



SPECIFICATIONS  
FOR

**City of Marina**  
**Imjin Pkwy Widening Project**  
(EDR1808)

Approved for Construction by:

Brian McMinn, P.E., P.L.S.  
Public Works Director/City Engineer

Technical Specifications by:

Daniel Carley, P.E.  
Kimley Horn & Associates

VIRTUAL BID OPENING:  
**January 24, 2023 at 2:00 PM**  
City Engineer's Office  
Public Works Department  
209 Cypress Avenue  
Marina, California 93933

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## **PART A - LEGAL AND PROCEDURAL DOCUMENTS**

### **A1 NOTICE TO BIDDERS**

Notice is hereby given that sealed proposals will be received by the City Engineer of the City of Marina, located at 209 CYPRESS AVENUE, MARINA, CALIFORNIA, until 2:00 P.M. on Tuesday, January 24, 2023 for furnishing all labor, equipment, materials, and other items necessary to execute the

#### **IMJIN PARKWAY WIDENING PROJECT**

The scope of work for this project includes demolition and removal of existing roadway section; constructing a new 4 lane road along the existing roadway alignment, constructing 4 traffic roundabouts; and modifying one signalized intersection. Work also includes extensive roadway excavation; new concrete curb and gutter; concrete and HMA sidewalk and bike paths; concrete retaining walls; landscaping; active warning crosswalk beacons; storm drain modifications; bioretention swales; tree mitigation plantings, significant tree removal, street lighting; curb ramps; erosion control improvements; new traffic striping and signing; and utility modifications. The scope of work shall be completed along Imjin Parkway beginning just west of Imjin Road and ending at Reservation Road, approximately 1.7 miles in length.

The Contractor shall perform all work necessary to complete the building exterior improvements in their entirety in accordance with the Contract Documents.

Time for Completion - All work under this contract shall be completed within 570 working days from the date specified in the Notice to Proceed.

If Contractor shall be delayed in the work by the acts or neglect of Owner, or its employees or those under it by contract or otherwise, or by changes ordered in the work, or by strikes, lockouts by others, fire, unusual delay in transportation, unavoidable casualties or any causes beyond the Contractor's control, or by delay authorized by the Owner, or by any cause which the Owner shall decide to justify the delay, then the time of completion shall be extended for such reasonable time as the Owner may decide.

Liquidated damages amount per working day shall be as specified in the Special Provisions. All Federal holidays and City holidays observed during construction shall not be included on the construction timeline specified. Time extension for weather and City delays will be granted accordingly.

At the time of the bid opening, the successful Bidder must be legally entitled to perform contracts requiring a **Class A Contractor's license**. Any Bidder or contractor not so licensed shall be subject to all penalties imposed by law including, but not limited to, any appropriate disciplinary action by the Contractors' State License Board.

**A pre-bid conference is scheduled for January 5, 2023 as an online forum for questions. The pre-bid conference meeting login information will be provided online at the City Webpage for the project: <http://cityofmarina.org/1136/Imjin-Parkway-Widening-Project>**



**The bid proposal, which includes completed form A3 through A8, and copies of signed addenda acknowledgement, if any, must be submitted with the bid Envelopes and priority mail packages must be clearly marked on the outside as follows: "BID OPENING – Tuesday, January 24, 2023 at 2:00 pm.**

Due to COVID-19 Public Health Order social distancing requirements, Bidding Documents are on file and public may download from the City website, <https://www.cityofmarina.org/bids.aspx>. In order to download project documents, you must register as a document (plan) holder on EbidBoard at no cost through the City web site. Potential bidders, subcontractors and suppliers are responsible for reviewing the complete bidding documents, including all addenda, prior to submitting their bid. Hard copies can be obtained by calling (831) 884-1212, for a non-refundable sum of \$220.00 for each set of Plans and Specifications. An additional postage charge of \$5.00 for mailing.

Potential bidders, subcontractors and suppliers are responsible for reviewing the complete bidding documents, including all addenda, prior to submitting their bid. Bid proposals will be opened and read by the City Engineer or designee via live video feed. Bidders may join the virtual bid opening through an online video conferencing application. Virtual bid opening credentials will be sent out through an addendum. Proposals will be read aloud at the time of the opening of bids and bids become public records.

Bid results and inquiries may be obtained from the City of Marina at (831) 884-1205 or email Edrie Delos Santos at [edrie@cityofmarina.org](mailto:edrie@cityofmarina.org). Responses to all inquiries shall be sent out through email or if necessary, bids will be available for inspection by appointment only.

In order to ensure the safety of such operations, the successful Bidder must provide evidence of a current Cal/OSHA T-1 trenching and excavation permit five days after bid opening. The T-1 permit requirement applies to the Bidder and listing a subcontractor that possesses a T-1 permit in lieu of the Bidder does not fulfill the requirement.

This Contract will be subject to compliance monitoring and enforcement by the California Department of Industrial Relations, pursuant to Labor Code section 1771.4. Under California Labor Code section 1771.1, as amended by SB 854, a contractor may not bid, nor be listed as a subcontractor, for any bid proposal submitted for a public work unless the contractor and its subcontractors are registered and qualified to perform public work pursuant to section 1725.5 of the Labor Code. The Bidder and its Subcontractors must be registered and qualified to perform public work pursuant to section 1725.5 of the Labor Code, subject to limited legal exceptions under Labor Code section 1771.1.

Attention of bidders is called to the fact that effective January 1, 1977, the Director of the State Department of Industrial Relations is required to determine the general prevailing rate of minimum wages to be paid to the various craftsmen and laborers required to construct said improvements. The City Council is cognizant of the **prevailing rate of per diem rates** and the general prevailing rate for holiday and overtime work in the locality in which the public work is to be performed for each craft, classification or type of workman needed to execute this contract and has made this information a part of the Specifications and Contract for said work by reference thereto.

The City Council reserves the right to reject any or all bids and to determine which proposal is, in its judgement, the most responsive bid of a responsible bidder and which proposal should be accepted in the best interest of the City Council. The City Council also reserves the right to waive any informality in any proposal or bid.



Proposals received after the time announced for the opening will not be considered. No bidder may withdraw his bid after the time announced for the opening, or before the award and execution of the contract, unless the award is delayed for a period exceeding ninety (90) days. No telegraphic proposals will be accepted.

Contract award will be made to the lowest responsive and responsible bidder based on the combined grand total of the Base Bid, Additive Bid Alternate A and Additive Bid Alternate B.

Published Date: 12/07/2022

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Brian McMinn, PE, PLS  
Public Works Director/City Engineer



## **A2 INFORMATION FOR BIDDERS**

### **2.1 Inspection of Site of Work**

Bidders are required to inspect the site of the work in order to satisfy themselves, by personal examination or by such other means, as they may prefer, of the location of the proposed work and as to the actual conditions of and at the site of work. If, during this examination, a bidder finds facts or conditions, which appear confusing, application may be made to the Engineering Division for additional information and explanation before submitting the bid. However, no such supplemental information so requested or furnished shall vary the terms of the Specifications or the Contractor's sole responsibility to satisfy him/herself as to the conditions of the work to be performed.

The submission of a proposal by the bidder shall constitute the acknowledgment that, if awarded the contract, the bidder has relied and is relying on his/her own examination of (a) the site of the work, (b) the access to the site, and (c) all other data, matters, and things requisite to the fulfillment of the work and in his own knowledge of existing conditions on and in the vicinity of the site of work to be constructed under the contract, and not on any representation or warranty of the City Council. No claim for additional compensation will be allowed which is based upon a lack of knowledge of the above items.

### **2.2 Examination of Contract Documents**

The contract documents shall consist of the following:

1. Proposal;
2. Proposal Guaranty Bond;
3. Contract Agreement;
4. Performance Bond; (only if bid amount exceeds \$25,000)
5. Bond for Labor and Material; (only if bid amount exceeds \$25,000)
6. Proposal Supplement Including an Experience Statement and List of Proposed Subcontractors;
7. Project Plans, Specifications and Addenda, if any ;
8. Standard Plans and Specifications, Caltrans – 2018 Edition; and;
9. Certificate of Insurance.

Each bidder shall thoroughly examine and be familiar with legal and procedural documents, General Provisions, Specifications, Drawings and Addenda (if any). The submission of a proposal shall constitute an acknowledgment upon which the City Council may rely that the bidder has thoroughly examined and is familiar with the contract documents. The failure or neglect of a bidder to receive or examine any of the contract documents shall in no way relieve him from any obligation with respect to his proposal or to the contract. No claim for additional compensation will be allowed which is based upon a lack of knowledge of any contract documents.

### **2.3 Interpretation of Contract Documents**

No oral representations or interpretations will be made to any bidder as to the meaning of the contract documents. Requests for an interpretation shall be made in writing and delivered to the Engineering Division at least six (6) days before the time announced for opening the proposals. Interpretations by the Engineering Division will be in the form of an addendum to the contract documents and, when issued, will be sent as promptly as is practical to all parties to whom the bid documents have been issued. All such addenda shall become part of the contract. A pre-bid meeting will be held to explaining the bid and the project.



## **2.4 Proposal (Form A3)**

Proposals shall be made on the blank forms prepared by the City and included herein. All proposals shall give prices proposed, both in writing and in figures, and shall be signed by the bidder or his authorized representatives with his address. If the proposal is made by an individual, his name, signature, and post office address must be shown; if made by a firm or partnership, the name and post office address of the firm or partnership and the signature of at least one of the general partners must be shown; if made by a corporation, the proposal shall show the name of the state under the laws of which the corporation is chartered, the name and post office address of the corporation, and the title of the person who signs on behalf of the corporation.

Each proposal shall be submitted with all other required documents described herein and shall be enclosed in a sealed envelope and labeled as specified. Bidders are warned against making erasures or alterations of any kind, and proposals, which contain omissions, erasures, or irregularities of any kind, may be rejected. No oral, telegraphic or telephonic proposals or modifications will be considered.

## **2.5 Addenda**

Each proposal shall include specific acknowledgment in the space provided of receipt of all addenda issued during the bidding period. Failure to so acknowledge and submit may result in the proposal being rejected as not responsible.

## **2.6 Bid Price and submit**

The bid price shall include everything necessary for the completion of construction and fulfillment of the contract including, but not limited to, furnishing all materials, equipment, tools, plants and other facilities and all management, superintendence, labor, services and all permit fees, except as may be provided otherwise in the contract documents.

On all bid items for which bids are to be received on a unit price basis, the unit price for all items bid shall be shown as well as the extended price (unit price multiplied by the number of units shown on the proposal form) for each bid item bid. In the case of any discrepancy between the extended prices for any bid item bid, the unit price multiplied by the number of units shall prevail. In the event of any discrepancy between the total contract amount and the sum of the extended prices of all items, the sum of the extended prices of all items shall prevail.

## **2.7 Taxes**

Bid prices shall include allowance for all federal, state and local taxes.

## **2.8 Qualification of Bidders (Form A4)**

Each bidder shall be skilled and regularly engaged in the general class or type of work called for under the contract. A statement setting forth his experience shall be submitted by each bidder on the form provided herewith. In addition, a statement setting forth the experience, knowledge, and ability of the personnel available for employment in responsible charge of the work shall be submitted by each bidder on the form provided herewith.

It is the intention of the City Council to award a contract to a bidder who furnished satisfactory evidence that he has the requisite experience and ability and that he has sufficient capital, facilities, and plants to enable him to prosecute the work successfully and properly, and to complete it within the time named in the contract.



To determine the degree of responsibility to be credited to the bidder, the City will consider any evidence that the bidder has performed satisfactorily other contracts of like nature, magnitude and comparable difficulty and comparable rates of progress.

## **2.9 List of Subcontractors (Form A5)**

Each proposal shall have listed on the form provided herewith the name and address of each subcontractor to whom the bidder proposed to sublet portions of the work in excess of one-half of one percent of the total amount of his proposal. For the purpose of this paragraph, a subcontractor is defined as one who contracts with a contractor to furnish materials and labor or labor only for the performance of work at the site of the work.

## **2.10 Proposal Guaranty (Form A6)**

The proposal shall be accompanied by a proposal guaranty bond duly completed on the form provided herewith by a guaranty company authorized to carry on business in the State of California for payment to the City in the sum of at least ten percent (10%) of the total amount of the proposal, or alternatively by a certified or cashier's check, payable to the City in the sum of at least ten percent (10%) of the total amount of the proposal. The total amount of proposal shall be the lowest bid amount of the Alternate Bids. The amount payable to the City under the proposal guaranty bond, or the certified or cashier's check and the amount thereof, as the case may be, shall be paid to the City as liquidated damages in case of failure or neglect of the bidder to furnish, execute and deliver to the City the required performance bond, labor and materials bond, evidences of insurance, and to enter into, execute and deliver to the City the agreement on the form provided herewith, within ten (10) days after being notified in writing by the City that the award has been made and the agreement is ready for execution.

## **2.11 Modification or Withdrawal of Proposal**

Modification or withdrawal of a proposal already received will be considered prior to the time announced for the opening of proposals. All withdrawal requests or modifications shall be made in writing, executed and submitted in the same form and manner as the original proposal.

## **2.12 Opening of Proposals**

Proposals will be opened and read publicly in person or virtually at the time and place indicated in the Advertisement. Bidders or their authorized agents are invited to be present.

## **2.13 Postponement of Opening**

The City reserves the right to postpone the date and time for opening of proposals at any time prior to the date and time announced in the Advertisement.

## **2.14 Disqualification of Bidder**

If there is reason to believe that collusion exists among the bidders, none of the bids of the participants in such collusion will be considered and the City may likewise elect to reject all bids received.



## **2.15 Rejection of Proposals**

The City reserves the right to reject any proposals which are incomplete, obscure or irregular; any proposals which omit a bid on any one or more items on which bids are required; any proposal in which unit prices are unbalanced in the opinion of the City; any proposals accompanied by insufficient or irregular bid security; and any proposals from bidders who have previously failed to perform properly or to complete on time, contracts of any nature.

## **2.16 Award of Contract**

Within ninety (90) days after the time of opening proposals, the City will act either to accept a proposal or to reject all proposals. The acceptance of a proposal will be evidenced by a notice of Award of Contract in writing, delivered in person or by certified mail to the bidder whose proposal is accepted. No other act of the City shall constitute City acceptance of a proposal. The Award of Contract shall obligate the bidder whose proposal is accepted to furnish a performance bond, labor and materials bond and evidence of insurance and execute the agreement set forth in the contract documents. The City reserves the right to waive any bid irregularities.

## **2.17 Return of Proposal Guaranties**

Within forty-five (45) days after the bid opening, the City may return the proposal guaranties accompanying the proposals, which are not to be considered in making the award. All other proposal guaranties will be held until the contract has been fully executed after which they will be returned to the respective bidders whose proposals they accompany.

## **2.18 Execution of Contract**

The contract agreement shall be executed by the successful bidder and returned, together with the contract bonds and evidence of insurance, within 10 days after the award of the contract. After execution by the City, one copy shall be returned to the Contractor.

Contractor shall submit three wet signed copies of the contract agreement, insurance certificate and three copies of payment and performance bonds. Bonds must be executed and dated, all signatures on behalf of PRINCIPAL and SURETY must be notarized, and evidence of the authority of any person signing as attorney-in-fact must be attached.



## **BID DOCUMENTS TO BE SUBMITTED (A3-A7)**

### **A3 PROPOSAL FORM**

To the City Council  
City of Marina  
211 Hillcrest Avenue  
Marina, CA 93933

Name of Bidder \_\_\_\_\_

Business Address \_\_\_\_\_

Place of Residence \_\_\_\_\_

The undersigned as Bidder declares that he has carefully examined the location of the proposed work, the contract documents, and the Specifications therein referred to, and he proposes and agrees if this proposal is accepted that he will contract with the City Council to provide all necessary machinery, tool, apparatus, and other means of construction and do all the work specified in the contract in the manner and time therein set forth required for the construction of the project designed as:

#### **Imjin Parkway Widening Project**

as said work is shown in the specifications. Construction shall be in strict conformity with the Specifications prepared therefore and which are referenced in the Notice to Bidders (Section A1) contained herein. By this reference, said Specifications are hereby made part thereof, as though stated in full.

The Bidder proposes and agrees to contract with the City to perform all the above work, including subsidiary obligations as defined in said specifications including Addenda Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, for the following price:

Construction improvements and associated work for sum of:

**Grand Total Bid (Base Bid + Additive Alternative A + Additive Alternative B):**

\_\_\_\_\_ Dollars (Words)

\$ \_\_\_\_\_ (Figures)



**BID SCHEDULE**  
**Imjin Parkway Widening Project**

| <b>Base Bid Schedule A</b> |                                           |                           |             |                           |              |
|----------------------------|-------------------------------------------|---------------------------|-------------|---------------------------|--------------|
| <b>Item</b>                | <b>Description</b>                        | <b>Estimated Quantity</b> | <b>Unit</b> | <b>Updated Unit Price</b> | <b>Total</b> |
| <b>Roadway</b>             |                                           |                           |             |                           |              |
| 1                          | MOBILIZATION                              | 1                         | LS          |                           |              |
| 2                          | PROGRESS SCHEDULE (CRITICAL PATH)         | 1                         | LS          |                           |              |
| 3                          | FURNISH RESIDENT ENGINEER OFFICE          | 1                         | LS          |                           |              |
| 4                          | MUNITIONS SAFETY AND AWARENESS TRAINING   | 1                         | LS          |                           |              |
| 5                          | MATERIAL TESTING                          | 1                         | LS          |                           |              |
| 6                          | CONTRACTOR POTHOLING                      | 40                        | EA          |                           |              |
| 7                          | CONSTRUCTION STAKING                      | 1                         | LS          |                           |              |
| 8                          | PROJECT FUNDING SIGN                      | 2                         | EA          |                           |              |
| 9                          | PREPARE WATER POLLUTION CONTROL PROGRAM   | 1                         | LS          |                           |              |
| 10                         | RAIN EVENT ACTION PLAN                    | 80                        | EA          |                           |              |
| 11                         | STORM WATER SAMPLING AND ANALYSIS DAY     | 24                        | EA          |                           |              |
| 12                         | STORM WATER ANNUAL REPORT                 | 2                         | EA          |                           |              |
| 13                         | CONSTRUCTION AREA SIGNS                   | 1                         | LS          |                           |              |
| 14                         | TRAFFIC CONTROL SYSTEM                    | 1                         | LS          |                           |              |
| 15                         | TEMPORARY ROAD PAVING                     | 95,350                    | SF          |                           |              |
| 16                         | TYPE III BARRICADE                        | 60                        | EA          |                           |              |
| 17                         | FLASHING ARROW BOARD                      | 5                         | EA          |                           |              |
| 18                         | CHANNELIZER (SURFACE MOUNTED)             | 426                       | EA          |                           |              |
| 19                         | PORTABLE CHANGEABLE MESSAGE SIGN          | 6                         | EA          |                           |              |
| 20                         | TEMPORARY RAILING (TYPE K)                | 19,080                    | LF          |                           |              |
| 21                         | CRASH CUSHION (IN-LINE)                   | 35                        | EA          |                           |              |
| 22                         | TEMPORARY REINFORCED SILT FENCE (TYPE I)  | 20,920                    | LF          |                           |              |
| 23                         | FIBER ROLLS                               | 30,045                    | LF          |                           |              |
| 24                         | HYDROSEED                                 | 648,630                   | SF          |                           |              |
| 25                         | CLEARING AND GRUBBING                     | 1                         | LS          |                           |              |
| 26                         | REMOVE TREE (F)                           | 391                       | EA          |                           |              |
| 27                         | ROADWAY EXCAVATION (F)                    | 98,000                    | CY          |                           |              |
| 28                         | BASE FAILURE REPAIR                       | 8,000                     | SF          |                           |              |
| 29                         | STRUCTURE EXCAVATION (RETAINING WALL) (F) | 3,310                     | CY          |                           |              |
| 30                         | STRUCTURE EXCAVATION (SOUND WALL) (F)     | 1,265                     | CY          |                           |              |
| 31                         | REMOVE GUARDRAIL                          | 1,250                     | LF          |                           |              |
| 32                         | REMOVE MASONRY BLOCK WALL                 | 85                        | LF          |                           |              |
| 33                         | REMOVE CHAIN LINK FENCE                   | 860                       | LF          |                           |              |



|    |                                                     |        |     |  |  |
|----|-----------------------------------------------------|--------|-----|--|--|
| 34 | REMOVE INLET                                        | 4      | EA  |  |  |
| 35 | REMOVE STORM DRAIN LINE                             | 230    | LF  |  |  |
| 36 | RELOCATE MAILBOX                                    | 1      | EA  |  |  |
| 37 | RELOCATE U.S. ARMY RESERVE CENTER SIGN              | 1      | EA  |  |  |
| 38 | REMOVE FLAG POLE FOUNDATION                         | 1      | EA  |  |  |
| 39 | REMOVE TRAFFIC SIGNAL STANDARD FOUNDATION           | 22     | EA  |  |  |
| 40 | REMOVE AND DISPOSE TRAFFIC SIGNAL EQUIPMENT         | 1      | LS  |  |  |
| 41 | SALVAGE TRAFFIC SIGNAL POLE                         | 17     | EA  |  |  |
| 42 | SALVAGE STREET LIGHT AND REMOVE FOUNDATION          | 8      | EA  |  |  |
| 43 | SALVAGE PRESTON PARK ENTRY MONUMENTS                | 1      | LS  |  |  |
| 44 | SALVAGE ROADSIDE SIGN                               | 120    | EA  |  |  |
| 45 | AGGREGATE BASE (CLASS II)                           | 54,952 | TON |  |  |
| 46 | HOT MIX ASPHALT (TYPE A)(1/2-inch)                  | 10,910 | TON |  |  |
| 47 | HOT MIX ASPHALT (TYPE A)(3/4-inch)                  | 12,450 | TON |  |  |
| 48 | PLACE HOT MIX ASPHALT DIKE (TYPE A)(1/2-INCH)       | 12,032 | LF  |  |  |
| 49 | BIAXIAL GEOGRID                                     | 8,021  | SY  |  |  |
| 50 | 8" REDWOOD HEADER BOARD                             | 12,032 | LF  |  |  |
| 51 | STRUCTURAL CONCRETE (RETAINING WALL) (TYPE1 CASE 2) | 1,540  | CY  |  |  |
| 52 | SOUND WALL (MASONRY BLOCK)                          | 5,264  | SF  |  |  |
| 53 | BAR REINFORCING STEEL (RETAINING WALL)              | 89,175 | LB  |  |  |
| 54 | BAR REINFORCING STEEL (SOUND WALL)                  | 16,772 | LB  |  |  |
| 55 | BAR REINFORCING STEEL (ROUNDBOUT ART FOUNDATION)    | 6,807  | LB  |  |  |
| 56 | STRUCTURE BACKFILL (RETAINING WALL)                 | 4,015  | CY  |  |  |
| 57 | STRUCTURE BACKFILL (SOUND WALL)                     | 200    | CY  |  |  |
| 58 | ANTI-GRAFFITI COATING                               | 13,911 | SF  |  |  |
| 59 | CLASS 2 PERMEABLE MATERIAL (F)                      | 2,515  | CY  |  |  |
| 60 | BIOTREATMENT SOIL MIX (BSM) (F)                     | 4,250  | CY  |  |  |
| 61 | MINOR CONCRETE (SOUND WALL FOOTING)                 | 94     | CY  |  |  |
| 62 | MINOR CONCRETE (ISLAND PAVING)                      | 12,675 | SF  |  |  |
| 63 | MINOR CONCRETE (MEDIAN CURB) (TYPE B)               | 18,376 | LF  |  |  |
| 64 | MINOR CONCRETE (MEDIAN CURB) (TYPE B WITH GUTTER)   | 2,292  | LF  |  |  |
| 65 | MINOR CONCRETE (CURB AND GUTTER) (TYPE C)           | 8,396  | LF  |  |  |
| 66 | MINOR CONCRETE (MOUNTABLE CURB)                     | 1,233  | LF  |  |  |
| 67 | MINOR CONCRETE (SIDEWALK)                           | 55,850 | SF  |  |  |
| 68 | MINOR CONCRETE (CROSS GUTTER)                       | 1,255  | SF  |  |  |
| 69 | MINOR CONCRETE (TRUCK APRON)                        | 253    | CY  |  |  |
| 70 | MINOR CONCRETE (BUS PAD)                            | 187    | CY  |  |  |
| 71 | MINOR CONCRETE (DRIVEWAY APPROACH)                  | 3,275  | SF  |  |  |
| 72 | MINOR CONCRETE (MAIL BOX PAD)                       | 16     | SF  |  |  |
| 73 | BICYCLE RAILING                                     | 897    | LF  |  |  |



|    |                                                              |        |    |  |  |
|----|--------------------------------------------------------------|--------|----|--|--|
| 74 | CHAIN LINK FENCE (TYPE CL-8) W/3 LINES OF BARBED WIRE ON TOP | 720    | LF |  |  |
| 75 | RELOCATE SLIDING GATE AND OPERATOR                           | 1      | EA |  |  |
| 76 | RELOCATE PEDESTRIAN ACCESS GATE                              | 1      | EA |  |  |
| 77 | PEDESTRIAN BARRICADE                                         | 2      | EA |  |  |
| 78 | ROADSIDE SIGN - ONE POST                                     | 100    | EA |  |  |
| 79 | INSTALL BUS STOP AMENITIES (FURNISHED BY OTHERS)             | 1      | LS |  |  |
| 80 | REMOVABLE BOLLARD                                            | 11     | EA |  |  |
| 81 | RIP RAP (CHECK DAM)                                          | 580    | CY |  |  |
| 82 | RIP RAP (CURB CUTS)                                          | 50     | CY |  |  |
| 83 | RIP RAP (SD OUTFALL)                                         | 62     | CY |  |  |
| 84 | THERMOPLASTIC TRAFFIC STRIPE (6" WHITE)                      | 2,345  | LF |  |  |
| 85 | THERMOPLASTIC TRAFFIC STRIPE (12" WHITE)                     | 876    | LF |  |  |
| 86 | THERMOPLASTIC TRAFFIC STRIPE (12" DASHED WHITE)              | 644    | LF |  |  |
| 87 | DETAIL 9 (THERMOPLASTIC)                                     | 13,512 | LF |  |  |
| 88 | DETAIL 21 (THERMOPLASTIC)                                    | 55     | LF |  |  |
| 89 | DETAIL 24 (THERMOPLASTIC)                                    | 8,854  | LF |  |  |
| 90 | DETAIL 27B (THERMOPLASTIC)                                   | 1,657  | LF |  |  |
| 91 | DETAIL 32 (THERMOPLASTIC)                                    | 733    | LF |  |  |
| 92 | DETAIL 37B (THERMOPLASTIC)                                   | 270    | LF |  |  |
| 93 | DETAIL 38 (THERMOPLASTIC)                                    | 5,476  | LF |  |  |
| 94 | DETAIL 38A (THERMOPLASTIC)                                   | 2,282  | LF |  |  |
| 95 | DETAIL 39 (THERMOPLASTIC)                                    | 26,601 | LF |  |  |
| 96 | DETAIL 39A (THERMOPLASTIC)                                   | 2,165  | LF |  |  |
| 97 | DETAIL 40 (THERMOPLASTIC)                                    | 464    | LF |  |  |
| 98 | THERMOPLASTIC PAVEMENT MARKING (WHITE)                       | 3,686  | SF |  |  |
| 99 | PAVEMENT MARKING (GREEN) (METHYL METHACRYLATE)               | 730    | SF |  |  |

#### Utilities and Drainage

|     |                                                      |     |    |  |  |
|-----|------------------------------------------------------|-----|----|--|--|
| 100 | ADJUST USACE VAULT TO GRADE                          | 3   | EA |  |  |
| 101 | ADJUST USACE MONITORING WELL LID TO GRADE            | 2   | EA |  |  |
| 102 | ADJUST USACE LOW POINT/LEAK DETECTION VAULT TO GRADE | 1   | EA |  |  |
| 103 | RELOCATE USACE LOW POINT LEAK DETECTION FACILITY     | 1   | EA |  |  |
| 104 | ADJUST USACE HIGH POINT VENT                         | 1   | EA |  |  |
| 105 | REPLACE 8"X12" HDPE DUAL WALL EXTRACTION PIPING      | 20  | LF |  |  |
| 106 | 2" WATER METER (IRRIGATION SYSTEM)                   | 3   | EA |  |  |
| 107 | ADJUST BLOW OFF VALVE TO GRADE                       | 7   | EA |  |  |
| 108 | ADJUST AIR RELEASE VALVE TO GRADE                    | 8   | EA |  |  |
| 109 | ADJUST GATE VALVE TO GRADE                           | 6   | EA |  |  |
| 110 | ADJUST SS MANHOLE TO GRADE                           | 2   | EA |  |  |
| 111 | ADJUST WATER VALVE COVER TO GRADE                    | 2   | EA |  |  |
| 112 | 6" C900 PVC SEWER FORCEMAIN PIPE                     | 905 | LF |  |  |



|                       |                                                                                |       |    |  |  |
|-----------------------|--------------------------------------------------------------------------------|-------|----|--|--|
| 113                   | 8" C900 PVC SEWER FORCEMAIN PIPE                                               | 522   | LF |  |  |
| 114                   | 10" C900 PVC SEWER FORCEMAIN PIPE                                              | 905   | LF |  |  |
| 115                   | 15" C900 PVC SEWER PIPE                                                        | 15    | LF |  |  |
| 116                   | SEWER MANHOLE                                                                  | 2     | EA |  |  |
| 117                   | 8" PVC - 45 DEGREE BEND                                                        | 2     | EA |  |  |
| 118                   | TEMPORARY CAP                                                                  | 4     | EA |  |  |
| 119                   | ADJUST PULL BOX TO GRADE                                                       | 2     | EA |  |  |
| 120                   | STORM DRAIN MANHOLE                                                            | 11    | EA |  |  |
| 121                   | TYPE A CATCH BASIN                                                             | 6     | EA |  |  |
| 122                   | 24" SQUARE PRECAST DRAIN INLET                                                 | 9     | EA |  |  |
| 123                   | 12" HDPE ADS N-12 STORM DRAIN PIPE                                             | 623   | LF |  |  |
| 124                   | 18" HDPE ADS N-12 STORM DRAIN PIPE                                             | 1,892 | LF |  |  |
| 125                   | ADJUST EXISTING SD MANHOLE TO GRADE                                            | 1     | EA |  |  |
| 126                   | ADJUST EXISTING SD INLET FRAME AND GRATE TO GRADE                              | 2     | EA |  |  |
| 127                   | INSTALL PIPE CULVERT HEADWALL                                                  | 2     | EA |  |  |
| 128                   | CONNECTION OF SD PIPE TO EXISTIG CATCH BASIN                                   | 1     | EA |  |  |
| <b>Landscaping</b>    |                                                                                |       |    |  |  |
| 129                   | PLANTING                                                                       | 1     | LS |  |  |
| 130                   | IRRIGATION                                                                     | 1     | LS |  |  |
| 131                   | PLANT ESTABLISHMENT PERIOD (365 DAYS)                                          | 1     | LS |  |  |
| 132                   | IRRIGATION AND LANDSCAPING 3-YEARS MAINTENANCE CONTRACT                        | 1     | LS |  |  |
| 133                   | BUCKWHEAT RELOCATION AND SEEDING                                               | 1     | LS |  |  |
| <b>Electrical</b>     |                                                                                |       |    |  |  |
| 134                   | STREET LIGHTING SYSTEM                                                         | 1     | LS |  |  |
| <b>Traffic Signal</b> |                                                                                |       |    |  |  |
| 135                   | RRFB ASSEMBLY (POLE, FOUNDATION, SIGNS, RRFB SYSTEM, PPB, CONTROLLER, CONDUIT) | 1     | LS |  |  |
| 136                   | TRAFFIC SIGNAL MODIFICATIONS AT RESERVATION ROAD                               | 1     | LS |  |  |

**BASE BID TOTAL (ITEMS 1 THROUGH 136) (In Words)**

**(In Figures)**

\$ \_\_\_\_\_



| Additive Bid Alternative A |                                     |        |    |  |  |
|----------------------------|-------------------------------------|--------|----|--|--|
| Fiber Infrastructure       |                                     |        |    |  |  |
| 137                        | FURNISH AND INSTALL NO. 6E PULL BOX | 38     | EA |  |  |
| 138                        | FURNISH AND INSTALL 3" HDPE CONDUIT | 11,100 | LF |  |  |
| 139                        | FURNISH AND INSTALL PULL ROPE       | 11,100 | LF |  |  |

**ADDITIVE BID ALTERNATIVE A TOTAL (ITEMS 137 THROUGH 139) (In Words)**

**(In Figures)**

\$ \_\_\_\_\_

| Additive Bid Alternative B |                              |                    |      |            |       |
|----------------------------|------------------------------|--------------------|------|------------|-------|
| Item                       | Description                  | Estimated Quantity | Unit | Unit Price | Total |
| Artwork                    |                              |                    |      |            |       |
| 140                        | MINOR CONCRETE (ART FOOTING) | 53                 | CY   |            |       |
| 141                        | ROUNDAABOUT ART (H=8')       | 16                 | EA   |            |       |
| 142                        | ROUNDAABOUT ART (H=10')      | 7                  | EA   |            |       |
| 143                        | ROUNDAABOUT ART (H=12')      | 9                  | EA   |            |       |
| 144                        | DOLPHIN ART                  | 4                  | EA   |            |       |

**ADDITIVE BID ALTERNATIVE B TOTAL (ITEMS 140 THROUGH 144) (In Words)**

**(In Figures)**

\$ \_\_\_\_\_

## BID CLARIFICATION

Award of contract, if any be made, shall be made to the Contractor with the lowest responsive responsible bid based on the combined Grand Total of the Base Bid, Additive Bid Alternative A and Additive Bid Alternative B (Items 1- through 144).

Pursuant to the provisions of the California Public Contract Code Section 20103.8, City reserves the option to award any or all the additive bid items in addition to the original contract after the lowest responsive responsible Bidder has been determined, should the City later obtain additional funding for additive alternatives not awarded with the original contract.

The City reserves the right to reject any and all Bids and to waive any and all irregularities and informalities in Bids not involving price, time or changes in the Work. The City reserves the right to reject any nonconforming, nonresponsive, incomplete, unbalanced or conditional Bids.

All blanks in the bid schedule must be appropriately filled in. If a bid item amount is zero, enter zero. If a bid item is included elsewhere, enter "included". Do not enter "N/A" into the Bid Schedule.

In case of discrepancy between the unit price and the bid amount (estimated quantity times unit price), the unit price shall prevail and shall be utilized as the basis for determining the lowest responsive, responsible bidder. Discrepancies between bid amounts stated in words and in figures will be resolved in favor of the amount stated in words. Final payment shall be determined by the Engineer from measured quantities of work performed based upon the unit price.



The undersigned has carefully checked all the above figures and understands that the City Council shall not be responsible for any errors or omissions on the part of the undersigned in making up this bid. In case of a discrepancy between words and figures, the words shall prevail.

If this proposal shall be accepted and the undersigned shall fail to contract as aforesaid and to furnish bonds as provided in said Specifications with sureties satisfactory to the Council within ten (10) working days after award of the contract, and the payment of such security accompanying this proposal shall operate and the same shall be the property of the City.

Enclosed find certified check, cashier's check or bidder's bond in the amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) which is not less than ten percent (10%) of the lump sum bid, payable to the City and which is given as a guarantee that the undersigned will enter into the contract if awarded the work.

The undersigned hereby certifies that this bid is genuine, and not a sham or collusive, or made in the interest or in behalf of any person not herein named, and that the undersigned has not directly or indirectly induced or solicited any other bidder to put in a sham bid, or any other person, firm or corporation to refrain from bidding, and that the undersigned has not in any manner sought by collusion to secure for himself an advantage over any other bidder.

It is agreed that this bid may not be withdrawn for a period of ninety (90) days from the opening thereof.

The terms and conditions of the final contract when executed shall control and supersede anything herein to the contrary or inconsistent with such contract.

The undersigned hereby certifies that I (we) have read and will comply with the affirmative action required hereof.

The names of all persons interested in the foregoing proposal as principals are as follows:

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Licensed in accordance with an act providing for the regulations of contractors,

License No. \_\_\_\_\_, Expiration Date \_\_\_\_\_,

License Classification \_\_\_\_\_.

Signatures:

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NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth, together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if bidder is a co-partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign contracts on behalf of the co-partnership; and if bidder is an individual, his signature shall be placed above.

Business Address:

Place of Business:

Telephone Number: (    )       -

Dated:            , 2023.



### **A4 EXPERIENCE STATEMENT**

The following outline is a record of the Bidder's recent experience in construction of a type similar in magnitude and character to that contemplated under this contract:

| <b>PROJECT OWNER, LOCATION &amp; PHONE</b> | <b>PROJECT</b> | <b>CONTRACT AMOUNT</b> |
|--------------------------------------------|----------------|------------------------|
|                                            |                |                        |
|                                            |                |                        |
|                                            |                |                        |
|                                            |                |                        |
|                                            |                |                        |
|                                            |                |                        |
|                                            |                |                        |
|                                            |                |                        |

### **BANK REFERENCES**

| <b>Bank Name, Address &amp; Phone</b> | <b>Type Account</b> | <b>Account Number</b> |
|---------------------------------------|---------------------|-----------------------|
|                                       |                     |                       |
|                                       |                     |                       |
|                                       |                     |                       |
|                                       |                     |                       |



### **A5 DESIGNATION OF SUBCONTRACTORS**

In compliance with the provisions of Sections 4100-4113 of the Public Contracts Code of the State of California, and any amendments thereof, the undersigned bidder has set forth below the name, license number/public works contractor registration number (i.e. DIR #), and the location of the place of business of each subcontractor who will perform work or labor or render service to the undersigned in or about the construction of the work to be performed under the Contract Documents to which the attached proposal is responsible, and the portion of the work which will be done by each subcontractor for each subcontract in excess of one-half of one percent (0.50 %) of the undersigned's total aggregate bid.

| DIVISION OF WORK | SUBCONTRACTOR | DIR# | ADDRESS |
|------------------|---------------|------|---------|
|                  |               |      |         |
|                  |               |      |         |
|                  |               |      |         |
|                  |               |      |         |
|                  |               |      |         |
|                  |               |      |         |
|                  |               |      |         |
|                  |               |      |         |

By \_\_\_\_\_  
Bidder's Signature



## **A6 PROPOSAL GUARANTEE BOND**

(To Accompany Bid)

THAT we \_\_\_\_\_ as Principal, hereinafter called the Principal, and

\_\_\_\_\_, a corporation duly

organized under the laws of the State of \_\_\_\_\_ as Surety, hereinafter called the Surety, are jointly and severally held and firmly bound unto the City of Marina, whose address is 211 Hillcrest Avenue, Marina, California, hereinafter called the Obligee, each in the penal sum of ten percent (10%) of the total amount of the bid proposal of the Principal for the work, this sum not to exceed

\_\_\_\_\_ Dollars of lawful money of the United States of America for the payment whereof unto the Obligee, the Principal and Surety jointly and severally bind themselves forever firmly by these presents.

WHEREAS, THE Principal is herewith submitting this offer for the fulfillment to the Obligee for:

### **Imjin Parkway Widening Project**

NOW, THEREFORE, the condition of this obligation is such if the Principal is awarded the contract, and if the Principal within the time specified in the proposal for such contract enters into, executes and delivers to the Obligee an agreement in the form provided herein and incorporated by this reference, complete with evidences of insurance, and if the Principal within the time specified in the proposal gives to the Obligee the performance bond for faithful performance of the contract and the labor and materials bond for the prompt payment of labor and materials on the forms provided herein, then this obligation shall be void; otherwise, the obligation to remain in full force and effect and Principal and Surety will pay unto the Obligee the difference in money between the total amount of the proposal of the Principal and the amount for which Obligee legally contracts with another party to fulfill the contract if the latter amount be in excess of the former, but in no event shall the Surety's liability exceed the total sum hereof.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable under this obligation as Principal and that nothing of any kind or nature whatsoever that will not discharge the Principal shall operate as a discharge or a release of liability of the Surety.

IT IS HEREBY DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of the Principal, the Surety and the Obligee and their respective heirs, administrators, successors and assigns.

[Signature page follows]



Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Principal: \_\_\_\_\_

\_\_\_\_\_

(  
(  
( Corporate Seal )  
(  
(  
( )

By: \_\_\_\_\_

Title: \_\_\_\_\_

Legal Address: \_\_\_\_\_

\_\_\_\_\_

Attest: \_\_\_\_\_  
(Corporate Secretary)

Surety: \_\_\_\_\_

\_\_\_\_\_

(  
(  
( Corporate Seal )  
(  
(  
( )

By: \_\_\_\_\_

Title: \_\_\_\_\_

Legal Address: \_\_\_\_\_

\_\_\_\_\_

Attest: \_\_\_\_\_  
(Corporate Secretary)

[All signatures must be notarized-attach notary to all signatures]



**A7 NON-COLLUSION AFFIDAVIT TO BE EXECUTED BY EACH AWARDEE OF A  
PRINCIPAL CONTRACT**

\_\_\_\_\_,  
being duly sworn, deposes and says that he/she is:

\_\_\_\_\_  
Sole owner, Partner, President, Secretary, etc., of

\_\_\_\_\_  
the party making the foregoing bid, that such bid is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization or corporation; that said bidder has not directly or indirectly induced or solicited any other bidder to put in a raise or sham bid, and has not directly or indirectly colluded, conspired, connived or agreed with any bidder, or anyone else, to put in a sham bid, or that anyone shall refrain from bidding; that said bidder has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the bid price of said bidder or of any other bidder, or to fix any overhead, profit or cost element of such bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract, or anyone interested in the proposed contract; that all statements contained in such bids are true; and further, that said bidder has not directly or indirectly submitted his bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid and will not pay any fee in connection therewith, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, or to any other individual, except to such person or persons as have a partnership or other financial interest with said bidder in his general business; that the Contractor has not accepted any bid from any subcontractor or materialman through any bid depository, the By-Laws, Rules or Regulations of which prohibit or prevent the Contractor from considering the bid from any subcontractor or materialman, which is not processed through said bid depository, or which prevent any subcontractor or materialman from bidding to any contractor who does not use the facilities of or accept bids from or through such bid depository.

Signed \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

Subscribed and sworn to before me this  
\_\_\_\_\_ day of \_\_\_\_\_, 20 .

\_\_\_\_\_  
Notary Public in and for the County of

\_\_\_\_\_  
State of California



## **CONTRACT DOCUMENTS TO BE SUBMITTED (A8-A11)**

### **A8 LOCAL HIRING REQUIREMENT**

#### **LOCAL HIRING REQUIREMENT**

Pursuant to Chapter 13.02 of the City of Marina Municipal Code, unless such provision would conflict with a state or federal law or regulation applicable to a particular contract for public works or improvement, all City contracts for public works or improvement subject to competitive bidding requirements shall contain provisions pursuant to which the contractor promises to make a good faith effort, to include but not limited to requesting the assistance of local labor union hiring halls or other community resources designated by the city, to hire qualified individuals who are residents of the Monterey Bay area in sufficient numbers so that no less than eighty percent (80%) of the contractor's total construction work force, including any subcontractor work force, measured in labor work hours, is composed of Monterey Bay area residents.

The contractor shall keep an accurate record on a standardized form showing the name, place of residence, type classification, hours employed, proof of journey person or apprenticeship status, per diem wages and benefits of each person employed by the contractor, and the contractor's subcontractors, on the specific public works project, including full-time, part-time, permanent and temporary employees and make such records available to the city, upon request, within five working days.

The contractor shall keep, and provide to the city, on forms acceptable to the city, an accurate record documenting compliance with this chapter. Such records shall include: a listing by name and business address of all local recruitment sources contacted by the contractor, the date of the local recruitment contact and the identity of the person contacted, the trade and classification and number of hire referrals requested, the number of local hires made as a result of the contact, the identity and business address of the person(s) hired pursuant to the contact.

The good-faith local hiring provisions of this chapter shall bind the contractor both with respect to persons hired directly by the contractor and to all persons hired by the contractor's subcontractors. The contractor shall be responsible for assuring that all subcontractors document such compliance by submitting the forms required.

The contractor shall include the following language and a copy of this chapter as may be amended from time-to-time in all contracts with contractor's subcontractors:

"This contract is for labor or materials for a City of Marina public works project. As a subcontractor on a City project, you are required to comply with all of the requirements of the Marina local hiring preference ordinance, Marina Municipal Code, Chapter 13.02, attached hereto and incorporated herein by reference. Failure to comply with the provisions of the local hiring preference ordinance may subject the contractor and/or subcontractor to criminal prosecution and shall subject the contractor and/or subcontractor to disqualification from eligibility for City of Marina contracts."



Every Bidder must complete and sign under penalty of perjury a Certification of Good-Faith effort to Hire Monterey Bay Area Residents, on the form provided, and submit said Certification with the sealed bid no later than the date and time of the bid opening. Bidder shall attach to the Certification documentary evidence supporting Bidder's promise to meet, or to make a good-faith effort to meet, the local hiring goal.

Bidders are responsible for familiarizing themselves with the City on Marina Local Hiring for Public Works, contents thereof before signing the certifications required below.

The local hiring requirement shall not apply under the following circumstances:

- a) Whenever a state or federal law or regulation applicable to a particular contract prohibits the provision of a local hire requirement; or
- b) Whenever the City, in accordance with the requirements of the Code or state law, determines that the contract is necessary to respond to an emergency which endangers the public health, safety, or welfare; or
- c) Whenever the City determines that a suitable pool of persons providing specialized skills does not exist locally for a specific public works project. Example: Slurry and Micro surfacing work



## CERTIFICATION OF GOOD-FAITH EFFORT TO HIRE MONTEREY BAY AREA RESIDENTS

(Prime Contractor – To be Submitted with Bid)

I, \_\_\_\_\_, a licensed contractor, or responsible managing officer, of the company known as \_\_\_\_\_, do hereby certify, under penalty of perjury, that I have met, or made a good-faith effort to meet, the requirements set forth in the Marina Municipal Code chapter 13.02 "Local Hiring For Public Works". Further, I certify that during the performance of the contract, I shall keep an accurate record on a standardized form showing the name, place of residence, type classification, hours employed, proof of journey person or apprenticeship status, per diem wages and benefits of each person employed by the contractor, and the contractor's subcontractors, on the specific public works project, including full-time, part-time, permanent and temporary employees and make such records available to the city, upon request, within five working days. I shall keep, and provide to the city, on forms acceptable to the city, an accurate record documenting compliance with this chapter. Such records shall include: a listing by name and business address of all local recruitment sources contacted by the contractor, the date of the local recruitment contact and the identity of the person contacted, the trade and classification and number of hire referrals requested, the number of local hires made as a result of the contact, the identity and business address of the person(s) hired pursuant to the contact. I understand that I am responsible for insuring that any subcontractor working under my direction, complies with this ordinance, including submitting a Certification of Good Faith Effort to Hire Monterey Bay Residents, and to keeping accurate records as described above.

\_\_\_\_\_ Signature

\_\_\_\_\_ Printed Name and Title

\_\_\_\_\_ Date



## CITY OF MARINA

### (Subcontractor – To be Completed by Subcontractor After Bid is Awarded)

I, \_\_\_\_\_, a licensed contractor, or responsible managing officer, of the company known as \_\_\_\_\_, do hereby certify, under penalty of perjury, that I have met, or made a good-faith effort to meet, the requirements set forth in the Marina Municipal Code chapter 13.02 "Local Hiring For Public Works". Further, I certify that during the performance of the contract, I shall keep an accurate record on a standardized form showing the name, place of residence, type classification, hours employed, proof of journey person or apprenticeship status, per diem wages and benefits of each person employed by the contractor, and the contractor's subcontractors, on the specific public works project, including full-time, part-time, permanent and temporary employees and make such records available to the city, upon request, within five working days. I understand that I am responsible for insuring that any subcontractor working under my direction, complies with this ordinance, including submitting a Certification of Good Faith Effort to Hire Monterey Bay Residents, and to keeping accurate records as described above.

\_\_\_\_\_ Signature

\_\_\_\_\_ Printed Name and Title

\_\_\_\_\_ Date



**CITY OF MARINA**

**STATEMENT OF GOOD FAITH EFFORT FOR LOCAL HIRE**

**(Prime Contractor – To be Submitted after Award of Contract and prior to issuance of Notice To Proceed)**

In conformance with Subsection 13.02.020 B. of the Marina Municipal Code, each Contractor shall complete and submit this Statement of Good Faith Effort for Local Hire to the City following Award of the Contract and prior to issuance of the Notice to Proceed.

Project Title: \_\_\_\_\_ For Pay Period Ending: \_\_\_\_\_

Contractor \_\_\_\_\_ ..... Lic.# \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

| Name & Address of Local Recruitment Source | Date of Recruitment | Person Contacted & Phone# | Trade & Classification | # Hire Referrals Requested | # of Local Hire(s) Made as Result of Contract | Name & Address of Local Hire(s) as a Result of Contact |
|--------------------------------------------|---------------------|---------------------------|------------------------|----------------------------|-----------------------------------------------|--------------------------------------------------------|
|                                            |                     |                           |                        |                            |                                               |                                                        |
|                                            |                     |                           |                        |                            |                                               |                                                        |
|                                            |                     |                           |                        |                            |                                               |                                                        |

(add additional sheets as necessary)

I, (name/ title) \_\_\_\_\_, declare under penalty of perjury that the information provided in this form and submitted herewith is true and correct to the best of my knowledge and that I, as an authorized agent of the Contractor referenced above, have authority to submit this information on the Contractor's behalf.

Name: \_\_\_\_\_ ..... Date: \_\_\_\_\_

Print Name: \_\_\_\_\_



## CITY OF MARINA

### LOCAL HIRING RESIDENCY COMPLIANCE MONITORING FORM

**(Prime Contractor and Sub Contractors– To be Submitted upon request within five working days)**

In conformance with Subsection 13.02.020 A. of the Marina Municipal Code, each Contractor shall complete and submit this Statement of Local Hiring Residency Compliance to the City upon request, within five working days.

Project Title: \_\_\_\_\_ For Pay Period Ending: \_\_\_\_\_

Contractor: \_\_\_\_\_ ..... Lic# \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

| Name & Address of Local Hire | Date of Hire | Trade & Classification | Estimated Work Hours on Job | # of Hours Worked on the Job | Last Day Worked | Per Diem Wages & Benefits | Journeyman or Apprentice |
|------------------------------|--------------|------------------------|-----------------------------|------------------------------|-----------------|---------------------------|--------------------------|
|                              |              |                        |                             |                              |                 |                           |                          |
|                              |              |                        |                             |                              |                 |                           |                          |
|                              |              |                        |                             |                              |                 |                           |                          |

(add additional sheets as necessary)

I, (name/ title) \_\_\_\_\_, declare under penalty of perjury that the information provided in this form and submitted herewith is true and correct to the best of my knowledge and that I, as an authorized agent of the Contractor referenced above, have authority to submit this information on the Contractor's behalf.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_



## **A9 FORM OF CONTRACT**

FOR

### **Imjin Parkway Widening Project**

THIS AGREEMENT, made and entered into this \_\_\_\_\_ 2023, by and between The City of Marina, a municipal corporation of the State of California, hereinafter called "City of Marina" or "City" and \_\_\_\_\_ "Contractor,"

#### **W I T N E S S E T H:**

**FIRST:** Contractor hereby covenants and agrees to furnish and provide all labor, materials, tools, appliances, equipment, plant and transportation, and all other things required or necessary to be furnished, provided or done, and build, erect, construct and complete the work at the time and in the manner provided, and in strict accordance with the plans and specifications therefore, for PROJECT adopted by the Council of the City of Marina on .....

**SECOND:** It is expressly understood and agreed that this contract consists of the following documents, all of which are incorporated into this agreement and made a part hereof as fully and completely as if set forth herein verbatim, to wit:

- a. Accepted Proposal;
- b. Proposal Guaranty Bond;
- c. Contract Agreement;
- d. Performance Bond;
- e. Bond for Labor and Material;
- f. Proposal Supplement Including an Experience Statement and List of Proposed Subcontractors;
- g. These Plans and Specifications;
- h. The California State Standard Specifications and Standard Details 2018; and
- i. Insurance.

**THIRD:** That said Contractor agrees to receive and accept the following prices as full compensation for furnishing all materials and for doing all the work embraced and contemplated in this Agreement and as set forth in the Proposal adopted by the City of Marina, a true copy thereof hereto attached, also, for all loss or damage arising out of the nature of said work, or from the action of the elements or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until the acceptance thereof by the City of Marina and for all risk connected with the work, and for well and faithfully completing the work, and the whole thereof, in the manner and according to the said Plans and Specifications and the provisions of this Agreement, and the requirements of the Engineer under them, to wit: The prices as set forth in the Proposal of said Contractor for the work to be constructed and completed under this Agreement, which prices shall be considered as though repeated herein.

---

(\$ \_\_\_\_\_)



The undersigned Contractor further agrees to so plan the work and to prosecute it with such diligence that said work, and all of it, shall be completed on or before the expiration of the time specified in the Special Provisions after execution of the contract on behalf of the City of Marina and the receipt from the City of Marina of a notice to proceed with the work.

**FOURTH:** The City of Marina hereby promises and agrees with said Contractor to employ, and does hereby employ, said Contractor to provide the materials and to do the work according to the terms and conditions herein contained and referred to, for the price aforesaid, and hereby contracts to pay the same at the time, in the manner and upon the conditions set forth in the Specifications; and the said parties, for themselves, their heirs, executors, administrators, successors and assigns, do hereby agree to the full performance of the covenants herein contained.

**FIFTH:** No interest in this agreement shall be transferred by the Contractor to any other party, and any such transfer shall cause the annulment of this contract, so far as the City of Marina is concerned. All rights of action, however, for any breach of this contract are reserved to City.

**SIXTH:** Contractor shall keep harmless and indemnify the City of Marina, its officers and employees and agents, from all loss, damage, cost or expense that arises or is set up for infringement of patent rights of anyone for use by the City of Marina, its officers, employees or agents, of articles supplied by the Contractor under this contract, of which he is not entitled to use or sell. Contractor agrees to, at his own cost and expense, defend in court the City, its officers, agents and employees, in any action which may be commenced or maintained against them or any of them, on account of any claimed infringement of patent rights, arising out of this agreement.

**SEVENTH:** The Contractor agrees to immediately repair and replace all defective material and workmanship discovered within one year after acceptance of final payment by Contractor and to indemnify said City of Marina against all loss and damage occasioned by any such defect, discovered within said year, even though the damage or loss may not be ascertained until after the expiration thereof. Provided, however, that if such failure of the Contractor to perform should not, by reasonable diligence, be discoverable or discovered within said one year, then the obligation of the Contractor to repair and replace said defective material or workmanship shall continue until one year after the actual discovery thereof.

**EIGHTH:** The Contractor agrees at all times during the progress of the work to carry with insurance carriers approved by the City of Marina full coverage workmen's compensation and public liability insurance in the form and to the extent called for in Section 7-1.06 of the Standard Specifications, State of California, 2018 Edition. Such insurance policy shall contain an endorsement that the same shall not be canceled nor the amount of coverage be reduced until at least 30 days after receipt by the City of Marina by certified or registered mail of a written notice of such cancellation or reduction in coverage.

**NINTH:** Contractor agrees to comply with all applicable federal, state and municipal laws and regulations, including but not limited to California Labor Code Division 2, Part 7, Chapter 1 regarding Public Works and Public Agencies.

**TENTH:**

**ATTORNEY'S FEES.** In the event of any controversy, claim or dispute relating to this Agreement or the breach thereof, the prevailing party shall be entitled to recover from the losing party reasonable expenses, attorney's fees and costs.



**ELEVENTH:**

**COMPLIANCE WITH PROVISIONS OF LAW.**

- a) The City is subject to laws relating to public agencies which are part of this contract as though fully set forth herein.
- b) Contractor shall comply with City of Marina Municipal Code Chapter 13.02 Local Hiring for Public Works.
- c) Contractor shall comply with laws relating to the work.

IN WITNESS WHEREOF, the parties to these presents have hereunto set their hands the year and date first above written.

CONTRACTOR

CITY OF MARINA

By: \_\_\_\_\_

By: Layne P. Long, City Manager

Print Name: \_\_\_\_\_

Date: \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_

APPROVED AS TO FROM:

By: \_\_\_\_\_

City Attorney

By: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

ATTESTED:

By: \_\_\_\_\_

Anita Shepherd-Sharp  
Deputy City Clerk

Date: \_\_\_\_\_

Resolution No. 2023-\_\_\_\_\_



**A10 PAYMENT BOND**  
**(LABOR AND MATERIAL BOND)**  
**(100% of Contract Amount)**

Bond No.: \_\_\_\_\_  
Premium: \_\_\_\_\_

WHEREAS, The City of Marina ("CITY") has awarded to \_\_\_\_\_  
designated as "PRINCIPAL" herein, a contract for the work described as the  
\_\_\_\_\_ Project; and

WHEREAS, on or about \_\_\_\_\_, 20\_\_\_\_, the PRINCIPAL entered into a Contract with the  
CITY for the construction of the work of improvement, which Contract and all Contract Documents set  
forth therein are incorporated herein and made a part hereof by this reference; and

WHEREAS, By the terms of the Contract, as well as California Civil Code Section 9550, the PRINCIPAL  
is required to furnish a bond guaranteeing payment of claims.

NOW, THEREFORE, PRINCIPAL and \_\_\_\_\_ ("SURETY"), a duly  
admitted surety insurer in the State of California as defined by California Code of Civil Procedure section  
995.120, are held and firmly bound to the CITY for payment of the penal sum of  
\_\_\_\_\_ Dollars (\$\_\_\_\_\_) (the "Bonded Sum") in lawful money of the  
United States, for the payment of which sum PRINCIPAL and SURETY jointly and severally bind  
themselves and their heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT IF PRINCIPAL, his, her or its heirs, executors,  
administrators, successors or assigns or subcontractors shall fail to pay any of the persons referred to in  
California Civil Code Section 9100, amounts due under the Unemployment Insurance Code with respect  
to work or labor performed by any such claimant, or amount due the Franchise Tax Board as provided in  
California Civil Code Section 9554, that SURETY or sureties herein shall pay for the same, in amount not  
exceeding the Bonded Sum; otherwise this obligation shall be void.

The following terms and conditions shall apply with respect to this Bond:

1. In case suit is brought upon this Bond the said SURETY will pay reasonable attorney's fees and  
costs incurred by the CITY to be fixed by the Court in addition to the Bonded Sum;
2. No alternation, modification or supplement to the Contract Documents or the nature of the work to  
be performed thereunder, including without limitation any extension of time for performance,  
alteration, or addition to the terms of the contract, or to the specifications accompanying the  
same, shall in any way affect the obligations of SURETY under this Bond, SURETY hereby  
waives notice of any alteration, modification, supplement or extension of time.
3. No settlement between the CITY and the PRINCIPAL shall abridge the right of any beneficiary  
hereunder, whose claim may be unsatisfied.
4. Correspondence or claims relating to this Bond should be sent to the SURETY at the following  
address:



5. This Bond shall inure to the benefit of any persona named in California Civil Code Sections 8520, 8530, 9100 as to give a right of action to such persons or their assigns in any suit brought upon this Bond. Any such right of action shall be subject to the provisions of California Civil Code Section 8608 or 9566.

IN WITNESS WHEREOF, three (3) identical counterparts of this instrument, each of which shall for all purposes be deemed to be an original hereof, have been duly executed by PRINCIPAL and SURETY on the date set forth before the name of each corporate party being hereto affixed and these presents duly signed by its undersigned representative(s) pursuant to authority of its governing body. PRINCIPAL and SURETY has caused this Bond to be duly executed and delivered this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

[Signature page follows.]



Date: \_\_\_\_\_, 20\_\_\_\_.

PRINCIPAL: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Legal Address: \_\_\_\_\_

\_\_\_\_\_

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( Corporate  
Seal )  
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Attest: \_\_\_\_\_

(Corporate Secretary)

Date: \_\_\_\_\_, 20\_\_\_\_.

SURETY: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Legal Address: \_\_\_\_\_

\_\_\_\_\_

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(  
( Corporate  
Seal )  
(  
(  
( )

Attach Attorney-In-Fact Certificate, Corporate Seal and Surety Seal

APPROVED AS TO SURETY AND PRINCIPAL AMOUNT:

\_\_\_\_\_  
City Engineer

APPROVED AS TO FROM:

\_\_\_\_\_  
City Attorney

**Note: this Bond must be dated, sealed, executed in triplicate, (copies are not acceptable), all signatures on behalf of PRINCIPAL and SURETY must be notarized, and evidence of the authority of any person signing as attorney-in-fact must be attached.**



**A11 PERFORMANCE BOND**  
**(100% of Contract Amount)**

Bond No.: \_\_\_\_\_  
Premium: \_\_\_\_\_

WHEREAS, THE City of Marina ("CITY") has awarded to \_\_\_\_\_, designated as the "PRINCIPAL" herein, a contract hereto annexed for the work described as follows: \_\_\_\_\_; and

WHEREAS, on or about \_\_\_\_\_, 20\_\_\_\_, the PRINCIPAL entered into a Contract with the CITY for the construction of the work or improvement, which Contract and all Contract Documents set forth therein are incorporated herein and made a part hereof by this reference; and

WHEREAS, the PRINCIPAL is required to furnish a bond guaranteeing the faithful performance of its obligations under the Contract Documents concurrently with delivery to the City of the executed Contract.

NOW. THEREFORE, PRINCIPAL and \_\_\_\_\_ ("SURETY"), a duly admitted surety insurer in the State of California as defined by California Code of Civil Procedure section 995.120, are held and firmly bound to the CITY for payment of the penal sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_) (the "Bonded Sum") in lawful money of the United States, for the payment of which sum PRINCIPAL and SURETY jointly and severally bind themselves and their heirs, executors, administrators, successors and assigns.

THE CONDITON OF THIS OBLIGATION IS SUCH THAT IF PRINCIPAL shall promptly and faithfully perform all of its obligations under the Contract Documents, including any and all amendments and supplements thereto, and shall furnish all tools, equipment, apparatus, facilities, transportation, labor and materials, other than materials to be furnished by the CITY, necessary to perform and complete, and to perform and complete in a good workmanlike manner in strict conformation with the terms and set forth in the Contract annexed hereto, and to guarantee acceptable performance of the work for a period of one year following the acceptance of the project; then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The following terms and conditions shall apply with respect to this Bond:

1. This bond specifically guarantees the performance of each of every obligation of the PRINCIPAL under the Contract Documents, as they may be amended and supplemented, including but not limit to its liability for liquidated damages and warranties as specified in the Contract Documents, up to but not exceeding the Bonded Sum.
2. The guarantees contained herein shall survive the final completion of the construction called for in the Contract Documents with respect to those obligations of PRINCIPAL which survive such final completion.
3. No alteration, modification, or supplement to the Contract Documents or the nature of the Work performed thereunder, including without limitation any extension of time for performance shall in any way affect the obligations of SURETY under this Bond. Surety hereby waives any notice of alterations, modification, supplement, or extension of time.



4. Whenever the PRINCIPAL shall be, and is declared by CITY to be, in default under the Contract Documents, provided that CITY is not then in material default thereunder, SURETY shall promptly: (a) remedy such default; (b) complete the Project in accordance with the terms and conditions of the Contract Documents then in effect; or (c) select a contractor(s) to complete all work for which a Notice to Proceed has been issued in accordance with the terms and conditions of the Contract Documents then in effect, use a procurement methodology approved by the CITY, arrange for a contract between such contractor(s) and CITY, and make available as work progresses sufficient funds to pay the cost of completion including other costs and damages for which the SURETY is liable hereunder, up to but not exceeding the Bonded Sum.
5. Correspondence or claims relating to the Bond shall be sent to the SURETY at the following address:  
  
\_\_\_\_\_  
  
\_\_\_\_\_  
  
\_\_\_\_\_
6. No right of action shall accrue on this Bond to or for the use of any entity other than CITY or its successors and assigns.
7. In the event any suit, action, or proceeding is instituted to recover on this Bond, said SURETY will pay, and does hereby agree to pay, CITY's reasonable attorney's fees and costs incurred, with or without suit, in addition to the Bonded Sum.

IN WITNESS WHEREOF, three (3) identical counterparts of this instrument, each of which shall for all purposes be deemed to be an original hereof, have been duly executed by PRINCIPAL and SURETY on the date set forth before the name of each corporate party being hereto affixed and these presents duly signed by its undersigned representative(s) pursuant to authority of its governing body. PRINCIPAL and SURETY has caused this Bond to be duly executed and delivered this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

[Signature page follows.]



Date: \_\_\_\_\_, 20\_\_\_\_.

PRINCIPAL: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Legal Address: \_\_\_\_\_

\_\_\_\_\_

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( Corporate  
Seal )  
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(  
( )

Attest: \_\_\_\_\_

(Corporate Secretary)

Date: \_\_\_\_\_, 20\_\_\_\_.

SURETY: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Legal Address: \_\_\_\_\_

\_\_\_\_\_

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( Corporate  
Seal )  
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Attach Attorney-In-Fact Certificate, Corporate Seal and Surety Seal

APPROVED AS TO SURETY AND PRINCIPAL AMOUNT:

\_\_\_\_\_  
City Engineer

APPROVED AS TO FROM:

\_\_\_\_\_  
City Attorney

**Note: this Bond must be dated, sealed, executed in triplicate, (copies are not acceptable), all signatures on behalf of PRINCIPAL and SURETY must be notarized, and evidence of the authority of any person signing as attorney-in-fact must be attached.**



## **PART B - GENERAL PROVISIONS**

### **Imjin Parkway Widening Project**

#### **B1 DEFINITION OF TERMS**

Whenever in these Specifications or in any documents or instruments in connection where these Specifications govern, the following terms or pronouns in place of them are used, and intent and meaning shall be interpreted as follows:

##### **1.1 City of Marina, City, or Owner**

The incorporated City of Marina, Monterey County, California.

##### **1.2 City Council or Council**

The City Council of the City of Marina, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

##### **1.3 Director of Public Works/City Engineer or Engineer**

The Director of Public Works of the City of Marina, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

##### **1.4 Contractor**

The person or persons, co-partnership or corporation, private or municipal, who have entered into a contract with the City of Marina as party or parties of the second part, or his or their legal representatives. Any reference of a masculine nature shall imply either gender and is not intended to be discriminatory.

##### **1.5 Specifications**

The term specifications refer to the City Standard Specifications and the California Department of Transportation Standard Specifications for the Construction of Local Streets and Roads, 2018 Edition. In the occasion that there is a conflict, the City Standard Specifications take precedence.



## **B2 SCOPE OF WORK**

### **2.1 Intent of Specifications**

The intent of these Specifications is to describe the details for the construction and completion of the work, which the Contractor undertakes to perform in accordance with the terms of the Contract. Where these Specifications describe portions of the work in general terms, but not in complete detail, it is understood that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, equipment and incidentals, and do all the work involved in completing the contract in a satisfactory and workmanlike manner.

### **2.2 Final Clean Up**

Before final inspection of the work, the Contractor shall clean the street, material sites and all ground occupied by him in connection with the work, of all rubbish, excess materials, false work, temporary structures and equipment. All parts of the work shall be left in a neat and presentable condition. Full compensation for final cleaning up will be considered as included in the prices paid for the various contract items of work, and no separate payment will be made therefore.

Nothing herein, however, shall require the Contractor to remove warning and directional signs prior to final acceptance by the City.

### **2.3 Changes**

The City reserves the right to make such alterations, deviations, additions to, or omissions from these Plans and Specifications, including the right to increase or decrease the quantity of any item or portion of the work or to omit any item or portion of the work as may be deemed by the Engineer to be required for the proper completion or construction of the work. A contract change order will not become effective until approved either by the City Manager (if the amount of the change order is less than ten (10) percent of the contract amount) or by the City Council (if the amount of the change order is greater than ten (10) percent of the contract amount).

Any such changes will be set forth in a contract change order which will specify, in addition to the work to be done in connection with the change made, adjustment of contract time, if any, and the basis of compensation for such work. A contract change order will not become effective until approved by the City Council.

The provisions of California Standard Specification (CSS) Section 9-1.06B (increased quantities) and 9-1.06C (decreased quantities) shall not be applicable to any contract items increased or decreased over 25 percent.

Upon receipt of an approved contract change order, the Contractor shall proceed with the ordered work. If ordered in writing by the Engineer, the Contractor shall proceed with the work so ordered prior to actual receipt of an approved contract change order therefore.

#### **a. Procedure and Protest**

A contract change order approved by the Engineer may be issued to the Contractor at any time. Should the Contractor disagree with any terms or conditions set forth in an approved contract change



order, which he has not executed, he shall submit a written protest to the Engineer within fifteen (15) days after the receipt of such approved contract change order. The protest shall state the point of disagreement, contract specification references, and if possible, the quantities and the costs involved. If a written protest is not submitted, payment will be made as set forth in the approved contract change order, and such payment shall constitute thereby. Such unprotested approved contract change orders will be considered as executed contract change orders.

Where protest concerning an approved contract change order relates to compensation, the compensation payable as specified or required by said contract change order to which such protest relates, will be determined by the Engineer in the same manner as if the work were to be paid for on a force account basis as provided in the paragraphs titled "Measurement and Payment" in these General Provisions; or such adjustment will be as agreed to by the Contractor and the Engineer. The Contractor shall keep full and complete records of the cost of such work and shall permit the Engineer to have such access thereto as necessary to assist in the determination of the compensation payable for such work.

Where protest concerning an approved contract change order relates to the adjustment of contract time for the completion of the work, the time to be allowed therefore will be determined as provided in paragraphs titled "Prosecution and Progress" in these General Provisions.

Proposed contract change orders may be presented to the Contractor for his consideration prior to approval by the Engineer. If the Contractor signifies his acceptance of the terms and conditions of such proposed contract change order by executing such document, and if such change order is approved by the Engineer and issued to the Contractor, payment in accordance with the provisions as to compensation therein set forth shall constitute full compensation for all work included therein or required thereby. A contract change order executed by the Contractor and approved by the Engineer is an executed contract change order. An approved contract change order shall supersede a proposed, but unapproved change order covering the same work.

b. Contract Items to be Omitted

If acceptable material is ordered by the Contractor for the omitted item prior to the date of notification of such omission by the Engineer and if orders for such material cannot be canceled, it will be paid for at the actual cost to the Contractor, excluding overhead and profit. In such case, the material paid for shall become the property of the City and the cost of any further handling will be paid for as extra work as provided in this Section. If the material is returnable to the vendor and if the Engineer so directs, the material shall be returned, and the Contractor will be paid for charges made by the vendor for returning such materials. The cost of handling returned material will be paid for as extra work as provided in this Section.

c. Extra Work

New and unforeseen work will be classed as extra work when determined by the Engineer that such work is not covered by any of the various items for which there is a bid price or by combinations of such items. In the event portions of such are determined by the Engineer to be covered by some of the various items for which there is a bid price or combinations of such items, the remaining portion of such work will be classed as extra work. Extra work also includes work specifically designated as extra work in these Plans and Specifications.

The Contractor shall do such extra work and furnish material and equipment therefore upon receipt of an approved contract change order or other written order by the Engineer, and in the absence



of such approved contract change order or other written order of the Engineer, he shall not be entitled to payment for such extra work. Where such extra work is ordered by a written order other than an approved contract change order, the Engineer will, as soon as practicable, issue an approved contract change order. The provisions in the paragraph titled "Procedure and Protest" in this Section shall be fully applicable to such subsequently issued contract change order.

Payment for extra work required to be performed pursuant to the provisions of this Article in the absence of an executed contract change order, will be made by force account and provided in the paragraph titled "Measurement and Payment" in these General Provisions or as agreed to by the Contractor and the Engineer.

## **2.4 Detours**

The Contractor shall construct, maintain and remove detours for the use of public traffic as provided in the Special Provisions or as shown on the Plans or as directed by the Engineer. Payment for such work shall be in accordance with Section 7.01 of these Specifications and no additional compensation will be made therefore.

## **2.5 Use of Materials Found on the Work**

The Contractor, with the approval of the Engineer, may use in the proposed construction such stone, gravel, sand, or other material suitable, in the opinion of the Engineer, as may be found in the excavation.



## **B3 CONTROL OF WORK**

### **3.1 Authority of Engineer**

The Engineer shall decide all questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of work, all questions which arise as to the interpretation of these Plans and Specifications, all questions as to the acceptable fulfillment of the contract on the part of the Contractor and all questions as to compensation. His decision shall be final and he shall have authority to enforce and make effective such decisions and orders which the Contractor fails to carry out promptly.

