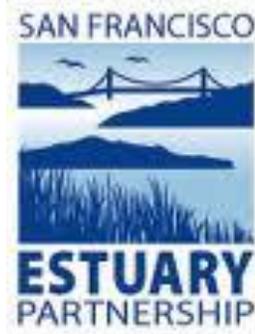


**ABAG**  
ASSOCIATION  
OF BAY AREA  
GOVERNMENTS



## **ASSOCIATION OF BAY AREA GOVERNMENTS**

SAN FRANCISCO ESTUARY PARTNERSHIP

1515 Clay Street  
OAKLAND, CA 94612  
TELEPHONE: (510) 622-5048

PROJECT SPECIFICATIONS

**CONTRACT NO. 102215**

San Pablo Avenue Green Stormwater Spine Project  
Package "B"

APRIL 2016

Joshua Bradt,  
Project Manager

FOR USE IN CONJUNCTION WITH THE STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND  
STANDARD PLANS DATED 2010 (AS AMENDED) AND APPLICABLE LABOR  
SURCHARGE AND EQUIPMENT RENTAL RATES

# San Pablo Avenue Green Stormwater Spine Project Package “B”

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# ASSOCIATION OF BAY AREA GOVERNMENTS

SAN FRANCISCO ESTUARY PARTNERSHIP

## NOTICE TO BIDDERS

CONTRACT NO. 102215

Sealed bids for the work shown on the plans entitled:

San Pablo Avenue Green Stormwater Spine Project  
Package "B"

PROJECT PLANS FOR

the work on San Pablo Avenue Green Stormwater Spine Project to be done under this contract consists of construction of six (6) green Low Impact Design (LID) stormwater retrofit projects in six East Bay cities along San Pablo Avenue (State Route 123). The facilities will be built in the public right-of-way (and in certain cases encroaching into the margins of adjacent private parcels) at select sites in the cities of San Pablo, Richmond, El Cerrito, Albany, Berkeley, and Oakland. Three of the six sites include Caltrans encroachment permits that are currently under review by Caltrans and awaiting approval.

The Association of Bay Area Governments (ABAG) further reserves the right to reject all bids and to reduce the scope of work of the lowest responsible bidder to within the ABAG's budget through mutual agreement between the ABAG and Bidder. ABAG also reserves the right to withhold award of the bid for 60 days following the bid date without change to the bid. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the ABAG and the BIDDER.

Bid forms for the work are included in a separate book entitled:

**ASSOCIATION OF BAY AREA GOVERNMENTS  
PROJECT SPECIFICATIONS**

**San Pablo Avenue Green Stormwater Spine Project  
Package "B"**

**April 2016**

BID FOR

the San Pablo Avenue Green Stormwater Spine Project

IN

**Oakland, Berkeley and Albany in Alameda County and  
El Cerrito, San Pablo and Richmond in Contra Costa County California**

## **QUESTIONS AND COMMENTS**

Questions or comments regarding these Bid Documents, the Construction Plans shall be directed via email only to:

**Joshua Bradt, Project Manager**  
San Francisco Estuary Partnership  
1515 Clay Street, Suite 1400  
Oakland, CA 94612  
josh.bradt@sfestuary.org

All questions shall be submitted by May 27, 2016, at 5:00 PM.

## **SITE VISIT**

Bidders are strongly encouraged to visit the site of the proposed work and fully acquaint themselves with the existing conditions. Bidders should fully inform themselves as to the facilities involved, the difficulties and restrictions attending the performance of the contract. Bidders should thoroughly examine and familiarize themselves with the specifications and all other Contract Documents. The Contractor, by the execution of a Contract, shall in no way be relieved of any obligation under it, due to Contractor's failure to receive or examine any form or legal instrument, or to visit the site and acquaint him or herself with the conditions there existing. As stated above the bidders shall submit any questions in regards to the Contract Documents so the Association of Bay Area Governments (ABAG) has the ability to respond and clarify the intent of the bid documents. The ABAG will be justified in rejecting any claim based on facts regarding which the bidder should have been aware of as a result of visiting the site or reading the Contract Documents.

## ASSOCIATION OF BAY AREA GOVERNMENTS

### INVITATION FOR BIDS

For

**Contract No. 102215**

#### **San Pablo Avenue Green Stormwater Spine Project Package "B"**

**BID OPENING:** The Office of the San Francisco Estuary Partnership (SFEP) will receive bids submitted for **San Pablo Avenue Green Stormwater Spine Project Package "B"** until **5 p.m. June 2, 2016**, at 1515 Clay Street, Suite 1400 Oakland, CA 94612. Bid Opening will be on the following day at 1515 Clay Street, Suite 400 14<sup>th</sup> Floor, Oakland, CA 94612, Room #1411 at **10 a.m. on June 3, 2016** at which time and place all Bids will be publicly opened and read aloud.

**PRE-BID CONFERENCE:**

A **non-mandatory** pre-bid conference will be held on **May 12, 2016 at 11:00 a.m.** at El Cerrito City Hall at 10890 San Pablo Ave, El Cerrito, CA 94530. Engineering staff will be available to answer questions related to the bid documents and the project.

**BID DOCUMENTS:** Bid Documents may be obtained from [Ebidboard](#) or the ABAG website at [www.abag.ca.gov](http://www.abag.ca.gov). Bidders must register with [Ebidboard](#) to obtain further information.

**QUESTIONS:** All questions regarding bid documents, construction plans, and specifications must be submitted via email to [josh.bradt@sfestuary.org](mailto:josh.bradt@sfestuary.org) no later than 5:00 p.m, Friday, May 27, 2016. Questions will be posted and available to bidders on [Ebidboard](#) no later than five (5) working days prior to the bid opening.

**WORK DESCRIPTION:** In general, the work on San Pablo Avenue Green Stormwater Spine Project to be done under this contract consists of construction of six (6) green Low Impact Design (LID) stormwater retrofit projects in six East Bay cities along San Pablo Avenue (State Route 123). The facilities will be built in the public right-of-way (and in certain cases encroaching into the margins of adjacent private parcels) at select sites in the cities of San Pablo, Richmond, El Cerrito, Albany, Berkeley, and Oakland. Three of the six sites include Caltrans encroachment permits that are currently under review by Caltrans and awaiting approval.

The Association of Bay Area Governments (ABAG) further reserves the right to reject all bids and to reduce the scope of work of the lowest responsible bidder to within the ABAG's budget through mutual agreement between the ABAG and Bidder. ABAG also reserves the right to withhold award of the bid for 60 days following the bid date without change to the bid. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the ABAG and the BIDDER.

The successful bidder shall furnish a payment bond and a performance bond.

The construction cost is estimated to be approximately **\$1,677,500.**

**BID DEPOSIT:** In accordance with California Public Contract Code Section 20170, all bids must be presented under sealed cover and include one of the following forms of bidder's security: cash, cashier's check made payable to the Association of Bay Area Governments, certified check made payable to the Association of Bay Area Governments, or a bidder's bond. The amount of bidder's security provided must equal at least ten (10) percent of the total of the bid price for the base bid and the additive or

deductive items listed in this notice. The successful bidder must submit to the Association of Bay Area Governments complete, executed copies of all required documents within ten (10) Days of receiving written notice of award of the project. Bidder's security of any successful bidder that fails to do so will be forfeited to the Association of Bay Area Governments. Such required documents include, but are not limited to, a payment or labor and materials bond in an amount of at least 100 percent of the amount payable by the terms of the project contract and that satisfies the requirements of California Civil Code Section 3248, a performance bond in an amount of at least 100 percent of the amount payable by the terms of the contract, and a landscape establishment bond in an amount of at least 100 percent of the amount payable by the terms of the contract. All project bonds must be executed by an admitted surety insurer in accordance with applicable law and acceptable to the Association of Bay Area Governments.

PREVAILING WAGES: This project is subject to the State Prevailing wage rates.

LABOR COMPLIANCE: This project is subject to a Labor Compliance Program (LCP) under the auspices of Department of Industrial Relations (DIR).

CONTRACTOR'S LICENSE: In accordance with California Public Contract Code Section 3300, a valid **Class A** California contractor's license or a combination of Specialty Class "C" licenses sufficient to cover all of the work to be performed by him is required to bid on the project. Pursuant to Labor Code Section 1725.5, 1771.1 and 1771.4, only a contractor registered with the (DIR) to bid on public works contracts in California shall be permitted to submit a bid. Furthermore, only subcontractors registered with the DIR to bid on public works contracts in California shall be permitted to perform work or labor or render service under subcontract to the subject contractor.

MINIMUM WAGE RATES: Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents must be paid on this project, and that the Contractor must ensure that employees and applicants for employment are not discriminated against because of their race, color, religion, sex or national origin.

RIGHT TO REJECT BIDS: The Association of Bay Area Governments reserves the right to reject any or all Bids or to waive any informality in the bidding.

BID REVIEW: Bids may be held by the Association of Bay Area Governments for a period not to exceed sixty (60) days from the date of the opening of Bids for the purpose of reviewing the Bids and investigating the qualifications of Bidders, prior to awarding of the Contract.

Date: **4/29/16**  
Publish: **4/29/16**

**San Pablo Avenue Green Stormwater Spine Project  
Package "B"**

**INSTRUCTIONS TO BIDDERS**

THE PRIME BIDDER WILL BE DEEMED NON-RESPONSIVE IF HE/SHE SUBMITS INCOMPLETE FORMS OR FAILS TO SUBMIT ALL OF THE REQUIRED FORMS AND DOCUMENTATION.

**SECTION 1  
DESCRIPTION OF WORK**

In general, the work on San Pablo Avenue Green Stormwater Spine Project consists of the construction of six (6) green Low Impact Design (LID) stormwater retrofit projects in six East Bay cities along San Pablo Avenue (State Route 123). The facilities will be built in the public right-of-way (and in certain cases encroaching into the margins of adjacent private parcels) at select sites in the cities of San Pablo, Richmond, El Cerrito, Albany, Berkeley, and Oakland (collectively, Cities). Upon completion, the city in which the LID is located will assume ownership of the LID.

The quantities shown on the Proposal represent a preliminary estimate of the quantities of work to be done and materials to be furnished. They are approximate only, and are given as a basis for the comparison of bids only. The Association of Bay Area Governments (ABAG) does not expressly or by implication agree that the actual amount of work or materials will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work or to omit portions of the work that may be deemed appropriate by ABAG.

**SECTION 2                    LAWS AND ORDINANCES**

**2-1        LAWS AND ORDINANCES**

The successful Contractor and all subcontractors used in the work will be required to hold or to obtain a business license in each participating city. Prior to the start of work, the successful Contractor shall obtain all other required permits from the Cities. The successful Contractor shall also obtain any other permits required from other agencies for the completion of the project. Contractor will pay all fees and costs incurred in obtaining the required permits.

If any Contractor, or any subcontractor used in the work by the Contractor, is currently in violation of any federal, state or local law or ordinance, the Contractor's bid may be deemed to be non-responsible.

**2-2        Security In Lieu Of Retention**

- (a)     The Association of Bay Area Governments shall retain five percent (5%) of the sum requested in each progress payment unless the Contractor elects to invoke the procedures set forth at California Public Contract Code 22300 to substitute securities to ensure performance under the contract.
1.        At the request and the expense of the Contractor, securities equivalent to the amount withheld shall be deposited with ABAG, or with a state or federally chartered bank in the state as escrow agent, who shall then pay the retained funds to the Contractor. Upon satisfactory completion of the contract, the securities shall be returned to the Contractor.
  2.        Alternatively, the contractor may request and ABAG shall make payment of retentions earned directly to the escrow agent at the expense of the Contractor. At the expense of the Contractor, the Contractor may direct the investment of the payments into securities and the Contractor shall receive the interest earned on the investments upon the same

terms provided for in Public Contract Code 22300 for securities deposited by the contractor. Upon satisfactory completion of the contract, the contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the owner, pursuant to the terms of this section.

- (b) If the Contractor chooses to place securities in escrow, the escrow agreement to be used shall be substantially similar to the following form:

#### ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between

\_\_\_\_\_ whose address is  
\_\_\_\_\_ hereinafter called "ABAG," \_\_\_\_\_ whose address is  
\_\_\_\_\_ hereinafter called "Contractor" and \_\_\_\_\_  
whose address is \_\_\_\_\_ hereinafter called "Escrow Agent."

