 - 12. Section 31 10 00 – Mechanically Stabilized Embankments
 - 13. Section 31 23 16 – Utility Trenching
 - 14. Section 33 41 13 – Storm Drainage Piping
 - 15. Section 33 41 20 – Geocomposite Drain

16. Project Geotechnical report; borehole locations and findings of subsurface materials if applicable.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

A. Mechanically Stabilized Embankment

1. Basis of Measurement: The bid item "Mechanically Stabilized Embankment" will be measured for payment by the cubic yard (CY) determined from the dimensions shown on the Plans.
2. Basis of Payment: The contract price vid per cubic yard (CY) for the bid item "Mechanically Stabilized Embankment" include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in constructing the mechanically stabilized embankment as shown on the Plans and as directed by the Engineer.

1.3 CHARACTERISTICS

A. Materials and Resources Characteristics:

1. Regional Materials: Furnish materials extracted, processed, and manufactured within 250 miles of the job site.

1.4 REFERENCES

A. State Standard Specifications:

1. Section 19 Earthwork
2. Section 20 Landscape
3. Section 21 Erosion Control
4. Section 26 Aggregate Bases
5. Section 47 Earth Retaining Systems
6. Section 49 Piling
7. Section 51 Concrete Structures
8. Section 52 Reinforcement
9. Section 60 Existing Structures
10. Section 64 Plastic Pipe
11. Section 68 Subsurface Drains
12. Section 89 Aggregate
13. Section 90 Concrete
14. Section 96 Geosynthetics

SUBMITTALS

- B. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- C. Samples: Submit results of the soil samples by a certified testing laboratory before importing onto the site for approval by the Project Manager.
- D. Materials Source: Submit the name of the imported materials source.
- E. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

PART 2 - PRODUCTS

2.1 MSEW Backfill Material

- 1. SRW backfill material shall be free of organics or other deleterious material and shall conform to the following:
 - a. Plasticity Index shall be less than or equal to 10 as determined by California Test Method 204.
 - b. Angle of internal friction shall be a minimum of 32 degrees as determined by a remolded shear test or triaxial compression test (California Test Method 230).
 - c. Soil pH shall be between 3 and 9 as determined by California Test Method 643.
 - d. Gradation shall be determined by California Test Method 202 and shall meet the following requirements:

Sieve size	Percentage passing
3"	100
No. 4	35-100
No. 30	20-100

PART 3 - CONSTRUCTION

3.1 Subgrade Preparation

- A. The Contractor shall prepare the grade that is to receive the layers of geosynthetic reinforcement to the compaction and elevation tolerances described in the Standard Specifications under Section 19-2.05, "Slopes," and these special provisions. The grade shall be smooth and free of loose or extraneous material and objects that may damage the geosynthetic reinforcement during installation. Relative compaction of not less than 90 percent shall be obtained in the embankment foundation for a minimum depth of 150 millimeters.

3.2 Geosynthetic Reinforcement Placement

- A. Geosynthetic reinforcement shall be handled and placed in accordance with the manufacturer's recommendations and these special provisions. The geosynthetic reinforcement shall be placed wrinkle-free, pulled taut, aligned, and secured before backfill placement to prevent displacement during placement and compaction of fill.
- B. The geosynthetic reinforcement material shall be placed with the direction of maximum strength perpendicular to the slope alignment. The Contractor shall verify correct orientation of the geosynthetic reinforcement. Each layer of geosynthetic reinforcement shall be placed onto the embankment material to form a continuous mat. Adjacent strips of geosynthetic reinforcement placed in this manner need not be overlapped.
- C. Geosynthetic reinforcement shall be placed at the intervals, elevations, and for the minimum embedment length shown on the plans. Each layer of geosynthetic reinforcement shall not vary more than 150 mm from the theoretical horizontal plane established for that layer for the entire width and length of the reinforcement. All reinforcement shall be 100 percent covered by soil so that reinforcement panels do not contact in overlaps. Geosynthetic reinforcement shall be placed and covered with backfill in the same work shift.
- D. During spreading and compacting of the backfill, a minimum fill thickness of 150 mm is required prior to operation of vehicles over the reinforcement. Sudden braking and sharp turning shall be avoided. Construction equipment shall not be operated or driven directly on the reinforcement. During spreading and compacting of the backfill, at the option of the Engineer, rubber tired vehicles may be driven directly on the material, provided that such traffic is part of the placement operation, that the amount of traffic repetitions is minimized, that speeds or 10 kph or less are maintained, that turning or stopping movements of the vehicle are minimized, and no damage or displacement to the reinforcement is observed. Geosynthetic reinforcement shall not extend into the pavement structural section.
- E. Each layer of geosynthetic reinforcement shall be placed (unrolled) onto the grade to form a continuous mat. A minimum of 75 mm compacted fill material shall be required between geosynthetic reinforcement layers, unless shown otherwise on the plans.

3.3 Fill Placement

- A. Reinforced fill shall be placed from the slope face back toward the fill area to ensure that the reinforcement remains taut. The maximum loose thickness of each lift of embankment material shall not exceed 200 millimeters and shall be

compacted in conformance with Section 3, "Embankment Construction," of these Special Provisions.

- B. At locations where compaction is accomplished with hand-operated equipment, fill shall be placed in horizontal layers not more than 150 millimeters in uncompacted thickness.

END OF SECTION 31 10 00

SECTION 31 23 16 – UTILITY TRENCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. The work of this Section includes all saw cutting, utility trenching, earthwork and removal of surface material as required for construction of the utility trenches. Such earthwork shall include, but may not necessarily be limited to, the loosening, removing, loading, transporting, depositing, and compacting in its final location of all materials wet and dry, as required for the purposes of completing the work, which shall include, but not necessarily be limited to, the furnishing, placing, and removing of sheeting, shoring and bracing necessary to safely support the sides of all excavations; all pumping, ditching, draining and other required measures for the removal or exclusion of water from the excavation; the supporting of structures above and below the ground; all backfilling around structures and all backfilling of trenches and pits; restoration of surface, pavement markings, the disposal of excess excavated materials; borrow of materials to make up deficiencies for fills; and all other incidental earthwork.
2. All utility lines not owned by the City shall be designed and constructed in accordance with the rules and regulations of serving utilities. All utilities shall be installed prior to placement of the wearing surface of the street. It shall be the responsibility of the Contractor to conform to these provisions.
3. All broken concrete, pavement, base and other material and unsuitable and surplus excavated material shall be removed, hauled off the site and disposed of by the Contractor at a location obtained by the Contractor and approved by the Project Manager all at no additional cost to the City; said costs and fees shall be considered as included in the prices bid.
4. All materials regardless of character and subsurface conditions shall be excavated to the depths indicated or specified. During excavation, suitable trench material that will be used as backfill shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave-ins, or shall be separately stockpiled. All excavated materials not required or unsuitable for backfill shall be disposed of outside the Right-of-Way as specified in Section 5-1.20B(4) "Contractor–Property Owner Agreement" of the State Standard Specifications

5. All hazardous materials shall be handled in accordance with all regulatory agency requirements and as specified in Section 14-11.03, "Hazardous Waste Management", of the State Standard Specifications. Contractor-generated hazardous waste shall be disposed of outside the Right-of-Way as specified in Section 14-11.06B, "Contractor-Generated Contaminated Soil", of the State Standard Specifications. Within 5 business days of transporting hazardous waste, submit documentation of proper disposal from the receiving landfill.
6. Where there is not a specific bid item for Hazardous Waste Management, full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in handling of the hazardous waste shall be considered included in the price paid for various items of work and no separate compensation will be allowed therefor.
7. All surface openings shall be saw cut using a power-driven saw with a diamond blade to provide a smooth joint for both concrete and bituminous street and sidewalk surfaces. All the trenches shall be "T" cut trenches as per City Standard details.
8. Impact pavement breakers (drop hammers, stampers, jack hammers) are not permissible.
9. The requirements of Section 7-1.02K(6) and 7-1.02L(2) of State Standard Specifications concerning Trench Safety and Antitrust Claims shall be complied with in addition to the requirements of Article 6 and Section 1503 of the State of California Construction Safety Orders.
10. Grading shall be done as may be necessary to prevent surface water from flowing into trenches or other excavations. Unless otherwise indicated, excavation shall be by open cut except that short sections of a trench may be tunneled if the pipe, cable, or duct can be safely and properly installed, backfilled with Controlled Low Strength Materials not tamped in such tunnel sections.

B. Related Sections:

1. [Section 01 33 00 - Submittal Procedures](#)
2. [Section 02 41 00 - Demolition](#)
3. [Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork](#)
4. [Section 32 11 23 - Aggregate Base Courses](#)
5. [Section 32 12 16 - Asphalt Paving](#)
6. [Section 32 13 13 - Concrete Surface Improvements](#)
7. [Section 33 05 13 - Manholes and Structures](#)
8. [Section 33 11 13 - Water Distribution Piping](#)
9. [Section 33 12 13 – Water Service Connections](#)
10. [Section 33 31 13 - Sanitary Sewer Piping](#)
11. [Section 33 41 13 - Storm Drainage Piping](#)

C. California Codes:

1. Titles 17 and 22 California Code of Regulations - Chapter 16 – California Waterworks Standards
2. Water Main Separation Criteria: Chapter 16 - California Waterworks Standards Article 6 - §64572

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT (For City CIP Projects only)

A. Utility Trenching and Earthwork:

1. Measurement: Utility Trenching is typically not a measured item. However, when a bid item is included for Utility Trenching or Joint Utilities Trenching, measurement, unless otherwise designated, shall be the number of linear feet of longitudinal trench centerline, measured along the design slope of the trench bottom, to the nearest foot to the conduit end, pay line, or outside face of connecting structure as designated. Any trenching or excavation for connecting structures shall be included in the measurement for the structure.
2. Payment: Unless there is a separate bid item, full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Utility Trenching, complete in place including saw cut, excavating to required elevations, protecting the excavation in compliance with Cal/OSHA, removing and disposing of excavated materials, removing and disposing of any asphalt paving mats or fabrics, stockpiling excavated materials, dewatering, bedding, backfill, removing trench sheathing, shoring and bracing when no longer required, restoration and disposing of materials outside the Right-of-Way shall be considered as included in various items of work most closely related to and no separate compensation will be allowed therefor. Payment is not made for over excavated work nor for replacement materials, unless approved in writing by the Project Manager.

1.3 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).

2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³).
 4. ASTM D1633 - Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders.
 5. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
 6. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
 7. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 8. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 9. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
 10. ASTM D3776 - Standard Test Methods for Mass Per Unit Area (Weight) of Fabric.
 11. ASTM D3786 - Standard Test Method for Bursting Strength of Textile Fabrics -Diaphragm Bursting Strength Tester Method
 12. ASTM D4253 - Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
 13. ASTM D4254 - Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
 14. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
 15. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity
 16. ASTM D4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
 17. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile
 18. Cal/OSHA - Division of Occupational Safety and Health (DOSH) Administration
- C. State Codes;
- a. California Labor Code
 - b. Construction Safety Orders of the State of California
- D. State of California (Caltrans) - State Standard Specifications:
- a. Section 25 - Aggregate Subbases
 - b. Section 26 - Aggregate Bases

1.4 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.
- B. Utility Structure: Maintenance holes, inlets, catch basins or vaults

1.5 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Excavation Protection Plan: Contractor's attention is directed to the provisions in Section 6705 of the California Labor Code. Prior to beginning any trench or structure excavation five (5) feet or more in depth, the Contractor shall submit to the Project Manager for review for compliance with Section 6705 of the Contractor's detailed excavation protection plan showing the design of all shoring, bracing, sloping of the sides of excavation, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trenches or structure excavations.
- C. Product Data: Contractor shall submit data for various types of backfill, trenching and shoring plans, and geotextile fabric. Contractor shall submit laboratory results indicating all soils and backfill material are not hazardous.
- D. Samples: Contractor shall submit fill samples, in air-tight containers for each type of fill to testing laboratory.
- E. Materials Source: Contractor shall submit name of imported fill materials suppliers.
- F. Manufacturer's Certificate: Certificates of Compliance shall be provided for all products and materials proposed to be used under this Section.
- G. Contractor shall submit a Safety Certification

1.6 QUALITY ASSURANCE

- A. Capital Improvement Projects (CIP):
 - 1. All soil and backfill testing shall be done by a testing laboratory of the City's choice at the City's expense except as otherwise specified in Paragraph 1.6 B. below. The Contractor shall notify the Project Manager at least 48 hours prior to performing any utility excavation and before beginning of backfill materials.
 - 2. Where soil material is required to be compacted to a percentage of maximum density the maximum density at optimum moisture content will be determined in accordance with ASTM D 1557. Where cohesionless, free draining soil material is required to be densified to a percentage of relative

density the calculation of relative density will be determined in accordance with ASTM D 4253 and D 4254. Field density in-place tests will be performed in accordance with ASTM D 2922, or by such other means acceptable to the Project Manager.

3. In case the first test and one re-test of the fill or backfill show non-compliance with the requirements, the Contractor shall accomplish such remedy as may be required to insure compliance. Subsequent re-testing after the first re-test to show compliance shall be at the Contractor's expense.

- B. All Other Projects including but not limited to permit projects, utility company projects, development and redevelopment projects:
 1. All soil and backfill testing shall be by the Permittee/Developer/Utility Company's Geotechnical Engineer of Record and shall submit all testing information to the City.
 2. Maintain one copy of the Construction Documents and City Standard Details and Specifications on site.

1.7 QUALIFICATIONS

- A. If the Contractor's excavation protection plan varies from the shoring system standards established in the Construction Safety Orders of the State of California, such alternative system plan shall be prepared, stamped and signed by a Civil or Structural Engineer licensed in the State of California at the Contractor's expense.

1.8 FIELD MEASUREMENTS

- A. Contractor shall verify field measurements prior to fabrication.

1.9 COORDINATION

- A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 - PRODUCTS

2.1 SUITABLE FILL MATERIALS

- A. Suitable backfill shall be a selected or processed clean, fine earth, rock, or sand, free from objectionable materials, vegetation, or other deleterious substances.
- B. All import material from a source outside the project limits for use as backfill shall be clean soil, not hazardous, free from organic material, trash, debris, rubbish,

broken Portland cement concrete, bituminous materials or other objectionable materials. Whenever the Contractor elects to use imported material for backfill, it shall be delivered not less than 10 days prior to the intended use and a sample of the material shall be submitted to the Project Manager for review. The sample shall have a minimum dry weight of 100 pounds and shall be clearly identified as to source, including street address and community of origin. The Project Manager will determine the suitability, the minimum relative compaction to be attained, and the placement method. If the backfill material is found not suitable, the Contractor shall remove material from the site and dispose of at no additional cost to the City.

- C. Should the imported material not be substantially the same as the approved sample, it shall not be used for backfill and shall be removed from the job site at the Contractor's expense.
- D. The densification method for imported material authorized by the Project Manager will be dependent upon its composition, the composition of the in-place soil at the point of placement, once the relative compaction to be obtained.
- E. The following are the types of backfill materials:
 - 1. **Sand** shall be a material with 100 percent passing a 3/8" sieve, at least 90 percent passing a No. 4 sieve, and a sand equivalent value not less than 30.
 - 2. **Class 2 Aggregate Base** shall be crushed rock aggregate base material meeting the requirements of Section 26, "Aggregate Bases", for 3/4" maximum aggregate gradation, of the State Standard Specifications. Recycled Aggregate Base is an acceptable backfill material.
 - 3. **Controlled Low Strength Materials (CLSM)** shall be fluid workable mixture of cement, pozzolan, aggregate and water mixed in accordance with ASTM C94. Cement shall be Type II Cement and comply with ASTM C150. Pozzolan shall be added to improve the flowability and shall be Type F in accordance with the requirements of ASTM C618. Water must be free of oil, salts, and other impurities that adversely affect the backfill. Aggregate must consist of well graded mixture of crushed rock, soil, or sand with a maximum aggregate size of 1/2-inch. 100percent of the aggregate shall pass the 3/4" sieve and not more than 30-percent retained on the 3/8" sieve and not more than 12 percent shall pass the No. 200 sieve. Air entraining admixtures shall be added to improve the workability and shall in accordance with the requirements of ASTM C260. Density of CLSM shall be between 120 pounds per cubic feet to 135 pounds per cubic feet. Minimum 28-day compressive strength for CLSM shall be between 50psi minimum to 100psi for depths 20 feet or less in height of cover. For depths greater than 10 feet in height, CLSM mix shall have a minimum 28-day compressive strength of 100 psi.

4. **Native** material shall be material obtained from on-site excavations, provided the materials are not classified as unsuitable. Native materials shall be free of stones, lumps, rubbish, debris, organic material, broken concrete or bituminous surfacing over 4 inches in diameter, objectionable material, vegetation, and deleterious substances.
5. **Class 2 Permeable Material** shall be hard, durable, crushed stone, or gravel, and free from slaking or decomposition under action of alternate wetting or drying, uniformly graded, and shall meet the requirements of Section 68-2.02F for Class 2 "Permeable Material", of the State Standard Specifications.
6. **Topsoil** shall be material which has been obtained at the site or may be imported and shall meet the requirements of [Section 32 90 00 - Landscape Work](#). Removal of topsoil shall be done after the area has been stripped of vegetation and debris as specified.

2.2 UNSUITABLE BACKFILL MATERIALS

- A. Any material determined to be hazardous is defined as unsuitable material.
- B. Unsuitable soils for backfill material shall include soft, spongy, unstable or other similar soils which, when classified under ASTM D 2487, fall in the classifications of Pt, OH, or OL. Types CH and MH soils will be permitted in unimproved areas only where required compaction and stability can be demonstrated. In addition, any soil which cannot be compacted sufficiently to achieve the percentage of maximum density specified for the intended use, shall be classified as unsuitable material.
- C. Washed, smooth rock (pea gravel) is classified as unsuitable material.

2.3 FILTER FABRIC

- A. Filter Fabric shall be permeable, non-woven synthetic fabric meeting the requirements of Section 96-1.02B, "Filter Fabric" of the State Standard Specifications. Filter fabric shall have minimum Grab breaking load in each direction of 157 pounds, a minimum puncture strength of 310 pounds, apparent opening size between 40 and 70.

2.4 TEMPORARY STEEL PLATES

- A. When approved by the Project Manager, the Contractor may use steel plate bridging in-lieu of backfill and temporary asphalt where the roadway surface is to be opened to traffic. All steel plates shall be without deformation. Inspectors shall

determine the trueness of steel plates by using a straight edge and shall reject any plate that is permanently deformed.

- B. Trench plates shall be coated with Antiskid type surface meeting State Standard Specifications of a nominal Coefficient of friction of 0.35 in accordance with California Test Method 342 (Appendix H).
- C. The following table shows the advisory minimal thickness of steel plate bridging required for a given trench width (A-36 grade steel, designed for HS20-44 truck loading per Caltrans Bridge Design Specifications Manual).

Trench Width	Minimum Steel Plate Thickness (inches)
10 inches	1/2 inch
1 feet 11 inches	3/4 inch
2 feet 7 inches	7/8 inch
3 feet 5 inches	1 inch
4 feet 3 inches	1-3/4 inch

NOTE: For trench width spans greater than 4 feet 3 inches, a structural design shall be prepared, signed, and stamped by a California Registered Civil Engineer.

- D. A Rough Road signs (W8-8) with black lettering on an orange background shall be used in advance of steel plate bridging.

PART 3 - EXECUTION

3.1 DEFINITIONS - PIPE ZONE, BEDDING, TRENCH & FINAL ZONE

- A. **Pipe Zone:** Pipe Zone is defined as the vertical trench cross-section between the trench subgrade, which is 0.4 times the outside diameter of the pipe in inches below the bottom surface of the pipe or 4” minimum whichever is greater, and 12 inches above the top surface of the pipe.
- B. **Bedding:** Bedding is defined as that portion of the Pipe Zone between the trench subgrade, which is 0.4 times the outside diameter of the pipe in inches below the bottom surface of the pipe or 4” minimum whichever is greater and a level line from the bottom of the pipe.
- C. **Trench Zone:** The Trench Zone is defined as the vertical trench cross-section between top of Pipe Zone and 36” below finish paved surface. In unpaved areas, the Trench Zone shall be the vertical cross-section between the top of Pipe Zone and 24 inches below finished unpaved or landscape surface.

- D. **Final Zone:** The Final Zone is defined as the upper 36 inches of vertical cross-section below the finished paved surface. In unpaved or landscaped areas, the Final Zone is the upper 24 inches of vertical cross-section below the finished surface.
- E. **Pavement Section:** The Pavement Section is defined as the engineered layers of pavement and base conforming to the hot mix asphalt pavement or concrete pavement and aggregate base thickness as shown on the Plans.
- F. **Backfill:** Backfill is considered to be the material used to fill the portion of a trench between the pipe Bedding and the roadway subgrade or finish surface in non-roadway areas
- G. **Trench Plugs:** Trench plugs are temporary barriers placed within an open trench excavation in order to minimize the volume and velocity of trench water flow at the base of slopes and to reduce erosion in the trench, preventing the trench from becoming a subsurface drainage path. These trench plugs may consist of unexcavated portions of the trench, compacted subsoil, sandbags, or some functional equivalent.

3.2 PIPE ZONE BACKFILL MATERIALS

- A. Bedding as defined in this section shall be Sand or Class 2 Aggregate Base.
- B. Pipe Zone backfill, excluding bedding as defined in this section shall be
 1. Sand for plastic pipe
 2. Sand or Class 2 Aggregate Base for ductile iron pipe, vitrified clay pipe and reinforced concrete pipe.
- C. For dry utility and/or joint trench, Pipe Zone backfill shall conform to latest Pacific Gas and Electric Company (PG&E) Greenbook's Engineering Material Specification No. 4123 - Backfill Sand or meeting the utility owner's specifications.
- D. Trench plugs shall be provided at minimum intervals of 200 feet where pipelines are installed on grades exceeding 4 percent, and where backfill materials have gradation less than 10 percent passing a No. 4 sieve.
- E. Unless otherwise specified Bedding and backfill around sub-drainage systems shall be minimum of 12 inches of Class 2 Permeable Material as specified in Section 68-2.02F(3) of the State Standard Specifications.

3.3 TRENCH ZONE BACKFILL MATERIALS

- A. Trench Zone backfill as defined in this section shall be Class 2 Aggregate Base in paved areas.

- B. Native backfill material shall be used in unpaved or landscape areas.

3.4 FINAL ZONE BACKFILL MATERIALS

- A. Final Zone backfill as defined in this section shall be
 1. Native backfill in unpaved areas
 2. Native backfill with 6 inches thick minimum Top Soil material in landscape areas.
 3. Class 2 Aggregate Base in paved areas below the Pavement Section.

3.5 TRENCH WIDTH & LENGTH

- A. Minimum Trench width shall be as follows:

Utility Pipe Outside Diameter (O.D.) (inches)	Minimum Trench Width (inches)
For Pipe Sizes under 12 inches	Pipe O.D. + 12 inches
For Pipe Sizes between 12 inches to 48 inches	Pipe O.D. + 24 inches
For Pipe Sizes above 48 inches	Pipe O.D. + 48 inches

For Dry Utilities (electrical, telephone, cable, street light and traffic signal conduits), the trench width shall be 18" minimum.

- B. Maximum Length of Open Trench: Except by permission of the Project Manager, the maximum length of open trench where prefabricated pipe is used shall be the distance necessary to accommodate the amount of pipe installed in a single day and shall not exceed 300 feet. The distance is the collective length at any location, including open excavation, pipe laying and appurtenant construction and backfill which has not been temporarily re-surfaced.
- C. Except by permission of the Project Manager, the maximum length of open trench in any one location where concrete structures are cast in place will be that which is necessary to permit uninterrupted progress.

3.6 PREPARATION

- A. Call Local Utility Line Information service at USA North 811 not less than three working days before performing Work.
 1. Request underground utilities to be located and marked within and surrounding construction areas.

- B. Contractor's Licensed Land Surveyor shall provide all construction surveying and staking prior to beginning any trenching and excavation.
- C. Protect bench marks, street monuments, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- D. Contractor shall maintain and protect above and below grade utilities unless otherwise noted.
- E. Establish temporary traffic control per Contractor's approved traffic control plans when trenching is performed in public right-of-way. Relocate controls as required during progress of Work.

3.7 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations more than 5 feet deep to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. All sheeting, shoring and bracing shall conform to Cal/OSHA.
- C. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- D. Design sheeting and shoring to be removed at completion of excavation work.
- E. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- F. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.
- G. **Access to Trenches** - A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for the employees, the Contractor, and any other personnel.
- H. **Bracing Excavations** - The manner of bracing excavations shall be as set forth in the rules, orders and regulations of the Division of Industrial Safety of the State at California.

3.8 TEMPORARY ACCESSIBLE PEDESTRIAN BRIDGES

- A. Temporary Accessible Pedestrian bridges of approved construction not less than four feet in width in compliance with ADA, and provided with hand rails and supports of dressed lumber, shall be installed over trenches at all crosswalk

intersections, and at such other points where traffic conditions make it advisable. Substantially constructed bridges, adequate for handling all vehicular traffic, shall be installed over any trench or other excavation in a street intersection, whenever such excavation is in excess of half the width of the street crossing. Adequate bridges shall be provided to make possible the safe and full use of all driveways or roadways used to move vehicles from the public street onto private property.

- B. All bridges required to be installed shall be maintained in place as long as the condition of the work requires their use for the safety and convenience of the public. Removal or relocation of these temporary bridges shall be at the Contractor's own discretion and risk.