### **3.2 Shop Drawings**

Wherever called for in these Specifications or on the Drawings, or where required by the Engineer, the Contractor shall furnish to the Engineer for review, five (5) prints of each shop drawing. The term "shop drawing" as used herein shall be understood to include detail design calculations, fabrication and installation drawings, lists, graphs, operation instructions, etc. Unless otherwise required, said drawings shall be submitted at a time sufficiently early to allow review of same by the Engineer, and to accommodate the rate of construction progress under the contract.

All shop drawing submittals shall be accompanied by the Engineer's standard shop drawing transmittal form. A sample of the form will be provided following award of the contract. Any shop drawing submittal not accompanied by such a form, or where all applicable items on the form are not completed, will be returned for re-submittal. The ultimate responsibility for the accuracy and completeness of the information contained in the submittal shall remain with the Contractor.

Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of shop drawings on various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole.

Within ten (10) working days after receipt of said prints, the Engineer will return prints of each drawing to the Contractor with his comments noted thereon. It is considered reasonable that the Contractor shall make a complete and acceptable submittal to the Engineer by the second submission of drawings. The Owner reserves the right to withhold monies due the Contractor to cover additional costs of the Engineer's review beyond the second submission.

If three prints of the drawing are returned to the Contractor marked "NO EXCEPTIONS TAKEN," formal revision of said drawings will not be required.

If one print of the drawing is returned to the Contractor marked "REVISE AND RESUBMIT," the Contractor shall revise said drawing and shall resubmit five (5) copies of said revised drawing to the Engineer.

Fabrication of an item shall not commence before the Engineer has reviewed the pertinent shop drawings and returned copies to the Contractor marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Revisions indicated on shop drawings shall be considered as changes necessary to meet the requirements of the contract Drawings and Specifications and shall not be taken



as the basis of claims for extra work. The Contractor shall have no claim for damages or extension of time due to any delay resulting from the Contractor's having to make the required revisions to shop drawings unless review by the Engineer of said drawings is delayed beyond a reasonable period of time and unless the Contractor can establish that the Engineer's delay in review of said drawings by the Engineer will be limited to checking for general agreement with the Specifications and Drawings, and shall in no way relieve the Contractor of responsibility for errors or omissions contained therein nor shall such review operate to waive or modify any provision contained in the Specifications or Contract Drawings. Fabricating dimensions, quantities or material, applicable code requirements, and other contract requirements shall be the Contractor's responsibility.

### **3.3 Conformity with Plans and Allowable Deviations**

Finish surfaces in all cases shall conform with the lines, grades, cross-sections, and dimensions shown on the Plans. Deviations, other than specified tolerances from the Plans and working drawings as may be required by the exigencies of construction, will in all cases be determined by the Engineer.

### **3.4 Coordination and Interpretation of General Provisions and Plans**

These General Provisions, Special Provisions, Plans, Contract Change Orders and all supplementary documents are essential parts of the contract and a requirement occurring in all. They are intended to be cooperative and to describe and provide for a complete work. Plans shall govern over General Provisions; Special Provisions shall govern over both General Provisions and Plans. Technical Provisions shall govern over General Provisions, Special Provisions and Plans.

Should it appear that the work to be done or any of the matters relative thereto are not sufficiently detailed or explained in these Plans and Specifications, the Contractor shall apply to the Engineer for such further explanations as may be necessary and shall conform to them as part of the contract. In the event of any doubt or question arising respecting the true meaning of these Plans and Specifications, references shall be made to the City Council, whose decisions thereon shall be final. In the event of any discrepancy between any drawing and the figures written thereon, the figures shall be taken as correct. Detail drawings shall prevail over general drawings.

### **3.5 Order of Work**

When required by the Special Provisions or Plans, the Contractor shall follow the sequence of operations as set forth therein.

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

### **3.6 Superintendence**

The Contractor shall designate, before starting work, an authorized representative who shall have complete authority to represent and to act for the Contractor. Said authorized representative shall be present at the site of the work at all times while work is actually in progress on the contract and during periods when work is suspended, arrangements acceptable to the Engineer shall be made for any emergency work which may be required.

When the Contractor is comprised of two (2) or more persons, firms, partnerships or corporations; functioning on a joint venture basis, said Contractor shall designate to the Engineer the name of their authorized representative who shall have supreme authority to direct the work and to whom orders will be given by the Engineer, to be received and obeyed by the Contractor.



Whenever the Contractor or his authorized representative is not present on any particular part of the work where it may be desired to give direction, orders will be given by the Engineer, which shall be received and obeyed by the Superintendent or foreman who may have charge of the particular work in reference to which the orders are given.

### **3.7 Inspection**

The Engineer shall at all times have access to the work during its construction and shall be furnished with every reasonable facility for ascertaining that the materials and the workmanship are in accordance with the requirements and intentions of these Plans and Specifications. All work done and all materials furnished shall be subject to his inspection and approval.

Whenever the Contractor varies the period during which work is carried on each day, he shall give due notice to the Engineer so that proper inspection may be provided. Any work done in the absence of the Engineer will be subject to rejection.

Projects financed in whole or in part with State funds shall be subject to inspection at all times by the State Director of Public Works or his agents.

### **3.8 Samples and Tests**

Materials furnished by the Contractor may be tested by the City of Marina or its authorized representative in accordance with commonly recognized standards of national organizations or such special methods and tests as are in use at the Laboratory of the Department of Transportation of the State of California. Field tests of materials will be made by the Engineer when deemed necessary and these tests shall be made in accordance with standard practices.

The Contractor shall furnish, without charge, such samples of all materials as are requested by the Engineer. No material shall be used until it has been approved by the Engineer. Samples will be secured and tested whenever necessary to determine the quality of the material.

Samples for testing local sources of material shall be taken by or in the presence of the Engineer. Otherwise, the same shall not be considered.

Promptly after the approval of the contract, the Contractor shall notify the Engineer of the proposed sources of supply of all materials to be furnished.

Whenever reference is made in these Specifications to standard specification or standard tests or requirements of the Laboratory of the Department of Transportation, the American Society for Testing Materials, the American Railway Engineering Association, the American Association of State Highway Officials, or other nationally recognized organizations, the reference shall be construed to mean the standards that are in effect at the date of these Specifications with subsequent amendment changes or additions as thereafter adopted and published by the organization referred to.

Whenever the Specifications permit the substitution of a similar or equivalent material or article, no tests or action relating to the approval of such substitute material will be made unless the request for approval is made in writing by the Contractor, accompanied by complete data or information demonstrating the equality of the material or article offered. Such requests shall be made in ample time to permit investigation without delaying the work.



Materials from local deposits, which have not been investigated and tested previously and approved for use, will be investigated and tested upon request of the Contractor in writing. Such tests shall be in accordance with standard methods. The cost of any such investigation and tests made as a result of the Contractor's request shall be at his expense and deductions will be made from estimates due him, sufficient to cover the cost of such tests.

### **3.9 Removal of Rejected and Unauthorized Work**

All work, which has been rejected, shall be remedied or removed and replaced by the Contractor in an acceptable manner and no compensation will be allowed him for such removal, replacement or remedial work. Any work done beyond the lines and grades shown on the Plans or established by the Engineer or any extra work done without written authority will be considered as unauthorized work and will not be paid for.

Upon order of the Engineer, unauthorized work shall be remedied, removed, or replaced at the Contractor's expense. Upon failure of the Contractor to comply promptly with any order of the Engineer made under the provisions of this article, the Engineer may cause rejected or unauthorized work to be remedied, removed, or replaced and to deduct the costs from any monies due or to become due the Contractor.

### **3.10 Equipment and Plants**

Only equipment and plants suitable to produce the quality of work and materials required will be permitted to operate in connection with the work.

The Contractor shall provide adequate and suitable equipment to meet the above requirements, and when ordered by the Engineer, shall remove unsuitable equipment from the work.

All diesel equipment needs to be 2003 or newer model or some mitigation measures must be taken to reduce diesel emissions. The following are some mitigation measures that are to be implemented for all diesel equipment older than 2003:

- a. The use of a diesel oxidation catalyst;
- b. The substitution of biodegradable fuels; or
- c. Other methods approved by the Monterey Bay Unified Pollution Control District.

Each machine or unit of equipment shall be operated by a person experienced in handling that particular make of machine or unit of equipment in use, at a speed or rate of production not to exceed that recommended by the manufacturer.

All vehicles used to haul materials over existing streets and highways shall be equipped with pneumatic tires.

### **3.11 Character and Competence of Workers**

If any subcontractor or person employed by the Contractor shall fail or refuse to carry out the directions of the Engineer or shall appear to the Engineer to be incompetent or to act in a disorderly or improper manner, he/she will be discharged immediately on the requisition of the Engineer and such person shall not again be employed in the work.



Any subcontractor or person employed by the Contractor who will be doing any intrusive work on the site needs to attend Munitions and Explosives of Concern (MEC) recognition and safety training as offered by the Army. The link for registering for this training can be found at [www.fortordcleanup.com](http://www.fortordcleanup.com).

### **3.12 Final Inspection**

When the work contemplated by the contract has been completed, the Engineer will make a final inspection on the ground, accompanied by the Contractor or his representative.

### **3.13 As Built Drawings**

Corrections and changes made during the progress of the work shall be recorded on a set of red- line prints of the contract drawings, which shall finally show all work as actually installed. Two sets of prints showing this information shall be furnished by the Contractor to the City at completion. Prints for this purpose will be furnished by the City upon request and at the cost of reproduction.



## **B4 CONTROL OF MATERIALS**

### **4.1 City Furnished Material**

The Contractor shall furnish all materials required to complete the work, except those specified in the Special Provisions to be furnished by the City.

Material furnished by the City will be delivered to the Contractor at the point specified in the Special Provisions. They shall be unloaded and hauled to the site of the work by the Contractor at his expense. The cost of handling and placing all materials after they are delivered to the Contractor shall be considered as included in the contract price for the item in connection with which they are used.

The Contractor will be held responsible for all material delivered to him and deductions will be made from any monies due him to make good any shortages and deficiencies from any cause whatsoever which may occur after such delivery, or for any demurrage charges due to delinquency in unloading.

### **4.2 Source of Supply and Quality of Materials**

The materials furnished and used shall be new and unused, except as specifically provided elsewhere in these Plans and Specifications.

At the option of the Engineer, the source of supply of the materials shall be approved by him before delivery is started and before such material is used in the work. Representative preliminary samples of the character and quality prescribed shall be submitted by the Contractor or producer of all materials to be used in the work for testing or examination as desired by the Engineer.

All tests of materials furnished by the Contractor shall be made in accordance with commonly recognized standards of National organizations designated by the Engineer and such special methods and tests as are prescribed in these Plans and Specifications. The Contractor shall furnish such samples of materials as are requested by the Engineer, without charge. No material shall be used until it has been approved by the Engineer. It is understood that such approval in no way shall be considered as a guaranty of any materials, which may be delivered later for incorporation in the work. Samples will be secured and tested whenever necessary to determine the quality of material.

### **4.3 Defective Materials**

All materials not conforming to the requirements of these Plans and Specifications, whether in place or not, shall be rejected. They shall be removed immediately from the site of the work unless otherwise permitted by the Engineer. No rejected material, the defects of which have been subsequently corrected, shall be used in the work until approved in writing by the Engineer.

Upon failure of the Contractor to comply promptly with an order of the Engineer made under the provisions of this Article, the Engineer shall have the authority to cause the removal and replacement of rejected material and to deduct the cost thereof from any monies to become due the Contractor.

### **4.4 Storage of Materials**

Materials shall be stored in such a manner as to insure the preservation of their quality and fitness for the work. When considered necessary by the Engineer, materials shall be placed on platforms or other hard,



clean surfaces and covered when directed. Stored materials shall be so located as to facilitate prompt inspection.

#### **4.5 Trade Names and Alternatives**

For convenience of designation in these Plans and Specifications, certain equipment or articles or materials to be used or incorporated in the work may be designated under a trade name or the name of a manufacturer and his catalog information. The use of alternative equipment or an article of material which is of equal or better quality and of the required characteristics for the purpose intended will be permitted, subject to the following requirements:

The burden of proof as to the quality and suitability of alternative equipment, articles or materials shall be upon the Contractor, and he shall furnish at his own expense all information necessary or related thereto as required by the Engineer. The Engineer shall be the sole judge as to the comparative quality and suitability of alternative equipment; articles or materials and his decision shall be final.

The Contractor will be allowed THIRTY FIVE (35) calendar days from the date of execution of the contract to provide proof that substitute equipment, articles or materials conform to the requirements of equipment, articles or materials specified.

#### **4.6 Delivery of Materials**

The Contractor shall furnish the Engineer with a duplicate delivery ticket of all materials to be used in the work at the time of delivery, unless otherwise waived by the Engineer. The tickets shall show the quantity and type of materials to be used in the work.



## **B5 LEGAL RELATIONS AND RESPONSIBILITY**

### **5.1 Laws to be Observed**

The Contractor shall keep himself fully informed of all existing and future State and National laws and County and Municipal ordinances and regulations which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. He shall at all times observe and comply with, and shall cause all his agents and employees to observe and comply with all such existing and future laws, ordinances, regulations, orders and decrees or bodies or tribunals having any jurisdiction or authority over the work; and shall protect and indemnify the City and all of its officers and agents and servants against any claim or liability arising from or based on the violation or any such law, ordinance, regulation, order or decree, whether by himself or his employees. If any discrepancy or inconsistency is discovered in these Plans and Specifications for the work in relation to any such law, ordinance, regulation, order or decree, the Contractor shall forthwith report the same to the Engineer in writing.

### **5.2 Hours of Labor**

The Contractor shall forfeit, as penalty to the City, fifty dollars (\$50) for each workman employed in the execution of this contract by him or by any subcontractor under him for each working day during which such workman is permitted or required to labor more than eight (8) hours and is not paid overtime rates in accordance with the provisions of the Labor Code, and in particular, Section 1815 thereof, inclusive.

### **5.3 Labor Discrimination**

Attention is directed to Section 1735 of the Labor Code, which reads as follows:

"No discrimination shall be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical disability, medical condition, marital status, or gender of such persons, and every Contractor for public works violating this Section is subject to all the penalties imposed for a violation of this Chapter."

### **5.4 Prevailing Wages**

The Contractor shall forfeit, as penalty to the City, fifty dollars (\$50) for each working day or portion thereof, for each workman paid less than the stipulated prevailing rates for any work done under the contract by him or by any subcontractor under him, in violation of the provisions of the Labor Code, and in particular, Section 1770 to Section 1780 thereof, inclusive.

The City will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rate adopted by the City Council of the City of Marina. The possibility of wage increases is one of the elements to be considered by the Contractor in determining his bid and will not under any circumstances be considered as a basis of a claim against the City.

### **5.5 Registration of Contractors**

Before submitting bids, Contractors shall be licensed in accordance with the provisions of the State Contractors' License Law, Business and Professions Code 7000 et seq. as amended. Pursuant to



California Labor Code section 1771.4, the project that is the subject and purpose of this contract is subject to prevailing wage compliance monitoring by the California Department of Industrial Relations.

Pursuant to California Labor Code section 1771.1, by execution below, the Bidder and its Subcontractors certify that they are registered and qualified to perform public work pursuant to section 1725.5 of the California Labor Code, subject to limited legal exceptions.

The Contractors License required for this project is specified in Section A1 "Notice to Bidders" of this document and must be valid at the time of bid submittal.

Bids are prohibited from debarred contractors required by Labor Code 1777.7.

## **5.6 Apprentices**

In accordance with the provisions of Section 1777.5 of the Labor Code, and in accordance with the regulations of the California Apprenticeship Council, properly indentured apprentices may be employed in the prosecution of the work.

Information relative to number of apprentices, identification, wages, hours of employment and standards of working conditions, shall be obtained from the Director of the Industrial Relations of the State of California.

Contractor shall comply with the requirements of Labor Code Section 1777.5 concerning employment of registered apprentices. Prior to commencement of work, contractor shall certify to owner in written form approved by attorney for owner, that contractor has complied with the requirements of Section 1777.5 or demonstrate why contractor is not subject to compliance with these requirements.

## **5.7 Fair Labor Standards Act**

The attention of bidders is invited to the fact that the City has been advised by the Wage and Hour Division, U.S. Department of Labor, that contractors engaged in roadway construction work are required to meet the provisions of the Fair Labor Standards Act of 1938 and as amended (52 Stat. 1060).

## **5.8 Payment of Taxes**

The contract prices paid for the work shall include full compensation for all taxes which the Contractor is required to pay, whether imposed by Federal, State, or local government, including, without being limited to, Federal excise tax. No tax exemption certificate, nor any document designed to exempt the Contractor from payment of any tax, will be furnished to the Contractor by the City as to any tax on labor, services, materials, transportation, or any other items furnished pursuant to this contract.

## **5.9 Permits & Licenses**

The Contractor shall procure all permits and licenses, including a City of Marina business license, pay all charges and fees, and give all notice necessary and incident to the due and lawful prosecution of the work.

## **5.10 Patents**

The Contractor shall assume all costs arising from the use of patented materials, equipment, devices or processes used on or incorporated in the work and agrees to indemnify and hold harmless the City of Marina, the City Council, the RDA, the City Manager, the Director of Public Works, and their duly



authorized representatives, from all suits at law or actions of every nature, for or on account of the use of any patented materials, equipment, devices or processes.

#### **5.11 Safety Provisions**

The Contractor shall conform to the rules and regulations pertaining to safety as established by the California Division of Industrial Safety.

#### **5.12 Sanitary Provisions**

The Contractor shall conform to the rules and regulations pertaining to safety as established by the California Division of Industrial Safety.

#### **5.13 Public Convenience and Safety**

The Contractor shall so conduct his operations as to cause the least possible obstruction and inconvenience to public traffic. Unless otherwise provided in the Special Provisions, all public traffic shall be permitted to pass through the work. The Contractor shall furnish, erect and maintain such fences, barriers, lights, signs and other devices as are necessary to give adequate warning to the public at all times that the road or street is under construction in conformance with the California Manual on Uniform Traffic Control Devices (CAMUTCD). The Contractor shall also erect and maintain such warning and directional signs in accordance with State law and Caltrans, whichever is more restrictive.

#### **5.14 Use of Explosives**

When the use of explosives is necessary for the prosecution of the work, the Contractor shall use the utmost care not to endanger life or property. All explosives shall be used and stored in accordance with the applicable laws of the City, County, State and Federal governments.

#### **5.15 Preservation of Property**

Due care shall be exercised to avoid injury to existing street improvements or facilities, utility facilities, adjacent property, fences, signs, survey markers and monuments, buildings and structures and roadside shrubbery and trees that are not to be removed. If ordered by the Engineer, the Contractor shall provide and install suitable safeguards approved by the Engineer, to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored at the Contractor's expense, to a condition as good as when the Contractor entered upon the work and in compliance with Business and Professions Code section 8771 for survey markers and monuments.

The Engineer may make or cause to be made such temporary repairs as are necessary to restore to service any damages roadway or utility facility. The cost of such repairs shall be borne by the Contractor and may be deducted from any monies due or to become due to the Contractor under the contract.

The fact that any underground facility is not shown upon the Plans or is not properly shown, shall not relieve the Contractor of his responsibility to ascertain the existence of any under- ground improvements or facilities, which may be subject to damage by reason of his operations.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals, and doing all work involved in protecting property as above specified, shall be considered as included in the price paid for the various contract items of work, and no additional compensation will be made therefore.



### **5.16 Responsibility for Damage**

The City Council, the City Manager, the Director of Public Works, City Engineer, and all officers and employees of the City shall not be answerable in any manner for any loss or damage that may happen to the work or any part thereof, or for any material or equipment used in performing the work, or for injury or damage to any person or persons, either workers or the public, for damage adjoining property from any cause whatsoever during the progress of the work or at any time before final acceptance.

The Contractor shall indemnify and hold harmless the City, City Council, the City Manager, the Director of Public Works, City Engineer, City Employees and agents, and their duly authorized representatives from all suits, claims or actions of every name, kind and description, brought by any person or persons for or on account of, any injuries or damages sustained or arising in the construction of the work or in money due the Contractor as shall be considered necessary until disposition has been made of such suits or claims (per Public Contract Code 20104 et seq.) for damages as aforesaid.

### **5.17 Disposal of Materials Outside the Street Right-of-Way**

Unless otherwise specified in the Special Provisions, the Contractor shall make his own arrangements for disposing of materials outside the street right-of-way and he shall pay all costs involved.

When any material is to be disposed of outside the street right-of-way, the Contractor shall first obtain a written release from the property owner absolving the City from any and all responsibility in connection with the disposal of material on said property. Before any material is disposed of on said property, the Contractor shall obtain permission from the Engineer to dispose of the material at the location designated in said permit.

Unless otherwise provided in the Special Provisions, full compensation for all costs of hauling shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be made therefore.

### **5.18 Cooperation**

Should construction be under way by other forces or by other contractors within or adjacent to the limits of the work specified or should work of any other nature be under way by other forces within or adjacent to said limits, the Contractor shall cooperate with all such other Contractors or other forces to the end that any delay or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site (included designated material sources) at any time, by the use of other forces.

### **5.19 Contractor's Responsibility for the Work and Materials**

Until the formal acceptance of the contract by the City, the Contractor shall have the charge and care of the work and of the materials to be used therein and shall bear the risk of injury, loss or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or non-execution of the work.

The Contractor shall rebuild, repair, restore, and make good all injuries, losses or damages to any portion of the work or materials occasioned by any cause before final acceptance and shall bear the expense thereof, except such injuries, losses or damages, as are directly and approximately caused by the acts of the Federal government or the public enemy.



In case of suspension of work from any cause whatever, the Contractor shall be responsible for the work and materials as specified above. Where necessary to protect the work or materials from damage, the Contractor shall, at his own expense, provide erosion control for drainage of the project and erect such temporary structures as is necessary to protect the work and materials from damage.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals, and doing all work involved in protecting the improvements prior to final acceptance of the work shall be included in the price paid for the various contract items of work and no additional compensation will be made therefore.

If ordered by the Engineer, the Contractor shall, at his own expense, properly store materials, which have been furnished by the City. Such storage by the Contractor shall be on behalf of the City, and the City shall at all times be entitled to the possession of such materials, and the Contractor shall promptly return the same to the site of the work when requested.

The Contractor shall not dispose of any of the materials so stored except on the authorization from the Engineer.

The Contractor shall provide twenty-four (24) hour emergency service for all maintenance and operations of the work herein specified and shall supply the City of Marina Police and Fire Departments with the name and telephone number of the responsible person. Emergency service shall be within thirty (30) minutes from the time of notification. If the Contractor fails to provide this service, the City shall perform such emergency service and the cost thereof shall be deducted from the next progress payment due to the Contractor.

## **5.20 Acceptance of Contract**

When the Engineer has made the final inspection and determines that the contract has been completed in all respects in accordance with these Plans and Specifications, he will recommend that the City Council formally accept the contract, and immediately upon and after such acceptance, the Contractor will be relieved of the duty of maintaining and protecting the work as a whole, and he will not be required to perform any further work thereon, with the exception of work covered under warranty. The Contractor shall also be relieved of his responsibility for injury to persons or property or damage to the work, which occurs after the formal acceptance.

The City shall release the five percent (5%) retention on the contract amount after 35 days following recordation of the Notice of Completion by the City. The contractor shall provide the City with a maintenance bond amounting to fifty percent (50%) of the contract amount, upon completion of the work.

## **5.21 Property Rights in Materials**

Nothing in the contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil, or after payment has been made for fifty percent (50%) of the value of materials delivered to the site of work or stored subject to or under the control of the City, whether or not they have been so attached or affixed. All such materials shall become property of the City upon being so attached or affixed, or upon payment of such fifty percent (50%) of the value of materials delivered to the site of work stored subject to or under the control of the City.



## **5.22 Personal Liability**

Neither the City Council, the City Manager, Public Works Department, City Engineer, nor any other officer, employee or authorized assistant or agent, shall be personally responsible for any liability arising under the contract.

## **5.23 Compliance with Economic Sanctions**

The Contractor is responsible in complying with the economic sanctions imposed in response to Russia's actions in Ukraine, including, but not limited to, the Federal Executive Order 14065, State Executive Order N-6-22, the sanctions identified on the U.S. Department of the Treasury Website (<https://home.treasury.gov/policy-issues/financial-sanctions/sanctions-programs-and-country-information/ukraine-russia-related-sanctions>) and sanctions imposed under state law, if any.



## **B6 PROSECUTION AND PROGRESS**

### **6.1 Subcontracting**

The Contractor shall give his personal attention to the fulfillment of the contract and shall keep the work under his control.

The City prefers local hiring for subcontractors per the Municipal Code 13.02.

No subcontractor will be recognized as such and all persons engaged in the work of construction will be considered as employees of the Contractor, and he will be held responsible for their work, which shall be subject to the provisions of these Plans and Specifications.

When a portion of the work, which has been subcontracted by the Contractor, is not being prosecuted in a manner satisfactory to the City, the subcontractor shall be removed immediately on the requisition of the Engineer and shall not again be employed on the work.

### **6.2 Assignment**

The performance of the contract may not be assigned, except upon the written consent of the City. Consent will not be given to any proposed assignment, which would relieve the original, Contractor or his surety of their responsibilities under the contract nor will the City consent to any assignment of part of the work under the contract.

The Contractor may assign monies due or to become due him under the contract and such assignment will be recognized by the City to the extent permitted by law if given proper set-offs in favor of the City and to all deductions provided for in the contract, and particularly, all money withheld, whether assigned or not, shall be subject to being used by the City for the completion of the work in the event that the Contractor should be in default therein.

### **6.3 Time of Beginning and Completion of the Work**

The Contractor shall begin work within ten (10) days after receiving notice from the City to proceed and shall diligently prosecute the same to completion within the time limit provided in Part C of the Special Provisions.

### **6.4 Progress Schedule**

If required by the Special Provisions or requested by the Engineer, the Contractor shall, prior to beginning the work, submit to the Engineer a Critical Path Method (CPM) schedule showing the order in which the Contractor proposes to carry out the work, the dates on which he will start the several salient features of the work (including the procurement of materials, plants and equipment) and the contemplated dates for completing the said salient features. The progress schedule submitted shall be consistent in all respects with the time requirements of the contract.

### **6.5 Temporary Suspension of Work**

The Engineer shall have the authority to suspend the work, wholly or in part, for each period as he may deem necessary due to unsuitable weather or to such other conditions as are considered unfavorable for the suitable prosecution of the work, or for such time as he may deem necessary due to the failure on the part of the Contractor to carry out orders given or to perform the work in accordance with these Plans



and Specifications. The Contractor shall immediately comply with the written order of the Engineer to suspend the work wholly or in part. The suspended work shall be resumed when conditions are favorable, and methods are corrected as ordered or approved in writing by the Engineer.

In the event of a suspension of work under any of the conditions above set forth, such suspension of work shall not relieve the Contractor of his responsibilities as set forth under the subsection titled "Legal Relations and Responsibility" in these General Provisions.

## **6.6 Liquidated Damages**

It is agreed by the parties to the contract that in case all the work called for under the contract, in all parts and requirements, is not finished or completed before or upon the expiration of the time limit set forth in these Plans and Specifications, damage will be sustained by the City and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the City will sustain in the event or by reason of such delay. It is therefore agreed that the Contractor will pay to the City the sum set forth in these Specifications for each and every calendar day's delay beyond the time prescribed to complete the work and the Contractor agrees to pay said liquidated damages as herein provided; and further agrees that the City may deduct the amount thereof from any monies due or that may become due the Contractor under the contract.

It is further agreed that in case the work called for under the contract is not finished and completed in all parts and requirements within the time specified, the City shall have the right to extend the time for completion or not, as may seem best to serve the interest of the City and if the City decides to extend the time limit for the completion of the contract, it shall further have the right to charge the Contractor, his heirs or assigns, all or any part as it may deem proper, of the actual cost of engineering, inspection, superintendence and other overhead expenses which are directly chargeable to the contract and which accrue during the period of such extension, except that the cost of final surveys and preparation of the final estimate shall not be included in such charges.

The Contractor will be granted an extension of time and will not be assessed liquidated damages or the cost of engineering and inspection for any portion of the delay in completion of the work caused by Acts of God or of the public enemy, acts of the City, fire, floods, epidemics, quarantine restrictions, strikes, shortage of materials and freight embargoes, provided that the Contractor shall notify the Engineer in writing of the causes of delay within TEN (10) DAYS from the beginning of such a delay. The Engineer shall ascertain the facts and the extent of the delay and his findings thereon shall be final and conclusive.

If the Contractor is delayed by reason of alterations made under the paragraphs entitled "Scope of Work" in these General Provisions, or by act of the Engineer or the City, and such alterations or acts were not contemplated by the contract, the time of completion of the work shall be extended to cover the delay so caused. In the case of such delay, the Contractor shall be relieved from any claim for liquidated damages or engineering and inspection charges or penalties for the period covered by such extension of time. The Engineer shall ascertain the facts and the extent of the delay and shall be relieved from any claim of liquidation damages or engineering overhead and inspection charges for the period covered by such extension of time.

## **6.7 Termination of Contract**

Failure to supply an adequate working force or material of proper quality, or in any other aspect to prosecute the work with the diligence and force specified in the contract, is grounds for termination of the Contractor's control over the work and for taking over the work by the City as provided in the Public Contracts Code.



## **6.8 Right-of-Way**

The right-of-way for the work to be constructed will be provided by the City. The Contractor shall make his own arrangements and pay all expenses for additional area required by him outside the limits of the right-of-way, unless otherwise provided in these Plans and Specifications.

## **6.9 Utility and Other Facilities**

Attention is directed to those paragraphs entitled "Legal Relations and Responsibility" of these General Provisions. The Contractor shall protect from damage utility and other facilities that are to remain in place, be installed, relocated, or otherwise rearranged.

It is anticipated that some or all of the utilities and other facilities, both above ground and below ground, that are required to be rearranged (as used herein, rearrangement includes installation, relocation, alteration, or removal) as a part of the improvement, will be rearranged in advance of construction operations. Where it is not anticipated that such rearrangements will be performed prior to construction or where the rearrangement must be coordinated with the Contractor's construction operations, the existing facilities that are to be rearranged will be indicated on the Plans or in the Special Provisions, the Contractor will have no liability for the costs of performing the work involved in such rearrangement.

The right is reserved to the City and the owners of facilities of their authorized agents, to enter upon the street right-of-way for the purpose of making such changes as are necessary for the rearrangement of their facilities or for making necessary connections or repairs to their properties. The Contractor shall cooperate with forces engaged in such work and shall conduct his operations in such a manner as to avoid any unnecessary delay or hindrance to the work being performed by such other forces. Wherever necessary, the work of the Contractor shall be coordinated with the rearrangement of utilities or other facilities. The Contractor shall make arrangements with the owner of such facilities for the coordination of the work.

When ordered by the Engineer in writing, the Contractor shall rearrange any utility or other facility necessary to be rearranged as part of the improvement and such work will be paid for as extra work as provided in the paragraphs entitled "Measurement and Payment" in these General Provisions.

Should the Contractor desire to have rearrangement made in any utility, facility, or other improvement for his convenience in order to facilitate his construction operations if such rearrangement is in addition to or different from the rearrangements indicated on the Plans or in the Special Provisions, he shall make whatever arrangements are necessary with the City or owners of such utility or other facility for such rearrangement and bear all expense in connection therewith.

Attention is directed to the possible existence of underground facilities not known to the City or in a location different from that, which is shown on the Plans, or in the Special Provisions. The Contractor shall take steps to ascertain the exact location of all underground facilities prior to doing work that may damage such facilities or interfere with their service.

Where it is determined by the Engineer that the rearrangement of an underground facility, the existence of which is not shown on the Plans or in the Special Provisions, is essential in order to accommodate the improvement, the Engineer will provide for the rearrangement of such facility by other forces, otherwise such rearrangement shall be performed by the Contractor, and will be paid for as "extra work" as provided in Article B-203(c) "Extra Work" in these General Provisions. The Engineer will decide who shall perform such rearrangement.



## **B7 MEASUREMENT AND PAYMENT**

### **7.1 Scope of Payment**

The Contractor shall accept the compensation as herein provided as full payment for furnishing all labor, materials, tools, equipment and incidentals necessary to complete the work and for performing all work contemplated and embraced under the contract; also for loss or damage arising from the nature of the work or from the action of the elements or from any unforeseen difficulties which may be encountered during the prosecution of the work until the acceptance by the City and for all risks of every description in connection with the prosecution of the work; also for all expenses incurred in consequence of the suspension or discontinuance of the work as herein specified and for completing the work according to these Plans and Specifications. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material.

No compensation will be made in any case for loss of anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as provided in such agreement.

### **7.2 Force Account Payment**

Extra work, when ordered and accepted, shall be paid for under a written work order in accordance with the terms therein provided. Payment for extra work will be made at the unit prices or lump sum previously agreed upon by the Contractor and the Engineer or by force account. The basis for establishing costs shall be per Section 9-1.04 and all subsections of 9-1.04 of the California State Standard Specifications.

### **7.3 Progress Payments**

The Contractor shall, at the end of each month, cause an estimate in writing to be submitted to the City for the total amount of work done and the acceptable materials furnished and delivered by the Contractor on the ground and the value thereof, said materials being those not used at the time of such estimate. **In addition to submitting a detailed invoice, the following “Contract Balance Form” must be submitted with each request for payment.** The City shall retain five percent (5%) of the total amount of work done and fifty percent (50%) of the value of the materials so estimated to have been furnished and delivered and unused as aforesaid, as part security for the fulfillment of the contract by the Contractor and shall pay monthly to the Contractor while he is carrying on the work, the balance not retained as aforesaid, after deducting therefrom all previous payments and all sums to be kept or retained under the provisions of the contract. No such estimate or payment shall be required to be made, when in the judgment of the Engineer, the work is not proceeding in accordance with the provisions of the contract or when in his judgment, the total value of the work done since the last estimate or payment shall be construed to be an acceptance of any defective work or improper material.



**Imjin Parkway Widening Project  
CONTRACT BALANCE FORM**

*A Detailed Invoice MUST be Attached*

CONTRACTOR NAME: \_\_\_\_\_

MAILING ADDRESS: \_\_\_\_\_

TELEPHONE NO.: \_\_\_\_\_

FAX NO.: \_\_\_\_\_

DATE: \_\_\_\_\_

INVOICE NO.: \_\_\_\_\_

=====

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the work covered by this application for payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for work for which previous Certificates for Payment were issued and payments received from the City, and the current payment shown here-in is now due

By: \_\_\_\_\_ Date: \_\_\_\_\_

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Construction Manager and Inspector of Record certify to the City that to the best of their knowledge, information and belief the work has progressed as indicated, the quality of the work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the Amount Certified below (Line 8).

By: \_\_\_\_\_ Date: \_\_\_\_\_

1. ORIGINAL CONTRACT AMOUNT: \$ \_\_\_\_\_
2. APPROVED CHANGE ORDERS TOTAL: \$ \_\_\_\_\_
3. REVISED CONTRACT AMOUNT: (1+2) \$ \_\_\_\_\_
4. PREVIOUS BALANCE PAID: \$ \_\_\_\_\_
5. REMAINING BALANCE: (3-4) \$ \_\_\_\_\_
6. CURRENT PROGRESS PAYMENT DUE: \$ \_\_\_\_\_  
(before retention)
7. 5% RETENTION FROM WORK DONE: (-)\$ \_\_\_\_\_
8. CURRENT BALANCE DUE: (6-7) \$ \_\_\_\_\_
9. REMAINING BALANCE OF REVISED CONTRACT AMOUNT: (5-8) \$ \_\_\_\_\_  
(including retention)

APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_  
City of Marina



## **7.4 Final Payment**

The Engineer shall, after the completion of the contract, determine the amount of work done thereunder and the value of such work and the City shall pay the entire sum so found to be due after deducting therefrom all previous payments and all amounts to be retained under the provisions of the contract. All prior progress estimates and payments shall be subject to correction in the final payment. After project completion, the Contractor shall provide a final invoice, which includes retention amount due. Contractor shall post securities in lieu of retention (Public Contract Code 22300) of for release of claims for undisputed payment (Civil Code 3262). The amount retained shall not be due and payable until the expiration of THIRTY-FIVE (35) DAYS from the date that the Notice of Completion is recorded by the City, said Notice of Completion to be recorded within TEN (10) DAYS after formal acceptance of the work by the City Council.

It is mutually agreed between the parties to the contract that no certificate given or payment made under the contract, except the final certificate of final payment shall be conclusive evidence of the performance of the contract, whether wholly or in part, against any claim of the City, and no payment shall be construed to be an acceptance of any defective work or improper materials.

The Contractor will be required to correct defective work or materials at any time before acceptance of final payment and within one (1) year thereafter regardless of any failure of the Engineer to condemn defective work or material at the time of construction.

The Contractor shall take out and maintain, upon completion of the work, a maintenance bond, amount of which must be fifty percent (50%) of the final contract and shall remain in effect for one (1) year after the City files its Notice of Completion of work.

The Contractor further agrees that the payment of the final amount due under the contract and the adjustment and payment for any work done in accordance with any alterations of the same, shall release the City of Marina, the City Council, the City Manager, the Director of Public Works, City Engineer, or other authorized representatives from any and all claims or liability on account of work performed under the contract or any alteration thereof.

## **7.5 Notice of Potential Claim**

The provisions of Section 5-1.43 "Potential Claims and Dispute Resolution" of the California State Standard Specifications shall be incorporated into this contract.

## **7.6 Stop Notices**

The City of Marina, by and through the Public Works Department or other appropriate department or agency of the State, may, at its option and at any time, retain out of any amounts due the Contractor, sums sufficient to cover claims, filed pursuant to Section 9500 et seq, of the Civil Code.

## **7.7 Payroll Records**

The Contractor and subcontractor's attention is directed to the provisions of Section 1776 of the California Labor Code and to the requirements therein pertaining to the keeping, availability, and filing of accurate payroll records of all journeymen, apprentices, and other workers performing work under this Contract. The Contractor agrees to comply with the requirements of said section.



Prior to each monthly progress payment, the Contractor shall deliver to the Engineer copies of certified payrolls of its and all subcontractors' forces performing work at the job site (or sites established primarily for the work) for labor compliance purposes and extra/force account considerations. Such records shall be kept current on an effective day or period basis and in a form acceptable to the Engineer. At a minimum, the form shall include the following information:

1. Employee identification by name
2. Employee's address and social security number
3. Employee's craft and classification (in accordance with Director of Industrial Relations' wage determinations)
4. Employee's actual per diem wages (in compliance with Part I, Notice to Contractors, and this Section GC-20, Laws and Regulations)
5. Employee's subsistence and travel allowance (as applicable)
6. Employee's straight time and overtime hours worked each day and week
7. Itemized deductions made from employee's wages
8. Apprentices and ratio of apprentices to journeymen
9. Contractor's or subcontractor's firm or company name, date or period for which applicable wage rates and allowances are effective, and the employer's signature.

The certified payroll records shall be kept on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the Division in addition to the above-listed information.

In addition to submitting the certified payrolls to the Engineer, the Contractor shall furnish the records specified in California Labor Code section 1776, including but not limited to the certified payrolls, directly to the Labor Commissioner. The Contractor shall furnish the records specified in California Labor Code section 1776 to the Labor Commissioner (Division of Labor Standards Enforcement of the California Department of Industrial Relations [DIR]). Additionally, the awarded Contractor shall submit electronic certified payroll records via LCP Tracker to the Construction Manager with each application for payment and/or concurrent with the required monthly submittal to the DIR.

Each payroll record shall contain or be verified by a written declaration that is made under penalty of perjury stating: (1) The information contained in the payroll is true and correct; and (2) The employer has complied with the requirements of California Labor Code Sections 1771, 1811, and 1815 for any work performed by its employees on the Project.

The Contractor shall inform the City of the location of the above payroll records, including the street address, city and county, and shall, within five (5) working days, provide a notice of change of location and address.



The contractor or subcontractor has 10 days in which to comply subsequent to receipt of a written notice requesting certified payroll records. In the event that the contractor or subcontractor fails to comply within the 10-day period, he or she shall, as a penalty to the City, forfeit one hundred dollars (\$100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. The Contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section.

Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the City shall be marked or obliterated in accordance with California Labor Code section 1776.

Compliance with the above provisions of this Part II, and California Labor Code, Section 1776, shall be the responsibility of the Contractor or subcontractor. Pursuant to Labor Code Section 1771.4, Contractor is required to post all job site notices prescribed by law or regulation that include, but are not limited to, payment of prevailing wages.

Contractor shall maintain full and correct information as to the number of workers employed in connection with each subdivision of Work, the classification and rate of pay for each worker in form of certified payrolls, the cost to Contractor of each class of materials, tools and appliances used by Contractor in Work, and the amount of each class of materials used in each subdivision of Work. Contractor shall provide the Owner with a copy of such report upon Owner's request.



## **PART C - SPECIAL PROVISIONS**

### **Imjin Parkway Widening Project**

#### **1.1 Description of Work**

The scope of work for this project includes demolition and removal of existing roadway section; constructing a new 4 lane road along the existing roadway alignment, constructing 4 traffic roundabouts; and modifying one signalized intersection. Work also includes extensive roadway excavation; new concrete curb and gutter; concrete and HMA sidewalk and bike paths; concrete retaining walls; landscaping; active warning crosswalk beacons; storm drain modifications; bioretention swales; tree mitigation plantings, significant tree removal, street lighting; curb ramps; erosion control improvements; new traffic striping and signing; and utility modifications. The scope of work shall be completed along Imjin Parkway beginning just west of Imjin Road and ending at Reservation Road, approximately 1.7 miles in length.

#### **1.2 Time of Completion**

The Contractor shall promptly begin his activities (bonds, etc.) immediately after the Award of Contract and shall prosecute the work so that all portions of the project are completed and ready for use. The following limits must also be met:

- a. Contractor shall diligently prosecute the work of completion of the contract before the expiration of the following days from the date of the Notice to Proceed by the City Council:

#### **Completion of Construction – 570 Working Days**

A Working Day is as any day, except as follows:

1. Saturdays unless prior approval is received from the City Engineer, Sundays, or City Legal Holidays; or
2. Days on which the Contractor is prevented by inclement weather or conditions resulting immediately there from adverse to the current controlling operation or operations as determined by the Engineer, from proceeding with at least 75 percent of the normal labor and equipment force engaged on that operation or operations for at least 60 percent of the total daily time being currently spent on the controlling operation or operations.

Construction activities, as defined in Chapter 15.04.055 of the Marina Municipal Code, are prohibited other than between the hours of 7am and 7pm, Monday through Saturday and between the hours of 10am and 7pm on Sunday and Holidays.

A Progress Schedule, conforming to Section B6.04, shall be submitted at the pre-construction conference.

#### **1.3 Liquidated Damages**

Liquidated damages as set forth in the general Provisions of the State Standard Specifications shall be in the amount of \$13,500 per calendar day.



Roadways intersecting Imjin Parkway requiring complete closure shall have such closure periods specified in the approved Project Critical Path Method (CPM) Schedule. Liquidated damages for not completing work on roads intersecting with Imjin Parkway that require complete closure within the specified working days for the specific intersecting roads are \$2,000.00 per calendar day.

#### **1.4 Liability Insurance**

Contractors shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damage to property, which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors.

Maintenance of proper insurance coverage is a material element of the contract and that failure to maintain or renew coverage or to provide evidence of renewal may be treated by your City as a material breach of contract. The cost of such insurance shall be included in the Contractor's bid. Such insurance shall name the City, its governing bodies or boards, officers, agents and employees as additionally insured.

- a. Minimum Scope of Insurance: Coverage shall be at least as broad as:
  1. Insurance Services Office Commercial/General Liability form CG 0001 covering Comprehensive General Liability; and Insurance Services Office form GL 0404. This is a Broad Form endorsement to the Comprehensive General Liability Policy.
  2. Insurance Services Office form CA 0001 (Ed. 1/78) covers automobile liability and should be Code 1, "any auto."
  3. Insurance coverage shall be written on an occurrence basis on which a claim is paid of the loss occurred during the policy period. Unless there is a significant provision of an "extended reporting period."
  4. Workers Compensation coverage as required by the Labor Code of the State of California and Employers' Liability Insurance.
- b. Minimum Limits of Insurance: Contractor shall maintain limits no less than the Liability Limits per project bid total as shown in Section 7-1.06D of the Caltrans Standard Specifications 2018.
- c. Deductive and Self-Insured Retention: Any deductible or self-insured retentions must be declared to and approved by the City. At the option of the City, either (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officials and employees, and naming the same additional insureds or (2) the Contractor shall procure a bond guaranteeing payment of losses, coverage of the City, its officials and employees, and related investigation, claim administration and defense expenses.
- d. Other Provisions: The policies are to contain or be endorsed to contain the following provisions:
  1. The City, its governing bodies and commissions, officials, employees and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, leased or used by the Contractor or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the



scope of protection afforded to the City, its officials, employees or volunteers, with the exception that the Contractor shall not be required to provide an endorsement that provides indemnity coverage for the active negligence of such entities.

2. The Contractor's insurance coverage shall be primary insurance as respects the City, its officials, employees, and volunteers. Any insurance or self-insurance maintained by the City, its officials, employees, or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.
3. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the City, its officials, employees, or volunteers.
4. Coverage shall state that the Contractor's insurance shall apply separately to each insured against whom a claim is made, or suit is brought, except with respect to the limits of the insurer's liability.
5. With regard to the Worker's Compensation and Employer's Liability coverage's, the insurer shall agree to waive all rights of subrogation against the City, its officials, employees and volunteers for losses arising from work performed by the Contractor for the City.
6. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.
7. Insurance is to be placed with insurers with a Best's rating of no less than A: VII. The Best's rating can be obtained by the Broker or the Association of Bay Area Governments (ABAG) Plan Risk Manager.
8. The Contractor shall furnish the City a copy of the insurance policy and with original endorsements affecting coverage required by this clause. The endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The endorsements are to be received and approved by the City before work commences.
9. The Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

### **1.5 Trade Names and Alternatives**

For convenience in designation on the Drawings or in the Specifications, certain equipment or materials to be incorporated in the work may be designated under a trade name or the name of a manufacturer and catalog information. The use of alternative equipment or material, which is of equal quality and of the required characteristics for the purpose intended, will be permitted, subject to the following requirements.



The burden of proof as to the comparative quality and suitability of alternative equipment or materials shall be upon the Contractor who shall furnish, at the Contractor's own expense, six copies of complete description, information, and performance data showing the equality of the material or equipment offered to those specified, and such other necessary or related information as may be required by the Engineer. The Engineer will be sole judge as to the comparative quality and suitability of alternative equipment or materials and such decision shall be final.

The Contractor, pursuant to Public Contracts Code, Section 3400, shall have at least thirty-five (35) days after award of the contract for submission of data substantiating a request for substitution of "an equal" item.

### **1.6 Access to Work**

The Contractor shall at all times provide proper facilities for access and inspection of the work by authorized representatives of local, state or federal governments.

Access to businesses, owned utility facilities, and the US Army Reserve Center must be maintained or modified as coordinated with owners, and as approved by the Engineer.

### **1.7 Lands and Fences**

The City will provide certain lands and rights-of-ways as shown on the Drawings and determined by the Engineer in connection with work under the contract, without cost to the Contractor. The Contractor shall limit his operations to the areas and lands provided.

Additional construction work under specific agreements (e.g. Temporary Construction Easements) shall be coordinated by the Contractor with the individual land owners under such agreements.

Before final acceptance of the work, the Contractor shall obtain a written statement of release indicating the City acceptance of the site conditions as restored by the Contractor.

### **1.8 Preservation of Property**

The Contractor shall exercise due care in the performance of the work to avoid injury, damage, or loss to existing improvements, utility facilities, and other property of any nature on or near the site of the work. The Contractor shall be responsible as follows for any injury, damage, or loss to property arising out of the work, irrespective of fault or negligence, excepting only such injury, damage, or loss to property as is caused by the negligence or willful misconduct of the City or its officers or employees.

- a. The Contractor shall repair, replace or otherwise restore the property to a condition as good as it was when he commenced work, or as good as required by the Specifications, if applicable. In addition, the Contractor shall perform such temporary repairs of any facility, necessary to restore it to service, as are ordered by the Engineer. At the request of the property Owner, or upon the failure of the Contractor to perform promptly, the Engineer may cause such repair, replacement, restoration, or temporary repair to be performed by the City or its designee, in which case the costs shall be borne by the Contractor and may be deducted, in whole or in part, from any money due or to become due him under the contract.
- b. The Contractor shall indemnify and hold harmless the City and, at the request of the City, defend all officers and employees of the City connected with the work from all claims, suits, or actions of any nature brought for or on account of any such injury, damage, or loss.



- c. The Contractor shall exercise due care to locate any underground improvements for facilities which may be affected by his operations. Contractor shall call Underground Service Alert 48 hours before the start of his construction and shall be responsible for injury, damage, or loss thereto as provided in this article, whether or not such improvements or facilities are shown on the Drawings. If improvements or facilities not shown on the Drawings are encountered within the City furnished right-of-way, any removal, replacement, alteration, or relocation thereof necessary for performance of the work to be performed by the Contractor may be ordered by the Engineer as items of Extra Work.
- d. Except as otherwise expressly provided, the Contractor shall comply with all terms and conditions of any instrument granting the City or the Contractor the right to enter upon property which pertain to the time, method, or manner of performing the work. The Contractor shall indemnify and hold harmless the City and all officers and employees of the City connected with the work from all claims, suits or actions of any nature brought for on account of the violation of any such terms and conditions by the Contractor or his subcontractors, suppliers, agents, or employees.

### **1.9 Restoration of Structures and Surfaces**

All existing facilities that are broken or damaged by the installation of work shall be of the same kind of material with the same finish and in not less than the same dimensions as the original work. All work shall match the appearance of the existing improvements as nearly as possible.

### **1.10 Lines and Grades**

The Contractor shall provide all construction surveying, stakes and marks necessary to establish the lines and grades required for the completion of the work specified in these General Provisions, Special Provisions, on the plans and in the Technical Provisions.

All construction surveying herein required shall be performed by a Licensed Surveyor or Registered Civil Engineer currently licensed by the State of California to perform such surveys.

Full compensation for furnishing such surveys, stakes, and marks as herein required shall be considered as included in the price paid for the various contract items of work to which such surveys and measurements, stakes, and marks relate, and no additional compensation will be allowed therefor.

### **1.11 Environmental Storm Water Pollution Control**

The Contractor shall not pollute any drainage course or its tributary inlets with fuels, oils, bitumen's, acids, insecticides, herbicides, or other harmful materials. The Contractor shall comply with all applicable Federal, State, County and Municipal laws concerning pollution of waterways.

### **1.12 Safety**

The Contractor shall execute and maintain his work so as to avoid injury or damage to any person or property. The Contractor shall comply with the requirements of CAL-OSHA and all applicable laws and the specifications relating to safety measures applicable in particular operations or kinds of work.

### **1.13 Clean-Up**

The Contractor shall not allow the site of the work to become littered with trash and waste material but shall maintain the site in its normal neat and orderly condition throughout the construction period. On or



before the completion of the work, the Contractor shall tear down and remove all temporary structures built by him and shall remove rubbish of all kinds from any of the grounds which he has occupied and leave them in first-class condition to the satisfaction of the Engineer.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing the work required to maintain the construction site and clean-up of the site at the completion of the work shall be included in the bid price.

#### **1.14 Reference to Standard Specifications**

Whenever reference is made to "Standard Specifications", "State Specifications" or "CSS" it shall be interpreted to mean the 2018 edition of the Standard Specifications of the State of California, Department of Transportation and the following shall apply:

- a. In case of conflict between the Standard Specifications and these Special Provisions, these Special Provisions shall govern.
- b. Where the term "Engineer" is used in the Standard Specifications, it shall be understood to mean the person or persons designated by the City to act as its duly authorized agent or agents.
- c. Where the term "Special Provisions" is used in the Standard Specifications, it shall be understood to mean these Specifications.
- d. Where the term "State" is used in the Standard Specifications, it shall be understood to mean "City".

#### **1.15 Site Security**

The Contractor shall make all provisions to maintain the security of the work site to prevent accidental injury to the general public or vandalism.

#### **1.16 Notifications**

If the closing or opening lanes (either partial or full) of a street or alley within the City of Marina is approved by the Engineer, the Contractor shall notify the following City Departments, Agencies and Community Groups at least seventy-two (72) hours prior to the scheduled closing or opening. Contractor shall be required to send confirmation to the City that each agency & entity was contacted appropriately for coordination.

##### MARINA POLICE DEPARTMENT

Notify Police Department Dispatcher's Office: 831-384-7575 (Marina Dispatch)

##### MARINA FIRE DEPARTMENT

Notify Fire Department Dispatcher's Office: 831-384-7575 (Marina Dispatch)

##### MARINA EMERGENCY RESPONSE SERVICES

Notify American Medical Response (AMR): 831-384-7575 (Marina Dispatch)

##### MARINA PUBLIC WORKS DEPARTMENT

Notify Public Works Director: 831-884-1212, [publicworksenineeringdept@cityofmarina.org](mailto:publicworksenineeringdept@cityofmarina.org)



MARINA POST OFFICE

Notify Postmaster: 831-384-8472

MARINA WASTE SERVICES

Notify Greenwaste: 831-920-6707

MARINA UNIFIED SCHOOL DISTRICT

Notify District Superintendent: 831-645-1200

MONTEREY-SALINAS TRANSIT (MST)

Notify Transportation Manager: 831-264-5874, [commctr@mst.org](mailto:commctr@mst.org)

TRANSPORTATION AGENCY FOR MONTEREY COUNTY (TAMC)

Notify Cone Zone Community Outreach: 831-775-4411, [Theresa@tamcmonterey.org](mailto:Theresa@tamcmonterey.org)

MARINA COAST WATER DISTRICT (MCWD)

Notify Senior Engineering Andrew Racz: 831-883-5933, [aracz@mcwd.org](mailto:aracz@mcwd.org)

ABRAMS & PRESTON PARK COMMUNITY MANAGER (GREYSTAR)

Notify Victor Vo-Khuong: 831-384-0119, [victor.vokhuong@greystar.com](mailto:victor.vokhuong@greystar.com)

SEA HAVEN COMMUNITY ASSOCIATION

Notify Adrienne Burns, HOA President: 559-214-5042, [adrienneb@wchomes.com](mailto:adrienneb@wchomes.com)

UNITED STATES ARMY RESERVE

Notify Major Dan Gimm, Operations Officer: 719-317-0766, [daniel.j.challasgimm.mil@army.mil](mailto:daniel.j.challasgimm.mil@army.mil)

UNIVERSITY OF CALIFORNIA SANTA CRUZ

Notify Adrian Majchen, Service Coordinator: 831-402-2165, [amajchen@ucsc.edu](mailto:amajchen@ucsc.edu)

### **1.17 COVID-19 Public Health Order**

The Contractor shall comply all the applicable requirements with the latest, active Monterey County Public Health Department's Public Health Order and State of California COVID-19 Industry Guidance for Construction. Contractor shall be responsible to check, review and implement the most current edition of the Guidance during the time of execution of work.

### **1.18 Traffic Control System**

The Contractor shall supply and install traffic control devices including, but not limited to, warning, regulatory, and guide signs, equipment, pavement delineation, and flaggers in accordance with Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications.

1. Submittals:

- Traffic Control/Staging/Detour Plans per Construction Phase as identified in the project plans.
- Proposed Truck Route/Haul Route

2. Public Convenience and Safety:



The Contractor shall conduct his operations as to cause the least possible obstruction and inconvenience and maximum safety to both vehicular and pedestrian traffic.

The Contractor shall bear full responsibility for maintaining all traffic control include, but not limited to, signage, equipment and devices and maintaining traffic circulation at all times during the Work.

It is imperative that field traffic control be handled in such a manner as to adequately and safely direct all traffic movements in the construction area. The Contractor shall not be allowed to proceed with construction at any time when traffic control measures are inadequate to the field conditions, in the opinion of the Engineer. Additional traffic control measures may be required according to field conditions at the Contractor's expense.

At their own expense, whenever the Contractor's operations create a condition potentially hazardous to the public or traffic, the Contractor shall furnish additional traffic control measures and devices by any means necessary to provide adequate warning to the public of any dangerous conditions to be encountered.

Public streets and sidewalks shall be immediately vacated and returned to public use when the use thereof is no longer necessary for the construction work.

Existing traffic signals and roadway lighting shall be kept in operation for the benefit of the traveling public during progress of the work. The Contractor will not be allowed any compensation due to any delay, hindrance, or inconvenience to his operations caused by public traffic.

### 3. Traffic Control/Stage/Detour Plan:

The Contractor shall submit site-specific Traffic Control/Stage/Detour Plans signed and dated by a registered Civil Engineer for City's review and approval prior to issuance of Notice to Proceed. Plans shall be submitted to the Engineer a minimum of three (3) full Working Days prior to the Preconstruction Meeting. The Plans shall conform to the Project Phasing of construction and the Project CPM schedule.

The Plans shall consist of a scaled aerial view drawings in accordance with the latest version of the State of California Department of Transportation "Manual of Traffic Controls for Maintenance and Construction Work Zones." Copies or modified copies of the Manual of Traffic Controls for Maintenance and Construction Work Zones or the Work Area Traffic Control Handbook or any other type of copied standardized traffic control plans shall not be acceptable.

The Plans shall show all traffic control measures and devices on the actual streets as it relates to the site conditions and to the safe movement of traffic for, but not limited to, lane closures, detours, no parking areas, signing program for construction, access to private property and business establishments, pedestrian traffic, railroad crossings, transit routes, loading areas, the proposed routing of the construction vehicles, hours required for access and the safe guards and procedures necessary to carry out the Work. The Plans shall also indicate, but not be limited to, placement, spacing and type of warning signs, delineators, temporary lighting, devices, flaggers persons, construction vehicles and equipment staging, work hours and schedule.



#### 4. Lane Closure Restrictions:

For any lane closure, the Contractor shall submit Traffic Control and Detour Plan for City's review and approval. The Plan(s) shall provide for the orderly and predictable movement of all traffic and pedestrians and for such guidance and warning as needed to ensure the safe and informed operation of individual elements of the traffic stream. Contractor shall not detour traffic or close lanes until the traffic control plan has been approved by the Engineer.

The Contractor shall keep a minimum of one 11-foot-wide lane of traffic open in each direction during working hours. Attention is directed to these Contract Documents regarding specific traffic lane closure restrictions. Under no circumstance shall an entire intersection be closed except upon direct approval from the Engineer.

Additional lane closure restrictions may be imposed if there is evidence that excessive inconvenience to the public is observed during construction.

For all lane closures or when an entire segment of roadway is closed, flashing arrow boards, detour signs, and flaggers are required to direct traffic.

Contractor shall provide safe passage to residents' property along the road or street affected by lane closure at all times. Temporary crossings shall be provided and maintained in good condition.

All construction work requiring the closure of an intersection will be conducted at night between the hours of 8pm to 6am unless otherwise approved by the City Engineer.

#### 5. Sidewalks, ADA Ramps, and Bus Stops:

The Contractor shall maintain pedestrian, vehicular, and bus stop access at all times.

Sidewalk & Curb Ramp Construction/Closures:

Where sidewalk and curb ramps are closed for construction, the Contractor shall provide a continuous, safe, and ADA complaint pedestrian path of travel at all time. The path of travel shall be within the immediate location of the Work.

Sidewalk/Curb Ramp closures will be permitted on one side of a street at a time from intersection to intersection with appropriate detour signage. At street intersections, the Contractor shall maintain an ADA compliant path of travel through and around the intersection.

Where immediate alternate pedestrian path of travel cannot be provided, the Contractor shall provide ADA compliant pedestrian detour(s). It shall be clearly planned, marked, constructed and approved by the Engineer. Appropriate signs and barricades must be installed at the limits of construction and in advance of the closure (or detour) in order to divert pedestrians to the appropriate walkway or detour. Contractor shall submit Sidewalk Closure and Detour Plan to the Engineer for review and approval. Plan(s) shall show, but not be limited to, closures, pedestrian routing, and signage.



Bus Stop(s):

The Contractor shall coordinate with Monterey – Salinas Transit (MST) when the Work is at or near a Bus Stop. The work shall not impede or close a bus stop unless coordinated first with MST with proof of closure approval provided to the Engineer. The Work shall not cause unsafe conditions for bus riders or cause buses to release riders in the street or within the construction zone.

6. Flagging:

The Contractor shall comply with flagging, traffic handling equipment, and device requirements of Section 12, "Temporary Traffic Control," of the State Standard Specifications with the exception of Section 12-1.04, "Payment".

The Contractor shall provide radio-equipped flag persons during all one-lane operations.

Flag persons shall be properly equipped and trained in accordance with "Instructions to Flagmen," published by the California Department of Transportation.

Flaggers and all personnel working near traffic shall wear hardhats, orange/red, or State approved fluorescent green vests or shirts.

Flaggers are required to have a flagger certification.

Flaggers shall guide traffic with an appropriate stop/slow sign.

7. Signage:

All construction signs and other warning devices shall be provided by the Contractor and shall become the Contractor's property after completion of the Contract. The Contractor shall refer to the current "Manual of Warning Signs, Lights and Devices for use in the Performance of Work Upon Highways" and the "Uniform Sign Chart" issued by the Department of Transportation, Division of Operations.

Signage shall not block any driveway or access to private/public properties owners at any time, unless instructed by the Engineer.

If the Contractor fails to provide, is neglectful of or negligent in furnishing and maintaining warning and protective facilities and personnel as herein provided within eight (8) hours of being notified by the Engineer of the need for such, the City may furnish and maintain such facilities and personnel. In this event, the City may charge the Contractor therefore by deducting the cost of such facilities and personnel from progress payments due to the Contractor as such costs are incurred by the City.

The City shall supply two (2) project signs designating the funding sources for the project. The Contractor shall place the signs on Type III Barricades at the entrances to the project site.



8. Operation of Construction Vehicles and Equipment:

Construction Traffic and Vehicles: All inbound and outbound construction related traffic to and from the Site is restricted to public street(s) immediately adjacent to the Site.

Construction Parking: Construction vehicles and equipment parking is restricted to areas within the Site and other areas as determined by the City.

A Truck Route/Haul Route Plan approved by the City is required for use of overweight equipment within the City.

The Contractor is advised that ALL Vehicle Code regulations apply to construction equipment in operation on this project, and the City will enforce all Vehicle Code regulations with respect to use of construction equipment operating on City Streets and Public Rights of Way.

Extralegal Loads - Equipment over 8'6" wide, 14' tall, and 80,000 pounds gross or over on axle weights. A Permit is required for extralegal loads (oversize and overweight). It contains a specific route of travel for that single load. A Haul Route would be for major on-haul/off-hauls of material that bring in a large number of trucks at one time. The Permit shall have been issued and shall be in possession when operating such vehicles within the City. Drivers shall maintain strict adherence to the routes specified on the City approved Haul Route.

Special Equipment (SE) Plates & Slow-Moving Vehicle Emblems - Refer to the Vehicle Code for more information. All non-street legal construction equipment operating on a City Street or right-of-way shall display a Special Equipment (SE) plate when operating outside of the work zone, or traffic control cone zone.

Load Regulations - Contractors are cautioned to ensure proper loading and on-haul/off-haul procedures are followed.

Vehicles shall not be loaded to overweight.

Off-haul loads for disposal or recycling shall be covered.

All loads shall be properly secured with the correct number of tie-downs or chains.

All vehicles leaving the construction site shall be clean. No material or debris shall be on the vehicle body or stuck to its tires.

9. Temporary Pavement Delineation:

Temporary pavement delineation shall be furnished, placed, maintained, and removed in accordance with the provisions in Section 12-3, "Temporary Traffic Control Devices," of the State Standard Specifications and these Technical Provisions. Nothing in these Technical Provisions shall be construed as to reduce the minimum standards specified in the Manual of Traffic Controls published by the Department of Transportation.



Whenever the work causes obliteration of any or all of the pavement delineation, temporary or permanent delineation shall be in place prior to opening the traveled way to public traffic. Lane line or centerline and limit line (e.g., stop bars or crosswalks) pavement delineation shall be provided at all times for traveled ways open to public traffic.

All work necessary, including any required lines or marks, to establish the alignment of temporary pavement delineation shall be performed by the Contractor. Surfaces to receive temporary pavement delineation shall be dry and free of dirt or loose material. Temporary pavement delineation shall not be applied over existing pavement delineation or other temporary pavement delineation. Temporary pavement delineation shall be maintained until replaced with a new pattern of temporary pavement delineation or permanent pavement delineation.

Temporary pavement markers and removable traffic type tape which conflicts with a new traffic pattern or which is applied to the final layer of surfacing or existing pavement to remain in place shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

Whenever lane lines and centerlines are obliterated, the minimum lane line and centerline delineation to be provided shall be temporary reflective raised pavement markers placed at longitudinal intervals of not more than 24 feet. The temporary reflective raised pavement markers shall be the same color as the lane line or centerline markers replaced.

Temporary reflective raised pavement markers shall be placed in accordance with the manufacturer's instructions and shall be cemented to the surfacing with the adhesive recommended by the manufacturer, except epoxy adhesive shall not be used to place pavement markers in areas where removal of the markers will be required.

### **1.19 Environmental/Air Pollution Prevention Requirements**

Contractor shall comply with all air pollution and environmental control rules, regulations, ordinances and statutes that apply to the project and any work performed pursuant to the contract.

Contractor shall comply applicable regulations of the Monterey Bay air Resources District (MBARD).

### **1.20 Tree Protection Requirements**

The City of Marina Municipal code Chapter 17.51 Tree Removal, Preservation and Protection establishes requirements for tree protection, preservation, and tree removal. All projects executed under this contract will be reviewed and evaluated for tree impact and protection. Contractor shall be responsible to execute required mitigation measures included in the Work Order scope.

### **1.21 United State Army Reserve Center**

The contractor shall coordinate with the United States Army Reserve Center (USARC) Operations Officer regarding all construction activities adjacent to their facility, including but not limited to: driveway reconstruction, installation of the motorized security gate, modification of existing security fencing, and the relocation of sign and mailbox. Contractor shall contact USARC Major Dan Gimm (Operations Officer) at 719-317-0766 (daniel.j.challasgimm.mil@army.mil) a minimum of 20 working days prior to beginning any work on the proposed features adjacent to the USARC property.

The contractor shall coordinate their work to avoid any interference with USARC personnel and operations. The contractor shall provide for safe access by USARC personnel through the construction zone at all times during construction. At all times, a minimum of one (1) 14' paved access lane must be



provided for used by USARC personnel. Any need to potentially restrict access shall immediately be brought to the attention of the Engineer. Any restrictions to USARC personnel access must first be coordinated with and approved by the Engineer, and must be coordinated with USARC Operations Officer a minimum of two (2) weeks prior to restricting access. Access restrictions will be staged and phased to minimize duration.

The contractor shall maintain security fencing around the USARC at all times. This may be accomplished by constructing the new permanent fencing and entry gate prior to removing the existing fence, or by installing temporary fencing and entry gate as required. The new permanent fencing and temporary fencing (if used) must include an automatic entry gate at the USARC's entrance. Gate shall be normally closed before 7:00 am and after 5:00 pm. Gate shall include a traffic loop that opens when a car is exiting the site if in the closed position. Provide access through the construction site for access to the USARC's entrance from Imjin Parkway at all times except during grading and/or paving operations in the immediate vicinity of the existing entrance, as approved in advance by the Engineer and USARC Operations Officer. Restrictions for driveway access shall coordinated directly with USARC Operations Officer. Alternate access may be provided, to the satisfaction of the Operations Officer.

The USARC will be in continuous operation throughout the execution of this Contract. The Contractor, therefore, must schedule and conduct their work to minimize interference with the operations and maintenance of the USARC. It is the intent of this Contract that the construction activity, insofar as possible, shall not interfere with the operation of the USARC.

When modifications, additions, or connections to existing facilities are required, the Contractor shall schedule such activities with the USARC Operations Officer and Engineer. No system, structure, vault, circuit, or individual process unit shall be modified, dewatered, drained, de-energized, or removed from existing facilities unless authorized, in writing, by the Engineer.

The work under this contract shall be conducted in a manner that will minimize shutdowns, USARC access roadway closures, or traffic obstructions caused by construction. Access for deliveries and movement of personnel and equipment shall be maintained at all times as specified herein. Access shall also be maintained for USARC personnel vehicles to enter through the driveway gate.

Connections to existing utilities or any new connection thereto must be coordinated to provide the least possible interference with facility operations. Prior to any shutdown, all materials, fittings, supports, equipment, and tools shall be on the site and all necessary labor scheduled prior to starting any connection work.

The Contractor shall include all work described in this section in the construction schedule. The sequence and constraints identified in this section shall be followed in the construction of the work. However, alternatives to these sequences and constraints may be submitted by the contractor for review by the Engineer.

Shutdowns shall be planned and scheduled as far in advance as possible in order to allow USARC staff to coordinate personnel, equipment, and materials to accommodate the Contractor's request. The approval of shutdowns (e.g., access disruptions, power outages, etc.) shall be entirely at the City's discretion and shall be dependent on the City's ability to coordinate with other events. These events include, but are not limited to, the following: wet weather events, USARC personnel availability, operational problems, etc.



The Contractor shall connect new motorized gate operator and electrical equipment with a minimum of interruption to USARC operations. The Contractor shall inform the Engineer in writing a minimum of two (2) weeks in advance of event, whenever the power supply must be interrupted to make required connections and shall inform them of the estimated duration of the interruption. In no case shall the Contractor cause an intentional power interruption without written authorization from the USARC Operations Officer.

All workers required to enter secured USARC property to perform security gate or fence work are subject to a Federal background check process by the Army to allow workers onto the USARC property. Contractor is to work with USARC staff by providing the list of workers requiring access and required personal information necessary for USARC to clear each worker. Be prepared to replace any workers that are not cleared for access. No workers will be allowed within USARC or allowed to work on USARC's infrastructure without prior approval. The City is not responsible for actions taken by USARC for background screening and no additional compensation will be made. This vetting process takes approximately 14 days, so plan accordingly.

The contractor performing the project deliverables shall comply with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) codified at 42 U.S.C. §9601 et seq. In the event the project utilizes chemicals or generates CERCLA related waste, reporting requirements shall follow regulations outlined in the Emergency Planning and Community Right-to-Know Act (EPCRA), 40 CFR Chapter 1, Subchapter J 300.1 through 374.6. Furthermore, disposal of CERCLA related waste shall adhere to regulations outlined in 40 CFR 260 through 266 of the Resource Conservation and Recovery Act (RCRA), Subtitle C. The contractor performing the project activities as well as the final cleanup and clearance of the work area shall ensure the afore mentioned regulations in addition to those enforced by state and local government agencies are adhered to at all times.



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## PART D - TECHNICAL SPECIFICATIONS

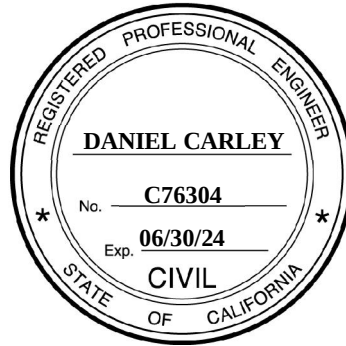
THE SPECIAL PROVISIONS CONTAINED HEREIN HAVE BEEN PREPARED BY OR UNDER THE DIRECTION OF THE FOLLOWING REGISTERED ENGINEER:

**Civil:**



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**Daniel Carley, Registered Civil Engineer**



**Electrical:**



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**Elbert Chang, Registered Civil Engineer**

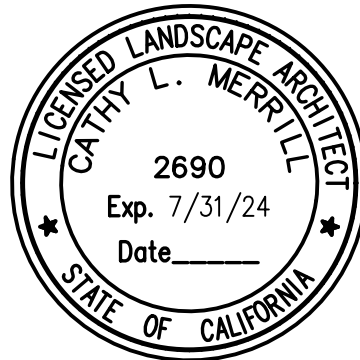


**Landscape Architecture:**



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**Cathy Merrill, Registered Landscape Architect**



## **GENERAL**

Whenever reference is made to "Standard Specifications", " it shall be interpreted to mean the State of California Department of Transportation Standard Specifications 2018 as revised by the "Revised Standard Specifications," dated 4-15-22, issued by the State of California Department of Transportation. here the term "Special Provisions" is used in the Standard Specifications, it shall be understood to mean these Specifications.