For the consideration hereinafter set forth, the ABAG, Contractor, and Escrow Agent agree as follows:

- (1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by ABAG pursuant to the Construction Contract entered into between the ABAG and Contractor for \_\_\_\_ in the amount of \_\_\_\_ dated \_\_\_\_ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, the ABAG shall make payments of the retention earnings directly to the Escrow Agent. When the Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the ABAG within 10 days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the ABAG and Contractor. Securities shall be held in the name of \_\_\_\_\_, and shall designate the Contractor as the beneficial owner.
- (2) The ABAG shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.
- (3) When the ABAG makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the ABAG pays the Escrow Agent directly.
- (4) Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the ABAG. These expenses and payment terms shall be determined by the ABAG, Contractor, and Escrow Agent.
- (5) The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the ABAG.
- (6) Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the ABAG to the Escrow Agent that ABAG consents to the withdrawal of the amount sought to be withdrawn by Contractor.
- (7) The ABAG shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven days' written notice to the Escrow Agent from the owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the ABAG.
- (8) Upon receipt of written notification from the ABAG certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

(9) Escrow Agent shall rely on the written notifications from the ABAG and the Contractor pursuant to Sections (5) to (8), inclusive, of this Agreement and the ABAG and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

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

On behalf of ABAG:	On behalf of Contractor:
_____	_____
Title	Title
_____	_____
Name	Name
_____	_____
Signature	Signature
_____	_____
Address	Address

On behalf of Escrow Agent:

\_\_\_\_\_  
Title

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Address

At the time the Escrow Account is opened, the ABAG and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

ABAG	Contractor
_____	_____
Title	Title
_____	_____
Name	Name
_____	_____
Signature	Signature

**2-3 Retention For 2-Year Landscape Maintenance/Establishment Period**

- (a) The Association of Bay Area Governments shall retain five percent (5%) of the sum for the 2 (two) year landscape maintenance/establishment period requested in each progress payment unless the Contractor elects to invoke the procedures set forth at California Public Contract Code 22300 to substitute securities to ensure performance under the contract. Retention payments during the 2 year period will be paid on a quarterly basis.

**SECTION 3**

**LABOR CODE REQUIREMENTS**

Attention is directed to Section 7-1.02K(4), "Apprentices" of the Standard Specifications.

Pursuant to the recent enactment of Senate Bill 854, the following Labor Code Sections are also applicable to this project, 1771.1 (a), 1771.4 and 1725.5 as follows:

**Labor Code Section 1771.1 (a)**

- (a) A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.
- (b) Notice of the requirement described in subdivision (a) shall be included in all bid invitations and public works contracts, and a bid shall not be accepted nor any contract or subcontract entered into without proof of the contractor or subcontractor's current registration to perform public work pursuant to Section 1725.5.
- (c) An inadvertent error in listing a subcontractor who is not registered pursuant to Section 1725.5 in a bid proposal shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive, provided that any of the following apply:
  - (1) The subcontractor is registered prior to the bid opening.
  - (2) Within 24 hours after the bid opening, the subcontractor is registered and has paid the penalty registration fee specified in subparagraph (E) of paragraph (2) of subdivision (a) of Section 1725.5.
  - (3) The subcontractor is replaced by another registered subcontractor pursuant to Section 4107 of the Public Contract Code.
- (d) Failure by a subcontractor to be registered to perform public work as required by subdivision (a) shall be grounds under Section 4107 of the Public Contract Code for the contractor, with the consent of the awarding authority, to substitute a subcontractor who is registered to perform public work pursuant to Section 1725.5 in place of the unregistered subcontractor.
- (e) The department shall maintain on its Internet Web site a list of contractors who are currently registered to perform public work pursuant to Section 1725.5.
- (f) A contract entered into with any contractor or subcontractor in violation of subdivision (a) shall be subject to cancellation, provided that a contract for public work shall not be unlawful, void, or voidable solely due to the failure of the awarding body, contractor, or any subcontractor to comply with the requirements of Section 1725.5 or this section.
- (g) This section shall apply to any bid proposal submitted on or after March 1, 2015, and any contract for public work entered into on or after April 1, 2015.

**Labor Code Section 1771.4.**

- (a) All of the following are applicable to all public works projects that are otherwise subject to the requirements of this chapter:
  - 1) The call for bids and contract documents shall specify that the project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.
  - 2) The awarding body shall post or require the prime contractor to post job site notices, as prescribed by regulation.
  - 3) Each contractor and subcontractor shall furnish the records specified in Section 1776 directly to the Labor Commissioner, in the following manner:
    - A) At least monthly or more frequently if specified in the contract with the

- awarding body.
- B) In a format prescribed by the Labor Commissioner.
- (4) The department shall undertake those activities it deems necessary to monitor and enforce compliance with prevailing wage requirements.
- (b) The Labor Commissioner may exempt a public works project from compliance with all or part of the requirements of subdivision (a) of this section if either of the following occurs:
  - 1) The awarding body has enforced an approved labor compliance program, as defined in Section 1771.5, on all public works projects under its authority, except those deemed exempt pursuant to subdivision (a) of Section 1771.5, continuously since December 31, 2011.
  - 2) The awarding body has entered into a collective bargaining agreement that binds all contractors performing work on the project and that includes a mechanism for resolving disputes about the payment of wages.
- (c)
  - (1) The requirements of paragraph (1) of subdivision (a) shall only apply to contracts for public works projects awarded on or after January 1, 2015.
  - (2) The requirements of paragraph (3) of subdivision (a) shall only apply to the following projects:
    - A) Projects that were subject to a requirement to furnish records to the Compliance Monitoring Unit pursuant to Section 16461 of Title 8 of the California Code of Regulations, prior to the effective date of this section.
    - B) Projects for which the initial contract is awarded on or after April 1, 2015.
    - C) Any other ongoing project in which the Labor Commissioner directs the contractors or subcontractors on the project to furnish records in accordance with paragraph (3) of subdivision (a).
    - D) All projects, whether new or ongoing, on or after January 1, 2016.

**Labor Code Section 1725.5**

A contractor shall be registered pursuant to this section to be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any public work contract that is subject to the requirements of this chapter. For the purposes of this section, "contractor" includes a subcontractor as defined by Section 1722.1.

- (a) To qualify for registration under this section, a contractor shall do all of the following:
  - (1) Beginning July 1, 2014, register with the Department of Industrial Relations in the manner prescribed by the department and pay an initial nonrefundable application fee of three hundred dollars (\$300) to qualify for registration under this section and an annual renewal fee on or before July 1 of each year thereafter. The annual renewal fee shall be in a uniform amount set by the Director of Industrial Relations, and the initial registration and renewal fees may be adjusted no more than annually by the director to support the costs specified in Section 1771.3.
  - (2) Provide evidence, disclosures, or releases as are necessary to establish all of the following:
    - (A) Workers' Compensation coverage that meets the requirements of Division 4 (commencing with Section 3200) and includes sufficient coverage for any worker whom the contractor employs to perform work that is subject to prevailing wage requirements other than a contractor who is separately registered under this section. Coverage may be evidenced by a current and valid certificate of workers' compensation Insurance or certification of self-insurance required under Section 7125

of the Business and Professions Code.

(B) If applicable, the contractor is licensed in accordance with Chapter 9 (commencing with Section 7000) of the Business and Professions Code.

(C) The contractor does not have any delinquent liability to an employee or the state for any assessment of back wages or related damages, interest, fines, or penalties pursuant to any final judgment, order, or determination by a court or any federal, state, or local administrative agency, including a confirmed arbitration award. However, for purposes of this paragraph, the contractor shall not be disqualified for any judgment, order, or determination that is under appeal, provided that the contractor has secured the payment of any amount eventually found due through a bond or other appropriate means.

(D) The contractor is not currently debarred under Section 1777.1 or under any other federal or state law providing for the debarment of contractors from public works.

(E) The contractor has not bid on a public works contract, been listed in a bid proposal, or engaged in the performance of a contract for public works without being lawfully registered in accordance with this section, within the preceding 12 months or since the effective date of the requirements set forth in subdivision (e), whichever is earlier. If a contractor is found to be in violation of the requirements of this paragraph, the period of disqualification shall be waived if both of the following are true:

- (ii) The contractor has not previously been found to be in violation of the requirements of this paragraph within the preceding 12 months.
- (iii) The contractor pays an additional nonrefundable penalty registration fee of two thousand dollars (\$2,000).

(b) Fees received pursuant to this section shall be deposited in the State Public Works Enforcement Fund established by Section 1771.3 and shall be used only for the purposes specified in that section.

(c) A contractor who fails to pay the renewal fee required under paragraph (1) of subdivision (a) on or before the expiration of any prior period of registration shall be prohibited from bidding on or engaging in the performance of any contract for public work until once again registered pursuant to this section. If the failure to pay the renewal fee was inadvertent, the contractor may renew its registration retroactively by paying an additional nonrefundable penalty renewal fee equal to the amount of the renewal fee within 90 days of the due date of the renewal fee.

(d) If, after a body awarding a contract accepts the contractor's bid or awards the contract, the work covered by the bid or contract is determined to be a public work to which Section 1771 applies, either as the result of a determination by the director pursuant to Section 1773.5 or a court decision, the requirements of this section shall not apply, subject to the following requirements:

- (1) The body that awarded the contract failed, in the bid specification or in the contract documents, to identify as a public work that portion of the work that the determination or decision subsequently classifies as a public work.
- (2) Within 20 days following service of notice on the awarding body of a determination by the Director of Industrial Relations pursuant to Section 1773.5 or a decision by a court that the contract was for public work as defined in this

chapter, the contractor and any subcontractors are registered under this section or are replaced by a contractor or subcontractors who are registered under this section.

(3) The requirements of this section shall apply prospectively only to any subsequent bid, bid proposal, contract, or work performed after the awarding body is served with notice of the determination or decision referred to in paragraph (2) of this subdivision.

(e) The requirements of this section shall apply to any bid proposal submitted on or after March 1, 2015, and any contract for public work, as defined in this chapter, entered into on or after April 1, 2015.

#### **SECTION 4                    CONTRACT BONDS**

##### **A.     General**

The successful bidder shall furnish to the Association of Bay Area Governments the three bonds required by the State of California Contract Act. Said bonds shall be furnished in a form satisfactory to the Association of Bay Area Governments. Each of said bonds shall be executed in an amount equal to 100% of the contract price.

##### **B.     Faithful Performance**

One of said bonds shall guarantee the faithful performance of the Contract by the Contractor. A sample performance bond is enclosed in Appendix A.

##### **C.     Payment**

One of said bonds shall guarantee payment of all claims for labor, materials, provisions, provender and supplies furnished and any amounts required to be deducted withheld and paid over to the Franchise Tax Board from the wages of employees of the Contractor and his subcontractor pursuant to Section 18806 of the Revenue and Taxation Code. Care shall be taken to assure that the payment bond includes the precise provisions which Section 3248, Subsection (b) of the California Civil Code requires. A sample payment bond is enclosed in Appendix A.

##### **D.     Landscape Establishment**

One of said bonds shall guarantee any landscaping deficiencies or defects within the two year establishment period of the Contract by the Contractor. A sample landscape establishment bond is enclosed in Appendix A.

##### **E.     Alterations**

All alterations, extensions of time, extra and additional work, and other changes authorized by these Specifications or any part of the Contract may be made without securing the consent of the surety or sureties on the Contract bonds.

#### **SECTION 5                    INDEMNIFICATION AND INSURANCE**

Attachment 1 to these Instructions is hereby incorporated by reference in Appendix A

#### **SECTION 6     BIDDER'S CHECKLIST**

Did You:

- \_\_\_\_\_ Submit equal product proposals, if any, in accordance with the instructions to bidders included in the bid package at least ten (10) Days before the time specified for opening bids?
  
- \_\_\_\_\_ Include with your bid properly completed, accurate copies of the following documents in the following order using the forms included in the bid package:
  - \_\_\_\_\_ Bidder's check list?
  - \_\_\_\_\_ Proposal and Schedule of Bid Prices that state the bid as intended?
  - \_\_\_\_\_ Copies of each addendum issued signed and dated on behalf of the bidder?
  - \_\_\_\_\_ Executed bid bond?
  - \_\_\_\_\_ Contractor license information?
  - \_\_\_\_\_ List of subcontractors?
  - \_\_\_\_\_ Public Contract Code Statements and Questionnaire?
  - \_\_\_\_\_ Workers compensation certification?
  - \_\_\_\_\_ Signed and notarized non-collusion affidavit?
  - \_\_\_\_\_ Executed bidder's signature page?
  
- \_\_\_\_\_ Submit the complete bid package, including the completed documents in the checklist above?
  
- \_\_\_\_\_ Arrange to have the sealed bid delivered to the San Francisco Estuary Partnership in Oakland at 1515 Clay Street Suite 1400, Oakland, California, 94612, on or before the time specified for bid opening in the notice inviting bids?