3.9 TRENCHING AND EXCAVATION

- A. All excavations for utilities, pipelines and Minor Structures shall be open cut trenches, unless otherwise shown.
- B. Do not advance open trench more than 200 feet ahead of installed pipe.
- C. Cut trenches to widths per Standard Specifications or as indicated on the Drawings and sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- D. Excavate trenches to depth per Standard Specifications or as indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and utility pipes.
- E. Do not interfere with 45-degree bearing splay of foundations.
- F. When Project conditions permit, slope side walls of excavation per Cal/OSHA. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this section.
- G. Excavation and other work under or adjacent to existing pipe lines, cables, conduit runs or structures of any kind, shall be prosecuted in such a manner as not to interfere with the safe operation and use of such installations. Should any damage be incurred to existing facilities during the Contractor's operations, the Contractor shall immediately notify the proper owners or authorities, and shall arrange for the immediate repair of same at the Contractor's own expense.
- H. Excavations for appurtenant structures, such as but not limited to maintenance holes, transition structures, junction structures, vaults, valve boxes, catch basins, thrust blocks, and boring pits shall, for the purpose of shoring and bracing, be deemed to be in the category of trench excavation.
- I. Excavation shall include the removal of all water and materials of any nature which interfere with the construction work. Removal of ground water to a level

below the structure sub-grade will be necessary unless specified otherwise. The water removed during excavation shall not be directed to storm drain system. The contractor shall apply to Delta Diablo for a Discharge Permit to dispose the water encountered during excavations into the sanitary sewer system.

- J. Should the Contractor elect to tunnel or jack any portion, he shall first obtain approval from the Project Manager. Payment for such work will be made as though the originally specified method of construction has been used.
- K. Trenching, tunneling, boring and jacking shall comply with the applicable provisions of the State Standard Specifications, these specifications and the plans. All work shall comply with the applicable Federal, State and local laws, regulations, codes and ordinances, and in addition, shall meet the respective utility agencies requirements for joint trench construction for installation of conduits, including, but not limited to, safety, depth, size, type, connection and other regulations and shall be considered as included in the various contract items of work and no additional compensation shall be made therefore.
- L. Pipe will be carefully inspected in the field before and after laying. If any cause for rejection is discovered in a pipe after it has been laid, it shall be subject to rejection. Any corrective work shall be approved by the Project Manager and shall be at no cost to the City.
- M. When connections are to be made to any existing pipe, conduit, or other appurtenances, the actual elevation or position of which cannot be determined without excavation, the Contractor shall excavate for, and expose, the existing improvement before laying any pipe or conduit. The Project Manager shall be given the opportunity to inspect the existing pipe or conduit before connection is made.
- N. Gravity flow pipe shall be laid downstream to upstream with the socket or collar ends of the pipe upgrade unless authorized by the Project Manager.
- O. Concrete pipe with elliptical reinforcement shall be laid with the minor axis of the reinforcement cage in a vertical position.
- P. Any adjustments in line or grade of not more than 0.1 feet up or down which may be necessary to accomplish the intent of the plans shall be considered as included in the various contract items of work and no additional compensation will be made therefore.
- Q. Locations of existing underground utilities and structures, insofar as they are known from information furnished by the respective utility companies and agencies, have been shown on the plans. The City assumes no responsibility for the accuracy or completeness of said data, which is offered solely for the convenience of the Contractor it shall be the Contractor's responsibility to verify the location of these obstructions, and to locate any other underground utilities or structures, which might interfere with the Contractor's operations.

- R. If soft spongy, unstable or other similar material is encountered upon which the bedding material or pipe is to be placed, this unsuitable material shall be removed to a depth ordered by the Project Manager and replaced with bedding material suitably densified. Additional bedding so ordered, over the amount required by the plans or specifications, will be paid for as provided in the Proposal or the Technical Specifications. If the necessity for such additional bedding material has been caused by an act or failure to act on the part of the Contractor, or is required for the control of ground water, the Contractor shall bear the expense of the additional excavation and bedding.
- S. Where pipe culverts are to be installed in new embankment, it shall first be constructed to the required height as shown on the plans, and for a distance each side of the culvert location of not less than five (5) times the diameter of the culvert, after which the trench shall be excavated with sides as nearly vertical as soil conditions will permit and culvert installed
- T. For excavations in landscape areas, all damaged irrigation systems, including irrigation piping and electrical wiring shall be repaired and restored to the original condition on the same day they are damaged. All landscape surface areas shall be restored to its original condition unless specified otherwise.
- U. No tree roots over 1.5 inches in diameter shall be cut without the authorization from the Project Manager or City's Arborist. If existing roots over 1 inch in diameter are cut during the course of work, the cut faces shall be thoroughly coated with emulsified asphalt made especially for use on cut or damaged plant tissues. All exposed roots shall be covered with wet burlap to prevent them from drying out.
- V. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- W. Correct over excavated areas with compacted backfill as specified for authorized excavation as directed by Project Manager.
- X. Remove excess subsoil not intended for reuse, from site. The legal disposal of excess materials shall be the responsibility of the Contractor.
- Y. Use of explosives and blasting material will not be permitted.
- Z. Stockpile excavated material in area designated on site as shown on the Contractor's approved Staging Plans.
- AA. In areas of high vehicular or pedestrian volumes, the Project Manager may order the immediate removal of excavated material and that sidewalks and gutters be kept clean at all times.
- BB. The Contractor may transport or backhaul material to be used as backfill material from any portion of a project to any other portion or line of the same project, or from any project being constructed under one contract to any other project being

constructed under that same contract. Such transported material shall be clean soil, free from organic material, trash, debris, rubbish, or other objectionable substances except that broken Portland cement concrete or bituminous type paving allowable for the type of backfill specified may be permitted

3.10 OVER-EXCAVATION

- A. When ordered by the Project Manager, whether or not indicated in the project plans and specifications, trenches shall be over-excavated beyond the depths shown and such over-excavation shall be to the depths ordered the Project Manager. Backfill for over excavation backfill shall be Class 2 Permeable materials. For wet trenches, Contractor shall install a filter fabric on top and below the permeable materials.

3.11 PIPE LAYING

- A. Lay pipes to lines and grades indicated on Drawings, with uniform bearing under the full length of the barrel of the pipe. Project Manager reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- B. Pipe sections shall be laid and joined in such a manner that the offset of the inside of the pipe at any joint will be held to a minimum at the invert. The maximum offset at the invert of pipe shall be 1 percent of the inside diameter of the pipe or 3/8 inch, whichever is smaller.
- C. After the joints have been made, the pipe shall not be disturbed in any manner.
- D. At the close of work each day, or whenever the work ceases for any reason, the end of the pipe shall be securely closed unless otherwise permitted by the Project Manager.
- E. All pipe shall be installed in accordance with the manufacturer's recommendations.
- F. The interior of the pipe shall be clean and free from foreign materials before sections of the pipe are connected. The open ends of the pipe shall be sealed with watertight plugs or other approved means at times when pipe laying is not in progress. Under no conditions shall ground water be allowed to enter the pipe.
- G. Dropping or bumping of pipe will not be permitted. Care shall be exercised by the Contractor to prevent damage to the pipe during handling. There shall be no distortion or deflection of the pipe which might induce damage to the pipe, pipe lining, pipe coating or joints.

- H. Pipe will be carefully inspected in the field before and after laying. In no event shall rejected pipe be installed. Any pipe failing to pass inspection after laying shall be subject to rejection. Any corrective work shall be approved by the Project Manager and shall be at no cost to the City.
- I. The Contractor shall provide a minimum of twelve (12) inches vertical clearance between the pipe and proposed or existing facilities and improvements or per the Utility owner's requirements. A minimum of twelve inches (12 inches) vertical clearance between the pipe and sanitary sewers, gas or petroleum lines and telephone cables shall be provided. Clearance for electrical conduits shall be as provided in the applicable General Safety Orders or utility regulations. Sanitary sewer and water lines shall be 10 feet horizontally clear and not in the same trench and in conformance with Water Main Separation Criteria: Chapter 16 - California Waterworks Standards Article 6 - §64572, unless specifically shown or directed by the Project Manager.
- J. Every precaution shall be taken against floating the pipe. In case of such floating, the Contractor shall replace the pipe to its proper location at his own expense, and replace any damaged pipe which may have resulted.

3.12 PLACING AND SPREADING OF BACKFILL MATERIALS

- A. Regardless of compaction method, backfill shall be evenly spread in horizontal layers so that when compacted each layer shall not exceed eight (8) inches in thickness. During spreading, each layer shall be thoroughly mixed as necessary to promote uniformity of material and uniformity of moisture throughout backfill materials. Material placed in excess of eight (8) inches in thickness shall be removed and re-compacted with the next lift.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Water shall be added before or during spreading until the proper moisture content is achieved where the backfill material moisture content is below the optimum moisture content.
- D. Where the backfill material moisture content is too high to permit the specified degree of compaction, the material shall be dried or replaced until the moisture content is satisfactory.
- E. Unless otherwise approved by the Project Manager, all trenches within the existing roadway shall be backfilled completely and the roadway made passable to traffic at the end of each day's operation.
- F. Backfill, or fill, as the case may be, for cast-in-place structures such as, but not limited to, manholes, transition structures, junction structures, vaults, valve boxes and reinforced concrete conduits shall start at the sub-grade for the structure.

- G. Except where the pipe must remain exposed for force main leakage tests and subject to the provisions herein, the Contractor shall proceed as soon as possible with backfilling operations. Care shall be exercised so that the conduit will not be damaged or displaced. If the pipe is supported by concrete bedding placed between the trench wall and the pipe, the remainder of any bedding material shall be placed to 1 foot over the top of the conduit. The backfill above the concrete bedding shall not be placed nor sheeting pulled until the concrete has attained sufficient strength as required by the Project Manager.
- H. Trenches shall not be backfilled until all required pressure tests are performed and until the utilities systems as installed conform to the requirements specified in the several sections covering the installation of the various utilities.
- I. Voids left by the removal of sheeting, piles and similar sheeting supports shall be immediately backfilled and compacted into place to assure dense and complete filling of the voids.
- J. After the placing of backfill has been started, the Contractor shall proceed as soon as practicable with compaction.
- K. Backfill shall be mechanically compacted by means of tamping rollers, sheepsfoot rollers, pneumatic tire rollers, vibrating rollers, or other mechanical tampers. All such equipment shall be of a size and type approved by the Project Manager. Impact-type pavement breakers (stompers) will not be permitted. Sheepsfoot equipment shall be limited to outside the Pipe Zone.
- L. Permission to use specific compaction equipment shall not be construed as guaranteeing or implying that the use of such equipment will produce required results or will not result in damage to adjacent ground, existing improvements, or improvements installed under the contract. The Contractor shall make its own determination in this regard.
- M. Material for mechanically compacted, backfill shall be placed in lifts which, prior to compaction, shall not exceed the thickness specified above.
- N. Mechanically compacted backfill shall be placed in horizontal layers of thickness compatible to the material being placed and the type of equipment being used. Each layer shall be evenly spread, moistened (or dried, if necessary), and then tamped, vibrated or rolled until the specified relative compaction has been attained.

3.13 COMPACTION OF BACKFILL MATERIALS

- A. Compaction of backfill materials shall be in accordance with ASTM D1557 for cohesive type soils and in accordance with ASTM D4253 and D4254 for cohesionless, free-draining granular type materials. The following compaction test requirements shall apply:

Location of backfill	Relative Compaction
Pipe Zone (including Bedding)	90
Trench Zone	90
Final Zone (paved areas, excluding the Pavement Section)	95
Final Zone (unpaved or landscape areas)	90
Over-excavated areas	90
Around minor structures	90
Beneath minor structures	95

- B. Compaction of Pipe Zone including Bedding material shall be by hand tamping, hand held mechanical vibrating equipment or other means approved by the Project Manager.
- C. Each layer of backfill material shall be mechanically compacted to the specified percentage of maximum density. Equipment that is consistently capable of achieving the required degree of compaction shall be used and each layer shall be compacted over its entire area while the material is at the required moisture content range. Flooding, ponding, or jetting shall not be used.
- D. Use hand operated power compaction equipment where use of heavier equipment is impractical or restricted due to weight limitations.
- E. Backfill within 3 feet of structures or walls shall be compacted with hand operated equipment. Do not use equipment weighing more than 10,000 pounds closer to walls than a horizontal distance equal to the depth of the fill at that time.

3.14 TEMPORARY RESURFACING

- A. Unless permanent pavement is placed immediately, temporary bituminous re-surfacing 2 inches thick shall be placed and maintained in streets and parking lot areas and at locations determined by the Project Manager wherever excavation is made through pavement, sidewalk or driveways. Temporary asphalt shall be placed flush with the adjacent pavement grade.
- B. Hot Mix Asphalt shall be used for temporary resurfacing when permanent surfacing is not to be placed within seven (7) days.
- C. In sidewalk areas the temporary bituminous re-surfacing shall be at least 1-inch-thick, in all other areas it shall be at least 2 inches thick. At major intersections and other critical locations, a greater thickness may be ordered. Temporary resurfacing shall be placed as soon as the condition of the backfill is suitable to receive it and shall remain in place until the condition of the backfill is suitable for permanent resurfacing. Surfacing shall be maintained in a smooth and level condition. The temporary paving shall conform to the requirements of Section 39

of the State Standard Specifications and unless specified differently in the Technical Specifications, may use any of the mixes allowed in Section 39 for such temporary surfacing of trenches.

- D. The re-surfacing shall be placed, rolled, maintained, removed and disposed of by the Contractor.

3.15 PAVEMENT SECTION REPLACEMENT

- A. Unless otherwise specified on the plans or in the Technical Specifications, all existing pavement surface improvements damaged or removed as a result of the Contractor's operations shall be reconstructed by the Contractor per City of Pittsburg Standard Detail R-5, to same dimensions, except for pavement thickness, and with the same type materials used in the original work. Trench resurfacing shall match the existing pavement thickness, but no less than 3 inches.
- B. The type and thickness of the replacement pavement, base, cement treated base, and sub-base for trenches in public streets and highways shall be as shown on the plans or designated by the Project Manager.
- C. Unless otherwise specified, the following requirements shall govern:

Sub-base: Existing sub-base shall be replaced with Class 2 Aggregate Base. The thickness of sub-base replacement shall be designated by the Project Manager, and that portion of trench backfill lying within such designated limits shall be compacted in accordance with this Section and shall not be less than ninety-five (95) percent as determined by California Test Method No. 216.

- D. Surfacing of trenches in new street sections shall be as required to match the Pavement Section as shown on the project plans and specifications.

3.16 TOLERANCES

- A. [Section 01 45 00 - Quality Control](#): Tolerances.
- B. Top Surface of Backfilling under paved areas: Plus or minus 1/2 inch from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 1/2 inch from required elevations.

3.17 FIELD QUALITY CONTROL

- A. [Section 01 45 00 - Quality Control](#): Field inspecting, testing, adjusting, and balancing.

- B. Perform laboratory material tests in accordance with ASTM D1557, ASTM D698, and AASHTO T180.
- C. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D1556, ASTM D2167, or ASTM D2922.
 - 2. Moisture Tests: ASTM D3017.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest at the Contractor's expense.

3.18 PROTECTION OF FINISHED WORK

- A. [Section 01 77 00 - Closeout Requirements](#): Contractor shall protect all the finished work and any damage to the finished work shall be replaced at the Contractor's expense.

3.19 TEMPORARY STEEL PLATE BRIDGING

- A. When backfilling operations of an excavation in the roadway including bike lanes, sidewalks and parking strip, whether transverse or longitudinal, cannot be properly completed within a work day, steel plate bridging with a non-skid surface and shoring shall be required to preserve unobstructed traffic and pedestrian flow. In such cases, the following conditions shall apply:
 - 1. Steel plates used for bridging must extend a minimum of 12-inches beyond the edges of the trench.
 - 2. Steel plate bridging shall be installed to operate with minimum noise or movement.
 - 3. The trench shall be adequately shored to support the bridging and traffic loads.
 - 4. Temporary paving with cold asphalt concrete shall be used to feather the edges of the plates, if plate installation by Method (2) described below, is used.
 - 5. Bridging shall be secured against displacement by using adjustable cleats, shims, or other devices.
- B. The Contractor is responsible for maintenance of the steel plates, shoring, asphalt concrete ramps, and ensuring that they meet minimum specifications.
- C. All work done by the City crews for lack of maintenance of the temporary steel plates as specified above by the Contractor shall be back charged to the Contractor.
- D. Steel plate bridging shall not exceed four (4) consecutive working days in any given week and should not be left through the weekend, unless approved by the Engineer.

- E. Steel plate bridging and shoring shall be installed using either Method (1) or (2):
1. **Method 1** For speeds of 45 MPH or greater:

The pavement shall be cold planed to a depth equal to the thickness of the plate and to a width and length equal to the dimensions of the plate. Approach plate(s) and ending plate (if longitudinal placement) shall be attached to the roadway by a minimum of two (2) dowels pre-drilled into the corners of the plate and drilled 2-inches into the pavement. Subsequent plates are to be butted and tack welded to each other.

2. **Method 2** For speeds less than 45 MPH:

Approach plate(s) and ending plate (if longitudinal placement) shall be attached to the roadway by a minimum of two (2) dowels pre-drilled into the corners of the plate and drilled 2-in into the pavement. Subsequent plates are to be butted and tack welded to each other. Fine graded asphalt concrete shall be compacted to form ramps, maximum slope 8.5 percent with a minimum 12-inch taper to cover all edges of the steel plates. When steel plates are removed, the dowel holes in the pavement shall be backfilled with either graded fines of asphalt concrete mix, concrete slurry, epoxy or an equivalent that is satisfactory to the Project Manager.

END OF SECTION 31 23 16

DIVISION 33 – STORM DRAIN SYSTEM

33 41 13	STORM DRAIN PIPING
33 41 20	GEOCOMPOSITE DRAIN

SECTION 33 41 13 - STORM DRAINAGE PIPING**PART 1 - GENERAL**

1.1 SUMMARY

- A. This Section includes all materials, equipment, and labor necessary to furnish and install all storm drainage piping, piping accessories, drainage structures, bedding and cover materials, concrete encasement and cradles, and all appurtenant work, complete and operable, including all connections as shown on the Drawings and as specified herein.
- B. Related Requirements:
1. [Section 03 30 00 - Utility Cast-in-Place Concrete](#)
 2. [Section 03 60 00 - Grouting](#)
 3. [Section 31 05 13 - Clearing & Grubbing, Excavation, and Earthwork](#)
 4. [Section 31 23 16 - Utility Trenching](#)
 5. [Section 33 01 30 - Testing for Sanitary Sewer, Storm Drainage – Piping and Manholes](#)
 6. [Section 33 05 13 - Manholes and Structures](#)
 7. [Section 33 05 26 - Utility Identification](#)

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. [Section 01 29 00 - Payment Procedures](#): Contract Sum/Price modification procedures.
- B. Pipe and Fittings:
1. Basis of Measurement: Storm Drainage Piping shall be measured by linear foot of pipe installed, measured from edge of structure to edge of structure for various pipe materials and various sizes irrespective of the depth of pipes.
 2. Basis of Payment: The contract price paid per linear foot for Storm Drainage piping shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing Storm Drainage Piping, complete in place including bends, elbows or other pipe fittings, saw cut, excavating to required elevations, all utility trenching work as specified in [Section 31 23 16 – Utility Trenching](#), removing excavated materials, dewatering, bedding, cradles, backfill and backfill material, pipe installation with warning tape, restoration and disposing of materials outside the Right-of-Way and connections to existing or new storm drainage mains and manholes.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M170 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
2. AASHTO M206 - Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe.
3. AASHTO M207 - Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.
4. AASHTO M 252 - Standard Specification for Corrugated Polyethylene Drainage Pipe 3"-10".
5. AASHTO M 294 - Standard Specification for Corrugated Polyethylene Pipe, 12"-60".

B. ASTM International:

1. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
2. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
3. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
4. ASTM C506 - Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe.
5. ASTM C969 - Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines.
6. ASTM C1103 - Standard Practice for Joint Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines.
7. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
8. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
9. ASTM D1784 – Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
10. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
11. ASTM D2412 – Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
12. ASTM D2564 - Standard Specification for Solvent Cements for Polyvinyl Chloride (PVC) Plastic Piping Systems.
13. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings.

14. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
15. ASTM D3212 – Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
16. ASTM D 3350 - Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
17. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
18. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
19. ASTM F679 – Standard Specification for Poly Vinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
20. ASTM F2306 - Standard Specification for 12 to 60 in. Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
21. ASTM F2648 - Standard Specification for 2 to 60 in. Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Product Data: Submit data indicating pipe, pipe accessories and gaskets.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

1.5 CLOSEOUT SUBMITTALS

- A. [Section 01 78 00 - Closeout Submittals](#): Requirements for submittals.
- B. Project Record Documents: Record actual locations of pipe installed and top of pipe elevations and invert of pipe at all structures.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.
- D. As-built drawings shall be provided as part of the closeout submittals.

1.6 QUALITY ASSURANCE

- A. Perform Work according to City Standard Specification.
- B. Maintain one (1) copy of each standard affecting Work of this Section on Site.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three (3) years of documented experience.
- B. Installer: Company specializing in performing Work of this Section with minimum three (3) years of documented experience and approved by the Manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. [Section 01 60 00 - Product Requirements](#): Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage. It is the responsibility of the Contractor to check quantities and note any missing or damaged items.
- C. Storage:
 - 1. Store materials according to manufacturer instructions.
 - 2. Block individual and stockpiled pipe lengths to prevent moving.
 - 3. Stack it on reasonably level ground.
 - 4. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
 - 5. Do not place pipe flat on ground; cradle to prevent point stress.
 - 6. Don't stack the pipes next to heat sources such as boilers, steam lines, electrical equipment or engine exhausts.
 - 7. Gaskets should also be protected from heat, oil and grease.
- D. Protection:
 - 1. Keep UV-sensitive materials out of direct sunlight.
 - 2. Provide additional protection according to manufacturer instructions.

PART 2 - PRODUCTS

2.1 STORM DRAINAGE PIPING

- A. Reinforced Concrete Piping:

1. Pipe:
 - a. Comply with ASTM C76, AASHTO M170, ASTM C506, AASHTO M206, AASHTO M207, Class III or Class V, with Wall Type "B" or Wall "C" as specified in ASTM C76, however Wall "A" will not be allowed.
 - b. The minimum allowable class of RCP shall be class III for pipe cover from three (3) feet to fifteen (15) feet defined as the distance from the inside top of pipe to the top of finished grade. RCP pipe cover less than three (3) feet from finished grade shall be Class V. Pipe covers more than fifteen (15) feet deep shall require structural loading calculations.
 - c. Reinforcement: Circular reinforcing bars.
 - d. Inside Nominal Diameter: 12 inches through 144 inches
 - e. Ends: Bell and spigot.
 2. Fittings: Reinforced concrete.
 3. Joints:
 - a. Comply with ASTM C443.
 - b. Gaskets: O-Ring Rubber compression gaskets retained in a groove on the spigot end.
 4. Manufacturers:
 - a. Oldcastle Precast
 - b. Jensen Precast
 - c. Cook Concrete Products, Inc.
 - d. Or approved equal.
- B. Plastic Piping:
1. Pipe:
 - a. Material: PVC.
 - b. Comply with ASTM D3034, ASTM F79 - SDR 35 (Pipe Stiffness of 46psi) and SDR 26 (Pipe Stiffness of 115 psi)
 - c. PVC SDR-35 pipe shall be used for perforated pipes only.
 - d. The perforations shall be two rows of 1/2" diameter holes or openings at the bottom of the pipe 120° apart and five (5) inches on center.
 - e. Color: Green
 - f. Inside Nominal Diameter: Four (4) inches through Fifteen (15) inches per ASTM D3034 and Eighteen (18) inches through Forty-eight (48) inches per ASTM F679.
 - g. Style: Bell and spigot with rubber-ring sealed gasket joint.
 2. Fittings: PVC.
 3. Joints:
 - a. Comply with ASTM F477.

- b. Gaskets: Elastomeric.
- 4. Manufacturers:
 - a. JM Eagle
 - b. North American Pipe Corporation
 - c. Or approved equal
- C. Corrugated High Density Polyethylene Pipe (CHDPE):
 - 1. Pipe & Fittings:
 - a. Material: Corrugated PVC pipe with smooth interior must be manufactured from PVC virgin compounds, except clean, reworked, recycled PVC materials generated from the manufacturer’s pipe or fitting fabrication may be reused.
 - b. Corrugated PVC pipe and fabricated fittings shall be manufactured using High Density Polyethylene (HDPE) as defined and described in ASTM D3350 meeting the minimum requirements of cell classification of
 - 1) 424420C for 4”-10” pipe diameters and
 - 2) 435400C for 12”-60” pipe diameters, except the carbon black content should not exceed 4%.
 - c. Size:
 - 1) 4-inch through 10-inch: Comply with AASHTO M252, Type S and ASTM F2648
 - 2) 12-inch through 60-inch: Comply with AASHTO M294, Type S; ASTM F2306 and ASTM F2648
 - d. Manning’s n value: 0.012
 - e. Minimum pipe stiffness when tested under ASTM D2412 shall conform to the following Table:

Nominal ID (inches)	Min. Pipe Stiffness at 5% Deflection (psi)
4	50
6	50
8	50
10	50
12	50
15	42
18	40
24	34
30	28
36	22
42	20
48	18
60	14

- f. Minimum Pipe cover: 24-inches to finish grade.
- g. Color: Black
- h. Style: Watertight Bell and spigot with rubber-ring sealed gasket joint meeting AASHTO M252, M294 or ASTM F2306. The integral joints shall be watertight according to ASTM D3212.
- i. Joints: Joint shall provide a minimum pull-apart strength of 400lbs. The bell shall be an integral part of the pipe. Joints shall remain silt-tight when subjected to a 1.5° axial misalignment.
- j. Elastomeric gaskets must comply with ASTM F477. Install joints so that the elastomeric gasket will be compressed radially between the pipe bell and spigot to form a tight seal when assembled.
- k. Wyes, tees, reducers, elbows, coupling, laterals, and other fittings must be molded or fabricated meeting the requirements of AASHTO M252, M294 or ASTM F2306.
- l. Lubricant shall be applied to the bell and gasket during installation and must comply with pipe manufacturer's instructions.