**The *Standard Specifications* including *Revised Standard Specifications (RSS)* as revised by these special provisions will apply to this project.**

Special provisions are under headings that correspond with the main-section headings of the *Standard Specifications*. A main-section heading is a heading shown in the table of contents of the *Standard Specifications*.

Each special provision begins with a revision clause that describes or introduces a revision to the *Standard Specifications* or *Revised Standard Specifications (RSS)*.

Any paragraph added or deleted by a revision clause does not change the paragraph numbering of the *Standard Specifications* or *RSS* for any other reference to a paragraph of the *Standard Specifications* or *RSS*.

When the word "Department" appears in the Specifications, it refers to the "City."

### **REVISIONS TO STANDARD SPECIFICATIONS AND REVISED STANDARD SPECIFICATIONS (RSS)**

## **DIVISION I GENERAL PROVISIONS**

### **1 GENERAL**

#### **Add to section 1-1.07B:**

**Working Day:** Any day, **except as follows:**

1. Saturdays unless prior approval is received from the City Engineer, Sundays or City Legal Holidays; or
2. Days on which the Contractor is prevented by inclement weather or conditions resulting immediately there from adverse to the current controlling operation or operations as determined by the Engineer, from proceeding with at least 75 percent of the normal labor and equipment force engaged on that operation or operations for at least 60 percent of the total daily time being currently spent on the controlling operation or operations. Construction activities, as defined in Chapter 15.04.055 of the Marina Municipal Code, are prohibited other than between the hours of 7am and 7pm, Monday through Saturday and between the hours of 10am and 7pm on Sunday and Holidays.

## **2 BIDDING**

**Add between the 1st and 2nd paragraphs of the RSS for section 2-1.06B:**

For your general information, the City makes the following supplemental information available:

*“Geotechnical Engineering Report Imjin Parkway Widening Project, Marina, California”*

*“Geotechnical Investigation Report Retaining Walls Imjin Parkway Widening Project, Marina, California”*

These reports by Parikh Consultants, Inc. are included in the Appendix of these Special Provisions.

The Special Provisions take precedent should there be any conflicts between the report’s recommendations and these Special Provisions.

For the installation of the chain link fence at the USARC, see the Army fence specifications included in the Appendix of these Special Provisions.

The draft MMRP is attached for your reference.

## **3 CONTRACT AWARD AND EXECUTION**

**Add to the end of section 3-1.05.**

### **BOND REDUCTION - 3-YEAR IRRIGATION AND LANDSCAPING MAINTENANCE WORK PERIOD**

Once all improvements have been constructed and accepted, the Contractor may reduce his bond liability for the duration of the 3-year irrigation and landscaping maintenance work period, as specified in Section 5-1.46, “Final Inspection and Contract Acceptance,” of these special provisions.

Prior to release of the original project bonds, Contractor shall provide, at no additional expense to the Agency, a surety bond executed by an admitted surety insurer in an amount equal to at least one-hundred percent (100%) of the combined total of the contract lump sum prices paid for Maintenance Services – Year 1, Maintenance Services – Year 2, Maintenance Services – Year 3, as security for the faithful performance of said 3-year irrigation and landscaping maintenance services. Prior to release of the original project bonds, Contractor shall also provide, at no additional expense to the Agency, a separate surety bond executed by an admitted surety insurer in an amount equal to at least one-hundred percent (100%) of the combined total of the contract lump sum prices paid for Maintenance Services – Year 1, Maintenance Services – Year 2, Maintenance Services – Year 3, as security for the payment of all persons performing labor and

furnishing materials in connection with said 3-year irrigation and landscaping maintenance services. Sureties on each of said bonds shall be satisfactory to the Agency.

Thirty-five days prior to releasing the original project bond executed as security for the payment of all persons performing labor and furnishing materials, the Contractor shall notify in writing all persons who performed labor and furnished material for the improvement portion of the project that the bond is scheduled to be released. The Contractor shall provide copies of all letters to the Engineer. Thirty-five days after these letters are mailed, this requirement will have been met and the bond may be released.

**Delete section 3-1.08.**

## **4 SCOPE OF WORK**

**Replace the last paragraph of section 4-1.07C with:**

You will be responsible for all workshop costs. The Department will not reimburse you for any associated costs with conducting a value analysis workshop.

**Add between 1<sup>st</sup> and 2<sup>nd</sup> paragraphs in section 4-1.13 the following:**

On or before the completion of the work, tear down and remove all temporary structures built by you and remove rubbish of all kinds from any of the grounds which you occupied, and leave them in first-class condition to the satisfaction of the Engineer.

## **5 CONTROL OF WORK**

**Add between 5<sup>th</sup> and 6<sup>th</sup> paragraphs in section 5-1.01:**

At all times provide proper facilities for safe and unrestricted access and inspection of the work by authorized representatives of local, state or federal governments.

**Replace the 5<sup>th</sup> paragraph of 5-1.13A with the following:**

Perform work equaling at least 51 percent of the value of the original total bid with your employees and with equipment you own or rent, with or without operators.

**Add to the end of section 5-1.20A:**

During the progress of the work under this Contract, work under the following contracts may be in progress at or near the job site of this Contract:

**Coincident or Adjacent Contracts**

| Contract no. | County–Route–Post Mile | Location                           | Type of work    |
|--------------|------------------------|------------------------------------|-----------------|
|              |                        | Imjin Pkwy – Abrams to Reservation | PG&E Electrical |
|              |                        |                                    |                 |
|              |                        |                                    |                 |
|              |                        |                                    |                 |

**Replace section 5-1.20E of the RSS with:**

**5-1.20E Water Meter Charges**

Section 5-1.20E applies if a bid item for water meter charges is shown on the Bid Item List.

The local water authority is Marina Coast Water District.

The local water authority will install the water meters.

The charges are as shown in the following table:

**Water Meter Charges**

| Meter size | Quantity | Charge per meter (\$) |
|------------|----------|-----------------------|
| 2"         | 3        | \$7,500               |
|            |          |                       |
|            |          |                       |

The charges by the local water authority include:

1. Furnishing and installing each water meter
2. Connecting to the local water authority's main water line, including any required hot tap or tee
3. Furnishing and installing an extension pipe from the main water line to the water meter
4. Sterilizing the extension pipe

Make arrangements and pay the charges for installation of the water meters.

If the charge is changed at the time of installation, the Department adjusts the lump sum price based on the difference between the specified charges and the changed charges.

**Replace section 5-1.26 with:**

**5-1.26 CONSTRUCTION SURVEYS**

Perform all necessary construction surveys. Construction surveys must be done in accordance with Chapter 12, “Construction Surveys,” of the California Department of Transportation’s *Survey Manual*.

All work must be constructed to the lines and grades as shown. Unless authorized by the Engineer, any work done without construction survey line and grade will be done at your risk.

The Contractor shall be responsible to provide all surveys to control the lines, elevations, and dimensions of the work in conformance with the plans. Any deviation from the lines, elevations and dimensions shown on the plans must receive prior approval from the Engineer.

The Contractor shall be responsible for accuracy of his/her own layout work and shall be responsible and liable for the preservation of all established lines, grades, and layout points. Stakes damaged or destroyed by the public or operations of the Contractor will be replaced by the Contractor at his/her expense.

The Contractor shall be responsible for preserving all existing monumentation. The Contractor shall be responsible for filing Record of Survey with the County, as required.

The contract lump sum price paid for “Construction Staking” shall include full compensation for furnishing all labor, tools, materials, equipment, and incidentals and for doing all work involved in Construction Staking, complete in place, including monument preservation, filing Record of Survey, and/or Corner Records, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**Delete section 5-1.27E.**

**Replace 2<sup>nd</sup> and 3<sup>rd</sup> paragraph of section 5-1.32 with:**

The City-owned parcel at the corner of Imjin Rd and 8<sup>th</sup> Street is available for your use. If additional area is required, , you will be responsible to secure additional staging/stockpiling areas at your own expense in order to perform the work. Contractor is responsible for any temporary roadway connections from the staging/stockpiling areas to the project site or public roadways, as approved by the Engineer.

Defend, indemnify, and hold the City harmless for any damage to or loss of materials or equipment in conformance with the indemnification requirements in the City’s construction contract agreement.

**Add to the end of section 5-1.32:**

The City provides certain lands and rights-of-way as shown on the Plans and determined by the Engineer in connection with work under the contract, without cost to you. Limit your operations to the areas and lands provided.

Our use of the City-owned property (off of 8<sup>th</sup> Street near Imjin Road) as shown is limited to the paved areas only. You may clear the paved area of vegetation and debris and may construct temporary fencing around the area. It is the responsibility of the contractor to secure the staging/stockpiling area.

Before final acceptance of the work, obtain a written statement of release indicating the City's acceptance of the site conditions as restored by you.

Personal vehicles of your employees must not be parked on the traveled way or shoulders, including sections closed to traffic.

**Replace RSS 5-1.36A General with the following:**

**5-1.36A General**

Preserve and protect:

1. Highway improvements and facilities
2. Adjacent property
3. Waterways
4. ESAs
5. Lands administered by other agencies
6. Railroads and railroad equipment
7. Nonhighway facilities, including utilities
8. Survey monuments
9. Department's instrumentation
10. Temporary work
11. Roadside vegetation not to be removed
- [12. Christina Williams Memorial](#)
- [12. Preston Park Subdivision Sign](#)

**Add between 4<sup>th</sup> and 5<sup>th</sup> paragraphs in section RSS 5-1.36A:**

The restoration of all existing facilities that are broken or damaged by the installation of work must be of the same kind of material with the same finish and in not less than the same dimensions as the original work unless otherwise directed by the Engineer. All work shall match the appearance of the existing improvements as nearly as possible and approved by the Engineer

**Add to the end of the RSS for section 5-1.36A:**

The existing USACE groundwater sampling facilities along the project length must be made available as requested by the USACE or their representatives. For reference, the USACE assumes access will be required to all groundwater sampling facilities on the dates below. These dates are subject to change and the contractor shall coordinate sampling activities with the USACE.

- February 13 – 17, 2023
- May 15 – 19, 2023
- August 14 – 18, 2023
- November 13 – 17, 2023

- February 12 – 16, 2024
- May 13 – 17, 2024
- August 12 – 16, 2024
- November 11 – 15, 2024

**Add between the 2nd and 3rd paragraphs of the RSS for section 5-1.36C(3):**

During the progress of the work under this Contract, the utility owner will relocate a utility shown in the following table. Contractor to coordinate with affected utility owners and incorporate the utility work into the contractor's CPM schedule. Notify the Engineer when the site is ready for utility work. After verifying the site is ready for utility work, the Engineer notifies the utility owner.

| <b>Utility Relocation and Department-Arranged Time for the Relocation</b> |                           |              |
|---------------------------------------------------------------------------|---------------------------|--------------|
| Utility                                                                   | Location                  | Working days |
| <b>PG&amp;E</b>                                                           | Imjin Pkwy and Abrams Dr  | TBD          |
| PG&E                                                                      | Imjin Pkwy and Preston Dr | TBD          |
| AT&T                                                                      | Imjin Pkwy and Abrams Dr  | TBD          |
| AT&T                                                                      | Imjin Pkwy and Preston Dr | TBD          |
| MCWD                                                                      | Various                   | TBD          |

Installation of the utilities shown in the above table requires coordination with your activities. If contractor's controlling work is impacted by the utilities, contractor may submit for additional working days but there will be no additional compensation allowed.

## **6 CONTROL OF MATERIALS**

**Replace last sentence of the 3rd paragraph of section 6-1.02 with:**

Returning and disposing of City-furnished materials is included in the contract price paid for various items of work.

**Replace section 6-1.05 with:**

### **6-1.05 TRADE NAMES AND ALTERNATIVES**

For convenience in designation on the Plans or in the Specifications, certain equipment or materials to be incorporated in the work may be designated under a specific brand, trade name or the name of a manufacturer and catalog information. The use of alternative equipment or material, which is of equal quality and of the required characteristics for the purpose intended, will be permitted, subject to the following requirements.

The burden of proof as to the comparative quality and suitability of alternative equipment or materials shall be upon the Contractor who shall furnish, at the Contractor's own expense, six copies of complete description, information, and performance data showing the equality of the

material or equipment offered to those specified, and such other necessary or related information as may be required by the Engineer. The Engineer will be sole judge as to the comparative quality and suitability of alternative equipment or materials and such decision shall be final.

The Contractor, pursuant to Public Contracts Code, Section 3400, shall have at least thirty-five (35) days after award of the contract for submission of data substantiating a request for substitution of "an equal" item.

**Replace section 6-2.02 with:**

**6-2.02 CONTRACTOR QUALITY CONTROL AND TESTING**

**6-2.02A General**

Section 6-2.02 applies to the following areas of work:

1. Earthwork under Section 19.
2. Subbases and Bases under Division IV.
3. Bituminous Seals under Section 37.
4. Concrete Pavement under Section 40.
5. Structures under Division VI.
6. Drainage under Division VII.
7. Slope Protection under Section 72.
8. Materials under Division X.

Implement a Contractor Quality Control Plan (CQCP) that consists of plans, procedures, and organization necessary to construct a final product which complies with the contract specifications. CQCP shall cover all construction operations, both onsite and offsite, that require testing to ensure compliance. Contractor shall reference City of Marina QAP for template.

The quality assurance/acceptance (QA) testing performed by the Engineer does not relieve you of your responsibility to perform your own quality control (QC) testing as required by the Standard Specifications and these special provisions. You are responsible for the quality of the materials and the quality of work, including your subcontractors, suppliers, and fabricators. You may elect to perform QC testing in addition to those required by these special provisions to ensure satisfactory compliance with all contract requirements.

**6-2.02B Contractor Quality Control Manager**

Assign a QC manager for the project as described below.

The QC manager must be responsible directly to you for the quality of the work, including materials and workmanship performed by you and your subcontractors.

Assign the QC manager before the start of the affected work. The QC manager must be the sole individual responsible for:

1. Receiving, reviewing, and approving all correspondence, submittals, and reports before they are submitted to the Department
2. Signing the QC plan

3. Implementing the QC plan
4. Maintaining the QC records

The QC manager must be your employee or must be hired by a subcontractor providing only QC services. The QC manager must not be employed or compensated by a subcontractor or by other persons or entities hired by subcontractors who will provide other services or materials for the project.

Notify the Engineer of the name and contact information of the QC manager.

#### **6-2.02C CQCP Development**

##### **6-2.02C(1) Meeting**

Meet with the Engineer and discuss the CQCP requirements at the preconstruction conference or in a separate meeting a minimum of 9 working days prior to the start of construction.

During this meeting, a mutual understanding of the following CQCP details shall be developed:

1. Construction activities and materials to be included in CQCP.
2. Test procedures to be implemented including frequency and acceptance standards.
3. Certified testing facility to be used.
4. QC activities/procedures/testing.
5. Reporting procedures including deadlines to distribute test results to the Engineer.
6. Remediation or corrective actions.
7. Interrelationship of CQCP Manager and the Engineer's Material and Testing Laboratory QA and testing activities.

Meeting minutes that document a mutual understanding of the CQCP shall be prepared by the Engineer and distributed to the Contractor and Engineer. The minutes shall become a part of the contract file.

##### **6-2.02C(2) Contractor Quality Control Plan**

Within 3 working days of the meeting, start the following process for CQCP approval:

1. Submit 3 copies of the CQCP and allow 3 working days for the Engineer's review. If revisions are required, the Engineer provides comments and specifies the date that the review stopped.
2. Revise and resubmit the CQCP within 2 working days of receipt of the Engineer's comments.
3. The Engineer's review resumes when the complete CQCP is resubmitted. Allow 1 working day for the second review or subsequent reviews by the Engineer.
4. When the Engineer approves the CQCP, submit 4 printed copies of the approved CQCP.

Do not start any work identified in the CQCP until the CQCP is approved. The start of construction (first working day) will not be delayed, nor an extension of contract time (additional working days) be granted for any delay of work due to preparing and approving the CQCP.

The CQCP must be specific to this contract and address the following QC requirements:

1. Description of the QC organization, including a chart showing lines of authority.

2. Determine when corrective actions are needed if an area of work does not comply with specifications.
3. Identify QC personnel, including the QC Manager, by name, qualifications, duties, responsibilities, and authorities. Provide an organizational chart showing all QC personnel and their assigned QC responsibilities. The QC Manager shall have a minimum of 10 years of construction experience on projects similar to the work under this contract. Identify an Alternate QC Manager to serve in the event of the QC Manager's absence. The requirements for the alternate shall be the same as for the designated QC Manager.
4. Include a letter signed by an authorized official of the Contractor which describes the responsibilities of the QC Manager and delegates sufficient authority to the QC Manager to adequately perform the required duties, including authority to stop work that is not in compliance.
5. Procedures for scheduling, reviewing, certifying, and managing submittals including those of subcontractors, offsite fabricators, suppliers, and manufacturers.
6. Procedures for the quality inspection of the materials which includes contractor verification testing of materials to ensure it meets specifications.
7. Control, verification, and manufacturing plant acceptance testing procedures for each specific test to ensure the quality of Contractor's workmanship. Include test name, reference specification requiring test, feature of work to be tested, test frequency, typical sample locations, required documentation, and person responsible for each test. Laboratory facilities shall be properly certified and approved by the Engineer.
8. Identify process to track preparatory, progress, and follow-up procedure phases.
9. Specify corrective actions, including verification testing, to be implemented upon identification of construction deficiency.
10. Reporting procedures including all proposed QC forms, daily QC reports, and other reporting formats.

## **6-2.02D Procedure**

### **6-2.02D(1) General**

Implement a minimum of three phases of QC for each definable feature of work (i.e. placing aggregate base, installing drainage pipe, pouring concrete sidewalk, compaction of subgrade...etc.).

### **6-2.02D(2) Preparatory Phase**

Prior to beginning each definable feature of work:

1. Review applicable contract plans and specifications.
2. Verify all materials and/or equipment have been tested, and approved.
3. Examine work area to assure all required preceding work has been completed and is in compliance with the contract specifications.
4. Physically examine required materials and equipment to assure they are on hand, conform to the specifications and shop drawings, and are properly stored/stockpiled.
5. Review testing standards and the procedures in the approved CQCP for this item of work.
6. Document construction tolerances and workmanship standards.

7. Request a pre-work conference with the Engineer, QC Manager and applicable QC personnel, and foreman responsible for this definable feature of work. Discuss methods of performing the production and installation work.
8. Instruct all applicable workers as to the acceptable level of workmanship required in order to meet the specifications.
9. Document the preparatory phase.

#### **6-2.02D(3) Progress Phase**

During construction of each definable feature of work:

1. Verify adequacy of all QC measures.
2. Conduct required QC testing and inspection by QC personnel.
3. Analyze QC tests for compliance with contract specifications.
4. Notify Engineer of QC test results.
5. Implement CQCP corrective measures and repeat the above steps if QC test results do not meet contract specifications.
6. Coordinate Engineer's QA testing if QC test results meet contract specifications.
7. Document the progress phase.

#### **6-2.02D(4) Follow Up Phase**

After each definable feature of work is completed and meets specifications:

1. Perform daily visual checks on completed work to ensure the feature of work continues to be in compliance with specifications.
2. Visual checks shall be documented in the CQCP.
3. Conduct final follow-up checks prior to the start of additional features of work that may be affected by the already completed work.
4. Implement corrective actions if completed work no longer complies with specifications. Do not build upon or conceal non-conforming work.

### **6-2.02E Testing**

#### **6-2.02E(1) General**

At a minimum, perform QC testing to the same standard and frequency required for the Engineer's QA testing. After receiving test results, remove or reconstruct any work performed that does not meet the specifications. Furnish split samples upon request by the Engineer for QA testing. Each test shall be started and completed without delay. QA testing by the Engineer and payment for materials placed will not be authorized until final CQCP test reports showing compliance with these specifications have been provided to the Engineer.

#### **6-2.02E(2) Certified Laboratory**

Procure the services of an Engineer-approved certified testing laboratory or establish an approved laboratory testing facility at the project site.

Certified laboratories shall follow FHWA and Caltrans certification procedures and be a participant in one or more of the following testing programs:

1. AASHTO Materials Reference Laboratory (AMRL)
2. Cement and Concrete Reference Laboratory (CCRL)

3. Caltrans' Reference Samples Program (RSP)

Certified laboratory personnel shall be certified by one or more of the following:

1. Caltrans District Materials Engineer.
2. Nationally recognized non-Caltrans organizations such as the American Concrete Institute, Asphalt Institute, National Institute of Certification of Engineering Technologies, etc.
3. Other recognized organizations approved by the State of California and/or recognized by local governments or private associations.

The certified laboratory's equipment must be calibrated at least once each year, using an impartial means traceable to the National Institute of Standards and Technology. This is checked as part of the Independent Assurance Program.

**6-2.02E(3) Testing Procedure**

Perform the following testing activities and provide documentation that all tests and related activities are completed:

1. Verify testing procedures comply with specifications.
2. Verify facilities and testing equipment are available and comply with testing standards.
3. Check test instrument calibration data against certified standards.
4. Prepare recording forms and test identification control number system.
5. Document all passing and failing test results in CQCP with location of the test and the sequential control number identifying the test sample.
6. Provide a copy of tests performed to the Engineer.

Contractor shall make available upon the Engineer's request the proposed laboratory and equipment to make verification and QA testing if the Engineer's material and testing laboratory does not have the required equipment.

#### 6-2.02E(4) Testing Standards

Laboratories utilized for testing soils shall meet criteria detailed in ASTM D 3740 or similar requirements for the Caltrans Laboratory Certification process. Whenever a reference is made in the specifications to any of the California Test numbers specified below, the corresponding ASTM Designation or AASHTO Designation test numbers may be used to determine the quality of materials.

| CALIFORNIA TEST | ASTM DESIGNATION | AASHTO DESIGNATION |
|-----------------|------------------|--------------------|
| 216             | D 1557           | T 180              |
| 231             | D 2922 (a)       | T 238 (a)          |
| 203             | D 422            | T 88               |
| 204             | D 4318           | T 89 & T 90        |
| 504             | C 231            | T 152              |
| 518             | C 138            | T 121              |
| 521             | C 39             | T 22               |
| 523             | C 392 & C 78     | T 177 & T 97       |
| 533             | C 360            | --                 |
| 211             | C 131 & C 535    | T 96               |

Note:

- (a) When ASTM Designation: D 2922 or AASHTO Designation: T 238 is used, the frequency and areal distribution of such tests shall comply with the requirements specified in California Test 231. For each determination of relative compaction by ASTM or AASHTO test methods, laboratory compaction tests per ASTM Designation: D 1557 or AASHTO Designation: T 180 shall be performed, except when the use of previous laboratory maximum dry densities are allowed. Previous laboratory maximum dry densities may be used to determine relative compaction if the material, as determined by the Engineer, is from the same general excavation or plant source and has the same visual characteristics of color, gradation, and soil classification as the previous laboratory maximum dry densities. The use of previous laboratory maximum dry densities will not be permitted for more than 5 working days or for more than 14 determinations of relative compaction.

#### 6-2.02E(5) Failing Tests

Perform the following steps:

1. Record date, time, and location of failing test in CQCP and immediately notify the Engineer.
2. Consult CQCP and implement remediation/corrective action.
3. Document corrective action taken.
4. Retest the work after corrective action.
5. Record result of retest for compliance with specifications. If retest fails again, repeat with step 1.

#### 6-2.02F Reporting

No QA testing will be administered by the Engineer until test reports are provided that verify compliance with specifications.

1. Prepare and maintain a test location plan that will be included in CQCP and provided to the Engineer upon request.
2. Document horizontal and vertical locations of all QC field tests and field sample locations to the nearest foot. Where possible, document all locations with respect to stationing on the project plans.
3. Label/Number all field tests using a sequential numbering system approved by the Engineer. Maintain a Materials Test Log summarizing all QC field and laboratory testing, including failed test results, and results of the QC test compared to the specification requirements.
4. For failing test results, the Materials Test Log shall include a description of the corrective actions taken and the results of tests performed after the corrective action is taken. The Material Test Log shall be updated and maintained by the QC Manager and made available to the Engineer upon request. The Material Test Log will be attached to the approved CQCP.
5. Provide copies of each QC test result to the Engineer within 24 hours after collecting the laboratory test sample or initiating the field test, except on required test duration exceeding 24 hours. When the test duration exceeds 24 hours, distribution of final test results shall be within 24 hours after the completion of the test.

Submit a copy of the final Material Test Log to the Engineer upon substantial completion of the project.

For any single quality characteristic at a specific test location, if the QA test results administered by the City do not comply with specifications:

1. Stop production.
2. Take corrective action per CQCP.
3. Perform QC testing to verify compliance with specifications
4. Provide test results to Engineer. Request 2<sup>nd</sup> QA test if QC tests verify compliance with specifications.
5. In the Engineer's presence, take samples and split each sample into 4 parts. The Contractor's QC laboratory would receive 2 parts for additional testing if necessary. The Engineer tests 1 part for QA compliance with the specifications and reserves and stores 1 part.
6. Demonstrate QA compliance with the specifications otherwise repeat this process until compliance is achieved.

#### **6-2.02G Penalties**

If in the Engineer's opinion you do not comply with or follow your approved CQCP, stop all work and replace your QC Manager. The counting of working days will continue while you identify a new QC manager.

Beginning with the 2<sup>nd</sup> QA test for any single quality characteristic at a specific test location, the City will deduct all associated testing lab costs for additional QA tests from moneys due or that may become due to the Contractor under the contract.

The Engineer will deduct the final payment of CQCP from the contract if the Contractor fails to comply with the approved CQCP or provide all test results and a copy of the final Material Test Log.

#### **6-2.02H Payment**

After the Engineer approves the CQCP, the City pays 25 percent of the bid item price for Contractor Quality Control Plan in the first monthly progress estimate.

The City does not adjust payment of CQCP for an increase or decrease in the quantity of QC tests, including additional testing due to the Contractor, subcontractor, supplier, manufacturer, or fabricator's own construction deficiencies. Section 9-1.06, "Changed Quantity Payment Adjustments," of the Standard Specifications does not apply.

## **7 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

The contractor performing the project deliverables shall comply with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) codified at 42 U.S.C. §9601 et seq. In the event the project utilizes chemicals or generates CERCLA related waste, reporting requirements shall follow regulations outlined in the Emergency Planning and Community Right-to-Know Act (EPCRA), 40 CFR Chapter 1, Subchapter J 300.1 through 374.6. Furthermore, disposal of CERCLA related waste shall adhere to regulations outlined in 40 CFR 260 through 266 of the Resource Conservation and Recovery Act (RCRA), Subtitle C. The contractor performing the project activities as well as the final cleanup and clearance of the work area shall ensure the afore mentioned regulations in addition to those enforced by state and local government agencies are adhered to at all times.

#### **Add to Section 7-1.02K(3):**

The contractor must permit the Engineer to interview employees during working hours on the job to verify the certified payroll records.

#### **Replace "65" with "30" in the 4th paragraph of section 7-1.02K(6)(b).**

#### **Add to section 7-1.02K(6)(b):**

Comply with Public Contract Code § 7104, as shown below, while excavating.

*§ 7104. Any public works contract of a local public entity which involves digging trenches or other excavations that extend deeper than four feet below the surface shall contain a clause which provides the following:*

*(a) That the contractor shall promptly, and before the following conditions are disturbed, notify the local public entity, in writing, of any:*

*(1) Material that the contractor believes may be material that is hazardous waste, as defined in Section 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 provisions of existing law.*

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

*(3) Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract.*

*(b) That the local public entity shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the contractor's cost of, or the time required for, performance of any part of the work shall issue a change order under the procedures described in the contract.*

*(c) That, in the event that a dispute arises between the local public entity and the contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the contractor's cost of, or time required for, performance of any part of the work, the contractor shall not be excused from any scheduled completion date provided for by the contract, but shall proceed with all work to be performed under the contract. The contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties.*

Designate a competent person to be on site at all times while trench excavation work is being performed. The competent person shall be certified and make daily inspection in accordance with all OSHA requirements. A competent person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

Trench shoring and protection is measured along the trench centerline where the trench protection work is actually performed, and only where trenches are five feet or greater in depth or it has been determined by the competent person and approved by the Engineer that trench shoring is required.

**Replace 7-1.02K(6)(f) with:**

**7-1.02K(6)(f)(i) Munitions Safety and Awareness Training**

If any suspicious objects that could be unexploded ordinance or munitions are discovered, the contractor shall cease construction operations within the area of concern immediately. Once personnel are evacuated from the immediate area of concern, the contractor shall contact Mr. James Britt at 831-521-3720 to determine if Explosive Ordinance Disposal (EOD) response needs to be notified.

Construction operations around the area of concern may only resume after Mr. Britt has provided the Engineer with confirmation that construction operations can commence.

Munitions Safety and Awareness Training is required of the prime contractor foreman and supervisor and one supervisor for each subcontractor, at a minimum. The training is approximately 30 minutes in length and is located at KEMRON Environmental Services, 4522 Joe Lloyd Way, Seaside, CA. Contractor shall coordinate the training with Ms. Betsy Hibbits at 831-242-7901.

#### **7-1.02K(6)(f)(ii) PAYMENT**

The contract lump sum price paid for munitions safety and awareness training includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in munitions safety and awareness training, as specified in these special provisions and as directed by the Engineer.

#### **Replace Section 7-1.02K(6)(j)(iii) of the RSS for Section 7-1.02K(6)(j)(iii) with:**

##### **7-1.02K(6)(j)(iii) Unregulated Earth Material Containing Lead**

Section 7-1.02K(6)(j)(iii) includes specifications for testing, handling, removing, and disposing of unregulated earth material containing lead. Management of this material exposes workers to health hazards that must be addressed in your lead compliance plan.

Contractor to prepare earth material lead testing plan in accordance with all applicable occupational safety and health standards, rules, regulations, and orders. Submit the lead testing plan to the Engineer for their review and approval within 10 working days after contractor award. Revise and resubmit, as needed, to obtain approval of the lead testing plan.

This work assumes the material will contain average lead concentrations below 80 mg/kg total lead and below 5 mg/L soluble lead and is not regulated by DTSC as a hazardous substance or a hazardous waste. This material, therefore, is not assumed to require disposal at a permitted landfill or solid waste disposal facility. Should testing indicate lead levels in excess of assumed concentrations, payment for removal, handling, and disposal will be paid for at an agreed to price. The RWQCB has jurisdiction over reuse of this material at locations outside the job site limits.

Manage regulated earth material containing lead under sections 14-11.08 and 14-11.09.

Unregulated earth material may exist throughout the job site.

Lead is typically found within the top 2 feet of material within the highway. Reuse excavated material on the right-of-way, as needed to complete the work shown on the plans. Haul and place the surplus excavated material on the right-of-way as needed to complete the work as shown on the plans.

Handle the material under all applicable laws, rules, and regulations, including those of the following agencies:

1. Cal/OSHA
2. CA RWQCB, Region Central Coast

If unregulated material is disposed of:

1. Submit at least 15 days before disposal, the form titled "Agreement between a Contractor Working on State Facilities and a Real Property Owner for Disposing Construction-related Material Suitable for Use on Residential Zoned Property" which discloses the lead concentration of the material to the receiving property owner and obtains authorization for disposal on the property. Give a copy of the signed form to the property owner.
2. You are responsible for any additional sampling and analysis required by the receiving property owner.

If you choose to dispose of unregulated material at a commercial landfill:

1. Transport it to a Class III or Class II landfill appropriately permitted to receive the material
2. You are responsible for identifying the appropriately permitted landfill to receive the material and for all associated trucking and disposal costs, including any additional sampling and analysis required by the receiving landfill

#### **7-1.02K(6)(j)(iii) PAYMENT**

The contract lump sum price paid for material testing includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in material testing, including testing for aerially deposited lead, as specified in these special provisions and as directed by the Engineer.

#### **Add to the end of the 4<sup>th</sup> paragraph in section 7-1.03:**

Maintaining convenient access to fronting properties may also require constructing new driveways in phases or constructing temporary approaches to one side of the new driveway during construction.

#### **Replace section 7-1.06D(2) with:**

#### **7-1.06D(2) LIABILITY INSURANCE**

Contractors shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damage to property, which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors. Maintenance of proper insurance coverage is a material element of the contract and that failure to maintain or renew coverage or to provide evidence of renewal may be treated by your City as a material breach of contract. The cost of such insurance shall be included in the Contractor's bid. Such insurance shall name the City, its governing bodies or boards, officers, agents and employees; and those listed at the end of this special provision as additional insureds.

##### **a. Minimum Scope of Insurance: Coverage shall be at least as broad as:**

1. Insurance Services Office Commercial/General Liability form CG 0001 covering Comprehensive General Liability; and Insurance Services Office form GL 0404. This is a Broad Form endorsement to the Comprehensive General Liability Policy.
2. Insurance Services Office form CA 0001 (Ed. 1/78) covers automobile liability and should be Code 1, "any auto."

3. Insurance coverage shall be written on an occurrence basis on which a claim is paid of the loss occurred during the policy period. Unless there is a significant provision of an "extended reporting period."
  4. Workers Compensation coverage as required by the Labor Code of the State of California and Employers' Liability Insurance.
- b. Minimum Limits of Insurance: Contractor shall maintain limits no less than:
1. General Liability: \$2,000,000 per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
  2. Automobile Liability: \$1,000,000 per accident for bodily injury and property damage.
  3. Employers' Liability: \$1,000,000 per accident for bodily injury or disease.
  4. Workers Compensation: Workers Compensation limits as required by the Law.
- a. Deductive and Self-Insured Retention: Any deductible or self-insured retentions must be declared to and approved by the City. At the option of the City, either (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officials and employees, and naming the same additional insureds or (2) the Contractor shall procure a bond guaranteeing payment of losses, coverage of the City, its officials and employees, and related investigation, claim administration and defense expenses.
- b. Other Provisions: The policies are to contain or be endorsed to contain the following provisions:
1. The City, its governing bodies and commissions, officials, employees and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, leased or used by the Contractor or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the City, its officials, employees or volunteers, with the exception that the Contractor shall not be required to provide an endorsement that provides indemnity coverage for the active negligence of such entities.
  2. The Contractor's insurance coverage shall be primary insurance as respects the City, its officials, employees and volunteers. Any insurance or self-insurance maintained by the City, its officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

3. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the City, its officials, employees or volunteers.
4. Coverage shall state that the Contractor's insurance shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the limits of the insurer's liability.
5. With regard to the Worker's Compensation and Employer's Liability coverage's, the insurer shall agree to waive all rights of subrogation against the City, its officials, employees and volunteers for losses arising from work performed by the Contractor for the City.
6. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.
7. Insurance is to be placed with insurers with a Best's rating of no less than A:VII. The Best's rating can be obtained by the Broker or the Association of Bay Area Governments (ABAG) Plan Risk Manager.
8. The Contractor shall furnish the City a copy of the insurance policy and with original endorsements affecting coverage required by this clause. The endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The endorsements are to be received and approved by the City before work commences.
9. The Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

Name the following list of property owners and occupants of the real property located at the following addresses as additional insured and defend, hold harmless, and indemnify:

| Assessor Parcel No. | Name of Owner                               | Site Address                                 |
|---------------------|---------------------------------------------|----------------------------------------------|
| 031-121-011         | US Army Reserve                             | 17425 Imjin Rd, Marina, CA 93933             |
| 031-101-032         | Trustees of the California State University | Southeast corner of Imjin Pkwy and Abrams Dr |
| 031-101-018         | Regents of the University of California     | Southeast corner of Imjin Pkwy and Imjin Rd  |
| 031-201-013         | Monterey Salinas Transit                    | Southwest corner of Imjin Pkwy and Imjin Rd  |
| 031-272-059         | Sea Haven Community Association             | Northeast corner of Imjin Pkwy and Imjin Rd  |

## 8 PROSECUTION AND PROGRESS

**Replace section 8-1.03 with:**

### **8-1.03 PRECONSTRUCTION CONFERENCE**

Attend a preconstruction conference with key personnel, including your assigned representatives, major superintendents, and major subcontractors at the City offices at a time determined by the Engineer. Be prepared to discuss the scope of work, contract drawings, specifications, existing conditions, materials to be ordered, equipment to be used, and all essential matters pertaining to the prosecution of and the satisfactory completion of the project as required. Submit documents as required before the preconstruction conference. You must submit two copies, unless noted otherwise, of the following items before work can begin:

1. Baseline schedule using working days format.
2. The on-site authorized representative (and home phone number) who has complete authority to represent you.
3. A list naming each official (with title) who is authorized to sign contract change orders, daily extra work reports, and the final pay estimate.
4. A list of first tier subcontractors, suppliers, manufacturers, or truckers.
5. A list of all the materials which are to be used on the project, their source, and the name(s) and address(es) of the supplier(s). Please identify each material by contract item number and name.
6. A statement giving the name and address of each subcontractor together with the item number, description, unit cost, and total cost of each item to be subcontracted.
7. A list giving the description, identification number, make, model number, and other necessary information for each piece of equipment to be used on this project. (Do not send listing of all items in equipment pool)
8. Three copies of the “Storm Water Pollution Prevention Plan”.
9. Schedules of values for those lump sum bid items as required in these special provisions.
10. Any other submittals and/or approvals required by the Standard Specifications and these special provisions.

**Replace *Reserved* in section 8-1.04C with:**

Section 8-1.04B does not apply.

Start job site activities within 40 days after receiving notice that the Contract has been approved by the City. The start of work may be revised if you and the Engineer mutually agree and the Engineer confirms in writing. Even though the counting of working days may have begun, do not begin work before the preconstruction conference is held. Furnish all specified submittals to the

Engineer at, or prior to, the preconstruction conference. Obtain all specified approvals contained in the Standard Specifications and these special provisions prior to the beginning of work.

Do not start job site activities until the City authorizes or accepts your submittal for:

1. CPM baseline schedule
2. WPCP or SWPPP, whichever applies
3. SSPC QP certifications
4. Resident Engineer office

You may enter the job site only to measure controlling field dimensions and locate (including potholing) utilities.

Do not start other job site activities until all the submittals from the above list are authorized or accepted and the following information is received by the Engineer:

1. Notice of Materials To Be Used form.

Submit a notice 72 hours before starting job site activities.

**Add to the end of section 8-1.05:**

The Project has obtained Temporary Construction Easements for the work necessary at the parcels shown below. Construction activities are to only occur on these parcels within the dates specified below:

|                 |                                 |                        |
|-----------------|---------------------------------|------------------------|
| APN 031-201-013 | Monterey Salinas Transit        | 1/25/2023 to 6/24/2025 |
| APN 031-272-059 | Sea Haven Community Association | 1/25/2023 to 6/24/2025 |

## **9 PAYMENT**

**Add to the end of the 1<sup>st</sup> paragraph in section 9-1.02C:**

Bid Items designated with (F) in the Proposal Bid Schedule are Final Pay items in accordance with Section 9, "Payment", of the Standard Specifications.

**Replace the 4<sup>th</sup> paragraph in section 9-1.03 with:**

Full compensation for work specified in the project specifications and divisions I, II, and XI of these standard specifications is included in the payment for the bid items involved unless:

1. Bid item for the work is shown on the Bid Item List
2. Work is specified as change order work

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to the completed work and for performing all work contemplated and embraced under the contract whose payment is not clearly embraced in the various bid items will be considered as included in the payment for the various bid items of work and no additional compensation will be allowed.

**Add to Section 9-1.06A:**

The provisions of sections 9-1.06B and 9-1.06C apply only to major items of work as defined herein.

A major item of work is any item for which the cost, computed on the basis of contract unit price and the quantity shown in the proposal, is equal to or greater than ten (10) percent of the original total contract amount.

**Replace 5th paragraph of section 9-1.07A with:**

For the California Statewide Crude Oil Price Index, go to:

<http://www.dot.ca.gov/hq/construc/crudeoilindex/>

**Add to section 9-1.16A:**

The amount set forth for the bid items hereinafter listed shall be deemed to be the maximum value of the bid item which will be recognized for progress payment purposes:

|    |                                                                                   |         |
|----|-----------------------------------------------------------------------------------|---------|
| A. | Mobilization                                                                      | \$_____ |
| B. | Progress Schedule (Critical Path)                                                 | \$_____ |
| C. | Furnish Resident Engineer Office                                                  | \$_____ |
| D. | Munitions Safety and Awareness Training                                           | \$_____ |
| E. | Material Testing                                                                  | \$_____ |
| F. | Construction Staking                                                              | \$_____ |
| G. | Prepare Storm Water Pollution Prevention Plan                                     | \$_____ |
| H. | Construction Area Signs                                                           | \$_____ |
| I. | Traffic Control System                                                            | \$_____ |
| J. | Clearing and Grubbing                                                             | \$_____ |
| K. | Remove and Dispose Traffic Signal Equipment                                       | \$_____ |
| L. | Salvage Preston Park Entry Monuments                                              | \$_____ |
| M. | Install Bus Stop Amenities (Furnished by Others)                                  | \$_____ |
| N. | Planting                                                                          | \$_____ |
| O. | Irrigation                                                                        | \$_____ |
| P. | Plant Establishment Period (365 Days)                                             | \$_____ |
| Q. | Irrigation and Landscaping 3-Years Maintenance Contract                           | \$_____ |
| R. | Buckwheat Relocation and Seeding                                                  | \$_____ |
| S. | Street Lighting System                                                            | \$_____ |
| T. | RRFB Assembly (Pole, Foundation, Signs, RRFB System,<br>PPB, Controller, Conduit) | \$_____ |
| U. | Traffic Signal Modifications (Reservation Road)                                   | \$_____ |

The remaining amount, if any, payable for a bid item in excess of the maximum value for progress payment purposes hereinabove listed for the item, will be included for payment in the final estimate made after acceptance of the contract.

**Add to 1st paragraph of section 9-1.16B:**

If a schedule of values is not specified to be submitted or a payment breakdown is not provided in the payment clause of the applicable Standard Specifications or these Special Provisions, progress payments for lump sum bid items will be a percentage of the lump sum bid item price based on the Engineer's determination of the amount of lump sum work already performed. Submit a lump sum breakdown that provides sufficient detail for the Engineer to determine the value of work performed. The Engineer may consider but not exclusively base the determination of progress payments on your lump sum breakdown. The Engineer's determination of progress payments for lump sum bid items under the Contract will be final in accordance with Section 5-1.03 of the Standard Specifications.

Submit a schedule of values for the following lump sum bid items:

- A. Traffic Control System
- B. Landscaping
- C. Irrigation
- D. Street Lighting System
- E. RRFB Assembly (Pole, Foundation, Signs, RRFB System, PPB, Controller, Conduit)
- F. Traffic Signal Modifications at Reservation Road

**Add to section 9-1.16C:**

In determining the partial payments to be made to the Contractor, only the following listed materials will be considered for inclusion in the payment as materials furnished but not incorporated in the work:

- A. \_Bar Reinforcing Steel (Retaining Wall)
- B. \_Street Light Luminaire (Poles)
- C. \_RRFB Assembly Equipment and Poles
- D. Traffic Signal Poles

**Replace section 9-1.16D with:**

**9-1.16D Mobilization**

Mobilization is eligible for partial payments if the Contract includes a bid item for mobilization. If the Contract does not include a mobilization bid item, mobilization is included in the payment for the various bid items. Mobilization is defined in Public Contract Code § 10104 and the Department will make partial payments under Public Contract Code § 10264. Both of these public contract code sections are duplicated below for your convenience.

***10104.** As used in this part, "mobilization" includes preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site, for the establishment of all offices, buildings and other facilities necessary for work on the project, and for all other work and operations which must be performed or costs incurred prior to beginning work on the various items on the project site.*

**10264. (a)** *With the exception of projects over water requiring marine access, and which have a **contract** amount greater than twenty-five million dollars (\$25,000,000), in addition to the provisions for partial payment made in Section 10261, the department may make partial payments for the mobilization costs of a **contract** subject to this chapter, not to exceed the following:*

- (1) When 5 percent of the original **contract** amount is earned, 50 percent of the amount bid for mobilization, or 5 percent of the original **contract** amount, whichever is lesser, may be paid.*
- (2) When 10 percent of the original **contract** amount is earned, 75 percent of the amount bid for mobilization or 7.5 percent of the original **contract** amount, whichever is lesser, may be paid.*
- (3) When 20 percent of the original **contract** amount is earned, 95 percent of the amount bid for mobilization, or 9.5 percent of the original **contract** amount, whichever is lesser, may be paid.*
- (4) When 50 percent of the original **contract** amount is earned, 100 percent of the amount bid for mobilization, or 10 percent of the original **contract** amount, whichever is lesser, may be paid.*
- (5) Upon completion of all work on the project, payment of any amount bid for mobilization in excess of 10 percent of the original **contract** amount will be paid.*

**Replace section 9-1.16F with:**

#### **9-1.16F Retentions**

The City will retain 5 percent of the estimated value of the work done and 5 percent of the value of materials so estimated to have been furnished and delivered and unused or furnished and stored as aforesaid as part security for your fulfillment of the contract.

For federally funded projects, retention will be released to you after prompt and regular incremental acceptances of portions of the project as determined by the Agency in accordance with Section 3 of the Code of Federal Regulations Title 49 Part 26.29. Accordingly, it is your responsibility for the release of retention held from your subcontractors pursuant to these special provisions to Section 5-1.13A of the Standard Specifications.

You may request the City to make payment of funds withheld to ensure performance under this Contract if you comply with the requirements of Public Contract Code Section 22300. In lieu of retention, you shall deposit in escrow with a bank acceptable to the City, securities eligible for the investment of funds under Government Code Section 16430 or bank or savings and loan certificates of deposit, upon the following conditions:

- A. You will bear the expense of the City and the escrow agent or the bank, in connection with the escrow deposit made.
- B. Securities or certificates of deposit to be placed in escrow shall be of a value at least equivalent to the amounts withheld as specified within the contract agreement. Securities shall be valued by the City, whose decision shall be final.
- C. You shall enter into an escrow agreement substantially similar to the form set forth in Section 22300 of the Public Contract Code, except the form will include provisions

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governing inter alia any decrease in the value of securities on deposit. The form will be furnished by the County, upon your written request.

- D. You shall obtain the written consent of the surety to such agreement.
- E. If the securities are not listed as eligible under Government Code 16430, you shall obtain approval of the securities by the City before bid opening.

**Replace *Reserved* in section 9-1.17A with:**

Upon satisfactory completion of the entire work, the Engineer will recommend the acceptance of the work to the City Council. If the Council accepts the completed work, it will cause a Notice of Completion to be recorded with the County Recorder.

Thirty-five days after the filing of the Notice of Completion, you will be entitled to the balance due for the completion and acceptance of the work, if certification is made by sworn written statement that all claims have been filed with the City based upon acts or omissions by you and that no liens or withhold notices have been filed against said work or the property on which the work was done, and you have complied with the "Performance of DBEs" section of these specifications.

## **DIVISION II GENERAL CONSTRUCTION**

### **10 GENERAL**

**Replace "Reserved" in section 10-1.02A with:**

Before ordering any signal poles and street lights or beginning any excavation, contact USA (Underground Service Alert) to have the location of all utilities marked. Promptly after utility markings are completed, you are to locate and mark the positions of all planned street luminaires, signal standards and pull boxes. Review in the field with the Engineer the markings for possible conflicts with the planned improvements.

Several existing utilities were positively located during design through potholing and the information generated from these potholes is presented in the project plans.

Where possible conflicts with existing utilities are indicated in your field review with the Engineer, you are to promptly pothole to find the exact locations of the utilities at these locations to determine if modifications to the planned work is necessary. Potholing must be performed using non-mechanical vacuum-type excavation and resulting holes properly backfilled and compacted.

The Contractor shall coordinate the layout with the utility company representatives and the Engineer to avoid utility conflicts wherever possible.

All final locations of planned improvements must be determined and approved by the Project Engineer BEFORE any poles (standards) are ordered by the Contractor.

Submit a Traffic Control Plan for Engineer's review and acceptance, fifteen (15) days prior to start of work. The plan must be stamped and signed by a Licensed Civil or Traffic Engineer, and include details for but not limited to your proposed staging concepts, construction area signage, traffic control systems to facilitate staging in compliance with maintaining traffic requirements in section 12, and it must include provisions for maintaining pedestrian access.

Construct improvements in accordance with the construction staging shown on the plans unless approved by the Engineer.

Do not remove existing traffic stripes/markers and pavement markings more than 5 days prior to HMA overlay unless replaced with temporary traffic stripes/markers necessary for traffic control.

**Add to the end of the RSS for section 10-1.02B:**

All permanent erosion control work must be completed by October 1 of each year on all finished cut and embankment slopes.

## **12 TEMPORARY TRAFFIC CONTROL**

**Add to 12-1.01:**

Temporary traffic control is paid either through bid items for specific items of work, or through the lump sum bid item of Traffic Control System. Any work necessary to control traffic not covered by individual bid items is included in the lump sum price paid for Traffic Control System, unless otherwise specified in these special provisions.

**Replace 12-1.04 with:**

The City does not reimburse you for the cost of furnishing flaggers. Furnishing flaggers is considered as included in Traffic Control System. Flaggers shall be certified per the latest version of the California Manual on Uniform Traffic Control Devices (CA-MUTCD).

**Replace 12-3.05D with:**

You are paid for Channelizer (Surface Mounted) for each channelizer installed as part of an approved traffic control plan, and as shown in the phase construction plans.

**Replace "Reserved" in section 12-3.11B(5) with:**

Construction project funding signs (96"x60") must comply with the details shown on the Caltrans Department's Traffic Operations website for CA47A (CA). Furnishing, maintaining and removing construction funding signs is included in the payment for construction area signs.

The signs must be a wood-post sign complying with section 82-3.

The sign panels must be framed, single-sheet aluminum panels complying with section 82-2.

The background on the sign must be Type II retroreflective sheeting. The Type II retroreflective

sheeting must be on the Authorized Material List for signing and delineation materials.

The legend must be retroreflective except for nonreflective black letters and numerals. The blue must match PR color no. 3 on FHWA's Color Tolerance Chart. The orange must match PR color no. 6 on FHWA's Color Tolerance Chart.

The legend for the type of project on construction project funding signs must read as follows:

#### **ROADWAY IMPROVEMENT**

The legend for the types of funding on construction project funding signs must read as follows and in the following order:

##### **MEASURE X (REGIONAL), SB1 LPP**

The Engineer will provide the year of completion for the legend on construction project funding signs. Furnish and install a sign overlay for the year of completion within 10 working days of notification.

The size of the legend on construction project funding signs must be as described. Do not add any additional information unless authorized.

Install 2 construction project funding signs at the locations designated by the Engineer before starting major work activities visible to highway users.

When authorized, remove and dispose of construction project funding signs upon completion of the project.

#### **Replace item #4 of the 1st paragraph of section 12-3.11C(2) with:**

4. Post embedment must be 2.5 feet and backfilled with native material. Compact by tamping.

#### **Replace "Not Use" in section 12-3.11D with:**

Furnishing, installing and maintaining construction funding signs is included in payment for construction area signs.

Payment for construction area signs will be made in increments of the contract lump sum price for this item of work in the following manner:

1. Initial Increment: 60 percent of the lump sum price upon satisfactory completion of installation of signs.
2. Final Increment: Balance of the lump sum price upon satisfactory completion of removal of signs.

#### **Add to 12-3.20D with:**

You are paid for Temporary Railing (Type K) for each railing installed as part of an approved traffic control plan, and as shown in the phase construction plans.

**Replace section 12-3.24 with:**

**12-3.24 TEMPORARY IN-LINE CRASH CUSHIONS**

**12-3.24A General**

Section 12-3.22 includes specifications for placing in-line temporary crash cushion modules. If activities expose traffic to a fixed obstacle, protect the traffic from the obstacle with an in-line crash cushion module. The crash cushion must be in place before opening traffic lanes adjacent to the obstacle.

**12-3.24B Materials**

The temporary in-line crash cushion must be a Category 3 temporary traffic control device and be on the State of California Department of Transportation's Highway Safety Features list. This list is maintained by the Division of Engineering Services and can be found at:

[http://www.dot.ca.gov/hq/esc/approved\\_products\\_list/](http://www.dot.ca.gov/hq/esc/approved_products_list/)

Furnish the Engineer one copy of the manufacturer's plan and parts list of the selected temporary in-line crash cushion.

Provide the Engineer with a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-3.05E, "Certificates of Compliance," of the Standard Specifications. The Certificate of Compliance must certify that the temporary in-line crash cushion conforms to the prequalified design and material requirements, and was manufactured in conformance with the approved quality control program.

**12-3.24C Construction**

In-line temporary crash cushion must not encroach on the traveled way.

Maintain in-line temporary crash cushions in place at each location, including times when work is not actively in progress. You may remove the crash cushions during the work shift for access to the work if the exposed fixed obstacle is 15 feet or more from the nearest lane carrying traffic. Reset the crash cushion before the end of the work shift.

Immediately repair in-line temporary crash cushion modules damaged due to your activities. Remove and replace any module damaged beyond repair. Repair and replacement of temporary crash cushion modules damaged by traffic are change order work.

Attach a Type R or Type P marker panel to the front of the temporary crash cushion if the closest point of the crash cushion array is within 12 feet of the traveled way. Firmly fasten the marker panel to the crash cushion with commercial quality hardware or by other authorized methods. A lateral move of a temporary crash cushion module is change order work if ordered and the repositioning is not shown.

Remove in-line temporary crash cushion modules and marker panels at Contract acceptance. Do not install in-line temporary crash cushion modules in the permanent work.

### **12-3.24D Payment**

You are paid for each time an -in-line crash cushion array is placed based as shown in the phase construction plans.

The payment quantity for in-line temporary crash cushion does not include:

1. Temporary crash cushions placed for public safety including those shown on your traffic control plans.
2. Temporary crash cushions placed in excess of the number shown on the phased construction plans.
3. Repositioned Temporary crash cushions

#### **Add to section 12-3.32A(1):**

Furnish seven (7) portable changeable message signs (PCMS) for the duration of the project, beginning two (2) weeks prior to the first day of construction. Place them at locations as directed by the Engineer. As a part of the Engineer's weekly meeting with you, the PCMS locations and messaging will be discussed. Relocate and reposition them throughout the life of the project as directed by the Engineer. Payment for each PCMS includes the cost for furnishing it for the life of the project, including relocating and repositioning the PCMS.

#### **Add before the first paragraph in the RSS for section 12-3.32C:**

Place the portable changeable message sign in advance of the 1<sup>st</sup> warning sign for each:

1. Stationary lane closure

#### **Add to section 12-4.01A:**

Local authorities are defined as, but not limited to, Public Works Department, Police Department, California Highway Patrol, local Fire Department, United States Post Office, local waste management companies, local transit agencies, Emergency Response Companies and/or all businesses or regular users whose ability to perform their daily job will be affected by road closures, detours or general work by the Contractor.

If work vehicles or equipment are parked within 6 feet of a traffic lane, close the shoulder area with fluorescent orange traffic cones or portable delineators. Place the cones or delineators on a taper in advance of the parked vehicles or equipment and along the edge of the pavement at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. Use at least 9 cones or delineators for the taper. Use a W20-1, "Road Work Ahead," W21-5b, "Right/Left Shoulder Closed Ahead," or C24(CA), "Shoulder Work Ahead," sign mounted on a crashworthy, portable sign support with flags. The sign must be placed as ordered by the Engineer and at least 48 by 48 inches in size. If a cone or delineator is displaced or overturned, immediately restore the device to its original position or location.

### Maintaining Pedestrian Access

You are responsible for providing for and maintaining pedestrian access through and around the construction areas. Temporary pedestrian routes are not shown on the construction staging plans and are your responsibility to plan and implement.

You must have open three (3) cross-walks at each intersection at all times, or as approved by the Engineer. All temporary pedestrian routes must be ADA compliant. Pedestrian access, including any proposed temporary pedestrian access routes, must be included in your Traffic Control Plan.

### Construction Phasing

Construction phases 1,2 and 3 must be constructed sequentially. Sequential phases must be performed in series, they cannot be performed in parallel. Work from the current sequential phase must be substantially completed such that traffic control can be removed before the next sequential phase can be started.

If you recognize any construction conflicts with planned construction sequence as shown in the plans, bring it to the attention of the Engineer immediately for resolution.

Contractor to prepare and submit for approval a joint utility trench plan showing specific location, separation, and minimum cover for all conduits and/or piping shown on the plans, as needed, for each phase.

### Temporary Lane Closures

Temporary lane closures will be allowed subject to the following restrictions.

Imjin Parkway with only 2 through lanes and all intersecting side streets:

Lane closures that limit traffic to a single traffic lane controlled by flaggers is allowed between 10:00 AM and 3:00 PM with a 10-minute wait for traffic, to be confirmed by the City in advance of proposed closures.

Imjin Parkway with 4 through lanes:

Eastbound lanes: You may reduce eastbound traffic to a single lane between 7 AM and 4 PM (7AM - 3 PM on Fridays).

Westbound lanes: You may reduce westbound traffic to a single lane between 7 AM and 4 PM (7AM - 3PM on Fridays).

### **Replace *Not used* section 12-4.01D with:**

The contract unit price paid per square foot for "Temporary Road Paving" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in temporary road paving, including but not limited to roadway excavation for temporary road alignment and pavement section, hot mix asphalt (Type A), aggregate base (Class 2), temporary striping, and removal of temporary road when no longer needed to maintain traffic, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**Add to the first paragraph of section 12-4.02C(1):**

You must maintain one paved traffic lane (not less than 11 feet wide) in each direction of travel on Imjin Parkway unless otherwise shown in the construction staging portion of the plans. At no time will there be less than 1 paved traffic lane not less than 10 feet wide opened for use by traffic in each direction of travel on streets intersecting Imjin Parkway during construction activities unless otherwise shown in the construction phasing portion of the plans or as allowed elsewhere in these special provisions.

Except as shown on construction phasing plans, keep the full width of the traveled way open to traffic when no active construction activities are occurring in the traveled way or within 6 feet of the traveled way and on:

1. Friday after 3:00 p.m.
2. Saturday
3. Sunday
4. Designated holidays

Every Monday by noon, submit a schedule of planned lane and road closures for the next week period. The next week period is defined as Sunday noon through the following Sunday noon.

Submit a schedule not less than 10 days before the anticipated start of any activity that will:

1. Reduce the horizontal clearances of traveled ways, including shoulders, to 2 lanes or less due to operations such as temporary barrier placement and paving

Closure schedules submitted with incomplete or inaccurate information will be rejected and returned for correction and resubmittal. You will be notified of unauthorized closures or closures that require coordination with other parties as a condition of approval.

Submit closure schedule amendments, including adding additional closures, by noon at least 3 business days before a planned closure. Approval of amendments will be at the discretion of the Engineer.

The Engineer must be notified of a cancelled closure a minimum of 2 business days before the date of the closure.

The Engineer may reschedule a closure cancelled due to unsuitable weather.

If a lane closure is not reopened to traffic by the specified time, work must be suspended. No further lane closures are allowed until the Engineer has reviewed and accepted a work plan submitted by you that insures that future lane closures will be reopened to traffic at the specified time. Allow the City 2 business days to review your proposed work plan. You are not entitled to compensation for the suspension of work resulting from the late reopening of closures.

For each 10-minute interval, or fraction thereof past the time specified to reopen a lane closure, the City will deduct \$500.00 per interval from moneys due or that may become due to the Contractor under the contract.

If a street closure is not reopened to traffic by the specified number of days of road closure, the City will deduct \$5000.00 per calendar day the road remains closed beyond the specified number

of days the road was allowed to be closed from moneys due or that may become due you under the contract.

**Delete section 12-4.02C(2) of the RSS and section 12-4.02C(2) the Standard Specifications.**

**Add to the end of the first sentence in the first paragraph of section 12-4.02C(7)(a):**

except you may use a moving closure during traffic striping and pavement marker placement using a bituminous adhesive.

**Add to the end of section 12-4.02C(7)(a):**

Whenever components of the traffic control system are displaced or cease to operate or function as specified from any cause, immediately repair the components to the original condition or replace the components and restore the components to the original location.

For a stationary lane closure made only for the work period, remove components of the traffic control system from the traveled way and shoulder, except for portable delineators placed along open trenches or excavation adjacent to the traveled way at the end of each work period. You may store the components at selected central locations designated by the Engineer within the limits of the highway.

**Add to 12-6.01:**

Place temporary traffic stripes and pavement markings as shown on the plans and as required by your approved Traffic Control Plan. When no longer needed, remove temporary traffic stripes and pavement markings

**Replace 12-6.04 with:**

All work associated with furnishing, placing, maintaining, and removing temporary traffic stripes and pavement markings is paid for as Traffic Control System.

## **13 WATER POLLUTION CONTROL**

**Add to section 13-1.03D:**

You are responsible for penalties assessed or levied on you or the City as a result of your failure to comply with the provisions in this section “Water Pollution Control,” including, but not limited to, compliance with the applicable provisions of the Manuals, and Federal, State, and local regulations and requirements as set forth therein. See “Retention of Funds” sub-section later in this special provision.

Penalties as used in this section shall include fines, penalties and damages, whether proposed, assessed, or levied against you or the City, including those levied under the Federal Clean Water Act and the State Porter-Cologne Water Quality Control Act, by governmental agencies or as a

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result of citizen suits. Penalties shall also include payments made or costs incurred in settlement for alleged violations of the Manuals, or applicable laws, regulations, or requirements. Costs incurred could include sums spent instead of penalties, in mitigation or to remediate or correct violations.

**Add to section 13-3.01A:**

The project is risk level 2.

Discharges of storm water and non-storm water from construction activities disturbing 1 acre or more of soil in a common plan of development must comply with the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2012-0006-DWQ, NPDES No. CAS000002) referred to herein as Permit. Copies of the Permit and modifications thereto are available for review from the State Water Resource Control Board (SWRCB), Storm Water Permit Unit, 1001 "I" Street, P.O. Box 1977, Sacramento, California 95812-1977, Telephone: (916) 341-5254 and may also be obtained from the SWRCB Internet website at:

[http://www.swrcb.ca.gov/water\\_issues/programs/stormwater/](http://www.swrcb.ca.gov/water_issues/programs/stormwater/)

Submit a Notice of Intent (NOI) to the Regional Water Quality Control Board (RWQCB) prior to beginning work. Submit a draft NOI to the City for review prior to submitting to the RWQCB. Notify the Engineer immediately upon request from the regulatory agencies to enter, inspect, sample, monitor, or otherwise access the project site or your records pertaining to water pollution control work. Provide copies of correspondence, notices of violation, enforcement actions or proposed fines by regulatory agencies to the requesting regulatory agency.

The City does not have an agency-specific SWPPP template.

A qualified SWPPP developer (QSD) must develop the SWPPP.

**Add to section 13-3.04:**

Implementing the SWPPP is included in the payment for Prepare Water Pollution Control Program. This includes all work associated with implementing your authorized SWPPP, including furnishing, constructing, maintaining, removing, and disposing of water pollution control materials, including, but not limited to, fiber rolls, polyethylene plastic sheeting, gravel bags, silt fencing, and inlet protection.

Temporary reinforced silt fence (Type I) that is shown on the plans is measured and paid for as Temporary Reinforced Silt Fence (Type I). Temporary reinforced silt fence (Type I) that is not shown on the plans but is included in your authorized SWPPP is considered as included in the price paid for water pollution control, and this temporary silt fence (Type I) will not be measured and paid for separately.

Notwithstanding any other remedies authorized by law, the City may retain money due to you under the contract, in an amount determined by the City, up to and including the entire amount of Penalties proposed, assessed, or levied as a result of your violation of the Permit, the Manuals, or Federal or State law, regulations or requirements. Funds may be retained by the City until final

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disposition has been made as to the Penalties. You shall remain liable for the full amount of Penalties until such time as they are finally resolved with the entity seeking the Penalties.

Retention of funds for failure to conform to the provisions in this section, "Water Pollution Control," shall be in addition to the other retention amounts required by the contract. The amounts retained from you for failure to conform to provisions in this section will be released for payment on the next monthly estimate for partial payment following the date when an approved WPCP has been implemented and maintained, and when water pollution has been adequately controlled, as determined by the Engineer.

When a regulatory agency identifies a failure to comply with the Permit and modifications thereto, the Manuals, or other Federal, State or local requirements, the City may retain money due to you, subject to the following:

- A. The City will give you 30 days notice of the City's intention to retain funds from partial payments which may become due to you prior to acceptance of the contract. Retention of funds from payments made after acceptance of the contract may be made without prior notice to you.
- B. No retention of additional amounts out of partial payments will be made if the amount to be retained does not exceed the amount being withheld from partial payments pursuant to Section 9-1.16 of the Standard Specifications and these special provisions.
- C. If the City has retained funds, and it is subsequently determined that the City is not subject to the entire amount of the Costs and Liabilities assessed or proposed in connection with the matter for which the retention was made, the City shall be liable for interest on the amount retained for the period of the retention. The interest rate payable shall be 6 percent per annum.

During the first estimate period that the Contractor fails to conform to the provisions in this section, "Water Pollution Control," the City may retain an amount equal to 25 percent of the estimated value of the contract work performed.

## **14 ENVIRONMENTAL STEWARDSHIP**

### **Add to the end of section 14-1.02:**

An ESA exists on this project.

Before starting job site activities, install temporary fence (Type ESA/Wildlife Exclusion) in conformance with section 16-2.03 to protect the ESA and mark its boundaries.

Limited access to the ESA is allowed for buckwheat transplanting, seeding, and watering. Notify the Engineer   5   business days or less before the planned entry date. Any other access to the ESA is prohibited.

Access to an ESA other than that described is prohibited.

**Delete section 14-10.02.**

**Replace section 14-11.08 with:**

**14-11.08 REGULATED MATERIAL CONTAINING AERIALY DEPOSITED LEAD**

**14-11.08A General**

Section 14-11.08 includes specifications for management of regulated material containing ADL. Management of the material includes:

1. Excavating
2. Loading and unloading containers or trucks
3. Stockpiling
4. Transporting
5. Placing
6. Disposal

Manage regulated material containing ADL under the rules and regulations of the following agencies:

1. US Department of Transportation
2. US EPA
3. California Environmental Protection Agency
4. CDPH
5. DTSC
6. Cal/OSHA
7. California Department of Recycling and Recovery
8. California Air Resources Board
9. RWQCB, Region 3, Central Coast
10. Monterey Bay Air Resources District

The Department entered into agreement Docket No. ESPO-SMA 15/16-001 Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils with the DTSC (ADL Agreement) regarding the management of regulated material containing ADL. As the responsible entity and the generator of waste, only the Department determines material classification. For the ADL agreement, go to the Caltrans Hazardous Waste Management website.

Regulated material containing ADL is present within the project limits and the ADL Agreement applies. Management of regulated material containing ADL exposes workers to health hazards that must be addressed in your lead compliance plan under section 7-1.02K(6)(j)(ii).

**14-11.08B Definitions**

**average ADL concentration:** Average ADL concentration calculated using the 95 percent upper confidence limit.

**regulated material:** ADL-contaminated material that has average ADL concentrations over 80 mg/kg total lead or equal to or greater than 5 mg/L soluble lead tested using the California Waste Extraction Test (CA-WET) or equal to or greater than 5 mg/L soluble lead tested using the Toxicity Characteristic Leaching Procedure (TCLP).

**Type Com:** Regulated material that the Department may designate to be reused on the highway or disposed on a commercial/industrial property or at an appropriately permitted California Class II or California class III disposal facility. Type Com material has average ADL concentrations less than 5.0

mg/L soluble lead and more than 80 mg/kg total lead but not exceeding 320 mg/kg total lead. The soluble lead is tested using the CA-WET.

**Type R-1:** Regulated material that may be reused on the job site if placed at least 5 feet above the maximum historical elevation of the water table and covered with at least 1 foot of Type Com or unregulated material with a pH greater than 5 or pavement.

**Type R-2:** Regulated material that may be reused on the job site if placed at least 5 feet above the maximum historical elevation of the water table and covered with pavement.

**Type Z-0:** Regulated material that must be disposed of at an appropriately permitted California Class II or California Class III disposal facility. Type Z-0 has average ADL concentrations:

1. Greater than 320 mg/kg total lead but less than 1,000 mg/kg total lead
2. Less than 5.0 mg/L soluble lead as tested using the CA-WET

**Type Z-2:** Regulated material that is a Department-generated California hazardous waste that must be disposed of at an appropriately permitted California Class I disposal facility. Type Z-2 material has average ADL concentrations greater than or equal to 1,000 mg/kg total lead or 5.0 mg/L soluble lead as tested using the CA-WET.

**Type Z-3:** Regulated material that is a Department-generated federal hazardous waste that must be disposed of at a California Class I disposal facility. This material has average ADL concentrations equal to or greater than 5.0 mg/L soluble lead as tested using the TCLP.

#### **14-11.08C Site Conditions**

Concentration data and sample location maps for regulated material have not been determined and it is the responsibility of the contractor to test the existing site for regulated material.

#### **14-11.08D Submittals**

##### **14-11.08D(1) General**

Not Used

##### **14-11.08D(2) Perimeter Air Monitoring Requirements**

Not Used

##### **14-11.08D(3) Excavation and Transportation Plan**

Within 15 days of Contract approval, submit 3 copies of an excavation and transportation plan for regulated material. Allow 7 days for review. If the plan requires revisions, the Department provides comments. Submit a revised plan within 7 days of receiving comments. The Engineer may allow construction to proceed while minor revisions or amendments are being completed.

The excavation and transportation plan must comply with:

1. DTSC regulations
2. ADL Agreement
3. Cal/OSHA regulations

The excavation and transportation plan must include:

1. Procedures for managing the material.
2. Excavation schedule by location and date.
3. Locations for temporary stockpiles.
4. Survey methods for burial locations for Type R-1 or Type R-2 material.
5. Type R-1 material soil cover source area.
6. Dust control measures.

7. Air monitoring locations.
8. Transportation equipment and routes.
9. Method for preventing spills and tracked material onto public roads.
10. Truck waiting and staging areas.
11. Name and address of the California Class II or California Class III disposal facility where Type Z-0 material will be disposed of.
12. Name and address of the California Class I disposal facility where hazardous waste will be disposed of.
13. Example of a bill of lading to be carried by trucks transporting Type R-1, Type R-2, Type Com, or Type Z-0 material on public roads outside the controlled access construction zone. The bill of lading must include:
  - 14.1. US Department of Transportation description, including shipping name
  - 14.2. Hazard class
  - 14.3. Identification number
  - 14.4. Handling codes
  - 14.5. Quantity of material
  - 14.6. Volume of material
14. Spill contingency plan for regulated material containing ADL.
15. Copies of the contract plan sheets where the location and depth of the existing regulated material are shown, as an attachment.
16. Copies of the contract plan sheets where the location and depth of Type R-1 or Type R-2 material burial locations are shown, as an attachment.

#### **14-11.08D(4) Burial Location Report**

Within 5 business days of completing placement of Type R-1 or Type R-2 material at a burial location, submit a report for that burial location that includes:

1. "Burial Location of Soil Containing Aerially Deposited Lead (Topographic Survey)" form
2. Electronic geospatial vector survey data shapefiles of the top and bottom of the burial location with polygon feature classes containing the location and attributes of the burial site. Provide polygon feature classes in a shapefile that is comprised of a minimum of four files with the extensions of .shp, .shx, .dbf and .prj. Include the following attribute data:
  - 2.1. Contractor
  - 2.2. Contract number
  - 2.3. District
  - 2.4. County
  - 2.5. Route
  - 2.6. PM Start
  - 2.7. PM End
  - 2.8. Project EA
  - 2.9. Project name
  - 2.10. Burial location number

Submit the report to the Engineer and to:

[ADL@dot.ca.gov](mailto:ADL@dot.ca.gov)

The Engineer notifies you of acceptance or rejection of the burial location report within 5 business days of receipt. If the report is rejected, you have 5 business days to submit a corrected report. Each burial location report prepared for a survey required under section 14-11.08I, including electronic files, is considered a submittal required by the contract. Failure to submit more than one submittal required by section 14-11.08I is considered multiple performance failures under section 9-1.16E(3).

**14-11.08D(5) Bill of Lading**

Submit copies of the bills of lading used as an informational submittal upon placement of Type R-1, or Type R-2 material in its final location.

Submit copies of the bills of lading used to transport Type Z-0 material for disposal within 5 business days of disposal.

**14-11.08D(6) Disposal Documentation**

Submit documentation from the receiving disposal facility confirming appropriate disposal within 5 business days of transporting Type Z-0, Type Z-2, or Type Z-3 material from the job site.

**14-11.08E Dust Control**

Prevent visible dust migration under section 14-11.04 during management of regulated material.