**Office of Administrative Hearings** : the Office of the San Francisco Estuary Partnership

**Add Section 1-1.07B:**

**Project Plans** : San Pablo Avenue Green Stormwater Spine Project

**Replace Section 1-1.07B:**

**Standard Specifications** : the 2010 edition of the Standard Specifications of the State of California (as amended), Business and Transportation Agency, Division of Transportation. The latest amendments published by the bid date must be included herein.

**Standard Plans** : the 2010 edition of the Standard Plans of the State of California (as amended), Business and Transportation Agency, Division of Transportation. The latest amendments published by the bid date must be included herein.

**State** : the Association of Bay Area Governments

**Holiday** - Those days designated as holidays by ABAG.

**Add Section 1-1.07B:**

**Requests For Information** - A request from you or one of your subcontractors, to the Engineer, seeking an interpretation or a clarification of some requirement of the contract documents submitted to the Engineer in the form required by the Contract. You must clearly and concisely set forth the issue for which they seek clarification or interpretation and why a response is needed from the Engineer. You must, in the written request, set forth their interpretation or understanding of the contract's requirements along with reasons why they have reached such an understanding. Responses from the Engineer will not change any requirements of the contract documents unless so noted in the Request for Information Response by the Engineer.

**Schedule Submittals** - Contract schedules, contract schedule updates, contract schedule revisions, time impact analyses, etc. required by the Contract to be provided to the Engineer for review and acceptance.

**SFEP** – San Francisco Estuary Partnership

**Shop Drawings** - See Submittals/Shop Drawings definition.

**Replace Section 1-1.07B:**

**Submittal** - Any technical submittals, shop drawings or samples, including supporting catalogue cuts, manufacturer's literature, sketches or drawings, calculations, and other pertinent data, required by any technical specification included in these contract documents. You must transmit to the Engineer submittals/shop drawings in sufficient detail to enable the Engineer to review the information and determine that you clearly understand the requirements of the contract documents.

**Substitution/Or Equal Submittals** - A request from you to substitute a material, article, device, product, fixture, form, and type of construction or process called for in the contract documents with another item which must be substantially equal in all respects to that so indicated or supplied.

**Working Days** - Working days are Monday through Friday except for legal holidays.

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## 2 BIDDING

### Add to Section 2-1.06A:

The Engineer may, at a time prior to the bid opening, issue addenda to the Plans and Specifications to amend, clarify or correct matter contained therein. Such addenda must constitute a part of said Plans and Specifications and must be equally binding with them. Addenda will be forwarded to all prospective bidders, insofar as they are known to the Engineer.

### Replace the terms in Section 1-1.07B with the following Section 2-1.33A:

The bidder's bond must conform to the bond form included herein and must be properly filled out and executed.

In conformance with Public Contract Code Section 7106, a Noncollusion Affidavit is included herein and must be properly filled out and submitted.

### Add to Section 2-1.33D(1):

Failure of the bidder to fulfill the requirements of the Special Provisions for submittals required to be furnished after bid opening, including but not limited to escrowed bid documents, where applicable, may subject the bidder to a determination of the bidder's responsibility in the event it is the apparent low bidder on a future public works contract.

### Add to Section 2-1.34:

Bidder's bond must be from company authorized to transact surety business in California. Bid bond to be submitted on form supplied by the ABAG.

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## 3 CONTRACT AWARD AND EXECUTION

### Replace first paragraph of Section 3-1.04:

Bid protests are to be delivered to the following address:

San Francisco Estuary Partnership  
1515 Clay Street, Suite 1400  
Oakland, CA 94612.

### Add to Section 3-1.18 with:

The contract must be executed by the successful bidder and must be returned, together with the contract bonds, to ABAG so that it is received **within 10 days**, not including Saturdays, Sundays and legal holidays, after the bidder has received the contract for execution. Failure to do so must be just cause for forfeiture of the proposal guaranty. The executed contract documents must be delivered to the following address:

Association of Bay Area Governments,

c/o San Francisco Estuary Partnership  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

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**5 CONTROL OF WORK**

**Add to Section 5-1.23B(1):**

After the notice to proceed is issued but prior to the start of construction, you must submit to ABAG for approval, the following:

1. Construction Progress Schedule
2. Traffic Control Plan(s)

At the start of construction but prior to each individual item of work you must submit to ABAG for approval a minimum of ten (10) calendar days in advance of ordering the following

1. Hot Mix Asphalt - Mix Design and certificate of compliance
2. Liquid asphalt – certificate of compliance
3. Asphalt emulsion – certificate of compliance
4. Class 2 Aggregate Base – Specification & Gradation
5. Bicycle-proof grates
6. Sign Posts and sign panels
7. Concrete Mix Design
8. Thermoplastic Material – certificate of compliance for each batch
9. Pavement Markers – certificate of compliance for each type of marker

In addition to those items above, you must submit any other items as required by Divisions II through X of these specifications.

All submittals requiring review must be made directly to ABAG.

Unless otherwise allowed by ABAG, five (5) copies of all submittals must be submitted for approval a minimum of ten (10) calendar days in advance of ordering.

**Add between the fourth and fifth paragraph of section 5-1.36D:**

Attention is directed to the presence of underground utilities in the construction area. The location of said utilities is not shown on the plans. You must exercise due caution in performing his work so as to not damage the utilities. You must obtain utility locations by contacting Underground Service Alert, telephone number (1-800) 227-2600 (or dial 811), at least two working days prior to performing any excavation. You

must make arrangements with each company to have its underground utility located and carefully excavate ("pothole") to determine the actual depth of electrical, gas, water, telephone, stormwater, and sanitary sewer lines within the limits of reconstruction.

Utilities and underground pipelines which are to remain in place must be worked around and protected from damage or interruption of service. You must notify the responsible utility company when any utility must be relocated or set to grade by the utility company.

Where utilities or other underground pipelines are to be relocated, you must protect the existing utilities until their use is no longer required and must conduct his operations so as not to damage these facilities.

You must coordinate his work with that of the public utility companies who may be working in the project area. No additional time will be allotted under the contract time of completion for this coordination.

**Add to section 5-1.36D:**

Installation of the utilities shown in the following table requires coordination with your activities. Make the necessary arrangements with the utility company through the Engineer and submit a schedule:

1. Verified by a representative of the utility company
2. Allowing at least the time shown for the utility owner to complete its work

**Utility Relocation and Contractor-Arranged Time for the Relocation**

Utility	Utility address	Location	Days
East Bay MUD	375 11th Street Oakland, CA	FH Service Line 17th and San Pablo Ave Oakland Site	20

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**6 CONTROL OF MATERIALS**

**Add before first paragraph of Section 6-2.02:**

All materials required to complete the work under this contract must be furnished by You.

**Add to Section 6-3.05A:**

You must coordinate with the Engineer regarding requests for materials testing such as but not limited to, compaction tests of the subgrade and aggregate base materials. The initial test must be paid by ABAG. However, if materials tested do not comply with the Special Provisions or Standard Specifications, following removal and replacement of the materials at your cost, ABAG must be reimbursed by you for costs associated with the subsequent tests.

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**7 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

**Add between fourth and fifth paragraph of Section 7-1.02K(3):**

You and your subcontractors must furnish certified payroll records electronically to the Labor Commissioner (Division of Labor Standards Enforcement). Refer to the following website for special instructions regarding using the new eCPR system:

<http://www.dir.ca.gov/Public-Works/PublicWorks.html>

<http://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html>

**Add between eleventh and twelfth paragraph of Section 7-1.02K(3):**

Original certified payroll records with a statement of compliance must be submitted to the Engineer via regular U.S. Mail, Fed/Ex or UPS. Failure to submit satisfactory payroll records may result in withholding of progress payment.

**Add to Section 7-1.04:**

**ADVANCE PUBLIC NOTIFICATION**

General Notifications - You must be required to notify and cooperate with the public, transit companies, local law enforcement agencies, local fire districts, local utilities companies, refuse collectors, schools, and any other persons or agencies who may be affected by this project at least two (2) weeks prior to construction. Other notifications may be required during project construction as outlined below.

Notifications will be provided by you relating to, but not limited to, the following items:

- General information
- Traffic delays and alternate routes
- Tree removals and/or trimming
- Driveway closures
- Water service interruptions
- Temporary relocation of bus stops
- Adjustment of utilities
- Waste pick up
- Parking restrictions

Two weeks, one week and 24 hours prior to beginning any work in an area, you must distribute an approved written notice to all adjoining residents and businesses, property owners, tenants and applicable parties. Such notice must state that all vehicles and equipment need to be moved off of the street and include the expected date for start of construction, a general description of the construction activity to take place, expected duration of the activity, and the name, address, and 24-hour telephone number from you. A draft copy of the notice must be provided to the Engineer for approval, prior to distribution.

Five working days prior to construction activities you must notify the ABAG representative.

Notice must be given for general construction activity in an area as well as specific activities which will, in any way, inconvenience the resident/property owner or affect their operations or access to their property.

You must maintain a 24-hour cellular telephone. You must check for messages at least once every twelve hours, seven days a week, including weekends and holidays. You must respond promptly to all calls. The cost of maintaining the 24-hour telephone as herein specified must be considered as included in the various other contract items and no additional compensation must be allowed therefor.

Traffic control must be coordinated for the minimum inconvenience and maximum safety of the public

during the construction period. You must bear full responsibility for maintaining traffic control during the construction period. You must maintain traffic circulation at all times during the project. "No Parking" signs must be posted 72 hours prior to start of work.

Door hanger notifications to affected residents and businesses for this project must be delivered a minimum of 72-hours prior to construction operations by you.

If construction operations have been postponed or cancelled with no work in the proposed area for more than seven (7) calendar days, you must re-notify the affected residents and businesses with new door hangers a minimum of two (2) working days prior to the start of the work.

You must maintain an updated and chronological record at the job site of all written notifications along with a list of recipients. Such records must be made available upon request by the Engineer.

Failure to comply with the above notification requirements could result in cancellation by the Engineer, of the day's work. No extension of time or additional cost will be granted for delays to you caused by any work cancellations.

**No work is permitted prior to the required notification, re-notification, or coordination work with affected facilities.**

The adjustment provisions in Standard Specifications 4-1.05, Changes and Extra Work, must not apply to the item of traffic control system. Any adjustment in compensation for traffic control systems due to an increase or decrease in the amount of traffic control system required by changes ordered by the Engineer will be made on the basis of the cost of the increased or decreased traffic control necessary. Such adjustment will be made on a force-account basis as provided in Section 5-1.09, Force Account payment, of these specifications for increased work.

#### MAINTENANCE OF ACCESS

Vehicular access must be maintained at all times to all existing driveways except when construction in the immediate vicinity poses a safety risk to the public. If access is interrupted, you must perform the work in an expeditious manner such that access can be restored as quickly as possible while maintaining a safe worksite. Pedestrian access and circulation that is fully wheelchair accessible must be maintained by you through the project area. You must construct work to allow access.

**You are responsible for making immediate access available to emergency vehicles at any time during work hours. The access to businesses must remain open and unobstructed at all times.** You must contact schools, fire and police stations, hospitals, or other similar facilities designated by the Engineer adjacent to the work and coordinate his operation with the facility's operations so that your operations will have a minimized affect to the facility.

#### NO PARKING SIGNS/TOWING

You must provide "No Parking" signs with day of the week written out or properly abbreviated with 3 or 4 letters; the month must be written out or properly abbreviated with 3 or 4 letters; date or dates of restriction must be listed completely; the beginning and ending times must be clearly listed on the sign.

Signs must be mounted such that the words, "No Parking" are at an elevation at least 3 feet and not more than 7 feet above the adjacent flow line. Signs may be tied with string to trees and power poles, taped to existing sign poles, or mounted to stakes or barricades as provided by you. The signs must be placed as needed to control the parking of cars within the construction zone.

Signs must be posted and maintained by you for a period of 72 hours prior to the restrictions becoming effective. You must promptly reset or replace all damaged and defective signs. Upon completion of work

in each area, all signs, stakes, and barricades must be promptly and completely removed by you.

You must be fully responsible for adequate removal of all parked cars. All vehicle removal must be coordinated by you with individual city police departments and ABAG’s representative must be notified as well. You must notify individual police department contacts upon posting of the parking restrictions. For removal of parked vehicles, you must notify the police departments not less than 2 hours prior to the needed removal with the address nearest the parked vehicle, make, model, color, and license number. ABAG and cities must not be responsible for any delay or additional cost associated with the removal of parked cars which obstruct the construction operation.

If a vehicle owner successfully contests a towing citation in court, and their citation is dismissed for causes related to your failure to perform the requirements of this section, you must reimburse the individual city for the cost of any claims associated with the towing citation.

You must cooperate and allow the individual city or utility company work crews to use the traffic control system when set up for your work. You are not obligated to maintain the traffic control system beyond their scheduled activities.