2. Manufacturers:

- a. N-12[®] WT as manufactured by Advanced Drainage Systems, Inc.
- b. Prinsco Goldflo WT[®] Pipe
- c. Hancor, Inc. – Blue Seal[®] WT IB pipe
- d. Contech Eagle Corr PE[™] (Dual Wall)
- e. Or approved equal

2.2 DRAINAGE STRUCTURES

- A. Description: As specified in [Section 33 05 13 - Manholes and Structures](#).

2.3 CONCRETE ENCASEMENT AND CRADLES

A. Concrete:

1. Description: Reinforced concrete, as specified in [Section 03 30 00 – Utility Cast-in-Place Concrete](#).
2. Compressive Strength: 4,000 psi at 28 days, reinforced concrete, air-entrained rough-troweled finish.

- B. Reinforcement: As specified in [Section 03 30 00 - Utility Cast-in-Place Concrete](#).

2.4 MATERIALS

- A. Bedding and Backfill:

1. Bedding & Backfill: Bedding and Backfill shall be as specified in [Section 31 23 16 - Utility Trenching](#)

2.5 MIXES

- A. Grout: As specified in [Section 03 60 00 – Grouting](#)
- B. Concrete Encasements and Cradles:
 1. Class A concrete, as specified in [Section 03 30 00 – Utility Cast-in-Place Concrete](#).

2.6 ACCESSORIES

- A. Pipe Support Brackets: Galvanized structural steel coated with bituminous paint.
- B. Pipe Markers: As specified in [Section 33 05 26 - Utility Identification](#).
- C. Drainage Structures:
 1. Catch Basins, Inlets, Manholes and other Drainage Structures: As specified in [Section 33 05 13 - Manholes and Structures](#).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that trench cut is ready to receive Work.
- B. Verify that excavations, dimensions, and elevations are as indicated on drawings.

3.2 PREPARATION

- A. [Section 01 70 00 - Execution](#): Requirements for installation preparation.
- B. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.
- C. Protect and support existing sewer lines, utilities, and appurtenances.
- D. Utilities:
 1. Maintain profiles of utilities.
 2. Coordinate with other utilities to eliminate interference.
 3. Notify Project Manager if crossing conflicts occur.

3.3 INSTALLATION

A. Excavation and Bedding:

1. Excavate pipe trench and providing sheeting and shoring as specified in [Section 31 23 16 – Utility Trenching](#).
2. Hand trim excavation for accurate placement of piping to indicated elevations.
3. Dewater excavations to maintain dry conditions to preserve final grades at bottom of excavation.
4. Level materials, maintaining optimum moisture content of bedding material, compacting subgrade shall conform to [Section 31 23 16 – Utility Trenching](#).
5. Cradle bottom 20 percent of diameter to avoid point load.

B. Piping:

1. Install pipe, fittings, and accessories according to ASTM D2321.
2. Install pipes in prepared trenches starting at the lowest point, with the spigot ends pointing in the direction of flow.
3. Seal joints watertight.
4. Place pipe on bedding meeting bedding requirements as specified in [Section 31 23 16 – Utility Trenching](#).
5. Unless otherwise required, all pipe shall be laid straight between the changes in alignment and at uniform grade between changes in grade.
6. The rubber gasket joint shall be made by properly lubricating the rubber gasket with a suitable vegetable compound soap before it is placed in the groove at the spigot end. The gasket shall be stretched over the spigot end of the pipe and carefully seated in the groove, with care taken to equalize the stress in the gasket around the circumference of the joint. The gasket shall not be twisted, rolled, cut, crimped, or otherwise injured or forced out of position during the closure of the joint. A feeler gauge shall be used to check the position of the rubber gasket after the joint has been assembled. Where a joint placement is found to be improper, the tested pipe section shall be removed, the gasket checked for damage, a new gasket installed, if necessary, the pipe re-laid and the gasket placement rechecked.
7. Pointing and bonding mortar at pipe connections to structures shall be plastic and of such consistency that it will readily adhere to the pipe and structure.
8. Install backfill at sides and over top of pipe.
9. Compact to percent maximum density as specified in [Section 31 23 16 – Utility Trenching](#).
10. Install water stop at all pipe entry into structures.
11. Backfilling and Compaction:
 - a. As specified in [Section 31 23 16 – Utility Trenching](#).
 - b. Do not displace or damage pipe while compacting.

12. Pipe Markers: As specified in [Section 33 05 26 - Utility Identification](#).

C. Drainage Structures:

1. Catch Basins, Inlets, Manholes, and Other Drainage Structures: As specified in [Section 33 05 13 - Manholes and Structures](#).

3.4 TOLERANCES

A. [Section 01 45 00 - Quality Control](#): Requirements for tolerances.

B. Maximum Variation from indicated Pipe Slope: 1/8 inch in 10 feet.

3.5 FIELD QUALITY CONTROL

A. [Section 01 45 00 - Quality Control](#): Requirements for testing, adjusting, and balancing.

B. Request inspection by Project Manager prior to backfill in pipe zone and immediately after placing aggregate base over pipe in the pipe zone.

C. Testing:

1. If tests indicate that Work does not meet specified requirements, remove Work, replace, and retest.

2. Compaction Tests:

a. Comply with ASTM D1557, ASTM D698, AASHTO T180, and ASTM D6938.

3.6 PROTECTION

A. [Section 01 77 00 - Closeout Requirements](#): Requirements for protecting finished Work.

B. Protect pipe and aggregate base from damage or displacement until backfilling operation is in progress.

END OF SECTION 33 41 13

SECTION 33 41 20 – GEOCOMPOSITE DRAIN**PART 1 - GENERAL**

1.1 SUMMARY

- A. Geocomposite Wall Drain work shall conform to the provisions of Section 96-1.02C, "Geocomposite Wall Drain," of the State Standard Specifications and these Special Provisions.

Work shall include but not be limited to furnishing and installing geocomposite wall drain material as required for the construction of the retaining wall as shown on the Plans and as directed by the Engineer.

- B. Related Sections:

1. Section 01 01 00 – Develop Site Access and Staging Area
2. Section 01 50 01 – Temporary Silt Fence
3. Section 02 41 00 – Demolition
4. Section 03 30 00 – Utility Cast-in-Place Concrete
5. Section 03 40 00 – Mechanically Stabilized Earth Wall
6. Section 03 50 00 – Shoring Pile
7. Section 31 05 13 – Clearing & Grubbing, Excavation, and Earthwork
8. Section 31 05 14 – Geogrid
9. Section 31 07 00 – Temporary Fiber Roll
10. Section 31 08 00 – Bonded Fiber Matrix
11. Section 31 09 00 – Permeable Material
12. Section 31 10 00 – Mechanically Stabilized Embankments
13. Section 31 23 16 – Utility Trenching
14. Section 33 41 13 – Storm Drainage Piping
15. Section 33 41 20 – Geocomposite Drain

16. Project Geotechnical report; borehole locations and findings of subsurface materials if applicable.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

A. Geocomposite Drain

1. Basis of Measurement: The bid item "Geocomposite Drain" will be measured for payment by the square yard (SQYD) determined from the dimensions shown on the Plans.
2. Basis of Payment: The Contract price bid per square yard (SQYD) for the bid item "Geocomposite Drain" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work associated with this item (including furnishing and installing geocomposite wall drain material) as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

1.3 REFERENCES

A. State Standard Specifications:

Section 96-1.02C – Geocomposite Wall Drain

1.4 SUBMITTALS

- A. [Section 01 33 00 - Submittal Procedures](#): Requirements for submittals.
- B. Samples: Submit samples of the silt fence when requested by the Project Manager.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

PART 2 - PRODUCTS

2.1 GEOCOMPOSITE DRAIN

- A. The geocomposite shall have filter fabric installed on both sides of a polymeric core. The polymeric core shall be capable of draining from both sides.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Geocomposite drain material must be approved by the Engineer prior to placement. Installation of the geocomposite drain material shall be per the recommendations of the manufacturer.

END OF SECTION 33 41 20

Appendix A

City Standard Details and Specifications

APPENDIX A

CITY STANDARD DETAILS AND SPECIFICATIONS can be downloaded at <https://www.pittsburgca.gov/how-do-i/get-building-permit-zoning-info/obtain-city-standard-details-and-specifications>. These shall supplement the contract technical specifications and documents.

Appendix B

Geotechnical Memorandum For Reference Only

BUCHANAN ROAD SLOPE REPAIR PROJECT

PITTSBURG, CALIFORNIA

CE&G DOCUMENT NO.: 0208379-001

9 JANUARY 2024

Prepared for:

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FIGURES

Figure 1 – Site Location

Figure 2 – Boring Location and Geologic Map

APPENDICES

Appendix A. Boring Logs

Appendix B. Laboratory Test Results

Appendix C. Calculations

1.0 INTRODUCTION

This design memorandum has been prepared in support of design and plans for repair of a slope failure which occurred at Buchanan Road between Quercus Lane and Heights Avenue in Pittsburg. The work is intended to repair only the area of the slope that was involved in the slope failure which developed in late 2022 and early 2023. Adjacent areas of the hillside that was not active in the recent slope failure activity, will not be repaired.

2.0 SITE AND PROJECT DESCRIPTION

2.1 SITE DESCRIPTION

During the storm events in late 2022 and early 2023, a portion of a slope along the south side of Buchanan Road failed. The failed slope is approximately 200 feet long and 30 feet tall and is located on the south side of Buchanan Road between Quercus Lane and Heights Avenue. The slope failed in several areas between the road and the crest of the slope along the back of the residential properties along Hillview Drive.

2.2 PROJECT DESCRIPTION

Repair of the slope can be accomplished by excavating the failed slope and reconstructing the embankment as a geosynthetically-reinforced engineered fill. To avoid the need to off-haul and return excavated materials, the work will likely be constructed in limited width “slots”. Traffic control and complete closure of the eastbound lane and south bike lane and re-routing the two lanes of traffic to the median, the existing westbound lane, and the north side bike lane will be needed. The traffic control will require the installation of a temporary K-rail and temporary signage and possibly temporary striping and re-striping. Traffic control will need to be provided before, during, and after construction of the repair work.

3.0 PURPOSE AND SCOPE OF WORK

The purposes of our work were to investigate the slope failure and to prepare plans and specifications for the repair. Our scope of work included, but was not limited to:

- Bi-weekly meetings with the City to give update on the budget, schedule, and specific design elements;
- Site visits by engineering geologist and geotechnical engineers to observe and discuss the site conditions;
- A review of published soil and geologic maps of the area in our files;
- Collection of aerial digital imagery using an unmanned aerial system (UAS, aka drone) to create an orthophoto map used in the design process;

- Completion of subsurface explorations;
- Laboratory testing of the materials recovered from the site;
- Engineering analysis of the collected data and development of geotechnical design parameters for the selected repair;
- Development of 65% plan sheets and specifications;
- Preparation of this geotechnical design memorandum; and
- Preparation of 100% plans and specifications for permitting and construction.

4.0 GEOLOGIC SETTING

The bedrock geology of the site is included in the USGS map of bedrock formations within Contra Costa County (Graymer et al. 1994). The bedrock underlying the site slopes is mapped as Pliocene rock of the Tulare Formation. This bedrock consists of “poorly-consolidated, non-marine, grey to maroon siltstone, sandstone, and conglomerate”. Mapping shows these rocks forming the lower north-facing slopes of the predominant northwest-southeast trending ridgeline south of Pittsburg. The bedrock regionally exhibits a moderate dip to the north-northeast. The upper several feet of this bedrock will generally be highly weathered where near the ground surface, and will be overlain by a thin rind of colluvial soil that has settled onto the flatter portions of the slopes.

5.0 FIELD INVESTIGATION

We conducted a field investigation of the site in support of the proposed slope repair design. The field investigation consisted of the advancement of four soil borings terminated in competent material, a UAS mapping of the site, and geologic mapping of soil and bedrock materials and the slope conditions at the time of our field investigation.

The soil borings were advanced between 31 July and 1 August, 2023 by Access Soil Drilling. The borings were advanced using a tripod-mounted rope and cathead assembly which was used to continuously drive split-spoon samplers under the force of a 140-lb hammer falling 30 inches. The samplers used were the Modified California (3” and 2.5” O.D.) and 2” O.D. SPT sampler. The exploratory drilling, which included the logging of borings and collection of samples for laboratory testing, was overseen by one of our engineering geologists. The subsurface materials were visually classified using the Unified Soil Classification System (USCS) (ASTM D2488). The borings were terminated upon refusal and were backfilled with neat cement grout under the observation of an inspector from the Contra Costa County Department of Environmental Health.

The soil borings were advanced to depths ranging from 9.0 to 13.5 feet below ground surface. The material encountered within the borings was classified as stiff Sandy Clay (CL), soft to stiff Clayey Sand (SC), very dense Poorly-Graded Sand (SP) and Siltstone bedrock. The siltstone encountered near the site surface was classified as weak, very highly weathered and highly friable rock. Groundwater was not encountered in any of the borings during our subsurface exploration. Our logs of the soil borings can be found in Appendix A of this memorandum.

The UAS mapping was completed on 31 August 2023 by Haley and Aldrich computational geoscientists. The mapping consisted of setting ground control, coordinating with surveyor to use the proposed ground control, and conducting a UAS flight to collect LiDAR derived topographic data and imagery.

Our geologic mapping of the site consisted of our engineering geologist recording data and performing measurements pertinent to the slope geometry and bedrock conditions. We identified slope failures that occurred during or following the rain season of 2022-2023. These features were mapped along with cut and fill data and bedrock structural data that could be collected from the available rock exposures. The results of the site mapping are presented on Figure 2, "Boring Location and Geologic Map".

6.0 LABORATORY TESTING

Laboratory testing was performed to obtain information concerning the physical and index properties of the samples recovered from the site. Tests performed included, Atterberg limits and moisture-density tests. The tests were completed in general conformance with applicable ASTM standards. The results of the laboratory tests are summarized in Appendix B.

The soil classifies as light brown clayey sand to brownish yellow clay with sand. Moisture density tests indicated that the in-situ soil has a total density ranging from 110 pcf to 129 pcf, and in-situ moisture content ranging from 11% to 29%.

7.0 FINDINGS AND ALTERNATIVES DISCUSSIONS

Based on our site reconnaissance and investigation, it is our opinion that the slope failures within the project area occurred as shallow separate failures in the relatively steep existing slopes due to the high rainfall amounts in late 2022 and early 2023.

If left unrepaired, it is likely that successive winter rains will result in further degradation of the slope and debris migrating downslope further and onto the road.

Two alternatives were considered during our conceptual design. The first alternative is to excavate and rebuild the slope as a geogrid reinforced slope with a small segmental retaining wall at the toe. The second alternative is to excavate the toe of the slope and build a cast-in-place gravity retaining wall. Both alternatives require construction shoring support. Alternative 1 will grade the slope to its original grade while Alternative 2 will need a gentler slope to reduce the size of the gravity wall. Based on our findings and discussions with the city, we recommend the landslide to be repaired using earthwork type repair methods (Alternative 1). Section 8.0 discusses the design recommendations for Alternative 1.

8.0 REPAIR RECOMMENDATIONS

8.1 GENERAL SCOPE OF WORK

We recommend that the slopes be repaired by selected remedial grading, construction of a segmental retaining wall, drainage improvements, and erosion control measures. A construction shoring pile system is also recommended at the top of the slope to support the private properties upslope of the repair during construction. The remedial grading should consist of excavating the landslide debris to expose competent bedrock, installing a sub-drain system, and placing a geogrid reinforced engineered fill (where required by plans) using the available on-site materials. The finished slope should conform with adjacent slopes outside the limits of excavation and should be hydroseeded and covered with erosion control mat (or alternatively with a seeded bonded fiber matrix) after the remedial grading has been completed. At the toe of repaired slope, a segmental retaining wall will be needed to restore the slope inclination to its original one.

Plans and specifications for the recommended repair measures are included in a separate submittal.

8.2 SEISMIC HAZARD EVALUATION

The project site is located within the greater San Francisco Bay Area which is recognized as one of the more seismically active regions of California. Earthquake hazards of the site is evaluated using U.S. Geological Survey unified hazard tool. The design peak ground acceleration at the site with a 475-year return period is determined as 0.51g. The slope repair should be designed to limit seismic displacements to an acceptable level following “Guidelines for Evaluating and Mitigating Seismic Hazards in California” (Special Publication 117A), seismic coefficient of the site is evaluated based on a pseudo-static approach. The coefficients are determined as 0.25 under threshold displacements of 5 cm.

The analyses of seismic parameters are included in the calculation packages attached in Appendix C.

8.3 CAST-IN-DRILLED-HOLE CONCRETE PILES

The shoring pile depths, diameter, spacing and embedment depth are based on configuration shown on the plans included in a separate submittal. The geotechnical and structural requirements of shoring piles are analyzed using Shoring Suite (CivilTech) and moment capacity of designed piles are evaluated using LPILE (Ensoft). Both analyses are included in the calculation packages attached in Appendix C. The design recommendations are:

- Temporary shoring considers a static factor of safety of 1.2;
- The piles should be spaced at a maximum of three pile diameters to allow soil arching between the piles;
- Active pressure considers pressure along pile spacings at the exposed 10' height, and active pressure slope is taken as 44 pcf considering slope angle of 18.5°;
- Passive resistance considers pressure along two pile diameters, and passive pressure slope is taken as 125 pcf from 11' to 20' below top of wall and taken as 480 pcf below 20' from top of wall.

Based on analyses using the aforementioned recommendations, shoring piles in 2.5' diameter with 7.5' spacings are designed and shown on plans as included in a separate submittal. The piles should be constructed as follows:

The bottoms of CIDH piles should be dry and free of loose cuttings and debris prior to installation of the reinforcing steel and concrete. This shall be done to the satisfaction of the engineer or geologist from Haley & Aldrich, Inc. observing the drilling operations. The concrete should be placed carefully in the CIDH holes so that over pouring of the piers (mushrooming at the top) does not occur and the concrete does not have a free fall drop in excess of 4 feet.

Free groundwater was not encountered during our exploratory drilling at the site. However, groundwater levels can fluctuate seasonally and over a period of years, so it is possible that adverse groundwater conditions will be encountered during drilling of the shoring piles. The contractor must be prepared to drill and place the steel and concrete for the shoring piles on the same day, should adverse groundwater condition be encountered during construction. Under no circumstances shall water be allowed to remain in a drilled

pile excavation overnight. Should this occur, it will be necessary for the contractor to enlarge the hole to a wider diameter and/or a greater depth to the satisfaction of the engineer or geologist from our office who is observing the drilling operation.

8.4 EARTHWORK

Before beginning the grading operation, the site should be cleared and grubbed of existing vegetation. Prior to placement of engineered fill, all loose soil and vegetation should be removed from the areas to receive fill. All fills shall be founded on firm competent soil and/or bedrock materials. It is anticipated that the depth to firm competent bedrock will be variable across the site. It is recommended that a representative of Haley & Aldrich, Inc. observe the subgrade materials in all excavation prior to placement of new engineered fill.

Fill materials shall be compacted to a relative compaction of at least 90 percent as determined by the ASTM D-1557 (latest revision) test procedure at a moisture content of approximately 3 percent above optimum (ASTM D1557). Fill materials shall be spread evenly and compacted in uniform lifts not exceeding 8 inches in uncompacted thickness. Fill materials which do not meet the specified relative compaction shall be ripped, moisture conditioned, and re-compacted until the required relative compaction and moisture content are attained.

All existing undocumented fill and slope failure debris should be removed and placed as compacted earth fill. The engineered fill should be keyed and benched into firm soil and/or bedrock materials. The landslide deposit should be removed, and the excavation deepened as needed to expose competent materials to the satisfaction of the Haley & Aldrich, Inc. engineer and/or geologist. The slope face should be overbuilt approximately 1 feet and trimmed back to the desired grades to reduce the potential for future shallow surface failures. It has been our experience that compaction is significantly reduced in the outer edges of the engineered fill slopes, thus giving increased potential for shallow surficial sliding and increased soil creep on the slope face.

The engineered fill shall be reinforced, where required on the plans, with primary and secondary layers of geogrid. The primary geogrid layers shall have a minimum long-term design strength of no less than 2100 pounds per linear foot and shall be spaced no more than 3 vertical feet apart. The secondary grids shall have a minimum long-term design strength of no less than 1400 pounds per linear foot and shall be spaced no more than 1 vertical foot apart between the primary grids. Geogrid lengths and spacing are shown on the repair plans included in a separate submittal.

We anticipate the need to import only minor amounts of fill materials to complete the slope repair. If import fill materials are to be used, then they must be reviewed and approved by the engineer prior to importation to the site. A minimum of five days will be required to evaluate and test the suitability of all proposed imported materials. All imported materials shall be non-expansive and have a Plasticity Index less than 12 percent and a Liquid Limit of 35 percent or less. The imported material shall be free of organic debris or contaminated materials.

8.5 SLOPE STABILITY

The repair has been designed as a reinforced slope using the soil properties as shown in Table 1. The design parameters of geogrids have been discussed in sections 7.4.

Table 1. Soil Properties used in Reinforced Slope Analysis

Materials	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (°)
Competent-Materials (bedrock)	125	1000	36
Backfill-Materials	125	50	33

The static and seismic slope stability of the repaired slope are analyzed in SLIDE (Rocscience) and included in the calculation packages as attached in Appendix C. Under static loading, the reinforced slope has a Safety Factor of 1.7; the slope shows safety factor of 1.3 under seismic loadings. A seismic (pseudostatic) factor of safety exceeding 1 under 5 cm threshold indicates that the slope is anticipated to experience less than 5 cm displacements from the design level earthquake having a 10% chance of exceedance in 50 years.

8.6 SEGMENTAL RETAINING WALL

As part of the reinforced slope system, a segmental retaining wall with geogrid reinforcements is required at the toe of slope. The retaining wall will be up to six feet tall with 2.7 feet embedment. The geogrid reinforcement shall have a minimum long-term design strength of 2100 pounds per linear foot and shall be spaced no more than 2 feet (3 courses) apart. The details of segmental retaining wall can be found on the plans in a separate submittal.

Design of the retaining wall has been performed using Eneccalc Structural Engineering Calculation Software. The program allows the input of design parameters and determines the factors of safety for internal and external stability. Note that only static case was checked for the wall since there is no need to check seismic stability for wall with height shorter than 6 feet, as indicated from the International Building Code.

The calculations are included in Appendix C and soil parameters used in design is listed in Table 2.

Table 2. Soil Properties used in Retaining Wall Analysis

Materials	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (°)
Reinforced Soil	125	0	33
Retained Soil	125	50	33
Foundation Soil	125	1000	36

8.7 DRAINAGE IMPROVEMENTS

The repair assumes that subsurface drainage systems will be installed as shown on the repair plans. The subsurface drainage systems consist of installing embankment sub-drains within the excavation at the locations shown or as directed in the field by a Haley and Aldrich representative. The repair also includes surface drainage improvements including concrete ditches and drop inlets as shown on the plans. The subdrain system can be connected directly into city storm drain or connected with the surface drain system inlet at the bottom of the slope, prior to discharging to the city storm drain system. The subsurface and surface drainage improvements can be found on the plans included in a separate submittal.

8.8 EROSION CONTROL MEASURES

Areas disturbed by the grading shall receive erosion control measures as shown on the repair plans. These measures consist of, but not limited to, hydroseeding, erosion control mats, silt bags, and fiber rolls. It is the responsibility of the contractor to ensure that BMP's

are utilized during the work to prevent sediments from entering the storm drain system. At a minimum, the contractor shall line all drain inlets with silt bags and wrap drain covers with filter fabric.

9.0 LIMITATIONS

The conclusions and recommendations of this design memorandum are based upon, information provided to us regarding the initial landslide, subsurface conditions encountered in our exploratory borings, the results of our laboratory testing, interpretation of the collected data, and professional judgment. We have employed accepted geotechnical engineering and engineering geologic procedures, and our professional opinions and conclusions are made in accordance with generally accepted geotechnical engineering and engineering geologic principles and practices. This standard is in lieu of all warranties, either expressed or implied.

Site conditions described in the text of this report are those existing at the time of our last field reconnaissance in August 2023 and are not necessarily representative of the site conditions at other times or locations.

Unanticipated soil conditions are frequently encountered during construction and cannot be fully determined by excavating and sampling a limited number of exploratory borings. Additional expenditures may be required during the construction phases of the project if conditions vary. It is recommended that a contingency fund be established to cover potential adverse soil and groundwater conditions which may be encountered during site development. If it is found during construction that subsurface conditions differ from those described within this report, then the conclusions and recommendations in this report shall be considered invalid, unless the changes are reviewed, and the conclusions and recommendations modified and approved in writing by Haley & Aldrich, Inc.