**14-11.08F Air Monitoring**

Not Used

**14-11.08G Stockpiling**

Stockpile Type R-1, and Type R-2, material under section 14-11.05 for no more than 90 days. The Department does not pay for stockpiling unless stockpiling is ordered.

**14-11.08H Placement**

Place Type R-1 and Type R-2 material as shown in the contractors' excavation and transportation plan.

Cover for Type R-1 must comply with section 6-1.03B.

**14-11.08I Surveying Burial Site**

Topographically survey the location of the bottom and top of each area where you bury Type R-1 or Type R-2 material (burial locations). Topographic surveys must be performed by or under the direction of one of the following:

1. Land surveyor licensed under the Bus & Prof Code Ch 15, starting with § 8700
2. Civil engineer licensed before January 1, 1982 under the Bus & Prof Code Ch 7 starting with § 6700

At a minimum, topographic surveys consist of collecting northing, easting, and elevation information of survey points along cross sections lines of the Type R-1 or Type R-2 material burial locations, where the cross section line intervals are 25 feet, at a maximum, with a minimum of 5 cross sections surveyed per burial location. Collect a survey point at each change in terrain elevation with a minimum of 5 survey points per cross section line. The same cross section lines are used to survey the ground surface just before placing Type R-1 or R-2 material and used to survey the finished grade immediately after the placement of the Type R-1 or Type R-2 material.

Report each burial location in California state plane coordinates in US survey feet within the appropriate zone of the California Coordinate System of 1983 (CCS83) and in latitude and longitude. Reference horizontal positions to CCS83. Perform the survey to a horizontal accuracy of 0.3 ft as described in Figure 5.1A of the Caltrans Surveys Manual. Reference each horizontal position to a roadway horizontal alignment, indicating a station and offset. The elevation of

points identifying the burial location must locate the bottom and top of Type R-1 or R-2 material to an accuracy of 0.3 ft vertically. Reference elevations of the bottom and top of Type R-1 or R-2 material to the project vertical datum. Report accuracy of spatial data in US Survey feet under Caltrans Orders of Accuracy in the Caltrans Surveys Manual Chapter 5.

#### **14-11.08J Material Transportation**

Before traveling on public roads outside the controlled access construction zone, remove loose and extraneous regulated material from outside surfaces of containers and the cargo areas of trucks. Place tarpaulins or other cover over the cargo as described in the authorized excavation and transportation plan. You are responsible for costs due to spillage of regulated material during transport. Transportation routes for Type R-1 or Type R-2 material must only include the highway within the job site limits.

Use a bill of lading while transporting excavated Type R-1, Type R-2, or Type Z-0 material on public roads outside of the controlled access construction zone.

Transport excavated Type Z-2 and Type Z-3 material using:

1. Hazardous waste manifest
2. Hazardous waste transporter with a current DTSC registration certificate and CA Highway Patrol (CHP) Basic Inspection of Terminals (BIT) Program documentation with a satisfactory rating.

#### **14-11.08K Disposal**

##### **14-11.08K(1) General**

Laws and regulations that govern disposal of regulated material include:

1. Health & Safety Code § 25100 et seq
2. 22 CA Code of Regs § 66250 et seq
3. 8 CA Code of Regs

The Department does not pay for additional sampling and analysis required by disposal facilities.

##### **14-11.08K(2) Type Com Material**

Not Used

**Replace section 14-11.09 with:**

#### **14-11.09 MINIMAL DISTURBANCE OF REGULATED MATERIAL CONTAINING AERIALLY DEPOSITED LEAD**

##### **14-11.09A General**

Section 14-11.09 includes specifications for handling and managing regulated material containing ADL when there is a minimal disturbance. Regulated material containing ADL has average ADL concentrations over 80 mg/kg total lead or equal to or greater than 5 mg/L soluble lead tested using the California Waste Extraction Test or equal to or greater than 5 mg/L soluble lead tested using the toxicity characteristic leaching procedure.

Compliance with 22 CA Code of Regs is not required where there is minimal disturbance of regulated material containing ADL.

Management of regulated material containing ADL exposes workers to health hazards that must be addressed in your lead compliance plan under section 7-1.02K(6)(j)(ii).

Handle regulated material containing ADL under the rules and regulations of the following agencies:

1. Cal/OSHA
2. RWQCB, Region 3 — Central Coast
3. Monterey Bay Air Quality Management District

Regulated material containing ADL is typically found within the top 2 feet of material in ADL-impacted areas of the job site. Concentrations of ADL have not yet been determined. Lead concentrations analyzed by US EPA Method 6010 or US EPA Method 7000 series.

#### **14-11.09B Material Management**

Handling of regulated material containing ADL must result in no visible dust migration. Use dust control measures. A means of controlling dust must be available at all times.

Separate material from vegetation. The resulting soil must remain on the job site.

Surplus material from the areas with regulated material containing ADL must remain in the area of disturbance. Do not dispose of surplus material outside the highway.

#### **Replace the 1st paragraph of section 14-11.14A:**

Wood posts from metal beam guardrail removal, wood light pole removal or roadside sign post removal are treated wood waste.

#### **Add section 14-11.14F:**

##### **14-11.14F Payment**

Payment for complying with section 14-11.14 is included in payment for remove guardrail and remove roadside sign.

## **15 EXISTING FACILITIES**

#### **Add between the 1st paragraph of section 15-1.03B:**

Remove traffic signal pole foundations entirely.

#### **Delete the 7th paragraph of section 15-1.03B.**

#### **Add to the end of section 15-1.03C:**

At least 2 business days before hauling the material to the salvaged material stockpile location, notify the Engineer and inform the City recycle coordinator at telephone no. (831) 884-1212

The stockpile location is:

City of Marina - Public Works Corporation Yard  
2660 5th Avenue  
Marina, CA 93933

## **16 TEMPORARY FACILITIES**

**Replace section 16-3 with:**

### **16-3 TEMPORARY PAVEMENT**

#### **16-3.01 GENERAL**

Section 16-3 includes specifications for constructing temporary pavement to convey traffic around work to facilitate construction phasing as shown. Temporary pavement includes hot mix asphalt, class 2 aggregate base, excavation, and temporary pavement removal and backfill with native material outside permanent pavement limits. Temporary striping of temporary pavement is not included in payment for temporary pavement.

Hot mix asphalt must comply with section 39.

Class 2 aggregate base must comply with section 26.

Excavation, temporary pavement removal and backfill must comply with section 19.

#### **16-3.02 MATERIALS**

Not Used

#### **16-3.03 CONSTRUCTION**

Not Used

#### **16-3.04 PAYMENT**

Temporary striping of temporary pavement and traffic control necessary to construct temporary pavement is included in the payment for traffic control system.

## **DIVISION III EARTHWORK AND LANDSCAPE**

### **17 GENERAL**

**Replace “5” with “2” throughout 4th paragraph in section 17-2.03A.**

**Add the following to the end of section 17-2.03D:**

Contractor may reduce removed trees to chips with a maximum thickness of 1/2 inch, transport to the City of Marina Corporation Yard at 2660 5<sup>th</sup> Avenue, Marina, CA, and stockpile at a location directed by the City. Deliveries of chips shall be coordinated with the City in advance.

## 19 EARTHWORK

### **Replace the 2nd, 3rd, and 4th paragraphs of section 19-2.03B with:**

Dispose of surplus material. Ensure enough material is available to complete the embankments before disposing of it.

### **Add the following section 19-2.03I:**

#### **19-2.03I Swale Excavation**

The excavation necessary to construct the top finished grade of bioretention swales as shown is paid for as roadway excavation. The excavation for placement of biotreatment soil mix (BSM) is included in the price paid for biotreatment soil mix (BSM).

### **Add to section 19-3.04:**

Class 2 aggregate base placed below footings is paid for as structure backfill.

Pervious and permeable backfill material placed within the limits of payment for retaining walls is paid for as structure backfill (retaining wall).

### **Add to section 19-7.02C:**

Any material imported for the construction of embankments or as backfill for structures, culverts, and other facilities shall meet the following requirements:

|                                    |                            |
|------------------------------------|----------------------------|
| pH <sup>1</sup>                    | > 5.5 (> 7.3) <sup>2</sup> |
| Water Soluble Sulfate <sup>3</sup> | < 0.2%                     |
| Resistivity (R) <sup>1</sup>       | > 3000 ohm cm <sup>2</sup> |

1. Per California Test 532 & 643.
2. For backfill around metal pipe/conduit.
3. Reported as SO<sub>4</sub>.

### **Replace *Reserved* in Section 19-11 with:**

#### **19-11 SUBGRADE ENHANCEMENT UNDER HMA DIKES**

##### **19-11.01 GENERAL**

Section 19-11 includes specifications for placing geogrid under hot mix asphalt dikes adjoining bio treatment swales.

Excavation and backfill of subgrade to place geogrid must comply with section 19.

### **19-11-02 MATERIALS**

Subgrade enhancement geogrid must be biaxial geogrid.

### **19-11.03 CONSTRUCTION**

Comply with section 19-10.03 in installing geogrid.

### **19-11.04 PAVEMENT**

Payment for subgrade enhancement under hot mix asphalt dikes is included in payment for Place Hot Mix Asphalt Dike (Type A).

## **20 LANDSCAPE**

### **Replace section 20-1.01A with:**

Section 20 includes general specifications for performing landscaping work.

Perform roadside clearing:

1. As required to prepare the job site for construction work
2. Until the start of the plant establishment work or Contract acceptance, whichever comes first

Check for plant deficiencies before installing any irrigation system in an existing planting area to be maintained.

Unless a supply line is shown through plant holes, relocate any plant hole to clear a supply line. Do not install supply lines, control and neutral conductors, and electrical conduits in common trenches above each other.

### **Replace section 20-1.01B with:**

**Compost** – is the product of controlled biological decomposition of organic materials, often including urban plant debris and food waste. It is an organic matter resource that has the unique ability to improve the chemical, physical and biological characteristics of soils or growing media. It contains plant nutrients but is typically not characterized as a fertilizer. *(Excerpted from US Compost Council, Field Guide to Compost Use)*

**Integrated Pest Management** – is a holistic approach to mitigating insects, plant diseases, weeds, and other pests. It involves the use of many strategies for managing, but not eliminating pests. Integrated Pest Management (IPM) uses cultural, mechanical, physical, and biological control methods before using pesticides to control pests and diseases in the landscape. Chemical controls are applied only when monitoring indicates that preventative and non-chemical methods are not keeping pests below acceptable levels. When pesticides are required, the least toxic and the least persistent pesticide that will provide adequate pest control is applied.

The **Organic Materials Research Institute** (OMRI) is a national nonprofit organization founded in 1997 to support the organic community. OMRI reviews products to determine

their suitability for producing, processing and handling organic food and fiber under the USDA National Organic Program Rule (OMRI General Materials List).

**Pesticide** – As defined in Section 12753 of the California food and Agricultural Code, a pesticide includes any of the following: “(a) Any spray adjuvant. (b) Any substance, or mixture of substances which is intended to be used for defoliating plants, regulating plant growth, or for preventing, destroying, repelling, or mitigating any pest, which may infest or be detrimental to vegetation, man, animals, or households, or be present in any agricultural or nonagricultural environment whatsoever”. Antimicrobial agents are excluded from the definition of pesticide.

### **Replace section 20-1.01C with:**

#### **Soil Analysis**

Contractor shall arrange and pay for soil testing by an accredited soils laboratory approved by the City’s Representative. Laboratories that participate in the North American Proficiency Testing Program (NAPT) are recommended. See [www.usual.usu.edu/napt](http://www.usual.usu.edu/napt) for participating laboratories. Waypoint Analytical, 1101 S Winchester Blvd, San Jose, CA 95128 (408) 727-0330 (or approved agency).

Soil submitted for testing should be of individual samples taken from eight (8) locations as shown on the plans. At each sampling spot dig a spades width hole at least 8 inches deep, and excavate 2 cups of soil, blend together and deliver to the soil lab for testing. Label the soil sample in a clean sealable plastic bag for testing. Label the bag with site information: area of sample plus name of person who took the sample and contact information and include the species of plants provided on the planting plan.

PRODUCT DATA SHEET - At a minimum the soil analysis shall include:

1. soil texture
2. infiltration rate determined by laboratory test or soil texture infiltration rate table
3. pH
4. total soluble salts
5. sodium
6. essential nutrients
7. percent organic matter

Recommendations- request that the laboratory make recommendations for amending the soil with organic compost to bring the soil organic matter to a minimum of 5% by dry weight and incorporating natural, non- synthetic fertilizers to recommended levels for planting area.

The base bid shall include cost of testing site soil and organic amendments noted in this specification section. Adjust the quantities of soil amendments and fertilizer per soil lab written report recommendation. The approved soils laboratory recommendations shall be considered a part of this specification.

Organic Fertilizers: Samples and manufacturer's certificate of fertilizers shall be as directed by the soil test results. Include Manufacturer's literature on each of the materials recommended.

**Add to the end of section 20-1.01D(1):**

Installation shall be by a contractor and crew with at least five years of experience in Landscape Contracting procedures on projects of similar nature or dollar cost.

Contractor shall conform to all local, state/provincial licensing and bonding requirements.

**Replace section 20-1.01D(2):**

The Engineer performs a progress inspection:

1. Before cultivating work starts
2. During pressure testing of irrigation pipe on the supply side of control valves
3. During testing of low voltage conductors
4. During irrigation system functional tests
5. Before planting work starts
6. After completion of planting work

Notify the Engineer at least 4 business days before each inspection is required. Allow at least 3 business days for the Engineer's inspection.

Do not proceed with the next construction activity until the inspection has been completed and any required corrective work has been performed and authorized.

**Replace section 20-1.02A:**

Perform work in accordance with all applicable laws, codes and regulations required by authorities having jurisdiction over such work and provide for all inspections and permits required by Federal, State and local authorities in furnishing, transporting and installing materials.

**Add section 20-1.02D:**

**20-1.02D TOPSOIL**

Contractor shall provide imported planting soil where specified in the plans and details per Soils Lab recommendations. Use topsoil mix that a minimum of 5% and up to 10% organic matter (with 20% or more compost content). Soil portion must be sandy loam as defined by USDA. Submit soil analysis report.

All material shall be free of trash and debris, or any other deleterious materials, and shall be subject to the approval and acceptance of the City's Representative. The Contractor shall designate their proposed import sources in advance and shall provide source samples and soils test of material to the City's Representative. Material shall be free of seeds.

Contractor shall utilize all horticulturally suitable soil from on-site topsoil stockpile if available and shall be confirmed with City Representative.

All imported soil to be Class “A”.

The imported soil shall not contain any detectable concentration of chemicals analyzed for by EPA Method 8080, EPA Method 8240/8260, and EPA Method 8270; or any petroleum hydrocarbon identified by EPA Method 8015 - modified for TPH as gasoline, diesel and oil and grease.

|               |                          |            |
|---------------|--------------------------|------------|
| Arsenic (As)  | total arsenic less than  | 7 mg/kg    |
| Cadmium (Cd)  | total cadmium less than  | 35 mg/kg   |
| Chromium (Cr) | total chromium less than | 700 mg/kg  |
| Lead (Pb)     | total lead less than     | 200 mg/kg  |
| Mercury (Hg)  | total mercury less than  | 4 mg/kg    |
| Selenium (Se) | total selenium less than | 200 mg/kg  |
| Zinc (Zn)     | total zinc less than     | 1,000mg/kg |

Imported topsoil shall be fertile, agricultural soil, free of impurities, plants, weeds and roots. Soil shall contain sufficient quantities of nitrogen, phosphorus, potassium, calcium and magnesium to ensure a medium for sustained healthy plant growth and shall meet the following criteria:

| Agricultural Suitability         | Minimum | Maximum |
|----------------------------------|---------|---------|
| Salinity (ECe x 10) (3))         | 0       | 3       |
| Sodium (SAR)                     | 0       | 6       |
| Boron (PPM in Saturated Extract) | 0       | 1       |
| Reaction (pH of Saturated Paste) | 5.5     | 7.5     |

| Particle Size                         | Minimum | Maximum |
|---------------------------------------|---------|---------|
| Silt                                  | 10%     | 30%     |
| Clay                                  | 10%     | 25%     |
| Coarse Sand                           | 5%      | 20%     |
| Gravel (Maximum Aggregate Size 13 mm) | 0%      | 15%     |
| Decomposed Organic Matter             | 2%      | 15%     |

*(Table modified from the US Composting Council Landscape Architectural Specifications)*

Full compensation for providing soil analysis of imported topsoil, as specified in these special provisions, shall be considered as included in the contract lump sum price paid for Planting and no additional compensation will be allowed therefore.

**Add section 20-1.02E:**

**20-1.02E POLYMER**

Polymer coated sand product in the form of a straight additive for increased moisture retention and growth of plants through blending with soil amenities:

1. AquaSmart PRO – 40 lbs. per 1000 SF or Equal, available from: Ewing Irrigation

**Material Submittals**

The contractor shall submit manufacturer's letters of compliance, samples and manufacturer's literature for the following items:

1. Fertilizers (If required per Soils Lab recommendations)
4. Organic Compost
5. Mulch
6. Equipment
7. Water Source
8. Sand

**Product Delivery, Storage and Handling**

1. All products shall be delivered to the site in manufacturer's unopened standardized containers bearing original labels showing quantity, analysis and name of manufacturer.
2. All materials shall be stored in designated areas and in such a manner as to protect them from weather or other conditions that might damage or impair the effectiveness of the product.

General: All products shall be in conformance with the specifications.

Fertilizer: Commercial fertilizer, (if any is required) shall be per recommendation by Soil and Plant Lab.

**Add section 20-1.02F:**

**20-1.02F PLANTS**

Protect existing improvements and existing trees, as indicated on the plans, unless they are scheduled to be removed.

Certificates of inspection required by law for transportation shall accompany invoice for each shipment of trees. Submit five copies of certificates to City's representative after acceptance of material. Inspection at place of growth does not preclude rejection of trees/plants at project site.

Certificate of contract from plant material suppliers, including species, quantities, and sizes of trees at time of planting (height, width and caliper) shall be submitted to the Landscape Architect prior to site inspection.

Quantities: Plant materials, including seed, shall be furnished in quantities required to complete the work as indicated on the Drawings and shall be of species, kinds, sizes, spacing, etc., specified in the drawings and herein.

Install healthy, vigorous, shapely, well branched plants, densely foliated when in leaf, well rooted with no evidence of having been root bound, restricted or deformed, with a structure typical of the species or variety, free of disease, insect pests, eggs or larvae, and free from physical damage or adverse conditions that would prevent thriving growth.

Plants shall be nursery grown under climatic conditions similar to those of the job site.

Roots to be healthy and extend to the bottoms and sides of the container with no signs of restriction due to kinked, circular or distorted growth or deformed or circling roots at the liner stage. Rooting to be extensive enough to hold the rootball together during planting, but not so dense as to discourage root establishment into surrounding soils

Take precautions to ensure that the plants will arrive at the site in proper condition for successful growth.

Protect plants in transit from windburn and sunburn. Deliver plants with roots moist and showing no indication of drought stress. Protect and maintain plants on site by proper storage and watering.

Plants shall not be pruned prior to delivery.

All plants to be inspected by the Landscape Architect prior to installation. The City's Representative reserves the right to reject any or all plants due to health or structural defects and to inspect plant material prior to shipment after receiving order confirmation from supplying nursery. Notify Landscape Architect 5 days in advance of all required inspections prior to the delivery to site. In case the sample plants reviewed are found to be defective, the Landscape Architect reserves the right to reject the entire lot(s) of plants represented by the defective sample. Remove unsuitable plants and immediately dispose of off the site.

#### **Add section 20-1.02G:**

##### **20-1.02G BOULDERS**

Boulders shall be: Napa Basalt, **OR** Gilroy Fieldstone **OR** Sonoma Fieldstone free of sharp corners open cracks or holes. Landscape Architect to approve size and condition per submittal of photos for review and approval.

1. Boulders to be approximately sized at the following dimensions:
  - a. Small: 5'H x 5'Lx 5'D
  - b. Large: 5'Hx 7'Lx 6'D

**20-1.02D(1) Boulder and Stone Layout:**

1. Contractor to coordinate the final placement and layout with the Landscape Architect. The Contractor is to contact Landscape Architect to coordinate date and time to meet in-the-field.
2. Install boulders in mixed sizes, clusters of two, and 3 boulders each within the Roundabouts as indicated on plans.

**Add section 20-1.02H:****20-1.02H INTEGRATED/ORGANIC PEST MANAGEMENT**

1. Integrated Pest Management (IPM) practices shall be used to control pests and diseases in the landscape.
2. Synthetic pre-emergents are prohibited.
3. Pesticides that are not allowed by OMRI in its generic materials list are prohibited.
4. No Herbicides shall be permitted on the project.
5. No Rodenticides shall be permitted on the project

**Add section 20-1.02I:****20-1.02I GOPHER WIRE BASKET**

Gopher Wire Basket shall be: 15 GAL Gopher wire basket by Digger's or approved equal.

1. 15 gal gopher wire basket: Size 17" Dia. x 20" Depth.
2. Install chicken wire at bottom of planting pit and gopher wire basket to enclose the basket completely. Tree bubbler irrigation shall be installed inside gopher basket as shown on the plan.

**Replace section 20-1.03A:**

Commencement of planting operations shall presume that Contractor has fully examined all areas to be planted and has determined that conditions are satisfactory. At the nursery and upon delivery, plants shall be subject to inspection and approval by City's Representative for conformity with this section. The City's Representative reserves the right to examine and reject any plant material deemed in unhealthy condition during planting or throughout the Guarantee period. Examine areas to receive planting prior to commencement of work such as drainage installation and completed work of other trades.

Take precautions to prevent irrigation water from:

1. Wetting vehicles, pedestrians, and pavement
2. Eroding soil
3. Causing excess runoff

If water use calculations are provided as supplemental project information, water plants under

the Model Water Efficient Landscape Ordinance, 23 CA Code of Regs § 490 et seq., and local water agency provisions.

Water plants at night unless otherwise authorized.

Dispose of removed, pruned, and damaged vegetative material.

Contractor may reduce on-site vegetative material to be removed for project construction to chips with a maximum thickness of 1/2 inch and spread it within the job site at locations determined by the Engineer. Coordinate with the Engineer and obtain authorization to spread the material prior to vegetative material removal. Do not substitute chipped material for compost mulch or place it in areas to receive compost mulch.

Carefully pack trees to prevent breaking, damage to bark, branches and root systems, and root cracking. Provide adequate ventilation, but do not expose the plants to the wind during transport – tarp plants or transport in an enclosed vehicle. Protect roots from sun, drying wind and frost. Do not drop trees or plants from vehicles. Legibly label plants with correct botanical name and common name. Store packaged materials in dry locations away from contaminants.

**Replace section 20-1.03C(3) with:**

Control weeds by the use of pesticides (if necessary), hand-pulling, or mowing.

If pesticides are used to control weeds, apply pesticides before the weeds reach the seed stage of growth or exceed 4 inches in length, whichever occurs first. Do not use pesticides at cutting plant locations.

Where cuttings are to be planted, control weeds by hand-pulling within an area 2 feet in diameter centered at each plant location.

Hand-pull weeds before they reach the seed stage of growth or exceed 4 inches in length, whichever occurs first.

Where liner, plug, or seedling plants are to be planted 10 feet or more apart, control weeds by the use of hand-pulling within an area 2 feet in diameter centered at each plant location.

Control weeds by mowing outside of mulched areas, plant basins, groundcover, plant areas, and within areas to be seeded. Mowing must extend to the edges of pavement, dikes, curbs, sidewalks, walls, and fences.

If mowing is to be performed within areas to be seeded, perform mowing as needed until the start of the seeding activity.

Perform mowing before the weeds reach the seed stage of growth or exceed 6 inches in length, whichever occurs first. Mow weeds to a height of 3 inches.

**Replace section 20-1.03D with:**

The areas to be cultivated must extend 12 inches beyond the outer limit of each planting area requiring cultivation.

After initial cultivation, place soil amendment and fertilizer, (if required per Soil Lab recommendations) at specified rates. Re-cultivate to thoroughly mix native soil and amendments. Do not drive on cultivated areas after cultivation.

Planting areas that have been cultivated and become compacted must be re-cultivated. Rocks and debris encountered during soil preparation in planting areas must be brought to the ground surface.

Remove rocks and debris as ordered.

**Replace section 20-3.01C(3) with:**

**20-3.01C(3) WATERING**

Water existing plants to be maintained, transplanted buckwheat plants, and new plants as needed to keep the plants in a healthy growing condition.

**Replace section 20-5.05 with:**

**20-5.05 ROUNDABOUT ART**

**20-5.05A GENERAL**

Section 20-5.05 includes specifications for manufacture, fabrication, and installation of roundabout art.

Welding must comply with Section 11.

Reinforcement must comply with Section 52.

Foundation concrete must comply with Section 90.

Contractor shall coordinate with the City-selected artist on developing the cut out designs for the weathering steel plates based on the following themes:

- Recreational Opportunities
- Natural Habitat
- History of Fort Ord
- Diversity

Contractor shall prepare the artist's designs in a digital format required by the steel cutter and/or manufacturer for review and approval by the Engineer and artist.

Steel cutting shall be by water jet cutter and/or laser cutter. Rounding of exterior and interior edges by the manufacturer is required.

### **20-5.05B MATERIALS**

The roundabout art monument plates are to be 3/4" thick Core Ten self-weathering steel with a yield stress  $F_y = 50\text{ksi}$ .

Welding electrodes shall be compatible with the Cor Ten self-weathering steel and shall produce a weld with similar corrosion resistance and color as the weathering steel.

The concrete must have a minimum compressive strength of  $f'_c = 2,500$  psi and the reinforcing steel must have a yield stress  $F_y = 60$  ksi.

### **20-5.05C SUBMITTALS**

Submit shop drawings for roundabout art, including details of weathering steel plate, anchorage systems, cutout art design, placement within roundabout, installation, and welding details.

Contractor shall prepare the artist's designs in a digital format required by the steel cutter and/or manufacturer for review and approval by the Engineer and artist. Upon approval, Contractor shall submit 1/10 scale 1/8" thick weathering steel "proofs" of the art panels for final review and approval by the Engineer and artist.

The Contractor shall submit the method(s) used to cut the steel panels, the location the panels will be cut, and the type, model, and manufacturer(s) of the cutting equipment to be used.

The Contractor shall submit method(s) for rounding all exterior and interior edges by the manufacturer such that all edges are smooth, and not sharp, to the touch. Upon approval of such method(s), the Contractor shall submit two 3/8" thick weathering steel block samples demonstrating smoothness of exterior and interior cuts to the Engineer for review and approval. Upon approval, one sample shall be kept by the manufacturer for quality control and one sample shall be kept by the Engineer for reference.

### **20-5.05D PAVEMENT**

The contract unit price paid per each for "Roundabout Art (H=8')", "Roundabout Art (H=10')", and "Roundabout Art (H=12')", includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work specified in the Plans and in this Section involved in manufacturing, fabricating, and installing roundabout art, weathering steel panel, foundations, and anchors, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**Replace *Reserved* in section 20-5.06 with:**

### **20-5.06 DOLPHIN ART**

#### **20-5.06A GENERAL**

Section 20-5.06 includes specifications for manufacture, fabrication, and installation of dolphin art.

Welding must comply with Section 11.

Reinforcement must comply with Section 52.

Foundation concrete must comply with Section 90.

Contractor shall coordinate with the City-selected artist on developing the dolphin art and the necessary foundation for the art piece. See project plans for placement locations. Dolphins are to be pointing in the westbound direction.

#### **20-5.06B SUBMITTALS**

Submit shop drawings for dolphin art, including details for materials, dolphin art design, placement within the landscape area before each roundabout, foundation, and welding details.

#### **20-5.06C PAVEMENT**

The contract unit price paid per each for "Dolphin Art" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in manufacture, fabrication, and installation of dolphin art, including art piece and foundations, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

#### **Add to the end of Section 20-10.01C:**

Existing buckwheat plants, underlying soil and leaf litter in areas shown on the plans must be salvaged and transplanted to the location shown on the plans prior to construction impacts to these areas. The areas receiving the transplanted buckwheat plants, underlying soil, and leaf litter are to be protected once the plants have been transplanted and the new buckwheat seed has been spread.

#### **Replace *Not Used* in section 20-10.01D with:**

#### **20-10.01D PAVEMENT**

The lump sum price paid for "Buckwheat Relocation and Seeding" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in salvaging and transplanting the existing buckwheat plants, underlying soil, and leaf litter, watering, seeding the area with new buckwheat seed, and protecting after transplanting, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

#### **Replace section 20-2 with:**

#### **20-2 IRRIGATION**

Shall be per the City of Marina, California Standard Specifications, 2006 edition, and Marina Coast Water District requirements.

## **20-3 PLANTING**

### **20-3.01 GENERAL**

#### **20-3.01A General**

##### **20-3.01A(1) Summary**

Section 20-3.01 includes general specifications for performing planting work.

##### **20-3.01A(2) Definitions**

**Average plant density:** Number of living plants per square yard determined from a count of sample areas selected by the Engineer representing 3 to 5 percent of the total planted area.

##### **20-3.01A(3) Submittals**

Submit nursery invoices showing sizes, quantities, and botanical names of plants, including genus, species, and variety. Include lot numbers for plants grown from the same seed lot or cutting source.

##### **20-3.01A(3)(a) General**

##### **20-3.01A(3)(b) Vendor Statements**

At least 60 days before planting the plants, submit a statement from the vendor that the order for the plants required, including sample plants used for inspection, has been received and accepted by the vendor. The statement from the vendor must include the plant names, sizes, quantities, and anticipated delivery date.

##### **20-3.01A(3)(c) Certificates of Compliance**

Submit a certificate of compliance for soil amendment

##### **20-3.01A(4) Quality Assurance**

Plants must comply with federal and State laws requiring inspection for diseases and infestations. Inspection certificates required by law must accompany each shipment of plants.

The Engineer inspects the roots of container-grown sample plants by removing earth from the root ball of not less than 2 plants, nor more than 2 percent of the total number of plants of each species or variety. If container-grown plants are purchased from several sources, the Engineer inspects the roots of not less than 2 of each sample plant species or variety from each source. The root ball of container grown plants must not show evidence of having been restricted, or being under developed or deformed.

If the Engineer finds noncompliant plants, the entire lot represented by the noncompliant sample plants is rejected.

Cuttings with mature or brown stems and cuttings that have been trimmed will be rejected.

#### **20-3.01B Materials 20-3.01B(1) General**

Notify the Engineer at least 10 days before the plants are shipped to the job site.

## **20-3.01B(2) Plants**

### **20-3.01B(2)(a) General**

Plants must be true to the type or name shown. Plants must be individually tagged or tagged in groups identifying the plants by species or variety. Tagging is not required for cuttings.

Plants must be healthy, well-formed, free from insect pests and disease, and grown in nurseries inspected by the Department of Food and Agriculture. Plants must not be root-bound.

The plants must be the size and type shown in the following table:

| Plant group designation | Description           | Container size (cu in) |
|-------------------------|-----------------------|------------------------|
| A                       | No. 1 container       | 152–251                |
| B                       | No. 5 container       | 785–1242               |
| C                       | Balled and burlapped  | --                     |
| E                       | Bulb                  | --                     |
| F                       | In flats              | --                     |
| H                       | Cutting               | --                     |
| I                       | Pot                   | --                     |
| K                       | 24-inch box           | --                     |
| M                       | Liner <sup>a</sup>    | --                     |
| O                       | Acorn                 | --                     |
| P                       | Plugs <sup>a, b</sup> | --                     |
| S                       | Seedling <sup>c</sup> | --                     |
| U                       | No. 15 container      | --                     |

<sup>a</sup>Do not use containers made of biodegradable material.

<sup>b</sup>Grown in individual container cells.

<sup>c</sup>Bare root.

Trucks used for transporting plants must be equipped with covers to protect plants from windburn and sunburn.

Handle and pack plants using authorized methods appropriate for the species or variety.

### **20-3.01B(2)(b) Cuttings**

Reserved

### **20-3.01B(3) Soil Amendments**

REPLACE THE WITH:

Soil amendment must comply with the Soil Lab's Recommendations

**20-3.01B(4) Fertilizers**

Reserved

**20-3.01B(4)(a) General**

Reserved

**20-3.01C Tree Protection (1 and 5 Gallon)**

See Landscape Plans Details

**20-3.01D Construction 20-3.01D(1) General**

Before transporting the plants to the planting area, thoroughly wet the root ball.

**20-3.01D(2) Pruning**

Reserved

**20-3.0D(3) Watering**

Water existing plants to be maintained, transplanted trees, and new plants as needed to keep the plants in a healthy growing condition.

**20-3.01D(4) Replacement Plants**

Plants that show signs of failure to grow at any time or which are so injured or damaged as to render them unsuitable for the purpose intended, must be removed, replaced, and replanted. Replace unsuitable plants within 2 weeks after the Engineer marks or indicates that the plants must be replaced.

Replacement planting must comply with the original planting specifications, sizes and spacing described for the plants being replaced.

Replacement plants must be the same species specified as the plants being replaced.

Place orders for replacement plants with the vendor at a time such that the replacement plants are not in a root-bound condition.

The Department does not pay for replacement plants or the planting of replacement plants.

**20-3.01C(5) Maintain Plants**

Maintain plants from the time of planting until Contract acceptance.

**20-3.01D Payment**

Not Used

**20-3.02 PLANTING WORK****20-3.02A General**

Section 20-3.02 includes specifications for planting plants.

**20-3.02B Materials**

Not Used

### **20-3.02C Construction 20-3.02C(1) General**

Do not start planting until authorized.

Do not start planting in an area until the irrigation functional test has been completed and authorized for the irrigation system serving that area.

### **20-3.02C(2) Preparing Planting Areas**

The Engineer may designate a location other than that shown, in which case, the Engineer marks the location by a stake, flag, or other marker.

Conduct work such that the existing flow line in drainage ditches is maintained. Material displaced by your activity that interferes with drainage must be removed.

Where a minimum distance to a drainage ditch is shown, locate the plant such that the outer edge of its basin wall is at least the minimum distance shown for each plant involved.

Excavate each planting hole by manual or machine method. The bottom of each planting hole must be flat. Do not use water to excavate the hole.

Unless a larger planting hole is described, the planting hole must be large enough to receive the root ball or the total length and width of roots, backfill, and amendments. Where rock or other hard material prohibits the hole from being excavated, a new hole must be excavated and the abandoned hole backfilled.

### **20-3.02C(3) Planting Plants 20-3.02C(3)(a) General**

Do not plant plants in soil that is too wet, too dry, not properly amended as described, or in an unsatisfactory condition for planting.

Do not distribute more plants than can be planted and watered on that day.

Water plants immediately after planting. Apply water until the backfill soil around and below the roots or ball of earth around the roots of each plant is thoroughly saturated. If watering with a hose, use a nozzle, water disbursement device, or pressure reducing device. Do not allow the full force of the water from the open end of the hose to fall within the basin around any plant. Several consecutive watering cycles may be necessary to thoroughly saturate the soil.

Where a tree, or shrub is to be planted within a groundcover area or cutting planting area, plant it before planting groundcover.

Where shrubs and groundcovers are shown to be planted in groups, the outer rows directly adjacent to the nearest roadway or highway fence must be parallel to the nearest roadway or highway fence. Stagger shrubs and groundcovers in adjacent rows. Adjust the alignment of the plants within the outer rows.

The Engineer determines the size and location of sample areas used to calculate average plant density.

### **20-3.02C(3)(b) Trees, Shrubs, and Groundcover**

After preparing holes, thoroughly mix soil at the rate shown with native soil to be used as backfill material. Remove containers from plants in a way that the ball of earth surrounding the roots is not broken. Do not cut plant containers before delivery of the plants to the planting area. Plant and water plants immediately after removal from their containers.

Distribute backfill uniformly throughout the entire depth of the plant hole without clods or lumps. After the planting holes have been backfilled, jet water into the backfill with a pipe or tube inserted into the bottom of the hole until the backfill material is saturated for the full depth. If the backfill material settles below this level, add additional backfill to the required level. If a plant settles deeper than shown, replant it at the required level.

Remove nursery stakes after planting.

Where installation of stakes occurs, ensure the root ball is not damaged. Construct a watering basin around each plant.

Install Tree protection within 2 days after planting. Install the foliage protector as follows:

1. Cut the bottom of the wire cylinder/cage to match the slope of the ground. Do not leave sharp points of wire after cutting. Sharp points must be bent over or blunted.
2. Install 2 support stakes for foliage protectors vertically and embed in the soil on opposite sides of the plant crosswise to the direction of the prevailing wind. See Planting Plans, Details
3. Ensure that the wire cylinder/cage is snug against the support stakes but loose enough to be raised to perform weeding within the plant basin.

### **20-3.02C(3)(c) Plants**

Each planting area irrigated by a single control valve must be completely planted and watered before planting other groundcover planting areas.

Plant groundcover plants in moist soil, and in neat, straight rows parallel to the nearest roadway. Stagger plants in adjacent rows.

### **20-3.02C(3)(d) Containers, Liners, Plugs, and Seedling**

Reserved

#### **Plants 20-3.02C(3)(d)(i) General**

Ensure the soil is moist to a minimum depth of 8 inches before planting cuttings.

#### **20-3.02C(3)(d)(v) Liner Plants**

Plant liner plants during the period specified in the special provisions.

#### **20-3.02C(3)(d)(vi) Plug Plants**

Plant plug plants during the period specified in the special provisions.

#### **20-3.02C(3)(d)(vii) Seedling Plants**

Plant seedling plants during the period specified in the special provisions.

#### **20-3.02D Payment**

The payment quantity for soil amendment is the volume measured in the vehicle at the point of delivery.

The payment quantity for plants is measured by either the product of the average plant density and the total planted area, or by a count of the living plants in place.

### **20-4 PLANT ESTABLISHMENT WORK**

#### **Maintenance, 365 Day Plant Establishment Period and Extended Three-Year Maintenance Contract**

##### **20-4.01 General**

The Contractor shall maintain all planted areas on a continuous basis as they are completed during the progress of the work and during the 365 Day Plant Establishment period, and shall continue to maintain them until final acceptance.

Protect adjacent walls, walks and utilities from damage or staining by soil. Clean up all trash and any soil or dirt spilled on any paved surface at the end of each working day. Maintain silt and sediment control devices, and provide adequate methods to assure that trucks and other equipment do not track soil from the site.

All planting areas shall be kept free of debris and shall be weeded and cultivated at intervals not to exceed 10 days. Any required pruning of plants will be as designated by the Landscape Architect at the start of the plant establishment period and the Contractor shall perform the pruning as part of the plant establishment work under the supervision of a licensed/certified Arborist.

The Contractor shall request a final inspection to begin the plant establishment period after all planting and related work has been completed in accordance with Construction Documents. After planting is completed, a field notification will be issued to the Contractor to establish the effective beginning date of the plant establishment period. The plant establishment period shall be for a period of 180 calendar days and shall be extended by the Landscape Architect if the planted material areas are improperly maintained, appreciable plant replacement is required, or if other corrective work becomes necessary.

Upon completion of the plant establishment period, a final inspection for acceptance will be performed by the Landscape Architect. If the plant establishment period is satisfactory completed ahead of the other work included in the Contract, the maintenance of planted areas shall be continued by the Contractor until all other work has been completed and accepted. Once accepted, a (3) three-year extended plant maintenance contract will commence. During the last winter of the three-year maintenance contract the Contractor shall contact the City Tree Supervisor to conduct an onsite review of each of the tree

species installed. This for the purpose of determining the best pruning practices to be carried out at this time on each tree to ensure proper tree growth structuring and branching habit. All trees MUST be properly pruned and accepted by the City prior to the end of the three-year maintenance period.

During the 3 year plant establishment period, (unless during this time period there is an extreme drought) plants to be irrigated in a manner to wean plants off of water and develop drought tolerance:

Water once a week the first year Every other week the second year Every third week the third year.

At the end of the 3 year plant establishment period, the tree protection cages are to be removed off a quarter of the trees, for a one week trial time period, to see if browsing is going to cause plant die-offs. It will be determined at the end of the (1) one week period, through site observations made by the City Representative if the remaining tree protection cages will be removed or remain and be removed at a later date.

#### **20-4.01A Summary**

Section 20-4 includes specifications for performing plant establishment work. Plant establishment consists of caring for the plants, including:

1. Controlling plant growth
2. Controlling rodents, insects, and weeds
3. Replacing damaged plants
4. Watering
5. Operating irrigation system
6. Repairing new irrigation system

Working days on which no work is required are credited as plant establishment working days regardless of whether or not you perform plant establishment work.

If any component of the electric automatic irrigation system is operated manually, the day will not be credited as a plant establishment working day unless the manual operation is authorized.

Working days on which you fail to adequately perform plant establishment work are not credited as plant establishment working days.

#### **20-4.01B Definitions**

**Type 1 plant establishment:** Plant establishment period with the number of working days specified for plant establishment starting after all work has been completed, except for plant establishment work, and other bid items specified to be performed until Contract acceptance.

**Type 2 plant establishment:** Plant establishment period with the number of working days specified for plant establishment starting after all planting work has been completed, except for plant establishment work, and other bid items specified to be performed until Contract acceptance. The Department will not accept the Contract unless the plant

establishment work has been satisfactorily performed for at least the number of working days specified for plant establishment.

If maintenance and protection relief is granted for a portion of the work, Type 2 plant establishment period for that portion is the time between completion of all planting work, except for plant establishment work, and the granting of maintenance and protection relief. The Department will not grant relief unless the plant establishment work in the completed portion of the work has been satisfactorily performed for at least the number of working days specified for the plant establishment period.

#### **20-4.01C Submittals 20-4.01C(1) General**

Submit seasonal watering schedules for use during the plant establishment period within 10 days after the start of the plant establishment period. Remote irrigation control system watering schedule must use the remote irrigation control system software program.

Submit updated watering schedules within 5 business days after any changes have been made to the authorized schedules.

Submit a revised watering schedule for each irrigation controller at least 30 days before completion of the plant establishment period.

#### **20-4.01C(2) Notification**

The Engineer notifies you when the plant establishment period starts and furnishes statements regarding the number of working days credited to the plant establishment period after the notification.

#### **20-4.01D Quality Assurance**

Provide training by a qualified person on the use and adjustment of the installed irrigation controllers no more than 30 days before completion of the plant establishment period.

Perform a final inspection of the plant establishment work in the presence of the Engineer 20 to 30 days before Contract acceptance.

### **20-4.02 MATERIALS**

#### **20-4.02A General**

Reserved

#### **20-4.02B Fertilizers**

Reserved

### **Reserved20-4.03 CONSTRUCTION**

#### **20-4.03A General**

Dispose of surplus earth accumulated in roadside clearing and planting areas. Remove tree protectors if plants become restricted.

Keep plant basin walls well formed.

Clean new wye strainers and existing wye strainers that are a part of the new irrigation system annually until the completion of the plant establishment period. The last cleaning must be done within 15 days before the completion of the plant establishment period.

Contractor to provide wye strainers.

Remove, clean, and reinstall new filters and existing filters that are a part of the new irrigation system annually until the completion of the plant establishment period. The last cleaning must be done within 15 days before the completion of the plant establishment period.

#### **20-4.03B Plant Growth Control**

Prune plants planted as part of the Contract only as authorized.

Remove plant growth that extends within 2 feet of sidewalks, curbs, gutters, dikes, shoulders, walls or fences.

#### **20-4.03C Fertilizing**

Reserved

#### **20-4.03D Weed Control**

Control weeds under section 20-1.03C(3).

#### **20-4.03E Plant Staking**

Reserved

#### **20-4.03F Replacement Plants**

Replacement plants must comply with section 20-3.01C(4).

Replacement of plants up to and including the 365 plant establishment working day must be with a plant of the same size as originally specified. Plants of a larger container size than those originally specified for replacement plants may be used during the first 180 working days of the plant establishment period.

Plants replaced after the 365th plant establishment working day must be the size shown in the following table:

| Plant size<br>(Original)    | Plant size<br>(Replacement) |
|-----------------------------|-----------------------------|
| Pot/liner/plug<br>/seedling | No. 1<br>container          |
| No. 1<br>container          | No. 5<br>container          |
| No. 5<br>container          | No. 15<br>container         |

Other replacement plants must be the same size as originally specified.

#### **20-4.03G Watering**

Operate the electric automatic irrigation systems in the automatic mode unless otherwise authorized. Water plants utilizing the remote irrigation control system software program unless authorized.

Implement the watering schedule at least 10 days before completion of the plant establishment period.

#### **20-4.04 PAYMENT**

##### **20-4.04(1) Payment for 365 Days Plant Establishment Period:**

The **lump sum** price shown in the Bid Item **“Plant Establishment Period (365 Days)”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in, amendments, trash removal, pruning (if necessary), maintaining the planting and Irrigation as shown on the plans, as specified in the Specifications, these special provisions and as directed by the Engineer and no further compensation will be allowed therefore.

##### **20-4.04(2) Payment for 3 years Extended Plant Maintenance:**

The **lump sum** price shown in the Bid Item **“Irrigation and Landscaping 3-Years Maintenance Contract”** for extended three years maintenance contract per Section 20-4 PLANT ESTABLISHMENT WORK shall include full compensation to complete and maintain **all the work** as shown on the plans, as specified in the Standard Specifications and these Special Provisions, including furnishing all labor, materials, tools, equipment and incidentals, and performing all adjustments necessary to complete the work, shall be included in the **“Three Year Maintenance Contract”** and no further compensation will be consider therefore.

##### **20-4.04(3) Payment for Shrub Planting:**

The lump sum price paid for **“Planting”** shall include full compensation to complete all the work to plant shrubs, trees, grasses, and mulch, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, including furnishing all labor, materials, tools, equipment and incidentals, and performing all adjustments necessary to complete planting, as well as furnish and install planting soil, trenching, excavation and backfill, soil preparation and conditioning, amendments, compost mulch, Maintenance and no additional compensation will be allowed therefore.

#### **20-5 LANDSCAPE ELEMENTS**

##### **20-5.01 GENERAL**

###### **20-5.01A General**

Section 20-5.01 includes general specifications for constructing and installing landscape elements. Earthwork must comply with section 19.

###### **20-5.01B Materials**

Not Used

**20-5.01C Construction**

Not Used

**20-5.01D Payment**

Not Used

**20-5.02 EDGING**

Not Used

**20-5.03 GROUND COVERS AND MULCHES****20-5.03A****General****20-5.03A(1)(a) Summary**

Section 20-5.03A includes general specifications for placing ground covers and mulches.

**20-5.03A(1)(b) Definitions**

Reserved

**20-5.03A(1)(c) Submittals**

Reserved

**20-5.03A(1)(d) Quality Assurance**

Reserved

**20-5.03A(2) Materials Reserved****20-5.03A(3)****Construction****20-5.03A(3)(a)****General**

Before performing ground cover and mulch work, remove plants and weeds to ground level.

**20-5.03A(3)(b) Earthwork**

Maintain the planned flow lines, slope gradients, and contours of the job site. Grade subgrade to a smooth and uniform surface.

**20-5.03A(3)(c) Treatment of Soil**

Reserved

**20-5.03A(3)(d) Filter Fabric**

Reserved

**20-5.03A(4) Payment**

For Ground Cover payment see Section 20-4.04(3)

### **20-5.03B Boulders**

Must be clean, obtained from a single source, and must comply with section 20-1.02D and 20-1.02D(1)

### **20-5.03B(2)(d) Mortar**

Not Used

### **20-5.03B(3) Construction**

Reserved

### **20-5.03B(4) Payment**

Payment for “BOULDERS is considered included in the lump sum price paid for Planting and no additional compensation will be allowed therefore.

## **CHANGE TO SECTION 20-5.03C TO READ**

### **20-5.03C Organic Compost Mulch**

Organic Compost Mulch from composted overs derived from recycled green waste material must have been through a 9-16 week composting process and screened to desired sizing. Compost shall be applied as a 3” mulch layer on biotreatment swales and within the roundabouts to prevent the germination of most invasive annual weed species. Where seed is specified, apply the seed on top of the compost to ensure that desirable seed species will germinate.

### **20-5.03C(1) General**

#### **20-5.03C(1)(a) Summary**

Reserved

#### **20-5.03C(1)(b) Definitions**

Reserved

#### **20-5.03C(1)(c) Submittals**

1. Organic Compost Mulch: Contractor shall submit manufacturer’s letters of compliance, 1 lb. sample, and manufacturer’s literature on mulch source.
2. Boulder: Contractor shall submit photos of boulders with tape measure indicating size, and supplier’s certification on the source, type of Boulders. All Boulders to be sourced from the same location and shall be of the same stone type.

#### **20-5.03C(1)(d) Quality Assurance**

Reserved

### **20-5.03C(2) Materials**

Reserved

### **20-5.03C(3) Construction Reserved**

### **20-5.03C(4) Payment**

For Ground Cover payment see Section 20-4.04(3)

### **20-5.03D**

#### **Decomposed Granite**

Not Used

### **20-6–20-9**

#### **RESERVED**

## **20-10 EXISTING LANDSCAPE**

### **20-10.01 GENERAL**

#### **20-10.01A General**

Section 20-10.01 includes general specifications for performing work on existing planting and irrigation facilities.

#### **20-10.01B Materials**

Not Used

#### **20-10.01C Construction**

Transplant any plant to be transplanted and protect any irrigation component to be relocated before performing any other construction activity in the area.

#### **20-10.01D Payment**

Not Used

### **20-10.02 EXISTING IRRIGATION FACILITIES**

#### **20-10.02A General**

##### **20-10.02A(1) Summary**

Section 20-10.02 includes specifications for performing work on existing irrigation facilities. Work performed on existing irrigation facilities must comply with Section 15.

##### **20-10.02A(2) Definitions**

Reserved

##### **20-10.02A(3) Submittals**

Submit a list of irrigation system deficiencies within 7 days of checking the existing facilities.

##### **20-10.02A(4) Quality Assurance**

After irrigation facilities have been relocated, demonstrate in the presence of the Engineer that the relocated facilities function properly.

Certify each existing backflow preventer under section 20-2.02A(4).

#### **20-10.02B Materials**

Valve box covers must be the same size as the covers they replace.

Control and neutral conductors must be the same size and color as the control and neutral conductors they replace.

## **20-10.02C**

### **Construction 20- 10.02C(1) General**

Notify the Engineer at least 4 business days before shutting off the water supply to any portion of the existing irrigation system and immediately after restoring the water supply to any portion of the existing irrigation system.

If an irrigation facility to be relocated is determined unsuitable, replace the irrigation facility under section 20-2. The replacement of the unsuitable facility is change order work.

### **20-10.02C(2) Check and Test Existing Irrigation Facilities**

Before performing irrigation system work, check existing irrigation facilities to remain in place or to be relocated. The Engineer determines the test watering cycle lengths.

Check for deficiencies including missing parts, damaged components, and improper operation. Correct deficiencies as ordered. The correction of deficiencies is change order work.

### **20-10.02C(3) Operate Existing Irrigation Facilities**

If the Contract includes a bid item for operate existing irrigation facilities, after performing work under section 20-10.02C(2), operate existing irrigation facilities through Contract acceptance.

Operate existing irrigation facilities except for water meters, underground supply lines, control and neutral conductors, and electrical conduits.

Check for proper operation at least once every 30 days. Adjust, repair, or replace existing irrigation facilities within 7 days of finding any deficiency.

Operate irrigation systems using the automatic irrigation controller until Contract acceptance. You may operate irrigation controllers manually during plant replacement, fertilization, weed germination, and repair work.

Program the irrigation controllers for seasonal requirements.

### **20-10.02C(4) Remove Irrigation Facilities**

Irrigation facilities to be removed that are more than 6 inches below the finished grade may be abandoned in place unless salvaging is specified or shown

Immediately after disconnecting an existing irrigation facility to be removed or abandoned from an existing facility to remain, the remaining facility must be capped or plugged, or connected to a new or existing irrigation facility.

### **20-10.02C(5) Replace Valve Box Covers**

Existing valve box covers shown to be replaced must remain in place until the new covers are ready to be installed.

**20-10.02C(6) Relocate Backflow Preventer Assemblies**

Install backflow preventer assemblies under section 20-2.02C.

**20-10.02C(7) Relocate Water Meters**

Relocate water meters.

**20-10.02C(8) Relocate Irrigation Controllers**

Install irrigation controllers under section 20-2.06C.

**20-10.02C(9) Salvage Irrigation Facilities**

Salvage irrigation facilities under section 15-1.03C.

**20-10.02D Payment**

Not Used

**20-10.03 EXISTING PLANTING****20-10.03A General****20-10.03A(1) Summary**

Section 20-10.03 includes specifications for performing work on existing planted areas.

**20-10.03A(2) Definitions**

Reserved

**20-10.03A(3) Submittals**

Submit a work plan for:

1. Transplanting trees. The work plan must include methods for lifting, transporting, storing, planting, guying, and maintaining each tree to be transplanted. Include the root ball size, method of root ball containment, and a maintenance program for each tree.
2. Maintaining existing planted areas. The work plan must include controlling the weeds, fertilizing, mowing and trimming of turf areas, watering, and controlling rodents and pests.

**20-10.03A(4) Quality Assurance**

Inspect for deficiencies of existing planted areas in the presence of the Engineer. Complete the inspection within 15 days of the start of job site activities.

Deficiencies requiring corrective action include:

1. Weeds
2. Dead, diseased, or unhealthy plants
3. Plant stakes and tree ties that are missing
4. Inadequate plant basins and basin mulch
5. Other deficiencies needing corrective action to promote healthy plant life
6. Rodents and pests

**20-10.03B Materials**

Not Used

### **20-10.03C Construction 20-10.03C(1) General**

Correct deficiencies of the existing planted areas if ordered within 15 days of the order. Correction of deficiencies is change order work.

### **20-10.03C(2) Prune Existing Plants**

If a bid item for prune existing plants is not shown on the Bid Item List, prune existing plants if ordered. Pruning existing plants is change order work.

### **20-10.03C(3) Transplant Trees *(If required per Tree Mitigation Plans)***

Prune each tree to be transplanted immediately before lifting.

Prepare each hole in the new location before lifting the tree to be transplanted. Lift each tree to be transplanted as described in the work plan.

Handle and plant each tree to be transplanted under section 20-3.02C(3).

Until a tree is replanted, cover exposed root ball with wet burlap or canvas and cover the crown with 90 percent shade cloth.

Replant each tree on the same day it is lifted if possible. If the transplant location is not ready to receive the tree, store and maintain the tree to be transplanted until the transplant location is authorized. Store the tree in an upright position.

Replace each damaged transplanted tree under section 20-3.01C(4) with the number of trees specified in the special provisions.

The replacement trees must be planted in individual plant holes at the location determined by the Engineer within the area of the tree being replaced. Plant replacement trees under section 20-3.02C.

### **20-10.03C(4) Maintain Existing Planted Areas**

Section 20-10.03C(4) applies if a bid item for maintain existing planted areas is shown on the Bid Item List.

After deficiencies are corrected, perform work to maintain existing planted areas in a neat and presentable condition and to promote healthy plant growth through Contract acceptance.

Existing plant basins must be kept well-formed and free of sediment. If the existing plant basins need repairs and the basins contain mulch, replace the mulch after the repairs are done.

Control weeds within the existing planted area and:

1. From the existing planted area limit to the adjacent edges of paving and fences if less than or equal to 12 feet
2. From the existing planted area limit to 6 feet beyond the outer limit of the existing planted area if the adjacent edge of paving or fence is more than 12 feet away
3. Within a 3-foot radius from each existing tree and shrub

If a bid item for maintain existing planted areas is not shown on the Bid Item List, maintain existing planted areas if ordered. Maintain existing planted areas is change order work.

#### **20-10.03D Payment**

Not Used

#### **20-10.04–20-10.08**

Reserved

### **21 EROSION CONTROL**

**Replace *Not Used* in section 21-1.02 with:**

#### **21-1.02 MATERIALS**

##### **21-1.02A SEED OR SEED MIXES**

The work shall consist of the Hydroseeding of the exposed new roadway slopes.

The seed mixture, mulch and fertilizer must conform to the following requirements:

| <b><u>Species</u></b>      | <b><u>Application</u></b>  |
|----------------------------|----------------------------|
| Lasthencia gladrata        | 1lb/ac                     |
| Eschscholtzla californica  | 3lbs/ac                    |
| Lupinus bicolor            | 4lbs/ac                    |
| Lotus scoparius            | 7lbs/ac                    |
| Sisyrinchium bellum        | 4lbs/ac                    |
| Stipa pulchra              | 4lbs/ac                    |
| Baccharis glutinosa        | 6lbs/ac                    |
| Phus ovata                 | 8lbs/ac or container stock |
| Mimulus aurantiacus        | 5lbs/ac or container stock |
| Salvia mellidera           | 2lbs/ac                    |
| Salvia mellidera           | 3lbs/ac                    |
| Encelia californica        | 6lbs/ac                    |
| <b>Total Seed Per acre</b> | <b>52 lbs</b>              |

Mixture to include:

1,200 lbs/acre 100% Wood Fiber, Ecofiber-Profile, or approved equal

75 lbs/acre Tackifier: M-binder, or approved equal

1,000 lbs/acre 7-2-1 Biosol, or approved equal

60 lbs/acre AM 120 Soil Inoculant, or approved equal

After seed, wood fiber, tackifier, fertilizer and soil inoculant are applied, contractor to apply 2,400 lbs/acre ProMatrix Bonded Fiber Matrix, or approved equal.

The seeded areas shall be watered by the CONTRACTOR as required for proper germination and growth for minimum of 60 calendar days. Equipment shall be capable of watering all seeded areas from traveled way.

All seed shall be in conformance with the California State Seed Law of the Department of Agriculture. Each seed bag shall be delivered to the site sealed and clearly marked as to species, purity, percent germination, dealer's guarantee, and dates of test. In addition, the container shall be labeled to clearly reflect the amount of Pure Live Seed (PLS) contained. Prior to seeding at the request of the owner, the contractor shall provide a letter of certification, original Association of Official Seed Analysts (AOSA) seed test results, and calculations of PLS content.

#### **21-1.02B 100% WOOD FIBER MULCH**

100% wood hydroseed mulch shall be composed of wood fiber derived from whole wood chips with no growth or germination inhibiting substances, and shall be manufactured in such a manner that when thoroughly mixed with seed, fertilizer, organic stabilizer, and water, in the proportions specified, will form a homogeneous slurry which is capable of being sprayed to form a porous mat. The fibrous mulch in its air-dry state shall contain not more than 15% by weight of water. The fiber shall have a temporary green dye and shall be accompanied by a certificate of compliance stating that the fiber conforms to these specifications.

#### **21-1.02C FERTILIZER**

**Replace *Not Used* in section 21-1.03 with:**

Do not place erosion control measures within three (3) feet from the edge of pavement, back of sidewalk/path or back of swale.

Apply permanent erosion control materials to all completed embankment areas and cut slopes. All fiber rolls that do not conflict with remaining work shall be installed by September 25th. After October 1st, apply permanent erosion control measures at a maximum of one-week intervals to newly completed embankment areas and cut slopes. Do not unnecessarily delay the completion of embankments and cut slopes to delay application of permanent erosion control measures.

If notified by the Engineer that an area is ready to receive erosion control materials, start erosion control (hydroseed) work within 5 business days of the Engineer's notification to perform the work.

Apply erosion control (hydroseed) to all disturbed/exposed areas identified with the cut/fill lines shown on the plans; areas beyond the cut/fill lines that were unnecessarily disturbed in the opinion of the Engineer will not be included in the payment.

Any natural or undisturbed area outside of disturbed/exposed area necessary for construction shall not receive hydroseeding.

The Engineer may change the rates of erosion control (hydroseed) materials to meet field conditions.

Seed may be dry applied at the total rate specified in the preceding table for small areas not accessible by the hydroseeding equipment if approved by the Engineer. Dry-applied seed must be incorporated into the soil a maximum depth of 1/4 inch by raking or dragging.

## **22 FINISHING ROADWAY**

**Replace “Not Used.” In section 22-1.04 with:**

Finishing roadway activities are included in the payment for roadway excavation.

## **26 AGGREGATE BASES**

**Replace 2<sup>nd</sup> paragraph of section 26-1.02A with:**

Only use ¾ inch maximum aggregate grading. Do not change your selected aggregate grading without authorization.

## **DIVISION V SURFACING AND PAVEMENTS**

### **39 ASPHALT CONCRETE**

**Replace the 2<sup>nd</sup> paragraph under miscellaneous areas and dikes paragraph in section 39-1.14 with:**

Use 3/8” Type A aggregate gradation for HMA dikes.

**Delete the 2nd and 3rd paragraphs and replace the 1st sentence of the 4th paragraph of section 39-2.01C(4)(a) with:**

Place HMA on adjacent traveled way lanes such that at the end of each work shift and traffic allowed onto new HMA, the distance between the ends of HMA layers on adjacent lanes is from 5 to 10 feet.

**Replace section 39 with section 39 from Caltrans Standard Specifications 2010 included in the Appendix to these Specifications and as modified by the following:**

**Add to section 39-1.01:**

Produce and place HMA Type A under the section 39-3, method construction process.

**Add to section 39-1.01B:**

**processed RAP:** RAP that has been fractionated.

**substitution rate:** Amount of RAP aggregate substituted for virgin aggregate in percent.

**binder replacement:** Amount of RAP binder in OBC in percent.

**surface course:** Upper 0.2 feet of HMA exclusive of OGFC.

**Add to section 39-1.02C:**

Asphalt binder used in HMA Type A must be PG 64-10.

**Add to section 39-1.02E:**

Aggregate used in HMA Type A must comply with the 1/2-inch HMA Types A or the 3/4-inch HMA Types A, as shown on the plans.

1/2-inch HMA Type A to be used as the final/top lift of the roadway pavement section.

1/2-inch HMA Type A to be used for the HMA path section

**Replace "less than 10 percent" in note "b" in the table in the 5th paragraph of section 39-1.02E with:**

10 percent or less

**Replace the paragraphs in section 39-1.02F with:**

**39-1.02F(1) General**

You may produce HMA Type A or B using RAP. HMA produced using RAP must comply with the specifications for HMA, except aggregate quality specifications do not apply to RAP. You may substitute RAP at a substitution rate not exceeding 25 percent of the aggregate blend. Do not use RAP in OGFC and RHMA-G.

Assign the substitution rate of RAP aggregate for virgin aggregate with the JMF submittal. The JMF must include the percent of RAP used.

Provide enough space for meeting RAP handling requirements at your facility. Provide a clean, graded, well-drained area for stockpiles. Prevent material contamination and segregation.

If RAP is from multiple sources, blend the RAP thoroughly and completely. RAP stockpiles must be homogeneous.

Isolate the processed RAP stockpiles from other materials. Store processed RAP in conical or longitudinal stockpiles. Processed RAP must not be agglomerated or be allowed to congeal in large stockpiles.

AASHTO T 324 (Modified) is AASHTO T 324, "Hamburg Wheel-Track Testing of Compacted Hot Mix Asphalt (HMA)," with the following parameters:

1. Target air voids must equal  $7 \pm 1$  percent
2. Specimen height must be  $60 \text{ mm} \pm 1 \text{ mm}$
3. Number of test specimens must be 4
4. Test specimen must be a 150mm gyratory compacted specimen
5. Test temperature must be set at:
  - 5.1.  $122 \pm 2$  degrees F for PG 58
  - 5.2.  $131 \pm 2$  degrees F for PG 64
  - 5.3.  $140 \pm 2$  degrees F for PG 70 and above
6. Measurements for impression must be taken at every 100 passes
7. Inflection point defined as the number of wheel passes at the intersection of the creep slope and the stripping slope
8. Testing shut off must be set at 25,000 passes

### **39-1.02F(2) Substitution Rate of 15 Percent or Less**

For a RAP substitution rate of 15 percent or less, you may stockpile RAP during the entire project.

### **39-1.02F(3) Substitution Rate Greater than 15 Percent**

For a RAP substitution rate greater than 15 percent, fractionate RAP into 2 sizes, a coarse fraction RAP retained on 3/8-inch screen and a fine fraction RAP passing 3/8-inch screen.

Sample and test processed RAP at a minimum frequency of 1 sample per 1000 tons with a minimum of 6 samples for each processed RAP stockpile. If a processed RAP stockpile is augmented, sample and test processed RAP quality characteristics at a minimum frequency of 1 sample per 500 tons of augmented RAP.

When tested under California Test 202 with a total mechanical shaking time of 10 minutes  $\pm 15$  seconds, the processed RAP must meet the grading requirements shown in the following table:

**Processed RAP Gradation  
(Percentage Passing)**

| Sieve sizes | TV limits | Allowable tolerance |
|-------------|-----------|---------------------|
| 1/2"        | 100       | --                  |
| 3/8"        | 97        | TV + 3              |

The processed RAP asphalt binder content must be within  $\pm 2.0$  percent of the average processed RAP stockpile asphalt binder content when tested under ASTM D 2172, Method B. If a new processed RAP stockpile is required, the average binder content of the new processed RAP stockpile must be within  $\pm 2.0$  percent of the average binder content of the original processed RAP stockpile.

The maximum specific gravity for processed RAP must be within  $\pm 0.06$  when tested under California Test 309 of the average maximum specific gravity reported on page 4 of your *Contractor Hot Mix Asphalt Design Data* form.

**Replace items 7 and 8 in the 5th paragraph of section 39-1.03A with:**

7. Substitution rate by more than 5 percent if your assigned RAP substitution rate is 15 percent or less
8. Substitution rate by more than 3 percent if your assigned RAP substitution rate is greater than 15 percent
9. Average binder content by more than 2 percent from the average binder content of the original processed RAP stockpile used in the mix design
10. Maximum specific gravity of processed RAP by more than  $\pm 0.060$  from the average maximum specific gravity of processed RAP reported on page 4 of your *Contractor Hot Mix Asphalt Design Data* form
11. Any material in the JMF

**Replace the 1st paragraph of section 39-1.03B with:**

Perform a mix design that produces HMA with the values for the quality characteristics shown in the following table:

**HMA Mix Design Requirements**

| Quality characteristic              | Test method         | HMA type  |           |                  |
|-------------------------------------|---------------------|-----------|-----------|------------------|
|                                     |                     | A         | B         | RHMA-G           |
| Air void content (%)                | California Test 367 | 4.0       | 4.0       | Section 39-1.03B |
| Voids in mineral aggregate (% min.) | California Test 367 | 17.0      | 17.0      | --               |
| No. 4 grading                       |                     | 15.0      | 15.0      | --               |
| 3/8" grading                        |                     | 14.0      | 14.0      | 18.0–23.0        |
| 1/2" grading                        |                     | 13.0      | 13.0      | 18.0–23.0        |
| 3/4" grading                        |                     |           |           |                  |
| Voids filled with asphalt (%)       | California Test 367 | 65.0–75.0 | 65.0–75.0 | Note a           |
| No. 4 grading                       |                     | 65.0–75.0 | 65.0–75.0 |                  |
| 3/8" grading                        |                     | 65.0–75.0 | 65.0–75.0 |                  |
| 1/2" grading                        |                     | 65.0–75.0 | 65.0–75.0 |                  |
| 3/4" grading                        |                     | 65.0–75.0 | 65.0–75.0 |                  |
| Dust proportion                     | California Test 367 |           |           | Note a           |
| No. 4 and 3/8" gradings             |                     | 0.6–1.2   | 0.6–1.2   |                  |
| 1/2" and 3/4" gradings              |                     | 0.6–1.2   | 0.6–1.2   |                  |
| Stabilometer value (min.)           | California Test 366 |           |           |                  |
| No. 4 and 3/8" gradings             |                     | 30        | 30        | --               |
| 1/2" and 3/4" gradings              |                     | 37        | 35        | 23               |

<sup>a</sup> Report this value in the JMF submittal.

For RAP substitution rate greater than 15 percent, the mix design must comply with the additional quality characteristics shown in the following table:

**Additional HMA Mix Design Requirements  
for RAP Substitution Rate Greater Than 15 Percent**

| Quality characteristic                                                          | Test method                                | HMA type |        |        |
|---------------------------------------------------------------------------------|--------------------------------------------|----------|--------|--------|
|                                                                                 |                                            | A        | B      | RHMA-G |
| Hamburg wheel track<br>(minimum number of passes at 0.5 inch average rut depth) | AASHTO<br>T 324<br>(Modified) <sup>a</sup> |          |        |        |
| PG-58                                                                           |                                            | 10,000   | 10,000 | --     |
| PG-64                                                                           |                                            | 15,000   | 15,000 |        |
| PG-70                                                                           |                                            | 20,000   | 20,000 |        |
| PG-76 or higher                                                                 |                                            | 25,000   | 25,000 |        |
| Hamburg wheel track<br>(inflection point minimum number of passes)              | AASHTO<br>T 324<br>(Modified) <sup>a</sup> |          |        |        |
| PG-58                                                                           |                                            | 10,000   | 10,000 | --     |
| PG-64                                                                           |                                            | 10,000   | 10,000 |        |
| PG-70                                                                           |                                            | 12,500   | 12,500 |        |
| PG-76 or higher                                                                 |                                            | 15000    | 15000  |        |
| Moisture susceptibility<br>(minimum dry strength, psi)                          | California<br>Test 371 <sup>a</sup>        | 120      | 120    | --     |
| Moisture susceptibility<br>(tensile strength ration, %)                         | California<br>Test 371 <sup>a</sup>        | 70       | 70     | --     |

<sup>a</sup>Test plant produced HMA.

For HMA with RAP, the maximum binder replacement must be 25.0 percent of OBC for surface course and 40.0 percent of OBC for lower courses.

For HMA with a binder replacement less than or equal to 25 percent of OBC, you may request that the PG asphalt binder grade with upper and lower temperature classifications be reduced by 6 degrees C from the specified grade.

For HMA with a binder replacement greater than 25 percent but less than or equal to 40 percent of OBC, you must use a PG asphalt binder grade with upper and lower temperature classifications reduced by 6 degrees C from the specified grade.

**Replace item 4 in the list in the 1st paragraph of section 39-1.03C with:**

4. JMF renewal on a *Caltrans Job Mix Formula Renewal* form, if applicable

**Add to the end of section 39-1.03C:**

For RAP substitution rate greater than 15 percent, submit with the JMF submittal:

1. California Test 371 tensile strength ratio and minimum dry strength test results
2. AASHTO T 324 (Modified) test results

For RAP substitution rate greater than 15 percent, submit California Test 371 and AASHTO T 324 (Modified) test results to the Engineer and to:

**Replace the 2nd paragraph of section 39-1.03E with:**

Use the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form. No adjustments to asphalt binder content are allowed. Based on your testing and production experience, you may submit an adjusted aggregate gradation TV on a *Contractor Job Mix Formula Proposal* form before verification testing. Aggregate gradation TV must be within the TV limits specified in the aggregate gradation tables.

**Add between the 3rd and 4th paragraphs of section 39-1.03E:**

Asphalt binder set point for HMA must be the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form. When RAP is used, asphalt binder set point for HMA must be:

$$\text{Asphalt Binder Set Point} = \frac{\frac{BC_{OBC}}{\left(1 - \frac{BC_{OBC}}{100}\right)} - R_{RAP} \left[ \frac{BC_{RAP}}{\left(1 - \frac{BC_{RAP}}{100}\right)} \right]}{100 + \frac{BC_{OBC}}{\left(1 - \frac{BC_{OBC}}{100}\right)}}$$

Where:

$BC_{OBC}$  = optimum asphalt binder content, percent based on total weight of mix

$R_{RAP}$  = RAP ratio by weight of aggregate

$BC_{RAP}$  = asphalt binder content of RAP, percent based on total weight of RAP mix

**Replace item 4 in the list in the 8th paragraph of section 39-1.03E with:**

4. HMA quality specified in the table titled "HMA Mix Design Requirements" except:
  - 4.1. Air void content, design value  $\pm 2.0$  percent
  - 4.2. Voids filled with asphalt, report only
  - 4.3. Dust proportion, report only

**Replace the 12th paragraph of section 39-1.03E with:**

If tests on plant-produced samples do not verify the JMF, the Engineer notifies you and you must submit a new JMF or submit an adjusted JMF based on your testing. JMF adjustments may include a change in aggregate gradation TV within the TV limits specified in the aggregate gradation tables.

**Replace the 14th paragraph of section 39-1.03E with:**

A verified JMF is valid for 12 months.

**Replace the last sentence in the 15th paragraph of section 39-1.03E with:**

This deduction does not apply to verifications initiated by the Engineer or JMF renewal.