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### **8 PROSECUTION AND PROGRESS**

#### **Add before first paragraph of Section 8-1.02A:**

Construction phasing must be discussed with ABAG during the preconstruction meeting. You must prepare a formal phasing plan for approval by ABAG .

Order of work must be scheduled such that the work can be carried out in an efficient manner.

You must start the work at:

<u>Site #</u>	<u>Site</u>
1.	Oakland
6.	Richmond
7.	San Pablo
3.	Berkeley
4.	Albany
8.	El Cerrito

Sites 1 and 6 above must begin construction at the same time, followed by Sites 3 and 8 as the second group, and then ending with Sites 4 and 7.

#### **Add to Section 8-1.02A:**

This work must be diligently prosecuted to completion before the expiration of **175 WORKING DAYS** beginning on the fifteenth calendar day after approval of the contract.

**Delete Section 8-1.02B**

**Delete Section 8-1.02D**

**Replace first paragraph of Section 8-1.03 with:**

Within 10 working days of the issue of the Notice to Proceed, a pre-construction conference will be held at:

1515 Clay Street, Suite 1400  
Oakland, CA 94612

The purpose of this conference is to discuss with you the scope of work, Contract plans, 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. Your representatives at this conference must include all major superintendents for the work and may include major subcontractors.

**Replace List Item 3 in paragraph 3 of Section 8-1.04B:**

- 3. You must utilize the Caltrans Encroachment Permit . You are responsible for procuring the appropriate Caltrans rider prior to performing any work within or adjacent to Caltrans Right-of-Way, as appropriate. Any costs incurred by you, for procurement of the rider, are wholly assumed by you. ABAG will not provide compensation to you for any costs incurred by you, for procurement of the rider.

**Add to Section 8-1.05:**

You must not work on Saturdays, Sundays, holidays, nor between the hours shown on the plans without the written permission of the Engineer.

**Add to Section 8-1.07C:**

In addition, ABAG charges you for the actual cost to ABAG's engineering, inspection and other overhead expenses which are directly chargeable to the Contract and which accrue during the period of such delay and deducts from the payments for the work. The expenses and damages described above must be deducted from any money due to you under this Contract. You and his sureties must be liable for any such excess cost.

**Replace paragraph 3 of Section 8-1.10A:**

You must pay to the San Francisco Estuary Partnership the sum of **\$3000 per day**, for each and every calendar days delay in finishing the work in excess of the number of working days prescribed above.

**Add Section 8-1.17:**

You must keep on file one set of construction drawings to be furnished by Engineer exclusively for recording all as-built data including all addenda, clarifications, and change orders. Record dimensions and changes during course of construction, at the time field changes are made.

Before job completion, submit Record Drawings to Engineer for review in order to determine completeness and accuracy.

Record all as-built data neatly, using standard architectural or engineering drafting practices equal in quality to the contract drawings. Sign and date the drawings, certifying that all information is correct.

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## 9 PAYMENT

### **Add to end of section 9-1.03:**

Payments for materials and supplies stored or not installed in their final position will not be allowed.

### **Replace Section 9-1.06 with:**

Increases and decreases in quantities of work or changes in the work must be done in conformity with the provisions of Section 9-1.06 of the Standard Specifications

If a Contract Change Order provides for an adjustment to the contract price, the increased payment to you, or the deduction to the credit of ABAG, must be determined by one of the following methods, or a combination thereof, as determined by ABAG and at its sole option:

Unit Prices: The unit prices set forth in the proposal must be utilized where they are applicable. If the Contract Change Order increases or decreases the quantity of an item of work by more than twenty-five (25%), such that the application of the unit prices in the Proposal will cause substantial inequity to ABAG or You, unit prices will be adjusted by mutual agreement. Unit prices for new items included in the Contract Change Order must be mutually agreed upon.

Payment for any contract item of work which has a total final value of less than five percent of the total contract bid price will be made at the contract unit price regardless of increased or decreased quantities.

Lump Sum: A total lump sum addition or deduction from the Contract Price as mutually agreed upon. Lump Sum quotations for changes to the work must include substantiating documentation with an itemized breakdown of you and your Subcontractor costs, including labor, materials, equipment rental, approved services, overhead and profit, all calculated as set forth in Section 9-1.04, "Force Account".

Force Account Payment: Payment for the work will be made on a time and material basis, that is, on an accounting of your forces, materials, equipment, and other items of cost as required to do the work. If compensation for work under a Contract Change Order is to be made on a force account basis, the compensation will be calculated as set forth in Section 9-1.04, "Force Account". You agree that the markups provided in Section 9-1.04 are adequate.

Any increases, decreases or changes in the work which cannot be accomplished without negotiations with the You as required under the foregoing Sections of said Standard Specification must not be authorized by the Engineer without approval of the Governing Body.

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

The following items are eligible for progress payment even if they are not incorporated into the work:

1. Trench Drains
2. Irrigation Sleeving
3. Drip Irrigation
4. Underdrain Pipe

### **Add before first paragraph of Section 9-1.16D:**

#### **Mobilization**

You must provide labor, materials, and equipment to prepare the site for the timely start and efficient completion of all work. This includes obtaining any necessary licenses and permits, and providing required submittals including but not limited to the Project Schedule, project meetings, project schedule updates, and the like.

### **Add to Section 9-1.16E(2):**

In accordance with the provisions of Public Contract Code Section 22300, you may elect to receive 100 percent of the payments due under the contract from time to time, without retention of any portion of the payment by ABAG by depositing securities of equivalent value with ABAG or with a bank as escrow agent. Such securities, if deposited by you must be valued by ABAG's Finance Director, whose decision on valuation of the securities must be final.

You must obtain the written consent of the surety to such agreement.

**Delete Section 9-1.22 and replace with:**

Attention is directed to the provisions of Government Code Sections 900 to 915.4, inclusive, concerning the procedures to be followed when filing claims against ABAG. All claims must be filed with the ABAG Clerk. Forms specifying the information to be contained in claims against ABAG may be obtained from the ABAG Clerk.



Replace "Reserved" in section 12-4.04 with:

Lane Closure Restriction for Designated Holidays and Special Days										
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
x	<b>H</b> xx	xx	xx							
	<b>SD</b> xx									
x	xx	<b>H</b> xx	xx							
		<b>SD</b> xx								
	x	xx	<b>H</b> xx	xx						
			<b>SD</b> xx							
	x	xx	xx	<b>H</b> xx	xxx					
	x	xx	xx	<b>SD</b> xx	xxx					
				x	<b>H</b> xx					
				x	<b>SD</b> xx					
					x	<b>H</b> xx				
						<b>SD</b> xx				
						x	<b>H</b> xx	xx	xx	xx
							<b>SD</b> xx			

Legend:

	Refer to lane requirement charts
x	The full width of the traveled way must be open for use by traffic after __.
xx	The full width of the traveled way must be open for use by traffic.
xxx	The full width of the traveled way must be open for use by traffic until __.
<b>H</b>	Designated holiday
<b>SD</b>	Special day

Replace "Reserved" in section 12-5 with:

### 12-5.01 GENERAL

Section 12-5 includes specifications for closing traffic lanes, ramps, or a combination with stationary lane closures on multilane highways.

A traffic control system for a closure includes the temporary traffic control devices described as part of the traffic control system. The temporary traffic control devices must comply with section 12-3.

### 12-5.02 MATERIALS

Not Used

### 12-5.03 CONSTRUCTION

Each vehicle used to place, maintain, and remove components of a traffic control system on a multilane highway must be equipped with a Type II flashing arrow sign that must be in operation whenever the vehicle is being used for placing, maintaining, or removing the components. Vehicles equipped with a

Type II flashing arrow sign not involved in placing, maintaining, or removing the components if operated within a stationary-type lane closure must display only the caution display mode. The sign must be controllable by the operator of the vehicle while the vehicle is in motion. If a flashing arrow sign is required for a lane closure, the flashing arrow sign must be operational before the lane closure is in place.

**12-5.04 PAYMENT**

A traffic control system for a lane closure is paid for as traffic control system.

The requirements in section 4-1.05 for payment adjustment do not apply to traffic control system. Adjustments in compensation for traffic control system will be made for an increase or decrease in traffic control work if ordered and will be made on the basis of the cost of the necessary increased or decreased traffic control. The adjustment will be made on a force account basis for increased work and estimated on the same basis in the case of decreased work.

A traffic control system required by change order work is paid for as a part of the change order work.

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**13 WATER POLLUTION CONTROL**

**Add Section to 13-3.01:**

All you and your Subcontractors working on ABAG projects are required to comply with the pollution control measures included in the Appendix "B" of these Special Provisions as well as for following any local, State or Federal regulations and ordinances on construction pollution control as well as the guidelines on pollution prevention as set forth by the Bay Area Stormwater Management Agencies Association (BASMAA).

You must exercise every reasonable precaution to prevent any debris, chemical or other harmful material in the construction water resulted from his operations from discharging into the storm drain system.

Conformance with the requirements of this section must in no way relieve you from your responsibilities to comply with any local, State or Federal regulations and ordinances on stormwater pollution control.

You must exercise diligence in preventing dust nuisance. When necessary, or when directed by the Engineer, you must apply water for allaying dust caused by grading operations and passage of traffic through the work. Water must be applied by means of pressure type distributors equipped with a spray system that will insure a uniform application.

**Add to section 13-3.01A:**

The project is risk level 2.

**Replace the 4th paragraph in section 13-3.01A with**

Discharges of stormwater from the project must comply with the permit issued by the [San Francisco Bay RWQCB for National Pollutant Discharge Elimination System \(NPDES\) Permit for Stormwater Discharges from the State of California, Department of Transportation \(CALTRANS\) Properties, Facilities, and Activities, Permit No. CAS000002, Order No. 99-06-DWQ.](#)

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**14 ENVIRONMENTAL STEWARDSHIP**

**Replace second paragraph in Section 14-8.02A with:**

The noise level from your operations, between the hours shown on the plans, must not exceed 86 dBA at a distance of 50 feet or as further restricted by local ordinance. This requirement in no way relieves you from responsibility for complying with local ordinances regulating noise level.

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

**Add to section 14-9.03A:**

You must exercise diligence in preventing dust nuisance. When necessary, or when directed by the Engineer, you must apply water for allaying dust caused by grading operations and passage of traffic through the work. Water must be applied by means of pressure type distributors equipped with a spray system that will insure a uniform application.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

**15 EXISTING FACILITIES**

**Add after third paragraph in Section 15-1.01 with:**

Existing facilities to be removed may not all be shown on the plans. Facilities to be removed must be marked in the field by the Engineer.

**Replace Section 15-2.02J with:**

Existing roadside signs must not be removed until replacement signs have been installed or until the existing signs are no longer required for the direction of public traffic, unless otherwise directed by the Engineer.

**Add Section 15-2.02:**

15-2.02S Existing Loop Detectors

If part of the loop conductor to remain, including the portion leading to the adjacent pull box, is damaged by your operations, the entire detector loop must be replaced at your expense. Adjacent loops damaged during the replacement must also be replaced.





Sieve Sizes	Percentage Passing
3/8"	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

Grain size analysis results of the sand component must be performed in accordance with ASTM D 422, Standard Test Method for Particle Size Analysis of Soils.

**21-2.02C Compost**

Compost must comply with section 21-1.02M.

**21-2.02D Topsoil**

Soil must be free of wood, waste or other deleterious material. The soil texture must be loamy. Overall dry weight percentages must be 60 to 90 percent sand, with less than 20 percent passing the No.200 sieve, less than 5 percent clay, and no gravel.

**21-2.03 CONSTRUCTION**

Site preparation must comply with section 21-1.03B.

Place imported biofiltration soil after all other earthwork in an area is complete.

Place imported biofiltration soil in lifts of 8 to 12 inches and spread to a uniform thickness. Lifts are not to be compacted.

**21-2.04 PAYMENT**

Not Used





1. Grated line drain frames and grates must be manufactured of ductile iron complying with section 75-1.02. Frames and grates include bolts, nuts, frame anchors, and other connecting hardware. Galvanizing or asphalt paint coating is not required.2. Frames and grates, whether one-piece or separate, must be classified heavy duty traffic rated with a transverse proof-load strength of 25,000 pounds
3. Grates and frames must be one piece anchored into the body of the line drain unless shown as removable. Removable grates must be separate from the frame and must:3.1. Be held in place by locking devices that are tamper resistant
  - 3.2. Provide a minimum repetitive pullout resistance of 340 lb/ft of length after completion of 1,000 hours of salt spray testing under ASTM B 117
  - 3.3. Be match marked in pairs before delivery to the work and grates must fit into the frames without rocking
4. If a combination of one piece frame and grate and removable grates are used, the locations of the removable grates are shown
5. Except for grates installed within designated pedestrian paths of travel, grate design must accept inflow of runoff through openings consisting of a minimum of 60 percent of the total top surface area of the grate. Individual openings or slots must have a dimension not greater than 2 inches measured in the direction of the grated line drain flow line.
6. Grates installed within designated pedestrian paths of travel must be certified as conforming to the requirements of the Americans with Disabilities Act.