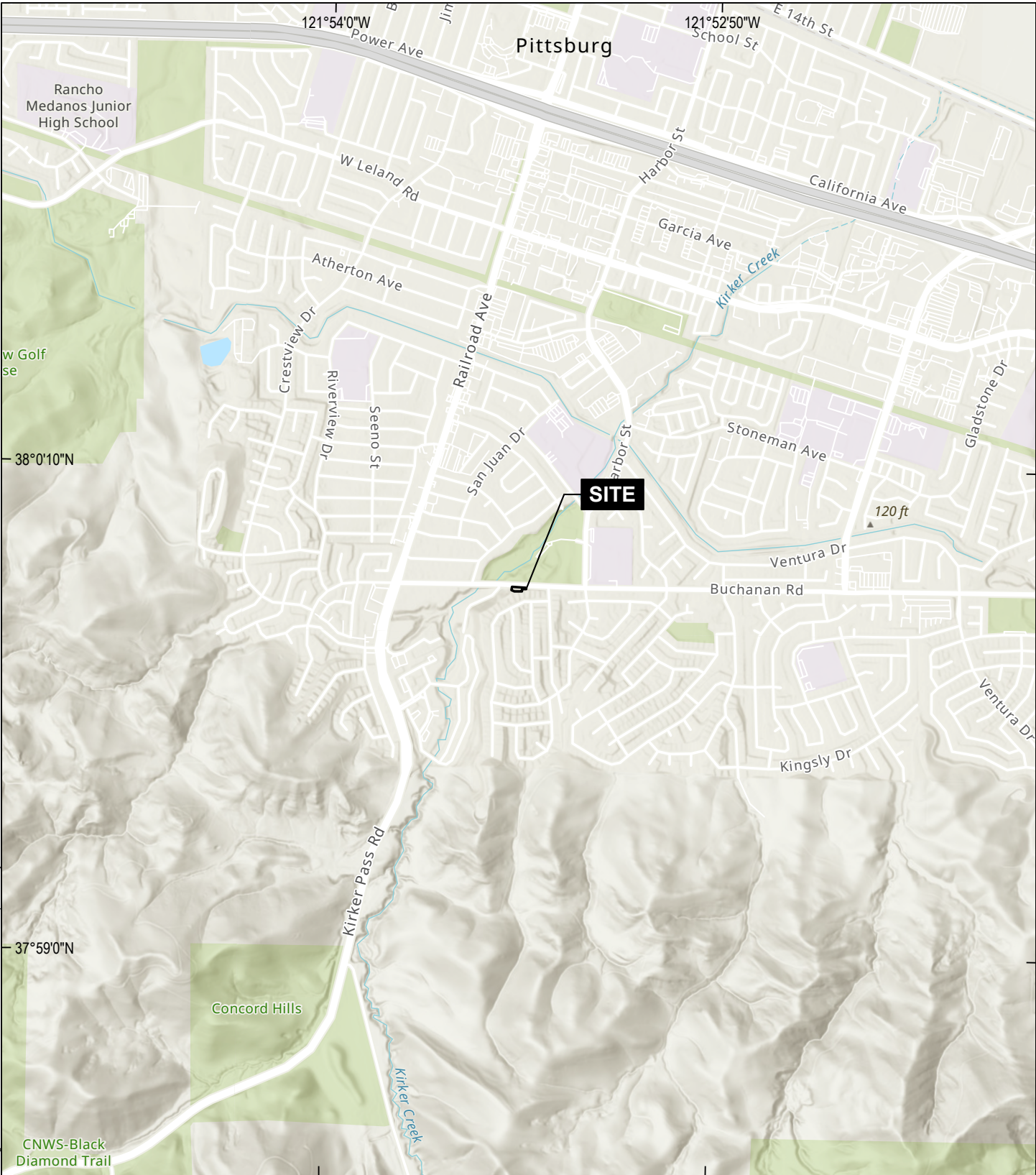
The findings of this report should be considered valid for a period of three years unless the conditions of the site change. After a period of three years, we should be contacted to review the site conditions and prepare a letter regarding the applicability of this report.

Field observation and testing services are essential parts of the proposed project. It is important that Haley & Aldrich, Inc. be retained to observe the excavation, earthwork, and other relevant construction operations. The recommendations of this report are contingent upon this stipulation.

The evaluation or identification of the potential presence of hazardous materials at the site was not requested and is beyond the scope of this project. If you have any questions regarding this report, or if we may be of further service, please contact us.

10.0 REFERENCES

- American Society of Civil Engineers, 2007, Standard Test Methods for Laboratory Compaction Characteristic for soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 KN-m/m³) : ASTM D1557, 2007.
- California Department of Transportation, 2011, Trenching and Shoring Manual, Offices of Structure Construction, Revision 1.
- California Geological Survey, 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117A.
- Graymer, R.W., Jones, D.L., and Brabb, E.E., 1994, Preliminary geologic map emphasizing bedrock formations in Contra Costa County, California, U.S. Geological Survey, Open-File Report 94-622, Scale 1:75,000.
- U.S. Geological Survey, 2021, Unified Hazard Tool, U.S. Geological Survey, available on-line at <https://earthquake.usgs.gov/hazards/interactive/>



GIS: \\haleyaldrich.com\share\granite\2023\0208379 Pittsburg Buchanan Rd Landslide\GIS\ArcGIS\202308379-Buchanan\Fld.aprx - kdrozmyska - 10/10/2023 10:56 AM



CA



MAP SOURCE: ESRI
 SITE COORDINATES: 37°59'52"N, 121°53'26"W

**HALEY
 ALDRICH**

2023 SLOPE FAILURE REPAIR
 BUCHANAN RD (BETWEEN QUERCUS LN AND HEIGHTS AVE)
 PITTSBURG, CALIFORNIA

SITE LOCATION

APPROXIMATE SCALE: 1 IN = 2000 FT
 JANUARY 2024

FIGURE 1

Saved by: KIROZYNSKA \HALEY\ALDRICH.COM\SHARE\GRANTITE\2023\08\20\2030\20379 PITTSBURG BUCHANAN RD LANDSLIDE\AUTOCAD\FIGURES\FIG2-SITEPLAN-HA.DWG
 Printed: 10/16/2023 12:54 PM Sheet: HA-FIG-D-1



LEGEND

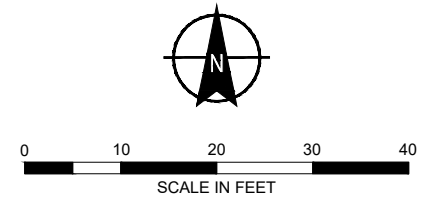
- BORING LOCATION BY H&A, 7/31/2023
- LANDSLIDE
- SCARP
- LANDSLIDE DEPOSIT (RECENT)
- OLDER LANDSLIDE DEPOSIT
- SILTSTONE TO SANDY CONGLOMERATE (TULARE FORMATION)

NOTES

- N₁ EXPOSURE OF SOFT, HIGHLY WEATHERED SILTSTONE IN SHALLOW SCARP BEDDING; N88°W/35°NE
- N₂ EXPOSURE OF SILTY CONGLOMERATE IN SHALLOW SCARP
- N₃ EVIDENCE OF SLIDING IS NOT FRESH. STEEP SCARP AND GRABEN VISIBLE, BUT FLANKS ARE SMOOTHED AND OVERGROWN WITH VEGETATION

NOTES

1. CONTOURS AND ORTHOIMAGERY DERIVED FROM AERIAL DRONE SURVEY, FLOWN 7/31/2023.
2. UTILITY SURVEY PROVIDED BY LCC, INC. DATED 9/8/2015.
3. PARCEL LINES FROM CONTRA COSTA GIS DATABASE.



HALEY ALDRICH 2023 SLOPE FAILURE REPAIR
 BUCHANAN RD (BETWEEN QUERCUS LN AND HEIGHTS AVE)
 PITTSBURG, CALIFORNIA

BORING LOCATION AND GEOLOGIC MAPPING

SCALE: AS SHOWN
 OCTOBER 2023

FIGURE 2

Appendix A. Boring Logs



GEOTECHNICAL TEST BORING REPORT

Boring No. B-1

Project Buchanan Road Slide Repair, Pittsburg, California
 Client City of Pittsburg
 Contractor Access Soil Drilling

File No. 0208379-000
 Sheet No. 1 of 1
 Start 31 July 2023
 Finish 31 July 2023
 Driller Juan
 H&A Rep. D. Tikunoff

	3.0 / 2.5	Drilling Equipment and Procedures	
Boring Diameter (in.)	Safety Hammer	Rig Make & Model: Tripod	Elevation 204.00 ft
Hammer Type	140	Bit Type: N/A	Datum
Hammer Weight (lb)	30	Drill Mud: N/A	Location
Hammer Fall (in.)		Casing: N/A	Latitude 37.9978°N
		Hoist/Hammer: Rope and Cat-head Safety Hammer	Longitude 121.8905°W
		PID Make & Model: N/A	

Depth (ft)	Sample Type	Sample No.	Recovery (in.)	Sampler Blows per 6 in.	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION <small>(GROUP NAME, density/consistency, color, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)</small>	Dry Density (pcf)	Moisture (%)	Fines (%)	Elevation (ft)	
0						CL	Sandy CLAY: Dark brown, dry, stiff, medium to fine sand PP~1.5 tsf -COLLUVIUM-					
5	MCS	1-1-5.5	5	15 34 50/5"	200.5 3.5	SC	Clayey SAND: Dark tan-brown, dry to slightly moist, hard, medium to fine sand, veins of CaCO3 LL=28, PI=9 -HIGHLY WEATHERED ROCK-				200	
	CSS	1-2-7.5	30	49 50/5"	198.5 5.5	SS	SILTSTONE: Buff to tan-brown, dry, soft, weak, very highly weathered, very friable, blocky, veins of CaCO3 LL=35, PI=19	98.5	14.3			
	SPT	1-3-9.0	23	33 44 50/5"								
10	SPT	1-3-11.0	36	33 44 50/5"			Similar to above, dark olive-brown, thin (~2 in.) horizons of fine gravel			13.0	195	
	SPT	1-3-13.0	25	50 54 50/5"			Similar to above					
15					190.5 13.5		BOTTOM OF EXPLORATION 13.5 FT				190	
							No groundwater encountered. Borehole backfilled with neat cement grout.					

Water Level Data					Sampler Type Legend			Summary			
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			CSS - California Standard Sampler	MCS - Modified California Sampler (2.43-in ID)	SPT - Standard Penetration Test	ST - Shelby Tube	GB - Grab Sample	Overburden (ft) 13.0
			Bottom of Casing	Bottom of Hole	Water						
											Boring No. B-1

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

*Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A BORING MDH 2016 SAMPLE-TIKUNOFF R8 0208379_HA-CALIFORNIA.GLB \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\0208379\GINT\0208379_CA_GEO_BORINGS.GPJ 3 Oct 23



GEOTECHNICAL TEST BORING REPORT

Boring No. B-2

Project Buchanan Road Slide Repair, Pittsburg, California
 Client City of Pittsburg
 Contractor Access Soil Drilling

File No. 0208379-000
 Sheet No. 1 of 1
 Start 31 July 2023
 Finish 31 July 2023
 Driller Juan
 H&A Rep. D. Tikunoff

		Drilling Equipment and Procedures	
Boring Diameter (in.)	3.0 / 2.5	Rig Make & Model: Tripod	Elevation 186.00 ft
Hammer Type	Safety Hammer	Bit Type: N/A	Datum
Hammer Weight (lb)	140	Drill Mud: N/A	Location
Hammer Fall (in.)	30	Casing: N/A	Latitude 37.9979°N
		Hoist/Hammer: Rope and Cat-head Safety Hammer	Longitude 121.8906°W
		PID Make & Model: N/A	

Depth (ft)	Sample Type	Sample No.	Recovery (in.)	Sampler Blows per 6 in.	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION <small>(GROUP NAME, density/consistency, color, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)</small>	Dry Density (pcf)	Moisture (%)	Fines (%)	Elevation (ft)
0	MCS	2-1-1.5	16	3 4 7 11		ML-CL	Clayey SILT: Mottled dark brown and buff, very moist, soft to medium stiff PP<0.5 tsf -LANDSLIDE DEPOSIT-	85.6	29.0		185
	MCS	2-2-3	15	7 13 28 27	183.0 3.0	CL	CLAY with Sand: Dark yellow-brown, dry to slightly moist, very stiff, medium to fine sand -HIGHLY WEATHERED ROCK-				
5	CSS	2-3-5.5	15	20 28 41 50/5"	180.5 5.5	SS	SILTSTONE: Buff to yellow-brown, dry, soft, very friable, highly weathered, weak rock, veins and nodules of CaCO3	107.4	20.3		180
	SPT	2-4-7.5	13	17 25 38 50/5"							
	SPT	2-5-8.5		50 50/5"	177.0 9.0						
10							BOTTOM OF EXPLORATION 9.0 FT				
							No groundwater encountered. Borehole backfilled with neat cement grout.				175
15											

Water Level Data						Sampler Type Legend			Summary			
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			CSS - California Standard Sampler	MCS - Modified California Sampler (2.43-in ID)	SPT - Standard Penetration Test	ST - Shelby Tube	GB - Grab Sample	Overburden (ft)	9.0
			Bottom of Casing	Bottom of Hole	Water							
											Samples	5
Boring No. B-2												

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**
Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

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GEOTECHNICAL TEST BORING REPORT

Boring No. B-3

Project Buchanan Road Slide Repair, Pittsburg, California
 Client City of Pittsburg
 Contractor Access Soil Drilling

File No. 0208379-000
 Sheet No. 1 of 1
 Start 31 July 2023
 Finish 31 July 2023
 Driller Juan
 H&A Rep. D. Tikunoff

	3.0 / 2.5	Drilling Equipment and Procedures	
Boring Diameter (in.)	Safety Hammer	Rig Make & Model: Tripod	Elevation 174.00 ft
Hammer Type	140	Bit Type: N/A	Datum
Hammer Weight (lb)	30	Drill Mud: N/A	Location
Hammer Fall (in.)		Casing: N/A	Latitude 37.9979°N
		Hoist/Hammer: Rope and Cat-head Safety Hammer	Longitude 121.8906°W
		PID Make & Model: N/A	

Depth (ft)	Sample Type	Sample No.	Recovery (in.)	Sampler Blows per 6 in.	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION <small>(GROUP NAME, density/consistency, color, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)</small>	Dry Density (pcf)	Moisture (%)	Fines (%)	Elevation (ft)
0						CL	Sandy CLAY: Mottled dark brown and yellow-brown, moist, soft, fine sand, moderate plasticity -LANDSLIDE DEPOSIT-				
		Hand Auger			172.0	CH	Fat CLAY with Sand: Light olive-brown, slightly moist, stiff, medium to fine sand, moderate plasticity, nodules of CaCO3, lacks internal structure LL=54, PI=35 -HIGHLY WEATHERED ROCK-				
	MCS	3-1-4.0	14	10 20 22 27	2.0			98.4	24.5		170
5	MCS	3-1-6.0	17	16 24 35 45							
	CSS	3-3-7.5	18	14 33 50/5"	167.0	SS	SILTSTONE: Dark olive-brown, dry to slightly moist, soft, weak, highly weathered, weak internal structure, very friable, contains CaCO3 nodules				
	SPT	3-4-9.5	17	17 22 28 40	7.0				18.2		165
10	SPT	3-5-11.0	15	30 34 48 50/2"			Similar to above, more sand, pebbly				
	SPT	3-6-12.5	11	98 50/5"							
					161.0		BOTTOM OF EXPLORATION 13.0 FT				
15					13.0		No groundwater encountered. Borehole backfilled with neat cement grout.				160

Water Level Data					Sampler Type Legend			Summary			
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			CSS - California Standard Sampler	MCS - Modified California Sampler (2.43-in ID)	SPT - Standard Penetration Test	ST - Shelby Tube	GB - Grab Sample	
			Bottom of Casing	Bottom of Hole	Water						Overburden (ft)
										13.0	-
										6	
								Boring No. B-3			

Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

*Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.
 Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A BORING MDH 2016 SAMPLE-TIKUNOFF R8 0208379_HA-CALIFORNIA.GLB \\\HALEYALDRICH.COM\SHARE\CF\PRO\JECTS\0208379\GINT\0208379_CA_GEO_BORINGS.GPJ 3 Oct 23



GEOTECHNICAL TEST BORING REPORT

Boring No. B-4

Project Buchanan Road Slide Repair, Pittsburg, California
 Client City of Pittsburg
 Contractor Access Soil Drilling

File No. 0208379-000
 Sheet No. 1 of 1
 Start 31 July 2023
 Finish 31 July 2023
 Driller Juan
 H&A Rep. D. Tikunoff

		Drilling Equipment and Procedures	
Boring Diameter (in.)	3.0 / 2.5	Rig Make & Model: Tripod	Elevation 172.00 ft
Hammer Type	Safety Hammer	Bit Type: N/A	Datum
Hammer Weight (lb)	140	Drill Mud: N/A	Location
Hammer Fall (in.)	30	Casing: N/A	Latitude 37.9979°N
		Hoist/Hammer: Rope and Cat-head Safety Hammer	Longitude 121.8900°W
		PID Make & Model: N/A	

Depth (ft)	Sample Type	Sample No.	Recovery (in.)	Sampler Blows per 6 in.	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION <small>(GROUP NAME, density/consistency, color, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)</small>	Dry Density (pcf)	Moisture (%)	Fines (%)	Elevation (ft)
0	MCS	4-1-1.5	19	4 9 19 26		SC	Clayey SAND: Olive-brown, slightly moist, very stiff, fine sand, sparse nodules of CaCO ₃ , lacks internal structure -COLLUVIUM-	106.1	11.7		170
	MCS	4-2-3.5	16	21 37 40 42	169.0 3.0	SP	Poorly-graded SAND: Olive-brown, slightly moist, very dense, sugary fine sand, minor to weak internal structure -HIGHLY WEATHERED ROCK-	108.0	11.0		
5	CSS	4-3-5.5	18	15 25 37 43							
	SPT	4-3-7.5	21	21 27 32 50	165.0 7.0	SS	SILTSTONE: Dark olive-brown, dry to slightly moist, soft, weak, very highly weathered, friable, sparse nodules of CaCO ₃				165
	SPT	4-3-8.5		48 50/4"	163.0 9.0						
10							BOTTOM OF EXPLORATION 9.0 FT				
							No groundwater encountered. Borehole backfilled with neat cement grout.				160
15											

H&A BORING MDH 2016 SAMPLE-TIKUNOFF R8 0208379_HA-CALIFORNIA.GLB \\\HALEYALDRICH.COM\SHARE\CF\PROJECTS\0208379\GINT\0208379_CA_GEO_BORINGS.GPJ 3 Oct 23

Water Level Data				Sampler Type Legend			Summary	
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			CSS - California Standard Sampler	MCS - Modified California Sampler (2.43-in ID)	Overburden (ft) 9.0
			Bottom of Casing	Bottom of Hole	Water			
						ST - Shelby Tube	Samples 5	
						GB - Grab Sample	Boring No. B-4	

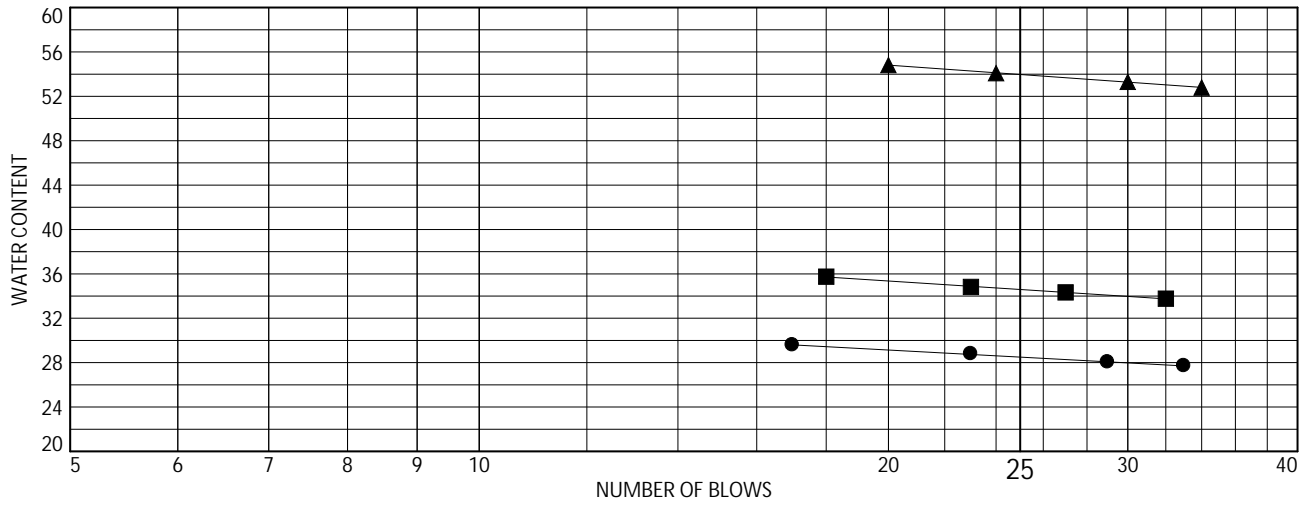
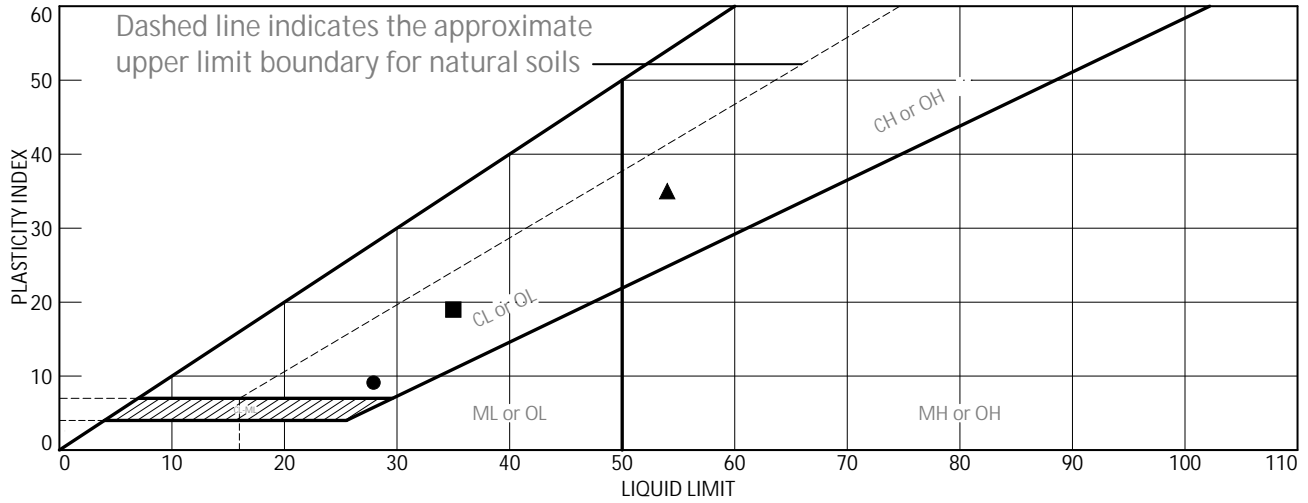
Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High
 Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Appendix B. Laboratory Test Results

LIQUID AND PLASTIC LIMITS TEST REPORT (ASTM D4318)



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Light Brown Lean Clayey SAND	28	19	9			
■	Light Brown Lean Clayey SAND	35	16	19			
▲	Brownish Yellow Fat CLAY w/ Sand, trace organics	54	19	35			

Project No. 715-068 Client: Haley & Aldrich
 Project: Buchanan Road Slope Repair - 0208379-000

● Source of Sample: 1 Depth: 5.5' Sample Number: 1
 ■ Source of Sample: 1 Depth: 9.0' Sample Number: 3
 ▲ Source of Sample: 3 Depth: 4.0' Sample Number: 1

Remarks:

COOPER TESTING LABORATORY

Figure



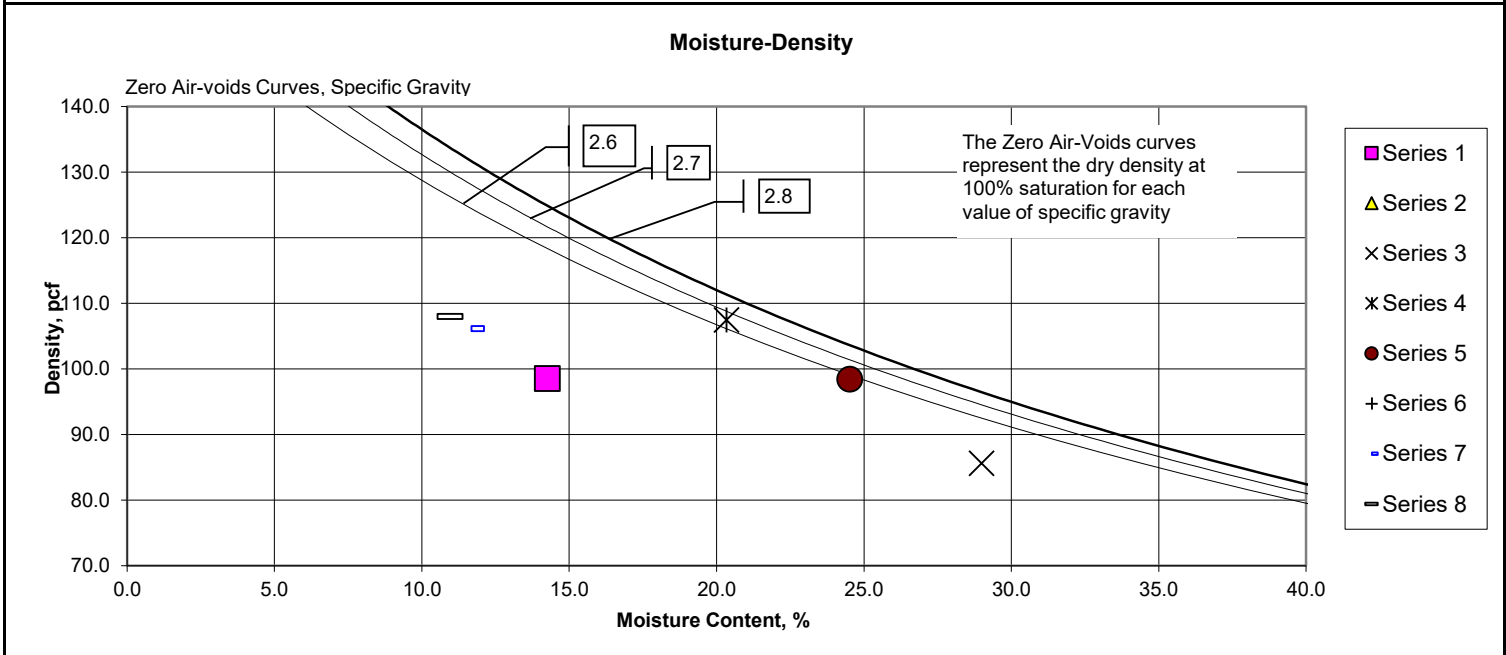
Moisture-Density-Porosity Report

Cooper Testing Labs, Inc. (ASTM D7263b)

CTL Job No: <u>715-068</u>	Project No. <u>0208379-000</u>	By: <u>RU</u>
Client: <u>Haley & Aldrich</u>	Date: <u>09/06/23</u>	
Project Name: <u>Buchanan Road Slope Repair</u>	Remarks:	

Boring:	1	1	2	2	3	3	4	4
Sample:	1	3	1	3	1	4	1	2
Depth, ft:	5.5	9.0	1.5	5.5	4.0	9.5	1.5	3.0
Visual Description:	Light Brown Lean Clayey SAND	Light Brown Lean Clayey SAND	Brown CLAY w/ Sand & organics	Yellowish Brown CLAY w/ Sand	Brownish Yellow Fat CLAY w/ Sand, trace organics	Yellowish Brwon CLAY w/ Sand	Brownish Yellow Clayey SAND	Brownish Yellow Clayey SAND
Actual G_s								
Assumed G_s	2.70		2.70	2.70	2.70		2.70	2.70
Moisture, %	14.3	13.0	29.0	20.3	24.5	18.2	11.7	11.0
Wet Unit wt, pcf	112.5		110.4	129.3	122.5		118.5	119.8
Dry Unit wt, pcf	98.5		85.6	107.4	98.4		106.1	108.0
Dry Bulk Dens. pb, (g/cc)	1.58		1.37	1.72	1.58		1.70	1.73
Saturation, %	54.1		80.7	96.5	92.9		53.6	52.8
Total Porosity, %	41.6		49.2	36.3	41.6		37.1	35.9
Volumetric Water Cont., θ_w, %	22.5		39.7	35.0	38.6		19.9	19.0
Volumetric Air Cont., θ_a, %	19.1		9.5	1.3	3.0		17.2	17.0
Void Ratio	0.71		0.97	0.57	0.71		0.59	0.56
Series	1	2	3	4	5	6	7	8

Note: All reported parameters are from the as-received sample condition unless otherwise noted. If an assumed specific gravity (G_s) was used then the saturation, porosities, and void ratio should be considered approximate.