**Replace the 16th paragraph of section 39-1.03E with:**

Except for RAP substitution rate greater than 15 percent, for any HMA produced under the QC/QA process the Department does not use California Test 371 test results for verification.

**Add between the 1st and 2nd paragraphs of section 39-1.03F:**

Target asphalt binder content on your Contractor *Job Mix Formula Proposal* form and the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form must be the same.

**Delete the 4th paragraph of section 39-1.03F.**

**Replace items 3 and 5 in the list in the 6th paragraph of section 39-1.03F with:**

3. Engineer verifies each proposed JMF renewal within 20 days of receiving verification samples.
5. For each HMA type and aggregate gradation specified, the Engineer verifies at the Department's expense 1 proposed JMF renewal within a 12-month period.

**Add between the 6th and 7th paragraphs of section 39-1.03F:**

The most recent aggregate quality test results within the past 12 months may be used for verification of JMF renewal or the Engineer may perform aggregate quality tests for verification of JMF renewal.

**Replace section 39-1.03G with:**

**39-1.03G Job Mix Formula Modification**

For an accepted JMF, you may change asphalt binder source one time during production. Submit your modified JMF request a minimum of 3 business days before production. Each modified JMF submittal must consist of:

1. Proposed modified JMF on *Contractor Job Mix Formula Proposal* form
2. Mix design records on *Contractor Hot Mix Asphalt Design Data* form for the accepted JMF to be modified
3. JMF verification on *Hot Mix Asphalt Verification* form for the accepted JMF to be modified
4. Quality characteristics test results for the modified JMF as specified in section 39-1.03B. Perform tests at the mix design OBC as shown on the *Contractor Asphalt Mix Design Data* form
5. If required, California Test 371 test results for the modified JMF.

With an accepted modified JMF submittal, the Engineer verifies each modified JMF within 5 business days of receiving all verification samples. If California Test 371 is required, the Engineer tests for California Test 371 within 10 days of receiving verification samples.

The Engineer verifies the modified JMF after the modified JMF HMA is placed on the project and verification samples are taken within the first 750 tons following sampling requirements in

section 39-1.03E, "Job Mix Formula Verification." The Engineer tests verification samples for compliance with:

1. Stability as shown in the table titled "HMA Mix Design Requirements"
2. Air void content at design value  $\pm 2.0$  percent
3. Voids in mineral aggregate as shown in the table titled "HMA Mix Design Requirements"
4. Voids filled with asphalt, report only
5. Dust proportion, report only

If the modified JMF is verified, the Engineer revises your *Hot Mix Asphalt Verification* form to include the new asphalt binder source. Your revised form will have the same expiration date as the original form.

If a modified JMF is not verified, stop production and any HMA placed using the modified JMF is rejected.

The Engineer deducts \$2,000 from payments for each modified JMF verification. The Engineer deducts an additional \$2,000 for each modified JMF verification that requires California Test 371.

**Add to section 39-1.03:**

**39-1.03H Job Mix Formula Acceptance**

You may start HMA production if:

1. The Engineer's review of the JMF shows compliance with the specifications.
2. The Department has verified the JMF within 12 months before HMA production.
3. The Engineer accepts the verified JMF.

**Replace "3 days" in the 1st paragraph of section 39-1.04A with:**

3 business days

**Replace the 2nd sentence in the 2nd paragraph of section 39-1.04A with:**

During production, take samples under California Test 125. You may sample HMA from:

**Replace "batch" in the 2nd sentence in the 2nd paragraph of section 39-1.04C with:**

lot.

Each asphalt binder lot consists of 1 or multiple batches of combined asphalt binder, asphalt modifier, and CRM proportioned under section 39-1.02D.

**Replace the 2nd paragraph of section 39-1.04E with:**

For RAP substitution rate of 15 percent or less, sample RAP once daily.

For RAP substitution rate of greater than 15percent, sample processed RAP twice daily.

Perform QC testing for processed RAP aggregate gradation under California Test 367, appendix B, and submit the results with the combined aggregate gradation.

**Replace "5 days" in the 1st paragraph of section 39-1.06 with:**

5 business days

**Replace the 3rd paragraph of section 39-1.08A with:**

During production, you may adjust hot or cold feed proportion controls for virgin aggregate and RAP.

**Add to section 39-1.08A:**

During production, asphalt binder set point for HMA Type A, HMA Type B, HMA Type C, and RHMA-G must be the OBC shown in *Contractor Hot Mix Asphalt Design Data* form. For OGFC, asphalt binder set point must be the OBC shown on *Caltrans Hot Mix Asphalt Verification* form. If RAP is used, asphalt binder set point for HMA must be calculated as specified in section 39-1.03E.

For RAP substitution rate of 15 percent or less, you may adjust the RAP by -5 percent.

For RAP substitution greater than 15, you may adjust the RAP by -3 percent.

You must request adjustments to the plant asphalt binder set point based on new RAP stockpiles average asphalt binder content. Do not adjust the HMA plant asphalt binder set point until authorized.

**Replace the 3rd paragraph of section 39-1.08B with:**

Asphalt rubber binder must be from 375 to 425 degrees F when mixed with aggregate.

**Add to the beginning of section 39-1.08C:**

Asphalt rubber binder blending plants must have current qualification under the Department's Material Plant Quality Program.

**Add to the 1<sup>st</sup> paragraph of section 39-1.10:**

1. Equipped with a sensor activated ski device not less than 30 feet long that controls the end of the screed nearest the centerline when placing the initial mat of hot mix asphalt on the existing pavement. The end of the screed farthest from centerline shall be controlled manually.
- 2.

When paving contiguously with previously placed mats, the end of the screed adjacent to the previously placed mat shall be controlled by a sensor that responds to the grade of the previously placed mat and will reproduce the grade in the new mat within a 0.01-foot tolerance. The end of

the screed farthest from the previously placed mat shall be controlled in the same way it was controlled when placing the initial mat.

**Replace section 39-1.11 with:**

**39-1.11 CONSTRUCTION**

**39-1.11A General**

Do not place HMA on wet pavement or a frozen surface.

You may deposit HMA in a windrow and load it in the paver if:

1. Paver is equipped with a hopper that automatically feeds the screed
2. Loading equipment can pick up the windrowed material and deposit it in the paver hopper without damaging base material
3. Activities for deposit, pickup, loading, and paving are continuous
4. HMA temperature in the windrow does not fall below 260 degrees F

You may use mechanical equipment other than a paver for areas less than 8 feet wide. The equipment must produce uniform smoothness and texture.

HMA handled, spread, or windrowed must not stain the finished surface of any improvement, including pavement.

Do not use petroleum products such as kerosene or diesel fuel to release HMA from trucks, spreaders, or compactors.

HMA must be free of:

1. Segregation
2. Coarse or fine aggregate pockets
3. Hardened lumps

Prior to obliterating any pavement delineation (traffic stripes, pavement markings, and pavement markers), that is to be replaced on the same alignment and location, reference the pavement delineation with a sufficient number of control points to reestablish the alignment and location of the new pavement delineation. The references shall include the limits or changes in striping pattern, including one- and 2-way barrier lines, limit lines, crosswalks and other pavement markings.

Before placing a HMA overlay, cover manholes, valve and monument covers, grates, or other exposed facilities located within the area of application, using a plastic or oil resistant construction paper secured to the facility being covered by tape or adhesive. Reference the covered facilities with a sufficient number of control points to relocate the facilities after placing the HMA overlay.

Set the paver speed at a speed that matches the rate of HMA delivered to the project site to minimize stopping of the paver and to ensure a smooth and seamless paved surface. Prior to any paving operations, obtain the HMA plants' production rate for the proposed paving operation. Using this production rate and the number of trucks to be used for HMA delivery, calculate the average rate of HMA delivery to the project site and speed of the paver that conforms to the

delivery rate to minimize the amount of stopping by the paver. At least 2 full working days prior to any paving operations, submit to the Engineer the paving rate and speed of the paver in tons per hour and feet per minute respectively. Include in the submittal to the Engineer the number of trucks that will be delivering HMA, the estimated round trip cycle time of the trucks from the HMA plant to the project site, and the calculations used to determine the paving rate and speed.

Wherever final placement of HMA is complete, place permanent traffic stripes and pavement markings within 10 days.

Hot mix asphalt placed in the top layer of the surfacing shall be obtained from only one hot mix asphalt plant.

#### **39-1.11B Longitudinal Joints**

Longitudinal joints in the top layer must match specified lane edges. Alternate the longitudinal joint offsets in the lower layers at least 0.5 foot from each side of the specified lane edges. You may request other longitudinal joint placement patterns.

Place HMA on adjacent traveled way lanes so that at the end of each work shift the distance between the ends of HMA layers on adjacent lanes is from 5 to 10 feet. Place additional HMA along the transverse edge at each lane's end and along the exposed longitudinal edges between adjacent lanes. Hand rake and compact the additional HMA to form temporary conforms. You may place Kraft paper or another authorized bond breaker under the conform tapers to facilitate the taper removal when paving operations resume.

#### **39-1.11D Shoulders, Medians, and Other Road Connections**

Until the adjoining through lane's top layer has been paved, do not pave the top layer of:

1. Shoulders
2. Tapers
3. Transitions
4. Road connections
5. Driveways
6. Curve widenings
7. Chain control lanes
8. Turnouts
9. Turn pockets

If the number of lanes changes, pave each through lane's top layer before paving a tapering lane's top layer. Simultaneous to paving a through lane's top layer, you may pave an adjoining area's top layer, including shoulders. Do not operate spreading equipment on any area's top layer until completing final compaction.

Pave shoulders and median borders adjacent to the lane before opening a lane to traffic.

Place shoulder conform tapers concurrently with the adjacent lane's paving.

Place additional HMA along the pavement's edge to conform to road connections and driveways. Hand rake, if necessary, and compact the additional HMA to form a smooth conform taper.

### **39-1.11E Leveling**

If leveling with HMA is specified, fill and level irregularities and ruts with HMA before spreading HMA over the base, existing surfaces, or bridge decks. You may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and texture. HMA used to change an existing surface's cross slope or profile is not paid for as HMA (leveling).

If placing HMA against the edge of existing pavement, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material.

Use ½-inch HMA Type A for the HMA leveling course.

### **39-1.11F Compaction**

Rolling must leave the completed surface compacted and smooth without tearing, cracking, or shoving. Complete finish rolling activities before the pavement surface temperature is:

1. Below 150 degrees F for HMA with unmodified binder
2. Below 140 degrees F for HMA with modified binder
3. Below 200 degrees F for RHMA-G

If a vibratory roller is used as a finish roller, turn the vibrator off.

Do not use a pneumatic-tired roller to compact RHMA-G.

Spread and compact HMA under sections 39-3.03 and 39-3.04 if any of the following applies:

1. Specified paved thickness is less than 0.15 foot.
2. Specified paved thickness is less than 0.20 foot and ¾-inch aggregate grading is specified and used.
3. You spread and compact at:
  - 3.1. Asphalt concrete surfacing replacement areas
  - 3.2. Leveling courses
  - 3.3. Areas for which the Engineer determines conventional compaction and compaction measurement methods are impeded

Do not open new HMA pavement to public traffic until its mid-depth temperature is below 160 degrees F.

If you request and if authorized, you may cool HMA Type A and Type B with water when rolling activities are complete. Apply water under section 17-3.

Spread sand at a rate from 1 to 2 lb/sq yd on new RHMA-G, RHMA-O, and RHMA-O-HB pavement when finish rolling is complete. Sand must be free of clay or organic matter. Sand must comply with section 90-1.02C(4)(c). Keep traffic off the pavement until spreading sand is complete.

While spreading the final lift of hot mix asphalt (wearing surface), all excess hot mix asphalt along cold joints shall be carefully removed and disposed. This excess material shall not be

placed by any means over the hot mix asphalt being spread (i.e., no broadcasting of excess material over mat).

**Delete section 39-1.12.**

**Replace item 2 of the last paragraph of section 39-1.14 with:**

2. Use 1/2-inch HMA Type A for driveway/private street conforms, island areas, and sidewalks; for all other miscellaneous areas use 3/8-inch HMA Type A.

**Add to section 39-1.14:**

Prepare the area to receive HMA for miscellaneous areas and dikes, including any excavation and backfill as needed and as directed by the Engineer.

**Replace "6.8" in item 3 in the list in the 4th paragraph of section 39-1.14 with:**

6.4

**Replace "6.0" in item 3 in the list in the 4th paragraph of section 39-1.14 with:**

5.7

**Replace section 39-1.39 with:**

**39-1.39 PAVEMENT FAILURE REPAIR**

**39-1.39A General**

Remove existing asphalt concrete pavement to the depth and dimensions shown on the plans and replace with HMA. The Engineer determines the exact limits of pavement failure repair. The minimum width of roadway section to be removed shall not be less than 4 feet unless otherwise noted on the plans.

The following specifications in section 39 do not apply to pavement failure repair:

1. Contractor quality control
2. Production start-up evaluation
3. Smoothness

**39-1.39B Materials**

HMA for pavement failure repair must be Type A.

Asphalt binder for the HMA must be PG 64-10. The minimum asphalt binder content must be 5.0 percent. If you request and if authorized, you may reduce the minimum asphalt binder content.

The aggregate for the HMA must comply with the 3/4-inch HMA Types A and B grading.

**39-1.39C Construction**

Place pavement failure repair under the Method construction process in Section 39-3.

Provide flaggers and/or traffic control to allow the Engineer to mark out pavement failure areas.

Remove existing roadway section by grinding with a milling machine capable of cutting to a neat line. Do not damage any pavement that is to remain in place. Minimize the disturbance of materials to be left in place during removal or roadway sections.

Dispose of removed material.

Apply tack coat to the bottom and all vertical surfaces of the existing roadway section within the pavement failure repair area. Follow the Tack Application Rates table using "Planed PCC and HMA (AC) surfaces".

The surface must be:

1. Textured uniformly
2. Compacted firmly
3. Without depressions, humps, and irregularities

If the base is excavated beyond the specified plane, replace it with HMA. The Department does not pay for this HMA. Damage to pavement which is to remain in place shall be repaired to a condition satisfactory to the Engineer, or the damaged pavement shall be removed and replaced with new HMA if ordered by the Engineer. Repairing or removing and replacing pavement damaged outside the limits of pavement to be reconstructed shall be at the Contractor's expense.

Complete pavement failure repair in a lane before the lane is specified to be opened to traffic under section 12-4.

### **39-1.39D Payment**

Pavement failure repair is measured based on the specified dimensions and any adjustments ordered.

You will receive no additional payment for pavement failure repair beyond the area marked out by the Engineer due to availability or limitations of your equipment.

Section 9-1.06 "Changed Quantity Payment Adjustments" will not apply to the pavement failure repair item.

**Replace section 39-1.40 with:**

### **39-1.40 BASE FAILURE REPAIR**

#### **39-1.40A General**

Remove existing asphalt concrete pavement and underlying base rock to the depth and dimensions shown on the plans and replace with HMA. The Engineer determines the exact limits of base failure repair. The minimum width of roadway section to be removed shall not be less than 4 feet unless otherwise noted on the plans.

The following specifications in section 39 do not apply to base failure repair:

1. Contractor quality control
2. Production start-up evaluation
3. Smoothness

### **39-1.40B Materials**

HMA for pavement failure repair must be Type A.

Asphalt binder for the HMA must be PG 64-10. The minimum asphalt binder content must be 5.0 percent. If you request and if authorized, you may reduce the minimum asphalt binder content.

The aggregate for the HMA must comply with the 3/4-inch HMA Types A and B grading.

### **39-1.40C Construction**

Place base failure repair under the Method construction process in Section 39-3.

Provide flaggers and/or traffic control to allow the Engineer to mark out base failure areas.

Remove existing roadway section by grinding with a milling machine capable of cutting to a neat line. Do not damage any pavement that is to remain in place. Minimize the disturbance of materials to be left in place during removal or roadway sections.

Remove failed pavement and base rock to the required depth, then grade, water, and thoroughly compact the material remaining in place to a minimum of 95% relative compaction.

Dispose of removed material.

Apply tack coat to the bottom base rock and all vertical surfaces of the existing roadway section within the base failure repair area. Follow the Tack Application Rates table using "Planed PCC and HMA (AC) surfaces".

The surface must be:

1. Textured uniformly
2. Compacted firmly
3. Without depressions, humps, and irregularities

If the base is excavated beyond the specified plane, replace it with HMA. The Department does not pay for this HMA. Damage to pavement which is to remain in place shall be repaired to a condition satisfactory to the Engineer, or the damaged pavement shall be removed and replaced with new HMA if ordered by the Engineer. Repairing or removing and replacing pavement damaged outside the limits of pavement to be reconstructed shall be at the Contractor's expense.

Complete base failure repair in a lane before the lane is specified to be opened to traffic under section 12-4.

### **39-1.40D Payment**

Base failure repair is measured based on the specified dimensions and any adjustments ordered.

You will receive no additional payment for base failure repair beyond the area marked out by the Engineer due to availability or limitations of your equipment.

Section 9-1.06 "Changed Quantity Payment Adjustments" will not apply to the base failure repair item.

**Replace the 1st paragraph of section 39-3.02A with:**

The Department samples for acceptance testing and tests for the quality characteristics shown in the following table:

### HMA Acceptance—Method Construction Process

| Quality characteristic                                                                                                                                                                                      | Test method                | HMA type                     |                              |                              |                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|                                                                                                                                                                                                             |                            | A                            | B                            | RHMA-G                       | OGFC                         |
| Aggregate gradation <sup>a</sup>                                                                                                                                                                            | California Test 202        | JMF ± tolerance <sup>b</sup> | JMF ± tolerance <sup>b</sup> | JMF ± tolerance <sup>b</sup> | JMF ± tolerance <sup>b</sup> |
| Sand equivalent (min) <sup>c</sup>                                                                                                                                                                          | California Test 217        | 47                           | 42                           | 47                           | --                           |
| Asphalt binder content (%)                                                                                                                                                                                  | California Test 379 or 382 | JMF±0.40                     | JMF±0.40                     | JMF ± 0.40                   | JMF ± 0.40                   |
| HMA moisture content (% max)                                                                                                                                                                                | California Test 226 or 370 | 1.0                          | 1.0                          | 1.0                          | 1.0                          |
| Stabilometer value (min) <sup>c</sup><br>No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings                                                                                                                  | California Test 366        | 30<br>37                     | 30<br>35                     | --<br>23                     | --<br>--                     |
| Percent of crushed particles<br>Coarse aggregate (% min)<br>One fractured face<br>Two fractured faces<br>Fine aggregate (% min)<br>(Passing no. 4 sieve and retained on no. 8 sieve.)<br>One fractured face | California Test 205        | 90<br>75<br><br><br>70       | 25<br>--<br><br><br>20       | --<br>90<br><br><br>70       | 90<br>75<br><br><br>90       |
| Los Angeles Rattler (% max)<br>Loss at 100 rev.<br>Loss at 500 rev.                                                                                                                                         | California Test 211        | 12<br>45                     | --<br>50                     | 12<br>40                     | 12<br>40                     |
| Air void content (%) <sup>c, d</sup>                                                                                                                                                                        | California Test 367        | 4 ± 2                        | 4 ± 2                        | TV ± 2                       | --                           |
| Fine aggregate angularity (% min) <sup>e</sup>                                                                                                                                                              | California Test 234        | 45                           | 45                           | 45                           | --                           |
| Flat and elongated particles (% max by weight @ 5:1)                                                                                                                                                        | California Test 235        | Report only                  | Report only                  | Report only                  | Report only                  |

|                                                                                                                                         |                         |                                                               |                                                  |                                      |                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------|--------------------------------------------------|--------------------------------------|--------------------------------------|
| Voids filled with asphalt (%) <sup>f</sup><br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading                             | California Test 367     | 65.0–75.0<br>65.0–75.0<br>65.0–75.0<br>65.0–75.0<br>65.0–75.0 | 65.0–75.0<br>65.0–75.0<br>65.0–75.0<br>65.0–75.0 | Report only                          | --                                   |
| Voids in mineral aggregate (% min) <sup>f</sup><br>No. 4 grading<br>3/8" grading<br>1/2" grading<br>3/4" grading                        | California Test 367     | 17.0<br>15.0<br>14.0<br>13.0                                  | 17.0<br>15.0<br>14.0<br>13.0                     | --<br>--<br>18.0–23.0<br>18.0–23.0   | --                                   |
| Dust proportion <sup>f</sup><br>No. 4 and 3/8" gradings<br>1/2" and 3/4" gradings                                                       | California Test 367     | 0.6–1.2<br>0.6–1.2                                            | 0.6–1.2<br>0.6–1.2                               | Report only                          | --                                   |
| Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>g</sup><br>PG-58<br>PG-64<br>PG-70<br>PG-76 or higher | AASHTO T 324 (Modified) | 10,000<br>15,000<br>20,000<br>25,000                          | 10,000<br>15,000<br>20,000<br>25,000             | --                                   | --                                   |
| Hamburg wheel track (inflection point minimum number of passes) <sup>g</sup><br>PG-58<br>PG-64<br>PG-70<br>PG-76 or higher              | AASHTO T 324 (Modified) | 10,000<br>10,000<br>12,500<br>15,000                          | 10,000<br>10,000<br>12,500<br>15,000             | --                                   | --                                   |
| Moisture susceptibility (minimum dry strength, psi) <sup>g</sup>                                                                        | California Test 371     | 120                                                           | 120                                              | --                                   | --                                   |
| Moisture susceptibility (tensile strength ratio, %) <sup>g</sup>                                                                        | California Test 371     | 70                                                            | 70                                               | --                                   | --                                   |
| Smoothness                                                                                                                              | Section 39-1.12         | 12-foot straight-edge and must-grind                          | 12-foot straight-edge and must-grind             | 12-foot straight-edge and must-grind | 12-foot straight-edge and must-grind |

|                       |         |            |            |                                          |                                          |
|-----------------------|---------|------------|------------|------------------------------------------|------------------------------------------|
| Asphalt binder        | Various | Section 92 | Section 92 | Section 92                               | Section 92                               |
| Asphalt rubber binder | Various | --         | --         | Section 92-1.01D(2) and section 39-1.02D | Section 92-1.01D(2) and section 39-1.02D |
| Asphalt modifier      | Various | --         | --         | Section 39-1.02D                         | Section 39-1.02D                         |
| CRM                   | Various | --         | --         | Section 39-1.02D                         | Section 39-1.02D                         |

<sup>a</sup> The Engineer determines combined aggregate gradations containing RAP under California Test 367.

<sup>b</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>c</sup> The Engineer reports the average of 3 tests from a single split sample.

<sup>d</sup> The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

<sup>e</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

<sup>f</sup> Report only.

<sup>g</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace "280 degrees F" in item 2 in the list in the 6th paragraph of section 39-3.04 with:**  
285 degrees F

## **DIVISION VI STRUCTURES**

### **51 CONCRETE STRUCTURES**

**Replace the third paragraph of Section 51-1.03F(3) with:**

Finish areas not complying with the Class 1 surface finish requirements using a neat cement wash or with a brush coat or surface film of thin cement mortar composed of one part portland cement and one part of fine sand that will pass through a No. 16 sieve.

**Add to section 51-1.04:**

Construction of post pockets for installing chain link fence on top of retaining walls including reinforcement is included in payment for structural concrete (retaining wall).

**Replace the 2nd paragraph of Section 51-7.01A with:**

Drainage inlets, sidewalk cross drains, pipe headwalls, endwalls, junction boxes, and manholes are classified as minor structures.

Unless otherwise specified on the Plans, do not use precast inlet structures.

Structure excavation and backfill must comply with section 19.

Reinforcement must comply with section 52.

Metal grates, frames and cover must comply with section 75.

**Replace the first paragraph of Section 51-7.01B with:**

Comply with the specifications for minor concrete, except the following:

1. Minor Concrete must contain at least 590 pounds of cementitious material per cubic yard.
2. The maximum aggregate size must not be larger than 1 inch or smaller than 3/4 inch.

**Add to Section 51-7.01C:**

When a drainage inlet is constructed in two or more segments, with a construction joint at the pavement subgrade, and the portion of the inlet above the joint is constructed monolithically with the curb and sidewalk, the concrete for the upper portion of the inlet shall be the same class as is used for the curb and sidewalk.

Plastic drainage inlet markers must be installed on all newly constructed drainage inlets. Drainage inlet markers will be furnished by the Engineer. Mechanically clean the concrete surface before placing plastic drainage inlet markers. Apply a sufficient amount of Sika 11 polyurethane based elastomeric adhesive or approved equal around the perimeter of the marker itself to assure that there are no loose edges around the marker when it is attached to the inlet.

**Replace the second paragraph in section 51-7.01D with:**

Payment for structure excavation and backfill, bar reinforcement, miscellaneous steel, and metal frames grates and covers is included in the payment for the various minor structures.

**Add to the end of section 58-2.02B:**

CMU must be superlite, split face block, integrally colored 'tan'.

## **DIVISION VII DRAINAGE FACILITIES**

### **62 BIOTREATMENT SWALE**

**Replace section 62 with:**

#### **62-1.01 GENERAL**

##### **62-1.01A Summary**

Section 62 includes specifications for furnishing a biotreatment swale.

Once placed, biotreatment soil should not be trenched, compacted, or otherwise disturbed. Contractor to replace disturbed biotreatment soil to be in compliance with the Specifications of this section.

##### **62-1.01B Definitions**

Reserved

##### **62-1.01C Submittals**

Submit test results of bioengineered soil permeability.

No separate measurement will be made for the requirements of this section.

Full compensation for complying with the requirements of this section shall be considered as included in the contract prices paid for various items of work involved, and no additional compensation will be allowed therefor.

##### **62-1.01D Quality Assurance**

Reserved

#### **62-1.02 MATERIALS**

##### **62-1.02A General**

Bioengineered soil for biotreatment areas shall meet the requirements of the Central California Coast LID Bioretention Guidance – Low Impact Development Technical Assistance Memo.

Sand for bioengineered soil shall comply with 200-1.5.3, “Sand for Portland Cement Concrete” of the “Greenbook” Standard Specifications for Public Works Construction, 2018.

Topsoil for bioengineered soil mix shall fall within the classifications for sand, loamy sand or sandy loam per the NRCS soil classification calculator found at:

<http://soils.usda.gov/technical/aids/investigations/texture/>

Lava Rock for bioengineered soil shall be 3/8 to 1/8 inch minus landscape rock of volcanic origin (scoria), sold under the common name of “Lava Rock.”

Rip-Rap Energy Dissipaters as shown on the Plans.

##### **62-1.02B Biotreatment swale Soil Media**

Soils for bioretention areas must meet the following objectives:

1. Be sufficiently permeable to infiltrate runoff at a minimum rate of 6" per hour during the life of the facility, and
2. Have sufficient moisture retention to support healthy vegetation.

Achieving these objectives with an engineered soil mix requires careful specification of soil gradations and a substantial component of organic material (typically compost).

Local soil products suppliers have expressed interest in developing 'brand-name' mixes that meet these specifications. At their sole discretion, municipal construction inspectors may choose to accept test results and certification for a 'brand-name' mix from a soil supplier.

Tests must be conducted within one-hundred and twenty (120) days prior to the delivery date of the bioretention soil to the project site.

Batch-specific test results and certification will be required for projects installing more than one hundred (100) cubic yards of bioretention soil.

Install bioretention soil in a manner that ensures adequate infiltration. Bioretention soil must not be placed when the ground or soil is excessively wet or in a condition detrimental to the work. Place bioretention soil in 6" maximum lifts. Lifts should be placed in a manner to reduce excessive erosion or settlement. Lifts must not be mechanically compacted. Lifts may be lightly watered to encourage natural compaction. Bring grading conflicts to the Engineer prior to proceeding with the work. Hand grading and final refinement of the finish grade must be as directed. After completion of finished grading, soil compaction must not exceed 85% maximum density. The Engineer will have final approval of all grading and contouring.

Engineered soil mix, (Bioretention Soil Media - BSM) placed in the bioretention areas, shall be:

- A clean, washed ASTM C-33 fine sand free of deleterious material
- Rinsed with potable water prior to installation and construction of the bioretention system. Do not use recycled wash water from concrete ready-mix operations or other sources
- 60-70% clean sand
- 30-40% certified compost

The Contractor shall have the soil mix tested and provide evidence to the Engineer that the material meets the following criteria:

- pH range: 6.5 to 8.2
- Organic matter: 35-75% by dry weight
- P-index: 4 to 12

**SUBMITTAL REQUIREMENTS** – The Contractor must submit to the Engineer for approval:

- a. A sample of mixed bioretention soil.
- b. Certification from the soil supplier or an accredited laboratory that the Bioretention Soil meets the requirements of this guideline specification.
- c. Grain size analysis results of the fine sand component performed in accordance with ASTM D 422, Standard Test Method for Particle Size Analysis of Soils.
- d. Quality analysis results for compost performed in accordance with Seal of Testing Assurance (STA) standards, as specified in 4.
- e. Organic content test results of mixed Bioretention Soil. Organic content test shall be performed in accordance with by Testing Methods for the Examination of Compost and Composting (TMECC) 05.07A, “Loss-On-Ignition Organic Matter Method”.
- f. Grain size analysis results of compost component performed in accordance with ASTM D 422, Standard Test Method for Particle Size Analysis of Soils.
- g. A description of the equipment and methods used to mix the sand and compost to produce Bioretention Soil.
- h. Provide the name of the testing laboratory(s) and the following information:
  - (1) Contact person(s)
  - (2) Address(s)
  - (3) Phone contact(s)
  - (4) E-mail address(s)
  - (5) Qualifications of laboratory(s), and personnel including date of current certification by STA, ASTM, or approved equal

**62-1.02C Sand for Bioretention Soil**

- a. Sand must be free of wood, waste, coating such as clay, stone dust, carbonate, etc., or any other deleterious material. All aggregate passing the No. 200 sieve size shall be nonplastic.
- b. Sand for Bioretention Soils must be analyzed by an accredited lab using #200, #100, #40, #30, #16, #8, #4, and 3/8-inch sieves (ASTM D 422 or as approved by municipality), and meet the following gradation:

| Sieve Size                                                                                               | Percent Passing (by weight) |     |
|----------------------------------------------------------------------------------------------------------|-----------------------------|-----|
|                                                                                                          | Min                         | Max |
| 3/8 inch                                                                                                 | 100                         | 100 |
| No. 4                                                                                                    | 90                          | 100 |
| No. 8                                                                                                    | 70                          | 100 |
| No. 16                                                                                                   | 40                          | 95  |
| No. 30                                                                                                   | 15                          | 70  |
| No. 40                                                                                                   | 5                           | 55  |
| No. 100                                                                                                  | 0                           | 15  |
| No. 200                                                                                                  | 0                           | 5   |
| Note: all sands complying with ASTM C33 for fine aggregate comply with the above gradation requirements. |                             |     |

#### 62-1.02D Compost

Compost must be a well decomposed, stable, weed free organic matter source derived from waste materials including yard debris, wood wastes or other organic materials not including manure or biosolids meeting the standards developed by the US Composting Council (USCC).

The product shall be certified through the USCC Seal of Testing Assurance (STA) Program (a compost testing and information disclosure program).

- a. Compost Quality Analysis – Before delivery of the soil, the supplier must submit a copy of lab analysis performed by a laboratory that is enrolled in the US Composting Council’s Compost Analysis Proficiency (CAP) program and using approved Test Methods for the Evaluation of Composting and Compost (TMECC). The lab report shall verify:

- (1) Feedstock Materials must be specified and include one or more of the following: landscape/yard trimmings, grass clippings, food scraps, and agricultural crop residues.
- (2) Organic Matter Content: 35% - 75% by dry wt.
- (3) Carbon and Nitrogen Ratio: C:N < 25:1 and C:N >15:1
- (4) Maturity/Stability: shall have a dark brown color and a soil-like odor. Compost exhibiting a sour or putrid smell, containing recognizable grass or leaves, or is hot (120F) upon delivery or rewetting is not acceptable. In addition, any one of the following is required to indicate stability:
  - (i) Oxygen Test < 1.3 O<sub>2</sub> /unit TS /hr
  - (ii) Specific oxy. Test < 1.5 O<sub>2</sub> / unit BVS /
  - (iii) Respiration test < 8 C / unit VS / day
  - (iv) Dewar test < 20 Temp. rise (°C) e.
  - (v) Solvita® > 5 Index value
- (5) Toxicity: any one of the following measures is sufficient to indicate non-toxicity.
  - (i) NH<sub>4</sub>- : NO<sub>3</sub>-N < 3

- (ii) Ammonium < 500 ppm, dry basis
    - (iii) Seed Germination > 80 % of control
    - (iv) Plant Trials > 80% of control
    - (v) Solvita® > 5 Index value
  - (6) Nutrient Content: provide analysis detailing nutrient content including N-P-K, Ca, Na, Mg, S, and B.
    - (i) Total Nitrogen content 0.9% or above preferred.
    - (ii) Boron: Total shall be <80 ppm; Soluble shall be <2.5 ppm
  - (7) Salinity: Must be reported; < 6.0 mmhos/cm
  - (8) pH shall be between 6.5 and 8. May vary with plant species.
- b. Compost for Bioretention Soil Texture – Compost for bioretention soils must be analyzed by an accredited lab using #200, 1/4-inch, 1/2 inch, and 1-inch sieves ASTM D 422 or as approved by municipality), and meet the following gradation:
- | Sieve Size | Percent Passing (by weight) |     |
|------------|-----------------------------|-----|
|            | Min                         | Max |
| 1 inch     | 99                          | 100 |
| 1/2 inch   | 90                          | 100 |
| 1/4 inch   | 40                          | 90  |
| No. 200    | 2                           | 10  |
- c. Bulk density shall be between 500 and 1100 dry lbs/cubic yard
  - d. Moisture content must be between 30% - 55% of dry solids.
  - e. Inerts – compost must be relatively free of inert ingredients, including glass, plastic and paper, < 1 % by weight or volume.
  - f. Weed seed/pathogen destruction – provide proof of process to further reduce pathogens (PFRP). For example, turned windrows must reach min. 55C for 15 days with at least 5 turnings during that period.
  - g. Select Pathogens – Salmonella <3 MPN/4grams of TS, or Coliform Bacteria <10000 MPN/gram.
  - h. Trace Contaminants Metals (Lead, Mercury, Etc.) – Product must meet US EPA, 40 CFR 503 regulations.
  - i. Compost Testing – The compost supplier will test all compost products within 120 calendar days prior to delivery. Samples will be taken using the STA sample collection protocol. (The sample collection protocol can be obtained from the U.S. Composting Council 4250 Veterans Memorial Highway, Suite 275, Holbrook, NY 11741 Phone: 631-737-4931, [www.compostingcouncil.org](http://www.compostingcouncil.org)). The sample shall be sent to an independent STA Program approved lab. The compost supplier will pay for the test.

## **62-1.03 CONSTRUCTION**

### **62-1.03A General**

Reserved

### **62-1.03B Construction Sequence**

Biotreatment areas shall be fully protected by silt fence or construction fencing. Biotreatment areas shall remain outside the influence of heavy equipment during construction to prevent compaction of soil which would be detrimental to the infiltration and percolation rates of the completed facility.

Install subsurface drains as shown on the plans per manufacturer's recommendations.

Where manufactured ends meet, overlap per manufacturer's recommendations to provide continuity.

Biotreatment ponds and swales locations shall be used as small sediment traps or basins during construction, subject to the following: (1) the maximum excavation depth at the construction stage must be at least 1-foot above the post-construction finished ground surface elevation; and, (2) the facility must contain an underdrain. The contractor must also show the proper procedures for converting the temporary sediment control practice to a permanent detention facility, including dewatering, cleanout, and stabilization.

### **62-1.03C Biotreatment Swale Installation**

The following is a typical construction sequence to properly install a biotreatment pond or swale. These steps may be modified to reflect different biotreatment applications or site conditions:

- Step 1. Construction of the biotreatment area may only begin after the entire contributing drainage area has been stabilized with vegetation, mulch or other means. It may be necessary to block curb or other inlets while the detention area is being constructed. The proposed biotreatment sites shall be checked for existing utilities prior to any excavation.
- Step 2. The designer and the installer shall have a preconstruction meeting, checking the boundaries of the contributing drainage area and the actual inlet elevations to ensure they conform to the original design.
- Step 3. Temporary erosion and sediment controls are needed during construction of the biotreatment areas to divert stormwater away from the detention area until it is completed. Special protection measures, such as erosion control fabric, may be needed to protect vulnerable side slopes from erosion during the construction process.
- Step 4. Excavators or backhoes shall work from the sides to excavate the detention area to its appropriate design depth and dimensions. Excavating equipment shall have buckets with adequate reach so they do not sit within the footprint of the detention area.
- Step 5. The bottom soils shall be ripped to a depth of 6 to 12 inches to promote greater infiltration.

- Step 6. Construct green gutter curb side edge treatment and green gutter sidewalk side edge treatment as shown on the construction drawings. Construct curb cut inlet and curb cut outlet structure(s) as depicted in plans.
- Step 7. Install rip-rap and check dams per plans (if applicable).
- Step 8. Deliver the soil media from an approved vendor and store it on an adjacent impervious area or plastic sheeting. Apply the media in 6-inch lifts until the desired top elevation of the detention area is achieved. Wait a minimum of 3 days to check for settlement, and add additional media, as needed, to achieve the design elevation.
- Step 9. Install weed barrier per the Plans.
- Step 10. Place the surface cover in the cells (bark mulch, rock mulch, etc.) per Section 11-2 of these Special Provisions and the Plans.
- Step 11. Conduct the final construction inspection.

#### **62-1.04 PAYMENT**

Measurement for the various items of work under Biotreatment Swale shall be measured in accordance with the units indicated in the bid schedule and as specified in the various sections of these Special Provisions and shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, first-year maintenance activities, and incidentals for doing all the work involved in constructing and installing the biotreatment swale areas, rip-rap energy dissipation aprons, bioretention soil media, Class II permeable rock, trenching and excavation, trench shoring, bedding, backfill, and disposal of excavated materials, necessary for a complete biotreatment swale installation and no additional compensation will be allowed therefor.

## **68 SUBSURFACE DRAINS**

**Replace section 68-5 with:**

### **68-5 PERMEABLE MATERIAL BLANKET (BIOTREATMENT SWALE)**

#### **68-5.01 GENERAL**

Section 68-5 includes specifications for installing permeable material blankets in bio treatment swales.

#### **68-5.02 MATERIALS**

Permeable material for permeable material blanket must be Class 2 and must comply with section 68-2 except for payment.

Filter fabric must comply with section 96-1.02B.

### **68-5.03 CONSTRUCTION**

Place filter fabric as follows:

1. Ensure the subgrade complies with the compaction and elevation tolerance specified for the material involved before placing the filter fabric on the subgrade.
2. Handle and place filter fabric under the manufacturer's instructions.
3. Align and place the fabric without wrinkles.
4. Overlap or stitch adjacent borders of the fabric from 12 to 18 inches. The preceding roll must overlap the following roll in the direction the permeable material is being spread or must be stitched. If the fabric is joined by stitching, the fabric must be stitched with yarn of a contrasting color. The size and composition of the yarn must be as recommended by the fabric's manufacturer. There must be 5 to 7 stitches per inch of seam.
5. Cover the fabric with the planned thickness of permeable material or aggregate subbase material as shown within 24 hours after the filter fabric has been placed.
6. Maintain at least 6 inches of the material between the fabric and your equipment during spreading and compaction of the permeable material and aggregate subbase. Where embankment material is to be placed on the filter fabric, maintain at least 18 inches of embankment material between the fabric and your equipment. Do not operate or drive equipment or vehicles directly on the filter fabric.

Place and consolidate permeable material in conformance with section 19-3.

### **68-5.04 PAYMENT**

Payment for filter fabric is included in payment for class 2 permeable material.

## **71 EXISTING DRAINAGE FACILITIES**

**Replace items 1 and 2 in the second paragraph in section 71-6.01A with:**

1. Wall of minor concrete not less than 6 inches thick with #4 bar reinforcement 6" on center each way.

**Replace "*Reserved*" in section 71-6.01D with:**

Plugging pipes with minor concrete as shown is paid for as concrete pipe plug.

## **DIVISION VIII MISCELLANEOUS CONSTRUCTION**

### **72 SLOPE PROTECTION**

**Replace the paragraph in section 72-1.04 of the RSS with:**

Payment for rock slope protection fabric is included in payment for rock slope protection.

## **73 CONCRETE CURBS AND SIDEWALKS**

### **Replace 1st paragraph of section 73-1.02A with:**

Comply with section 90-2 "Minor Concrete" except as follows:

1. For all miscellaneous concrete work ,except valley gutters, cross gutters, bus pads, mountable curb, and truck aprons, the cementitious material content of concrete must be at least 505 lb/cu yd.
2. For valley gutters, cross gutters, bus pads, mountable curb, and truck aprons cementitious material content of concrete must be at least 590 lb/cu yd.
3. The maximum size of aggregate used for miscellaneous concrete construction shall be 1 inch.

### **Add to section 73-1.02B:**

Install prefabricated detectable warning surface under the requirements of the Department of General Services, Division of State Architect. The finished surfaces of the detectable warning surface shall be free from blemishes.

The manufacturer shall provide a written 5-year warranty for prefabricated detectable warning surfaces, guaranteeing replacement when there is defect in the dome shape, color fastness, sound-on-cane acoustic quality, resilience, or attachment. The warranty period shall begin upon acceptance of the contract.

### **Add to section 73-1.03A:**

Construct new sidewalk and new curb monolithically. Construct bus pads and adjoining curb monolithically.

Do not deviate the shape and design of curb ramps and driveways with sidewalk from the standard plans unless noted on the project plans or approved by the Engineer. Do not free form these facilities.

Clean all sawcuts by abrasive blasting or other methods approved by the Engineer.

If new curb, sidewalk or driveway is constructed adjacent to existing curb, sidewalk or driveway, dowel the existing concrete to the new concrete with #4 reinforcing bars. Use a minimum of 3-12-inch long dowels for curb and 12-inch long dowels on 12" centers for sidewall and valley gutters.

For new curb ramps, detectable warning surfaces shall be prefabricated tiles set directly in newly poured concrete; surface applied tiles or stamped into surface detectable warning surfaces will not be allowed.

Score the surface of sidewalks at intervals not more than 4 feet and must correspond with the weakened plane and expansion joints of the curbs, unless otherwise directed by the Engineer.

Sidewalk with width greater than 5.5 feet, place a centered score line and parallel to the curb. ADA ramps shall be scored in accordance with the Standard Plans. A scoring tool must be used which will leave the edges rounded. On straight work, the scoring lines must be perpendicular to the line of the work; at curves, the scoring lines must be radial to the curb; when longitudinal scoring lines are required, they must be parallel to, or concentric with the line of the work.

Where curb is not adjacent, construct expansion joints at intervals of 24 feet. Fill; expansion joints with premolded joint filler conforming to the provisions of Section 51.. Expansion joint filler must be shaped to fit the concrete that is being placed, with the edge placed 1/8inch below the top of the finished concrete surface.

Concrete placed next to an expansion joint must be finished with an edge tool. Weakened plane joints must be constructed at 12 foot intervals.

**Replace the 4<sup>th</sup> paragraph in section 73-2.03A with:**

Construct expansion joints 3/8 inch wide in curbs at 24 foot intervals except for extruded curb, which must be at 60 foot intervals and at the ends of curb returns, except that expansion joints must not be constructed within 24 feet of an island nose. Fill expansion joints with premolded joint filler conforming to the provisions of section 51. Shape expansion joint filler to the cross section of the curb. Construct weakened plane joints (deep score) at 12 foot intervals.

**Add to section 73-2.04:**

Lengths of curbs and/or gutters at drainage structures, designated as aprons and transitions on the plans, will not be measured. Payment for constructing aprons and transitions is included in the payment of the minor concrete (minor structure).

Curbs and/or gutters measurements shall include curb transitions and depressions along driveways and curb ramps.

Retaining curb located at the back of sidewalk shall be measured and paid for as minor concrete (sidewalk).

**Add to the beginning of section 73-3.03:**

Before placing concrete, verify that forms and site constraints allow the required dimensioning and slopes shown. Immediately notify the Engineer if you encounter site conditions that will not accommodate the design details. Modifications ordered by the Engineer are change order work.

**Add to section 73-3.03:**

Prior to final acceptance, as directed by the Engineer, water test curbs with gutters on slopes of 0.75% or flatter and paved surfaces to verify proper drainage. Any ponding of water greater than 0.25 inch depth will be considered as evidence of poor work techniques and must be corrected by removing and replacing those portions of curb and gutter as necessary to comply with the requirements of this special provision, at no additional expense to the City.

**Replace “Not Used” in section 73-3.04 with:**

Concrete driveways and driveway approaches will be paid for as minor concrete (driveway approach).

Concrete curb ramps will be paid for as minor concrete (sidewalk).

Driveways, driveway approaches, island paving, curb ramps, and sidewalks which are contiguous with curb will be measured from a point 6 inches behind the face of curb.

Sidewalk with retaining curb shall be measured transverse from a point 6 inches behind the face of curb to the back of the retaining curb.

No deduction in quantities of minor concrete (sidewalk) will be made for utility covers and portions of inlets behind the projected back of curb line.

Retaining curb is paid for as minor concrete (sidewalk). Sidewalk with retaining curb will be measured transverse from a point 6 inches behind the face of curb to the back of the retaining curb.

Payment for furnishing and installing detectable warnings is included in the cost for minor concrete (sidewalk).

No deduction in quantities of minor concrete (sidewalk) will be made for utility covers and portions of inlets behind the projected back of curb line.

Concrete paving and retaining curb located in island passageways located are measured and paid for as minor concrete (sidewalk).

The cost of furnishing and installing bar reinforcement is included in the price paid for that minor concrete bid item.

The concrete curb poured monolithically with bus pad concrete is measured and paid for as minor concrete (bus pad).

## **77 LOCAL INFRASTRUCTURE**

### **Add section 77-1:**

#### **77-1 REMOVEABLE BOLLARD**

##### **77-1.01 GENERAL**

Section 77-1 includes specifications for removable bollard.

Removable bollard shall be TimberForm series No. 2500, or approved equal.

##### **77-1.02 MATERIALS**

All timber bollard wood components shall be manufactured from Playground Equipment Grade Douglas fir timbers, selected by the equipment manufacturer for strength, durability, and appearance. All timber shall be Coastal Douglas fir (*Pseudo-tsuga menziesii*), free-of-heart-center (F.O.H.C.). To assure long, useful life, timbers containing the heart center or pith of the log shall not be accepted.

All timbers shall be fine-grained, with at least 80 percent of the pieces possessing eight annular rings to the inch, the remainder having at least six rings to the inch. There shall be no loose knots, knotholes, shake, unsound wood, white specks or honeycomb allowed. Except as noted, other characteristics and limiting provisions are in accordance with Paragraph 131-A "Standard Grading Rules for West Coast Lumber".

Bollards shall be removable (-R) mount. Removable bollard post sleeve and in-ground sleeve shall be constructed of 2-3/8" (o.d.) Schedule 40 mild steel pipe. Bollard post and in-ground sleeve shall have interlocking tabs for padlock (by others).

All wood components shall be pressure-preservatively treated with a non-toxic formulation. The preservative solution shall be homogeneous and capable of deep penetration, not merely an emulsion. The treatment shall not materially change the color of the wood to which it is applied.

Preservatives containing arsenic, pentachlorophenol, creosote or similar toxic chemicals as their active ingredient shall not be used.

#### **77-1.03 CONSTRUCTION**

To effectively receive pressure preservative treatment of the timber materials, all fabrication, including sawing, notching, drilling, incising and kerfing, must be completed prior to preservative treatment.

Timber bollards shall be size 8 x 8 or 12 x 12 (nominal) with all edges eased (rounded) to a 1/4" radius.

#### **77-1.04 SUBMITTALS**

Submit shop drawings for removable bollard.

#### **77-1.05 PAYMENT**

The contract unit price paid per each "Removable Bollard" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removable bollard, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### **Add section 77-2:**

## **77-2 USACE GROUNDWATER TREATMENT INFRASTRUCTURE**

### **77-2.01 GENERAL**

Section 77-2 includes specifications for modification of the exiting USACE groundwater treatment infrastructure.

Contractor must coordinate with USACE prior to construction activities around and directly impacting existing USACE infrastructure. USACE will observe contractor's work and make recommendations, if appropriate, and will report to the USACE the status of construction and acceptability of the contractor's work. Work shall be conducted in a manner that assures the monitoring wells, low point vaults, and leak detection vaults do not incur contamination from

existing soil or construction activities. The contractor is responsible for maintaining site security for USACE infrastructure within the project limits of grading for the duration of construction activities.

Construction activities cannot impact the ongoing groundwater monitoring program, transmission of groundwater, and the sampling procedure to collect and transmit groundwater. The contractor is required to coordinate with the USACE and provide access to the USACE facilities immediately upon request of the USACE.

If adjustment of any pipe casings is required due to the construction of these improvements, contractor shall notify the Engineer and the USACE prior to any adjustment of pipe casing. If approved by the Engineer and the USACE, contractor will proceed with casing adjustment. Upon completion of all work affecting USACE infrastructure, the contractor shall survey the new elevation of the top of adjusted casing (if required), and provide the information to the Engineer and USACE (NGVD29).

#### **77-2.02 SUBMITTALS**

Submit shop drawings for all work on USACE infrastructure, including details of low point leak detection vaults, monitoring well lid adjustment, trenching, installation, and modifications to piping system.

The Contractor shall submit the method(s) used to modify the existing piping system.

#### **77-2.03 PAYMENT**

The contract unit price paid per each "Removable Bollard" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removable bollard, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### **Add section 77-3:**

#### **77-3 BYPASSING WASTEWATER**

Section 77-3 includes specifications for modification of the exiting MCWD force main infrastructure. Work on MCWD force main to be in accordance with these special provisions and MCWD standard construction specifications.

Contractor must coordinate with MCWD prior to construction activities around and directly impacting existing MCWD infrastructure. MCWD will observe contractor's work and make recommendations, if appropriate, and will report to the MCWD the status of construction and acceptability of the contractor's work. The contractor is responsible for maintaining site security for MCWD infrastructure within the project limits of grading for the duration of construction activities.

## 77-3.01 GENERAL

### 77-3.01A SYSTEM DESCRIPTION

1. Performance Requirements
  - a) It is essential to the operation of the existing sewage system that there be no interruption in the flow of sewage throughout the duration of the Project. Provide, maintain, and operate all temporary facilities such as dams, plugs, flow-through plugs, pumping equipment (both primary and backup units as required), electrical control conduits, and all necessary power to intercept the sewage flow before it reaches the point where it would interfere with the Work, carry it past the Work and return it to the existing sewer downstream of the Work.
  - b) Design, install, and operate the temporary pumping systems where required.
  - c) Convey the sewage safely past this Work area. Do not stop or impede the main flows under any circumstances.
  - d) Maintain sewage flow around the Work area in a manner that will not cause surcharging of sewers, damage to sewer, and that will protect public and private property from damage and flooding, including the routing of sewage overflow in the event of failure of any bypass system.
  - e) Protect water resources, wetlands, and other natural resources.
  - f) Qualified personnel supervising bypass pumping operations 24 hours per day.
2. Design Requirements (Pump Station)
  - a) Provide plugs, pumps of adequate size to handle peak flow, and/or temporary discharge piping to ensure that the total flow into the pump station can be safely diverted around the station to be replaced. Bypass pumping systems will be required to be operated and supervised by qualified personnel 24 hours per day, 7 days per week including holidays during bypass pumping operations.
  - b) Provide onsite portable lights for emergency use only.
  - c) Provide standby generation facilities for emergency use if pumps are equipped with electric motors.

3. Design Requirements
  - a) Provide plugs, pumps and sewage haulers of adequate size and all other equipment needed to safely collect peak flow before it enters into the wet well that is to be rehabilitated or overflow to the ground. Pumping and hauling systems will be required to be operated and supervised by qualified personnel 24 hours per day 7 days per week including holidays during the collection and discharge operations
  - b) The temporary pumping bypass should have sufficient pumping capacity to convey the wastewater under the existing station's peak design flow. The approximate design operation point for the existing station is as follows:

**6" Force Main: 520 gpm @ 87 ft TDH**  
**8" Force Main: 700 gpm @ 48 ft TDH**  
**10" Force Main: 1,250 gpm @ 85 ft TDH**
  - c) Solids removed by sewage haulers can be taken to a local landfill.

#### **77-3.01B SUBMITTALS**

1. Detailed plans and descriptions outlining complete flow bypass pumping system for each of the four pump stations. Plans shall show system components layout, piping connection details, power plan, controls and details on equipment specifications (pump rating, pipe size and material etc). Plans shall include an emergency response plan to be followed in the event of a failure of the systems. All plans shall be submitted to the Engineer at least 10 working days prior to required operation of the bypass systems.
2. Where pumping is required submit complete information on generation system.
3. Where standby generators are required submit complete information on generation system. All generators shall be rated for low noise rate compliance in residential neighborhoods. Decibels of generators and pump shall not exceed 65 dBA at 50 feet. The Contractor shall submit proposed generator and dBA rating to the Engineer for approval prior to use.

#### **77-3.01C QUALITY ASSURANCE**

1. The bypass system shall be designed and operated so that no sewage overflow or spills occur.
2. Should spills occur, the Contractor will be completely responsible for any overflow or spillage of raw sewage due to failure of any bypass system.

3. Contractor to pay any fines or costs associated with such spillages.
4. Contractor to be responsible for any cleanup or restoration resulting from such spillages.

### **77-3.02 PRODUCTS**

#### **77-3.02A PUMP SYSTEMS**

1. Pumps may be gas, electric, or diesel powered.
2. Pumps may be end suction or submersible.
3. Bypass piping shall be rubber gasketed or butt-fused HOPE, with no visible leaks under operating conditions.

### **77-3.03 EXECUTION**

#### **77-3.03A GENERAL**

1. If pumping is required across a street or driveway that cannot be closed to traffic, the discharge piping shall be:
  - A. Temporarily buried, backfilled, and paved.
  - B. Collapsible conduit adequate to allow crossing by traffic may be used only during work hours when the contractor is on the project site.
2. Bypass pumping and sewage hauling shall be monitored at all times by a competent person familiar with the pumping equipment.
3. New pumps and pipelines may be utilized to convey sewage prior to final acceptance, provided all pipe and structures downstream have been tested, cleaned, inspected, and accepted.
4. Contractor shall conform to all safety provisions pertaining to confined space entry when entering any manhole.
5. Contractor shall notify Engineer 48 hours prior to commencing bypass system operation.
6. Before final acceptance of the Work on the project, all temporary connections, pumping and piping installed by the Contractor shall be entirely removed, and all affected improvements shall be restored to their original condition, or better, to the satisfaction of Engineer, the District, and/or other agency owning the affected utility.

#### **77-3.04 PAYMENT**

Payment for "BYPASSING WASTEWATER" is considered included in the contract price paid for other sanitary sewer force main items and no additional compensation will be allowed therefore.

#### **Add section 77-4:**

#### **77-4 ADJUST MANHOLES**

##### **77-4.01 GENERAL**

Section 77-4 includes specifications for adjusting existing manholes to grade and shall conform to the provisions of Section 71-5.03B "Frames, Covers, Grates, and Manholes" of the State Standard Specifications and these Special Provisions.

##### **77-4.02 PAYMENT**

The contract unit price paid per each "Adjust SS Manhole to Grade" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in adjusting sanitary sewer manhole to grade, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract unit price paid per each "Adjust Existing SD Manhole to Grade" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in adjusting storm drain manhole to grade, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### **78 INCIDENTAL CONSTRUCTION**

#### **Add section 78-1:**

#### **78-1 PRESTON PARK ENTRY MONUMENTS**

##### **78-1.01 GENERAL**

Section 78-1 includes specifications for salvaging the Preston Park entry monument features.

##### **78-1.02 CONSTRUCTION**

Salvage Preston Park entry monument features, including raised stone planter materials, monument lettering, and lighting equipment. Deliver salvaged materials to the City as specified in section 15-1.03C.

### **78-1.03 PAYMENT**

The lump sum price paid for "Salvage Preston Park Entry Monuments" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in salvaging and transporting the existing monument features, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### **78-2 ANTI-GRAFFITI COATING**

#### **78-2.01 GENERAL**

Section 78-2 Anti-Graffiti Coating shall comply with Section 78-4.06 "Anti-Graffiti Coating" of the Standard Specifications and these Special Provisions. Anti-graffiti coating shall be on the current Caltrans Authorized Materials List.

### **78-1.02 PAYMENT**

The contract price paid per square foot for "Anti-Graffiti Coating" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in acquiring and applying anti-graffiti coating, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### **78-3 RELOCATE U.S. ARMY RESERVE CENTER SIGN, SLIDING GATE OPERATOR, AND PEDESTRIAN ACCESS GATE**

#### **78-3.01 GENERAL**

Section 78-3 includes specifications for relocating facilities within the U.S. Army Reserve Center (USARC), including the sign, sliding gate operator, and pedestrian access gate.

#### **78-3.02 CONSTRUCTION**

Relocate U.S. Army Reserve Center sign, including lighting equipment, to a location confirmed by the USARC Commander. The foundations for the relocated sign shall match the existing foundations in materials, dimensions, and construction.

The contractor shall coordinate with the United States Army Reserve Center (USARC) Commander regarding all construction activities adjacent to their facility, including but not limited to: driveway reconstruction, installation of the motorized security gate, modification of existing security fencing, and the relocation of sign and mailbox. Contractor shall contact USARC Commander a minimum of 20 working days prior to beginning any work on the proposed features adjacent to the USARC property.

The contractor shall coordinate their work to avoid any interference with USARC personnel and operations. The contractor shall provide for safe access by USARC personnel through the construction zone at all times during construction. At all times, a minimum of one (1) 14' paved access lane must be provided for used by USARC personnel. Any need to potentially restrict access shall immediately be brought to the attention of the Engineer. Any restrictions to USARC personnel access must first be coordinated with and approved by the USARC Commander and

the Engineer, and must be coordinated with USARC commander a minimum of two (2) weeks prior to restricting access. Access restrictions will be staged and phased to minimize duration.

The contractor shall maintain security fencing around the USARC at all times. This may be accomplished by constructing the new permanent fencing and entry gate prior to removing the existing fence, or by installing temporary fencing and entry gate as required. The new permanent fencing and temporary fencing (if used) must include an automatic entry gate at the USARC's entrance. Gate shall be normally closed before 7:00 am and after 5:00 pm. Gate shall include a traffic loop that opens when a car is exiting the site if in the closed position. Provide access through the construction site for access to the USARC's entrance from Imjin Parkway at all times except during grading and/or paving operations in the immediate vicinity of the existing entrance, as approved in advance by the Engineer and USARC Commander. Alternate access may be provided, to the satisfaction of the USARC Commander.

The USARC will be in continuous operation throughout the execution of this Contract. The Contractor, therefore, must schedule and conduct their work to minimize interference with the operations and maintenance of the USARC. It is the intent of this Contract that the construction activity, insofar as possible, shall not interfere with the operation of the USARC.

When modifications, additions, or connections to existing facilities are required, the Contractor shall schedule such activities with the USARC Commander and Engineer. No system, structure, vault, circuit, or individual process unit shall be modified, dewatered, drained, de-energized, or removed from existing facilities unless authorized, in writing, by the Engineer.

The work under this contract shall be conducted in a manner that will minimize shutdowns, USARC access roadway closures, or traffic obstructions caused by construction. Access for deliveries and movement of personnel and equipment shall be maintained at all times as specified herein. Access shall also be maintained for USARC personnel vehicles to enter through the driveway gate.

Connections to existing utilities or any new connection thereto must be coordinated to provide the least possible interference with facility operations. Prior to any shutdown, all materials, fittings, supports, equipment, and tools shall be on the site and all necessary labor scheduled prior to starting any connection work.

The Contractor shall include all work described in this section in the construction schedule. The sequence and constraints identified in this section shall be followed in the construction of the work. However, alternatives to these sequences and constraints may be submitted by the contractor for review by the Engineer.

Shutdowns shall be planned and scheduled as far in advance as possible in order to allow USARC staff to coordinate personnel, equipment, and materials to accommodate the Contractor's request. The approval of shutdowns (e.g., access disruptions, power outages, etc.) shall be entirely at the City's discretion and shall be dependent on the City's ability to coordinate

with other events. These events include, but are not limited to, the following: wet weather events, USARC personnel availability, operational problems, etc

The Contractor shall connect new motorized gate operator and electrical equipment with a minimum of interruption to USARC operations. The Contractor shall inform the Engineer in writing a minimum of two (2) weeks in advance of event, whenever the power supply must be interrupted to make required connections and shall inform them of the estimated duration of the interruption. In no case shall the Contractor cause an intentional power interruption without written authorization from the USARC Commander.

All workers required to enter secured USARC property to perform security gate or fence work are subject to a Federal background check process by the Army to allow workers onto the USARC property. Contractor is to work with USARC staff by providing the list of workers requiring access and required personal information necessary for USARC to clear each worker. Be prepared to replace any workers that are not cleared for access. No workers will be allowed within USARC or allowed to work on USARC's infrastructure without prior approval. The City is not responsible for actions taken by USARC for background screening and no additional compensation will be made. This vetting process takes approximately 14 days, so plan accordingly.

### **78-3.03 PAYMENT**

The contract price paid per each for "Relocate US Army Reserve Center Sign" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in relocating the USARC sign, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the USARC Commander and the Engineer.

The contract price paid per each for "Relocate Sliding Gate and Operator" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in relocating the sliding gate and operator, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the USARC Commander and the Engineer.

The contract price paid per each for "Relocate Pedestrian Access Gate" includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in relocating the pedestrian access gate, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the USARC Commander and the Engineer.

**Replace section 78-6 with:**

## **78-6 ENGINEER'S FIELD OFFICE**

### **78-6.01 GENERAL**

Section 78-6 includes general specifications for providing the engineer's field office.

Furnish a field office conforming to these special provisions for the use by the City at the staging area off of 8<sup>th</sup> Street as shown. The field office must be well constructed, properly ventilated, lighted, heated, and air conditioned.

The overall size of the field office must be a minimum of 450 square feet, and must be furnished with doors and windows capable of being locked. The field office must be partitioned to provide one private office of not less than 120 square feet and a conference area of not less than 300 square feet. The doors must have new galvanized or zinc coated stairs with landings as required. Provide to the Engineer a floor plan for review and approval prior to commencement of work.

Locate the field office within the staging area off of 8th Street. Provide two (2) keys for the staging area's lockable gate and for the office door lock assembly to the Engineer. Title to the trailer and provided contents will remain with the contractor.

Preparatory work includes any necessary site grading to place the trailer on a suitable flat area. Grading work must include parking spaces for a minimum of four vehicles and the installation of an all-weather access surface (i.e., aggregate base) to the site from 8th Street and Imjin Road. Field office is to be maintained for one (1) month following completion of the project work. The area occupied by the field office must be returned to the original pre-project grades including the removal of any materials including the aggregate road base.

Furnish the field office with 3 desks capable of being locked; 3-foot by 8-foot conference table; 12 standard chairs; 3 desk chairs with arms; one (1) dry plain paper copying machine with automatic feed and collator similar to Xerox 1012 or Sharp 815 capable of making letter size (8-1/2 x 11), legal size (8-1/2 x 14), and ledger size (11 x 17) copies; 4 x four drawer legal size filing cabinets; 1 plan rack; a fire extinguisher and a safety kit (bandages, gauze, etc.).

The private office must be provided with a lockable closet and at least 25 feet of 12-inch wide shelving located as directed and two (2) portable book cases, each with a minimum of three four-foot long shelves.

Provide garbage collection service at least once per week.

The turnkey modular building must be new, or in like-new condition and not less than 3 years old. Contractor is responsible for all aspects of site preparation, delivery, set up, electrical plan and wiring, fire alarm system, and including all code compliance, applications, permitting and fees.

Provide all labor, materials and equipment required to install a generator to provide adequate power to the trailer.

Provide toilet and wash station facilities that are at a minimum equivalent to the facilities that you provide for your employees at the project site and in accordance with State and local requirements. The toilet facilities may be portable facilities and must be separate from your facilities. Provide maintenance of any portable toilet and wash station facilities throughout the term of the project.

Provide fire extinguishers and mounted as required by the Fire Marshall.

Besides the necessary electrical power for the heating, air conditioning and lighting, provide the necessary electrical service to the trailer to accommodate, at a minimum, the following items: 1 copier, and other standard office equipment. All electrical outlets to contain receptacles must be wired and ready for use, and be installed not less than 6 feet apart.

Provide all repairs and maintenance, including replacement of HVAC filters every 90 days, replacement of ballasts, and replacement of fluorescent light bulbs. Any maintenance requests by the Engineer are to be addressed within 48 hours. The generator must be maintained and refueled as necessary throughout the project by you.

Contractor is responsible for meeting all State and local codes, including applicable building code requirements in accordance with Title 24 of the California Code of Regulations, Department of Housing and Community Development (DOH), Division of the State Architect (DSA), and Department of Motor Vehicles (DMV).

Equipment furnished shall be of standard quality and new, or like new in appearance and function. The office must be installed and ready for occupancy no later than the first working day. For each day thereafter that the office is not ready for occupancy, you will be assessed damages in the amount of \$500.00 per calendar day.

The office and all furnished equipment must remain for use by the City and must continue to be maintained until notified in writing by the Engineer that all required final paperwork for project closeout, except paperwork related to progress payments, has been submitted and accepted by the Engineer.

## **78-2.02 PAYMENT**

Payment for Engineer's field office will be made in increments of the contract lump sum price for this item of work in the following manner:

|                    |                                                                                                            |
|--------------------|------------------------------------------------------------------------------------------------------------|
| Initial Increment: | 25 percent of the lump sum price upon satisfactory completion of installation and setup (ready to occupy). |
| Progress Payment:  | 50 percent of the lump sum price upon satisfactory completion of fifty percent of the contract work.       |
| Final Increment:   | Balance of the lump sum price when contract work is completed and accepted.                                |

## **DIVISION IX TRAFFIC CONTROL DEVICES**

### **81 MISCELLANEOUS TRAFFIC CONTROL DEVICES**

#### **Add to section 81-3.03A:**

Reference and replace all existing blue reflective pavement markers that identify the location of fire hydrants. If an existing blue reflective pavement marker is missing or has been displaced, place a new blue reflective pavement marker as directed by the Engineer.

#### **Replace “Not Used” in section 81-3.04 with:**

Furnishing and placing blue reflectors is included in payment for the various bid items.

Furnishing and placing pavement markers is included in the payment for the traffic stripe work that requires them.

### **82 SIGNS AND MARKERS**

#### **Add to section 82-2.02:**

Metal posts shall be a Unistrut telescoping square tube system or an approved equal which consists of square tube that is welded steel with perforations to adjust post height.

#### **Add to section 82-3.03A:**

The R81 (Bike Lane) signs shall be placed on metal posts.

#### **Add to section 82-9.01:**

Salvage sign panels from removed signs. Deliver salvaged panels to the City as specified 15-1.03C.

### **83 RAILINGS AND BARRIERS**

#### **Add to section 83-11.02C(1):**

Salvage metal guardrail material from removed guardrail. Deliver guardrail to the City as specified 15-1.03C. Dispose of all other guardrail materials removed. Note that wood posts are treated wood waste and disposal must comply with section 11-14.

## **84 MARKINGS**

### **Add to section 84-1.04:**

Payment for painting the median and gore island noses as shown is included in the payment for various bid items.

### **Replace 84-2.02I with:**

#### **84-2.02I Methyl Methacrylate Marking (Green)**

##### **84-2.02I(1) General**

The material for the green bicycle lane delineation (green marking) must be methyl methacrylate conforming to this section. Material must be anti-slip treated methyl methacrylate and does not need to be retro-reflective.

The manufacturer must be ISO 9001:2008 certified for design, development and manufacturing of colored pavement materials, and provide proof of current certification.

##### **84-2.02I(2) System Description**

Properly designed roadway pavement coatings have been scientifically formulated to provide the optimal balance of performance properties for a durable, long lasting color and texture to a roadway pavement surface. Some of these key properties include wear and crack resistance, color retention, adhesion, minimal water absorption and increased friction properties. As well, the roadway pavement coating must be environmentally safe and meet EPA requirements for Volatile Organic Compounds (VOC).

- A. The material shall be capable of being applied on bituminous and/or Portland cement concrete pavements and must be able to be applied after 30 days of placement. The use of a compactor or similar equipment shall not be necessary. The material must be able to be applied to asphalt and concrete surfaces without preheating the application surface to a specific temperature.
- B. The material must be capable of conforming to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures. It shall not be necessary to use a grid template or to make pattern grooves or other indentations in the asphalt or concrete surface prior to applying the material. It shall not be necessary to inlay the material in grooves or indentations. It shall not be necessary to heat the pavement or application surface to a specific temperature.

##### **84-2.02I(3) Submittals**

- A. Confirmation of coating color.

**Green:** The color must meet the FHWA guidance for the chromaticity coordinates for bicycle lane coloration. Material shall be tested according to ASTM D 154 Exposure Condition Cycle 1

D65/2 Daytime Chromaticity at 144 hours of exposure. Values for Green Bike lane color shall be X-0.3367/Y-0.4846.

B. Confirmation of anti-skid / anti-slip properties of coating material.

C. Material Warranty

1. Manufacturer provides a full warranty covering 100 percent of the pavement marking materials for one year.
2. Contractor is responsible for quality control of the proper placement of the materials and all other factors that affect the service life of the materials.
3. Contractor removes and replaces 100 percent of the markings for all failed sections at no cost to OWNER in the event of a performance failure.

#### **84-2.02I(4) Delivery, Storage, and Handling**

A. According to manufacturer's recommendations.

B. Provide Material Safety Data Sheets (MSDS) when material is delivered.

#### **84-2.02I(5) Acceptance**

Provide documentation of the manufacturer and production batch identification for the covering used.

#### **84-2.02I(6) Material**

A. The Methyl Methacrylate (MMA) Acrylic Resin Material shall be a 98:2 formulated material capable of being sprayed. No other substitutes (i.e. 4:1, 1:1) MMA material formulations shall be permissible. Material shall be Color-Safe as manufactured by Transpo Industries, Inc..

B. Must be resistant to the detrimental effects of motor fuels, antifreeze, lubricants, hydraulic fluids composed of an ester modified rosin impervious to degradation by motor fuels, lubricants, etc. in conjunction with aggregates, pigments, binders, and anti-skid/anti-slip elements.

C. Pigments and anti-skid/anti-slip elements must be uniformly distributed throughout the material.

Pigments: The pigment system must not contain heavy metals nor any carcinogen, as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant Federal Regulations.

D. Skid Resistance: Upon application the material shall provide a minimum skid resistance value of 60 BPN when tested according to ASTM E 303 or minimum value of 40 when tested according to ASTM E 274.

E. Hardness: The material must meet a minimum hardness value of 55-60 per ASTM D2240.

F. Environmental Resistance: The material must be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to oil and gasoline.

G. The material must be able to be applied in temperatures down to 40 °F.

H. Performance Measures for Durability.

1. Minimum Durability – 90 percent of each colored area, legend, or symbol must be present.

2. Failure to meet any of the specified performance measures on at least 90 percent of the colored area is considered a failure. ENGINEER may require partial or complete replacement of the colored area under the warranty terms.

3. Failure to meet any of the specified performance measures on at least 90 percent of the legend or symbol is considered a complete failure of that legend or symbol. Replace under the warranty terms.

I. Elongation of material resin should have a minimum of 30% when tested in accordance with ASTM D638 Type I.

J. Compressive Strength of mixed material shall be between 2000-3000psi when tested in accordance with ASTM 579 Method B.

K. Water Absorption shall be a maximum of 0.25% when tested in accordance with ASTM D570.

L. Solids Content should be a minimum of 99% when tested in accordance with ASTM D1644.

M. Aggregate: A minimum of 7.0 on the Mohs Hardness Scale and Specific Gravity of 2.65 when tested by ASTM C128..

## **84-2.02I(7) Execution**

### **84-2.02I(7)(a) Preparation**

A. Depending upon the condition and age, existing roadway pavement may or may not be suitable for the successful application of pavement coating. CONTRACTOR can advise whether the roadway pavement is suitable or not. ENGINEER shall make the final determination as to the suitability of the existing roadway pavement.

B. CONTRACTOR is responsible for all surface preparation such as de-greasing, sweeping, power blowing, shot-blasting or power washing, in accordance with manufacturer's instructions.