### **70-6.03 CONSTRUCTION**

Excavation and backfill must comply with section 19-3.

Grated line drains must be installed in trenches excavated to the lines and grades established by the Engineer. Grade and prepare the bottom of the trench to provide a firm and uniform bearing throughout the entire length of the grated line drain.

Installation of grated line drains and joints must comply with the manufacturer's instructions.

Install to the lines and grades with sections closely jointed and secured to ensure that no separation of the line drains occurs during backfilling.

The frame or grate must not extend above the level of the surrounding concrete backfill.

Connect grated line drains to new or existing drainage facilities as shown.

Backfill with minor concrete.

Place concrete backfill in the trench as shown. Place against undisturbed material at the sides and bottom of the trench in a manner that prevents (1) floating or shifting of the grated line drain and voids or (2) segregation in the concrete.

Immediately remove foreign material that falls into the trench before or during placement of the concrete.

Where necessary construct and compact earth plugs at the ends of the concrete backfill to contain the concrete within the trench.

Secure frames or line drain wall to the surrounding concrete backfill with steel anchoring rods as shown. Alternative securing methods must provide a minimum pullout resistance of 685 lb/ft of length of grated line drain frame.

Concrete backfill must be finished flush with the adjacent surfacing.

The surface of the concrete must be textured with a broom or burlap drag to produce a durable skid-resistant surface.

### **70-6.04 PAYMENT**

Payment for frames and grates is included in the payment for grated line drain.





**PROPOSAL SECTION**

Page No.

Description of Work and Proposed Agreement .....P-1  
Bid Schedule (8 pages) .....P-3  
Acknowledgment of Addenda.....P-12  
Bidders Bond Information .....P-13  
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Questionnaire (Public Contract Code sections 10285.1, 10162 & 10232) .....P-14  
Exhibit A - Form of Bidder's Bond ..... P-15  
Exhibit B - Bidder's Experience/Qualifications (3 page form) .....P-16  
Contractor License Information .....P-19  
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Workers' Compensation Certification.....P-22  
Non-Collusion Affidavit .....P-23  
Bidder's Signature Page.....P-24

*Note: Read instructions in the "Proposal Requirements and Conditions" section of the Special Provisions, and also read instructions on all forms carefully. The requirements concerning the need to submit and the deadline for these submittals is contained in these Special Provisions. Bidders are also encouraged to confirm with the ABAG, prior to delivering their bid, the number of Addenda, if any, which have been issued. All bidders must initial Acknowledgment of Addenda section herein.*

**Association of Bay Area Governments  
and  
San Francisco Estuary Partnership**

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**BID**

**FOR**

**SAN PABLO AVENUE GREEN STORMWATER SPINE PROJECT  
PACKAGE "B"**

**CONTRACT NO. 102215**

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Notice to bidders and Special Provisions dated: \_\_\_\_\_  
Project Plans approved: \_\_\_\_\_  
Standard Specifications dated: \_\_\_\_\_  
Standard Plans dated: \_\_\_\_\_

**Bid Opening Date: June 3, 2016**

Proposal to the Association of Bay Area Governments  
and San Francisco Estuary Partnership  
1515 Clay Street  
Oakland, CA 9612  
TELEPHONE: (510) 622-5048

**SAN PABLO AVENUE GREEN STORMWATER SPINE PROJECT**  
**Package "B"**  
**CONTRACT NO. 102215**

NAME OF BIDDER \_\_\_\_\_  
BUSINESS P.O. BOX \_\_\_\_\_  
CITY, STATE, ZIP \_\_\_\_\_  
BUSINESS STREET ADDRESS \_\_\_\_\_  
*(Please include even if P.O. Box used)*  
CITY, STATE, ZIP \_\_\_\_\_  
TELEPHONE NO: AREA CODE ( ) \_\_\_\_\_  
FAX NO: AREA CODE ( ) \_\_\_\_\_  
CONTRACTOR LICENSE NO. \_\_\_\_\_

The work for which this proposal is submitted is for construction in conformance with the special provisions (including the payment of not less than the State general prevailing wage rates), the project plans described below, including any addenda thereto, the contract annexed hereto, and also in conformance with the 2010 California Department of Transportation Standard Plans, the 2010 Standard Specifications, and the Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished.

The special provisions for the work to be done are dated April 2016 and are entitled:

**Association of Bay Area Governments**  
**San Francisco Estuary Partnership**  
**SAN PABLO AVENUE GREEN STORMWATER SPINE PROJECT**  
**Project "B"**  
**PROJECT SPECIFICATIONS**  
**CONTRACT NO. 102215**

The project plans for the work to be done were approved April 2016 and are entitled:

**SAN PABLO AVENUE GREEN STORMWATER SPINE PROJECT**  
**PROJECT PLANS**  
**Project "B"**

**ASSOCIATION OF BAY AREA GOVERNMENTS**

**PROPOSAL PACKAGE**

The undersigned declares that he has carefully examined the location of the proposed work of:

**SAN PABLO AVENUE GREEN STORMWATER SPINE PROJECT  
PACKAGE "B"  
CONTRACT NO. 102215**

The work to be done and referred to herein is in Contra Costa County and Alameda County, State of California under the direction of the San Francisco Estuary Partnership (SFEP), a program of the Association of Bay Area Governments (ABAG). Construction to be in accordance with the Special Provisions including the payment of not less than the minimum wage rates set forth herein and the Contract annexed hereto and also in accordance with the Standard Specifications dated 2010, and the current "Equipment Rental Rates and General Prevailing Wage Rates" on file in the office of the California Department of Industrial Relations.

To the Association of Bay Area Governments:

The undersigned, as Bidder, declares that the only persons or parties interested in this Proposal as principals are those named herein; that this Proposal is made without collusion with any other person, firm or corporation; that Bidder has carefully examined the location of the proposed work; and the Plans therein referred to; and Bidder proposes, and agrees if this Proposal is accepted, that Bidder will contract with the ABAG to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the Contract, in the manner and time therein prescribed and according to the requirements of the ABAG/SFEP Project Manager as therein set forth, and that Bidder will take in full payment therefor the following item prices to wit:

Amendments to the 2010 Standard Specifications set forth in these special provisions shall be considered as part of the Standard Specifications for the purposes set forth in Section 5-1.02, "Contract Components of the Standard Specifications. Whenever either the term "Standard Specifications is amended" or the term "Standard Specifications are amended" is used in the special provisions, the indented text or table following the term shall be considered an amendment to the Standard Specifications. In case of conflict between such amendments and the Standard Specifications, the amendments shall take precedence over and be used in lieu of the conflicting portions.

## BID SCHEDULE FOR:

### SITE 1: CITY OF OAKLAND

ITEM NO	ITEM DESCRIPTION	UNITS	QTY	UNIT COST	ITEM COST
1.	Mobilization	LS	1		
2.	Traffic Control	LS	1		
3.	Survey	1	LS		
4.	Erosion Control	1	LS		
5.	Demo Landscape & Irrigation	950	SF		
6.	Demo Curb & Gutter	670	LF		
7.	Demo Sidewalk	2,930	SF		
8.	Demo Tree	3	EA		
9.	Demo Curb Drain	3	EA		
10.	Demo Asphalt Pavement	7,410	SF		
11.	Salvage Sign	10	EA		
12.	Salvage Bike Rack	3	EA		
13.	Salvage Parking Meter	1	EA		
14.	Salvage Parking Kiosk & Sign	1	EA		
15.	Sidewalk (no Steel)	3,290	SF		
16.	Thickened Edge @ Sidewalk	400	LF		
17.	Curb & Gutter (2'-4' Wide)	290	LF		
18.	Perimeter Curb	360	LF		
19.	ADA Ramp	240	SF		
20.	AC Pavement	6,960	SF		
21.	Type II Micro Surfacing	14,400	SF		
22.	Boardwalk	240	SF		
23.	Install Bike Rack	3	EA		
24.	Install Sign	3	EA		
25.	Install Parking Kiosk	1	EA		
26.	Thermoplastic Crosswalk/Limit Line	380	SF		
27.	Thermoplastic Pavement Marking	78	SF		
28.	6" Painted Bike Lane Stripe (2 coat)	670	LF		
29.	Painted Centerline Stripe (2 coat)	220	LF		
30.	4" Painted Lane Line Stripe (2 coat)	210	LF		
31.	Painted Parking Stall Line/Tee	410	LF		
32.	Adjust Manhole	2	EA		
33.	Adjust Meter/Pull Box	10	EA		
34.	Replace Inlet Top	1	EA		
35.	Storm Drain Inlet	1	EA		
36.	12" Storm Drain Pipe	12	LF		
<b>ITEM</b>	<b>ITEM DESCRIPTION</b>	<b>UNITS</b>	<b>QTY</b>	<b>UNIT</b>	<b>ITEM</b>

NO				COST	COST
37.	SD Subdrain	220	LF		
38.	SD Cleanout	2	EA		
39.	Trench Drain	36	SF		
40.	Bio-Retention Soil	1,790	SF		
41.	Adjust Fire Hydrant Service	1	EA		
42.	Landscape Grading	1,500	SF		
43.	Soil Amendment	1,500	SF		
44.	Arbor Mulch	1,500	SF		
45.	Gravel Dissapator	28	SF		
46.	Root Barrier	96	LF		
47.	Plugs	750	EA		
48.	1 Gal Grasses & Perennials	330	EA		
49.	15 Gal Trees	14	EA		
50.	Soils Reports	1	EA		
51.	Interpretive Sign (Fabricate and Install)	1	EA		
52.	Drip Irrigation	1,500	SF		
53.	Drip System Flush Valve	1	EA		
54.	Remote Control Valve	1	EA		
55.	Battery Powered Controller (1 Station)	1	EA		
56.	Soil Moisture Sensor	1	EA		
57.	Point of Connection	1	EA		
58.	Gate Valve (Conc. Valve Box)	1	EA		
59.	Control Wire	48	LF		
60.	Class 315 Mainline	38	LF		
61.	Sch. 40 Lateral Line	36	LF		
62.	Sch. 40 Sleeving	36	LF		
63.	Trench & Sleeve Under Street	36	LF		
64.	2-yr Maintenance/Plant Establishment	1,500	SF		
	Subtotal				

## SITE 6: CITY OF RICHMOND

ITEM NO	ITEM DESCRIPTION	UNITS	QTY	UNIT COST	ITEM COST
	Mobilization	1	LS		
2.	Traffic Control	1	LS		
3.	Survey	1	LS		
4.	Erosion Control	1	LS		
5.	Demo Landscape & Irrigation	650	SF		
ITEM	ITEM DESCRIPTION	UNITS	QTY	UNIT	ITEM

NO				COST	COST
6.	Demo Curb	240	LF		
7.	Demo Curb & Gutter	420	LF		
8.	Demo Sidewalk	2,700	SF		
9.	Demo Tree	1	EA		
10.	Demo Asphalt Pavement	5,360	SF		
11.	Sidewalk (no Steel)	2,090	SF		
12.	Sidewalk (w/ Reinforcement)	590	SF		
13.	Thickened Edge @ Sidewalk	130	LF		
14.	6" Curb	9	LF		
15.	Deep Curb	18	LF		
16.	Curb & Gutter (2'-4' Wide)	99	LF		
17.	Deep Curb & Gutter (2' Wide)	290	LF		
18.	Valley Gutter	10	LF		
19.	ADA Ramp	340	SF		
20.	AC Pavement	1,290	SF		
21.	Boardwalk	1,050	SF		
22.	Thermoplastic Crosswalk/Limit Line	52	SF		
23.	Adjust Manhole	2	EA		
24.	Adjust Meter/Pull Box	8	EA		
25.	10" Storm Drain Pipe	18	LF		
26.	SD Subdrain	160	LF		
27.	SD Cleanout	5	EA		
28.	Bio-Retention Soil	4,480	SF		
29.	Weir	1	EA		
30.	Install Pedestrian Push Button	2	EA		
31.	Landscape Grading	3,400	SF		
32.	Soil Amendment	3,400	SF		
33.	Pea Gravel Mulch	3,400	SF		
34.	Gravel Dissapator	160	SF		
35.	Cobble Dissapator in Concrete	130	SF		
36.	Root Barrier	220	LF		
37.	1 Gal Grasses & Perennials	1,130	EA		
38.	5 Gal Shrubs	81	EA		
39.	15 Gal Trees	14	EA		
40.	Truck Watering	1	EA		
41.	Soils Reports	1	EA		
42.	Interpretive Sign (Fabricate and Install)	1	EA		
43.	2-yr Maintenance/Plant Establishment	3,400	SF		
	Subtotal				