Appendix C. Calculations

DOCUMENT REVIEW COVER SHEET

1. PROJECT NAME Buchanan Road Slope Repair		2. PROJECT NUMBER 208379					
3. DOCUMENT TITLE Design Memorandum							
4. DOCUMENT STATUS DESIGNATION <input type="checkbox"/> Preliminary <input checked="" type="checkbox"/> Final <input type="checkbox"/> Cancelled							
5. NOTES/COMMENTS							
ATTACHMENTS			TOTAL NO. OF PAGES				
Seismic Hazard Evaluations			6				
Shoring Piles - Geotechnical And Structural Requirements			6				
Slope Stability			4				
Segmental Retaining Wall - Geotechnical And Structural Requirements			2				
RECORD OF REVISIONS							
6. No.	7. REASON FOR REVISION	8. TOT. PGS	10. ORIGINATOR (PRINT/SIGN/DATE)	11. CHECKER (PRINT/SIGN/DATE)	12. QA/QC (PRINT/SIGN/DATE)	13. APPRVD./ACCPTD (PRINT/SIGN)	14. DATE (M/D/YY)

Unified Hazard Tool



Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the [U.S. Seismic Design Maps web tools](#) (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

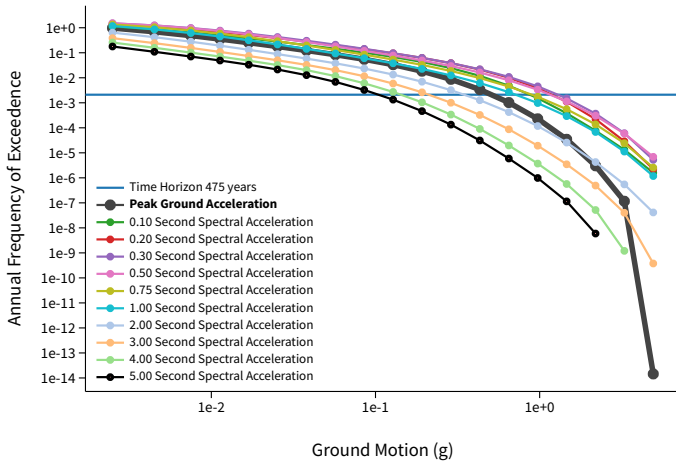
Please also see the new [USGS Earthquake Hazard Toolbox](#) for access to the most recent NSHMs for the conterminous U.S. and Hawaii.

^ Input

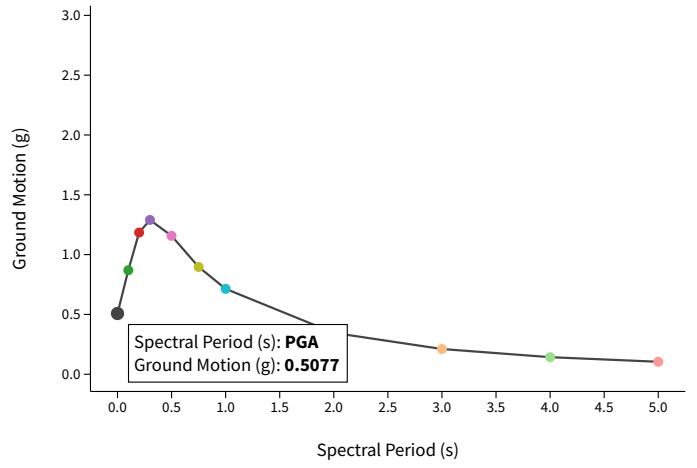
Edition	Spectral Period
Dynamic: Conterminous U.S. 2014 (update) (4.2.0)	Peak Ground Acceleration
Latitude Decimal degrees	Time Horizon Return period in years
37.9978	475
Longitude Decimal degrees, negative values for western longitudes	
-121.8905	
Site Class	
259 m/s (Site class D)	

^ Hazard Curve

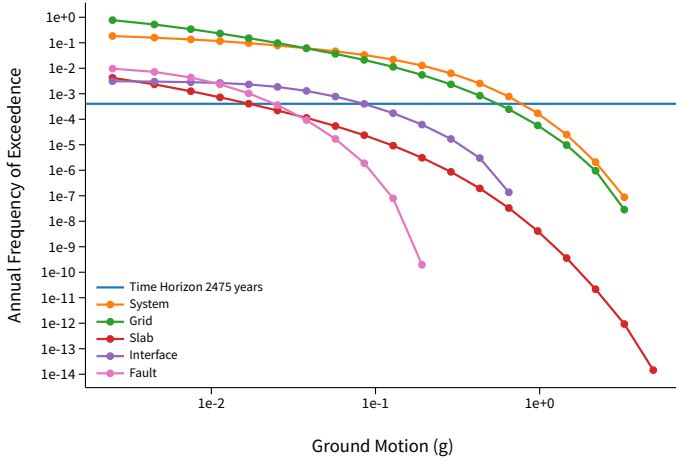
Hazard Curves



Uniform Hazard Response Spectrum



Component Curves for Peak Ground Acceleration

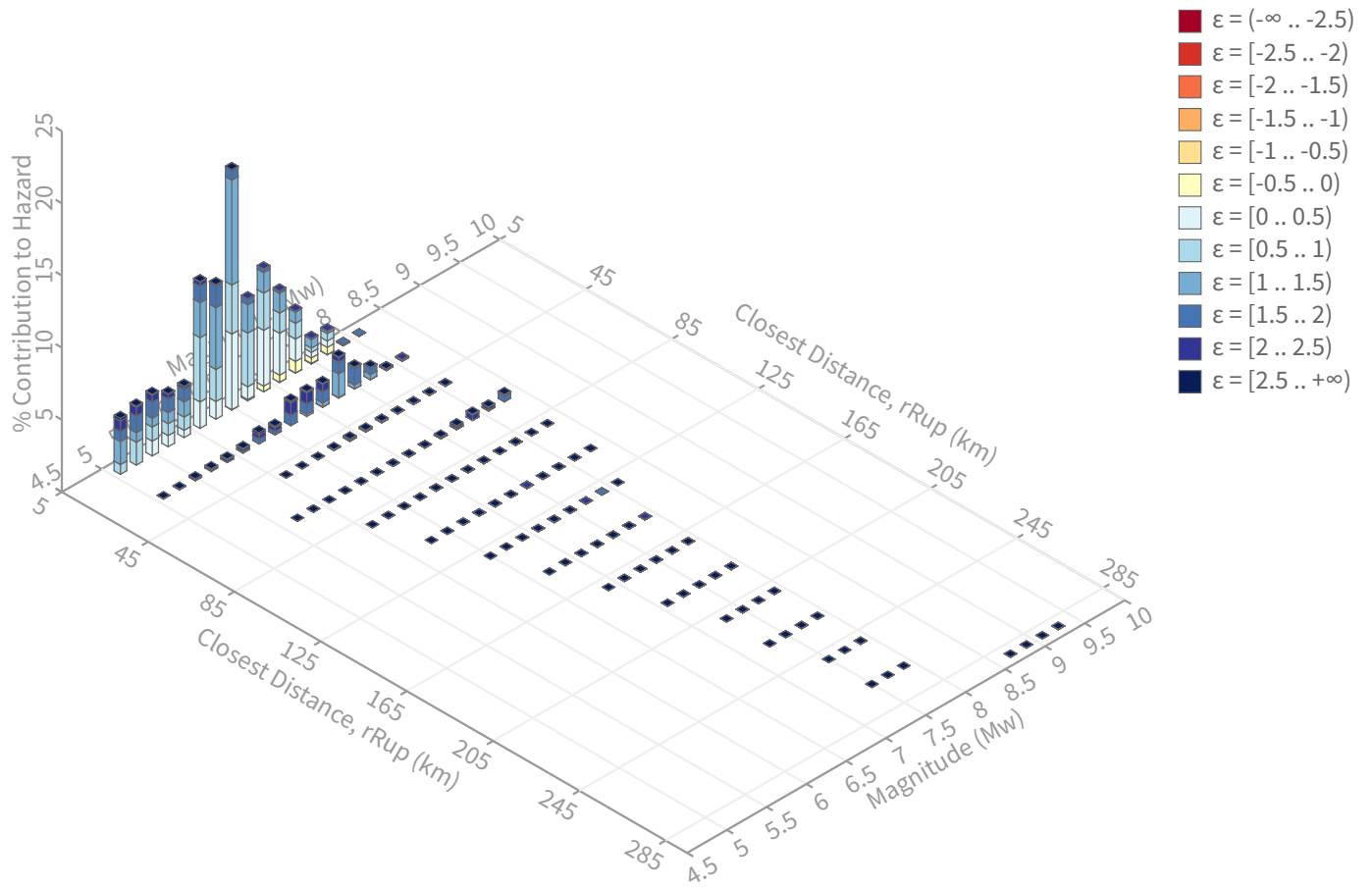


[View Raw Data](#)

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 475 yrs
Exceedance rate: 0.0021052632 yr⁻¹
PGA ground motion: 0.50770032 g

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.16 %

Mode (largest m-r bin)

m: 6.49
r: 9.79 km
ε: 0.85 σ
Contribution: 16.63 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Recovered targets

Return period: 507.3903 yrs
Exceedance rate: 0.0019708694 yr⁻¹

Mean (over all sources)

m: 6.5
r: 13.62 km
ε: 1.05 σ

Mode (largest m-r-ε bin)

m: 6.49
r: 12.97 km
ε: 1.17 σ
Contribution: 7.27 %

Epsilon keys

ε0: [-∞ .. -2.5]
ε1: [-2.5 .. -2.0]
ε2: [-2.0 .. -1.5]
ε3: [-1.5 .. -1.0]
ε4: [-1.0 .. -0.5]
ε5: [-0.5 .. 0.0]
ε6: [0.0 .. 0.5]
ε7: [0.5 .. 1.0]
ε8: [1.0 .. 1.5]
ε9: [1.5 .. 2.0]
ε10: [2.0 .. 2.5]
ε11: [2.5 .. +∞]

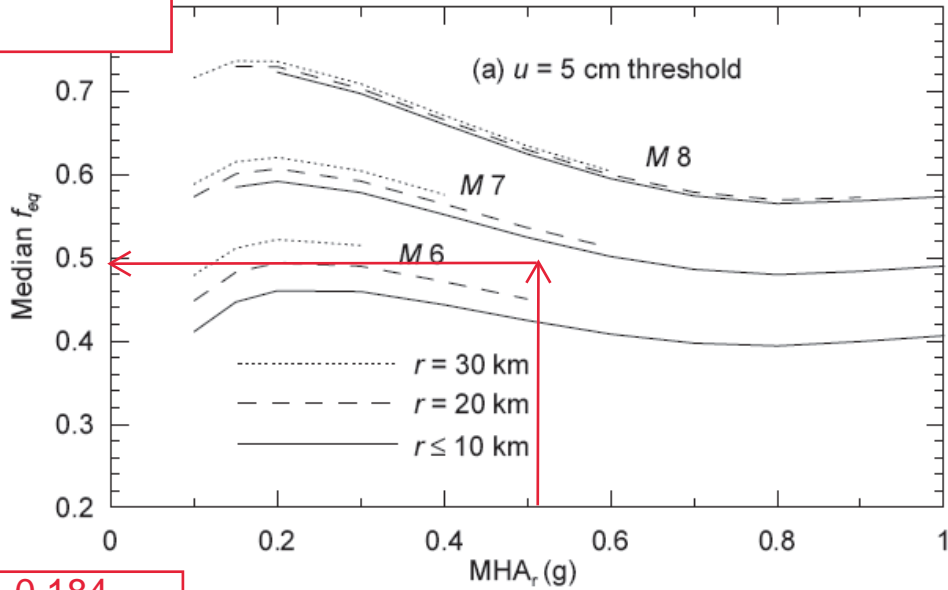
Deaggregation Contributors

Source Set	Source	Type	r	m	ϵ_0	lon	lat	az	%
UC33brAvg_FM31		System							39.74
	Great Valley 05 Pittsburg - Kirby Hills alt1 [0]		4.62	6.34	0.50	121.896°W	38.038°N	353.67	11.02
	Concord [2]		12.51	6.52	1.16	122.013°W	37.943°N	240.51	5.85
	Mount Diablo Thrust North CFM [1]		12.35	7.15	0.42	122.037°W	37.905°N	231.32	5.81
	Clayton [0]		6.34	6.66	0.59	121.940°W	37.959°N	225.06	3.41
	Calaveras (No) [0]		22.52	7.09	1.59	122.049°W	37.842°N	218.78	1.64
	Hayward (No) [1]		33.67	7.34	1.89	122.212°W	37.832°N	236.82	1.53
	Greenville (No) [6]		15.31	6.54	1.37	121.869°W	37.875°N	172.04	1.03
	Mount Diablo Thrust South [1]		18.80	6.54	1.50	121.896°W	37.778°N	181.18	1.01
UC33brAvg_FM32		System							36.07
	Concord [2]		12.51	6.69	1.01	122.013°W	37.943°N	240.51	10.23
	Great Valley 05 Pittsburg Kirby Hills alt2 [6]		11.88	6.50	0.65	121.845°W	38.016°N	63.08	6.00
	Clayton [0]		6.34	6.79	0.52	121.940°W	37.959°N	225.06	3.30
	Greenville (No) [6]		14.79	6.64	1.31	121.870°W	37.874°N	172.61	2.64
	Calaveras (No) [0]		22.52	7.07	1.60	122.049°W	37.842°N	218.78	1.62
	Great Valley 06 Midland alt2 [1]		12.40	7.01	0.08	121.675°W	38.006°N	87.08	1.54
	Hayward (No) [1]		33.67	7.34	1.89	122.212°W	37.832°N	236.83	1.54
	Los Medanos - Roe Island [0]		2.44	7.33	-0.18	121.911°W	37.988°N	238.74	1.21
	Franklin [1]		19.09	7.22	1.37	122.079°W	37.913°N	240.50	1.09
UC33brAvg_FM32 (opt)		Grid							12.48
	PointSourceFinite: -121.890, 38.002		4.99	5.53	0.72	121.891°W	38.002°N	0.00	2.89
	PointSourceFinite: -121.890, 38.002		4.99	5.53	0.72	121.891°W	38.002°N	0.00	2.89
UC33brAvg_FM31 (opt)		Grid							11.66
	PointSourceFinite: -121.890, 38.002		5.00	5.51	0.73	121.891°W	38.002°N	0.00	2.55
	PointSourceFinite: -121.890, 38.002		5.00	5.51	0.73	121.891°W	38.002°N	0.00	2.55

where NRF is a factor that accounts for the nonlinear response of the materials above the slide plane; u is displacement; and D_{5-95} is the duration of strong shaking, a function of earthquake magnitude and distance.

Blake and others (2002) have simplified the process of estimating f_{eq} for ranges of magnitude and distance by preparing sets of curves for two displacement (u) values, 5 cm and 15 cm. These curves are reproduced in Figure 1.

$Keq=0.49*0.51=0.25$



$Keq=0.36*0.51=0.184$

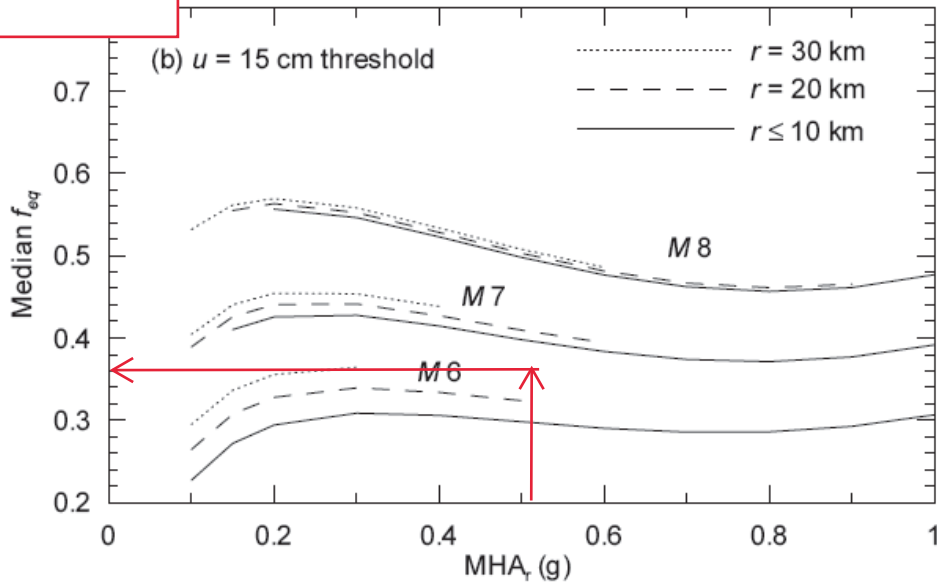
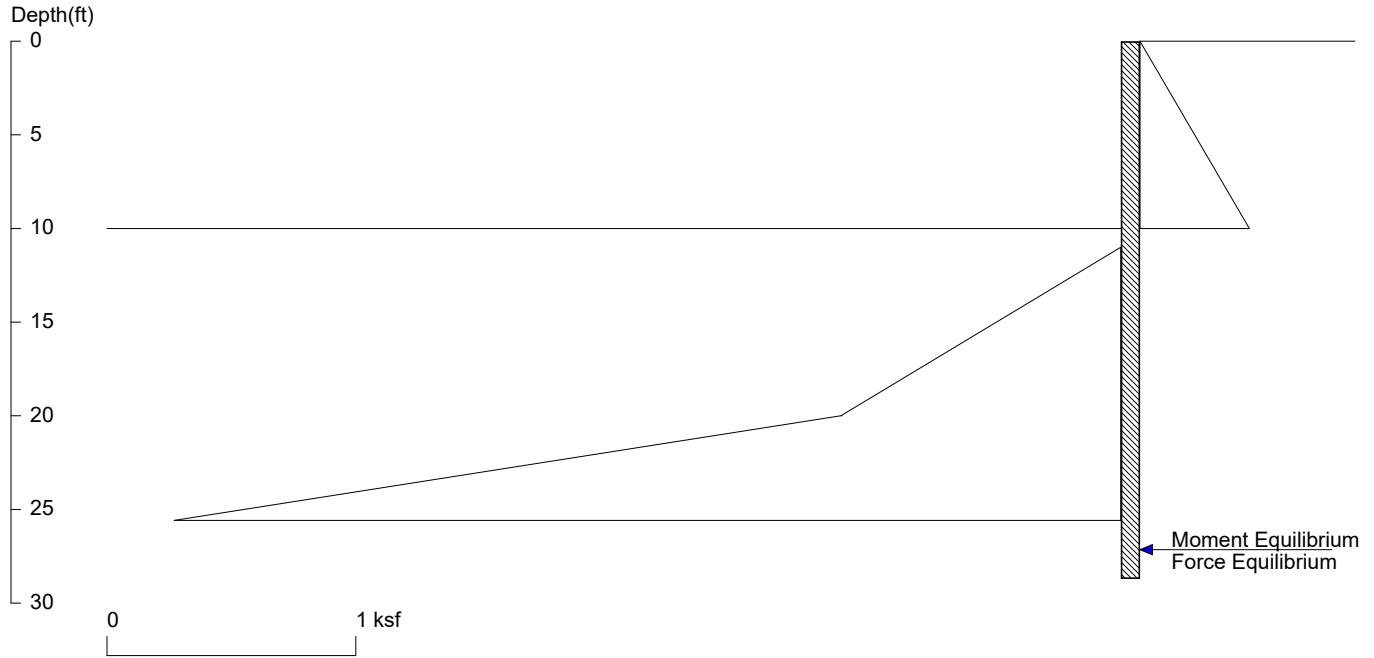


Figure 1. Values of f_{eq} as a Function of MHA_r , Magnitude and Distance for Threshold Displacements of (a) 5 cm and (b) 15 cm (Modified from Blake and others, 2002).

Buchanan Shoring Piles

Temp Shoring Piles



<ShoringSuite> CIVILTECH SOFTWARE USA www.civiltech.com

Licensed to 4324324234 3424343

Date: 9/8/2023

File: \\haleyaldrich.com\share\granite\2023\0208379 Pittsburg Buchanan Rd Landslide\Calculations\CTShoring\Pittsburg-3

Wall Height=10.0 Pile Diameter=2.5 Pile Spacing=7.5 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=18.70 Min. Pile Length=28.70

MOMENT IN PILE: Max. Moment=159.06 per Pile Spacing=7.5 at Depth=18.96

PILE SELECTION:

Request Min. Section Modulus = 69.8 in³/pile=1143.20 cm³/pile, Fy= 36 ksi = 248 MPa, Fb/Fy=0.76

User Input I (Moment of Inertia):

Top Deflection = 0.56(in) based on E (ksi)=3000.00 and I (in⁴)/pile=8667.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	10	0.440	0.044

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.2

Z1	P1	Z2	P2	Slope
11	0	20	1.125	0.125
20	1.125	800	375.5	0.48

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	7.50
2	10.00	2.50

PASSIVE SPACING:

No.	Z depth	Spacing
1	10.00	5.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

LPILE Plus for windows, Version 4.0 (4.0.10)
Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

(c) Copyright ENSOFT, Inc., 1985-2003
All Rights Reserved

This program is licensed to:

Path to file locations: M:\Digital Library & Maps\Calculations\Concrete
Piles\2500psi Concrete\
Name of input data file: 30 in. 2500 psi 8-#8.lpd
Name of output file: 30 in. 2500 psi 8-#8.lpo
Name of plot output file: 30 in. 2500 psi 8-#8.lpp
Name of runtime file: 30 in. 2500 psi 8-#8.lpr

Time and Date of Analysis

Date: August 17, 2009 Time: 13:49:29

Problem Title

New Pile

Program Options

Units Used in Computations - US Customary Units, inches, pounds

Basic Program Options:

Analysis Type 2:
- Computation of Ultimate Bending Moment of Cross Section (Section Design)

Computations of Ultimate Moment Capacity and Nonlinear Bending Stiffness

Pile Description:

The sectional shape is a circular drilled shaft (bored pile).