C. Line control.

1. Establish control points prior to application.
2. Pavement markings that are to be left in place, utilities, drainage structures, curbs and any other structure within or adjacent to the treatment location shall be masked to protect from application. Masking material to be removed with no damage after material is placed.
3. Maintain line within 2 inches of the established control points and mark the roadway between control points as needed. Remove paint that is not placed within tolerance of the established control points and replace at no expense to the OWNER.

### **84-2.02I(7)(b) Application Guideline**

A. A certified applicator shall install or an approved manufacturer's representative shall be present on the jobsite for the first day of application of the methyl-methacrylate based colored pavement material. The manufacturer's representative shall provide the Engineer and Contractor with a copy of written recommendations, technical data sheet complete with application instructions and a product safety data sheet available to anyone that will be exposed to the methyl-methacrylate colored pavement marking system. The manufacturer's representative must have extensive application experience in the installation of methyl-methacrylate colored pavement systems and provide a resume of project completed.

B. The substrate must be completely dry and the surface thoroughly clean before application of the methyl-methacrylate Colored Pavement Marking System coating. The material must cover the entire application area and be flush across the surface. Once applied, no part of the pavement surface must be visible in the application area.

C. Asphalt: The material shall be applied using equipment recommended by the Manufacturer's instructions. The material must be able to be applied at ambient and road temperatures down to 40 °F without any preheating of the pavement to a specific

temperature. A sealer or primer specified by the manufacturer may be applied to the Asphalt prior to material application to ensure proper adhesion, and to provide reinforcement for larger volumes of material. A thermometer shall not be required during the application process. The pavement shall be clean, dry and free of debris.

D. Portland Cement Concrete: The same application procedure shall be used as described above in C. When applying to PCC pavement, a Methyl-Methacrylate Primer shall be used. Primer shall be mixed and applied according to manufacturers recommended instructions and completely cured before application of the Colored Pavement Marking material.

E. No Track Topcoat: Upon and/or during cure (i.e. wet-on-wet) of the Colored Pavement Marking Material, a Methyl-methacrylate based No Track Topcoat shall be mixed and applied (rolled or sprayed) according to manufacturers recommended instructions.

F. Catalyst for the methyl-methacrylate Colored Pavement Marking Material System will be added at the recommendation of the manufacturer dependent on ambient and pavement temperature for methyl-methacrylate Primer, Colored Pavement Marking Material and Top Coat.

G. Final thickness:

1. The material must be supplied at a minimum thickness of 80 mils.

H. Equipment: Application/spray equipment shall utilize static mixers for thorough mixing of the of resin and BPO catalyst. Resin and BPO shall not come in contact until just prior to entering the static mixer. A reversible spray tip shall be mounted directly at output of static mixer. Equipment with mixed resin and catalyst in hoses downstream of static mixer will not be accepted. Equipment must have an electronic, adjustable over and under pressure safety circuit in place on the catalyst pump that will stop the machine if the set pressure is exceeded. In addition machine must have an audible low pressure alarm that sounds if the pressure drops below the setpoint (usually about 1000 PSI). Equipment without an electronic over pressure failsafe and audible low pressure alarm will not be accepted. A factory technician must be on site during project to assure proper use and operation of the equipment.

#### **84-2.02I(7)(c) Opening to Traffic**

A. Minimally, the material must cure before the colored area is opened to traffic.

#### **Add to section 84-2.03A:**

Do not apply thermoplastic or methyl methacrylate striping using hand cart methods.

#### **Replace the first paragraph in section 84-2.01A with:**

Section 84-2 includes specifications for applying permanent and temporary traffic stripes and markings. Temporary traffic stripes and markings may be painted.

**Add to section 84-2.03A:**

Do not apply thermoplastic striping using hand cart methods.

**Replace section 84-2.04 with:**

Thermoplastic traffic stripes will be measured by the linear foot regardless of the number of individual stripes comprising the detail (e.g. Detail 29 placed between Station 1+00 and Station 2+00 will be measured as 100 linear feet even though it consists of 400 linear feet of stripe).

Temporary traffic stripes and markings will not be paid for separately.

## **DIVISION X ELECTRICAL WORK**

### **86 GENERAL**

**Add new section 86-1.01C(12) in the RSS for Section 86:**

**Add to the end of section 86-1.02B(1) of the RSS for section 86:**

High density polyethylene conduit must be Type IPS, DR 9 and comply with ASTM F714. The conduit material must comply with ASTM D3350.

**Replace *Caltrans* in the 4th paragraph of section 86-1.02C(1) with:**

CITY OF MARINA

**Add to the end of section 86-1.02C(3) of the RSS for section 86:**

Hold-down bolts must be a Penta Head 1/2-13UNC and must have a thread lock material.

**Replace *Reserved* in section 86-1.02C(4) of the RSS for section 86 with:**

**86-1.02C(4)(a) General**

Not Used

**86-1.02C(4)(b) Tamper-Resistant Non-traffic Pull Box**

A tamper resistant non-traffic pull box must include a pull box and one of the following:

1. Anchored cover
2. Lockable cover
3. Pull box insert

**86-1.02C(4)(c) Tamper Resistant Traffic Pull Box**

A tamper resistant traffic pull box must include a pull box and 1 anchored cover.

**86-1.02C(4)(d) Anchored Cover**

The anchored cover must:

1. Be of 1/2-inch-thick mild steel, hot dip galvanized, post fabrication.
2. Be hot dip galvanized after manufacturing with spikes removed from the galvanized surfaces.
3. Have a center space for a top lock nut that must be torqued to 200 ft-lb.
4. Have a center opening for a stainless steel threaded cap to cover the lock nut.
5. Weigh a minimum of 85 lb.

6. Include an all-around security skirt of 1/4-inch-thick steel. The skirt must be sized to encase a non-traffic pull box or sized to fit within a traffic pull box.
7. Be welded to the skirt.

#### **86-1.02C(4)(e) Lockable Cover**

The lockable cover must:

1. Be manufactured from minimum 3/16-inch-thick galvanized steel or a polymer of minimum strength equal to 3/16 inch steel
2. Be secured to the pull box with a locking mechanism of equal or greater strength than the manufactured material
3. Have 1/2-by-2-inch slot holes for lifting
4. Have dimensions complying with one of the following:
  - 4.1. Department's standards for pull covers as shown if the lockable cover is secured to the inside lip of the pull
  - 4.2. Department's standards for LO and WO for the length and width as shown for pull box covers if the lockable cover is secured to the top of the pull box

#### **86-1.02C(4)(f) Pull Box Insert**

The pull box insert must:

1. Be made of minimum 3/16-inch-thick or 10 gauge mild hot-dipped galvanized steel
2. Have a minimum of 2 mounting brackets that rest under the side or end wall
3. Be lockable with a padlock having a minimum 3/8-inch shackle
4. Have dimensions complying with the Department's standards for LI and WI for the length and width as shown for pull box covers

#### **Replace 86-1.02K(1) of the RSS for section 86 with:**

Luminaire shall be LED. The luminaire shall be:

1. Leotek Model GCL1-80G-MV-WW-2R-GY-610-WL with 115 Watt LED assembly, or approved equal.
2. Leotek Model GCL1-80G-MV-WW-4-GY-610-WL with 115 Watt LED assembly, or approved equal.

Luminaire shall be mounted on 10-foot mast arm.

Luminaire shall be equipped with field adjustable output selector. The initial drive setting shall be set to the drive setting as indicated in these specs.

#### **Replace first sentence of 86-1.02K(2) of the RSS for section 86 with:**

LED luminaire must: **Replace section 86-1.02V of the RSS for section 86 with:**

#### **Replace *Reserved* in section 86-1.02V of the RSS for section 86 with:**

#### **86-1.02V Rectangular Rapid Flashing Beacon Assembly**

##### **86-1.02V(1) General**

Rectangular Rapid Flashing Beacon (RRFB) shall comply with FHWA Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons (IA-11), dated July 16, 2008. The assembly shall be pedestrian push button activated.

**Add to section 87-1.03C of the RSS for section 87:**

**87-1.03C(5) Tamper-Resistant Pull Boxes**

Install the tamper-resistant pull boxes per the manufacturer's instructions.

**Add to the end of section 87-21.03C of the RSS for section 87:**

Modifying a signal and lighting system includes removing, adjusting, or adding:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Cables
6. Standards
7. Signal heads
8. Internally-illuminated street name signs
9. Service equipment enclosure
10. Detectors
11. Accessible pedestrian signals
12. Push button assemblies
13. Pedestrian signal heads
14. Luminaires
15. Photoelectric control
16. Fuse splice connectors
17. Emergency vehicle preemption

**END OF TECHNICAL SPECIFICATIONS**

# Appendix A: Geotechnical Engineering Report Imjin Parkway Widening Project

Parikh Consultants, Inc.

**GEOTECHNICAL ENGINEERING REPORT  
IMJIN PARKWAY WIDENING PROJECT  
MARINA, CALIFORNIA**

For

**Kimley-Horn**  
4637 Chabot Drive, Suite 300  
Pleasanton, CA 94588



**PARIKH CONSULTANTS, INC.**  
1497 North Milpitas Blvd.  
Milpitas, CA 95035  
(408) 452-9000

August 17, 2017 (Original)

June 11, 2020 (Final)

Job No. 2017-120-PAV

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# **GEOTECHNICAL ENGINEERING REPORT IMJIN PARKWAY WIDENING PROJECT MARINA, CALIFORNIA**

## **1.0 INTRODUCTION**

This report presents results of the geotechnical engineering investigation and geotechnical engineering recommendations for the design of structural pavement sections for the Imjin Parkway Widening Project (Project) to be constructed in the City of Marina, California. The approximate Project location is shown on the Project Location Map, Plate No. 1.

This report is intended for use by the project design engineer, construction personnel, bidders and contractors for information and reference purposes only, and should not be used directly as project specifications.

## **2.0 SCOPE OF WORK**

The purpose of this study was to investigate the existing subgrade soil conditions at the Project site, and to provide structural pavement sections recommendations for the proposed pavement. The scope of work performed for this investigation included performing underground utility clearance, drilling nine (9) soil borings, collecting subgrade bulk samples, laboratory tests, engineering analysis, and preparation of this report. In addition, four of nine borings were drilled to depths from approximately 15 to 20 feet to collect representative soil samples to evaluate subsurface soil and groundwater conditions for proposed cut/fill slopes. These relatively deep borings were not included in our original scope. Evaluation of existing pavement condition and deflection testing is not included in our scope. Coring of the existing pavement sections was not included in this field investigation.

## **3.0 PROJECT DESCRIPTION**

According to the information provided by Kimley-Horn (Client), the proposed Project is located on Imjin Parkway approximately between Imjin Road on the southwest and Reservation Road on the northeast. The proposed improvements will widen the southern side of Imjin Parkway, which



requires geotechnical engineering investigation and pavement design recommendations. Other minor improvements such as traffic lights/signs, signal metering, drainage, etc. will use Caltrans or City standard plans, and do not require specific geotechnical services.

#### **4.0 FIELD EXPLORATION**

A total of 9 borings (B-1 through B-9) were drilled to depths from approximately 5 to 20 feet with a truck-mounted drill rig with hollow-stem augers on June 9, 2017. The borings were all placed on the southern side of the Imjin Parkway roadway in dirt areas close to the existing shoulder. The approximate boring locations are shown on the Site Plan, Plate No. 2. Bulk soil samples were collected from all 9 borings within the top of about 5 feet of surface for R-value tests. Borings B-1, B-2, B-3, and B-8 were drilled to depths from approximately 15 to 20 feet in the proposed cut or fill slope areas. Selected soil samples were obtained from either a 2.5-inch I.D. Modified California (MC) or 1.4-inch I.D. Standard Penetration Test (SPT) sampler at shallow depths. The samplers were driven into subsurface soils under the impact of a 140-pound hammer having a free fall of 30 inches. The blow counts required to drive the sampler for the last 12 inches are presented on the Log of Test Borings (LOTB) in Appendix A. The drilling subcontractor was Exploration Geoservices, Inc. from San Jose, California. Materials encountered in the borings were visually classified in the field by the field engineer. Soil samples obtained from the borings were sealed and transported to the laboratory for further evaluation and testing.

#### **5.0 LABORATORY TESTING**

In the laboratory, the soil samples were visually reexamined to verify the field classifications. Laboratory tests were performed on selected soil samples to evaluate their physical and engineering properties. The test types performed included: Moisture Content (ASTM D 2216), Grain Size (ASTM D 422), and R-value (California Test Method 301). The laboratory test results are provided in Appendix B.



## **6.0 SUBSURFACE CONDITIONS**

The subsurface conditions are based on the field exploration. In general, the soils encountered in the four relatively deep borings (B-1, B-2, B-3, and B-8) consisted of medium dense to very dense, poorly graded sand with little silt (less than 6%). Groundwater was not encountered in the borings during drilling. Groundwater may vary with passage of time due to seasonal groundwater fluctuation, water level in the bay, surface and subsurface flows, ground surface run-off, and other factors that may not be present at the time of investigation. The soil boring logs are provided in Appendix A.

The boring logs presented in Appendix A were prepared from the field logs which were edited after visual re-examination of the soil samples in the laboratory and results of classification tests on selected soil samples as indicated on the logs. The abrupt stratum changes shown on these logs may be gradual and relatively minor changes in soil types within a stratum may not be noted on the logs due to field limitations.

Due to limitations inherent in geotechnical investigations, it is neither uncommon to encounter unforeseen variations in the soil conditions during construction nor is it practical to determine all such variations during an acceptable program of drilling and sampling for a project of this scope. Such variations, when encountered, generally require additional engineering services to attain a properly constructed project. Therefore, it is recommended that a contingency fund be provided to accommodate any additional charges resulting from technical services that may be required during construction.

## **7.0 STRUCTURAL PAVEMENT SECTIONS**

Pavement design for flexible pavement sections using hot mix asphalt (HMA) is based on Chapter 630 of the Caltrans Highway Design Manual (HDM 2015). No pavement coring was performed at this time, the existing pavement sections of the travelled lane are unknown. Based on an as-built plan (2013), the existing pavement sections of the bike lane widening consist of 4.5" HMA (including 1.75" HMA overlay) over 8" Class 2 aggregate base on 6" scarified and re-compacted



subgrade. Design of structural pavement sections depends on traffic indices (TI) and subgrade R-values. R-values were tested on selected bulk samples and the test results are summarized in Table 7.1. The test produced R-values ranging from 56 to 73. In consideration of subgrade variation and uncertainty, an R-value of 40 is recommended for pavement design. Table 7.2 presents design recommendations for new structural pavement sections with varying TIs. The TIs correspond to a service life of 20 years.

**TABLE 7.1 – R-VALUE TEST RESULTS**

| Boring No. | R-Value |
|------------|---------|
| B-1        | 70      |
| B-2        | 56      |
| B-5        | 73      |
| B-7        | 66      |
| B-9        | 67      |

**TABLE 7.2 - FLEXIBLE PAVEMENT SECTIONS**

| TI  | R-value | Structural Pavement Sections (ft.) |          |      |          |      |                 |
|-----|---------|------------------------------------|----------|------|----------|------|-----------------|
|     |         | Option 1                           | Option 2 |      | Option 3 |      |                 |
|     |         | Full-Depth HMA                     | HMA      | AB   | HMA      | AB   | AS <sup>1</sup> |
| 8   | 40      | 0.75                               | 0.40     | 0.70 | 0.40     | 0.50 | 0.50            |
| 8.5 | 40      | 0.80                               | 0.45     | 0.70 | 0.45     | 0.50 | 0.50            |
| 9   | 40      | 0.85                               | 0.45     | 0.80 | 0.45     | 0.50 | 0.50            |

HMA: Hot Mix Asphalt (Type A).

AB: Aggregate Base (Class 2) with R-value equal to 78

AS: Aggregate Subbase (Class 2) with R-value equal to 50.

1. The thickness has been increased to facilitate construction.

## **8.0 CUT AND FILL SLOPE CONSIDERATIONS**

It is our understanding that cut and fill slopes will be required along the widened roadway. Based on the improvement plans and cross sections provided (2017), the heights of slopes would be up to about 30 feet. A slope gradient of 3 horizontal to 1 vertical (3H:1V) is proposed. As discussed in Section 6.0 “Subsurface Conditions,” the soils encountered at the site are mostly composed of medium dense to very dense, poorly graded sand deposits with little fines (clean sand). The soils



seem to be typical marine sand dune formation. The internal friction angle of the sands is estimated to be greater than 32 degrees. Theoretically, a 3H:1V slope (slope angle ~18.5 degrees) of cut or properly compacted fill should remain stable assuming groundwater level is below 15 feet of the surface based on the borings. However, the long term slope stability depends on many factors. The granular soils are difficult to bind together due to lack of fines. Geogrids (triaxial type) should be used in layers to reinforce slopes as well as to confine soils. The geogrids should be placed at a vertical interval of 2 feet and extended a minimum of 10 feet horizontally from the slope face to the back of fill slopes. Since geogrids cannot be applied in cut slopes, cut slopes flatter than 3H:1V may be necessary. Alternatively, the slope maybe over-cut and built back with installation of geogrids. It should be noted that local irregularities such as loose layers and pockets and seepage might require flatter slopes.

The surface erosion potential of slopes composed of sand with little fines is expected to be high. The sandy soils are also very poor in support of vegetation establishment. Wind and water are among other factors contributing to slope surface erosion. Water-caused erosions include sheet, rill, gully, and even channel erosion with increased runoff velocity, which would remove soil particles and result in slope failure. Erosion control measures such as netting, ground cover must be carefully planned. An asphalt/concrete dike or concrete-lined V-ditch on the top of slopes maybe necessary to reduce water flowing down on slope faces. The slopes should be planted with deep-rooted, fast growing ground cover before the first winter to reduce erosion. Concentrated water flow on slope faces should be prevented through site grading design. Raveling of the surface soil is common in granular soils and would result in erosion and rills until the ground cover is established. Ongoing regular slope inspection and maintenance should be expected.

## **9.0 GRADING**

All grading and compaction operations should be performed in accordance with the project specifications and Section 19 “Earthwork” of the Caltrans Standard Specifications (2015). A representative from this office or a City authorized representative should observe all excavated areas during grading and perform moisture and density tests on prepared subgrade and compacted fill material.



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Areas to receive fill should be clean of vegetation, shrubs, trees, and their roots greater than 1 inch in diameter. Zones of soft, organic or saturated soils could be encountered during site grading. Loose materials will be left after the removal of large trees. Where such conditions are encountered, deeper excavation may be required to expose firm soils.

In our opinion, conventional equipment can be used to excavate the on-site sandy soils. Subgrade pumping may be encountered during earthwork construction depending on the weather, moisture condition of the subsurface soils, and surface drainage conditions. Equipment mobility may also be difficult if the subgrade is wet. In which case, the subgrade soils may require reworking, aeration, or over-excavation and replacing with fabric and granular fill to facilitate earthwork construction.

Soft subgrade was generally not encountered during our field investigation. In case soft and poor subgrade is encountered during earthwork and subgrade preparation, subgrade pumping and yielding should be anticipated. This may pose a constructability challenge. To provide a working platform and stable support for structural pavement sections, the subgrade should be treated as follows: 1) over excavating a minimum of one foot below the planned subgrade; 2) placing a layer of Caltrans stabilizing SEG Class B2 on the native soils; 3) backfilling with compacted AS. The treatment should extend to a minimum of one foot beyond the edge of the pavement. The design structural pavement sections provided in Table 7.2 should then be constructed on top of the properly treated subgrade. The over-excavation and replacement with fabric and AS is in addition to the design structural sections. It is intended to facilitate construction activities on poor and weak subgrade during construction.

Any fill materials (if required) imported to the Project site should be non-expansive, relatively granular material having a Plasticity Index (PI) of less than 15 and a minimum Sand Equivalent (SE) of 10. The maximum particle size of fill material should not be greater than 4 inches in largest dimension. It should also be non-corrosive, free of deleterious material and should be reviewed by the Geotechnical Engineer. In addition, import fill within 3 feet of pavement subgrade should have a minimum R-value of 40.



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The proposed Project is located along the existing city streets. Traffic control is required to maintain traffic flow during construction. Several underground utilities exist at the site. The contractor should verify the utility lines, be aware of the existing conditions and plan the construction activities accordingly.

It is possible that unknown old buried utilities or abandoned structures, concrete rubble etc. are located along the Project alignment. It might require special equipment and additional efforts to remove these buried objects.

Prospective contractors for the Project should be advised to evaluate construction-related issues on the basis of their own knowledge and experience in local areas, on the basis of similar projects in other localities, or on the basis of their own field investigation on the site, taking into account their proposed construction methods and procedures. In addition, construction activities related to excavation and lateral earth support must conform to safety requirements of OSHA and other applicable municipal and State regulatory agencies.

## **8.0 INVESTIGATION LIMITATIONS**

Our services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices and are based on our site reconnaissance and the assumption that the subsurface conditions do not deviate from observed conditions. All work done is in accordance with generally accepted geotechnical engineering principles and practices. No warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work or by the furnishing of oral or written reports or findings.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in structures, soil, surface water, groundwater or air, below or around this site.

Unanticipated soil conditions are commonly encountered and cannot be fully determined by taking soil samples and excavating test borings; different soil conditions may require that additional



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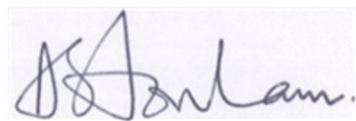
expenditures be made during construction to attain a properly constructed project. Some contingency fund is thus recommended to accommodate these possible extra costs.

This report has been prepared for the proposed Project as described earlier, to assist the engineer in the design of this Project. In the event any changes in the design or location of the facilities are planned, or if any variations or undesirable conditions are encountered during construction, our conclusions and recommendations shall not be considered valid unless the changes or variations are reviewed and our recommendations modified or approved by us in writing.

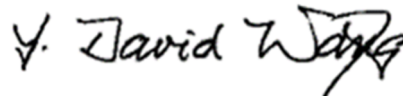
This report is issued with the understanding that it is the designer's responsibility to ensure that the information and recommendations contained herein are incorporated into the Project and that necessary steps are also taken to see that the recommendations are carried out in the field.

The findings in this report are valid as of the present date. However, changes in the subsurface conditions can occur with the passage of time, whether they are due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

Respectfully submitted,  
**PARIKH CONSULTANTS, INC.**

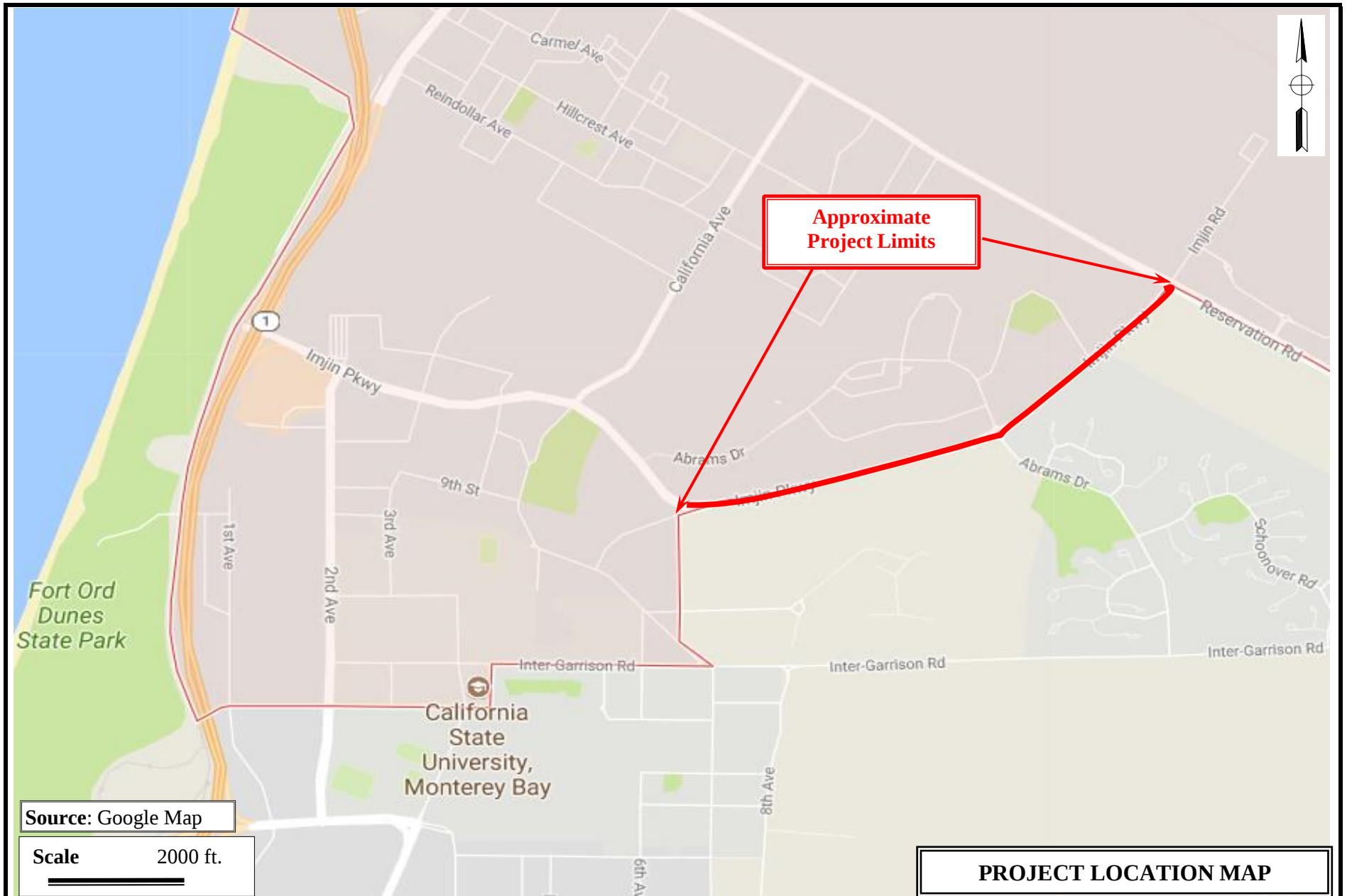


Alston Lam, PE, GE 2605  
Sr. Project Engineer



Y. David Wang, PhD, PE 52911  
Project Manager

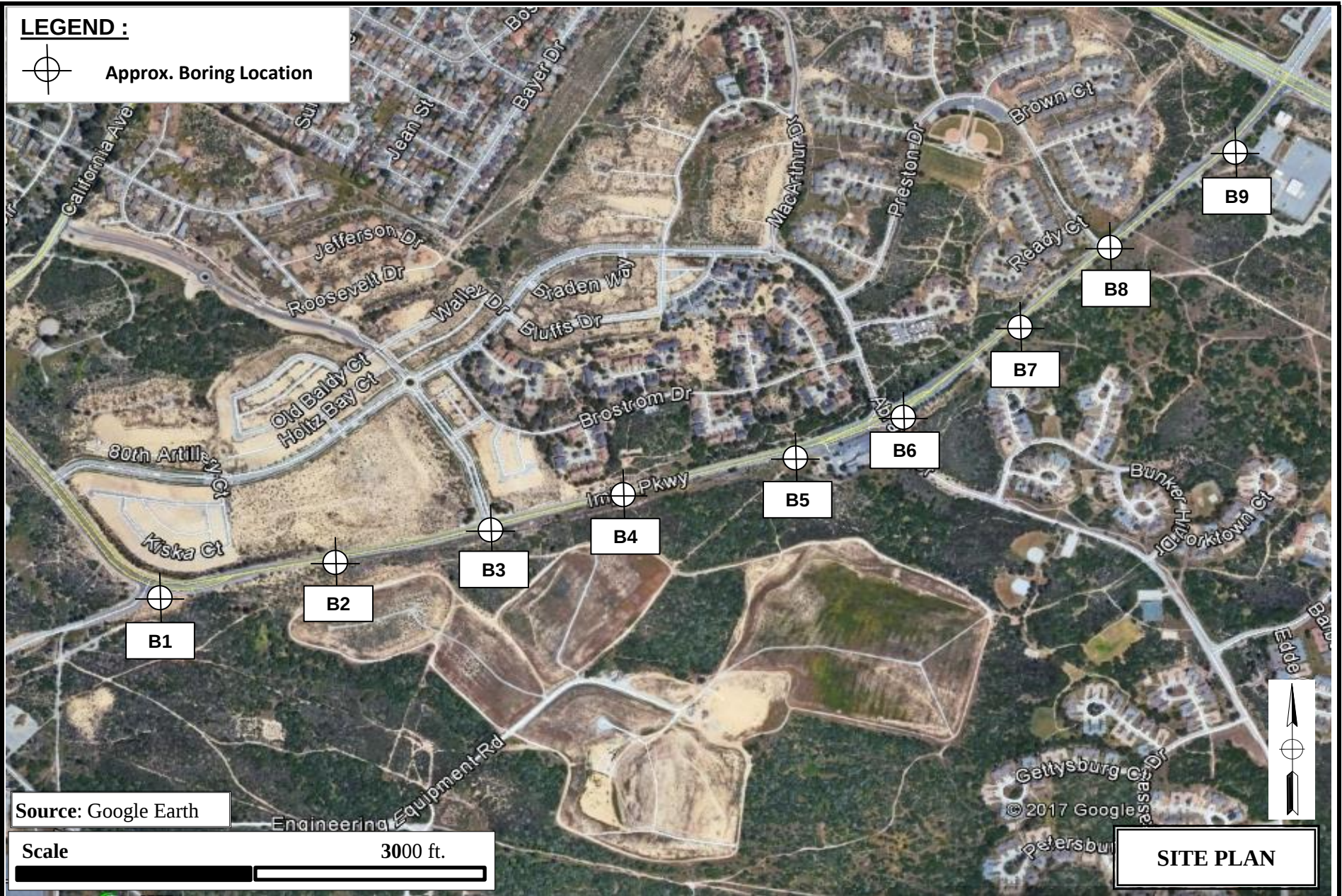




**LEGEND :**



Approx. Boring Location



Source: Google Earth

Scale 3000 ft.

# APPENDIX A

| GROUP SYMBOLS AND NAMES                                                             |                                                                                                                                    |                                                                                     |                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Graphic / Symbol                                                                    | Group Names                                                                                                                        | Graphic / Symbol                                                                    | Group Names                                                                                                                                                                                                                                                 |
|    | <b>GW</b><br>Well-graded GRAVEL<br>Well-graded GRAVEL with SAND                                                                    |    | <b>CL</b><br>Lean CLAY<br>Lean CLAY with SAND<br>Lean CLAY with GRAVEL<br>SANDY lean CLAY<br>SANDY lean CLAY with GRAVEL<br>GRAVELLY lean CLAY<br>GRAVELLY lean CLAY with SAND                                                                              |
|    | <b>GP</b><br>Poorly graded GRAVEL<br>Poorly graded GRAVEL with SAND                                                                |    | <b>CL-ML</b><br>SILTY CLAY<br>SILTY CLAY with SAND<br>SILTY CLAY with GRAVEL<br>SANDY SILTY CLAY<br>SANDY SILTY CLAY with GRAVEL<br>GRAVELLY SILTY CLAY<br>GRAVELLY SILTY CLAY with SAND                                                                    |
|    | <b>GW-GM</b><br>Well-graded GRAVEL with SILT<br>Well-graded GRAVEL with SILT and SAND                                              |    | <b>ML</b><br>SILT<br>SILT with SAND<br>SILT with GRAVEL<br>SANDY SILT<br>SANDY SILT with GRAVEL<br>GRAVELLY SILT<br>GRAVELLY SILT with SAND                                                                                                                 |
|    | <b>GW-GC</b><br>Well-graded GRAVEL with CLAY (or SILTY CLAY)<br>Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)     |    | <b>OL</b><br>ORGANIC lean CLAY<br>ORGANIC lean CLAY with SAND<br>ORGANIC lean CLAY with GRAVEL<br>SANDY ORGANIC lean CLAY<br>SANDY ORGANIC lean CLAY with GRAVEL<br>GRAVELLY ORGANIC lean CLAY<br>GRAVELLY ORGANIC lean CLAY with SAND                      |
|    | <b>GP-GM</b><br>Poorly graded GRAVEL with SILT<br>Poorly graded GRAVEL with SILT and SAND                                          |    | <b>OL</b><br>ORGANIC SILT<br>ORGANIC SILT with SAND<br>ORGANIC SILT with GRAVEL<br>SANDY ORGANIC SILT<br>SANDY ORGANIC SILT with GRAVEL<br>GRAVELLY ORGANIC SILT<br>GRAVELLY ORGANIC SILT with SAND                                                         |
|    | <b>GP-GC</b><br>Poorly graded GRAVEL with CLAY (or SILTY CLAY)<br>Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND) |    | <b>OH</b><br>ORGANIC elastic SILT<br>ORGANIC elastic SILT with SAND<br>ORGANIC elastic SILT with GRAVEL<br>SANDY elastic ELASTIC SILT<br>SANDY ORGANIC elastic SILT with GRAVEL<br>GRAVELLY ORGANIC elastic SILT<br>GRAVELLY ORGANIC elastic SILT with SAND |
|    | <b>GM</b><br>SILTY GRAVEL<br>SILTY GRAVEL with SAND                                                                                |    | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|    | <b>GC</b><br>CLAYEY GRAVEL<br>CLAYEY GRAVEL with SAND                                                                              |    | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|    | <b>GC-GM</b><br>SILTY, CLAYEY GRAVEL<br>SILTY, CLAYEY GRAVEL with SAND                                                             |    | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|    | <b>SW</b><br>Well-graded SAND<br>Well-graded SAND with GRAVEL                                                                      |    | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|    | <b>SP</b><br>Poorly graded SAND<br>Poorly graded SAND with GRAVEL                                                                  |    | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|  | <b>SW-SM</b><br>Well-graded SAND with SILT<br>Well-graded SAND with SILT and GRAVEL                                                |  | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|  | <b>SW-SC</b><br>Well-graded SAND with CLAY (or SILTY CLAY)<br>Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)     |  | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|  | <b>SP-SM</b><br>Poorly graded SAND with SILT<br>Poorly graded SAND with SILT and GRAVEL                                            |  | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|  | <b>SP-SC</b><br>Poorly graded SAND with CLAY (or SILTY CLAY)<br>Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL) |  | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|  | <b>SM</b><br>SILTY SAND<br>SILTY SAND with GRAVEL                                                                                  |  | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|  | <b>SC</b><br>CLAYEY SAND<br>CLAYEY SAND with GRAVEL                                                                                |  | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|  | <b>SC-SM</b><br>SILTY, CLAYEY SAND<br>SILTY, CLAYEY SAND with GRAVEL                                                               |  | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|  | <b>PT</b><br>PEAT                                                                                                                  |  | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |
|  | <b>COBBLES</b><br><b>COBBLES and BOULDERS</b><br><b>BOULDERS</b>                                                                   |  | <b>CH</b><br>Fat CLAY<br>Fat CLAY with SAND<br>Fat CLAY with GRAVEL<br>SANDY fat CLAY<br>SANDY fat CLAY with GRAVEL<br>GRAVELLY fat CLAY<br>GRAVELLY fat CLAY with SAND                                                                                     |

## FIELD AND LABORATORY TESTS

|           |                                                                                                  |
|-----------|--------------------------------------------------------------------------------------------------|
| <b>C</b>  | Consolidation (ASTM D 2435-04)                                                                   |
| <b>CL</b> | Collapse Potential (ASTM D 5333-03)                                                              |
| <b>CP</b> | Compaction Curve (CTM 216 - 06)                                                                  |
| <b>CR</b> | Corrosion, Sulfates, Chlorides (CTM 643 - 99; CTM 417 - 06; CTM 422 - 06)                        |
| <b>CU</b> | Consolidated Undrained Triaxial (ASTM D 4767-02)                                                 |
| <b>DS</b> | Direct Shear (ASTM D 3080-04)                                                                    |
| <b>EI</b> | Expansion Index (ASTM D 4829-03)                                                                 |
| <b>M</b>  | Moisture Content (ASTM D 2216-05)                                                                |
| <b>OC</b> | Organic Content (ASTM D 2974-07)                                                                 |
| <b>P</b>  | Permeability (CTM 220 - 05)                                                                      |
| <b>PA</b> | Particle Size Analysis (ASTM D 422-63 [2002])                                                    |
| <b>PI</b> | Liquid Limit, Plastic Limit, Plasticity Index (AASHTO T 89-02, AASHTO T 90-00)                   |
| <b>PL</b> | Point Load Index (ASTM D 5731-05)                                                                |
| <b>PM</b> | Pressure Meter                                                                                   |
| <b>PP</b> | Pocket Penetrometer                                                                              |
| <b>R</b>  | R-Value (CTM 301 - 00)                                                                           |
| <b>SE</b> | Sand Equivalent (CTM 217 - 99)                                                                   |
| <b>SG</b> | Specific Gravity (AASHTO T 100-06)                                                               |
| <b>SL</b> | Shrinkage Limit (ASTM D 427-04)                                                                  |
| <b>SW</b> | Swell Potential (ASTM D 4546-03)                                                                 |
| <b>TV</b> | Pocket Torvane                                                                                   |
| <b>UC</b> | Unconfined Compression - Soil (ASTM D 2166-06)<br>Unconfined Compression - Rock (ASTM D 2938-95) |
| <b>UU</b> | Unconsolidated Undrained Triaxial (ASTM D 2850-03)                                               |
| <b>UW</b> | Unit Weight (ASTM D 4767-04)                                                                     |
| <b>VS</b> | Vane Shear (AASHTO T 223-96 [2004])                                                              |

## SAMPLER GRAPHIC SYMBOLS

|                                                                                       |                                 |
|---------------------------------------------------------------------------------------|---------------------------------|
|  | Standard Penetration Test (SPT) |
|  | Standard California Sampler     |
|  | Modified California Sampler     |
|  | Shelby Tube                     |
|  | Piston Sampler                  |
|  | NX Rock Core                    |
|  | HQ Rock Core                    |
|  | Bulk Sample                     |
|  | Other (see remarks)             |

## DRILLING METHOD SYMBOLS

|                                                                                     |                |                                                                                     |                 |                                                                                     |                             |                                                                                     |              |
|-------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|--------------|
|  | Auger Drilling |  | Rotary Drilling |  | Dynamic Cone or Hand Driven |  | Diamond Core |
|-------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|--------------|

## WATER LEVEL SYMBOLS

|                                                                                       |                                             |
|---------------------------------------------------------------------------------------|---------------------------------------------|
|  | First Water Level Reading (during drilling) |
|  | Static Water Level Reading (short-term)     |
|  | Static Water Level Reading (long-term)      |

## BORING RECORD LEGEND



## IMJIN PARKWAY WIDENING PROJECT

### MARINA, CALIFORNIA

Date:

Job No.: 2017-120-PAV

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

| CONSISTENCY OF COHESIVE SOILS |                                       |                           |               |                                                                 |
|-------------------------------|---------------------------------------|---------------------------|---------------|-----------------------------------------------------------------|
| Descriptor                    | Unconfined Compressive Strength (tsf) | Pocket Penetrometer (tsf) | Torvane (tsf) | Field Approximation                                             |
| Very Soft                     | < 0.25                                | < 0.25                    | < 0.12        | Easily penetrated several inches by fist                        |
| Soft                          | 0.25 - 0.50                           | 0.25 - 0.50               | 0.12 - 0.25   | Easily penetrated several inches by thumb                       |
| Medium Stiff                  | 0.50 - 1.0                            | 0.50 - 1.0                | 0.25 - 0.50   | Can be penetrated several inches by thumb with moderate effort  |
| Stiff                         | 1.0 - 2.0                             | 1.0 - 2.0                 | 0.50 - 1.0    | Readily indented by thumb but penetrated only with great effort |
| Very Stiff                    | 2.0 - 4.0                             | 2.0 - 4.0                 | 1.0 - 2.0     | Readily indented by thumbnail                                   |
| Hard                          | > 4.0                                 | > 4.0                     | > 2.0         | Indented by thumbnail with difficulty                           |

| APPARENT DENSITY OF COHESIONLESS SOILS |                                            |
|----------------------------------------|--------------------------------------------|
| Descriptor                             | SPT N <sub>60</sub> - Value (blows / foot) |
| Very Loose                             | 0 - 4                                      |
| Loose                                  | 5 - 10                                     |
| Medium Dense                           | 11 - 30                                    |
| Dense                                  | 31 - 50                                    |
| Very Dense                             | > 50                                       |

| MOISTURE   |                                                       |
|------------|-------------------------------------------------------|
| Descriptor | Criteria                                              |
| Dry        | Absence of moisture, dusty, dry to the touch          |
| Moist      | Damp but no visible water                             |
| Wet        | Visible free water, usually soil is below water table |

| PERCENT OR PROPORTION OF SOILS |                                                        |
|--------------------------------|--------------------------------------------------------|
| Descriptor                     | Criteria                                               |
| Trace                          | Particles are present but estimated to be less than 5% |
| Few                            | 5 to 10%                                               |
| Little                         | 15 to 25%                                              |
| Some                           | 30 to 45%                                              |
| Mostly                         | 50 to 100%                                             |

| SOIL PARTICLE SIZE |        |                               |
|--------------------|--------|-------------------------------|
| Descriptor         |        | Size                          |
| Boulder            |        | > 12 inches                   |
| Cobble             |        | 3 to 12 inches                |
| Gravel             | Coarse | 3/4 inch to 3 inches          |
|                    | Fine   | No. 4 Sieve to 3/4 inch       |
| Sand               | Coarse | No. 10 Sieve to No. 4 Sieve   |
|                    | Medium | No. 40 Sieve to No. 10 Sieve  |
|                    | Fine   | No. 200 Sieve to No. 40 Sieve |
| Silt and Clay      |        | Passing No. 200 Sieve         |

| PLASTICITY OF FINE-GRAINED SOILS |                                                                                                                                                                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Descriptor                       | Criteria                                                                                                                                                                                                                           |
| Nonplastic                       | A 1/8-inch thread cannot be rolled at any water content.                                                                                                                                                                           |
| Low                              | The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.                                                                                                                                  |
| Medium                           | The thread is easy to roll, and not much time is required to reach the plastic limit; it cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.                                 |
| High                             | It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit. |

| CEMENTATION |                                                             |
|-------------|-------------------------------------------------------------|
| Descriptor  | Criteria                                                    |
| Weak        | Crumbles or breaks with handling or little finger pressure. |
| Moderate    | Crumbles or breaks with considerable finger pressure.       |
| Strong      | Will not crumble or break with finger pressure.             |

**NOTE:** This legend sheet provides descriptors and associated criteria for required soil description components only.

**REFERENCE:** Caltrans Soil and Rock Logging, Classification, and Presentation Manual (2010).

## BORING RECORD LEGEND



## IMJIN PARKWAY WIDENING PROJECT

### MARINA, CALIFORNIA

Date:

Job No.: 2017-120-PAV

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

|                                                                        |                                                               |                                  |                                                      |                       |
|------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------|------------------------------------------------------|-----------------------|
| LOGGED BY<br><b>L. S. Bhango</b>                                       | BEGIN DATE<br><b>6-9-17</b>                                   | COMPLETION DATE<br><b>6-9-17</b> | BOREHOLE LOCATION (Lat/Long or North/East and Datum) | HOLE ID<br><b>B-1</b> |
| DRILLING CONTRACTOR<br><b>Exploration Geoservices</b>                  | BOREHOLE LOCATION (Offset, Station, Line)                     |                                  | SURFACE ELEVATION<br><b>~185.0 ft</b>                |                       |
| DRILLING METHOD<br><b>Hollow-Stem Auger</b>                            | DRILL RIG<br><b>B56</b>                                       |                                  | BOREHOLE DIAMETER<br><b>8 in</b>                     |                       |
| SAMPLER TYPE(S) AND SIZE(S) (ID)<br><b>MC &amp; SPT</b>                | SPT HAMMER TYPE<br><b>Auto 140 lbs / 30 inches</b>            |                                  | HAMMER EFFICIENCY, ERI<br><b>60%</b>                 |                       |
| BOREHOLE BACKFILL AND COMPLETION<br><b>Backfilled with soil cement</b> | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE)<br>READINGS |                                  | TOTAL DEPTH OF BORING<br><b>15.0 ft</b>              |                       |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION                                                                                                                                                                               | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | UC/UU in Shear Str. (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|-----------------|----------------|----------------------|-----------------------|---------------------------|--------------|---------|-----------------|--------------|---------|
| 183.00         | 1          |                   | Poorly graded SAND (SP); medium dense; dark brown; moist; medium to fine SAND; (+#4=2.1%, -#200=4.3%).                                                                                    |              | 1             | 8<br>9<br>10    | 19             | 4                    |                       |                           |              |         |                 |              | PA      |
| 181.00         | 4          |                   | Dense; brown.                                                                                                                                                                             |              | 2             | 10<br>30<br>31  | 61             | 4                    | 108                   |                           |              |         |                 |              |         |
| 179.00         | 6          |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 177.00         | 8          |                   | Very dense.                                                                                                                                                                               |              | 3             | 14<br>26<br>34  | 60             | 4                    |                       |                           |              |         |                 |              |         |
| 175.00         | 10         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 173.00         | 12         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 171.00         | 14         |                   | Dense.                                                                                                                                                                                    |              | 4             | 12<br>21<br>30  | 51             | 3                    |                       |                           |              |         |                 |              |         |
| 169.00         | 16         |                   | Bottom of borehole at 15.0 ft bgs/Elev. 170.0 ft                                                                                                                                          |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 167.00         | 18         |                   | No free groundwater was encountered during drilling                                                                                                                                       |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 165.00         | 20         |                   | This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below. |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 163.00         | 22         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 161.00         | 24         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 25         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |

# LOG OF TEST BORING



# IMJIN PARKWAY WIDENING PROJECT

## MARINA, CALIFORNIA

Date: 6/29/2017

Boring ID: B-1

Job No.: 2017-120-PAV

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-1

|                                                                        |                                                               |                                  |                                                      |                       |
|------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------|------------------------------------------------------|-----------------------|
| LOGGED BY<br><b>L. S. Bhango</b>                                       | BEGIN DATE<br><b>6-9-17</b>                                   | COMPLETION DATE<br><b>6-9-17</b> | BOREHOLE LOCATION (Lat/Long or North/East and Datum) | HOLE ID<br><b>B-2</b> |
| DRILLING CONTRACTOR<br><b>Exploration Geoservices</b>                  | BOREHOLE LOCATION (Offset, Station, Line)                     |                                  | SURFACE ELEVATION<br><b>~200.0 ft</b>                |                       |
| DRILLING METHOD<br><b>Hollow-Stem Auger</b>                            | DRILL RIG<br><b>B56</b>                                       |                                  | BOREHOLE DIAMETER<br><b>8 in</b>                     |                       |
| SAMPLER TYPE(S) AND SIZE(S) (ID)<br><b>MC &amp; SPT</b>                | SPT HAMMER TYPE<br><b>Auto 140 lbs / 30 inches</b>            |                                  | HAMMER EFFICIENCY, ERI<br><b>60%</b>                 |                       |
| BOREHOLE BACKFILL AND COMPLETION<br><b>Backfilled with soil cement</b> | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE)<br>READINGS |                                  | TOTAL DEPTH OF BORING<br><b>15.0 ft</b>              |                       |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics                                                                                                                                                                         | DESCRIPTION                                                        | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | UC/UU in Shear Str. (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------|---------------|-----------------|----------------|----------------------|-----------------------|---------------------------|--------------|---------|-----------------|--------------|---------|
| 198.00         | 1          |                                                                                                         | Poorly graded SAND (SP); dense; brown; moist; medium to fine SAND. |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 198.00         | 2          |                                                                                                                                                                                           |                                                                    | X            | 1             | 29<br>40<br>40  | 80             |                      |                       |                           |              |         |                 |              |         |
| 196.00         | 3          |                                                                                                                                                                                           | Medium dense.                                                      |              |               |                 |                | 2                    |                       |                           |              |         |                 |              |         |
| 196.00         | 4          |                                                                                                                                                                                           |                                                                    | X            | 2             | 8<br>12<br>15   | 27             |                      |                       |                           |              |         |                 |              |         |
| 194.00         | 5          |                                                                                                                                                                                           | (+ #4=0.0%, - #200=5.7%).                                          |              |               |                 |                | 4                    |                       |                           |              |         |                 |              |         |
| 194.00         | 6          |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 192.00         | 7          |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 192.00         | 8          |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 190.00         | 9          |                                                                                                                                                                                           |                                                                    | X            | 3             | 6<br>9<br>12    | 21             |                      |                       |                           |              |         |                 |              |         |
| 190.00         | 10         |                                                                                                                                                                                           |                                                                    |              |               |                 |                | 3                    | 117                   |                           |              |         |                 |              |         |
| 188.00         | 11         |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 188.00         | 12         |                                                                                                                                                                                           | Very dense.                                                        |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 186.00         | 13         |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 186.00         | 14         |                                                                                                                                                                                           |                                                                    | X            | 4             | 9<br>20<br>34   | 54             |                      |                       |                           |              |         |                 |              |         |
| 186.00         | 15         |                                                                                                                                                                                           |                                                                    |              |               |                 |                | 4                    |                       |                           |              |         |                 |              |         |
| 184.00         | 16         | Bottom of borehole at 15.0 ft bgs/Elev. 185.0 ft                                                                                                                                          |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 184.00         | 17         | No free groundwater was encountered during drilling                                                                                                                                       |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 182.00         | 18         | This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below. |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 182.00         | 19         |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 180.00         | 20         |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 180.00         | 21         |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 178.00         | 22         |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 178.00         | 23         |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 176.00         | 24         |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 176.00         | 25         |                                                                                                                                                                                           |                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                |                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------|-----------------------|
| LOG OF TEST BORING                                                                                                                                                                                                                                                                                                                                                                                                                               |                    | IMJIN PARKWAY WIDENING PROJECT |                       |
|                                                                                                                                                                                                                                                                                                                                                               | MARINA, CALIFORNIA |                                |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Date: 6/29/2017    | Boring ID: B-2                 | Job No.: 2017-120-PAV |
| This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. |                    |                                | Plate:<br><br>A-2     |

|                                                                        |                                                               |                                  |                                                      |                       |
|------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------|------------------------------------------------------|-----------------------|
| LOGGED BY<br><b>L. S. Bhango</b>                                       | BEGIN DATE<br><b>6-9-17</b>                                   | COMPLETION DATE<br><b>6-9-17</b> | BOREHOLE LOCATION (Lat/Long or North/East and Datum) | HOLE ID<br><b>B-3</b> |
| DRILLING CONTRACTOR<br><b>Exploration Geoservices</b>                  | BOREHOLE LOCATION (Offset, Station, Line)                     |                                  | SURFACE ELEVATION<br><b>~200.0 ft</b>                |                       |
| DRILLING METHOD<br><b>Hollow-Stem Auger</b>                            | DRILL RIG<br><b>B56</b>                                       |                                  | BOREHOLE DIAMETER<br><b>8 in</b>                     |                       |
| SAMPLER TYPE(S) AND SIZE(S) (ID)<br><b>MC &amp; SPT</b>                | SPT HAMMER TYPE<br><b>Auto 140 lbs / 30 inches</b>            |                                  | HAMMER EFFICIENCY, ERI<br><b>60%</b>                 |                       |
| BOREHOLE BACKFILL AND COMPLETION<br><b>Backfilled with soil cement</b> | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE)<br>READINGS |                                  | TOTAL DEPTH OF BORING<br><b>15.0 ft</b>              |                       |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION                                                                                                                                                                               | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | UC/UU in Shear Str. (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|-----------------|----------------|----------------------|-----------------------|---------------------------|--------------|---------|-----------------|--------------|---------|
| 198.00         | 1          |                   | Poorly graded SAND (SP); medium dense; brown; moist; medium to fine SAND.                                                                                                                 |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 2          |                   |                                                                                                                                                                                           | X            | 1             | 6<br>14<br>15   | 29             | 1                    |                       |                           |              |         |                 |              |         |
|                | 3          |                   | Very dense.                                                                                                                                                                               |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 196.00         | 4          |                   |                                                                                                                                                                                           | X            | 2             | 12<br>23<br>32  | 55             | 2                    |                       |                           |              |         |                 |              |         |
|                | 5          |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 194.00         | 6          |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 7          |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 192.00         | 8          |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 9          |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 190.00         | 10         |                   | (+#4=0.0%, -#200=5.8%).                                                                                                                                                                   | X            | 3             | 16<br>36<br>50  | 86             | 4                    | 98                    |                           |              |         |                 |              | PA      |
|                | 11         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 188.00         | 12         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 13         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 186.00         | 14         |                   |                                                                                                                                                                                           | X            | 4             | 14<br>26<br>32  | 58             | 3                    |                       |                           |              |         |                 |              |         |
| 184.00         | 15         |                   | Bottom of borehole at 15.0 ft bgs/Elev. 185.0 ft                                                                                                                                          |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 16         |                   | No free groundwater was encountered during drilling                                                                                                                                       |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 17         |                   | This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below. |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 182.00         | 18         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 19         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 180.00         | 20         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 21         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 178.00         | 22         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 23         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 176.00         | 24         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 25         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |

# LOG OF TEST BORING



## IMJIN PARKWAY WIDENING PROJECT

### MARINA, CALIFORNIA

Date: 6/29/2017

Boring ID: B-3

Job No.: 2017-120-PAV

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-3

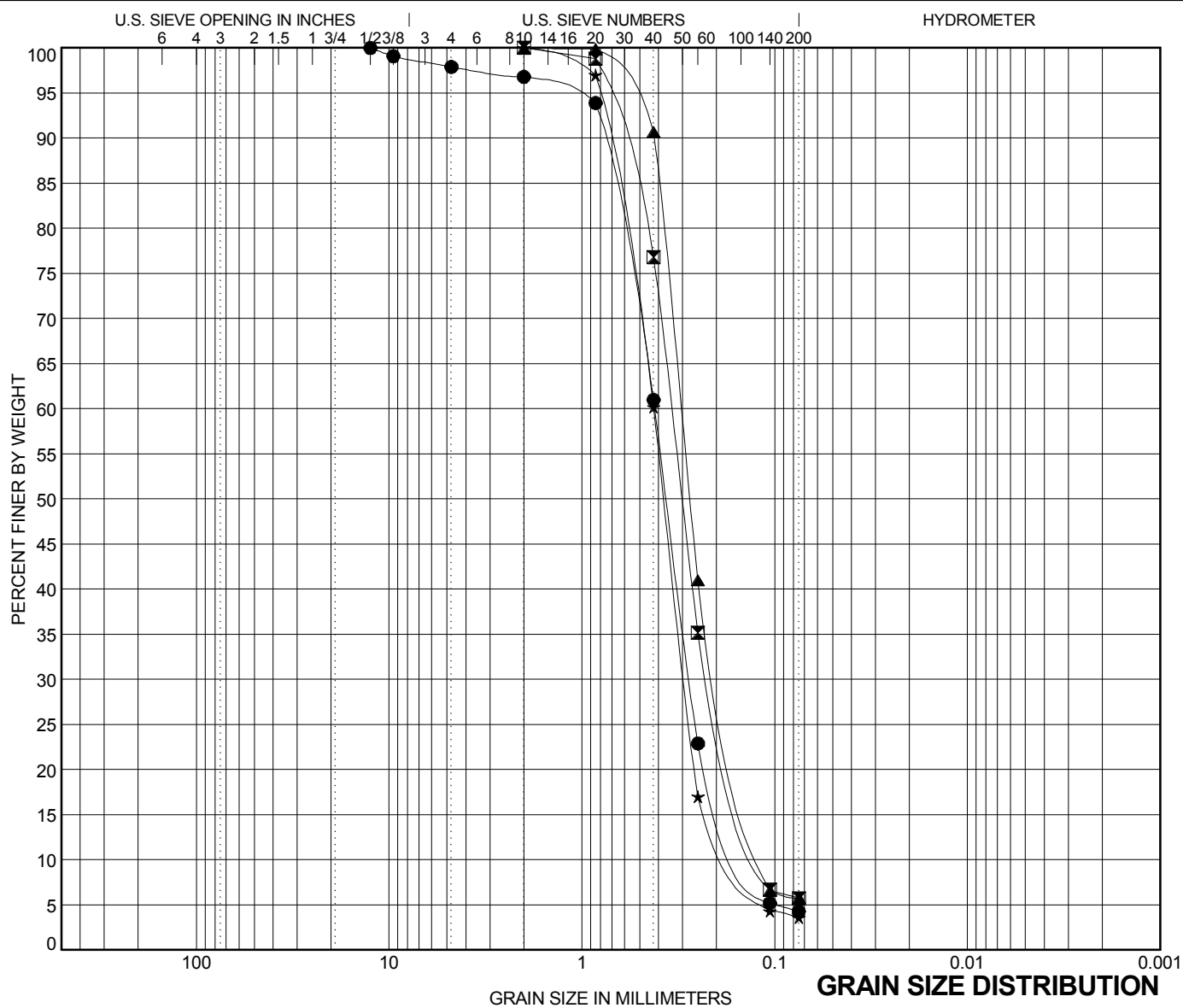
|                                                                        |                                                               |                                  |                                                      |                       |
|------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------|------------------------------------------------------|-----------------------|
| LOGGED BY<br><b>L. S. Bhango</b>                                       | BEGIN DATE<br><b>6-9-17</b>                                   | COMPLETION DATE<br><b>6-9-17</b> | BOREHOLE LOCATION (Lat/Long or North/East and Datum) | HOLE ID<br><b>B-8</b> |
| DRILLING CONTRACTOR<br><b>Exploration Geoservices</b>                  | BOREHOLE LOCATION (Offset, Station, Line)                     |                                  | SURFACE ELEVATION<br><b>~167.0 ft</b>                |                       |
| DRILLING METHOD<br><b>Hollow-Stem Auger</b>                            | DRILL RIG<br><b>B56</b>                                       |                                  | BOREHOLE DIAMETER<br><b>8 in</b>                     |                       |
| SAMPLER TYPE(S) AND SIZE(S) (ID)<br><b>MC &amp; SPT</b>                | SPT HAMMER TYPE<br><b>Auto 140 lbs / 30 inches</b>            |                                  | HAMMER EFFICIENCY, ERI<br><b>60%</b>                 |                       |
| BOREHOLE BACKFILL AND COMPLETION<br><b>Backfilled with soil cement</b> | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE)<br>READINGS |                                  | TOTAL DEPTH OF BORING<br><b>20.0 ft</b>              |                       |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION                                                                                                                                                                               | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | UC/UC in Shear Str. (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|-----------------|----------------|----------------------|-----------------------|---------------------------|--------------|---------|-----------------|--------------|---------|
| 165.00         | 1          |                   | Poorly graded SAND (SP); very dense; dark brown; moist; medium to fine SAND.                                                                                                              |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 163.00         | 2          |                   |                                                                                                                                                                                           | X            | 1             | 20<br>26<br>50  | 76             | 2                    |                       |                           |              |         |                 |              |         |
| 161.00         | 3          |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 159.00         | 4          |                   |                                                                                                                                                                                           | X            | 2             | 50/5"           | REF            |                      |                       |                           |              |         |                 |              |         |
| 157.00         | 5          |                   |                                                                                                                                                                                           |              |               |                 |                | 2                    |                       |                           |              |         |                 |              |         |
| 155.00         | 6          |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 153.00         | 7          |                   | Medium dense; brown.                                                                                                                                                                      |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 151.00         | 8          |                   |                                                                                                                                                                                           | X            | 3             | 20<br>23<br>21  | 44             | 4                    | 106                   |                           |              |         |                 |              |         |
| 149.00         | 9          |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 147.00         | 10         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 145.00         | 11         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
| 143.00         | 12         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 13         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 14         |                   |                                                                                                                                                                                           | X            | 4             | 10<br>14<br>16  | 30             | 2                    |                       |                           |              |         |                 |              |         |
|                | 15         |                   | (+ #4=0.0%, - #200=3.6%).                                                                                                                                                                 |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 16         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 17         |                   | Dense.                                                                                                                                                                                    |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 18         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 19         |                   |                                                                                                                                                                                           | X            | 5             | 10<br>22<br>24  | 46             | 2                    |                       |                           |              |         |                 |              |         |
|                | 20         |                   | Bottom of borehole at 20.0 ft bgs/Elev. 147.0 ft                                                                                                                                          |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 21         |                   | No free groundwater was encountered during drilling                                                                                                                                       |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 22         |                   | This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below. |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 23         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 24         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |
|                | 25         |                   |                                                                                                                                                                                           |              |               |                 |                |                      |                       |                           |              |         |                 |              |         |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                       |                                       |  |                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------|---------------------------------------|--|----------------------|
| <b>LOG OF TEST BORING</b>                                                                                                                                                                                                                                                                                                                                                                                                                        |                |                       | <b>IMJIN PARKWAY WIDENING PROJECT</b> |  |                      |
|                                                                                                                                                                                                                                                                                                                                                               |                |                       | <b>MARINA, CALIFORNIA</b>             |  |                      |
| Date: 6/29/2017                                                                                                                                                                                                                                                                                                                                                                                                                                  | Boring ID: B-8 | Job No.: 2017-120-PAV |                                       |  |                      |
| This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. |                |                       |                                       |  | Plate:<br><b>A-4</b> |

# **APPENDIX B**

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Shear Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|----------------------|
| B-1      | 1             | 2.0   | SP             | 3.6           | -           |              |               |                  | 2.1         | 4.3           |                      |
| B-1      | 2             | 4.5   | SP             | 4.5           | 108.3       |              |               |                  |             |               |                      |
| B-1      | 3             | 9.5   | SP             | 3.6           | -           |              |               |                  |             |               |                      |
| B-1      | 4             | 14.5  | SP             | 3.2           | -           |              |               |                  |             |               |                      |
| B-2      | 1             | 2.0   | SP             | 2.3           | -           |              |               |                  |             |               |                      |
| B-2      | 2             | 4.5   | SP-SM          | 4.3           | -           |              |               |                  |             | 5.7           |                      |
| B-2      | 3             | 9.5   | SP             | 2.7           | 116.5       |              |               |                  |             |               |                      |
| B-2      | 4             | 14.5  | SP             | 3.7           | -           |              |               |                  |             |               |                      |
| B-3      | 1             | 2.0   | SP             | 1.4           | -           |              |               |                  |             |               |                      |
| B-3      | 2             | 4.5   | SP             | 2.5           | -           |              |               |                  |             |               |                      |
| B-3      | 3             | 9.5   | SP-SM          | 3.8           | 98.1        |              |               |                  |             | 5.8           |                      |
| B-3      | 4             | 14.5  | SP             | 3.2           | -           |              |               |                  |             |               |                      |
| B-8      | 1             | 2.5   | SP             | 2.3           | -           |              |               |                  |             |               |                      |
| B-8      | 2             | 4.5   | SP             | 2.3           | -           |              |               |                  |             |               |                      |
| B-8      | 3             | 9.5   | SP             | 3.6           | 106.0       |              |               |                  |             |               |                      |
| B-8      | 4             | 14.5  | SP             | 1.6           | -           |              |               |                  |             | 3.6           |                      |
| B-8      | 5             | 19.5  | SP             | 1.7           | -           |              |               |                  |             |               |                      |



| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

|   | BORING | SAMPLE # | DEPTH | Classification               |       |       |       |         | LL    | PL    | PI    | Cc   | Cu   |
|---|--------|----------|-------|------------------------------|-------|-------|-------|---------|-------|-------|-------|------|------|
| ● | B-1    | 1        | 2.0   | Poorly graded SAND           |       |       |       |         |       |       |       | 1.36 | 3.13 |
| ⊠ | B-2    | 2        | 4.5   | Poorly graded SAND with SILT |       |       |       |         |       |       |       | 1.14 | 2.93 |
| ▲ | B-3    | 3        | 9.5   | Poorly graded SAND with SILT |       |       |       |         |       |       |       | 1.02 | 2.65 |
| ★ | B-8    | 4        | 14.5  | Poorly graded SAND           |       |       |       |         |       |       |       | 1.30 | 2.72 |
|   |        |          |       |                              |       |       |       |         |       |       |       |      |      |
|   | BORING | SAMPLE # | DEPTH | D100                         | D60   | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |      |      |
| ● | B-1    | 1        | 2.0   | 12.5                         | 0.419 | 0.276 | 0.134 | 2.1     | 93.6  | 4.3   |       |      |      |
| ⊠ | B-2    | 2        | 4.5   | 2                            | 0.343 | 0.214 | 0.117 | 0.0     | 94.3  | 5.7   |       |      |      |
| ▲ | B-3    | 3        | 9.5   | 2                            | 0.306 | 0.19  | 0.115 | 0.0     | 94.2  | 5.8   |       |      |      |
| ★ | B-8    | 4        | 14.5  | 2                            | 0.424 | 0.293 | 0.156 | 0.0     | 96.4  | 3.6   |       |      |      |
|   |        |          |       |                              |       |       |       |         |       |       |       |      |      |



IMJIN PARKWAY WIDENING PROJECT  
MARINA, CALIFORNIA

JOB NO: 2017-120-PAV

PLATE NO: B-2



# R-VALUE REPORT

Parikh Consultants, Inc.

ASTM D2844 or CTM 301

(408) 452-9000

Project Name: Imjin Parkway Widening Project

Date: 6/19/2017

Client: Kimley-Horn

Project #: 2017-120-PAV

Sample #: B-1

Depth: 0'-5'

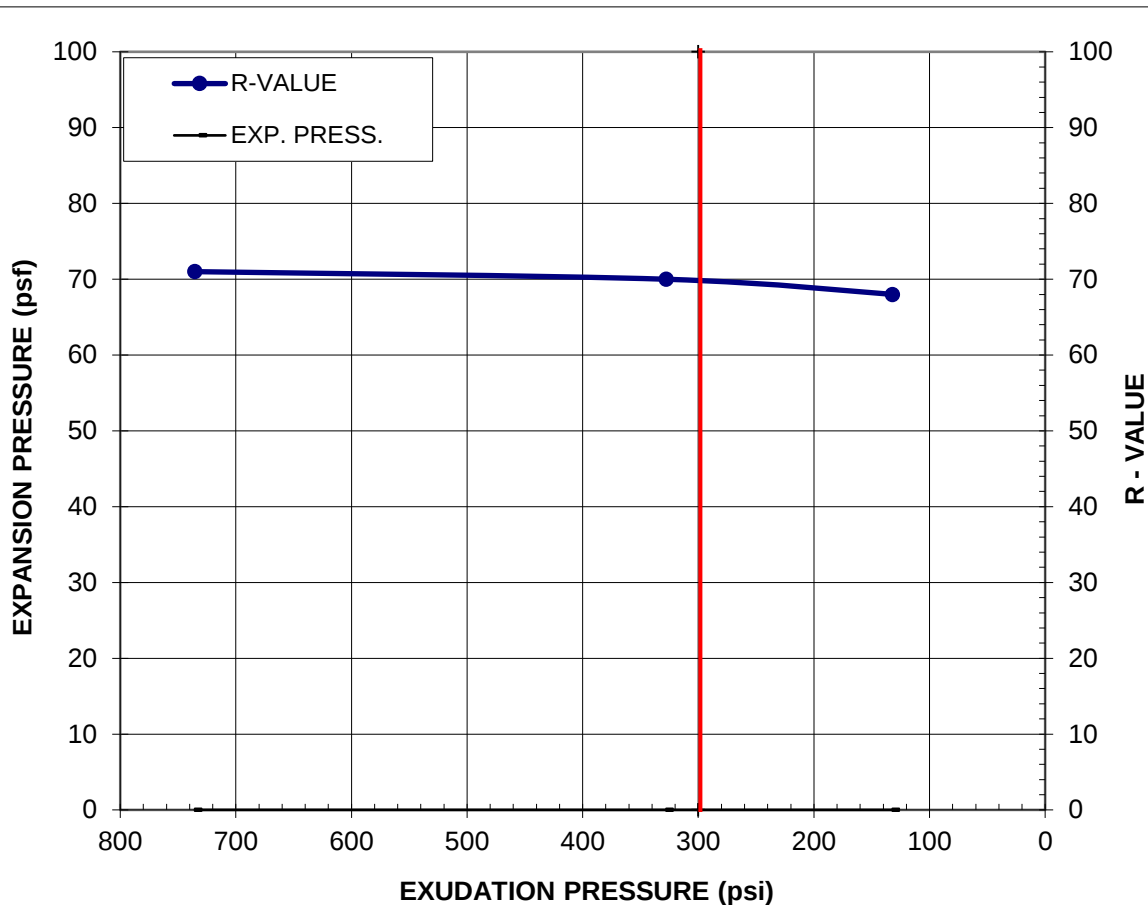
Lab #: M987

Location / Source: Onsite / Native

Sample Date:

Material : Sand, brown

Sampled By:



|                                        |                             |                 |       |                                              |  |   |  |
|----------------------------------------|-----------------------------|-----------------|-------|----------------------------------------------|--|---|--|
|                                        | Specimen No.                | A               | B     | C                                            |  |   |  |
|                                        | Exudation Pressure, psi     | 132             | 327.7 | 735.4                                        |  |   |  |
|                                        | Expansion Pressure, psf     | 0               | 0     | 0                                            |  |   |  |
|                                        | R-Value                     | 68              | 70    | 71                                           |  |   |  |
|                                        | Moisture Content at Test, % | 12.8            | 11.9  | 11.0                                         |  |   |  |
|                                        | Dry Density at Test, pcf    | 103.0           | 103.7 | 105.1                                        |  |   |  |
| R-Value @ 300 psi Exudation Pressure = |                             | 70              |       | Expansion Pressure @300 psi Exudation, psf = |  | 0 |  |
| Minimum R-Value Requirement:           |                             |                 |       |                                              |  |   |  |
| Comments:                              |                             |                 |       |                                              |  |   |  |
| Report By: Nasir Ahmad                 |                             | PLATE NO.: B-3A |       |                                              |  |   |  |



# R-VALUE REPORT

Parikh Consultants, Inc.

ASTM D2844 or CTM 301

(408) 452-9000

Project Name: Imjin Parkway Widening Project

Date: 6/19/2017

Client: Kimley-Horn

Project #: 2017-120-PAV

Sample #: B-2

Depth: 0'-5'

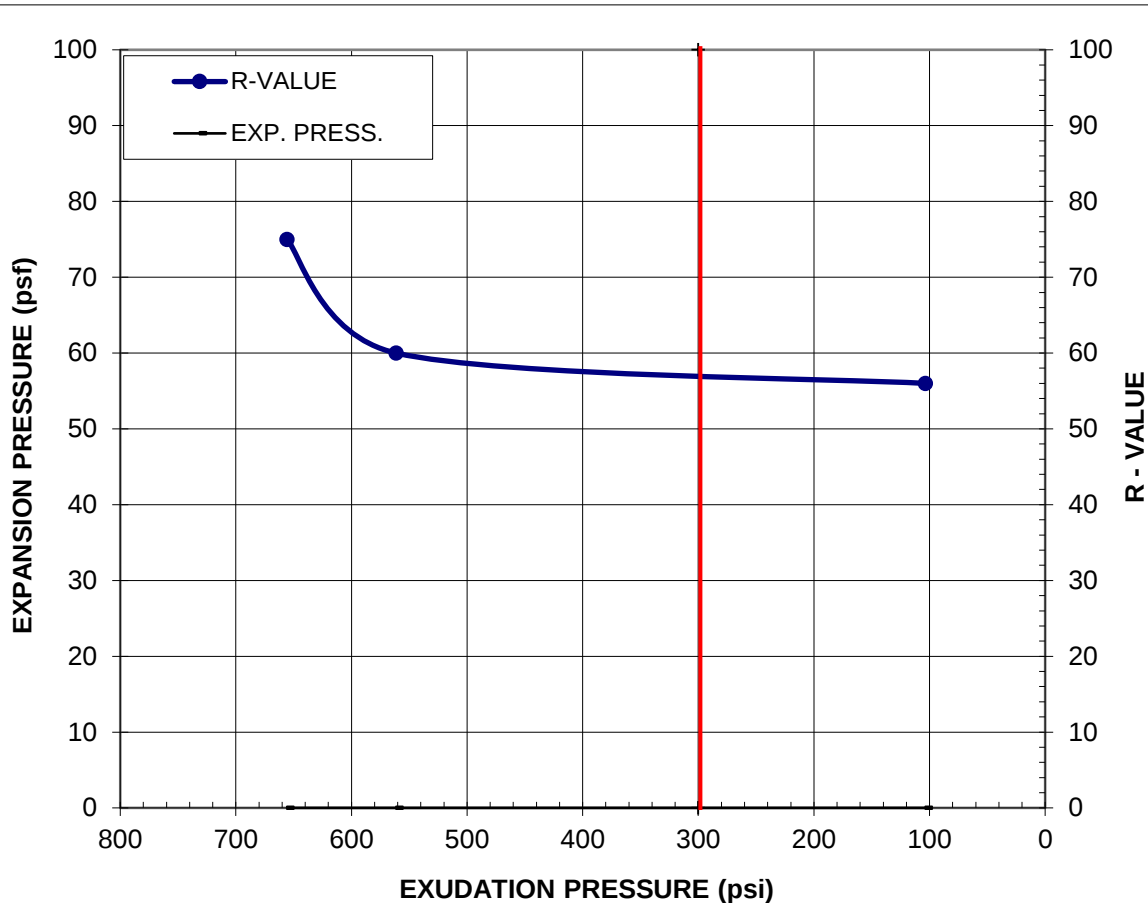
Lab #: M987

Location / Source: Onsite / Native

Sample Date:

Material : Sand, brown

Sampled By:



| Specimen No.                | A     | B     | C      |
|-----------------------------|-------|-------|--------|
| Exudation Pressure, psi     | 103.7 | 561.5 | 655.75 |
| Expansion Pressure, psf     | 0     | 0     | 0      |
| R-Value                     | 56    | 60    | 75     |
| Moisture Content at Test, % | 11.3  | 10.8  | 10.4   |
| Dry Density at Test, pcf    | 108.5 | 109.3 | 112.1  |

R-Value @ 300 psi Exudation Pressure = 56

Expansion Pressure @300 psi Exudation, psf = 0

Minimum R-Value Requirement:

Comments:

Report By: Nasir Ahmad

PLATE NO.: B-3B



# R-VALUE REPORT

Parikh Consultants, Inc.