## SITE 7: CITY OF SAN PABLO

ITEM NO	ITEM DESCRIPTION	UNITS	QTY	UNIT COST	ITEM COST
1.	Mobilization	1	LS		
2.	Traffic Control	1	LS		
3.	Survey	1	LS		
4.	Erosion Control	1	LS		
5.	Demo Curb & Gutter	210	LF		
6.	Demo Sidewalk	1,120	SF		
7.	Demo Asphalt Pavement	230	SF		
8.	Deep Curb & Gutter (5-6' Wide)	210	LF		
9.	AC Pavement	210	SF		
10.	SD Subdrain	200	LF		
11.	SD Cleanout	6	EA		
12.	Bio-Retention Soil	940	SF		
13.	Landscape Grading	1,130	SF		
14.	Soil Amendment	1,130	SF		
15.	Pea Gravel Mulch	1,130	SF		
16.	Gravel Dissapator	110	SF		
17.	Root Barrier	360	LF		
18.	1 Gal Grasses & Perennials	360	EA		
19.	5 Gal Shrubs	10	EA		
20.	15 Gal Trees	15	EA		
21.	Soils Reports	1	EA		
22.	Interpretive Sign (Fabricate and Install)	1	EA		
23.	Drip Irrigation	1,130	SF		
24.	Drip System Flush Valve	2	EA		
25.	Remote Control Valve	2	EA		
26.	Soil Moisture Sensor	2	EA		
27.	Point of Connection	2	EA		
28.	Control Wire	20	LF		
29.	Class 315 Mainline	20	LF		
30.	Sch. 40 Lateral Line	470	LF		
31.	Sch. 40 Sleeving	20	LF		
32.	Trench & Sleeve Under Street	360	LF		
33.	2-yr Maintenance/Plant Establishment	1,130	SF		
	Subtotal				

## SITE 3: CITY OF BERKELEY

ITEM NO	ITEM DESCRIPTION	UNITS	QTY	UNIT COST	ITEM COST
1.	Mobilization	1	LS		
2.	Traffic Control	1	LS		
3.	Survey	1	LS		
4.	Erosion Control	1	LS		
5.	Demo Curb & Gutter	120	LF		
6.	Demo Sidewalk	1,040	SF		
7.	Demo Asphalt Pavement	730	SF		
8.	Sidewalk (no Steel)	550	SF		
9.	Deep Curb & Gutter (2' Wide)	130	LF		
10.	AC Pavement	220	SF		
11.	Fence	130	LF		
12.	Painted Parking Stall Line/Tee	30	LF		
13.	Adjust Meter/Pull Box	4	EA		
14.	Storm Drain Inlet	1	EA		
15.	SD Subdrain	350	LF		
16.	SD Cleanout	5	EA		
17.	Bio-Retention Soil	940	SF		
18.	Landscape Grading	780	SF		
19.	Soil Amendment	780	SF		
20.	Pea Gravel Mulch	780	SF		
21.	Gravel Dissapator	96	SF		
22.	Root Barrier	96	LF		
23.	1 Gal Grasses & Perennials	200	EA		
24.	5 Gal Shrubs	41	EA		
25.	15 Gal Trees	4	EA		
26.	Soils Reports	1	EA		
27.	Interpretive Sign (Fabricate and Install)	1	EA		
28.	Drip Irrigation	780	SF		
29.	Drip System Flush Valve	1	EA		
30.	Remote Control Valve	1	EA		
31.	Battery Powered Controller (1 Station)	1	EA		
32.	Soil Moisture Sensor	1	EA		
33.	Point of Connection	1	EA		
34.	Gate Valve	1	EA		
35.	Control Wire	30	LF		
36.	Class 315 Mainline	35	LF		
37.	Sch. 40 Lateral Line	280	LF		
38.	Sch. 40 Sleeving	320	LF		
ITEM NO	ITEM DESCRIPTION	UNITS	QTY	UNIT COST	ITEM COST
39.	Trench & Sleeve Under Street	30	LF		

40.	2-yr Maintenance/Plant Establishment	780	SF		
	Subtotal				

## SITE 4: CITY OF ALBANY

ITEM NO	ITEM DESCRIPTION	UNITS	QTY	UNIT COST	ITEM COST
1.	Mobilization	1	LS		
2.	Traffic Control	1	LS		
3.	Survey	1	LS		
4.	Erosion Control	1	LS		
5.	Demo Curb & Gutter	160	LF		
6.	Demo Sidewalk	920	SF		
7.	Demo Tree	1	EA		
8.	Demo Asphalt Pavement	1,010	SF		
9.	Sidewalk (no Steel)	900	SF		
10.	Deep Curb	120	LF		
11.	Curb & Gutter (5' Wide)	9	LF		
12.	Deep Curb & Gutter (2' Wide)	150	LF		
13.	Perimeter Curb	220	LF		
14.	AC Pavement	300	SF		
15.	Adjust Meter/Pull Box	5	EA		
16.	Bio-Retention Soil	970	SF		
17.	Landscape Grading	970	SF		
18.	Soil Amendment	970	SF		
19.	Arbor Mulch	320	SF		
20.	Pea Gravel Mulch	650	SF		
21.	Gravel Dissapator	30	SF		
22.	Root Barrier	240	LF		
23.	1 Gal Grasses & Perennials	290	EA		
24.	15 Gal Trees	11	EA		
25.	Truck Watering	1	EA		
26.	Soils Reports	1	EA		
27.	Interpretive Sign (Fabricate and Install)	1	EA		
28.	2-yr Maintenance/Plant Establishment	970	SF		
	Subtotal				

## SITE 8: CITY OF EL CERRITO

ITEM NO	ITEM DESCRIPTION	UNITS	QTY	UNIT COST	ITEM COST
1.	Mobilization	1	LS		
2.	Traffic Control	1	LS		
3.	Survey	1	LS		
4.	Erosion Control	1	LS		
5.	Demo Landscape & Irrigation	1,380	SF		
6.	Demo Curb	530	LF		
7.	Demo Curb & Gutter	340	LF		
8.	Demo Sidewalk	7,110	SF		
9.	Demo Tree	4	EA		
10.	Demo Asphalt Pavement	4,300	SF		
11.	Salvage Bike Rack	1	EA		
12.	Sidewalk (no Steel)	2,900	SF		
13.	Deep Curb	140	LF		
14.	Deep Traffic Curb	110	LF		
15.	Curb & Gutter (5' Wide)	52	LF		
16.	Deep Curb & Gutter (5-6' Wide)	230	LF		
17.	Perimeter Curb	240	LF		
18.	ADA Ramp	120	SF		
19.	AC Pavement	4,080	SF		
20.	Thermoplastic Crosswalk/Limit Line	40	SF		
21.	6" Painted Bike Lane Stripe (2 coat)	88	LF		
22.	Painted Centerline Stripe (2 coat)	330	LF		
23.	4" Painted Lane Line Stripe (2 coat)	590	LF		
24.	8" Painted Lane Line (2 coat)	150	EA		
25.	Painted Parking Stall Line/Tee	310	LF		
26.	Adjust Meter/Pull Box	5	EA		
27.	SD Subdrain	320	LF		
28.	SD Cleanout	8	EA		
29.	Bio-Retention Soil	2,980	SF		
30.	Relocate Streetlight	2	EA		
31.	Landscape Grading	2,900	SF		
32.	Soil Amendment	2,900	SF		
33.	Pea Gravel Mulch	2,900	SF		
34.	Gravel Dissapator	62	SF		
35.	Cobble Dissapator in Concrete	15	SF		
36.	Root Barrier	500	LF		
37.	1 Gal Grasses & Perennials	890	EA		
ITEM NO	ITEM DESCRIPTION	UNITS	QTY	UNIT COST	ITEM COST
38.	5 Gal Shrubs	84	EA		
39.	15 Gal Trees	10	EA		

40.	Soils Reports	1	EA		
41.	Interpretive Sign (Fabricate and Install)	1	EA		
42.	Drip Irrigation	2,900	SF		
43.	Drip System Flush Valve	2	EA		
44.	Remote Control Valve	2	EA		
45.	Battery Powered Controller (2 Station)	1	EA		
46.	Soil Moisture Sensor	2	EA		
47.	Point of Connection	1	EA		
48.	Gate Valve	1	EA		
49.	Control Wire	220	LF		
50.	Class 315 Mainline	110	LF		
51.	Sch. 40 Lateral Line	180	LF		
52.	Sch. 40 Sleeving	210	LF		
53.	Trench & Sleeve Under Street	30	LF		
54.	2-yr Maintenance/Plant Establishment	2,900	SF		
	Subtotal				
<b>TOTAL BID:</b>					
<b>(SITE 1 + SITE 6 + SITE 7 + SITE3 + SITE 4 + SITE 8)</b>					

**Total Bid (words):**

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**Contractor Signature:**

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The price for lump sum bid items shall include all costs for the construction of the improvements with appurtenances, including labor and material, as shown on the plan and herein described.

Bids are required for the entire work. The amount of the bid for comparison purposes shall be the Total Bid of all items.

The bidder shall set forth each item of work, in clearly legible figures, an item price and a total for the item in the respective spaces provided for this purpose. In the case of unit basis items, the amount set forth under the "Total" column shall be the extension of the item price bid on the basis of the estimated quantity for the item.

In case of discrepancy between the item price and the total set forth for the item, the item price shall prevail, provided, however, if the amount set forth as an item price is ambiguous, unintelligible or uncertain for any cause, or is omitted, or in the case of unit basis items, is the same amount as the entry in the "Total" column, then the amount set forth in the "Total" column for the item shall prevail in accordance with the following:

1. As to lump sum items, the amount set forth in the "Total" column shall be the item price.
2. As to unit basis items, the amount set forth in the "Total" column shall be divided by the estimated quantity for the item and the price thus obtained shall be the item price.

Bidder understands that ABAG reserves the right to reject any or all bids and to waive any informality in the bidding.

The Bidder agrees that this Bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

It is hereby agreed that the undersigned, as Bidder, shall furnish a Faithful Performance Bond, a Payment Bond, and Landscape Establishment Bond each in an amount equal to one hundred percent (100%) of the total amount of this proposal, to the ABAG and at no expense to ABAG, executed by a responsible surety acceptable ABAG, in the event that this Proposal is accepted by ABAG.

If this Proposal shall be accepted and the undersigned shall fail to contract as aforesaid and to give the three (3) bonds in the sums to be determined as aforesaid with surety satisfactory to the ABAG within ten (10) days, not including Sundays and legal holidays, after the bidder has received notice that the Contract has been awarded, the ABAG may, at its option, determine that the Bidder has abandoned the Contract and thereupon this Proposal and the acceptance thereof shall be null and void and the forfeiture of such security accompanying this Proposal shall operate and the same shall be the property of the ABAG.

Accompanying this Proposal are \_\_\_\_\_(Note: Insert the words "Cashier's Check," "Certified Check," or "Bidder's Bond" as the case may be) in an amount equal to at least ten percent (10%) of the total bid, Bidder's Statement of Subcontractors, Bidder's Statement of Suppliers for Major Equipment and Materials and Experience Qualifications.

**San Pablo Avenue Green Stormwater Spine Project  
Project "B"  
Contract No. 102215**

**Bid Addendum Sheet**

Bidder acknowledges receipt of the following addendum(s):

<u>Addendum</u>	<u>Date</u>	<u>Initial</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

The undersigned is licensed in accordance with the Act providing for registration of contractors, License No. \_\_\_\_\_, Expiration Date \_\_\_\_\_, DIR Public Works Registration No. \_\_\_\_\_.

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

Signature of Bidder \_\_\_\_\_

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

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

\_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

Email: \_\_\_\_\_

(If an individual, so state. If a partnership, state the name of the partnership and supply information to the satisfaction of the Director covering the authority of the individual or individuals who have signed the Proposal to sign on behalf of the partnership. If a firm or corporation, state the legal name of the firm or corporation and supply information to the satisfaction of the Director concerning the authority of the individual or individuals who have signed the Proposal to sign on behalf of the firm or corporation.)

**Bidders Bond Information**

Accompanying this proposal is a "cashier's check" or "bidder's bond," as they may be, in an amount equal to at least ten percent of total of the bid.

If this proposal is accepted and the undersigned fails to enter into the contract and to give the two bonds in the form and amount required within eight (8) days, not including Sundays and legal holidays, after the bidder has received notice from the City Engineer, the City Engineer may, at his option, determine that the bidder has abandoned the contract. On such determination, this proposal and the acceptance of it shall be null and void and the security accompanying this proposal shall be forfeited and shall be the property of the City of Richmond.