Outside Diameter = 30.0000 In

Material Properties:

Compressive Strength of Concrete = 2.500 Kip/In**2
 Yield Stress of Reinforcement = 60. Kip/In**2
 Modulus of Elasticity of Reinforcement = 29000. Kip/In**2
 Number of Reinforcing Bars = 8
 Area of Single Bar = .79000 In**2
 Number of Rows of Reinforcing Bars = 5
 Cover Thickness (edge to bar center) = 4.000 In
 Ultimate Axial Squash Load Capacity = 1867.84 Kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement In**2	Distance to Centroidal Axis In
1	.790000	11.0000
2	1.580000	7.7782
3	1.580000	.0000
4	1.580000	-7.7782
5	.790000	-11.0000

Axial Thrust Force = .00 lbs

Bending Moment in-lbs	Bending Stiffness lb-in2	Bending Curvature rad/in	Maximum Strain in/in	Neutral Axis Position inches
125302.014	1.25302E+11	.00000100	.00001505	15.048
618603.158	1.23721E+11	.00000500	.00007524	15.048
1099253.272	1.22139E+11	.00000900	.00013543	15.048
1099253.272	8.45579E+10	.00001300	.00010271	7.90111542
1099253.272	6.46620E+10	.00001700	.00013456	7.91553497
1099253.272	5.23454E+10	.00002100	.00016653	7.92995453
1099253.272	4.39701E+10	.00002500	.00019862	7.94483185
1099253.272	3.79053E+10	.00002900	.00023083	7.95970917
1099253.272	3.33107E+10	.00003300	.00026317	7.97481537
1099253.272	2.97095E+10	.00003700	.00029564	7.99037933
1099253.272	2.68111E+10	.00004100	.00032800	7.99999237
1195583.758	2.65685E+10	.00004500	.00036016	8.00365448
1299230.878	2.65149E+10	.00004900	.00039291	8.01853180
1402422.714	2.64608E+10	.00005300	.00042578	8.03363800
1505150.941	2.64062E+10	.00005700	.00045879	8.04897308
1607406.545	2.63509E+10	.00006100	.00049194	8.06453705
1709124.246	2.62942E+10	.00006500	.00052521	8.08010101
1810402.098	2.62377E+10	.00006900	.00055863	8.09612274
1911176.114	2.61805E+10	.00007300	.00059220	8.11237335
2011371.223	2.61217E+10	.00007700	.00062590	8.12862396
2111098.790	2.60629E+10	.00008100	.00065977	8.14533234
2210284.672	2.60033E+10	.00008500	.00069379	8.16226959
2308914.684	2.59429E+10	.00008900	.00072797	8.17943573
2407045.762	2.58822E+10	.00009300	.00076233	8.19705963
2504520.238	2.58198E+10	.00009700	.00079682	8.21468353
2601467.039	2.57571E+10	.00010100	.00083151	8.23276520
3210517.799	2.45078E+10	.00013100	.00108551	8.28632355
3485696.637	2.16503E+10	.00016100	.00130418	8.10047150
3622555.027	1.89663E+10	.00019100	.00151217	7.91713715
3744635.388	1.69441E+10	.00022100	.00172086	7.78667450
3856676.051	1.53652E+10	.00025100	.00193676	7.71617889
3960445.089	1.40941E+10	.00028100	.00215937	7.68459320

30 in. 2500 psi 8-#8 3991.076.lpo.txt

3973548.708	1.27767E+10	.00031100	.00234457	7.53879547
3982400.238	1.16786E+10	.00034100	.00254107	7.45182037
3986282.044	1.07447E+10	.00037100	.00272234	7.33783722
3989620.896	9.94918E+09	.00040100	.00290530	7.24514008
3992452.128	9.26323E+09	.00043100	.00308951	7.16823578
3994760.625	8.66542E+09	.00046100	.00327543	7.10506439
3996872.633	8.14027E+09	.00049100	.00346229	7.05150604
3998664.835	7.67498E+09	.00052100	.00364999	7.00572968
4024327.174	7.30368E+09	.00055100	.00385700	7.00000763

Ultimate Moment Capacity at a Concrete Strain of 0.003 = 3991.076 In-Kip

The analysis ended normally.

x .9/1.6 =2244 ft-lb allowable capacity
 or 187 k-ft allowable bending moment for 8-#8 in 30" dia pile
 >159 kips*ft

Transverse Reinforcement

$c := 3 \text{ in}$ Concrete Clear Cover (Edge of Spiral to Edge of Pile)
 $Rad = 1.25 \text{ ft}$

$A_c := \pi \cdot (Rad - c)^2 = 3.14 \text{ ft}^2$ Core Area of Spiral Reinforced Compression Member

$\rho_{s,min} := 0.45 \left(\frac{A_g}{A_c} - 1 \right) \cdot \frac{f'_c}{f_y} = 0.017$ Minimum Volume Ratio of Spiral Reinforcement

$s_{max} := \frac{2 A_{\#5} \cdot \pi \cdot (Dia - 2 \cdot c)}{\pi \cdot (Rad - c)^2 \cdot \rho_{s,min}} = 6.12 \text{ in}$ Maximum Spiral Pitch with #5 Spiral

$s_{design} := \text{Floor} \left(s_{max}, \frac{d_{\#5}}{2} \right) = 5.94 \text{ in}$ Design Spiral Pitch

Use #5 Spiral with Pitch of $s_{design} = 5.94 \text{ in}$

Shear Capacity

$d_{\#5} = 0.63 \text{ in}$ Diameter of Pile Spiral Reinforcement
 $d_{vert} := d_{\#8} = 1 \text{ in}$ Diameter of Pile Vertical Reinforcement

$r_1 := \frac{Dia}{2} - c - d_{\#5} = 0.95 \text{ ft}$ $r_2 := \frac{Dia}{2} - c - d_{\#5} - d_{vert} = 0.86 \text{ ft}$

$y_1 := \frac{4 r_1}{3 \pi} = 0.4 \text{ ft}$ $y_2 := \frac{4 r_2}{3 \pi} = 0.37 \text{ ft}$

$A_1 := \frac{\pi \cdot r_1^2}{2} = 1.41 \text{ ft}^2$ $A_2 := \frac{\pi \cdot r_2^2}{2} = 1.17 \text{ ft}^2$

$y := \frac{y_1 \cdot A_1 - y_2 \cdot A_2}{A_1 - A_2} = 0.58 \text{ ft}$ Distance from the Center of the Pile to the Centroid of the Longitudinal Reinforcement in Half of the Pile.

$d := \frac{Dia}{2} + y = 1.83 \text{ ft}$ d need not be less than the distance from the extreme compression fiber to the centroid of the longitudinal reinforcement in the opposite half of the member.

$\phi_s := 0.90$ Resistance Factor per AASHTO-CA BDS Section 5.5.4.2
 $d_{v,pile} := Dia - 2 \cdot c = 2 \text{ ft}$ Effective Shear Diameter

$\beta := 2$ AASHTO-CA BDS Section 5.8.3.4.1

$\theta := 45 \text{ deg}$ AASHTO-CA BDS Section 5.8.3.4.1

7/19/2023
Designed : KF
Checked : GM

$$V_{c,pile} := 0.0316 \cdot \beta \cdot \sqrt{\frac{f'_c}{1000 \text{ psi}}} \cdot \frac{\pi}{4} \cdot d_{v,pile}^2 \cdot ksi$$

Shear Resistance provided by Concrete AASHTO-CA
BDS Section 5.8.3.3

$$V_{c,pile} = 57.2 \text{ kip}$$

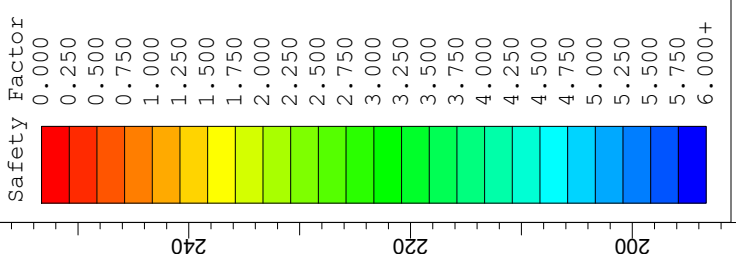
$$V_{s,pile} := \frac{(2 \cdot A_{\#5} \cdot f_y \cdot d \cdot \cot(\theta))}{s_{design}} = 137.4 \text{ kip}$$

Shear Resistance Provided by #5 Spiral (2 Legs
of Spiral)

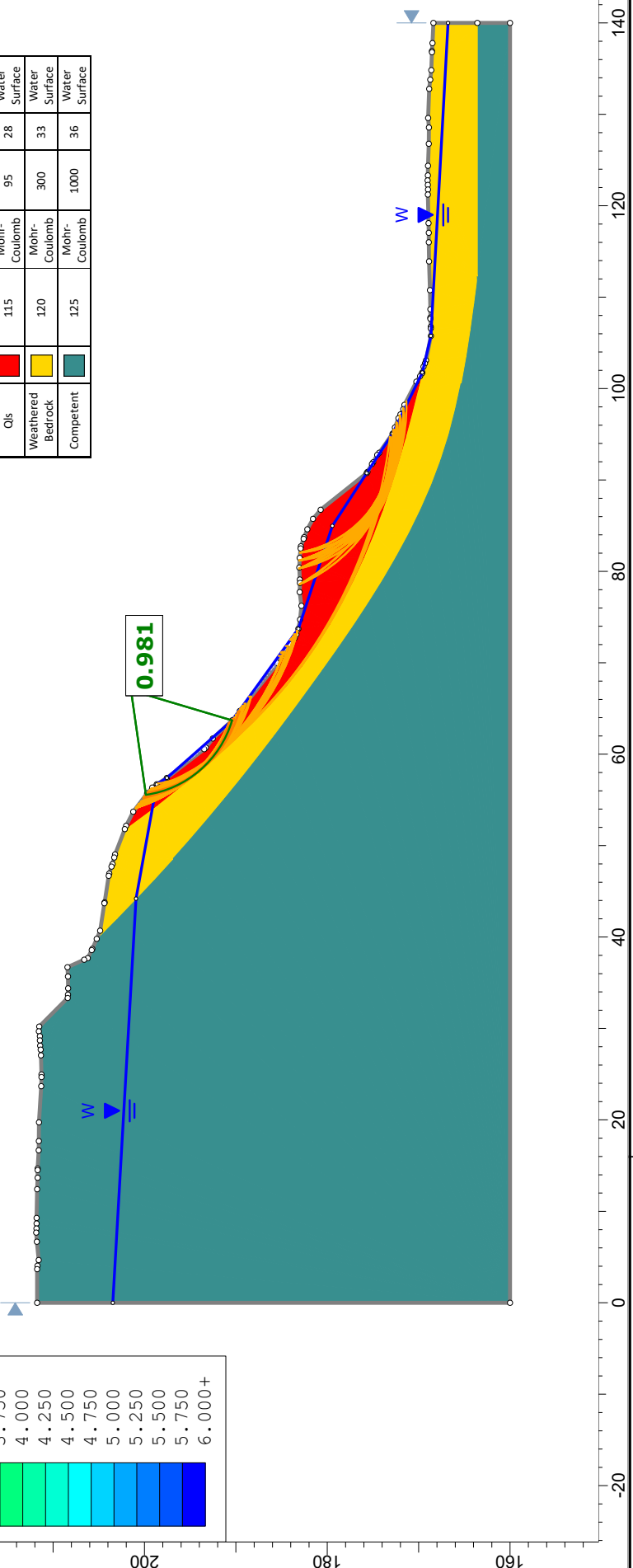
$$V_{pile} := \phi_s \cdot (V_{c,pile} + V_{s,pile}) = 175 \text{ kip}$$

Total Design Shear Capacity of a Single Pile

Back calculations from geometry and slide plane



Material Name	Color	Unit Weight (lbs/ft ³)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface
Qls	Red	115	Mohr-Coulomb	95	28	Water Surface
Weathered Bedrock	Yellow	120	Mohr-Coulomb	300	33	Water Surface
Competent	Teal	125	Mohr-Coulomb	1000	36	Water Surface



Buchanan Rd Landslide

Project		Buchanan Rd Landslide	
Group	Free-Circular	Scenario	Master Scenario
Drawn By		Company	Haley Aldrich
Date	8/29/2023, 8:26:01 AM	File Name	Existing.slmtd

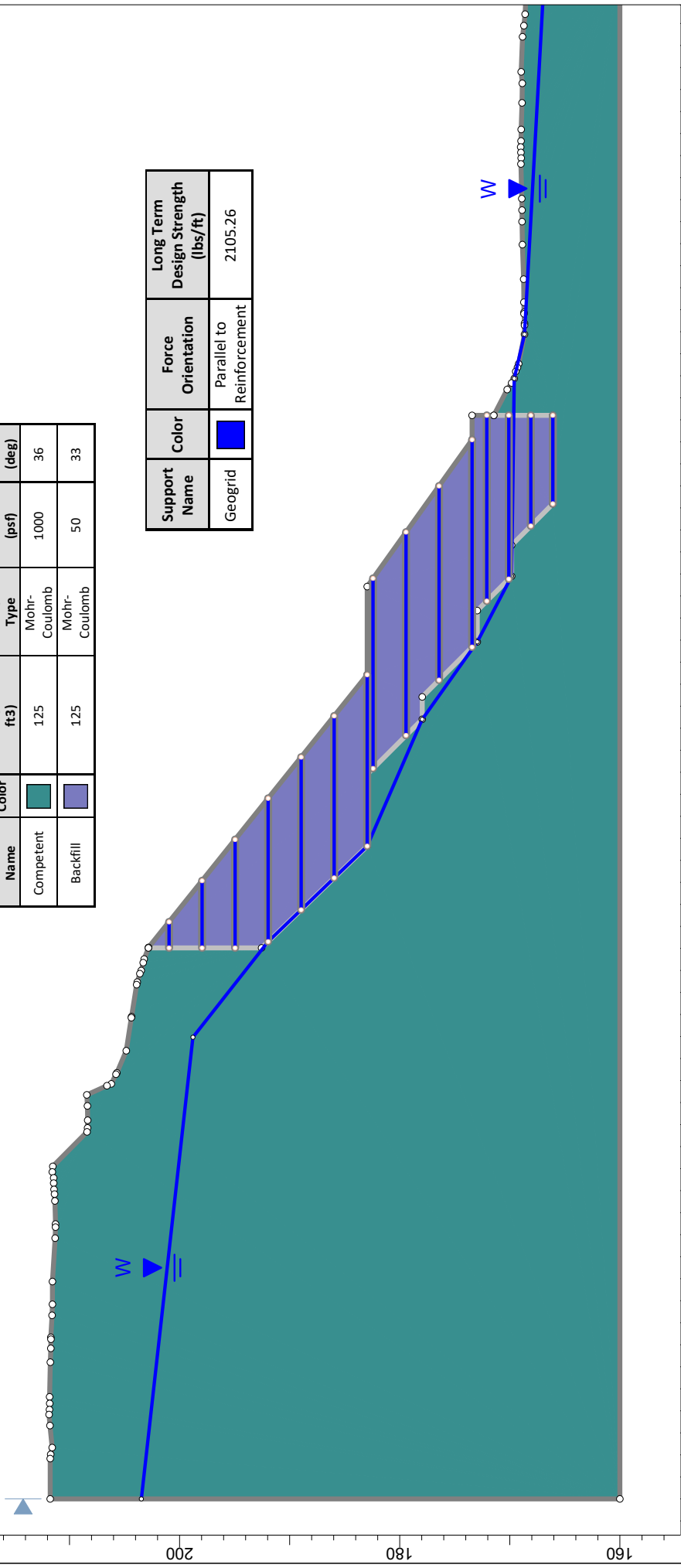


Slope Geometry and Soil and Support Properties



Material Name	Color	Unit Weight (lbs/ft ³)	Strength Type	Cohesion (psf)	Phi (deg)
Competent		125	Mohr-Coulomb	1000	36
Backfill		125	Mohr-Coulomb	50	33

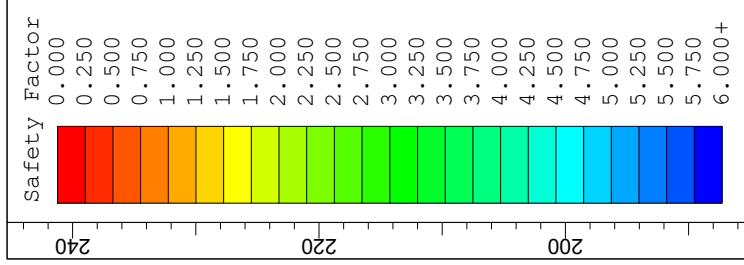
Support Name	Color	Force Orientation	Long Term Design Strength (lbs/ft)
Geogrid		Parallel to Reinforcement	2105.26



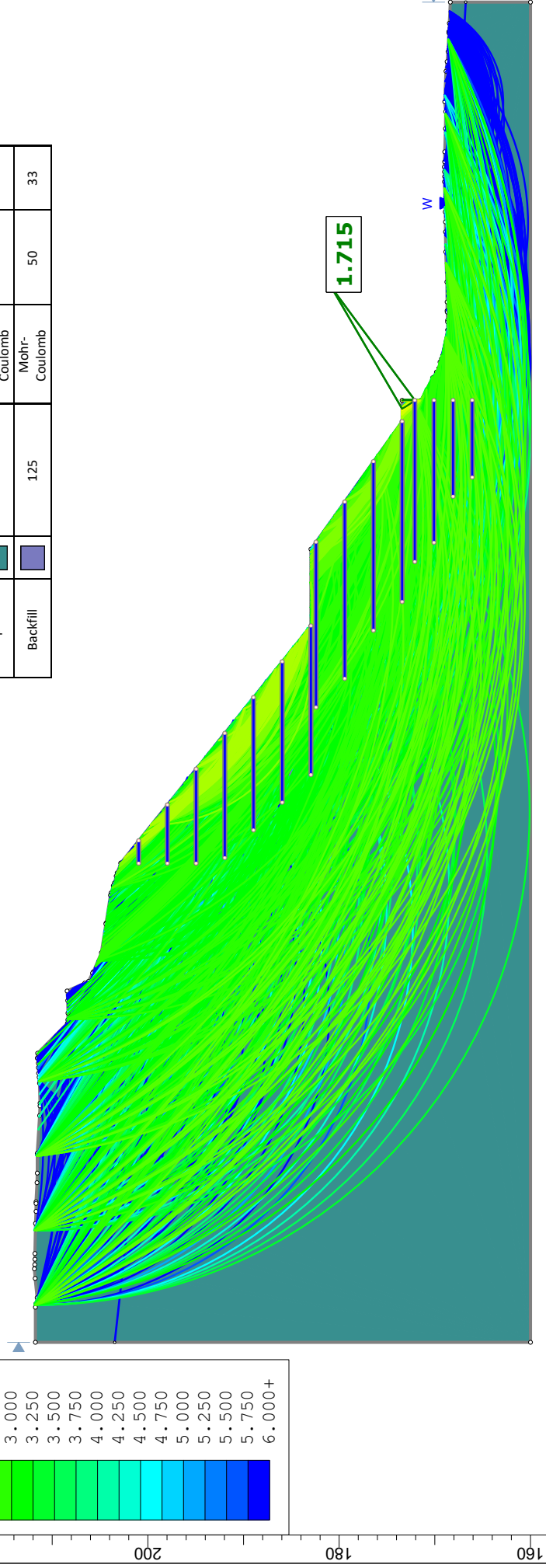
Buchanan Rd Landslide	
<i>Project</i>	<i>Scenario</i>
<i>Group</i>	Seismic-5cm
<i>Drawn By</i>	Master Scenario
<i>Date</i>	Haley Aldrich
	SECTION-A



Slope Stability - Static



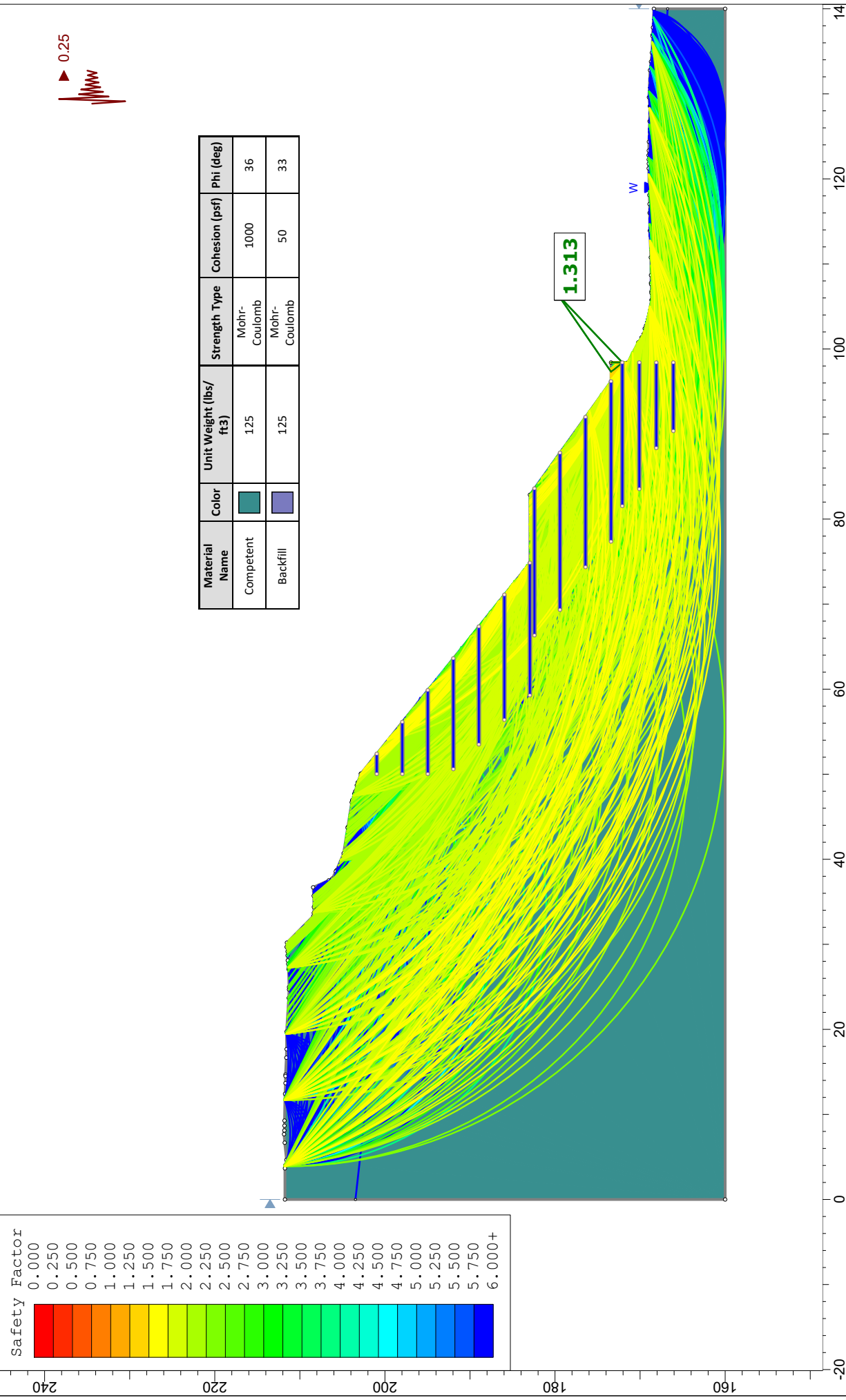
Material Name	Color	Unit Weight (lbs/ft ³)	Strength Type	Cohesion (psf)	Phi (deg)
Competent		125	Mohr-Coulomb	1000	36
Backfill		125	Mohr-Coulomb	50	33



Project		Buchanan Rd Landslide	
Group	Static	Scenario	Master Scenario
Drawn By		Company	Haley Aldrich
Date	8/29/2023, 8:26:01 AM	File Name	Proposed.slmd



Slope Stability - Seismic



Project		Buchanan Rd Landslide	
Group	Seismic-5cm	Scenario	Master Scenario
Drawn By		Company	Haley Aldrich
Date	8/29/2023, 8:26:01 AM	File Name	Proposed.slmd



Segmental Retaining Wall

Project File: SegmentalBlock.ec6

LIC# : KW-06015508, Build:20.22.12.28

HALEY & ALDRICH, INC.

(c) ENERCALC INC 1983-2022

DESCRIPTION: Buchanan Rd Slide Repair - 8.67' (2.7' embedment)

Criteria

Wall height (retained height)	8.67 ft
Backfill slope	1.5:1
Backfill angle	33.7 deg
Embedment	2.7 ft

Soil data

External Soil, Phi_e	33 deg
External soil density (In situ)	125 pcf
Internal Soil, Phi_i	36 deg
Internal soil density	125 pcf
Wall Soil Friction Angle	0 deg
K_a(Horiz)	0.37

Loading

Dead load	0 psf
Live load	0 psf
Seismic Factor, A	0.00
d_seismic	0.00 in

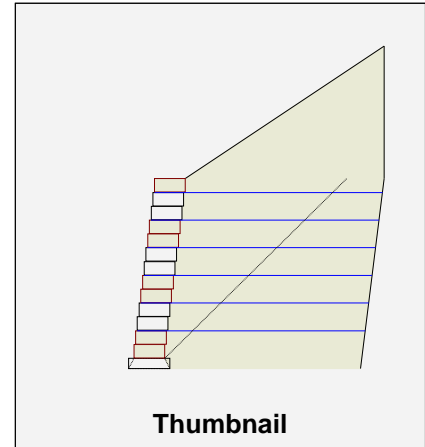
Stability

Base length	11.00 ft
Base Sliding Force (w/o Seismic)	8,353.47 lb
Base Resisting Force (w/o Seismic)	13,154.50 lb
Base Sliding (w/o Seismic) FS	1.57

Overturning Moment (w/o Seismic)	41,774.92 ft lb
Resisting Moment (w/o Seismic)	142,397.46 ft lb
Overturning (w/o Seismic) FS	3.41

Applied Bearing Pressure (w/o Seismic)	1,628.93 psf
Allowable Bearing Pressure (w/o Seismic)	3,500.00 psf
Bearing (w/o Seismic) FS	2.15

Eccentricity of Vert. Force (w/o Seismic)	0.06 ft
Effective Base Width (w/o Seismic)	11.12 ft



Segmental block data

Vendor selection	Keystone Retaining Wall		
Vendor ESR	ICC ESR-2113E	Valid through	08/31/21
Block selection type	Standard III		
Block height	8.00 in	alpha(u_1)	2437.00 lb
Block depth	18.00 in	tan(lambda_u1)	0.53
Offset per block	1.00 in	Max_1	5084.00 lb
Batter angle	7.13 deg	alpha(u_2)	2437.00 lb
Wall weight	180.00 psf	tan(lambda_u2)	0.53
		Max_2	5084.00 lb

Geogrid material

Vendor Selection	Mirafi Geogrid		
Geogrid type	Miragrid 3XT		
LTDS	1,999.00 lb/ft		
Ci	0.90		
RF_CR	1.58		
alpha_u	1,711.00 lb		
tan(lambda_u)	0.55		
Max	4,456.00 lb		
alpha_cs1	1,398.00 lb	alpha_cs2	2,197.20 lb
tan(lambda_cs1)	0.73	tan(lambda_cs2)	0.19
Max_1	2,197.20 lb	Max_2	2,566.52 lb

Factors of Safety

Failure Mode	Static Condition			
	Min	Actual	Status	Acceptable
Base Sliding	1.50	1.51	OK	
Overturning	2.00	3.41	OK	
Bearing	2.00	2.15	OK	
Internal Sliding	1.50	1.51	OK	
Tensile Overstress	1.50	2.99	OK	
Pullout	1.50	13.86	OK	
Connection	1.50	3.68	OK	

Segmental Retaining Wall

Project File: SegmentalBlock.ec6

LIC# : KW-06015508, Build:20.22.12.28

HALEY & ALDRICH, INC.