ASTM D2844 or CTM 301

(408) 452-9000

Project Name: Imjin Parkway Widening Project

Date: 6/19/2017

Client: Kimley-Horn

Project #: 2017-120-PAV

Sample #: B-5

Depth: 0'-5'

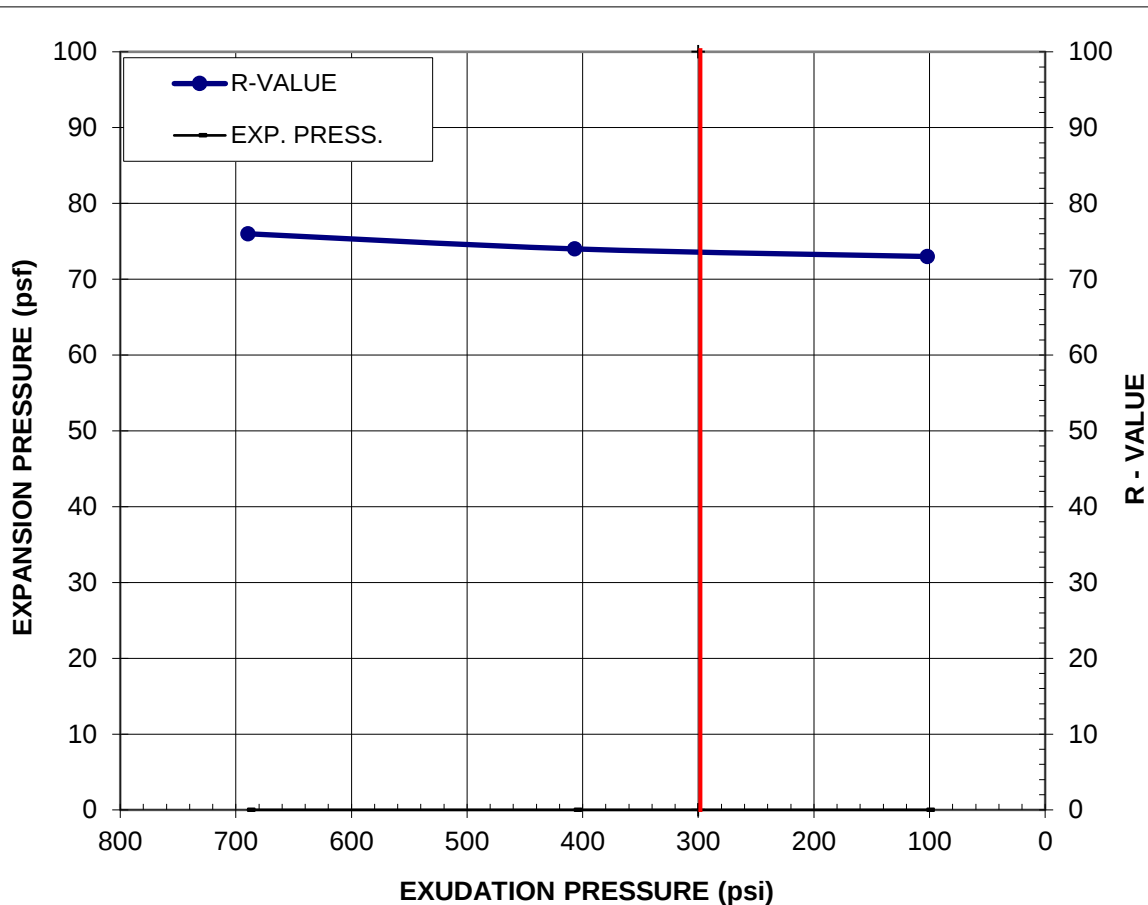
Lab #: M987

Location / Source: Onsite / Native

Sample Date:

Material : Sand, brown

Sampled By:



|                                        |                             |                 |       |                                              |  |   |  |
|----------------------------------------|-----------------------------|-----------------|-------|----------------------------------------------|--|---|--|
|                                        | Specimen No.                | A               | B     | C                                            |  |   |  |
|                                        | Exudation Pressure, psi     | 689.6           | 407.1 | 102                                          |  |   |  |
|                                        | Expansion Pressure, psf     | 0               | 0     | 0                                            |  |   |  |
|                                        | R-Value                     | 76              | 74    | 73                                           |  |   |  |
|                                        | Moisture Content at Test, % | 11.4            | 11.8  | 12.2                                         |  |   |  |
|                                        | Dry Density at Test, pcf    | 110.4           | 104.4 | 106.5                                        |  |   |  |
| R-Value @ 300 psi Exudation Pressure = |                             | 73              |       | Expansion Pressure @300 psi Exudation, psf = |  | 0 |  |
| Minimum R-Value Requirement:           |                             |                 |       |                                              |  |   |  |
| Comments:                              |                             |                 |       |                                              |  |   |  |
| Report By: Nasir Ahmad                 |                             | PLATE NO.: B-3C |       |                                              |  |   |  |



# R-VALUE REPORT

Parikh Consultants, Inc.

ASTM D2844 or CTM 301

(408) 452-9000

Project Name: Imjin Parkway Widening Project

Date: 6/19/2017

Client: Kimley-Horn

Project #: 2017-120-PAV

Sample #: B-7

Depth: 0'-5'

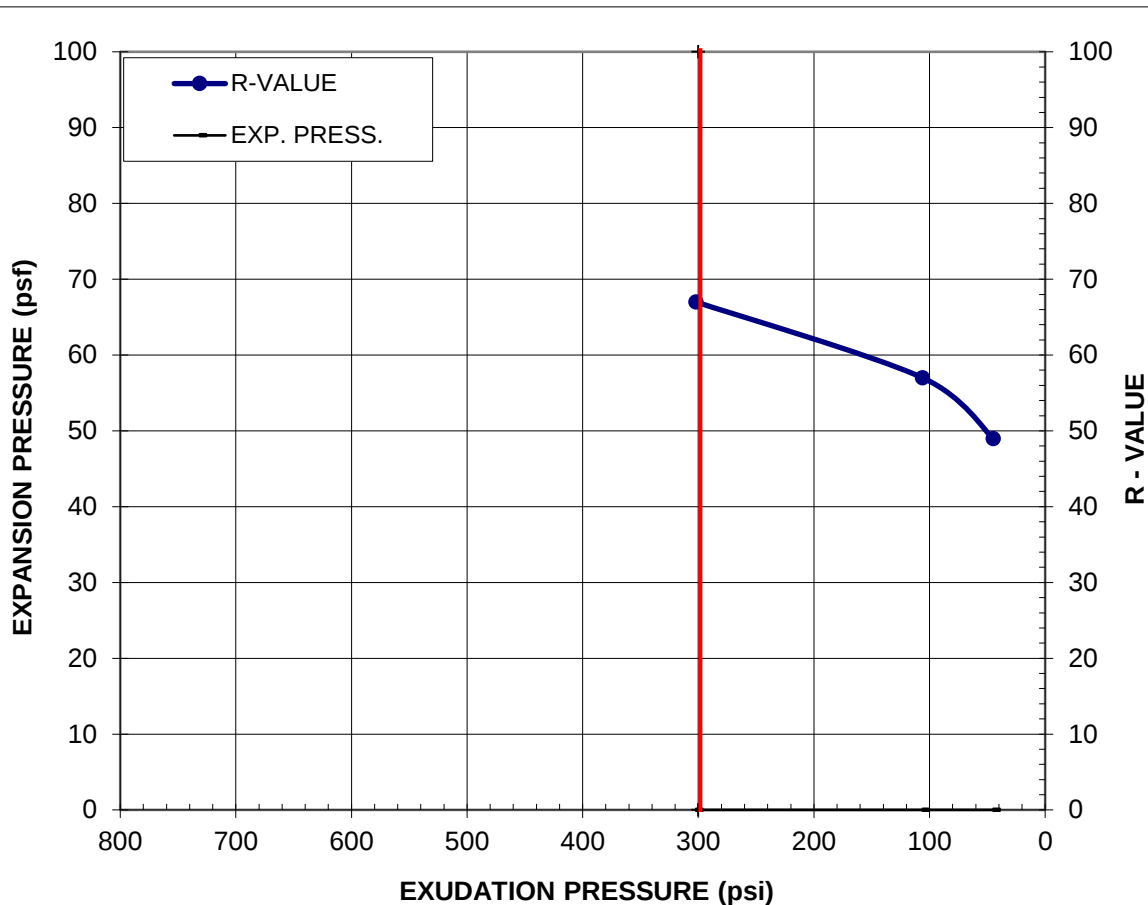
Lab #: M987

Location / Source: Onsite / Native

Sample Date:

Material : Sand, brown

Sampled By:



Specimen No.

A

B

C

Exudation Pressure, psi

45

106

302

Expansion Pressure, psf

0

0

0

R-Value

49

57

67

Moisture Content at Test, %

11.4

10.5

9.2

Dry Density at Test, pcf

115.3

116.6

124.0

R-Value @ 300 psi Exudation Pressure = 66

Expansion Pressure @300 psi Exudation, psf = 0

Minimum R-Value Requirement:

Comments:

Report By: Nasir Ahmad

PLATE NO.: B-3D



# R-VALUE REPORT

Parikh Consultants, Inc.

ASTM D2844 or CTM 301

(408) 452-9000

Project Name: Imjin Parkway Widening Project

Date: 6/19/2017

Client: Kimley-Horn

Project #: 2017-120-PAV

Sample #: B-9

Depth: 0'-5'

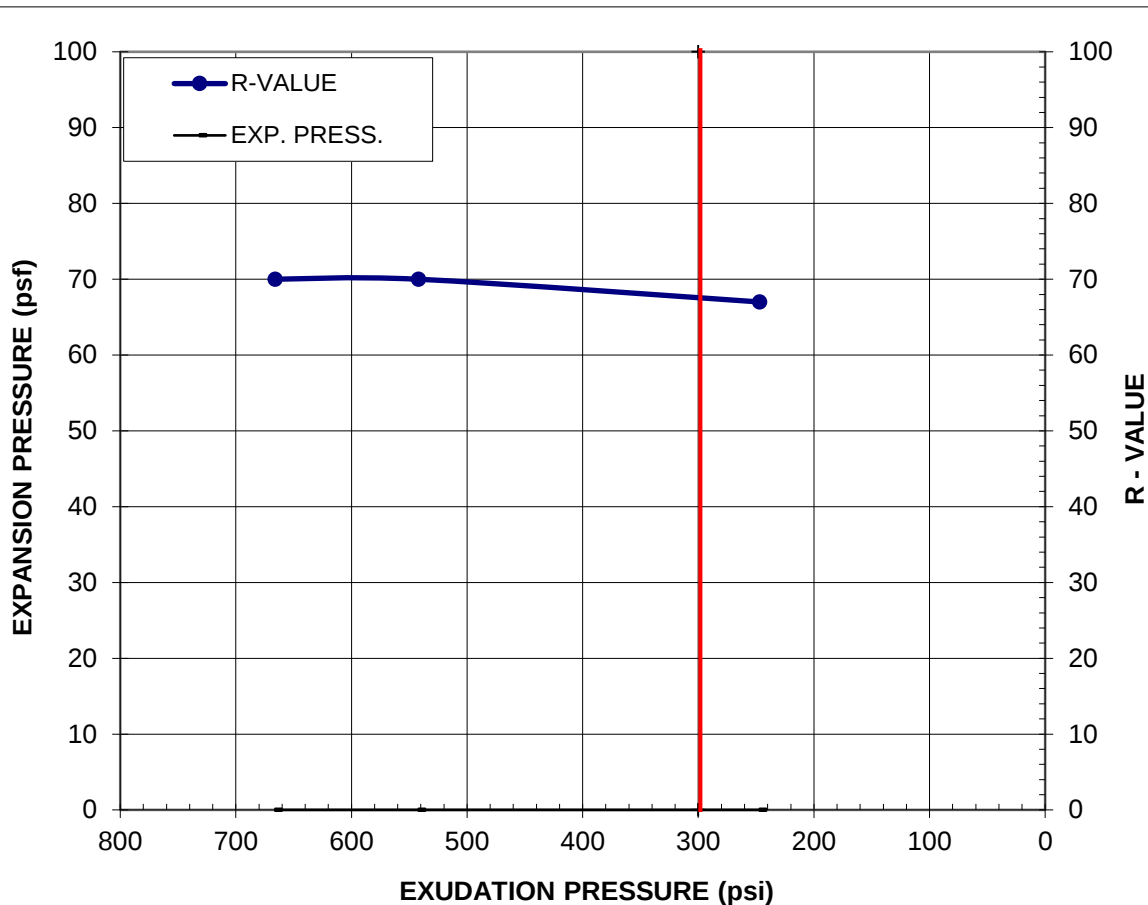
Lab #: M987

Location / Source: Onsite / Native

Sample Date:

Material : Sand, brown

Sampled By:



Specimen No.

A

B

C

Exudation Pressure, psi

247

542

666

Expansion Pressure, psf

0

0

0

R-Value

67

70

70

Moisture Content at Test, %

12.4

11.9

11.5

Dry Density at Test, pcf

101.2

100.1

46.8

R-Value @ 300 psi Exudation Pressure = 67

Expansion Pressure @300 psi Exudation, psf = 0

Minimum R-Value Requirement:

Comments:

Report By: Nasir Ahmad

PLATE NO.: B-3E

# Appendix B: Geotechnical Engineering Report, Retaining Walls, Imjin Parkway Widening Project

Parikh Consultants, Inc.

**GEOTECHNICAL REPORT  
RETAINING WALLS  
IMJIN PARKWAY WIDENING PROJECT  
CITY OF MARINA, CALIFORNIA**

For

**Kimley Horn and Associates, Inc.**  
4637 Chabot Drive, Suite 300  
Pleasanton, CA, 94588



**PARIKH CONSULTANTS, INC.**  
2360 Qume Drive, Suite A  
San Jose, CA 95131  
(408) 452-9000

November 14, 2019

Job No. 2017-120-WAL

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- Plate I-2: Boring Location Map
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Liquefaction Analyses

Calculation of Shear Wave Velocity

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Lateral Earth Pressure and Friction Coefficient



**GEOTECHNICAL REPORT  
RETAINING WALLS  
IMJIN PARKWAY WIDENING PROJECT  
CITY OF MARINA, CALIFORNIA**

## **1.0 SCOPE OF WORK**

This report presents the results of our geotechnical engineering investigation for the retaining walls for Imjin Parkway Widening Project in the City of Marina, California (Hereinafter referred as “Project”). The approximate project location of the site is shown on the “Project Location Map” (Plate No. I-1) in Appendix I of the report.

The geotechnical recommendations presented in this report are intended for design input and are not intended to be used as specifications. These recommendations should not be used directly for bidding purposes or for construction cost estimates.

## **2.0 PROJECT DESCRIPTION**

The project consists of widening the Imjin Parkway that requires construction of four retaining walls. Retaining wall Nos. 1, 3 and 5 are below existing roadway to retain embankments for widening. Wall No. 2, between Abrams Road and Preston Drive, will be in cut in existing slopes that have residential units on top. Wall No. 4 has been removed from the original scope of work.

For the proposed four walls, a total of six borings to maximum depth of 40 feet were proposed for geotechnical investigation. Wall Nos. 1 and 3 required one boring each as the planned wall lengths are less than 200 feet each. For Wall Nos. 2 and 5 with wall lengths up to 500 feet, 2 borings were required for each wall. It is our understanding that Caltrans Standard Type 1 (Case 2) Wall is planned for Retaining Wall Nos. 1, 3 and 5. According to Kimley-Horn, grading work and Caltrans Standard Sound Wall is considered and Retaining Wall No. 2 may not be required.

## **3.0 REGIONAL GEOLOGY AND SEISMICITY**

The project site lays within the City of Marina and adjacent to Monterey Bay (Location Map) in Monterey County and within the geologically complex and seismically active California Coast Ranges Geomorphic Province. The project is enclosed by the Marina 7.5-minute Quadrangle. Junipero Serra (Elev. 5,853 ft) is the highest peak in Monterey County. The project site is bound to the west by Monterey Bay, the Salinas River Valley to the north-east, and the Sierra De Salinas to the south-east.

Regional basement rocks consist of Mesozoic to Pre-Cambrian granitic and various metamorphic rocks consisting of slate, quartzite, hornfels, chert, phyllite, mylonite, schist, gneiss, and minor marble. The greater project area lies within the Salinian Block, an elongate north-west trending slice of the Coast Ranges, characterized by a basement of granitic and high grade metamorphic



rocks. Tertiary and Quaternary sedimentary rocks overlie basement rocks. Geologic Map (Plate No. 3) shows the distribution of basement and surficial rocks of the greater project area.

Sub-parallel northwest-trending faults, mountain ranges, and valleys characterize the Coast Ranges topography. Extensive late Cretaceous through early Tertiary folding and thrust faulting created complex geologic structural conditions that underlie the highly varied topography of today. Furthermore, transform faulting during the last 12 million years associated with the San Andreas fault system overprinted and offset basement structures and geological units to create separate tectonostratigraphic terranes adding to the modern distinctive north west trending topography.

Valley bedrock is covered by thick locally and distally derived alluvium and soils. These Quaternary deposits vary in thickness over bedrock from a few feet to several hundred feet where they have filled in previously eroded valleys.

The Monterey Bay Area lays within one of the most seismically active areas of the North America and is influenced mostly by the San Andreas fault system which spans the Coast Ranges from the Pacific Ocean to the San Joaquin Valley. The closest active faults to the project area are listed in Table 3 along with the mean 30 years participation probability. Plate No. 4 shows regional faulting within about 40 miles of the project location. Major regional historical earthquakes of note include San Francisco (1906;  $M_w$  7.9), Loma Prieta (1989;  $M_w$  6.9), and South Napa (2014;  $M_w$  6.0).

#### **4.0 EXCEPTIONS TO POLICY**

Normal procedures were assumed for construction of the building structure throughout our analysis and represent one of the bases of recommendations presented herein. The investigation for the proposed foundations has generally followed Caltrans policy.

#### **5.0 FIELD INVESTIGATION**

The field exploration consisted of six (B-1 thru B-6) borings to the depth of approximately 40 feet. The borings were drilled for design of retaining walls. The approximate locations of the exploratory borings are shown on the "Boring Location Map" (Plate No. I-2).

The test borings were advanced with a truck-mounted drill rig using 8-inch diameter hollow stem auger. The soil samples were obtained from 2.5 inches I.D. Modified California sampler and 1.4 inches I.D. Standard Penetration Test sampler under the impact of a 140 lb hammer falling through 30 inches. Based on the information provided by the driller, the hammer energy is approximately 89% for the "CME 75" track rig used. The drilling was performed by Geo-Ex



Subsurface Exploration of Dixon, California. The exploratory borings were drilled under the technical supervision of one of our engineers, who classified and logged the soils encountered during drilling and supervised the collection of soil samples at various depths for visual examination and laboratory testing. The blow counts required to drive the sampler for the last 12 inches are presented on the "Log of Test Borings", Appendix II. (When correlating standard penetration data in similar soils, the blow counts for the Modified California sampler can be converted to equivalent Standard Penetration Test sampler by multiplying a factor of 0.65). After visual examination, the collected samples were sealed and transported to our laboratory for further evaluation and testing.

The Log of Test boring logs presented in Appendix II were prepared from the field logs which were edited after visual re-examination of the soil samples in the laboratory and results of classification tests on selected soil samples as indicated on the logs. The abrupt stratum changes shown on these logs may be gradual and relatively minor changes in soil types within a stratum may not be noted on the logs due to field limitations.

## **6.0 LABORATORY TESTING PROGRAM**

Laboratory tests were performed on selected samples in the laboratory to evaluate the physical and engineering properties of the subsoils. The tests performed for the study include the following: Moisture (ASTM D2216), Gradation Analyses (ASTM D6913), Sulfate Content (California Test Method 417), Chloride Content (California Test Method 422), and Resistivity and pH Measurements for Soil (California Test Method 643). The laboratory test results are included in Appendix III.

## **7.0 SITE GEOLOGY AND SUBSURFACE CONDITIONS**

### **7.1 Site Geology**

The following sections present results of our geological interpretation and analyses based on this report and existing data. Geologic Map (Plate No. I-3) shows the distribution of geological units and structures within the immediate project area.

Bedrock units of project area consist of Mesozoic to Pre-Cambrian granitic and various metamorphic rocks consisting of slate, quartzite, hornfels, chert, phyllite, mylonite, schist, gneiss, and minor marble.

Pleistocene deposits are a distinctive geological feature of the project area derived from coastal and alluvial environments of Monterey Bay and Salinas River respectively. Older Dune Sand (Qod) appears to underlie the entirety of the Project Site. The thickness of Qod is as yet unclear.



## 7.2 Structure

The major structural feature of the project area is the concealed, late Quaternary Reliz Fault (Plate No. IV-1 Fault Map). The fault is also referred to as the Rinconada-Reliz-King City Fault (Kilnourne & Mualchin, 1980). The fault is a major subsidiary to the San Andreas and en echelon to the San Gregorio fault to the north-west and San Gabriel fault to the south-east (Diblee, 1976).

Plate No. IV-1 Fault Map shows the Reliz Fault running directly through the project site, However, in the project vicinity, Kilnourne & Mualchin, (1980), state that the fault is poorly located and not known to be exposed at the surface. Furthermore, fault traces used by Kilnourne & Mualchin, (1980), do not represent a well-defined surface rupture hazard.

The Reliz Fault has been classified as potentially active because it is parallel and logically connected to the San Andreas Fault tectonic regime.

Interrogation of Lidar derived elevation data has not identified any linear surface rupture features or disruption of overlying Quaternary units caused by faulting.

## 7.3 Natural Slope Stability

Few natural slopes appear to remain in the project area with much of the area graded for development purposes. Natural slopes that remain appear to have slopes no greater than about 20°, with the great majority within the immediate project area having slopes of less than 10°.

## 7.4 Subsurface Conditions

Based on the boring data, the subsurface conditions consist of predominantly medium dense to dense poorly graded sand/silty sand. The subsoils encountered in the geotechnical borings are summarized in the table below:

**TABLE 1 – SUBSURFACE SOIL CONDITIONS**

| Boring No. | Boring Depth below ground surface (ft) | Descriptions                                                                                                          |
|------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| B-1        | 40.5                                   | Boring predominately consists of medium dense to dense Silty Sand.                                                    |
| B-2        | 40.5                                   | Medium dense to very dense Poorly Graded Sand over dense Silty Sand.                                                  |
| B-3        | 40.5                                   | Medium dense Poorly graded Sand with Silt over dense Silty Sand, underlain by dense to very dense Poorly Graded Sand. |
| B-4        | 40.5                                   | Medium dense to dense Poorly Graded Sand/Poorly Graded Sand with Silt over medium dense to dense Silty Sand.          |
| B-5        | 40.5                                   | Boring predominately consists of medium dense to dense Poorly Graded Sand.                                            |



| Boring No. | Boring Depth below ground surface (ft) | Descriptions                                                                                                                      |
|------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| B-6        | 40.5                                   | Medium dense to dense Poorly graded Sand over medium dense Silty Sand. Loose Poorly Graded Sand was observed at depth 15' to 23'. |

Groundwater was not encountered during drilling in June 2019. Groundwater level is assumed beyond maximum boring depth drilled (40.5 feet) for design purpose. It should be noted that the groundwater level at the site may change with passage of time due to groundwater fluctuations from season to season, subsurface flow, ground surface run-off and other factors which may not have been present at the time of the investigation.

Note that ground water elevation could significantly vary in the event of a heavy rainfall period. Also, ground water may take time to recharge or react to such changes and therefore seasonal fluctuations or the extreme conditions as noted above may or may not affect the ground water immediately following such event. In addition, seasonal fluctuations and impacts from nearby water bodies may impact these elevations. Therefore, it is all the more important to recognize the potential risk of relying on such transient measurements of groundwater for the design and construction of any underground improvements. It may be prudent to make conservative assumptions in the design and construction program.

Due to limitations inherent in geotechnical investigations, it is neither uncommon to encounter unforeseen variations in the soil conditions during construction nor is it practical to determine all such variations during an acceptable program of drilling and sampling for a project of this scope. Such variations, when encountered, generally require additional engineering services to attain a properly constructed project. We, therefore, recommend that a contingency fund be provided to accommodate any additional charges resulting from technical services that may be required during construction.

## **8.0 CORROSION EVALUATION**

The corrosion investigation for this project was performed on the selected soil samples in accordance with the provisions of California Test Methods 417, 422 and 643. A summary of the corrosion test results is presented in the following table.



**TABLE 2 – CORROSION TEST RESULTS**

| Boring No. | Depth (ft) | pH   | Minimum Resistivity<br>(ohms-cm) | Sulfate<br>(ppm) | Chloride<br>(ppm) |
|------------|------------|------|----------------------------------|------------------|-------------------|
| B-1        | 6          | 5.67 | 18,220                           | 0.8              | 1.3               |
| B-2        | 21         | 6.08 | 26,260                           | 2.5              | 1.2               |
| B-3        | 16         | 6.32 | 26,000                           | 3.1              | 1.2               |
| B-4        | 16         | 6.08 | 15,540                           | 9.4              | 1.0               |
| B-5        | 16         | 5.66 | 26,800                           | 2.5              | 2.6               |

According to Caltrans Corrosion Guidelines (Version 3.0, March 2018), Caltrans currently defines a corrosive environment as an area where the soil has either a chloride concentration of 500 ppm or greater, a sulfate concentration of 1,500 ppm or greater, or has a pH of 5.5 or less. Based on the guidelines and the test results, the on-site materials are considered non-corrosive according to Caltrans corrosion guidelines. The test results are presented in Appendix III.

## 9.0 SEISMIC RECOMMENDATIONS

### 9.1 Seismic Sources

The project is located in a seismically active part of northern California. Many faults that exist in the San Francisco Bay Area can produce earthquakes that may cause strong ground shaking at the project site.

Table 3: Probability of fault rupture for a given magnitude for the closest faults to the project area (distance to project is from the closest retaining wall to the closest fault intercept; M=magnitude; data derived from Field et al. 2013).

**TABLE 3 – SUMMARY OF PROBABILITY OF FAULT RUPTURE**

| Fault                   | Distance (miles) and direction<br>from Project Site | 30yr Participation Probability (%) |         |         |
|-------------------------|-----------------------------------------------------|------------------------------------|---------|---------|
|                         |                                                     | M ≥ 6.7                            | M ≥ 7.0 | M ≥ 7.5 |
| Reliz Fault Zone        | 0.75 north-east                                     | 0.31                               | 0.23    | 0.07    |
| Monterey Bay-Tularcitos | 4.5 south-west                                      | 1.15                               | 0.66    | <0.01   |
| San Gregorio            | 15.4 south-west                                     | 1.38                               | 1.24    | 1.07    |
| San Andreas             | 17.7 north-east                                     | 15.87                              | 15.59   | 5.84    |

Maximum magnitudes of four of the closest faults to the project site based on Caltrans Fault Database V2, are shown in Table 4. These maximum magnitudes represent the largest earthquake a fault can generate and is related to the seismic moment. A Fault Map is presented on Plate IV-1.

**TABLE 4 – EARTHQUAKE DATA**

| <b>Fault</b>            | <b>Fault Type</b>         | <b>Maximum Credible Earthquake Magnitude</b> |
|-------------------------|---------------------------|----------------------------------------------|
| Reliz Fault Zone        | Right Lateral Strike Slip | 7.0                                          |
| Monterey Bay-Tularcitos | Right Lateral Strike Slip | 7.2                                          |
| San Gregorio            | Right Lateral Strike Slip | 7.4                                          |
| San Andreas             | Right Lateral Strike Slip | 8.0                                          |

## 9.2 Seismic Design Criteria

The recommended design response spectrum for the proposed overcrossing structure was determined using the Caltrans ARS Online tool (V2.3.09). The development of the design ARS curve is based on several input parameters, including site location (longitude/latitude), average shear wave velocity for the top 30m/100 feet ( $V_{s30m}$ ), and other site parameters, such as fault characteristics and site-to-fault distances.

The design methods incorporate both deterministic and probabilistic seismic hazards to produce the Design Response Spectrum. The controlling spectrum (upper envelope) is adopted for the design response spectrum.

Average shear wave velocities for the top 100 feet of soils at the site were estimated by using established correlations and procedure provided in Caltrans Methodology for Developing Design Response Spectrum for use in Seismic Design Recommendations (2012). Shear wave velocity calculations are attached in Appendix V.

The site location and the relevant parameters are summarized as follows, and the recommended design curve is presented in Appendix IV-2.

### **Input**

- Site Location: 36.6629°N / 121.7839°W.
- Calculated  $V_{s30m}$ : 290 m/s

### **Output**

- The recommended ARS curve is based on the maximum of the comparison of the deterministic data and Caltrans Probabilistic data. The recommended ARS curve at this site is based on the deterministic curve.
- An adjustment factor for the near-fault effect was applied to the calculated spectral acceleration values. The increase of 20% to the spectral acceleration values corresponds to period longer than 1 second and linearly tapers to zero at a period of 0.5 seconds

- Anticipated Peak Ground Acceleration (PGA): 0.572g
- No adjustment was needed for basin effect.
- Mean earthquake magnitude: 7.0

### **9.3 Seismic Hazards/Liquefaction Potential**

Potential seismic hazards may arise from three sources: surface fault rupture, ground shaking and liquefaction. Since no active faults pass through the site, the potential for fault rupture is relatively low. Based on available geological and seismic data, the possibility of the site to experience strong ground shaking is considered high.

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary but essentially total loss of shear strength under the reversing, cyclic shear stresses associated with earthquake shaking. Submerged, cohesionless sands and low plasticity silts of low relative density are the type of soils which usually are susceptible to liquefaction.

The liquefaction potential was evaluated in accordance with the methods proposed by Youd, et al. (2001) using the boring data. The soils are considered liquefiable when the estimated factor of safety (F.S.) is less than 1.25. The F.S. was conservatively adopted from previous projects. As indicated by Bray (2006), for soils with sufficient fines content so as to separate the coarser particles and control behavior, liquefaction appears to occur primarily in soils where these fines are either non-plastic or are low plasticity silts and/or silty clays ( $PI < 12\%$ , and  $LL < 37\%$ ), and with high water content relative to their LL ( $W\% > 0.85LL$ ).

Based on the liquefaction analyses, the liquefaction potential at the project site does not exist.

## **10.0 GEOTECHNICAL DESIGN RECOMMENDATIONS**

### **10.1 General**

This report was prepared specifically for the proposed project as described earlier. Normal procedures were assumed for construction of the proposed retaining walls throughout our analysis and represent one of the bases of recommendations presented herein. Our design criteria have been based upon the materials encountered at the site. Therefore, we should be notified in the event that these conditions are changed, so as to modify or amend our recommendations.

### **10.2 Site Grading**

All grading operations, including subgrade preparation, general excavation, cutting, shaping, filling, backfilling, and embankment construction, should be performed in accordance with Caltrans 2018 Standard Specifications.



It will be necessary to completely remove any existing vegetation, shrubs, trees, and their root systems from the area. The resulting surface should be scarified at least 6 inches and re-compacted. The minimum relative compaction requirement is 90% per Caltrans Test 216. Soft areas, compressible or organic materials, if encountered during subgrade preparation, should be over-excavated and backfilled. This is typically done by placing geotextile fabric or geogrid at the bottom of the excavation and placing Aggregate Base (AB). The actual locations of the over-excavations/backfill placement may vary depending on the soil conditions encountered in the field. Proof rolling is a common practice to identify the soft/pumping spots.

### 10.3 Retaining Wall and Spread Footing

It is our understanding that due to right-of-way and other geometric constraints; the project will require construction of three retaining walls. The purpose of these three retaining walls are discussed in Section 1.0 "Project Description". Information of approximate wall locations, type of walls, and retained wall heights provided by Kimley-Horn is summarized in Table 5.

**TABLE 5 – SUMMARY OF PROPOSED RETAINING WALLS**

| Retaining Wall No. | Wall Type       | Retained Height (ft) | Width of Footing (ft) | Approx. Bottom of Footing Elev. (ft) | Total Length (ft) |
|--------------------|-----------------|----------------------|-----------------------|--------------------------------------|-------------------|
| No. 1              | Type 1 (Case 2) | 4.2 – 8.3            | 7.5 – 11.0            | 186.21 – 187.21                      | 185               |
| No. 3              | Type 1 (Case 2) | 6.4 – 8.6            | 9.5 – 11.0            | 146.27 – 152.77                      | 190               |
| No. 5              | Type 1 (Case 2) | 10.2 – 14.5          | 12.5 – 17.25          | 152.17 – 156.87                      | 540               |

For the proposed retaining wall, different foundation systems such as spread footing and pile foundation have been evaluated. Spread footing is recommended for the proposed walls. Caltrans Type 1 (Case 2 Loading) walls are feasible for the project from geotechnical standpoint.

### 10.4 Bearing Capacity

The recommended bearing capacities for various retaining walls are summarized in the table below:



**TABLE 6 – SPREAD FOOTING DATA TABLE**

| Retaining Wall No. | Max. Design Heights (ft) | Service Limit State Permissible Net Contact Stress (ksf) | Strength Factored Gross Nominal Bearing Resistance for Controlling Load Case (ksf) | Extreme Event Factored Gross Nominal Bearing Resistance for Controlling Load Case (ksf) |
|--------------------|--------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| RW No. 1           | 8.3                      | 4.4                                                      | 7.2                                                                                | 13.1                                                                                    |
| RW No. 3           | 8.6                      | 4.7                                                      | 7.7                                                                                | 14.0                                                                                    |
| RW No. 5           | 14.5                     | 6.2                                                      | 10.2                                                                               | 18.6                                                                                    |

### **10.5 Retaining Wall and Spread Footing Subgrade Preparation**

The subgrade should be prepared to provide uniform bearing throughout the entire area of the structure. Subgrade shall be smooth, uniform, and free of debris, sharp rocks. Where hard unyielding materials larger than 3 inches, such as gravels, cobbles, etc., which may cause local stresses are encountered, they should be excavated out and backfilled with compacted aggregate base.

Generally, the materials anticipated at the foundation subgrade of the proposed retaining walls primarily consist of medium dense to dense poorly graded sand/silty sand as indicated from the field exploration.

The foundation subgrade is recommended to be inspected by the Geotechnical Engineer upon the completion of excavation. In the event local loose sand/soft clay conditions are encountered at the foundation subgrade, the loose sand/soft clay is recommended to be stabilized prior to the placement of the footing. The extent of the stabilization will be determined by the Geotechnical Engineer on site. Stabilization can be accomplished by over-excavating the foundation subgrade and replacing with aggregate base and constructed as follows:

- (a) Excavate 2 feet of existing soil below the bottom of the footing. The extent of excavation should be 30% wider than the width of the retaining wall footing. The depth of over-excavation depends on the actual field condition during construction.
- (b) Place a layer of Subgrade Enhancement Geotextile (SEG) on the bottom of excavation. The SEG may be either woven or non-woven type fabric and should conform to Caltrans standard [Caltrans Standard Specifications Section 96-1.02 O (Class B2)].
- (c) Place 2 feet of Caltrans Class 2 Aggregate Base over the SEG. The Class 2 Aggregate Base should be compacted to 95-percent relative compaction per Caltrans Test 216. Place lean concrete as an alternative if groundwater is encountered at the bottom of excavation. If lean concrete is used, the SEG may be waived.



- (d) The SEG should be wrapped on top of the compacted Class 2 Aggregate Base for a minimum overlap of two feet.

### **10.6 Lateral Earth Pressures and Friction Coefficient for Cantilever Walls**

The retaining wall to be backfilled with Caltrans structural backfill should be designed to resist the following “Applied Lateral Earth Pressures (Equivalent Fluid Pressures-EFP)”, live load and design parameters. These values assume no hydrostatic pore pressure buildup behind the wall and are based on well-drained backfill behind the walls supported in native soil. If hydrostatic pressures are allowed to build up behind the walls, additional lateral loads should be considered in the design.

#### Soil Unit Weight and Friction Angle

- (a) Soil Unit Weight (Caltrans Structural Backfill and Native Soil) : 120 lb/ft<sup>3</sup> (pcf).
- (b) Friction Angle (Caltrans Structural Backfill): 34 degrees.
- (c) Friction Angle (Native Soil): 30 degrees.

#### Applied Lateral Earth Pressure [2(H): 1(V) Sloping Backfill]

- (a) Active Earth Pressure : 48 pcf EFP for the structural backfill.
- (b) At-rest Earth Pressure : 84 pcf EFP for the structural backfill.
- (c) Passive Condition: Recommended available passive resistance is 630 pcf EFP.
- (d) A coefficient of friction of 0.35 may be used to estimate the frictional resistance along the bottom of the footing, assuming an aggregate base pad below the footing. Only dead loads should be used to estimate the frictional resistance at the bottom of footings.
- (e) According to AASHTO LRFD BDS C11.5.6 and Table 11.5.6-1, not more than 50% of the available passive lateral earth pressure shall be considered in determining the factor of safety against sliding when combined with bottom friction. The upper 1 foot of the passive resistance should be neglected for the cantilever retaining walls.
- (f) The effect of any surcharge load from the traffic should be added to the preceding lateral earth pressures. Apply a live load surcharge as an equivalent height of 2 feet of soil per AASHTO 3.11.6.4 with a soil unit weight of 125 pcf if the traffic (HS20 loading) is within a horizontal distance of one half of the wall height.
- (g) The effect of any surcharge (dead or live load) should be added to the preceding lateral earth



pressures. A coefficient of 0.4 may be used to determine the additional lateral earth pressures resulting from the surcharge for cantilever wall.

### 10.7 Seismic Lateral Earth Pressure

The proposed retaining wall will experience increased lateral loads during earthquake shaking. The design needs to consider seismic event per the AASHTO LRFD (Sections 11.9.6 & 11.8.6). The additional horizontal forces recommended to simulate earthquake loads are dependent upon the magnitude of ground surface accelerations and the retained height of the retaining wall, together with the weight and type of material retained by the retaining walls. In general, the pseudo-static approach developed by Mononobe and Okabe (M-O) may be used to estimate the equivalent static force using a seismic coefficient  $K_h = 1/3 * \text{Peak Ground Acceleration (PGA)}$ . According to Appendix A11.1.1.1 (California Amendment), the seismic incremental lateral earth pressure is assumed to have triangular distribution over wall height. Per Caltrans ARS Online, the anticipated PGA at the project site is about 0.57 g. Therefore, a  $K_h$  value of 0.188 g was used to evaluate the seismic lateral earth pressure. For overall project design, a seismic incremental lateral load of  $13.1 * H^2$  lb per foot of wall (H is design wall height in feet) is recommended. The resultant force from the incremental seismic lateral earth pressure is triangularly distributed acting one-third of the wall height (H in ft) per California Amendments.

### 11.0 STRUCTURAL PAVEMENT SECTIONS

Based on the “Geotechnical Engineering Report – Imjin Parkway Widening Project” prepared by PARIKH dated August 18, 2017, the test R-values ranging from 56 to 73 were obtained. In consideration of subgrade variation and uncertainty, an R-value of 40 was recommended for pavement design. Table 7 presents design recommendations for new structural pavement sections with varying Tis of 5.5 and 6.5 provided by the designer. The TIs correspond to a service life of 20 years.

**TABLE 7 – RECOMMENDED STRUCTURAL PAVEMENT SECTION**

| Design R-Value | Traffic Index (TI) | Structural Pavement Section (feet) |           |                      |
|----------------|--------------------|------------------------------------|-----------|----------------------|
|                |                    | HMA-A                              | AB (CL 2) | Total Thickness (ft) |
| 40             | 5.5                | 0.25                               | 0.45      | 0.70                 |
|                | 6.5                | 0.30                               | 0.55      | 0.85                 |

HMA-A: Hot Mix Asphalt (Type A); AB (CL. 2): Aggregate Base (Class 2).

## **12.0 NOTES TO DESIGNER**

### **12.1 Specifications for Backfill**

The “Structure Backfill” behind the earth retaining system should be according to Caltrans Standard Specifications Section 19-3.02C.

Structure Backfill imported to the site to be placed behind the earth retaining system must be free of organic or other unsatisfactory material and have a Sand Equivalent value of at least 20. The soil material is subject to evaluation by the engineer prior to use.

### **12.2 Suitability of the In-situ Soils as Backfill**

Based on the boring logs, the subsurface soil consists of predominantly medium dense to dense poorly graded sand/silty sand. The on-site materials exposed after the excavation may be used for structure backfill provided that they meet the Caltrans specifications.

## **12.0 CONSTRUCTION CONSIDERATIONS**

To a degree, the performance of any structure is dependent upon construction procedures and quality. Hence, observation of grading operations and foundation construction should be carried out by the project geotechnical engineer or responsible Agency. If the encountered subsurface conditions differ from those forming the basis of our recommendations, this office should be informed in order to assess the need for design changes. Therefore, the recommendations presented in this report are contingent upon good quality control and these geotechnical observations during construction.

The sections are written primarily for the engineer responsible for the preparation of plans and specifications. The field investigation performed by us primarily address some of the design issues that will be encountered in the field during construction (such as temporary excavated slope) and was not intended to identify construction-related issues

Prospective contractors for the project must evaluate construction-related issues on the basis of their own knowledge and experience in the local area, on the basis of similar projects in other localities, or on the basis of field investigation on the site performed by them, taking into account their own proposed construction methods and procedures. In addition, construction activities related to excavation and lateral earth support must conform to safety requirements of OSHA and other applicable municipal and State regulatory agencies.

### ***Existing Utilities***

A safe working distance from underground and overhead utilities should be provided during



construction work. If this is not possible, the utility lines may need to be cleared from the site before the start of construction work.

### ***Excavations***

Based on the available boring data, the subsurface soil conditions at the project site consist of predominantly medium dense to dense poorly graded sand/silty sand. No cobbles and/or cobbles were encountered in the field exploration performed in 2018. In our opinion, conventional equipment could be used to excavate on-site soil materials. It is possible that unknown old buried utilities or abandoned structures, concrete rubble etc. may be encountered during excavation. This might require special equipment and additional efforts to remove these buried objects or obstructions.

Excavations should not be expected to stand vertically without any support. According to OSHA Safety Standards, temporary excavations with personnel working within the excavations should be sloped or shored if the excavations are deeper than 5 feet. All temporary excavations should be made and supported in accordance with California OSHA Safety Standards.

The slope height, inclination, and excavation depths should not exceed those specified in local, state, or federal safety regulations. The design of the temporary slopes by the contractor or his specialty subcontractor should conform to the OSHA's "Guidelines for Excavations and Temporary Sloping". The contractor or responsible subcontractor should develop their design based on the existing soil/site condition and subsurface soil conditions exposed at the time of construction.

For excavations up to 20 feet deep in homogenous soils, OSHA guidelines state that the maximum allowable slope should be 3/4H: 1V, 1H:1V and 1-1/2H:1V for Types A, B and C soil, respectively (In general, Type A soils are stronger; Type B soils are intermediate, and Type C soils are weaker). Based on our evaluation of the materials encountered in our borings and the borings previously performed by others, the native soil on site should be considered as OSHA Type C soil. All unshored slopes less than 20 feet deep should be excavated to inclination no steeper than 1-1/2H: 1V unless shored with applicable safety standard. It should be noted that the slope ratios recommended by OSHA are for temporary, un-surcharged slopes. Traffic and surcharge loads should be kept back at least 15 feet from the top of the excavations unless they are accounted for in the design of the support system. Exposed slopes should be kept moist (but not saturated) during construction. The temporary cut slopes discussed above assume that the groundwater is maintained below the bottom of excavation at all time during construction.



All excavations should be closely monitored during excavation/construction to detect any evidence of instability, soil creep, settlements, etc. Appropriate mitigation measures and a comprehensive monitoring plan should be implemented to correct such situations.

Fills to be placed on temporary slope excavation should be keyed and benched into the temporary slope material. The height of the key should not be more than 4 feet and the minimum width should be 6 feet. The frequency and location of the benches may be adjusted and modified in the field as necessary.

Strength softening, sloughing and erosion could be expected for the bare surficial soil materials if the temporary slopes are exposed to weather and rain for an extended period of time. Stiff clays also tend to develop soil creep due to seasonal change in moisture content resulting in sloughing. Therefore, adequate surface protection should be provided to protect the slope surface from erosion, excessive drying and/or saturation during construction.

### ***Selection of Shoring System***

The selection, design and performance of the temporary shoring system and safety of construction personnel shall be the responsibility of the contractor or his specialty subcontractor. The contractor shall have the shoring system designed and signed by a Registered Engineer. The contractor shall evaluate the actual site conditions and select appropriate construction methods. Trenching and shoring operations shall be conducted in accordance with applicable Cal OSHA codes.

For the protection of any existing utilities, active shoring system should be designed with as many supports or struts as necessary to prevent excessive straining and deformation of the supported soils. This is also important with regard to existing asphalt concrete pavements where tension cracking may develop, even under minor strains. A properly designed and constructed dewatering oper

## **13.0 INVESTIGATION LIMITATIONS**

Our services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices and are based on our site reconnaissance and the assumption that the subsurface conditions do not deviate from observed conditions. All work done is in accordance with generally accepted geotechnical engineering principles and practices. No warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work or by the furnishing of oral or written reports or findings. The scope of our services did not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in structures, soil, surface water,



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groundwater or air, below or around this site. Unanticipated soil conditions are commonly encountered and cannot be fully determined by taking soil samples and excavating test borings; different soil conditions may require that additional expenditures be made during construction to attain a properly constructed project. Some contingency fund is thus recommended to accommodate these possible extra costs.

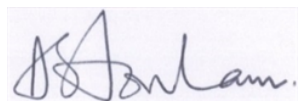
This report has been prepared for the proposed project as described earlier, to assist the engineer in the design of this project. In the event any changes in the design or location of the facilities are planned, or if any variations or undesirable conditions are encountered during construction, our conclusions and recommendations shall not be considered valid unless the changes or variations are reviewed and our recommendations modified or approved by us in writing.

This report is issued with the understanding that it is the designer's responsibility to ensure that the information and recommendations contained herein are incorporated into the project and that necessary steps are also taken to see that the recommendations are carried out in the field.

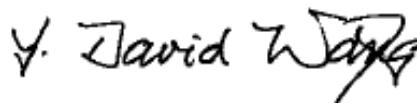
The findings in this report are valid as of the present date. However, changes in the subsurface conditions can occur with the passage of time, whether they are due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

Respectfully submitted,

**PARIKH CONSULTANTS, INC.**



Alston Lam, P.E., G.E. 2605  
Project Engineer



Y. David Wang, Ph.D., P.E. 52911  
Senior Engineer



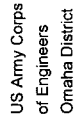
## **REFERENCES**

1. Caltrans Department of Transportation, 2010, Soil & Rock Logging, Classification, and Presentation Manual, Office of Structural Foundations California Department of Transportation.
2. Caltrans Fault Database V2a, 2012. Retrieved from:  
[http://dap3.dot.ca.gov/ARS\\_Online/Tech\\_Docs/CT\\_V2\\_0\\_06.kml](http://dap3.dot.ca.gov/ARS_Online/Tech_Docs/CT_V2_0_06.kml)">Caltrans Fault Database V2 (KML File).
3. Caltrans Department of Transportation, "Seismic Design Criteria", Version 2.0, April 2019.
4. California Department of Transportation, 2018, Standard Specifications, Sections 1 through 99.
5. Dibblee, T.W. Jr., 1976, The Rinconada and Related Faults in the Southern Coast Ranges, California, and their Tectonic Significance. U.S. Department of the Interior, Geological Survey Professional Paper 981.
6. Field, E.H., Biasi, G.P., Bird, P., Dawson, T.E., Felzer, K.R., Jackson, D.D., Johnson, K.M., Jordan, T.H., Madden, C., Michael, A.J., Milner, K.R., Page, M.T., Parsons, T., Powers, P.M., Shaw, B.E., Thatcher, W.R., Weldon, R.J., II, and Zeng, Y., 2013, Uniform California earthquake rupture forecast, version 3 (UCERF3)—The time-independent model: U.S. Geological Survey Open-File Report 2013–1165, 97 p., California Geological Survey Special Report 228, and Southern California Earthquake Center Publication 1792, <http://pubs.usgs.gov/of/2013/1165/>.
7. Kilbourne, R.T., & Sholin, M.H., 1980, Geology for Planning Marina and Salinas 7 1/2' Quadrangle. California Division of Mines and Geology.
8. Jennings, C.W., and Bryant, W.A., 2010, Fault activity map of California: California Geological Survey Geologic Data Map No. 6, map scale 1:750,000.
9. Jennings, C.W., compiler, 2010, Geologic map of California: California Division of Mines and Geology Geologic Data Map 2, scale 1:750,000.
10. California Geological Survey (CGS). 1983, Official Maps of Earthquake Fault Zones: GIS files of Official Maps of Alquist-Priolo Earthquake Fault Zones – Marina, Salinas, CA. Department of Conservation, California Geological Survey. <http://maps.conservation.ca.gov/cgs/informationwarehouse/>. Accessed 21052019.
11. Wagner, D.L., Greene, H.G., Saucedo, G.J., & Pridmore, C.L., 2002. Geologic Map of the Monterey 30'x60' Quadrangle and Adjacent Areas, California. Regional Geologic Map Series, California Geological Survey.





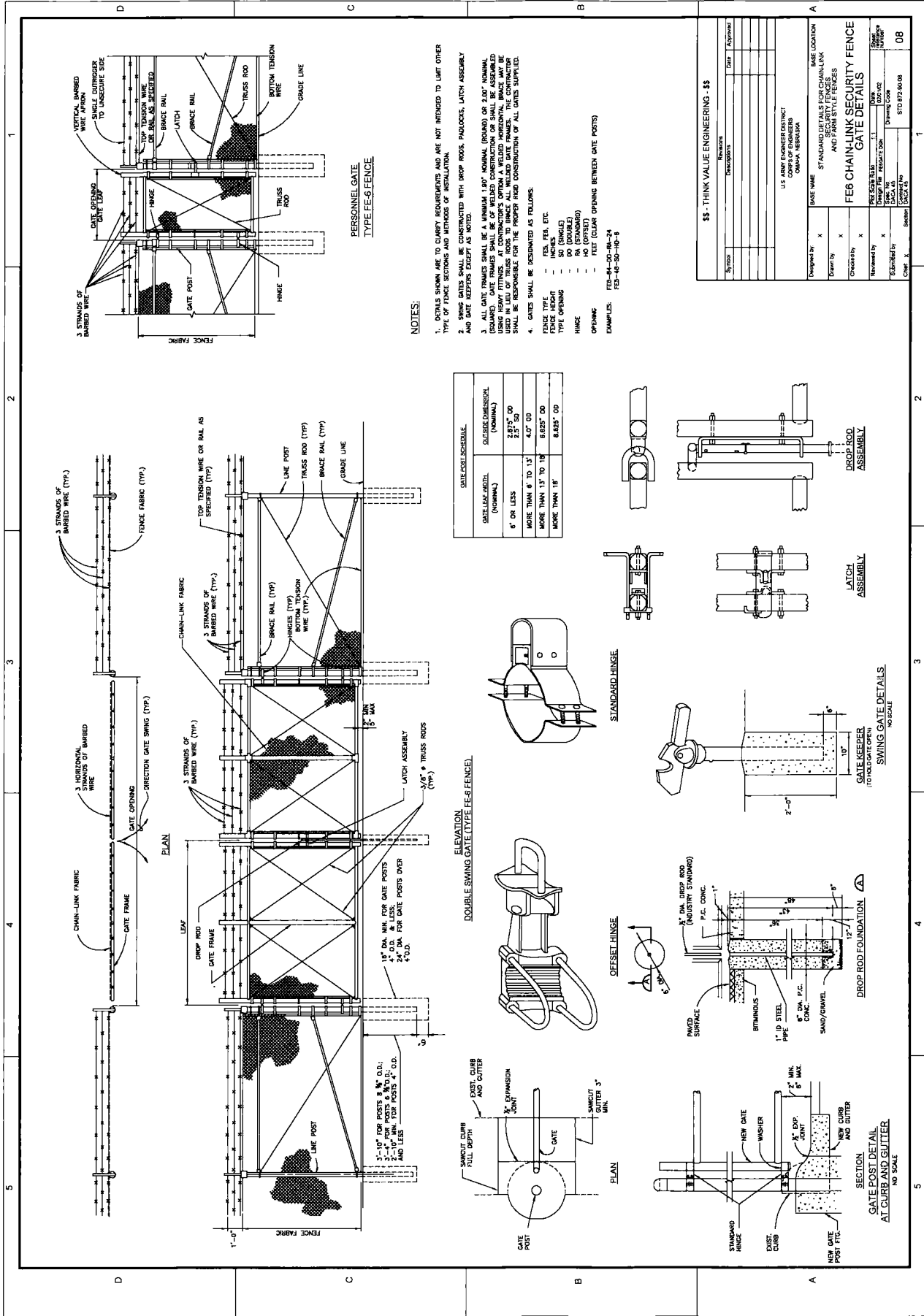
# Appendix C: US Army Corps of Engineers Standard Details for Chain-Link Security Fences and Farm Style Fences



| DRAWINGS      | REVISIONS |       | DRAWING                                                      |
|---------------|-----------|-------|--------------------------------------------------------------|
|               | REV       | AMEND |                                                              |
| S/D 827-90-00 |           |       | DRAINING INDEX & COVER SHEET                                 |
| S/D 827-90-02 |           |       | F23 CHAIN-LINK SECURITY FENCE DETAILS                        |
| S/D 827-90-03 |           |       | F24 CHAIN-LINK SECURITY FENCE DETAILS                        |
| S/D 827-90-04 |           |       | F25 CHAIN-LINK SECURITY FENCE DETAILS                        |
| S/D 827-90-05 |           |       | F26 CHAIN-LINK SECURITY FENCE DETAILS FOR NON-STANDARD FENCE |
| S/D 827-90-06 |           |       | F27 CHAIN-LINK SECURITY FENCE DETAILS FOR SHROUDED FENCE     |
| S/D 827-90-08 |           |       | F28 CHAIN-LINK SECURITY FENCE DETAILS FOR SHROUDED FENCE     |
| S/D 827-90-07 |           |       | F29 CHAIN-LINK SECURITY FENCE GATE DETAILS                   |
| S/D 827-90-08 |           |       | F28 CHAIN-LINK SECURITY FENCE GATE DETAILS                   |
| S/D 827-90-09 |           |       | F27-7/8 CHAIN-LINK SECURITY FENCE GATE DETAILS               |
| S/D 827-90-10 |           |       | FARM STYLE 4 STRAND BARBED-WIRE FENCE DETAILS                |
| S/D 827-90-11 |           |       | FARM STYLE 4 STRAND BARBED-WIRE FENCE DETAILS                |
| S/D 827-90-12 |           |       | FARM STYLE 5 STRAND BARBED-WIRE FENCE DETAILS                |
| S/D 827-90-13 |           |       | FARM STYLE WOVEN-WIRE FENCE DETAILS                          |

[illegible]





**U.S. ARMY ENGINEER DISTRICT**  
**CORPS OF ENGINEERS**  
**OMAHA, NEBRASKA**

**DESIGNED BY:** X  
**CHECKED BY:** X  
**APPROVED BY:** X  
**DATE:** 11/1/50  
**PROJECT:** FEB CHAIN-LINK SECURITY FENCE  
**SCALE:** 1/4" = 1'-0"

**STANDARD DETAILS FOR CHAIN-LINK AND FARM STYLE FENCES**  
**FEB CHAIN-LINK SECURITY FENCE**  
**GATE DETAILS**

**DATE:** 11/1/50  
**BY:** J. L. HARRIS  
**FOR:** J. L. HARRIS  
**NO:** 570-872-60-08  
**08**



\*\*\*\*\*  
USACE / NAVFAC / AFCEC / NASA UFGS-32 31 13 (August 2010)  
Change 1 - 11/12  
-----  
Preparing Activity: NASA Superseding  
UFGS-32 31 13 (May 2009)

## UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated October 2013

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-- End of Section Table of Contents --

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Preparing Activity: NASA Superseding  
UFGS-32 31 13 (May 2009)

# UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated October 2013

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## SECTION 32 31 13

### CHAIN LINK FENCES AND GATES 08/10

\*\*\*\*\*

NOTE: This guide specification covers the requirements for steel fencing, including posts, fabric, gates, and miscellaneous accessories. Colored fabric and accessories may be used if required. Edit specifications to suit the project scope.

Use Section 32 31 13.53 HIGH-SECURITY CHAIN LINK FENCES AND GATES.

Use Section 32 31 26 WIRE FENCES AND GATES formerly referred to as "Farm Style Fencing" within UFGS.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

\*\*\*\*\*

## PART 1 GENERAL

### 1.1 REFERENCES

\*\*\*\*\*

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in

this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a RID outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

\*\*\*\*\*

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

#### ASTM INTERNATIONAL (ASTM)

|                 |                                                                                                                      |
|-----------------|----------------------------------------------------------------------------------------------------------------------|
| ASTM A116       | (2011) Standard Specification for Metallic-Coated, Steel Woven Wire Fence Fabric                                     |
| ASTM A153/A153M | (2009) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware                                  |
| ASTM A702       | (1989; R 2006) Standard Specification for Steel Fence Posts and Assemblies, Hot Wrought                              |
| ASTM A780/A780M | (2009) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings                     |
| ASTM A90/A90M   | (2013) Standard Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings |
| ASTM B117       | (2011) Standard Practice for Operating Salt Spray (Fog) Apparatus                                                    |
| ASTM C94/C94M   | (2013a) Standard Specification for Ready-Mixed Concrete                                                              |
| ASTM F1043      | (2012) Strength and Protective Coatings on Metal Industrial Chain-Link Fence Framework                               |
| ASTM F1083      | (2010) Standard Specification for Pipe, Steel, Hot-Dipped Zinc Coated (Galvanized) Welded, for Fence Structures      |
| ASTM F567       | (2011a) Standard Practice for Installation of Chain Link Fence                                                       |
| ASTM F626       | (2008; R 2013) Standard Specification for                                                                            |

|           |                                                                                                                    |
|-----------|--------------------------------------------------------------------------------------------------------------------|
|           | Fence Fittings                                                                                                     |
| ASTM F883 | (2013) Padlocks                                                                                                    |
| ASTM G152 | (2013) Operating Open Flame Carbon Arc<br>Light Apparatus for Exposure of<br>Nonmetallic Materials                 |
| ASTM G153 | (2013) Operating Enclosed Carbon Arc Light<br>Apparatus for Exposure of Nonmetallic<br>Materials                   |
| ASTM G154 | (2012a) Standard Practice for Operating<br>Fluorescent Light Apparatus for UV<br>Exposure of Nonmetallic Materials |
| ASTM G155 | (2013) Standard Practice for Operating<br>Xenon Arc Light Apparatus for Exposure of<br>Non-Metallic Materials      |

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

|               |                                                                                                  |
|---------------|--------------------------------------------------------------------------------------------------|
| FS RR-F-191   | (Rev K) Fencing, Wire and Post Metal (and<br>Gates, Chain-Link Fence Fabric, and<br>Accessories) |
| FS RR-F-191/1 | (Rev F) Fencing, Wire and Post, Metal<br>(Chain-Link Fence Fabric)                               |
| FS RR-F-191/2 | (Rev E) Fencing, Wire and Post, Metal<br>(Chain-Link Fence Gates)                                |
| FS RR-F-191/3 | (Rev E; Am 1) Fencing, Wire and Post,<br>Metal (Chain-Link Fence Posts, Top Rails<br>and Braces) |
| FS RR-F-191/4 | (Rev F) Fencing, Wire and Post, Metal<br>(Chain-Link Fence Accessories)                          |

1.2 SUBMITTALS

\*\*\*\*\*

NOTE: Review Submittal Description (SD) definitions  
in Section 01 33 00 SUBMITTAL PROCEDURES and edit  
the following list to reflect only the submittals  
required for the project.

The Guide Specification technical editors have  
designated those items that require Government  
approval, due to their complexity or criticality,  
with a "G." Generally, other submittal items can be  
reviewed by the Contractor's Quality Control  
System. Only add a "G" to an item, if the submittal  
is sufficiently important or complex in context of  
the project.

For submittals requiring Government approval on Army  
projects, a code of up to three characters within  
the submittal tags may be used following the "G"

designation to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army projects.

\*\*\*\*\*

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.] [for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

#### SD-02 Shop Drawings

Fence Assembly[; G][; G, [\_\_\_\_]]

Location of Gate, Corner, End, and Pull Posts[; G][; G, [\_\_\_\_]]

Gate Assembly[; G][; G, [\_\_\_\_]]

Gate Hardware and Accessories[; G][; G, [\_\_\_\_]]

Erection/Installation Drawings[; G][; G, [\_\_\_\_]]

#### SD-03 Product Data

Fence Assembly[; G][; G, [\_\_\_\_]]

Gate Assembly[; G][; G, [\_\_\_\_]]

Gate Hardware and Accessories[; G][; G, [\_\_\_\_]]

Recycled Material Content[; G][; G, [\_\_\_\_]]

Zinc Coating[; G][; G, [\_\_\_\_]]

PVC Coating[; G][; G, [\_\_\_\_]]

Aluminum Alloy Coating[; G][; G, [\_\_\_\_]]

Fabric[; G][; G, [\_\_\_\_]]

Stretcher Bars[; G][; G, [\_\_\_\_]]

Concrete[; G][; G, [\_\_\_\_]]

#### SD-04 Samples

Fabric[; G][; G, [\_\_\_\_]]

Posts[; G][; G, [\_\_\_\_]]  
Braces[; G][; G, [\_\_\_\_]]  
Line Posts[; G][; G, [\_\_\_\_]]  
Sleeves[; G][; G, [\_\_\_\_]]  
Top Rail[; G][; G, [\_\_\_\_]]  
[Bottom Rail][; G][; G, [\_\_\_\_]]  
Tension Wire[; G][; G, [\_\_\_\_]]  
Stretcher Bars[; G][; G, [\_\_\_\_]]  
Gate Posts[; G][; G, [\_\_\_\_]]  
Gate Hardware and Accessories[; G][; G, [\_\_\_\_]]  
Padlocks[; G][; G, [\_\_\_\_]]  
Wire Ties[; G][; G, [\_\_\_\_]]

#### SD-07 Certificates

Certificates of Compliance[; G][; G, [\_\_\_\_]]

#### SD-08 Manufacturer's Instructions

Fence Assembly[; G][; G, [\_\_\_\_]]  
Gate Assembly[; G][; G, [\_\_\_\_]]  
Hardware Assembly[; G][; G, [\_\_\_\_]]  
Accessories[; G][; G, [\_\_\_\_]]

### 1.3 ASSEMBLY AND INSTALLATION INSTRUCTIONS

Submit manufacturer's erection/installation drawings and instructions that detail proper assembly and materials in the design for fence, gate, hardware and accessories.

Submit erection/installation drawings along with manufacturer's catalog data for complete fence assembly, gate assembly, hardware assembly and accessories.

### 1.4 DELIVERY, STORAGE, AND HANDLING

Deliver materials to site in an undamaged condition. Store materials off the ground to provide protection against oxidation caused by ground contact.

### 1.5 QUALITY ASSURANCE

#### 1.5.1 Required Report Data

Submit reports of listing of chain-link fencing and accessories regarding

weight in grams ounces for zinc coating[, thickness of PVC coating][, and chemical composition and thickness of aluminum alloy coating].

#### 1.5.2 Certificates of Compliance

Submit certificates of compliance in accordance with the applicable reference standards and descriptions of this section for the following:

- a. Zinc coating
- b. PVC coating
- c. Aluminum alloy coating
- d. Fabric
- e. Stretcher bars
- f. Gate hardware and accessories
- g. Concrete

### PART 2 PRODUCTS

#### 2.1 GENERAL

Provide fencing materials conforming to the requirements of ASTM A116, ASTM A702, ASTM F626, and as specified.

Submit manufacturer's data indicating percentage of recycled material content in protective fence materials, including chain link fence, fabric, and gates to verify affirmative procurement compliance.

#### 2.2 ZINC COATING

Provide hot-dip galvanized (after fabrication) ferrous-metal components and accessories, except as otherwise specified.

Provide zinc coating of weight not less than 550 gram per square meter 1.94 ounces per square foot, as determined from the average result of two specimens, when tested in accordance with ASTM A90/A90M.

Provide zinc coating conforming to the requirements of the following:

- a. Pipe: FS RR-F-191/3 Class 1 [Grade A in accordance with ASTM F1083] [Grade B in accordance with ASTM F1043].
- b. Hardware and accessories: ASTM A153/A153M, Table 1
- c. Surface: ASTM F1043
- d. External: Type B-B surface zinc with organic coating, 275 gram per square meter 0.97 ounce per square foot minimum thickness of acrylated polymer.
- e. Internal: Surface zinc coating of 275 gram per square meter 0.97 ounce per square foot minimum.

Provide galvanizing repair material that is cold-applied zinc-rich coating

conforming to ASTM A780/A780M.

## 2.3 FABRIC

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NOTE: Coordinate type of fabric with project requirements. The four types of fabric are not necessarily equivalent. Certain security applications may require use of steel fabric only. Standard selvage treatment for fabric 1.52 m 60 inches and less is knuckled at both selvages. Fabric with heavier zinc or aluminum coating or polyvinyl chloride (PVC) coatings may be useful in highly corrosive environments.

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NOTE: Choose core wire gage appropriate for the design. Gages are not be the same for all materials. Polyvinyl chloride (PVC) coating may be specified for other than security purposes when aesthetics are of prime importance and the additional cost is justified. There are different PVC-coated fabrics on the market. Variations may include: The methods of applying PVC coating, wall thickness of PVC coating, adhesion of PVC coating to wire, and cost. Take these factors into consideration when selecting a fence fabric for different environmental applications. PVC coating of fencing for certain security applications and grounded fencing requires detailed design and specifying.

\*\*\*\*\*

FS RR-F-191 and detailed specifications as referenced and other requirements as specified.

FS RR-F-191/1; Type [I, zinc-coated steel, [\_\_\_\_\_] gage] [II, aluminum-coated steel, [\_\_\_\_\_] gage] [III, aluminum alloy, [\_\_\_\_\_] gage] [or] [IV, polyvinyl chloride (PVC) coated over zinc- or aluminum-coated steel, [\_\_\_\_\_] gage core wire size]. Mesh size, 51 mm 2 inches. Provide selvage [knuckled at one selvage and twisted and barbed at the other] [twisted and barbed at both selvages] [knuckled at both selvages]. Height of fabric, as indicated.

Provide fabric consisting of 3.8 millimeter No. 9-gage wires woven into a [25] [45] [50] millimeter [1-inch] [1-3/4-inch] [2-inch] diamond mesh, with dimensions of fabric and wire conforming to ASTM A116, ASTM A702 and ASTM F626, with [370] [610] gram per square meter [1.20] [2.0] ounces per square foot zinc galvanizing.

Provide one-piece fabric widths for fence heights up to 3658 millimeter 12 feet.

## 2.4 TOP AND BOTTOM SELVAGES

Provide knuckled selvages at top and bottom for fabric with 51 millimeter 2 inch mesh and up to 1524 millimeter 60 inches high, and if over 1524 millimeter 60 inches high, provide twisted and barbed top selvage and

knuckled bottom selvage.

Knuckle top and bottom selvages for 45 millimeter and 25 millimeter 1-3/4-inch and 1-inch mesh fabric.

## 2.5 POSTS [, TOP RAILS] [, BOTTOM RAILS] AND BRACES

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NOTE: Use as many of the options as possible consistent with functional requirements. Allow Class 3, formed steel sections as an alternative if no other requirements prohibit their use on a particular job. Certain security applications using intrusion detection sensors use steel pipe framework only. For rails and braces, use minimum sizes specified in FS RR-F-191/3 for each class and grade unless members are to be oversized.

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NOTE: Steel pipe is available in two grades: A or B. Grade A is zinc-coated with 0.54 kg per square meter 1.8 ounces per square foot of zinc. Grade B consists of a zinc-coating with 0.27 kg per square meter 0.9 ounce per square foot, a chromate conversion coating, followed by a clear acrylic or polyester coating. The acrylic or polyester coatings used on Grade B pipe should not be confused with optional polyvinyl chloride (PVC) coatings available for framework. Grade A pipe which has the heavier zinc-coated interior may be desired in some coastal regions located in highly corrosive salt-laden environments to prevent rust caused by condensation inside the pipe. Grade A or Grade B pipe may be used in inland and desert areas, provided Grade B pipe meets the salt spray test.

\*\*\*\*\*

FS RR-F-191/3 line posts; Class [1, steel pipe, Grade [A] [or] [B]] [2, aluminum pipe] [3, formed steel sections] [4, steel H sections] or [5, aluminum H sections]. End, corner, and pull posts; Class [1, steel pipe, Grade [A] [or] [B]], [2, aluminum pipe], [6, steel square sections] [or 7, aluminum square sections]. Braces [and rails]; Class [1, steel pipe, Grade [A] [or] [B]] [2, aluminum pipe] or [3, formed steel sections], in [minimum sizes listed in FS RR-F-191/3 for each class and grade] [size [\_\_\_\_]]. [Provide PVC color coating, minimum thickness, 0.25 mm 0.01 inch.] [Steel pipe, Class 1, Grade B meeting the following performance criteria when subjected to salt spray testing in accordance with ASTM B117:

- a. Exterior [\_\_\_\_] 1,000 hours with maximum 5 percent red rust.
- b. Interior [\_\_\_\_] 650 hours with maximum 5 percent red rust.]

### 2.5.1 Composite Posts

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NOTE: Provide as alternative to PVC coated fence posts, and use where corrosion is a problem. Since posts are non-conductive, fence grounding procedures

need to be detailed where grounding of the fence is required.

\*\*\*\*\*

Produce resin reinforced posts from polyester or epoxy resin, reinforced with E-glass and filler material. Provide post that meet the ASTM F1043 bending strength for heavy industrial fencing, and filled with 20 MPa 3,000 psi concrete. Protect posts from UV degradation by a veil of polyester cloth impregnated with resin and an acrylic based 1.46 mm 1.5 mil DFT coating system. The post can exhibit no structural failure (less than 10 percent loss of strength) as a result of exposure to moisture and UV lamps per ASTM G152, ASTM G153, ASTM G155, and ASTM G154, (3600 hours). Provide posts [green], [black], [brown] in color to match fabric. [Provide outside diameter as specified in FS RR-F-191/3 for round steel pipe.]

## 2.6 LINE POSTS

Minimum acceptable line posts are as follows:

Up to 1829 millimeter 6-feet high:

Grade A: DN50 1.900 inch O.D. pipe weighing 4.05 kilogram per linear meter 2.72 pounds per linear foot.

Grade B: DN60 2.375 inch O.D. pipe weighing 4.65 kilogram per linear meter 3.12 pounds per linear foot.

Over 1829 millimeter 6-feet high:

DN50 2.0 inch O.D. pipe weighing 5.44 kilogram per linear meter 3.65 pounds per linear foot.