**Noncollusion Statement**

The undersigned, as bidder, declares that the only persons or parties interested in this proposal as principals are those named herein and that this proposal is made without collusion with any other person, firm or corporation. In submitting this proposal the undersigned bidder agrees that if it is determined that he is the successful bidder, he will execute the noncollusion affidavit.

**Public Contract Code Section 10285.1 Statement**

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has \_\_\_ , has not been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

**Public Contract Code Section 10162 Questionnaire**

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

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

Yes \_\_\_ . No \_\_\_ .

If the answer is yes, explain the circumstances in the following space.

**Public Contract Code 10232 Statement**

In conformance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement and Questionnaire. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Bond No. \_\_\_\_\_

**BID BOND**

KNOW ALL PERSONS BY THESE PRESENTS:

That We, \_\_\_\_\_, as Principal, and \_\_\_\_\_, as Surety, are hereby held and firmly bound unto the Association of Bay Area Governments, in the penal sum of TEN PERCENT (10%) of the total bid submitted by said Principal to the Association of Bay Area Governments for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. In no case shall the liability of the surety hereunder exceed the sum of \$ \_\_\_\_\_.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH,

THAT, WHEREAS, the Principal has submitted to the Association of Bay Area Governments a certain bid, attached hereto and hereby made a part hereof, to enter into a contract-in-writing for **THE SAN PABLO AVENUE GREEN STORMWATER SPINE PACKAGE "B" CONTRACT NO. 102215.**

NOW, THEREFORE, if said bid submitted by the Principal be accepted and the contract be awarded to the Principal and the Principal shall, within ten (10) days after having received notice that the contract has been awarded to the Principal, enter into the Contract so awarded, shall furnish the required corporate surety bonds and insurance coverage verification and shall in all other respects perform the agreement created by the acceptance of the bid, then this obligation shall be void, otherwise the same shall remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which Association of Bay Area Governments may accept such Bid; and said Surety does hereby waive notice of such extension.

As a part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by the Association of Bay Area Governments in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals on this

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

Principal: \_\_\_\_\_  
(Name of Firm)

Surety: \_\_\_\_\_  
(Name of Firm)

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

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

Address for Notices to Surety:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**NOTE: NOTARY ACKNOWLEDGMENT FOR SURETY AND SURETY'S POWER OF ATTORNEY MUST BE ATTACHED.**

**Exhibit B- Bidder's Experience /Qualifications**

The Bidder represents that it is competent, knowledgeable, has not presented false claims to its past or present clients, and has special skills on the nature, extent, and inherent conditions of the work to be performed. Bidder further acknowledges that there are certain peculiar and inherent conditions existent in the construction of the particular facilities which may create, during the construction program, unusual or peculiar unsafe conditions hazardous to persons and property. Bidder expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the construction work with respect to such hazards. The Bidder shall complete the following questionnaire:

1. In what type of construction does the firm specialize?

\_\_\_\_\_

\_\_\_\_\_

2. Have officers or principals of the firm ever had their contractor's licenses suspended or revoked? Yes\_\_\_\_  
(Explain on a separate, signed sheet) No\_\_\_\_

3. List at least 5 subcontractors the firm regularly uses:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. List of employees from which on-site superintendent would be chosen:

<u>Name</u>	<u>Position</u>	<u>Years w/ firm</u>	<u>Years experience</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

5. List of employees from which project manager (or project engineer, if they will function as project manager) would be chosen:

<u>Name</u>	<u>Position</u>	<u>Years w/ firm</u>	<u>Years experience</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

	<u>Yes</u>	<u>No</u>
6. Has firm, owner or affiliated company ever:		
A. Been unable to obtain a bond or been denied a bond for a contract?	___	___
B. Defaulted on a contract forcing a Surety to suffer a loss?	___	___
C. Failed to complete a contract within Time of Completion?	___	___
D. Ever declared bankruptcy?	___	___
E. Been in receivership?	___	___
F. Had any arbitration on a contract?	___	___
G. Are there any outstanding Stop Notices filed against firm?	___	___
H. Been sued by a client?	___	___
I. Failed to complete a project for any reason?	___	___

Explain any Yes answers, with dates of occurrences, on a separate, signed sheet, or in the space below:

**Exhibit B- Bidder's Experience /Qualifications (continued)**

7. Provide information on the 5 most recent contracts (excluding those which have not been in construction for at least 2 months):  
Do not list projects with values less than \$\_\_\_\_\_.

<u>Owner</u>	<u>Contact Person</u>	<u>Phone #</u>	<u>Project Name/Description</u>	<u>Contract Award Value</u>	<u>Date Awarded</u>

8. List 3 contracts completed for a public agency in the past three years which are of comparable scope to subject bid:

<u>Agency</u>			
<u>Contact Person</u>			
<u>Phone #</u>			
<u>Project Name/Description</u>			
<u>Contract Award Value</u>			
<u>Final Contract Value</u>			
<u>Date of Notice to Proceed</u>			
<u>Contract Time of Completion</u>	_____ working days	_____ working days	_____ working days
<u>Actual Time of Completion</u>	_____ working days	_____ working days	_____ working days
<u>Date of Completion</u>			

9. By submitting this bid, Bidder grants City any permission which may be necessary to contact Bidder's past & present clients, whether or not listed above or otherwise disclosed. City may use its own experience with bidder as basis to determine responsibility of bidder.

## CONTRACTOR LICENSE INFORMATION

The bidder acknowledges that a license is required for performance of **THE SAN PABLO AVENUE GREEN STORMWATER SPINE PROJECT PACKAGE "B" CONTRACT NO. 102215.**

The bidder holds the following California Contractors License(s):

1. License No. \_\_\_\_\_, Class \_\_\_\_\_, Expiration Date \_\_\_\_\_  
DIR Public Works Registration No. \_\_\_\_\_
2. License No. \_\_\_\_\_, Class \_\_\_\_\_, Expiration Date \_\_\_\_\_  
DIR Public Works Registration No. \_\_\_\_\_
3. License No. \_\_\_\_\_, Class \_\_\_\_\_, Expiration Date \_\_\_\_\_  
DIR Public Works Registration No. \_\_\_\_\_
4. License No. \_\_\_\_\_, Class \_\_\_\_\_, Expiration Date \_\_\_\_\_  
DIR Public Works Registration No. \_\_\_\_\_
5. License No. \_\_\_\_\_, Class \_\_\_\_\_, Expiration Date \_\_\_\_\_  
DIR Public Works Registration No. \_\_\_\_\_
6. License No. \_\_\_\_\_, Class \_\_\_\_\_, Expiration Date \_\_\_\_\_  
DIR Public Works Registration No. \_\_\_\_\_
7. License No. \_\_\_\_\_, Class \_\_\_\_\_, Expiration Date \_\_\_\_\_  
DIR Public Works Registration No. \_\_\_\_\_
8. License No. \_\_\_\_\_, Class \_\_\_\_\_, Expiration Date \_\_\_\_\_  
DIR Public Works Registration No. \_\_\_\_\_
9. License No. \_\_\_\_\_, Class \_\_\_\_\_, Expiration Date \_\_\_\_\_  
DIR Public Works Registration No. \_\_\_\_\_
10. License No. \_\_\_\_\_, Class \_\_\_\_\_, Expiration Date \_\_\_\_\_  
DIR Public Works Registration No. \_\_\_\_\_

Bidder's Taxpayer Identification No. \_\_\_\_\_

## LIST OF SUBCONTRACTORS

In accordance with the requirements of the Subletting and Subcontracting Fair Practices Act, California Public Contract Code Section 4100 and following, listed below are the name, business location, and the portion (type or trade) of the Project work to be subcontracted to each subcontractor that will perform a portion of the Project work (including special fabrication and installation of a portion of the work) valued in excess of one half of one percent of the total bid price. If the Project work includes construction of streets or highways, listed below are the name, business location, and the portion (type or trade) of the Project Work to be subcontracted to each subcontractor that will perform a portion of the Project work (including special fabrication and installation of a portion of the work) valued in excess of one half of one percent of the total Project bid price, or ten thousand dollars, whichever is greater. Also listed below are the proposed subcontract dollar amount and current California Contractor's License Number(s) for each proposed subcontractor. Bids that fail to include complete proposed subcontractor information in accordance with this form and Public Contract Code Section 4100 and following may be deemed non-responsive.

In accordance with California Public Contract Code Section 4106, for any portion of the Project work with a value of more than one half of one percent of the total bid price for which no subcontractor is listed, or for which more than one subcontractor is listed, the bidder certifies by submission of its bid that the bidder is qualified to perform that portion of the Project work and that the bidder will perform that portion of the Project work with its own forces. The penalties listed in California Public Contract Code Section 4111 will apply to any substitution of another subcontractor for a subcontractor listed below except as permitted by the ABAG in accordance with Section 4107 and following of the California Public Contract Code.

1. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_
  
2. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_
  
3. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_
  
4. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_
  
5. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_

6. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_
  
7. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_
  
8. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_
  
9. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_
  
10. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_
  
11. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_
  
12. Subcontractor Name \_\_\_\_\_  
 Business Location \_\_\_\_\_  
 Trade \_\_\_\_\_  
 Subcontract Amount \_\_\_\_\_  
 Current Contractor's License No.(s) \_\_\_\_\_  
 Subcontractor DIR Public Works Registration No. \_\_\_\_\_

**WORKERS' COMPENSATION CERTIFICATION**

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

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

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

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

**NON-COLLUSION AFFIDAVIT**  
**(TO BE EXECUTED AND SUBMITTED WITH BID)**

FOR

**San Pablo Avenue Green Stormwater Spine Project**  
**Package "B"**  
**Contract NO. 102215**

All bidders shall complete the following form and submit it with their bids:

State of California

County of \_\_\_\_\_

[name] \_\_\_\_\_, being first duly sworn, deposes and says that he or she is [title] \_\_\_\_\_ of [company] \_\_\_\_\_, the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, or connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

**IN WITNESS WHEREOF**, the undersigned represent and warrant that they have the right, power, legal capacity, and authority to sign this document on behalf of the Bidder, and have caused this document to be executed by setting hereto their names, titles and signatures at \_\_\_\_\_ County, in the State of \_\_\_\_\_  
\_\_\_\_\_.

BIDDER:

\_\_\_\_\_  
(Signature) (Date)

\_\_\_\_\_  
(Printed or Typed Name and Title of Signatories)

\_\_\_\_\_  
(Legal Name of Bidder)

## BIDDER'S SIGNATURE PAGE

By signing this proposal the bidder certifies, under penalty of perjury under the laws of the State of California, that the information submitted w1 ("Project"), which information includes, but is not limited to, the Bidder's Check List, Proposal and Schedule of Bid Prices, Bid Bond, Contractor License Information, List of Subcontractors, Workers Compensation Insurance Certification, Non-collusion Affidavit, Public Contract Code Section 10285.1 Statement, Public Contract Code Section 10162 Questionnaire, Public Contract Code Section 10232 Statement and Bidder's Questionnaire, if any, Landscape Establishment Bond is accurate, true and correct, and is submitted in accordance with the requirements of the bid package issued by the Office of the Association of Bay Area Governments concerning Project and applicable law. By signing this proposal the bidder representative specified below certifies that he or she is legally authorized to bind the bidder.

The bidder agrees to deliver and to complete the Project within **175 Days** from the date of issuance, by ABAG, of instructions to proceed with the Project, and within 10 Days of the date of mailing of the notice of award, to enter into and execute and provide to ABAG the Project contract, bonds and all other documents specified in the Contract Check List included in the bid package, and in case of default in executing the Project contract within the time fixed by the Instructions to Bidders, the bidder's security accompanying this bid shall become the property of and be forfeited to ABAG.

Prime Contractor \_\_\_\_\_

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

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2016

(Corporate Seal)

Corporate signature

\_\_\_\_\_

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

Phone No.: \_\_\_\_\_

President's signature \_\_\_\_\_

Secretary's signature \_\_\_\_\_

Corporation organized under the laws of the State of \_\_\_\_\_

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

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

Names of Co-Partners and Addresses:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Names of Individuals and Addresses:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOTE: Sign in proper space above.