(c) ENERCALC INC 1983-2022

DESCRIPTION: Buchanan Rd Slide Repair - 8.67' (2.7' embedment)

Wall Analysis Table:

Layer	Height ft	Trib Height	Depth to Midpoint	Tension From Surcharge			Static Total Fg	LTDS	LTDS (Seismic)	Total Tension (W/seismic), Fi	FS Tensile Overstress	
				Soil	DL	LL					(Static)	w/Seismic)
6	8.00	1.33	0.67	40.4	0.0	0.0	40.4	1,999.0	1,265.2	40.4	49.42	31.28
5	6.67	1.33	2.00	121.3	0.0	0.0	121.3	1,999.0	1,265.2	121.3	16.47	10.43
4	5.33	1.33	3.33	202.2	0.0	0.0	202.2	1,999.0	1,265.2	202.2	9.88	6.26
3	4.00	1.33	4.67	283.1	0.0	0.0	283.1	1,999.0	1,265.2	283.1	7.06	4.47
2	2.67	1.33	6.00	364.0	0.0	0.0	364.0	1,999.0	1,265.2	364.0	5.49	3.48
1	1.33	2.00	7.33	667.5	0.0	0.0	667.5	1,999.0	1,265.2	667.5	2.99	1.90

Wall Analysis Table Continued:

Layer	Pullout Strength	FS Pullout		Connection Strength	FS Conn		Internal Sliding Force (Static)	FS Internal Sliding (Static)	Internal Sliding Force (Seismic)	FS Internal Sliding (Seismic)
		(Static)	(Seismic)		(Static)	(Seismic)				
6	2,728.7	67.46	0.00	1,485.2	36.72	36.72	1,819.8	2.50	1,819.8	1.54
5	4,034.0	33.24	0.00	1,659.6	13.68	13.68	2,578.8	2.20	2,578.8	1.52
4	5,339.2	26.40	0.00	1,833.9	9.07	9.07	3,469.7	1.97	3,469.7	1.46
3	6,644.4	23.47	0.00	2,008.3	7.09	7.09	4,492.6	1.78	4,492.6	1.40
2	7,949.7	21.84	0.00	2,182.7	6.00	6.00	5,647.5	1.64	5,647.5	1.33
1	9,254.9	13.86	0.00	2,453.8	3.68	3.68	6,934.3	1.51	6,934.3	1.26

ASSUMPTIONS AND CRITERIA USED

- References used include *Design Manual for Segmental Retaining Walls, 3rd Edition*, by NCMA.
- Blocks are all same size and uniform offsets (batter) for full wall height.
- Coulomb earth pressure theory used for earth pressures and failure plane angle.
- Refer to geotechnical report for backfill material, compaction, and other design data and recommendations.
- Cap blocks if used are above the retained height and are neglected in this design.
- Geogrid LTDS and connection values for block vendors obtained from ICC Evaluation Service (ES Legacy Reports) or as provided by vendors. Since these may change or be updated, verification of values is recommended.
- Block sizes obtained from vendors' literature and may vary with locality.
- Geogrid layers are equally spaced vertically, all same length, and laid horizontally.
- Average weight of block and cell infill assumed to be 120 pcf.
- See vendor web sites (on input screen) for more information and specifications.
- Vendor specifications or project specifications, whichever is most restrictive, to be followed for construction procedures.
- Add notes and details for proper drainage.
- See *User's Manual Design Example #10* for methodology and sample verification calculations.
- Final design responsibility is with the project Engineer-of-Record.

Appendix C

Temporary Traffic Control Plan Checklist

TEMPORARY TRAFFIC CONTROL PLAN (TTCP) CHECKLIST

No traffic control may be implemented on City streets without City approval.

This checklist is provided to assist developers, contractors, and special event applicants in developing acceptable Temporary Traffic Control Plans (TTCP's) for encroachments onto the City right-of-way. Please refer to the California Manual of Uniform Traffic Control Devices (MUTCD), Part 6: Temporary Traffic Control, for basic information on preparing TTCP's and typical TTCP examples (www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca_mutcd.htm).

Contractor/Applicant is responsible for inspecting any approved traffic detour routes to insure adequate horizontal and vertical clearances are maintained from obstructions (e.g., poles and overhanging tree limbs).

Lane Closures

- Except for emergencies or unless otherwise specified:
 - No lane closures will be allowed on weekdays from **6:00 AM to 8:30 AM**, or from **3:30 PM to 6:00 PM**.
 - Two or more lane closures and lane closures with reversible control will not be allowed on weekdays before **9:00 AM**, or after **3:00 PM**.
- The lane closure(s) must be limited in duration and area as practicable. Times and dates of closure must be stated on the approved TTCP.

Road Closures

- Full road closures must be approved by the City Engineer and may only be used when no other types of temporary traffic control are feasible for the work involved.
- Detour routes and notification plans must be submitted to City at least two weeks in advance.
- The road closure(s) must be limited in duration and area as practicable. Times and dates of closure must be stated on the approved TTCP.

Construction Activity (may not apply to Special Event Permits)

- Show the exact location of the work zone and how it is to be protected (e.g., cones, barricades, k-rail) during construction.
- Show construction schedule, work hours, and all times TTCP will be in effect.
- Include details on construction activity and equipment being used within street right-of-way. Specify how the work area will be protected at night (e.g., trench plates).
- If work is to be done in phases, submit separate TTCP's for each phase of work.
- All detour signs must be removed or covered when detour is not in effect.

Traffic Control Devices

- All traffic control signs and devices shown on the TTCP must include any applicable MUTCD sign number, dimension and description.

- A Flashing Arrow Sign/Board (FAS) ***must*** be used for ***all*** lane closures on the following streets. (Include size, panel display and exact location on the TTCP).
 - Railroad Avenue/Kirker Pass Road
 - Bailey Road
 - Somersville Road
 - Loveridge Road
 - West/East Leland Road
 - Buchanan Road
 - Power Avenue
 - Harbor Street
 - North Parkside Drive
 - Willow Pass Road
 - Pittsburg-Antioch Highway
 - California Avenue
 - Century Boulevard
 - West/East Tenth Street
- Show locations of all flaggers, channelizing devices, warning lights, flag trees, and portable barriers on the TTCP. All devices must comply with California MUTCD.
- Flaggers must have formal training in proper flagging operations.

Traffic Signal Operation and Equipment

- Include location of all traffic signals and traffic signal detection devices within the traffic control area.
- If special signal timing is required in the TTCP, specify **all** changes and their effects. This includes changing signal operations to flashing red, recall or fixed time.

Pedestrian/Bicycle Safety

- Pedestrians and bicyclists must have a safe route to walk/ride through and/or around the work area.
- Show all pedestrian/bicycle entries, detours, paths and exits on the TTCP.
- Clearly show description and location of all traffic control devices, including fences and barricades, within the pedestrian's/bicyclists safe route to walk/ride on the TTCP.

Parking Restrictions

- City approved parking restrictions must be clearly posted a minimum of 48 hours before work begins. Their implementation will be at the expense of the contractor/developer.
- All legal parking areas must be maintained. Access to legally parked vehicles' doors and storage areas must also be maintained.
- Parking restrictions must be limited in time as practicable. Restrictions may only be used when there are no other types of traffic control feasible for the work involved, or when parking demand can be reasonably accommodated.

Please contact the Traffic Engineering Division at (925) 252-4930 for any questions related to TTCP's, including closures, detours, traffic signal operations, and temporary parking restrictions.

Please allow five (5) working days for the City to review the TTCP. Once the TTCP is approved it must be available for inspection on-site at all times. City may require field changes to the TTCP to maintain public safety.

Appendix D

Construction Water Application



Construction Water Permit Fire Hydrant Water Meter

Fire Hydrant Meter #: _____ Date Issued: _____

Applicant/Company: _____ Tax ID: _____

Billing Address: _____ City/State/Zip: _____

Job Site: _____ Business License #: _____

Cell/Job Site Phone: _____ Office Phone: _____

Email Address: _____ Fax #: _____

Applicant Signature: _____ Print Name: _____

Meter Initial Reading: _____ Ccf Read by: _____
(Print Name)

Condition Upon Issuance: _____

Inspected By: _____

Date Returned: _____ Returned Reading: _____ Ccf

Condition Upon Return: _____

Inspected By: _____

Fire Hydrant Fees

(Resolution 17-13400)

	08/01/2022	01/01/2024	1/1/2025	1/1/2025	01/01/2027
Monthly Fixed Charge	\$330.00	\$340.00	\$360.00	\$380.00	\$485.00
Usage Charge	\$ 5.62 per CCF (748 gallons)	\$ 5.90 per CCF (748 gallons)	\$6.19 per CCF (748 gallons)	\$6.50 per CCF (748 gallons)	\$6.83 per CCF (748 gallons)
Deposit for Meter	\$ 1,200.00	(Refundable)			
Application Fee	\$ 35.00	(Non-refundable)			
Total Deposit	\$ 1,235.00				

Construction Water Permit Fire Hydrant Water Meter

All water to be used for construction purposes and drawn from a fire hydrant **MUST** be metered.

Picking Up a Hydrant Meter

1. Obtain a Construction Water Permit – Hydrant Meter Form from Pittsburg Water on the first floor of City Hall, 65 Civic Avenue.
2. Submit this completed form and pay fees according to the table .

Contractor Responsibilities:

1. All water to be used for construction purposes and drawn from a fire hydrant **MUST** be metered.
2. Contractor/Applicant **is responsible** to pay monthly fixed charges and a water usage charge which will be billed once a month, and after the meter is returned to Pittsburg Water. If account becomes delinquent, Public Works may request hydrant meter to be returned until account has been paid current.
3. The contractor/Applicant **is responsible** for reporting meter readings to Pittsburg Water during the **third week of every month**. **This form** and a **picture of the register** will need to be emailed to hydrants@pittsburgca.gov. If a meter reading is not provided by the **25th of each month**, a **\$37.00** verification meter reading fee will be charged to reimburse the city for the cost
4. The contractor **is responsible** to bring the hydrant meter to the Public Works Corporation Yard to have it officially read and tested every six months At this time, the condition of the meter will be checked, to determine if repairs are needed.
5. Contractor/Applicant **is responsible** for any and all damage to the meter and is required to keep the meter and register clean and free of obstructions which may affect the operation of the meter while issued to them.
6. Meters shall not be moved to another job site or taken outside city limits. Meters must be accessible to Public Works at all times.
7. Lost, stolen or severely damaged hydrant meters may result in the loss of deposit and/or additional charges to the applicant.
8. At any point Public Works could require the meter to be tested for accuracy.

PLEASE KEEP METERS INSIDE VEHICLES WHEN NOT IN USE. IF REGISTER ROLLS BACKWARDS EXTRA FEES MAY APPLY.

By signing below, I have read and understand all the rules and regulations regarding my hydrant meter.

Signature: _____

Date: _____

Appendix E

PSA/PLA Agreement

PROJECT STABILIZATION AGREEMENT

FORTHE CITY OF PITTSBURG

INTRODUCTION/FINDINGS

This Project Stabilization Agreement is entered into this 15th day of OCTOBER, 2018, by and between the City of Pittsburgh (hereinafter, the "City"), together with contractors and subcontractors of all tiers, who shall become signatory to this Agreement by signing the "**Agreement To Be Bound**" (Addendum A) (all of whom are referred to herein as "Contractors/Employers"), and the Contra Costa County Building & Construction Trades Council ("Council") and its affiliated local Unions that have executed this Agreement (all of whom are referred to collectively as "Union" or "Unions").

The purpose of this Agreement is to promote the efficiency of construction operations for the City of Pittsburgh through the use of skilled labor resulting in quality construction outcomes, and to provide for peaceful settlement of labor disputes and grievances without strikes or lockouts, thereby promoting the public interest in assuring the timely and economical completion of the Project.

WHEREAS, the timely and successful completion of the Project is of the utmost importance to the City to avoid increased costs resulting from delays in construction; and

WHEREAS, large numbers of workers of various skills will be required in the performance of the construction work, including those to be represented by the Unions signatory to this Agreement and employed by contractors and subcontractors who are signatory to this Agreement; and

WHEREAS, the use of skilled labor on construction work increases the safety of construction projects as well as the quality of completed work; and

WHEREAS, it is recognized that on a Project of this magnitude with multiple contractors and bargaining units on the job site at the same time over an extended period of time, the potential for work disruption is substantial without an overriding commitment to maintain continuity of work; and

WHEREAS, the interests of the general public, the City, the Unions and the Contractor/Employers would be best served if the construction work proceeded in an orderly

manner without disruption because of strikes, sympathy strikes, work stoppages, picketing, lockouts, slowdowns or other interferences with work; and

WHEREAS, the Contractor/Employers and the Unions desire to mutually establish and stabilize wages, hours and working conditions for the workers employed on the Project to the end that a satisfactory, continuous and harmonious relationship will exist among the parties to this Agreement; and

WHEREAS, the parties agree that one of the primary purposes of this agreement is to avoid the tensions that might arise on the Project if Union and nonunion workers of different employers were to work side by side on the Project, thereby leading to labor disputes that could delay completion of the Project; and

WHEREAS, this Agreement is not intended to replace, interfere with, abrogate, diminish or modify existing local or national collective bargaining agreements in effect during the duration of the Project, insofar as a legally binding agreement exists between the Contractor/Employer(s) and the affected Union(s), except to the extent that the provisions of this Agreement are inconsistent with said collective bargaining agreements, in which event, the provisions of this Agreement shall prevail; and

WHEREAS, the contracts for the construction of the Project will be awarded in accordance with the applicable provisions of the California State Public Contract Code and state, local and federal laws; and

WHEREAS, the City has the absolute right to select the lowest responsive and responsible bidder for the award of construction contracts on the Project; and

WHEREAS, the City places high priority upon the development of comprehensive programs for the recruitment, training and employment of local area residents and military veterans, and recognizing the ability of local apprenticeship programs to provide meaningful and sustainable careers in the building and construction industry; and

WHEREAS, the parties signatory to this Agreement pledge their full good faith and trust to work towards mutually satisfactory completion of the Project.

NOW, THEREFORE, IT IS AGREED BETWEEN AND AMONG THE PARTIES HERETO, AS FOLLOWS:

ARTICLE I
DEFINITIONS

1.1 “Agreement” means this Project Stabilization Agreement (“PSA”).

1.2 “Agreement to be Bound” means the agreement (attached hereto and incorporated herein as Addendum A) which shall be executed by each and every Contractor(s)/Employer(s) as a condition of performing Project Work.

1.3 “City” means the City of Pittsburg and its City Council or any City-authorized individual.

1.4 “Completion” means that point at which there is Final Acceptance by the City of a Construction Contract. For this definition of “Completion,” “Final Acceptance” shall mean that point in time at which the City has determined upon final inspection that the work on a Construction Contract has been completed in all respects and all required contract documents, contract drawings, warranties, certificates, manuals and data have been submitted and training completed in accordance with the contract documents, the City has executed a written acceptance of the work, and a Notice of Completion has been filed.

1.5 “Construction Contract” means the public works or improvement contract(s) awarded by the City (including by design bid, design build, lease leaseback or other contracts under which Covered Work is performed) that are necessary to complete the Project.

1.6 “Contractor/Employer(s)” or “Contractor(s)” or “Employer(s)” means any individual, firm, partnership or corporation, or combination thereof, including joint ventures, that is an independent business enterprise, and their successors and assigns, that enters into contract with the City (whether by design bid, design build, lease leaseback or other means), with respect to the construction of any part of the Project under contract terms and conditions approved by the City and which incorporate this Agreement, and any of its contractors or subcontractors of any tier.

1.7 “Council” means the Contra Costa County Building & Construction Trades Council.

1.8 “Master Agreement” or “Schedule A” or “Master Labor Agreement” means the Master Collective Bargaining Agreement of each craft Union signatory hereto, copies of which shall be made available to the City upon request.

1.9 “Project” means a City construction project funded in whole or in part with City of Pittsburg funds where the engineer’s estimate or bid amount exceeds one million dollars (\$1,000,000), excluding those Projects set forth in the Side Letter executed concurrently with this Agreement. All Construction Contracts required to complete an integrated City construction project shall be considered in determining the threshold value. Projects outside of the above definition may require a Project Stabilization Agreement if passed by the City of Pittsburg City Council by a majority vote. The City, through its City Council, and the Council may mutually agree in writing to add additional components to the Project’s Scope of Work to be covered under this PSA. The term “Project” applies to all projects as defined in this section, whether used in the singular or plural herein.

1.10 “Project Manager” means the person or business entity designated by the City to oversee all phases of construction on the Project and the implementation of this Agreement.

1.11 “Union” or “Unions” means the Contra Costa Building and Construction Trades Council, AFL-CIO (“the Council”) and its affiliated Unions signatory to this Agreement, acting in their own behalf and on behalf of their respective affiliates and member organizations whose names are subscribed hereto and who have through their officers executed this Agreement.

ARTICLE II

SCOPE OF AGREEMENT

2.1 Parties: This Agreement shall apply and is limited to all Contractors/Employers performing Construction Contracts on the Project (including subcontractors at any tier), the City, the Council and its affiliated Unions signatory to this Agreement.

2.2 Applicability: The Agreement shall govern all Construction Contracts awarded on City Projects. For the purposes of this Agreement, the Construction Contract shall be considered complete as set forth in Section 1.4, except when the City directs a Contractor to engage in repairs, warranty work, punch list work, or modifications as required under the original Construction Contract with the City, or when a Contractor performs work under a change order for a Construction Contract.

2.3 Covered Work: This Agreement covers, without limitation, all on-site site preparation, surveying, construction, alteration, demolition, installation, improvement, painting or repair of

buildings, structures and other works, and related activities for the Project that is within the craft jurisdiction of one of the Unions and which is directly or indirectly part of the Project, including, without limitation to the following examples, geotechnical and exploratory drilling, temporary HVAC, landscaping and temporary fencing, pipelines (including those in linear corridors built to serve the Project), pumps, pump stations, and modular furniture installation. On-site work includes work done solely for the Project in temporary yards, dedicated sites, or areas adjacent to the Project, and at any on-site or off-site batch plant constructed solely to supply materials to the Project. This scope of work includes all soils and materials testing and inspection where such testing and inspection is a classification in which a prevailing wage determination has been published.

2.3.1 This Agreement shall apply to any start-up, calibration, commissioning performance testing, repair, maintenance, and operational revisions to systems and/or subsystems for the Project that are under a Construction Contract, including when performed after Completion, unless it is performed by City employees.

2.3.2 This Agreement covers all on-site fabrication work over which the City, Contractor(s) or subcontractor(s) possess the right of control (including work done for the Project in any temporary yard or area established for the Project). Additionally, this Agreement covers any off-site work, including fabrication, necessary for the Project defined herein, that is covered by a current Schedule A Agreement or local addenda to a National Agreement of the applicable Union(s) that is in effect as of the execution date of this Agreement.

2.3.3 The furnishing of supplies, equipment or materials which are stockpiled for later use shall not be covered by this Agreement. However, construction trucking work, such as the hauling and delivery of ready-mix, asphalt, aggregate, sand, soil, or other fill or similar material that is incorporated into the construction process as well as the off-hauling of soil, sand, gravel, rocks, concrete, asphalt, excavation materials, construction debris and excess fill, material and/or mud, shall be covered by the terms and conditions of this Agreement to the fullest extent allowed by law and by the prevailing wage determinations of the California Department of Industrial Relations. Contractor/Employer(s), including brokers, of persons providing construction trucking work shall provide certified payroll records to the City within ten (10) calendar days of written request or as required by bid specifications.

2.3.4 Work covered by this Agreement within the following craft jurisdictions shall be performed under the terms of their National Agreements as follows: the National Transient Lodge (NTL) Articles of Agreement, the National Stack/Chimney Agreement, the National Cooling Tower Agreement, and the National Agreement of Elevator Constructors, and any instrument calibration work and loop checking shall be performed under the terms of the UA/IBEW Joint National Agreement for Instrument and Control Technicians, with the exception that Articles IV, XIV and XV of this Agreement shall apply to such work.

2.4 Exclusions

2.4.1 The Agreement is not intended to, and shall not affect or govern the award of public works contracts by the City which are not included in the Project.

2.4.2 The Agreement shall not apply to a Contractor/Employer's non-construction craft employees, including but not limited to executives, managerial employees, engineering employees and supervisors above the level of General Foreman (except those covered by existing Master Collective Bargaining Agreements), staff engineers or other professional engineers, administrative, management, office and clerical employees.

2.4.3 This Agreement shall not apply to any non-Project work performed on or near or leading to the site of work covered by this Agreement that is undertaken by state, county, city or other governmental bodies or their contractors; or by public or private utilities or their contractors. Work performed by public or private utilities including all electrical utility, voice-data-video, and security installation work ahead of and up to the electrical service entry connection or the main point of entry into the building shall be excluded. All electrical utility, voice-data-video, and security installation work performed after the electrical utility service entrance or the main point of entry shall be Covered Work. Additionally, all contracted work performed ahead of the service entrance connection and main point of entry that is inside the property line and that provides for access to the building via a conduit or series of conduits shall be Covered Work.

2.4.4 The Agreement shall not apply to off-site maintenance of leased equipment and on-site supervision of such work.

2.4.5 This Agreement shall not apply to any construction project outside the City's jurisdiction performed jointly with another public entity, where the City is not bidding the project.

2.5 Award of Contracts: It is understood and agreed that the City has the absolute right to select any qualified bidder for the award of Construction Contracts under this Agreement. The bidder need only be willing, ready and able to execute and comply with this Agreement. It is further agreed that this Agreement shall be included in all invitations to bid or solicitations for proposals from contractors or subcontractors for work on the Project that are issued on and after the effective date of this Agreement. A copy of all invitations to bid shall be provided at time of issuance to the Council.

ARTICLE III

EFFECT OF AGREEMENT

3.1 By executing the Agreement, the Unions and the City agree to be bound by each and all of the provisions of the Agreement.

3.2 By accepting the award of a construction contract for the Project, whether as contractor or subcontractor thereunder, the Contractor/Employer agrees to be bound by each and every provision of the Agreement and agrees that it will evidence its acceptance prior to the commencement of work by executing **the Agreement to be Bound** in the form attached hereto as **Addendum A**.

3.3 At the time that any Contractor/Employer enters into a subcontract with any subcontractor providing for the performance of a construction contract, the Contractor/Employer shall provide a copy of this Agreement to said subcontractor and shall require the subcontractor as a precondition of accepting an award of a construction subcontract to agree in writing, by executing the Agreement to be Bound, to be bound by each and every provision of this Agreement prior to the commencement of work. The obligations of a contractor may not be evaded by subcontracting.

3.4 This Agreement shall only be binding on the signatory parties hereto, and their successors and assigns, and shall not apply to the parents, affiliates, subsidiaries, or other ventures of any such party. Each Contractor shall alone be liable and responsible for its own individual acts and conduct and for any breach or alleged breach of this Agreement, except as otherwise provided by law or the applicable Schedule A. Any dispute between the Union(s) and the Contractor(s) respecting compliance with the terms of the Agreement, shall not affect the

rights, liabilities, obligations and duties between the signatory Union(s) and other Contractor(s) party to this Agreement.

3.5 It is mutually agreed by the parties that any liability by a signatory Union to this Agreement shall be several and not joint. Any alleged breach of this Agreement by a signatory Union shall not affect the rights, liabilities, obligations and duties between the signatory Contractor(s) and the other Union(s) party to this Agreement.

3.6 The provisions of this Agreement, including Schedules A's, which are incorporated herein by reference and which are the local Master Agreements of the Signatory Unions having jurisdiction over the work on the Project, shall apply to the work covered by this Agreement, notwithstanding the provisions of any other local, area and/or national agreements which may conflict with or differ from the terms of this Agreement. Where a subject covered by the provisions of this Agreement is also covered by a Schedule A, the provisions of this Agreement shall prevail. Where a subject is covered by the provisions of a Schedule A and is not covered by this Agreement, the provisions of the Schedule A shall prevail.

ARTICLE IV

WORK STOPPAGES, STRIKES, SYMPATHY STRIKES, AND LOCKOUTS

4.1 The Unions, City and Contractor(s)/Employer(s) covered by the Agreement agree that for the duration of the Project:

4.1.1 There shall be no strikes, sympathy strikes, work stoppages, picketing, handbilling or otherwise advising the public that a labor dispute exists, or slowdowns of any kind, for any reason, by the Unions or employees employed on the Project, at the job site of the Project or at any other facility of City because of a dispute on the Project. Disputes arising between the Unions and Contractor(s)/ Employer(s) on other City projects are not governed by the terms of the Agreement or this Article.

4.1.2 There shall be no lockout of any kind by a Contractor/Employer of workers employed on the Project.

4.1.3 If a Master Agreement expires before the Contractor/Employer completes the performance of work under the Construction Contract and the Union or Contractor/Employer gives notice of demands for a new or modified Master Agreement, the Union agrees that it will

not strike on work covered under this Agreement and the Union and the Contractor/Employer agree that the expired Master Agreement shall continue in full force and effect for work covered under this Agreement until a new or modified Master Agreement is reached. If the new or modified Master Agreement provides that any terms of the Master Agreement shall be retroactive, the Contractor/ Employer agrees to comply with any retroactive terms of the new or modified Master Agreement which are applicable to employees who were employed on the projects during the interim, with retroactive payment due within seven (7) calendar days of the effective date of the modified Master Agreement.