## 2.7 END, CORNER, AND PULL POSTS

Provide minimally acceptable end, corner, and pull posts as follows:

Up to 1829 millimeter 6 feet high:

Grade A: DN50 2.375 inch O.D. pipe weighing 5.44 kilogram per linear meter 3.65 pounds per linear foot.

Grade B: DN60 2.375 inch O.D. pipe weighing 4.65 kilogram per linear meter 3.12 pounds per linear foot.

Over 1829 millimeter 6 feet high:

Grade A: DN70 2.875 inch O.D. pipe weighing 8.62 kilogram per linear meter 5.79 pounds per linear foot.

Grade B: DN70 2.875 inch O.D. pipe weighing 6.91 kilogram per linear meter 4.64 pounds per linear foot.

## 2.8 SLEEVES

Provide sleeves for setting into concrete construction of the same material as post sections, sized 25 millimeter 1-inch greater than the diameter or dimension of the post. Weld flat plates to each sleeve base to provide anchorage and prevent intrusion of concrete.

## 2.9 TOP RAIL

Provide [a minimum of DN40 1.660 inches O.D. pipe rails.] [Grade A weighing 3.38 kilogram per linear meter 2.27 pounds per linear foot.] [Grade B weighing 2.71 kilogram per linear meter 1.82 pounds per linear foot.] Provide expansion couplings 150 millimeter 6-inches long at each joint in top rails.

## [2.10 CENTER RAILS BETWEEN LINE POSTS

\*\*\*\*\*  
**NOTE: Center rails are not normally required for  
fencing less than 1829 millimeter 6 feet high. Edit  
as required.**  
\*\*\*\*\*

For fencing over 1829 millimeter 6-feet high, provide DN40 1.660 inches O.D. pipe center rails, [Grade A weighing 3.38 kilogram per linear meter 2.27 pounds per linear foot] [Grade B weighing 2.71 kilogram per linear meter 1.82 pounds per linear foot.]

## ] [2.11 [BOTTOM RAIL]

[ Provide [bottom rail] conforming to minimum sizes specified in FS RR-F-191/3 for each class and grade unless members are to be oversized.]

## ] 2.12 POST-BRACE ASSEMBLY

Provide bracing consisting of DN40 1.660 inches O.D. pipe [Grade A weighing 3.38 kilogram per linear meter 2.27 pounds per linear foot] [Grade B weighing 2.71 kilogram per linear meter 1.82 pounds per linear foot] and 10 millimeter 3/8 inch adjustable truss rods and turnbuckles.

## 2.13 TENSION WIRE

Provide galvanized wire, 3.7 millimeter No. 7-gage, coiled spring wire, provided at the bottom of the fabric only. Provide zinc coating that weighs not less than [370] [610] gram per square meter [1.2] [2.0] ounces per square foot.

## 2.14 STRETCHER BARS

Provide bars that have one-piece lengths equal to the full height of the fabric with a minimum cross section of 5 by 20 millimeter 3/16 by 3/4 inch, in accordance with ASTM A116, ASTM A702 and ASTM F626.

## 2.15 POST TOPS

Provide tops that are steel, wrought iron, or malleable iron designed as a weathertight closure cap. Provide one cap for each post, unless equal protection is provided by a combination post-cap and barbed-wire supporting arm. Provide caps with an opening to permit through passage of the top rail.

## 2.16 STRETCHER BAR BANDS

Provide bar bands for securing stretcher bars to posts that are steel, wrought iron, or malleable iron spaced not over 381 millimeter 15 inches on center. Bands may also be used in conjunction with special fittings for

securing rails to posts. Provide bands with projecting edges chamfered or eased.

## 2.17 GATE POSTS

Provide a gate post for supporting each gate leaf as follows:

[ Up to 1829 millimeter 6-feet wide:

DN75 2.875 inch O.D. pipe [Grade A weighing 8.62 kilogram per linear meter 5.79 pounds per linear foot.] [Grade B weighing 6.91 kilogram per linear meter 4.64 pounds per linear foot.]

] [Over 1829 millimeter 6 feet wide and up to 3962 millimeter 13 feet wide:

DN75 2.875 inch O.D. pipe [Grade A weighing 8.62 kilogram per linear meter 5.79 pounds per linear foot.] [Grade B weighing 6.91 kilogram per linear meter 4.64 pounds per linear foot.]

] [Over 3962 millimeter 13-feet and up to 5486 millimeter 18-feet wide:

Provide DN150 6.625 inch O.D. pipe weighing 28.26 kilogram per linear meter 18.97 pounds per linear foot.

] [Over 5486 millimeter 18-feet wide:

Provide DN220 8.625 inch O.D. pipe weighing 36.79 kilogram per linear meter 24.70 pounds per linear foot.

## ] 2.18 GATES

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NOTE: The gate frames and intermediate braces indicated are adequate for gate sizes less than or equal to 2.4 m 8 feet high and 4.3 m 14 feet wide. Gate configurations larger than 2.4 m 8 feet high and 4.3 m 14 feet wide require special design consideration.

\*\*\*\*\*

FS RR-F-191/2; Type [I, single swing] [II, double swing] [III, single cantilever sliding, wheel sliding gate] [IV, double cantilever sliding] [V, single overhead sliding] [VI, double overhead sliding] [VII, vertical lift] [VIII, special]. Shape and size of gate frame, [as indicated] [\_\_\_\_]. Framing and bracing members, [round] [square] of [steel] [aluminum] alloy. [Steel member finish, [zinc-coated] [or] [PVC-coated over zinc- or aluminum-coated steel].] Provide gate frames and braces of minimum sizes listed in FS RR-F-191/3 for each Class and Grade, except that steel pipe frames are a minimum of 48 mm 1.90 inches o.d., 3 mm 0.120 inches minimum wall thickness and aluminum pipe frames and intermediate braces are 47.5 mm 1.869 inches o.d. minimum, 1.4 kg per meter 0.940 lb/ft of length. Gate fabric, is as specified for fencing fabric. Coating for steel latches, stops, hinges, keepers, and accessories, [galvanized] [PVC, minimum thickness of 0.25 mm 0.01 inch.] Provide [fork] [plunger bar] type gate latches. [Special gate frames, [as indicated] [\_\_\_\_].] [Provide intermediate members as necessary for gate leaves more than 2.4 m 8 feet wide, to provide rigid construction, free from sag or twist.] [Provide truss rods or intermediate braces for gate leaves less than 2.4 m 8 feet wide.] Attach gate fabric to gate frame in accordance with manufacturer's

standards, except that welding is not permitted. Arrange padlocking latches to be accessible from both sides of gate, regardless of latching arrangement.

[ For gate leaves up to 1829 millimeter 6-feet high or 1829 millimeter 6-feet wide, provide perimeter gate frames of DN32 1.66 inch O.D. pipe [Grade A weighing 3.38 kilogram per linear meter 2.27 pounds per linear foot.] [Grade B weighing 2.71 kilogram per linear meter 1.82 pounds per linear foot.]

] [For gate leaves over 1829 millimeter 6 feet high or 1829 millimeter 6 feet wide, provide perimeter gate frames of DN40 1.90 inch O.D. pipe [Grade A weighing 4.05 kilogram per linear meter 2.72 pounds per linear foot.] [Grade B weighing 3.40 kilogram per linear meter 2.28 pounds per linear foot.]

] Provide gate frame assembly that is welded or assembled with special malleable or pressed-steel fittings and rivets to provide rigid connections. Install fabric with stretcher bars at vertical edges; stretcher bars may also be used at top and bottom edges. Attach stretcher bars and fabric to gate frames on all sides at intervals not exceeding 381 millimeter. 15 inches. Attach hardware with rivets or by other means which provides equal security against breakage or removal.

Provide diagonal cross-bracing, consisting of 10 millimeter 3/8-inch diameter adjustable-length truss rods on welded gate frames, where necessary to obtain frame rigidity without sag or twist. Provide nonwelded gate frames with diagonal bracing.

## 2.19 GATE HARDWARE AND ACCESSORIES

Provide gate hardware and accessories that conforms to ASTM A116, ASTM A702, ASTM F626, and be as specified:

Provide [malleable iron] [forged steel] [pressed steel] hinges to suit gate size, non-lift-off type, offset to permit 180-degree opening.

Provide latch that permits operation from either side of the gate, with a padlock eye provided as an integral part of the latch.

Provide stops and holders of malleable iron for vehicular gates. Provide stops that automatically engage the gate and hold it in the open position until manually released.

\*\*\*\*\*  
**NOTE: Delete the following paragraph when double gates are not required.**  
\*\*\*\*\*

[ Provide double gates with a cane bolt and ground-set keeper, with latch or locking device and padlock eye designed as an integral part.

] \*\*\*\*\*  
**NOTE: Delete the following paragraph if manual sliding gates are not required.**  
\*\*\*\*\*

[ Provide manufacturer's standard heavy-duty track ball bearing hanger sheaves, overhead framing and supports, guides, stays, bracing, and accessories as required for easy operation of manual sliding gates.

## 12.20 MISCELLANEOUS HARDWARE

Provide miscellaneous hot-dip galvanized hardware as required.

## 2.21 WIRE TIES

Provide 1.6 millimeter 16-gage galvanized steel wire for tying fabric to line posts, spaced 300 millimeter 12 inches on center. For tying fabric to rails and braces, space wire ties 600 millimeter 24 inches on center. For tying fabric to tension wire, space 2.7 millimeter 0.105-inch hog rings 600 millimeter 24 inches on center.

Manufacturer's standard procedure will be accepted if of equal strength and durability.

\*\*\*\*\*  
**NOTE: Polyvinyl chloride (PVC) coated ties shall be specified when PVC-coated fence fabric is required.**  
\*\*\*\*\*

FS RR-F-191/4. Provide wire ties constructed of the same material as the fencing fabric. [Provide accessories with polyvinyl (PVC) coatings similar to that specified for chain-link fabric or framework.]

## 2.22 CONCRETE

Provide concrete conforming to ASTM C94/C94M, and obtaining a minimum 28-day compressive strength of 20685 kilopascal 3,000 psi.

## 2.23 GROUT

Provide grout of proportions one part portland cement to three parts clean, well-graded sand and a minimum amount of water to produce a workable mix.

## 2.24 PADLOCKS

\*\*\*\*\*  
**NOTE: Consult station regarding padlocks. Most stations will provide padlocks. If Contractor furnished padlocks are required for certain security applications, a padlock conforming to an appropriate Military or Agency Specification may need to be specified. See referenced specification for types, grades, and options available.**  
\*\*\*\*\*

Provide padlocks conforming to ASTM F883, with chain.

## PART 3 EXECUTION

Provide complete installation conforming to ASTM F567.

## 3.1 GENERAL

Ensure final grading and established elevations are complete prior to commencing fence installation.

### 3.2 EXCAVATION

Provide excavations for post footings which are [drilled holes] in virgin or compacted soil, of minimum sizes as indicated.

Space footings for line posts 3048 millimeter 10 feet on center maximum and at closer intervals when indicated, with bottoms of the holes approximately 75 millimeter 3-inches below the bottoms of the posts. Set bottom of each post not less than 915 millimeter 36-inches below finished grade when in firm, undisturbed soil. Set posts deeper, as required, in soft and problem soils and for heavy, lateral loads.

[ Uniformly spread soil from excavations adjacent to the fence line or on areas of Government property, as directed.] [Remove excavated soil from Government property.

] When solid rock is encountered near the surface, drill into the rock at least 305 millimeter 12 inches for line posts and at least 457 millimeter 18 inches for end, pull, corner, and gate posts. Drill holes at least 25.4 millimeter 1 inch greater in diameter than the largest dimension of the placed post.

If solid rock is below the soil overburden, drill to the full depth required except that penetration into rock need not exceed the minimum depths specified above.

### 3.3 SETTING POSTS

Remove loose and foreign materials from holes and the soil moistened prior to placing concrete.

Provide tops of footings that are trowel finished and sloped or domed to shed water away from posts. Set hold-open devices, sleeves, and other accessories in concrete.

Keep exposed concrete moist for at least 7 calendar days after placement or cured with a membrane curing material, as approved.

[ Grout all posts set into sleeved holes in concrete with an approved grouting material.

] [Maintain vertical alignment of posts set in concrete construction until concrete has set.

#### 13.3.1 Earth and Bedrock

\*\*\*\*\*  
**NOTE: Alternate drive anchor method may be specified as an option where evidence indicates that optional method under similar ground conditions has satisfactory and proven performance record.**  
\*\*\*\*\*

Provide concrete bases of dimensions indicated [except in bedrock]. Compact concrete to eliminate voids, and finish to a dome shape. [In bedrock, set posts with a minimum of 25.4 mm 1 inch of grout around each post. Work grout into hole to eliminate voids, and finish to a dome shape.]

### [3.3.2 Concrete Slabs and Walls

\*\*\*\*\*  
NOTE: Use the following paragraph where required by the design, otherwise delete. Sleeve joints for non-removable fence sections are usually filled with lead or nonshrink grout. Removable fence sections may be useful as an economical means for providing access to equipment. Sleeve joints in removable fence sections may be a tight sliding type, or where moisture entry could be a problem, filled with pipe sulphur jointing compound.  
\*\*\*\*\*

Set posts into zinc-coated sleeves, set in concrete slab or wall, to a minimum depth of 305 mm 12 inches. Fill sleeve joint with lead, nonshrink grout, or other approved material. Set posts for support of removable fence sections into sleeves that provide a tight sliding joint and hold posts aligned and plumb without use of lead or setting material.

### 13.3.3 Bracing

\*\*\*\*\*  
NOTE: Use a single diagonal truss rod for fences less than 3.7 m 12 feet high. Use two diagonal truss rods on fences 3.7 m 12 feet and higher.  
\*\*\*\*\*

Brace gate, corner, end, and pull posts to nearest post with a horizontal brace used as a compression member, placed at least 305 mm 12 inches below top of fence, and [a diagonal tension rod] [two diagonal tension rods].

### 3.4 CONCRETE STRENGTH

Provide concrete that has attained at least 75 percent of its minimum 28-day compressive strength, but in no case sooner than 7 calendar days after placement, before rails, tension wire, or fabric are installed. Do not stretch fabric and wires or hang gates until the concrete has attained its full design strength.

\*\*\*\*\*  
NOTE: Delete the following paragraph if the referenced section is not included.  
\*\*\*\*\*

Take samples and test concrete to determine strength as specified.

### 3.5 TOP RAILS

Provide top rails that run continuously through post caps or extension arms, bending to radius for curved runs. Provide expansion couplings as recommended by the fencing manufacturer.

### [3.6 CENTER RAILS

Provide single piece center rails between posts set flush with posts on the fabric side, using special offset fittings where necessary.

### 13.7 BRACE ASSEMBLY

Provide bracing assemblies at end and gate posts and at both sides of corner and pull posts, with the horizontal brace located at midheight of the fabric.

Install brace assemblies so posts are plumb when the diagonal rod is under proper tension.

Provide two complete brace assemblies at corner and pull posts where required for stiffness and as indicated.

### 3.8 TENSION WIRE INSTALLATION

Install tension wire by weaving them through the fabric and tying them to each post with not less than 3.9 millimeter 7-gage galvanized wire or by securing the wire to the fabric with 3.5 millimeter 10-gage ties or clips spaced 610 millimeter 24 inches on center.

### 3.9 FABRIC INSTALLATION

Provide fabric in single lengths between stretch bars with bottom barbs placed approximately 38 millimeter 1-1/2-inches above the ground line. Pull fabric taut and tied to posts, rails, and tension wire with wire ties and bands.

Install fabric on the security side of fence, unless otherwise directed.

Ensure fabric remains under tension after the pulling force is released.

### 3.10 STRETCHER BAR INSTALLATION

Thread stretcher bars through or clamped to fabric 102 millimeter 4 inches on center and secured to posts with metal bands spaced 381 millimeter 15 inches on center.

### 3.11 GATE INSTALLATION

Install gates plumb, level, and secure, with full opening without interference. Install ground set items in concrete for anchorage as recommended by the fence manufacturer. Adjust hardware for smooth operation and lubricated where necessary.

### 3.12 TIE WIRES

Provide tie wires that are U-shaped to the pipe diameters to which attached. Twist ends of tie wires not less than two full turns and bent so as not to present a hazard.

### 3.13 FASTENERS

Install nuts for tension bands and hardware on the side of the fence opposite the fabric side. Peen ends of bolts to prevent removal of nuts.

### 3.14 ZINC-COATING REPAIR

Clean and repair galvanized surfaces damaged by welding or abrasion, and cut ends of fabric, or other cut sections with specified galvanizing repair material applied in strict conformance with the manufacturer's printed

instructions.

### 3.15 TOLERANCES

Provide posts that are straight and plumb within a vertical tolerance of 6.35 millimeter 1/4 inch after the fabric has been stretched. Provide fencing and gates that are true to line with no more than 12.7 millimeter 1/2 inch deviation from the established centerline between line posts. Repair defects as directed.

### 3.16 SITE PREPARATION

#### 3.16.1 Clearing and Grading

Clear fence line of trees, brush, and other obstacles to install fencing. Establish a graded, compacted fence line prior to fencing installation.

### 3.17 FENCE INSTALLATION

\*\*\*\*\*  
**NOTE: Certain security applications require conformance to an applicable OPNAVINST. Use bracketed sentences as required by the applicable OPNAVINST.**  
\*\*\*\*\*

Install fence on prepared surfaces to line and grade indicated. [Secure fastening and hinge hardware in place to fence framework by peening or welding. Allow for proper operation of components. Coat peened or welded areas with a repair coating matching original coating.] Install fence in accordance with fence manufacturer's written installation instructions except as modified herein.

#### 3.17.1 Post Spacing

Provide line posts spaced equidistantly apart, not exceeding 3.048 m 10 feet on center. Provide gate posts spaced as necessary for size of gate openings. Do not exceed 152.4 m 500 feet on straight runs between braced posts. Provide corner or pull posts, with bracing in both directions, for changes in direction of 0.26 rad 15 degrees or more, or for abrupt changes in grade. Provide drawings showing location of gate, corner, end, and pull posts.

#### 3.17.2 Top and Bottom Tension Wire

\*\*\*\*\*  
**NOTE: Coordinate with requirements for top and bottom rails. Specify bottom tension wire to maintain fence alignment, except for designs requiring bottom rail.**  
\*\*\*\*\*

Install [top] [and] [bottom] tension wires before installing chain-link fabric, and pull wires taut. Place top and bottom tension wires within 203 mm 8 inches of respective fabric line.

### 3.18 ACCESSORIES INSTALLATION

#### 3.18.1 Post Caps

\*\*\*\*\*  
NOTE: Coordinate with requirements for top rails or  
supporting arms.  
\*\*\*\*\*

[Design post caps to accommodate top rail.] Install post caps as  
recommended by the manufacturer.

#### 3.18.2 Padlocks

Provide padlocks for gate openings and provide chains that are securely  
attached to gate or gate posts. Provide padlocks keyed alike, and provide  
two keys for each padlock.

### [3.19 GROUNDING

\*\*\*\*\*  
NOTE: Delete this paragraph if grounding is not  
required. If grounding is required and lightning  
protection is not part of project design, the  
requirements in the second set of brackets will be  
used in lieu of those in the first set of brackets.

Provide fence grounding details when composite type  
posts are specified where grounding of the fence is  
required. Grounding requirements may be indicated  
on the drawings or included in this section.

Specify polyvinyl chloride coated fencing with care  
when grounding is a project requirement.

\*\*\*\*\*

Ground fencing as [indicated on drawings][and specified].

[ Ground all fences crossed by overhead powerlines in excess of 600 volts,  
and all electrical equipment attached to the fence.][ Ground fences on  
each side of all gates, at each corner, at the closest approach to each  
building located within 15 m 50 feet of the fence, and where the fence  
alignment changes more than 15 degrees. Grounding locations can not exceed  
198 m 650 feet. Bond each gate panel with a flexible bond strap to its  
gate post. Ground fences crossed by powerlines of 600 volts or more at or  
near the point of crossing and at distances not exceeding 45 m 150 feet on  
each side of crossing. Provide ground conductor consisting of No. 6 AWG  
solid copper wire. Provide copper-clad steel rod grounding electrodes 19  
mm 3/4 inch by 3.05 m 10 foot long. Drive electrodes into the earth so  
that the top of the electrode is at least 152 mm 6 inches below the grade.  
Where driving is impracticable, bury electrodes a minimum of 305 mm 12  
inches deep and radially from the fence, with top of the electrode not less  
than 610 mm 2 feet or more than 2.4 m 8 feet from the fence. Clamp ground  
conductor to the fence and electrodes with bronze grounding clamps to  
create electrical continuity between fence posts, fence fabric, and ground  
rods. Total resistance of the fence to ground cannot exceed 25 ohms

] ] 3.20 SECURITY

\*\*\*\*\*

NOTE: Delete this paragraph if new fencing does not  
involve relocation or replacement of existing  
security fencing. Depending on nature of fence  
work, paragraph may need further elaboration  
regarding necessary construction to maintain  
perimeter.

\*\*\*\*\*

Install new security fencing, remove existing security fencing, and perform  
related work to provide continuous security for facility. Schedule and  
fully coordinate work with Contracting Officer and cognizant Security  
Officer.

] 3.21 CLEANUP

Remove waste fencing materials and other debris from the work site.

-- End of Section --

## Appendix D: Imjin Parkway Improvement Project - Mitigation Monitoring and Reporting Plan (MMRP)

IMJIN PARKWAY IMPROVEMENT PROJECT  
PLN160374  
MITIGATION MONITORING  
AND REPORTING PROGRAM

**DRAFT MMRP reference document**

**To be finalized upon receipt of  
Incidental Take Permit from CDFW**

Prepared for

City of Marina  
Public Works Department  
209 Cypress Avenue  
Marina, California 93933

Prepared by

Kimley-Horn and Associates, Inc.  
4637 Chabot Drive, Suite 300  
Pleasanton, California 94588

Date

January 2019

## PURPOSE OF MITIGATION MONITORING AND REPORTING PROGRAM

The California Environmental Quality Act (CEQA) requires that all public agencies establish monitoring and/or reporting procedures for mitigation adopted as conditions of approval in order to mitigate or avoid significant environmental impacts. This Mitigation Monitoring and Reporting Program (MMRP) has been developed to provide a vehicle by which to monitor standard conditions and requirements (SCs) and mitigation measures (MMs) outlined in the Imjin Parkway Improvement Project Initial Study/Mitigated Negative Declaration (IS/MND). The Imjin Parkway Improvement Project MMRP has been prepared in conformance with Section 21081.6 of the Public Resources Code and City of Marina Monitoring Requirements. Specifically, Section 21081.6 states:

- (a) When making findings required by paragraph (1) of subdivision (a) of Section 21081 or when adopting a mitigated negative declaration pursuant to paragraph (2) of subdivision (c) of Section 21080, the following requirements shall apply:
  - (1) The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes which have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead or responsible agency, prepare and submit a proposed reporting or monitoring program.
  - (2) The lead agency shall specify the location and custodian of the documents or other material which constitute the record of proceedings upon which its decision is based.

CEQA Guidelines Section 15097 provides clarification of mitigation monitoring and reporting requirements and guidance to local lead agencies on implementing strategies. The reporting or monitoring program must be designed to ensure compliance during project implementation. The City of Marina is the Lead Agency for the Imjin Parkway Improvement Project and is therefore responsible for ensuring the implementation of the MMRP. The MMRP has been drafted to meet the requirements of Public Resources Code Section 21081.6 as a fully enforceable monitoring program.

The MMRP is comprised of the Mitigation Program and includes measures to implement and monitor the Mitigation Program. The MMRP defines the following for each SC and MM:

- **Definition of Mitigation (SC, MM).** The Mitigation Measure contain the criteria for mitigation, either in the form of adherence to certain adopted regulations or identification of the steps to be taken in mitigation.
- **Responsible Party or Designated Representative.** Unless otherwise indicated, an applicant would be the responsible party for implementing the mitigation, and the City of Marina or designated representative is responsible for monitoring the performance and implementation of the MMRP. To guarantee that the SCs and MMs will not be inadvertently overlooked, a supervising public official acting as the Designated Representative is the official who grants the permit or

authorization called for in the performance. Where more than one official is identified, permits or authorization from all officials shall be required.

- **Time Frame.** In each case, a time frame is provided for performance of the mitigation or the review of evidence that mitigation has taken place. The performance points selected are designed to ensure that impact-related components of project implementation do not proceed without establishing that the mitigation is implemented or ensured. All activities are subject to the approval of all required permits from agencies with permitting authority over the specific activity.

The numbering system in the table corresponds with the numbering system used in the IS/MND. The last column of the MMRP table will be used by the parties responsible for documenting when implementation of the mitigation measure has been completed. The ongoing documentation and monitoring of mitigation compliance will be completed by the City of Marina. The completed MMRP and supplemental documents will be kept on file at the City of Marina Public Works Department.

## IMJIN PARKWAY IMPROVEMENT PROJECT MITIGATION MONITORING AND REPORTING PROGRAM

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Implementation Timing                                                                                                                                       | Monitoring/<br>Reporting Methods                                                  | Responsible for Approval/<br>Monitoring                           | Verification |          |
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| Aesthetics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                             |                                                                                   |                                                                   |              |          |
| <b>MM AES-1:</b> Prior to the issuance of a Notice to Proceed resulting in any ground disturbance, the project engineer and a qualified field arborist shall field mark and approve all trees to be removed prior to tree removal. High visibility temporary fencing shall be placed around all significant trees or other desirable vegetation to be protected prior to any ground disturbing activities. The markings and fencing shall remain intact and visible during all construction in the vicinity of these trees and vegetation. The qualified arborist shall mark buffers of the maximum area of disturbance and limits for clearing and grubbing around all trees to be protected. All contractor's operations, equipment, and materials storage, shall be clearly marked and located in an area such that protected vegetation not be disturbed. |  | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance | Placement of fencing<br><br>Site inspections during grading                       | Project Engineer;<br>Qualified Arborist                           |              |          |
| <b>MM AES-2:</b> Prior to the issuance of a Notice to Proceed, a qualified arborist or botanist shall be retained to conduct and approve all tree trimming. Tree trimming shall be limited to those areas required to provide a clear work area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance | Tree trimming<br><br>Site inspections                                             | Contractor;<br>Qualified Arborist or Botanist                     |              |          |
| <b>MM AES-3:</b> Prior to issuance of a Notice to Proceed and to the satisfaction of the City of Marina Community Development Department, a Tree and Vegetation Replacement Plan (TVRP) shall be developed by qualified arborist or botanist and adopted as part of the project. The TVRP, shall, to the greatest feasible extent, utilize a locally native plant palette selected to blend with the existing native habitat types extant within the project corridor and to retain a visually unified corridor appearance, consistent with the Imjin Parkway Improvement Project Habitat Mitigation and Monitoring                                                                                                                                                                                                                                           |  | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice                                       | Tree and Vegetation Replacement Plan consistent with HMMP<br><br>Site inspections | Community Development Director;<br>Qualified Arborist or Botanist |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Implementation Timing                                                                                                                                       | Monitoring/<br>Reporting<br>Methods                                               | Responsible<br>for Approval/<br>Monitoring                        | Verification |          |
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| Plan (HMMP). The TVRP shall implement required minimization planting per Chapter 29 (Highway Planting) of the Caltrans Project Development Procedures Manual and Chapter 900 (Landscape Architecture) of the Caltrans Highway Design Manual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | to Proceed for any ground disturbance                                                                                                                       |                                                                                   |                                                                   |              |          |
| <b>MM AES-4:</b> Prior to the issuance of a Notice to Proceed and to the satisfaction of the City of Marina Community Development Department, the a Tree and Vegetation Replacement Plan (TVRP) shall include a condition that all trees subject to Municipal Code 17.51 that would be removed as a result of construction operations shall be replaced at a minimum ratio of 2:1. Replacement locations shall be as close to the impacted area as feasible and, where in-place planting is not feasible, planting may occur within the project limits where sufficient plantable area exists, consistent with the Imjin Parkway Improvement Project Habitat Mitigation and Monitoring Plan (HMMP) and in coordination with project botanists. Removed cypress hedgerows shall be replaced on a 2:1 basis or greater, in kind and as near their original location as feasible. Mature oak and cypress trees may be replaced at a higher ratio or with more mature saplings. If a 2:1 replacement is not possible on site, replacement in other parts of the interchange are acceptable, consistent with the HMMP. | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance | Tree and Vegetation Replacement Plan consistent with HMMP<br><br>Site inspections | Community Development Director;<br>Qualified Arborist or Botanist |              |          |
| <b>MM AES-5:</b> Prior to the issuance of a Notice to Proceed and to the satisfaction of the City of Marina Community Development Department, a Tree and Vegetation Replacement Plan (TVRP) shall include a requirement that disturbed areas shall not be treated with erosion control grasses without coordination with the project botanist. All disturbed areas shall be treated for erosion control in accordance with the Imjin Parkway Improvement Project Habitat Mitigation and Monitoring Plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance | Tree and Vegetation Replacement Plan consistent with HMMP<br><br>Site inspections | Community Development Director;<br>Qualified Arborist or Botanist |              |          |
| <b>MM AES-6:</b> Prior to issuance of a Notice to Proceed and to the satisfaction of the City of Marina Community Development Department, the construction plans shall include a project phasing plan to minimize the duration of disturbance at particular locations to the shortest feasible time.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Include requirements in bid packages; show on                                                                                                               | Phasing Plan<br>Site inspections                                                  | Contractor;<br>Community Development Director;                    |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Implementation Timing                                                                                                                                     | Monitoring/<br>Reporting<br>Methods                                           | Responsible<br>for Approval/<br>Monitoring                        | Verification |          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | grading and construction plans<br>Prior to the issuance of a Notice to Proceed for any ground disturbance<br>Prior to the issuance of a Notice to Proceed |                                                                               | Qualified Arborist or Botanist                                    |              |          |
| <b>MM AES-7:</b> Prior to the issuance of a Notice to Proceed and to the satisfaction of the City of Marina Community Development Department, a qualified arborist shall survey the proposed construction, staging, and storage area(s). If vegetation removal for construction, staging, and storage is needed and unavoidable, in-kind replacement planting would be required at a 1:1 ratio or greater.                                                                                                                                | Include requirements in bid packages; show on grading and construction plans<br>Prior to the issuance of a Notice to Proceed for any ground disturbance   | Site Survey                                                                   | Community Development Director;<br>Qualified Arborist or Botanist |              |          |
| <b>MM AES-8:</b> The Tree and Vegetation Replacement Plan (TVRP) shall include measures to, minimize, to the greatest extent feasible, the removal of vegetation needed to accommodate the construction staging area. The TVRP shall include measures to state that if vegetation removal for construction, staging, and storage is unavoidable, replacement planting shall be implemented at a 2:1 ratio or greater and in a manner consistent with the Imjin Parkway Improvement Project Habitat Mitigation and Monitoring Plan (HMMP). | Include requirements in bid packages; show on grading and construction plans<br>Prior to the issuance of a Notice to Proceed for any ground disturbance   | Tree and Vegetation Replacement Plan consistent with HMMP<br>Site inspections | Community Development Director;<br>Qualified Arborist or Botanist |              |          |
| <b>MM AES-9:</b> To the satisfaction of the City of Marina Community Development Department, the Tree and Vegetation Replacement Plan (TVRP) shall include a construction staging area plan that requires all construction staging areas be screened by visually opaque screening                                                                                                                                                                                                                                                         | Include requirements in bid packages; show on                                                                                                             | Tree and Vegetation Replacement Plan                                          | Community Development Director;<br>Contractor                     |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Implementation Timing                                                                                                                                       | Monitoring/<br>Reporting<br>Methods          | Responsible<br>for Approval/<br>Monitoring                            | Verification |          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                             |                                              |                                                                       | Date         | Initials |
| wherever they are exposed to public roadway view for extended periods of time.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance                                               | consistent with HMMP<br><br>Site inspections |                                                                       |              |          |
| <b>MM AES-10:</b> Prior to issuance of a Notice to Proceed, and to the satisfaction of the City of Marina Community Development Department, to offset loss of vividness and visual unity from introduction of new walls, the proposed landscaping plans shall incorporate decorative texturing and/or coloring to the new retaining wall southwest of Preston Drive. In addition, the landscaping plans shall require that upon completion of construction, fast-growing, noninvasive clinging vines to cover retaining walls shall be planted above the wall at Harvey Court and in front of the wall near Preston Drive. | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance | Landscape plans<br><br>Site inspection       | Community Development Director;<br>Landscape Architect;<br>Contractor |              |          |
| <b>MM AES-11:</b> Prior to the issuance of a Notice to Proceed and to the satisfaction of the City of Marina Community Development Department, the Tree and Vegetation Replacement Plan (TVRP) shall include a measure to screen the existing gas station parking lot at Abrams Road. The landscaping planning plan shall include measures to reduce the barren appearance of an unplanted median and tree and shrub landscaping shall be installed in the side median adjoining the gas station parcel.                                                                                                                   | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance | Landscape plans<br><br>Site inspection       | Community Development Director;<br>Landscape Architect;<br>Contractor |              |          |
| <b>MM AES-12:</b> Prior to project approval and to the satisfaction of the City of Marina Community Development Department, the lighting plan shall include measures to ensure that all permanent exterior lighting sources are not directly visible from areas beyond the project site; that exterior lights be hooded and shielded and directed downward or toward the area to be illuminated to prevent obtrusive spill light and light trespass beyond the roadway; and that backscatter to the night sky to be minimized.                                                                                             | Include requirements in bid packages; show on grading and construction plans                                                                                | Lighting plans<br><br>Site inspection        | Community Development Director;<br>Contractor                         |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Implementation Timing                                                                                                                                                   | Monitoring/<br>Reporting<br>Methods       | Responsible<br>for Approval/<br>Monitoring    | Verification |          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Prior to the issuance of a Notice to Proceed                                                                                                                            |                                           |                                               |              |          |
| <b>MM AES-13:</b> Prior to project approval and to the satisfaction of the City of Marina Community Development Department, the lighting plan shall include measures to include measures that restrict the use of construction lighting. All construction lighting shall be required to be directed within the area of work and avoid light trespass through the use of directional lighting, shielding of light fixtures, and other measures as needed. The lighting plan shall include measures that ensure construction lighting visible to motorists or nearby residents shall be minimized to the maximum extent feasible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed                                        | Lighting plans<br>Site inspection         | Community Development Director;<br>Contractor |              |          |
| <b>Air Quality</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                         |                                           |                                               |              |          |
| <b>MM AQ-1:</b> During clearing, grading, earthmoving, or excavation operations, the City of Marina shall be responsible for requiring contractors to control excessive fugitive dust emissions by regular watering or other dust preventive measures using the following procedures, as specified in the Monterey Bay Air Resources District (MBARD) Rule 403. All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering shall occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day. All material transported on site or off site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust. The area disturbed by clearing, grading, earthmoving, or excavation operations shall be minimized so as to prevent excessive amounts of dust. These control techniques shall be indicated in project specifications. Visible dust beyond the property line emanating from the project shall be prevented to the maximum extent feasible. | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed<br><br>During grading and construction | Site inspections                          | Public Works Director;<br>Contractor          |              |          |
| <b>MM AQ-2:</b> Project grading plans shall show the duration of construction. The City of Marina's construction contractor shall be responsible for ensuring that ozone precursor emissions from construction equipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Include requirements in bid packages; show on                                                                                                                           | Show on grading plans<br>Site inspections | Public Works Director;<br>Contractor          |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                              | Implementation Timing                                                                                                     | Monitoring/<br>Reporting<br>Methods | Responsible<br>for Approval/<br>Monitoring  | Verification |          |
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| vehicles shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturers' specifications.                                                                                                                                                                                                                                                | grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed<br><br>During grading and construction |                                     |                                             |              |          |
| <b>MM AQ-3:</b> The City of Marina's construction contractor shall be responsible for ensuring that all trucks that are to haul excavated or graded material on site comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2), and (e)(4), as amended, regarding the prevention of such material spilling onto public streets and roads. | Include requirements in bid packages; show on grading and construction plans<br><br>During grading and construction       | Site inspections                    | Public Works Director;<br>Contractor        |              |          |
| <b>MM AQ-4:</b> The City of Marina's construction contractor shall adhere to the California Department of Transportation (Caltrans) Standard Specifications for Construction (Sections 14.9-02 and 14-9.03).                                                                                                                                                                         | Include requirements in bid packages; show on grading and construction plans<br><br>During grading and construction       | Site inspections                    | Public Works Director;<br>Contractor        |              |          |
| <b>MM AQ-5:</b> Should the project geologist determine that naturally-occurring asbestos-containing materials (ACMs) are present at the project study area during final inspection prior to construction, the appropriate methods shall be implemented to remove ACMs.                                                                                                               | Prior to the start of construction                                                                                        | Site inspections                    | Project Geologist;<br>Public Works Director |              |          |
| <b>MM AQ-6:</b> All construction vehicles both on- and off-site shall be prohibited from idling in excess of 5 minutes.                                                                                                                                                                                                                                                              | Include requirements in bid packages; show on grading and construction plans                                              | Site inspections                    | Public Works Director;<br>Contractor        |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Implementation Timing                                                                                                                                                                                                              | Monitoring/<br>Reporting<br>Methods            | Responsible<br>for Approval/<br>Monitoring                                             | Verification |          |
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| Biological Resources                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                    |                                                |                                                                                        |              |          |
| <b>MM BIO-1: Comply with Regulatory Agency Permits and Approvals.</b> <ul style="list-style-type: none"><li>The City shall include a copy of all relevant permits within the construction bid package of the project. The Resident Engineer or designee shall be responsible for implementing the conditions of all biological resources permits.</li><li>The City shall submit the names and qualifications of biological monitors for (agency) approval prior to initiating construction activities.</li><li>Agency-approved biologists shall be on-site during initial ground-disturbing and vegetation-removal activities. Thereafter, a qualified biologist under the supervision of the agency-approved biologist shall fulfill the role of the biologist specified in Project permits.</li></ul>                                                                                                                                                                                                                                                                                                                                               | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance<br><br>During grading and construction                                 | Evidence of permit approvals<br><br>Monitoring | Community Development Director; Public Works Director; Qualified Biologist; Contractor |              |          |
| <b>MM BIO-2: Environmentally Sensitive Areas.</b> The definition of “special-status plant” used in this mitigation measure refers to plants listed under the Federal Endangered Species Act (FESA), plants listed under the California Endangered Species Act (CESA), or plants ranked 4 and higher by the California Native Plant Society (CNPS). Areas beyond the limits of permanent impacts where biologists observed federal- or State-listed plant species, rare plants ranked by CNPS, <del>proposed compensatory mitigation areas</del> , and areas designated as Critical Habitat for Monterey spineflower are identified as Environmentally Sensitive Areas (ESA). <ul style="list-style-type: none"><li>Construction activities may temporarily disturb portions of these ESAs. Neither hydroseed nor a native seed mix shall be applied to disturbed ESAs to avoid potential competition for resources between species included in the seed mix and adjacent special-status species that may naturally recolonize the area. Measures would be implemented for federal- and State-listed plants in these temporary impact areas.</li></ul> | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance<br><br>Prior to ground disturbance and during grading and construction | Evidence of permit approvals<br><br>Monitoring | Community Development Director; Public Works Director; Qualified Biologist; Contractor |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Implementation Timing                                                                                                    | Monitoring/<br>Reporting Methods | Responsible for Approval/<br>Monitoring                                                | Verification |          |
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| <ul style="list-style-type: none"> <li>In temporary impact areas, special-status plants shall be flagged and surrounded with fencing for avoidance to the extent feasible. Fencing would be placed such as to establish a buffer zone of 50 feet from the outer edge of the population(s) or specific habitat type(s) required by the special-status plants.</li> <li>Project limits shall be delineated with high-visibility fencing to avoid ground disturbance adjacent to work and access areas. Existing vegetation outside of clearing and grubbing limits shall be protected from the construction operations, equipment, and materials storage.</li> <li>As much as feasible, high visibility fencing shall be placed around Environmentally Sensitive Areas (ESA) within the work area to avoid or minimize impacts on the area by construction activities. ESAs would include patches of plants listed under FESA or CESA, plants ranked by CNPS, seaciff buckwheat (<i>Eriogonum parvifolium</i>) patches, habitat reserves, critical habitat designated by the USFWS, and other areas that contain or may contain special-status plant and wildlife species.</li> <li>Trees shall be preserved in place to the extent practicable. High-visibility fencing shall be placed around trees that shall be preserved. Tree trimming and pruning shall be limited to only what is required to provide a clear work area.</li> <li>All spoils, excavated materials, and plant materials shall be disposed at a licensed and approved facility.</li> </ul> |                                                                                                                          |                                  |                                                                                        |              |          |
| <b>MM BIO-3: Environmentally Awareness Training.</b> Before project activities, a qualified biologist shall conduct an education program for all Project personnel. Species to be covered in the training shall include special-status species that are known to occur within the study area, such as Monterey spineflower, Monterey gilia, and Monterey dusky-footed woodrat, as well as those with a potential to occur, such as robust spineflower, Yadon's rein                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Include requirements in bid packages; show on grading and construction plans<br><br>Training prior to ground disturbance | Training Program Monitoring      | Community Development Director; Public Works Director; Qualified Biologist; Contractor |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Implementation Timing                                                                                                                                                                                                                     | Monitoring/ Reporting Methods | Responsible for Approval/ Monitoring                                                   | Verification |          |
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| <p>orchid, Smith's blue butterfly, Northern California legless lizard, coast horned lizard, and California tiger salamander. The program shall include:</p> <ul style="list-style-type: none"> <li>Information on the protected species and the habitats likely to be found.</li> <li>Requirements of Federal and state laws pertaining to these species.</li> <li>Identification of measures implemented to conserve the species and habitats.</li> <li>Distribution of a fact sheet conveying this information to the personnel who may enter the study area.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | and during grading and construction                                                                                                                                                                                                       |                               |                                                                                        |              |          |
| <p><b>MM BIO-4: Water Quality Protection and Erosion Control Measures</b></p> <ul style="list-style-type: none"> <li>No discharge of pollutants from vehicle and equipment cleaning shall be allowed into any storm drains or watercourses.</li> <li>Vehicle and equipment fueling and maintenance operations shall be at least 50 feet away from storm drain inlets and watercourses, except at established commercial gas stations or established vehicle maintenance facilities.</li> <li>Dust control shall include use of water trucks and dust palliatives to control dust in excavation and fill areas and covering temporary stockpiles when weather conditions require.</li> <li>Silt fence, biodegradable coir rolls, or straw wattles shall be installed along or at the base of slopes during work to control sediment transport.</li> <li>Protection of graded areas from erosion shall be implemented using a combination of silt fences, biodegradable fiber rolls along toes of slopes or along edges of designated staging areas, and biodegradable erosion control mat (such as jute or coir) as appropriate on sloped areas.</li> <li>A native seed mix with regionally appropriate species that are compatible with adjacent native habitats would be used to restore temporarily disturbed areas only where slope stability and</li> </ul> | <p>Include requirements in bid packages; show on grading and construction plans</p> <p>Prior to the issuance of a Notice to Proceed for any ground disturbance</p> <p>Prior to ground disturbance and during grading and construction</p> | Monitoring                    | Community Development Director; Public Works Director; Qualified Biologist; Contractor |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Implementation Timing                                                                                                                                                                                                                     | Monitoring/<br>Reporting<br>Methods | Responsible<br>for Approval/<br>Monitoring                                             | Verification |          |
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| <p>colonization by non-native invasive species are a concern. Seed mixes would not be applied where federal or state mitigation requirements require alternative treatments, or in temporarily disturbed areas that contain CNPS-ranked rare plants. Species recommended for inclusion in the seed mix include chamise, California buckwheat, black sage, deer lotus, California sagebrush, purple needlegrass, common yarrow, and golden yarrow.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                           |                                     |                                                                                        |              |          |
| <p><b>MM BIO-5: Project Site Management Practices</b></p> <ul style="list-style-type: none"> <li>▪ Access routes and the number and size of staging, access and work areas shall be limited to existing paved surfaces, graveled, or other previously compacted surfaces as identified in the Project plans. Movement of heavy equipment to and from the site shall be restricted to established roadways. Project activities shall confine all project-related parking, storage areas, laydown sites, equipment storage, vehicles, and supplies and any other construction activities to the project work limits using, to the extent possible, previously disturbed areas. Additionally, Permittee shall not use or cross-habitat outside of the marked project work limits. During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies shall be restricted to the designated construction staging areas.</li> <li>▪ Routes and boundaries shall be clearly marked prior to initiating ground disturbance.</li> <li>▪ All food and food-related trash items shall be enclosed in sealed trash containers and removed weekly.</li> <li>▪ No pets from project personnel shall be allowed anywhere in the limits of disturbance.</li> <li>▪ All equipment shall be maintained such that there shall be no leaks of automotive fluids such as gasoline, oils, or solvents, and a Spill Response Plan shall be prepared.</li> </ul> | <p>Include requirements in bid packages; show on grading and construction plans</p> <p>Prior to the issuance of a Notice to Proceed for any ground disturbance</p> <p>Prior to ground disturbance and during grading and construction</p> | Monitoring                          | Community Development Director; Public Works Director; Qualified Biologist; Contractor |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Implementation Timing                                                                                                                                                                                                                     | Monitoring/ Reporting Methods                                          | Responsible for Approval/ Monitoring                                                                                                      | Verification |          |
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| <ul style="list-style-type: none"> <li>Hazardous materials such as fuels, oils, and solvents shall be stored in sealable containers in a designated location that is at least 100 feet from storm drain inlets.</li> <li>No firearms shall be allowed except for those carried by authorized security personnel, or local, State or federal law enforcement officials.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                           |                                                                        |                                                                                                                                           |              |          |
| <p><b>MM BIO-6: Preconstruction Surveys, Construction Monitoring, and Project Schedule Windows</b></p> <ul style="list-style-type: none"> <li>An approved biological monitor shall be present during ground-disturbing activities (e.g., clearing, grubbing, or excavation) that could result in take of a special-status species.</li> <li>The project area will be surveyed for special-status plants by a qualified botanist following the "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities" (CDFG 2018). This protocol, which is intended to maximize detectability, includes identification of reference populations to facilitate the likelihood of field investigations occurring during the appropriate floristic period. The purpose of the pre-construction botanical survey is to identify locations with FESA and CESA listed plants that would be temporarily or permanently impacted by construction activities, as well as determine presence/absence of robust spineflower and Yadon's rein orchid. The approved botanist shall be present during clearing and grubbing activities in suitable or potential habitat for Yadon's rein orchid, specifically within impenetrable manzanita thickets in maritime chaparral.</li> <li>A USFWS-approved biologist would conduct a pre-construction survey for Smith's blue butterfly in suitable habitat within 7 days prior to the onset of construction activities.</li> <li>Pre-construction nesting bird surveys shall be conducted during breeding season (between February 1 through August 31) 100 feet</li> </ul> | <p>Include requirements in bid packages; show on grading and construction plans</p> <p>Prior to the issuance of a Notice to Proceed for any ground disturbance</p> <p>Prior to ground disturbance and during grading and construction</p> | <p>Preconstruction surveys (NOTE survey windows)</p> <p>Monitoring</p> | <p>Community Development Director; Public Works Director; Qualified Biologist and Botanist; Contractor; USFWS and CDFW, if applicable</p> |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Implementation Timing | Monitoring/<br>Reporting<br>Methods | Responsible<br>for Approval/<br>Monitoring | Verification |          |
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| <p>beyond the project limits for passerines, and 0.5 miles beyond the project limits for raptors. If active nests are discovered, the qualified biologist shall establish buffer zones around the nest and develop a Nesting Bird Management Plan as needed to prevent disruption of the nesting cycle. Construction activity shall be prohibited within the buffer zones until the young have fledged or the nest fails. Nests shall be monitored at least twice per week and a status report submitted monthly.</p> <ul style="list-style-type: none"> <li>Within 48 hours prior to construction, an approved biologist shall conduct pre-construction surveys for roosting bats, bat roosts, or rodent holes that may harbor bats. If bat roosts are found during pre-construction surveys, the qualified biologist shall erect a protective buffer zone no smaller than 50 feet around all roosts or the construction activities with potential to impact the roost would be postponed until repeat surveys demonstrate that bats are no longer using the roost. If avoidance or postponement is not feasible, a request for a reduced buffer or a Bat Eviction Plan will be submitted to CDFW for written approval prior to implementation. A request for a reduced buffer must include a rationale describing the adequate protection of the roost. A request to evict bats from a roost must include details for excluding bats from the roost site and monitoring to ensure that all bats have exited the roost prior to the start of activity and are unable to re-enter the roost until activity is completed.</li> <li>If a protected species is discovered during construction within the work area, the City shall notify USFWS and/or CDFW as required in resource agency permits, and the qualified biologist shall have the authority to stop all construction work on the site until the appropriate corrective measures have been conducted, and it is determined that the animal shall not be harmed.</li> <li>A report of all pre-construction survey efforts and construction monitoring must be prepared to document compliance. The report</li> </ul> |                       |                                     |                                            |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Implementation Timing                                                                                                                                                                                                              | Monitoring/ Reporting Methods                                                       | Responsible for Approval/ Monitoring                                                                        | Verification |          |
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| must include the dates, times, weather conditions, and personnel involved in the surveys and monitoring. Additionally, the report must identify all special-status species that were observed within the study area. For relocated individuals, such as individual legless lizards, or relocated habitat features, like woodrat nests, the report must the UTM coordinates and habitat descriptions of the capture and relocation site, the length of time between capture and relocation, and the general health of the individuals.                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                    |                                                                                     |                                                                                                             |              |          |
| <b>MM BIO-7: Wildlife Exclusion Devices.</b> If feasible, consistent removal of nests during nest building shall be used to deter birds from nesting in the project area. If an occupied nest occurs in the project area, the City shall consult with the CDFW to develop appropriate measures to avoid disturbance to nesting birds. If necessary, the qualified biologist shall develop a Nesting Bird Management Plan that includes exclusion prevention of nest building. This plan shall require the approval of the City and Project biologist.                                                                                                                                                                                                                                | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance<br><br>Prior to ground disturbance and during grading and construction | Nest removal; preconstruction survey<br><br>Nesting Bird Management Plan Monitoring | Community Development Director; Public Works Director; Qualified Biologist; Contractor; CDFW, if applicable |              |          |
| <b>MM BIO-8: Cut and Fill Slopes.</b> The application of hydroseed with a native seed mix shall be minimized to areas where it is needed to stabilize the new slope or to prevent colonization by invasive species. This approach to erosion control would allow existing species characteristic of central maritime chaparral habitat – including special-status species – to recolonize many disturbed slopes, while providing stability through the application of a native seed mix where needed. The native seed mix that would be applied to disturbed slopes would conform to the specifications shown below.<br><br>In some areas, cut and fill slopes would intentionally be left bare to allow for natural recruitment of Monterey spineflower as well as adjacent central | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance                                                                        | Approved erosion control/ vegetation plan Monitoring                                | Community Development Director; Public Works Director; Qualified Biologist; Contractor                      |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Implementation Timing                                           | Monitoring/ Reporting Methods | Responsible for Approval/ Monitoring | Verification |          |
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| maritime chaparral species. These areas are located near patches of Monterey spineflower that would be permanently impacted by roadway widening, as well as near Monterey spineflower patches that would be temporarily disturbed or avoided by construction. If there is a need for short-term slope stability while vegetation becomes established, jute net would be installed on the slope. The purpose of these areas is to provide potential habitat that Monterey spineflower may recolonize and restore the integrity of impacted spineflower patches. | Prior to ground disturbance and during grading and construction |                               |                                      |              |          |
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| Recommended Native Seed Mix                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                 |                               |                                      |              |          |
| Common Name<br><i>Scientific Name</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Seeding Density (per ac)                                        | Seeding Density (per SF)      | # Seeds (per lb)                     | Life Form    |          |
| Common yarrow<br><i>Achillea millefolium</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1,045,440                                                       | 24                            | 2,700,000                            | Forb         |          |
| Chamise<br><i>Adenostoma fasciculatum</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 217,800                                                         | 5                             | 565,000                              | Shrub        |          |
| California sagebrush<br><i>Artemisia californica</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 696,960                                                         | 16                            | 3,658,000                            | Shrub        |          |
| California buckwheat<br><i>Eriogonum fasciculatum</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 304,920                                                         | 7                             | 450,000                              | Shrub        |          |
| Golden yarrow<br><i>Eriophyllum confertiflorum</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 696,960                                                         | 16                            | 2,750,000                            | Sub-shrub    |          |
| Deerweed<br><i>Acmispon glaber</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 261,360                                                         | 6                             | 315,800                              | Sub-shrub    |          |
| Black sage<br><i>Salvia mellifera</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 304,920                                                         | 7                             | 625,000                              | Shrub        |          |
| Purple needle grass<br><i>Stipa pulchra</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 609,840                                                         | 14                            | 78,375                               | Grass        |          |
| TOTAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4,138,200                                                       | 95                            |                                      |              |          |

FOR BIDDING PURPOSES: Qualified Botanist/Biologist = City Botanist/Biologist

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Implementation Timing                                                                                                                                                                                                        | Monitoring/ Reporting Methods                                                           | Responsible for Approval/ Monitoring                                                   | Verification |          |
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| <b>MM BIO-9: Monterey Spineflower, Robust Spineflower, Monterey Gilia.</b><br>Prior to disturbance, seed shall be collected from plants in temporary impact areas. After construction is complete and no further impacts are anticipated, the seed would be broadcast in the areas from which it was collected and raked into the topsoil to restore existing populations. If extra seed remains, it would be applied to the enhancement and preservation compensatory mitigation area.<br><b>Spineflower seed bank requirements will be met by collecting/stockpiling topsoil and redistributing.</b><br><b>Federal requirements have deleted seed/tuber collection - CEQA still requires this measure for temp. impact area.</b><br><b>CDFW may require gilia seed collection throughout project per ITP</b> | Include requirements in bid packages; show on grading and construction plans<br>Prior to the issuance of a Notice to Proceed for any ground disturbance<br>Prior to ground disturbance and after completion of construction. | Seed collection prior to disturbance<br>Seed broadcast after construction<br>Monitoring | Community Development Director; Public Works Director; Qualified Botanist; Contractor  |              |          |
| <b>MM BIO-10: Yadon's rein orchid:</b> The City's restoration contractor shall salvage the tubers of plants discovered during construction. Locations that may receive the tubers within the enhancement and preservation compensatory mitigation area would be identified before the tubers are salvaged.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Include requirements in bid packages; show on grading and construction plans<br>During ground disturbance and after completion of construction.                                                                              | Tuber collection during ground disturbance<br>Planting after construction<br>Monitoring | Community Development Director; Public Works Director; Qualified Botanist; Contractor  |              |          |
| <b>MM BIO-11: Other Disturbed Areas.</b> Beyond the limits of cut and fill slopes, a native seed mix shall be applied to temporarily disturbed areas that do not contain special-status species or their habitat. The seed mix would be the same as the seed mix applied to cut and fill slopes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Include requirements in bid packages; show on grading and construction plans<br>Prior to the issuance of a Notice to Proceed for any ground disturbance                                                                      | Monitoring                                                                              | Community Development Director; Public Works Director; Qualified Biologist; Contractor |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Implementation Timing                                                                                                                                              | Monitoring/<br>Reporting<br>Methods                   | Responsible<br>for Approval/<br>Monitoring                                                          | Verification |          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Application to temporarily disturbed areas                                                                                                                         |                                                       |                                                                                                     |              |          |
| <p><b>MM BIO-12: Compensatory Mitigation.</b> Compensatory mitigation is proposed for permanent impacts on Monterey spineflower, Monterey gilia, and Smith's blue butterfly habitat (seacliff buckwheat patches), as well as for potential impacts on robust spineflower and Yadon's rein orchid, and for the removal of coast live oak trees.</p> <p>Compensatory mitigation for impacts to Monterey spineflower and Monterey gilia will be met by compliance with ITP and BO.</p> <p>Compensatory mitigation for Smith's blue butterfly will be met by compliance with MM BIO-16</p> | <p>Include requirements in bid packages; show on grading and construction plans</p> <p>Prior to the issuance of a Notice to Proceed for any ground disturbance</p> | <p>Evidence of permit approvals</p> <p>Monitoring</p> | <p>Community Development Director; Public Works Director; Qualified Biologist; Contractor</p>       |              |          |
| <p><b>MM BIO-13: Monterey Spineflower, Robust Spineflower, Monterey Gilia, and Yadon's Rein Orchid: Permanent Impacts.</b> N/A</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Include requirements in bid packages; show on grading and construction plans</p> <p>Prior to the issuance of a Notice to Proceed for any ground disturbance</p> | <p>As identified in the Incidental Take Permit</p>    | <p>Community Development Director; Public Works Director; Qualified Biologist; Contractor; CDFW</p> |              |          |

FOR BIDDING PURPOSES: Qualified Botanist/Biologist = City Botanist/Biologist

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Implementation Timing                                                                                                                                              | Monitoring/ Reporting Methods                      | Responsible for Approval/ Monitoring                                                                | Verification |          |
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| <p><b>MM BIO-14: Enhancement and Preservation Area: Permanent Impacts.</b> To mitigate permanent impacts on suitable habitat for Monterey spineflower, robust spineflower, and Monterey gilia, a 2.20-acre area shall be set aside to preserve existing patches of Monterey spineflower and enhance habitat for both Monterey spineflower and Monterey gilia. Within this area, there are approximately 7,000 square feet of existing high-quality habitat for the target species, much of which is currently occupied by Monterey spineflower in varying densities, as well as several CNPS-ranked rare plant species. Mitigation activities in this area would include broadcasting Monterey spineflower and Monterey gilia seed; broadcasting robust spineflower seed, if any; transplanting Yadon's rein orchid tubers, if any; and removing invasive species. The following mitigation activities are proposed for the enhancement and preservation area:</p> <ul style="list-style-type: none"> <li>▪ Prior to construction, the City's restoration contractor shall collect seed from Monterey spineflower and Monterey gilia plants that would be permanently impacted by construction activities. Seed collection would occur after the flower heads have senesced or withered and the plants have set seed. Not all plants are anticipated to flower at the same time, so several visits may be required to collect enough seed. If additional spineflower seed is needed, no more than 5 percent of the seed would be collected from existing nearby populations; no Monterey gilia seed would be collected from off-site populations.</li> <li>▪ If robust spineflower or Yadon's rein orchid are discovered during pre-construction botanical surveys and they would be impacted by</li> </ul> | <p>Include requirements in bid packages; show on grading and construction plans</p> <p>Prior to the issuance of a Notice to Proceed for any ground disturbance</p> | <p>As identified in the Incidental Take Permit</p> | <p>Community Development Director; Public Works Director; Qualified Biologist; Contractor; CDFW</p> |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Implementation<br>Timing | Monitoring/<br>Reporting<br>Methods | Responsible<br>for Approval/<br>Monitoring | Verification |          |
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| <p>construction activities, the City's restoration contractor shall collect robust spineflower seed and/or Yadon's rein orchid tubers. Any collected Yadon's rein orchid tubers shall be transplanted to a receiving site immediately after collection.</p> <div><p>Spineflower seed bank requirements will be met by collecting/stockpiling topsoil and redistributing.</p><p>Federal requirements have deleted seed/tuber collection - CEQA still requires this measure for permanent impacts.</p><p>CDFW may require gilia seed collection throughout project per ITP</p></div> |                          |                                     |                                            |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs) | Implementation<br>Timing                                                                                                                                           | Monitoring/<br>Reporting<br>Methods         | Responsible<br>for Approval/<br>Monitoring                                                          | Verification |          |
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| <b>MM BIO-15: Invasive Species Management Area.</b> N/A | <p>Include requirements in bid packages; show on grading and construction plans</p> <p>Prior to the issuance of a Notice to Proceed for any ground disturbance</p> | As identified in the Incidental Take Permit | <p>Community Development Director; Public Works Director; Qualified Biologist; Contractor; CDFW</p> |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Implementation Timing                                                                                                                                                                    | Monitoring/<br>Reporting<br>Methods                                           | Responsible<br>for Approval/<br>Monitoring                                                   | Verification |          |
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| <p><b>MM BIO-16: Smith's Blue Butterfly Habitat.</b> The project shall broadcast the seed of seaciff buckwheat in 1,715 square feet adjacent to seaciff buckwheat patches that would be avoided by construction activities. Impacts would be mitigated on potential Smith's blue butterfly habitat at a ratio that is slightly higher than 3:1, based on the area of impact. Seaciff buckwheat seed would not be broadcast in areas that contain Monterey spineflower, Monterey gilia, or other federal- or State-listed species. Invasive species would be managed in the buckwheat enhancement area.</p> | <p>Include requirements in bid packages; show on grading and construction plans Prior to the issuance of a Notice to Proceed for any ground disturbance Prior to ground disturbance.</p> | <p>Seed collection prior to disturbance<br/>Seed broadcast<br/>Monitoring</p> | <p>Community Development Director; Public Works Director; Qualified Botanist; Contractor</p> |              |          |

FOR BIDDING PURPOSES: Qualified Botanist/Biologist = City Botanist/Biologist

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Implementation Timing                                                                                                                                                                                                                 | Monitoring/<br>Reporting<br>Methods                                                                                     | Responsible<br>for Approval/<br>Monitoring                                                   | Verification |          |
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| <p><b>MM BIO-17: Oak Trees.</b> Construction would require the removal of approximately 226 coast live oak trees. At least 452 oak trees would be planted within the project limits. In general, replacement oaks would be planted on cut and fill slopes to minimize the potential for shading special-status species in undisturbed areas. However, the easterly planting areas south of Imjin Parkway are not located within a cut or fill slope. Instead, these areas are dominated by annual grasses, but they are located adjacent to an existing oak woodland within a habitat reserve.</p> <ul style="list-style-type: none"> <li>Species characteristic of oak woodland habitats shall be planted within the project area, including at least two coast live oak trees for every coast live oak tree removed. Oak plantings would be maximized on the south side of Imjin Parkway to create continuous habitats with the existing habitat reserves before planting on the north side of Imjin Parkway.</li> <li>Plant materials shall be collected from the project area or purchased from local sources (e.g., Monterey or San Luis Obispo counties). The use of locally obtained materials, which are adapted to local conditions, increases the likelihood that plantings shall be successful and maintains the genetic integrity of the local ecosystem. Arrangements shall be made well in advance of the start of revegetation to ensure sufficient and healthy plant materials are available at the appropriate time. If necessary, sufficient time shall be allocated for seed collection and contract growing (up to 12 months may be required for some woody species).</li> <li>Planting and seeding shall take place following completion of final grading and site preparation. After planting is complete and irrigation lines have been installed where necessary, seeding should occur; the native seed mix would be applied to these areas where needed for slope stability and to prevent colonization by invasive species. Oak trees shall be installed and seed would be broadcast during the late fall so that they can become established during the fall and winter rains.</li> </ul> | <p>Include requirements in bid packages; show on grading and construction plans</p> <p>Prior to the issuance of a Notice to Proceed for any ground disturbance</p> <p>Planting and seeding following grading and site preparation</p> | <p>Seed collection up to 12 months prior to disturbance</p> <p>Installation reporting</p> <p>Monitoring for 5 years</p> | <p>Community Development Director; Public Works Director; Qualified Botanist; Contractor</p> |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Implementation Timing                                                                                                                                       | Monitoring/<br>Reporting<br>Methods          | Responsible<br>for Approval/<br>Monitoring                                      | Verification |          |
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| <ul style="list-style-type: none"> <li>Planted coast live oaks shall be irrigated during the dry season (typically May through October) for at least three years. They should be watered once a week for the first year, every other week the second year, and every third week the third and last year. Limiting irrigation to when it is actually needed shall allow the plants to become accustomed to drier conditions, fostering the creation of a drought-tolerant woodland.</li> <li>If herbivory is a problem in locations where trees are planted, browse guards should be placed to protect the trees until they have successfully re-established.</li> <li>The oak planting area shall be maintained for a minimum of five years following installation. In general, maintenance shall include activities required to meet the performance standards set for this mitigation program. Invasive plants shall be periodically removed and the area shall be monitored annually to prevent the spread and/or establishment of invasive plants, such as ice plant.</li> </ul> |                                                                                                                                                             |                                              |                                                                                 |              |          |
| <b>MM BIO-18: Focused Surveys for Special-Status Plants.</b> Prior to construction, the project area shall be surveyed for special-status plants by a qualified botanist following the <i>"Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities"</i> (CDFW 2018). This protocol, which is intended to maximize detectability, includes identification of reference populations to facilitate the likelihood of field investigations occurring during the appropriate floristic period. In the absence of protocol-level surveys being performed, additional surveys may be necessary.                                                                                                                                                                                                                                                                                                                                                                                                                         | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance | Focused surveys for special status plants    | Community Development Director; Public Works Director; Qualified Botanist; CDFW |              |          |
| <b>MM BIO-19: Special-Status Plant Avoidance.</b> The definition of "special-status plant" used in this mitigation measure consists of plants listed under the Federal Endangered Species Act (FESA), plants listed under the California Endangered Species Act (CESA), or plants ranked 4 and higher by the California Native Plant Society (CNPS). In temporary impact areas, special-status plants shall be flagged and surrounded with fencing for avoidance to                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Include requirements in bid packages; show on grading and construction plans                                                                                | Placement of fencing<br><br>Site inspections | Project Engineer; Qualified Botanist; Contractor                                |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Implementation Timing                                                                                                                                        | Monitoring/<br>Reporting<br>Methods                                                                                    | Responsible<br>for Approval/<br>Monitoring                                                                                      | Verification |          |
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| the extent feasible. Fencing would be placed such as to establish a buffer zone of 50 feet from the outer edge of the population(s) or specific habitat type(s) required by the special-status plants.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Prior to the issuance of a Notice to Proceed for any ground disturbance                                                                                      |                                                                                                                        |                                                                                                                                 |              |          |
| <b>Cultural and Tribal Cultural Resources</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                              |                                                                                                                        |                                                                                                                                 |              |          |
| <b>MM CUL-1:</b> Prior to the issuance of a Notice to Proceed (prior to any ground disturbance activities), the applicant shall prepare a Paleontological Evaluation Report and Mitigation Plan. The plan shall include a worker training program and paleontological monitoring during ground-disturbing activities by a qualified paleontologist.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Include requirements in bid packages; show on grading and construction plans<br><br>Training prior to ground disturbance and during grading and construction | Paleontological Evaluation Report and Mitigation Plan<br><br>Worker training<br>Monitoring by Qualified Paleontologist | Community Development Director; Public Works Director; Qualified Paleontologist; Contractor                                     |              |          |
| <b>MM CUL-2:</b> California Health and Safety Code Section 7050.5, CEQA Section 15064.5, and Public Resources Code Section 5097.98 mandate the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery. California Health and Safety Code Section 7050.5 requires that in the event that human remains are discovered, disturbance of the site shall be halted until the coroner has conducted an investigation into the circumstances, manner and cause of death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes or has reason to believe the human remains to be those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission. | Include requirements in bid packages; show on grading and construction plans<br><br>During ground disturbance activities                                     | Site inspection                                                                                                        | Community Development Director; Public Works Director; Contractor; Coroner and Native American Heritage Commission, if required |              |          |

**FOR BIDDING PURPOSES: Qualified Paleontologist = City Paleontologist**

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Implementation Timing                                                                                                                                                                                            | Monitoring/<br>Reporting<br>Methods                                                              | Responsible<br>for Approval/<br>Monitoring                                           | Verification |          |
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| <b>MM CUL-3:</b> Prior to the issuance of a Notice to Proceed (prior to any ground disturbance activities), the applicant shall provide evidence to the City of Marina that a qualified professional (i.e., archaeologist, historian, architect, paleontologist, Native American Tribal monitor), has been retained. The selection of the qualified professional(s) shall be subject to the acceptance of the City. In the event that cultural resources (archaeological, historical, paleontological) are inadvertently unearthed during excavation and grading activities of any future development project, the contractor shall immediately cease all earth-disturbing activities within a 100-foot radius of the area of discovery. The qualified professional shall be contacted to evaluate the significance of the finding an appropriate course of action. If avoidance of the resource(s) is not feasible, salvage operation requirements pursuant to Section 15064.5 of the State CEQA Guidelines shall be followed. After the find has been appropriately avoided or mitigated, work in the area may resume. | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance<br><br>Immediately stop grading in area of discovery | Contract with approved monitor/consultant<br><br>Monitoring during ground disturbance activities | Community Development Director; Public Works Director; Contractor; Qualified Monitor |              |          |
| <b>Geology and Soils</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                  |                                                                                                  |                                                                                      |              |          |
| <b>MM GEO-1:</b> To the satisfaction of the City Engineering Services Division and prior to the issuance of a Notice to Proceed, the project plans shall show the use of use biaxial geogrids in layers to reinforce slopes and to confine soils. The geogrids shall be placed at vertical intervals of two feet and extended at least 10 feet horizontally from the slope face to the back of fill slopes. Installation and design of the geogrids may be modified by geological engineer with the approval of the Engineering Services Division.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Include requirements in bid packages; show on grading and construction plans<br><br>Prior to the issuance of a Notice to Proceed for any ground disturbance                                                      | Review of project plans                                                                          | City Engineering Services Division; Geological Engineer                              |              |          |
| <b>MM GEO-2:</b> All grading shall be performed in accordance with the project specification and in accordance with Caltrans Standard Specifications (2015) and all subgrade and compacted fill shall be properly compacted and have adequate moisture content. All fill shall be clean of vegetation, shrubs, trees, and roots greater than one inch. Imported fill materials, if needed, shall be non-expansive, relatively granular with a Plasticity Index of less than 15 and minimum sand equivalent of 10. No fill material shall have greater                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Include requirements in bid packages; show on grading and construction plans                                                                                                                                     | Site inspections/monitoring                                                                      | City Engineering Services Division; Geological Engineer;                             |              |          |

| Standard Conditions (SCs) and Mitigation Measures (MMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Implementation Timing                                                                                                                         | Monitoring/ Reporting Methods                                                | Responsible for Approval/ Monitoring                                       | Verification |          |
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| than four-inch particle size or deleterious materials. All grading shall be done to the satisfaction of the City Engineering Services Division and be verified by a qualified monitor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Prior to the issuance of a Notice to Proceed for any ground disturbance                                                                       |                                                                              | Qualified Monitor                                                          |              |          |
| <b>MM GEO-3:</b> During grading, if a soft subgrade is encountered during earthwork, to the satisfaction of the City Engineering Services Division, the following measures shall be implemented: <ul style="list-style-type: none"> <li>Over-excavation a minimum of one foot below the planned subgrade;</li> <li>Placement of a Caltrans stabilizing SEG Class B2 on the native soils; and</li> <li>Backing filling with compacted aggregate subbase (AS).</li> </ul>                                                                                                                                                                                                                                                                          | Include requirements in bid packages; show on grading and construction plans<br><br>During grading                                            | Site inspections/ monitoring                                                 | City Engineering Services Division; Geological Engineer; Qualified Monitor |              |          |
| <b>Hazards and Hazardous Materials</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                               |                                                                              |                                                                            |              |          |
| <b>MM HAZ-1:</b> Prior to issuance of a Notice to Proceed, a Preliminary Site Investigation (PSI) shall be conducted by a qualified specialist. The PSI shall include soil testing for the purposes of waste disposal pre-classification and contractor safety. Testing for both soil and groundwater should include total petroleum hydrocarbons as gasoline, diesel, and motor oil, fuel oxygenates, volatile organic compounds, and heavy metals. Soil testing near the old Fort Ord structure along Imjin Road shall include lead and asbestos. All sampling activities shall follow the requirements of the U.S. Environmental Protection Agency's Test Methods for Evaluating Solid Waste: Physical/ Chemical Methods Compendium (SW-846). | Include requirements in bid packages; show on grading and construction plans<br><br>Site testing prior to the issuance of a Notice to Proceed | Preparation of Preliminary Site Investigation<br><br>Testing Report Findings | Public Works Director; Contractor; Qualified Specialist                    |              |          |
| <b>MM HAZ-2:</b> A Transportation Management Plan (TMP) shall be prepared during final design and shall be implemented during project construction to address short-term traffic circulation and access impacts during project construction. The City of Marina shall require the Construction Contractor to submit the TMP to the City prior to issuance of a Notice to Proceed.                                                                                                                                                                                                                                                                                                                                                                | Include requirements in bid packages; show on grading and construction plans<br><br>Prior t issuance of Notice to Proceed                     | Preparation of Transportation Management Plan<br><br>Site inspections        | Public Works Director; Contractor                                          |              |          |