4.1.4 In the case of nonpayment of wages or trust fund contributions on the Project, the Union shall give the City and the Contractor/Employer(s) three (3) business days' notice when nonpayment of trust fund contributions has occurred and one (1) business days' notice when nonpayment of wages has occurred or when paychecks being tendered to a financial institution normally recognized to honor such paychecks will not honor such paycheck as a result of insufficient funds, of the intent to withhold labor from the Contractor/Employer(s)' or their subcontractor's workforce, during which time the Contractor/Employer shall have the opportunity to correct the default. In this instance, a Union's withholding of labor (but not picketing) from an Contractor/Employer who has failed to pay its fringe benefit contributions or failed to meet its weekly payroll shall not be considered a violation of this Article.

4.1.5 If the City contends that any Union has violated this Article, it will notify in writing (including email) the Senior Executive of the Council and the Senior Executive of the Union, setting forth the facts alleged to violate the Article, prior to instituting the expedited arbitration procedure set forth below. The Council will immediately use his/her best efforts to cause the cessation of any violation of this Article. The leadership of the Union will immediately inform the membership of their obligations under this Article. A Union complying with this obligation shall not be held responsible for unauthorized acts of employees it represents.

4.2 Expedited Arbitration: Any party to this Agreement shall institute the following procedure, prior to initiating any other action at law or equity, when a breach of this Article is alleged to have occurred:

4.2.1 A party invoking this procedure shall notify Robert Hirsch, as the permanent arbitrator, or Barry Winograd, as the alternate arbitrator under this procedure. In the event that the permanent arbitrator is unavailable at any time, the alternate will be contacted. If neither is

available, then a selection shall be made pursuant to the procedure in Section 14.2. Notice to the arbitrator shall be by the most expeditious means available, with notices by facsimile, email or telephone to the City and the party alleged to be in violation, and to the Council and involved local Union if a Union is alleged to be in violation.

4.2.2 Upon receipt of said notice, the City will contact the designated arbitrator named above or his alternate who will attempt to convene a hearing within twenty-four (24) hours if it is contended that the violation still exists.

4.2.3 The arbitrator shall notify the parties by facsimile, email or telephone of the place and time for the hearing. Said hearing shall be completed in one session, which, with appropriate recesses at the arbitrator's discretion, shall not exceed twenty-four (24) hours unless otherwise agreed upon by all parties. A failure of any party to attend said hearings shall not delay the hearing of evidence or the issuance of an award by the arbitrator.

4.2.4 The sole issue at the hearing shall be whether or not a violation of Article IV, Section 4.1 of the Agreement has occurred. The arbitrator shall have no authority to consider any matter of justification, explanation or mitigation of such violation or to award damages, which issue is reserved for court proceedings, if any. The award shall be issued in writing within three (3) hours after the close of the hearing, and may be issued without a written opinion. If any party desires a written opinion, one shall be issued within fifteen (15) calendar days, but its issuance shall not delay compliance with or enforcement of the award. The arbitrator may order cessation of the violation of this Article and other appropriate relief and such award shall be served on all parties by hand or registered mail upon issuance. Should a party found in violation of this Article fail to comply with an Arbitrator's award to cease the violation, the party in violation shall pay to the affected party (the City for a strike violation, the applicable Union(s) and trust fund(s) on behalf of the affected workers for a lockout violation) as liquidated damages the sum of ten thousand dollars (\$10,000.00) per shift for which it failed to comply, or portion thereof, until such violation is ceased. The Arbitrator shall retain jurisdiction to resolve any disputes regarding the liquidated damages claimed under this section.

4.2.5 Such award may be enforced by any Court of competent jurisdiction upon the filing of this Agreement and all other relevant documents referred to above in the following manner. Written notice of the filing of such enforcement proceedings shall be given to the other party. In the proceeding to obtain a temporary order enforcing the arbitrator's award as issued

under Section 4.2.4 of this Article, all parties waive the right to a hearing and agree that such proceedings may be ex parte. Such agreement does not waive any party's right to participate in a hearing for a final order or enforcement. The Court's order or orders enforcing the arbitrator's award shall be served on all parties by hand or delivered by certified mail.

4.2.6 Any rights created by statute or law governing arbitration proceedings inconsistent with the above procedure, or which interfere with compliance, are waived by the parties.

4.2.7 The fees and expenses of the arbitrator shall be divided equally between the party instituting the arbitration proceedings and the party alleged to be in breach of its obligation under this Article.

ARTICLE V

PRE-CONSTRUCTION CONFERENCE

5.1 Timing: The General Contractor, after conferring with the Council, shall convene and conduct a pre-job conference with representatives of all involved Contractors/Employers, who shall be prepared to announce craft assignments and to discuss in detail the scope of work and other issues as set forth below, and the Unions, at a location mutually agreeable to the parties at least twenty-one (21) calendar days prior to:

- (a) The commencement of any Project Work, and
- (b) The commencement of Project Work on each subsequently awarded construction contract or phase.

5.2 The conference shall be attended by a representative of each participating Contractor and each affected Union and the Council and City may attend at their discretion.

5.3 Pre-Job Conference. The pre-job conference will consist of:

- (a) A listing of each Contractor's scope of work;
- (b) The craft assignments;
- (c) The estimated number of craft workers required to perform the work;
- (d) Transportation arrangements;
- (e) The estimated start and completion dates of the work; and
- (f) Discussion of pre-fabricated materials.

5.4 Review Meetings: In order to ensure the terms of the PLA are being fulfilled and all concerns pertaining to the City, the Unions, and the Contractors are addressed, the Project Manager, General Contractor and Senior Executive of the Council or designated representatives thereof shall meet on a periodic basis during the term of construction of a Project.

ARTICLE VI
NO DISCRIMINATION

6.1 The Contractor/Employers and Unions agree to comply with all anti-discrimination provisions of federal, state, and local law, to protect employees and applicants for employment, on the Project.

ARTICLE VII
UNION SECURITY

7.1 The Contractor/Employers recognize the Union(s) as the sole bargaining representative of all craft employees working within the scope of this Agreement.

7.2 Contractor/Employer shall be responsible to ensure that all employees who are employed by the Contractor/Employer(s) shall, as a condition of employment, on or before the eighth (8th) day of consecutive or cumulative employment on a construction contract subject to this Agreement, be responsible for the payment of the applicable monthly working dues and any associated fees uniformly required for Union membership in the applicable local Union which is signatory to this Agreement and shall stay current with such working dues and fees for the duration of work on the Project. Further, there is nothing in this Agreement that would prevent non-union employees from joining the local Union.

7.3 Authorized representatives of the Unions shall give notice to a supervisor to access the Projects whenever work covered by this Agreement is being or will be performed on the Project.

ARTICLE VIII
REFERRAL

8.1 Contractor/Employers performing construction work on the Project described in the Agreement shall, in filling craft job requirements, utilize and be bound by the registration facilities and referral systems established or authorized by the Unions signatory hereto. The Contractor/Employer(s) shall have the right to reject any applicant referred by the Union(s), in accordance with the applicable Master Agreement.

8.2 The Contractor(s) shall have the unqualified right to select and hire directly all supervisors above general foreman it considers necessary and desirable, without such persons being referred by the Union(s), (unless covered by an existing Master Agreement).

8.3 In the event that referral facilities maintained by the Union(s) are unable to fill the requisition of a Contractor/Employer for employees within a forty-eight (48) hour period (Saturdays, Sundays and Holidays excluded) after such requisition is made by the Contractor/Employer(s), the Contractor/Employer(s) shall be free to obtain work persons from any source. A Contractor who hires any personnel to perform covered work on the Project pursuant to this Section shall immediately provide the appropriate Union with the name and address of such employee(s) and shall immediately refer such employee(s) to the appropriate Union to satisfy the requirements of Article VII of this Agreement.

8.4 **Local Hire:** It is in the interest of the parties to this Agreement to facilitate employment of City of Pittsburg and Local Area residents and to use resources in the Local Area in construction of the Project. The "Local Area" shall be defined as the communities of Pittsburg and Contra Costa County to be served by the Project. It is the objective of the parties that not less than twenty-five percent (25%) of all hours worked on the Project be worked by residents of the Local Area. The Unions will exert their utmost efforts to recruit sufficient numbers of skilled craft persons to fulfill the requirements of the contractor. The Parties to this Agreement support the development of increased numbers of skilled construction workers from the Local Area. To the extent allowed by law, and consistent with the Local Union's hiring hall provisions, and as long as they possess the requisite skills and qualifications, residents of the Local Area, including journeymen and apprentices, shall be referred for Project work covered by this Agreement.

ARTICLE IX
WAGES AND BENEFITS

9.1 All Contractor/Employers agree to pay contributions to the established vacation, pension and other form of deferred compensation plan, apprenticeship, worker protection and assistance, and health benefit funds established by the applicable Master Agreement for each hour worked on the Project in the amounts designated in the Master Agreements of the appropriate signatory Unions.

9.2 By signing this Agreement, the Contractor/Employers adopt and agree to be bound by the written terms of the legally established Trust Agreements, as described in Section 9.1, which may from time to time be amended, specifying the detailed basis on which payments are to be made into, and benefits paid out of, such Trust Funds. The Contractors authorize the parties to such local trust agreements to appoint trustees and successor trustees to administer the trust funds and hereby ratify and accept the trustees so appointed as if made by the Contractor(s). The Contractors/Employers agree to execute a separate Subscription Agreement(s) for Trust Funds when such Trust Fund(s) requires such document(s).

9.3 Wages, Hours, Terms and Conditions of Employment: The wages, hours and other terms and conditions of employment on the Project shall be governed by the Master Agreement of the respective crafts, to the extent such Master Agreement is not inconsistent with this Agreement. Where a subject is covered by the Master Agreement and not covered by this Agreement, the Master Agreement will prevail. When a subject is covered by both the Master Agreement and this Agreement, to the extent there is any inconsistency, this Agreement will prevail.

9.4 Holidays: Holidays shall be in compliance with the applicable Master Agreement.

ARTICLE X
APPRENTICES

10.1 Recognizing the need to develop adequate numbers of competent workers in the construction industry, the Contractor/Employer(s) shall employ apprentices of a California State-approved Joint Apprenticeship Training Program in the respective crafts to perform such work as

is within their capabilities and which is customarily performed by the craft in which they are indentured.

10.2 The apprentice ratios will be in compliance with the applicable provisions of the California Labor Code and Prevailing Wage Rate Determination.

10.3 Consistent with the Master Agreements and state law, there shall be no restriction on the utilization of apprentices in performing the work of their craft provided they are properly supervised.

ARTICLE XI
HELMETS TO HARDHATS

11.1 The Contractor/Employer(s) and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractor(s)/Employer(s) and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center), a joint Labor-Management Cooperation Trust Fund, established under the authority of Section 6(b) of the Labor-Management Cooperation Act of 1978, 29 U.S.C. Section 175(a), and Section 302(c)(9) of the Labor-Management Relations Act, 29 U.S.C. Section 186(c)(9), and a charitable tax exempt organization under Section 501(c)(3) of the Internal Revenue Code, and the Center's "Helmets to Hardhats" program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

11.2 The Unions and Contractor(s)/Employer(s) agree(s) to coordinate with the Center to participate in an integrated database of veterans and members of the National Guard and Reserves interested in working on the Project and of apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Unions will give credit to such veterans and members of the National Guard and Reserves for bona fide, provable past experience.

ARTICLE XII
COMPLIANCE

12.1 It shall be the responsibility of the Contractor(s)/Employer(s) and Unions to investigate and monitor compliance with the provisions of the Agreement contained in Article IX. Nothing in this agreement shall be construed to interfere with or supersede the usual and customary legal remedies available to the Unions and/or employee benefit Trust Funds to collect delinquent Trust Fund contributions from Contractor(s)/Employer(s) on the Project. The City shall monitor and enforce compliance with prevailing wage requirements of the state only to the extent required by law, and Contractors/Employers' compliance with this Agreement.

ARTICLE XIII
EMPLOYEE GRIEVANCE PROCEDURE

13.1 All disputes involving discipline and/or discharge of employees working on the Project shall be resolved through the grievance and arbitration provision contained in the Master Agreement for the craft of the affected employee. No employee working on the Project shall be disciplined or dismissed without just cause.

ARTICLE XIV
GRIEVANCE ARBITRATION PROCEDURE

14.1 Project Labor Disputes: All project labor disputes involving the application or interpretation of the Master Agreement to which a signatory Contractor/Employer and a signatory Union are parties shall be resolved pursuant to the resolution procedures of that Master Agreement. All disputes relating to the interpretation or application of this Agreement shall be subject to resolution by the grievance arbitration procedures set forth herein.

14.2 No grievance shall be recognized unless the grieving party (Local Union or District Council on its own behalf, or on behalf of an employee whom it represents, or a Contractor/Employer on its own behalf) provides notice in writing to the party with whom it has a dispute within five (5) business days after becoming aware of the dispute but in no event more

than thirty (30) business days after it reasonably should have become aware of the event giving rise to the dispute. Time limits may be extended by mutual written agreement of the parties.

Step 1: Within five (5) business days after the receipt of the written notice of the grievance, the Business Representative of the involved Local Union or District Council, or his/her designee, or the representative of the employee, and the representative of the involved Contractor/Employer shall confer and attempt to resolve the grievance.

Step 2: In the event that the representatives are unable to resolve the dispute within the five (5) business days of the Step 1 meeting, within five (5) business days thereafter, the alleged grievance may be referred in writing by either involved party to the Business Manager(s) of the affected Union(s) involved and the Manager of Labor Relations of the Employer(s) or the Manager's designated representative, for discussion and resolution. Regardless of which party has initiated the grievance proceeding, prior to a Step 2 meeting, the Union(s) shall notify its International Union representative(s), which shall advise both parties if it intends on participating in a Step 2 meeting. The Project Manager and the Council shall have the right to participate in any efforts to resolve the dispute at Step 2.

Step 3: If the grievance is not settled in Step 2, within five (5) business days of the Step 2 meeting, either party may request the dispute be submitted to arbitration or the time may be extended by mutual consent of both parties. Within five (5) business days after referral of a dispute to Step 3, the representatives shall choose a mutually agreed upon arbitrator for final and binding arbitration. The parties agree that if the permanent arbitrator or his alternate is not available, an arbitrator shall be mutually agreed upon by the parties. If the parties cannot mutually agree, an arbitrator shall be selected by the alternate striking method from a list of four (4). Each party shall provide two (2) arbitrators for the list at the time of arbitration. The order of striking names from the list of arbitrators shall be determined by a coin toss, the winner of which shall decide whether they wish to strike first or second.

14.3 The decision of the Arbitrator shall be final and binding on all parties. The Arbitrator shall have no authority to change, amend, add to or detract from any of the provisions of the Agreement. The expense of the Arbitrator shall be borne equally by both parties. The Arbitrator shall arrange for a hearing on the earliest available date from the date of his/her selection. A decision shall be given to the parties within five (5) calendar days after completion of the hearing

unless such time is extended by mutual agreement. A written opinion may be requested by a party from the presiding arbitrator.

14.4 The time limits specified in any step of the Grievance Procedure set forth in Section 14.2 may be extended by mutual agreement of the parties. However, failure to process a grievance, or failure to respond in writing within the time limits provided above, without an agreed upon extension of time, shall be deemed a waiver of such grievance without prejudice, or without precedent to the processing of and/or resolution of like or similar grievances or disputes. In order to encourage the resolution of disputes and grievances at Steps 1 and 2 of this Grievance Procedure, the parties agree that such settlements shall not be precedent setting.

14.5 Retention: To the extent allowed by applicable law, at the time a grievance is submitted under this Agreement or any Master Agreement, the Union(s) may request that the City withhold and retain an amount from what is due and owing to the Contractor(s) against whom the grievance is filed, sufficient to cover the damages alleged in the grievance, should the Union(s) prevail. The amount shall be retained by the City until such time as the underlying grievance giving rise to the retention is withdrawn, settled, or otherwise resolved, and the retained amount shall be paid to whomever the parties to the grievance shall decide, or to whomever an Arbitrator shall so order.

14.6 Should any of the arbitrators listed in this Article or Article IV no longer work as a labor arbitrator, the City and the Council shall mutually agree to a replacement.

ARTICLE XV

WORK ASSIGNMENTS AND JURISDICTIONAL DISPUTES

15.1 The assignment of Covered Work will be solely the responsibility of the Employer performing the work involved; and such work assignments will be in accordance with the Plan for the Settlement of the Jurisdictional Disputes in the Construction Industry (the "Plan") or any successor Plan.

15.2 All jurisdictional disputes on this Project between or among the building and construction trades Unions and the Employers parties to this Agreement, shall be settled and adjusted according to the present Plan established by the Building and Construction Trades Department or any other plan or method of procedure that may be adopted in the future by the

Building and Construction Trades Department. Decisions rendered shall be final, binding and conclusive on the Employers and Unions parties to this Agreement.

15.3 If a dispute arising under this Article involves the Northern California Carpenters Regional Council or any of its subordinate bodies, an Arbitrator shall be chosen by the procedures specified in Article V, Section 5, of the Plan from a list composed of John Kagel, Thomas Angelo, Robert Hirsch, and Thomas Pagan, and the Arbitrator's hearing on the dispute shall be held at the offices of the California State Building and Construction Trades Council in Sacramento, California, within fourteen (14) calendar days of the selection of the Arbitrator. All other procedures shall be as specified in the Plan.

15.4 All jurisdictional disputes shall be resolved without the occurrence of any strike, work stoppage, or slow-down of any nature, and the Employer's assignment shall be adhered to until the dispute is resolved. Individual employees violating this section shall be subject to immediate discharge.

15.5 Each Employer will conduct a pre-job conference with the Council prior to commencing work. The Project Manager and City will be advised in advance of all such conferences and may participate if they wish. Pre-job conferences for different Employers may be held together.

ARTICLE XVI
MANAGEMENT RIGHTS

16.1 Consistent with the Master Agreements, the Contractor/Employer(s) shall retain full and exclusive authority for the management of their operations, including the right to direct their work force in their sole discretion. No rules, customs or practices shall be permitted or observed which limit or restrict production, or limit or restrict the working efforts of employees, except that lawful manning provisions in the Master Agreement shall be recognized.

ARTICLE XVII
DRUG & ALCOHOL TESTING

17.1 The use, sale, transfer, purchase and/or possession of a controlled substance, alcohol and/or firearms at any time during the work day is prohibited.

17.2 Drug and alcohol testing shall be conducted in accordance with the Substance Abuse Prevention Policies set forth in each applicable Schedule A.

ARTICLE XVIII
SAVINGS CLAUSE

18.1 The parties agree that in the event any article, provision, clause, sentence or word of the Agreement is determined to be illegal or void as being in contravention of any applicable law, by a court of competent jurisdiction, the remainder of the Agreement shall remain in full force and effect. The parties further agree that if any article, provision, clause, sentence or word of the Agreement is determined to be illegal or void, by a court of competent jurisdiction, the parties shall substitute, by mutual agreement, in its place and stead, an article, provision, clause, sentence or word which will meet the objections to its validity and which will be in accordance with the intent and purpose of the article, provision, clause, sentence or word in question.

18.2 The parties also agree that in the event that a decision of a court of competent jurisdiction materially alters the terms of the Agreement such that the intent of the parties is defeated, then the entire Agreement shall be null and void.

18.3 If a court of competent jurisdiction determines that all or part of the Agreement is invalid and/or enjoins the City from complying with all or part of its provisions and the City accordingly determines that the Agreement will not be required as part of an award to a Contractor/Employer, the Unions will no longer be bound by the provisions of Article IV.

ARTICLE XIX
AMENDMENT/COUNTERPARTS/AUTHORITY

19.1 Any substantive modification of any provision or addendum to this Agreement must be reduced to writing and signed by the City, Council and Unions to be effective.

19.2 The section headings contained in this Agreement are inserted for convenience only and shall not affect in any way the meaning or interpretation of this Agreement. All defined terms used in this Agreement shall be deemed to refer to the singular and/or plural, in each instance as the context and/or particular facts may require.

19.3 This Agreement may be executed in counterparts, such that original signatures may appear on separate pages, and when bound together all necessary signatures shall constitute an original. Facsimile or scanned signature pages transmitted to other parties to this Agreement shall be deemed equivalent to original signatures.

19.4 Each of the persons signing this Agreement represents and warrants that such person has been duly authorized to sign this Agreement on behalf of the party indicated and each of the parties by signing this Agreement warrants and represents that such party is legally authorized and entitled to enter into this Agreement.

ARTICLE XX
TERM

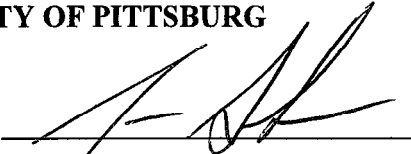
20.1 The Agreement shall be included in the bid documents, requests for proposals, or other equivalent Project solicitation, which shall indicate that entering into this Agreement is a condition of the award of a Construction Contract for the Project.

20.2 This Agreement shall become effective on the latter day executed by the City or by the Council and shall remain in effect until Completion of each Project in accordance with Sections 1.4 and 2.2.

20.3 This Agreement shall remain in full force and effect for a period of five (5) years from the date it is entered into. Prior to the five (5) year anniversary of the effective date, the City and the Council shall meet and confer regarding their experience with Projects covered by the Agreement, and shall discuss whether to modify the Agreement or extend the Agreement for

an additional term. This Agreement shall remain in effect pending the parties' meet and confer efforts. No term extension or any substantive change to this agreement will be effective unless agreed to by the Council and approved by City Council.

CITY OF PITTSBURG


By 
City Manager

Date 10/31/18

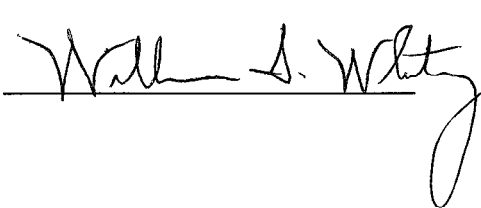
Attest:


City Clerk

Approved as to Form:


City Attorney

**CONTRA COSTA BUILDING AND
CONSTRUCTION TRADES COUNCIL (COUNCIL)**

By 

Date 10/31/2018


Asbestos Workers Local #16

Teamsters Local #315

Boilermakers Local #549

Roofers and Waterproofers Local #81

Bricklayers Local #3

Iron Workers Local #378

Elevator Constructors Local #8

Northern California District Council of
Laborers, for itself and its affiliated Local
Unions

Sheet Metal Workers Local #104

Cement Masons Local #300

Operating Engineers Local #3

International Brotherhood of Electrical
Workers Local #302

District Council #16, Painters and Allied
Trades, for itself and its affiliated Local Unions

Plasterers Local #66

Sprinklerfitters Local #483

United Association Local #159

United Association Local #342

United Association Local #355

Northern California Carpenters Regional
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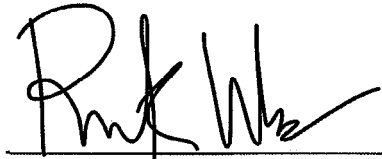
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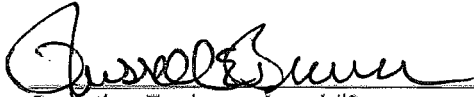
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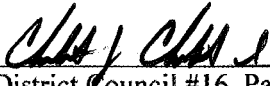
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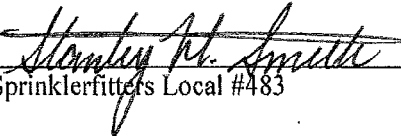
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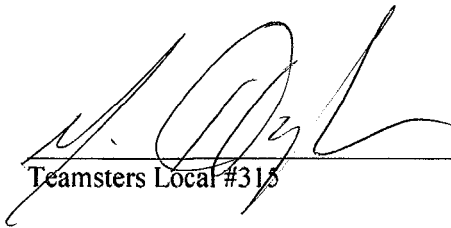


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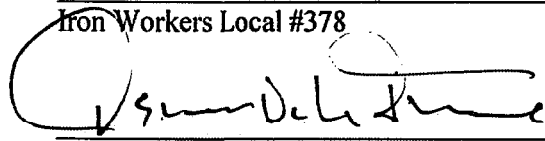
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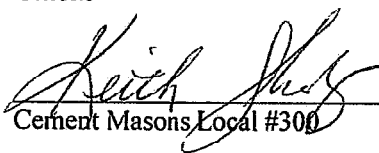
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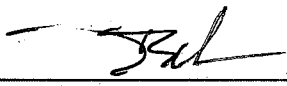
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ADDENDUM A
AGREEMENT TO BE BOUND

[Addressee]
[Address]
[City and State]

Re: City of Pittsburg Project Labor Agreement.

Dear Mr. /Ms. _____ :

The undersigned party confirms that it agrees to be a party to and bound by the City of Pittsburg Project Stabilization Agreement as such Agreement may, from time to time, be amended by the parties or interpreted pursuant to its terms.

By executing this Agreement to Be Bound, the undersigned party subscribes to, adopts and agrees to be bound by the written terms of the legally established trust agreements as set forth in Section 9.1, as they may from time to time be amended, specifying the detailed basis upon which contributions are to be made into, and benefits made out of, such trust funds and ratifies and accepts the trustees appointed by the parties to such trust funds.

Such obligation to be a party to and bound by this Agreement shall extend to all work covered by the City of Pittsburg Project Stabilization Agreement undertaken by the undersigned party. The undersigned party shall require all of its subcontractors, of whatever tier, to become similarly bound for all their work within the scope of this Agreement by signing an identical Agreement to Be Bound.

This letter shall constitute a subscription agreement, to the extent of the terms of the letter. However, the undersigned agrees to execute a separate Subscription Agreement(s) for Trust Funds when such Trust Fund(s) so requires.

Contractor/Subcontractor: _____

Project Contract Number: _____

California State License Number:
or Motor Carrier (CA) Permit Number: _____

Name and Signature of Authorized Person: _____
(Print Name)

(Print Title)

(Signature)

Address and Telephone Number: _____

State Public Works Registration Number: _____