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

\_\_\_\_\_  
(Typed or printed name)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Bidder)

Bidder business address (street, city, state and zip code)

\_\_\_\_\_  
\_\_\_\_\_

Bidder Business phone: (    ) \_\_\_\_\_

Bidder Business fax: (    ) \_\_\_\_\_

STATE OF CALIFORNIA)  
County of \_\_\_\_\_)

On \_\_\_\_\_, 201\_\_, before me \_\_\_\_\_

\_\_\_\_\_ (here insert name and title of officer) a Notary Public in

and for the State of California, personally appeared \_\_\_\_\_, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity (ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature \_\_\_\_\_

(Seal)

# **APPENDIX A**

## **San Francisco Estuary Partnership STANDARD AND SAMPLE FORMS:**

- **A-1 CONSTRUCTION AGREEMENT**
- **A-2 PAYMENT BOND (sample)**
- **A-3 PERFORMANCE BOND (sample)**
- **A-4 LANDSCAPE ESTABLISHMENT BOND (sample)**
- **A-5 ATTACHMENT 1 - INDEMNITY AND INSURANCE  
REQUIREMENTS**

## CONSTRUCTION AGREEMENT

This Construction Contract (Contract) is made and entered into this \_\_\_\_ day of \_\_\_\_, 201\_, by and between the Association of Bay Area Governments (ABAG), a joint powers authority which is the home agency for the San Francisco Estuary Partnership (SFEP) and \_\_\_\_\_ (Contractor). The parties may be referred to in this Contract individually as Party and collectively as the Parties.

### RECITALS

- A. On \_\_\_\_\_, ABAG circulated an Invitation for Bids seeking contractors willing to undertake the construction of \_\_\_\_\_, located at \_\_\_\_\_ (the Project).
- B. The Project is comprised of six (6) Low Impact Design (LID) stormwater retrofit projects at select sites in the cities of San Pablo, Richmond, El Cerrito, Albany, Berkeley, and Oakland (collectively, Cities). Upon completion, the city in which the LID is located will assume ownership of the LID.
- C. Contractor submitted the lowest responsive bid and has been determined to be responsible.
- D. ABAG now desires to contract with Contractor to furnish construction and related services for the Project.

NOW THEREFORE, in consideration of the promises and agreements hereinafter set forth, and intending to be bound hereby, the Parties agree as follows:

### ARTICLE I CONSTRUCTION OF PROJECT

#### Section 1.1 Contract Documents.

Project Specifications – including the Notice to Prospective Bidders, Invitation for Bids, Instructions to Bidders, Introductory Information, Bidding Requirements, Contracting Requirements, Conditions of the Contract, all Bonds (Faithful Performance, Payment and Landscape Establishment), Standard Specifications, Special Provisions, Attachment 1 to the Special Provisions, Construction Details (including all plans and specifications), and Proposal Package, along with any Requests for Information (RFI), responses to RFI, and addenda issued prior to the deadline for submitting bids [THIS LIST MAY BE MODIFIED TO PROVIDE A MORE DETAILED DESCRIPTION OF THE DOCUMENTS FOR YOUR PROJECT – FOR EXAMPLE, YOU MAY SPECIFY THE NUMBER OF RFI/RESPONSES TO RFI THAT RE INCLUDED] – Contractor’s Proposal attached as Exhibit A, and this Contract, constitute the Contract Documents.

#### Section 1.2 Construction.

Contractor shall furnish all labor, materials, methods, processes, implements, tools and machinery, within the time frames set, and do all the things necessary for the proper completion of the work shown and described in Contract Documents.

Section 1.3 Contract Time and Liquidated Damages

1. Contract Time. Contractor shall commence Work at the Site on the date established in the Notice to Proceed. ABAG reserves the right to modify or alter the Commencement Date of the Work. Contractor shall achieve Substantial Completion of the entire Work (other than erosion control and non-substantial punch list items) by \_\_\_\_\_. Contract Time commences to run as provided in the Notice to Proceed. Contractor shall achieve Final Completion of the entire Work and be ready for Final Payment by \_\_\_\_\_.

	Substantial Completion Date	Final Completion Date
Site 1: Oakland	<u>9/2/16</u>	<u>9/22/16</u>
Site 6: Richmond	<u>8/9/16</u>	<u>8/29/16</u>
Site 8: El Cerrito	<u>10/25/16</u>	<u>11/3/16</u>
Site 3: Berkeley	<u>10/4/16</u>	<u>10/18/16</u>
Site 4: Albany	<u>11/15/16</u>	<u>11/23/16</u>
Site 7: San Pablo	<u>11/24/16</u>	<u>12/8/16</u>

2. Liquidated Damages. ABAG and Contractor recognize that time is of the essence of this Agreement and that ABAG will suffer financial loss in the form of contract administration expenses (such as project management and consultant expenses), if all or any part of the Work is not completed within the times specified above, plus any extensions thereof allowed in accordance with the Contract Documents. Consistent with this section, Contractor and ABAG agree that because of the nature of the Project, it would be impractical or extremely difficult to fix the amount of actual damages incurred by ABAG because of a delay in completion of all or any part of the Work. Accordingly, ABAG and Contractor agree that as liquidated damages for delay Contractor shall pay ABAG:

- A. \$3,000 for each Day that expires after the time specified herein for Contractor to achieve Substantial Completion of the entire Work until achieved.
- B. \$3,000 for each Day that expires after the time specified herein for Contractor to achieve Final Completion of the entire Work, until achieved.

These measures of liquidated damages shall apply cumulatively and except as provided below, shall be presumed to be the damages suffered by ABAG resulting from delay in completion of the Work.

3. Liquidated damages for delay shall only cover administrative, overhead, interest on bonds, and general loss of public use damages suffered by ABAG as a result of delay. Liquidated damages shall not cover the cost of completion of the Work, damages resulting from defective Work, lost revenues or costs of substitute facilities, or damages suffered by others who then seek to recover their damages from ABAG (for example, delay claims of other contractors, subcontractors, tenants, or other third-parties), and defense costs thereof.

#### Section 1.4 Payments.

Contractor agrees to receive and accept the sums set forth in the Bid Schedule attached as part of the Proposal, as full compensation for furnishing all materials and doing all the work contemplated and required by this Contract, and for all loss or damage arising out of the nature of the undertaking of the construction of the Project, or from the acts of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the construction of the Project until its completion and acceptance by ABAG, and for all expenses incurred by or in consequence of the suspension or discontinuance of the construction of the Project, and for well and faithfully performing the construction of the Project and the whole thereof, in the manner and according to the Contract Documents.

#### Section 1.5 Discovery of Hazardous Waste or Unusual Conditions.

(a) Promptly and before the following conditions are disturbed, the Contractor shall notify the ABAG in writing of any:

(1) Material that the Contractor believes may be 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 this Contract.

(b) ABAG 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 this Contract.

(c) In the event that a dispute arises between the ABAG 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 this Contract, but shall proceed with all work to be performed under this 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 Parties.

#### Section 1.6 Laws and Regulations.

(a) The Project work shall proceed only after procurement of each permit, license, or other authorization that may be required by any governmental agency having jurisdiction, and Contractor shall be responsible to the ABAG for the procurement and maintenance thereof. ???

(b) Contractor shall cause all work performed in connection with construction of the Project to be performed in compliance with (i) all applicable laws, ordinances, rules and regulations now in force or that may be enacted hereafter, including, but not limited to, any applicable ordinances of any of the Cities; (ii) all conditions of Project approval and mitigation measures included in any adopted or certified environmental document prepared for the Project; and (iii) all directions, rules and regulations of any fire marshal, health

officer, building inspector, or other officer of every governmental agency now having or hereafter acquiring jurisdiction, provided that such direction given during construction does not conflict with conditions of Project approval or mitigation measures.

(c) Contractor shall, and shall cause its subcontractors to pay, prevailing wages in the construction of the Project as those wages are determined pursuant to the Contract Documents, and to comply with all other applicable federal, State and local laws, regulations and ordinances pertaining to labor standards insofar as those laws, regulations and ordinances apply to the performance of this Contract, including, but not limited to, any applicable ordinances of any of the Cities. During the construction of the Project, Contractor shall post at the construction site the applicable prevailing rates of per diem wages

(d) Contractor and all subcontractors shall maintain accurate payroll records showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker and others employed on the Project. Each payroll record shall contain or be verified by a written declaration made under penalty of perjury, stating both of the following: (1) the information contained in the payroll record is true and correct, and (2) the employer has complied with the requirements of Labor Code Section 1771 (prevailing wage provisions), Section 1811 (eight-hour day, forty-hour week provisions), and Section 1815 (overtime compensation) for any work performed by his or her employees on the Project. The Contractor shall provide certified payroll records to ABAG each week, no later than ten (10) days after the end of a weekly pay period. Pay records shall be maintained and made available in accordance with Labor Code Section 1776. This Section 1.5(d) shall survive the termination of this Contract. **Registration with DIR website for upload of Prevailing Wages**

#### Section 1.7 Inspections.

Contractor shall permit and facilitate, and shall require its subcontractors to permit and facilitate, observation and inspection of the Project by ABAG and by public authorities at all times for the purposes of determining compliance with this Contract and permits issued to perform the Project work. In so doing, Contractor shall provide access for testing and inspections. Contractor shall coordinate and schedule all testing and inspections required on the Project with the required advance notice as defined in the Project Specifications.

#### Section 1.8 Equal Opportunity.

During the construction of the Project there shall be no discrimination on the basis of race, color, creed, religion, age, sex, sexual orientation, marital status, national origin, ancestry, or disability in the hiring, firing, promoting, or demoting of any person engaged in the construction work.

## **ARTICLE II DEFAULT AND REMEDIES**

#### 2.1 Events of Default.

In addition the remedies set forth in Section 2.2, below, in the event of default the Project Manager of ABAG/SFEP reserves the right to stop work immediately if any action or inaction by the Contractor or any subcontractor creates a risk of imminent harm to the public or property.

Each of the following shall constitute a "Default" by Contractor under this Contract:

- (a) **Breach of Covenants.** Failure by Contractor or any subcontractor to duly perform, comply with, or observe any of the conditions, terms, or covenants of any of the Contract Documents. ABAG shall give Contractor written notice of the breach and specify a time in which to cure the breach. If the Contractor cures the breach within the time specified in the notice or, if the breach cannot be cured in the time specified but the Contractor has diligently pursued measures to cure the breach and to keep the ABAG informed of its progress, then the breach shall not constitute a default provided that the breach is cured within thirty (30) days from the date of the ABAG's last notice and demand to cure.
- (b) **Disregard of Laws.** Disregard of laws, rules, regulations, directions or instructions of ABAG by Contractor or any subcontractor with respect to the performance of work.
- (c) **Insolvency.** A court having jurisdiction shall have made or entered any decree or order (i) adjudging Contractor to be bankrupt or insolvent, (ii) approving as properly filed a petition seeking reorganization of Contractor or seeking any arrangement for Contractor under the bankruptcy law or any other applicable debtor's relief law or statute of the United States or any state or other jurisdiction, (iii) appointing a receiver, trustee, liquidator, or assignee of Contractor in bankruptcy or insolvency or for any of their properties, (iv) directing the winding up or liquidation of Contractor if any such decree or order described in clauses (i) to (iv), inclusive, shall have continued unstayed or undischarged for a period of ninety (90) days; or (v) Contractor shall have admitted in writing its inability to pay its debts as they fall due or shall have voluntarily submitted to or filed a petition seeking any decree or order of the nature described in clauses (i) to (iv), inclusive.
- (d) **Suspension; Termination.** Contractor shall have voluntarily suspended its business, or shall have voluntarily or involuntarily lost or terminated one or more of the licenses required to perform the work.
- (e) **Liens on Property and the Development.** There shall be filed any claim of lien (other than liens approved in writing by the ABAG) against the Project or the construction site or any part thereof, or any interest or right made appurtenant thereto and the continued maintenance of said claim of lien for a period of twenty (20) days without discharge or satisfaction thereof or provision therefore (including, without limitation, the posting of bonds) satisfactory to the ABAG.

## 2.2 Remedies.

The occurrence of any Default hereunder following the expiration of all applicable notice and cure periods will, either at the option of ABAG or automatically where so specified, relieve ABAG of any obligation to make or continue payments and shall give ABAG the right to proceed with any and all remedies set forth in the Contract Documents, including but not limited to the following:

- (a) **Specific Performance.** ABAG shall have the right to mandamus or other suit, action or proceeding at law or in equity to require Contractor to perform its obligations and covenants under this Contract or to enjoin acts on things which may be unlawful or in violation of the provisions of this Contract.
- (b) **Right of Contest.** Contractor shall have the right to contest in good faith any claim, demand, levy, or assessment the assertion of which would constitute a Default hereunder. Any such contest shall be prosecuted diligently and in a manner nonprejudicial to ABAG or the rights of ABAG hereunder.
- (c) **Remedies Cumulative.** No right, power, or remedy given to the ABAG by the terms of the Contract Documents is intended to be exclusive of any other right, power, or remedy; and each and every such right,

power, or remedy shall be cumulative and in addition to every other right, power, or remedy given to the ABAG by the terms of any such instrument, or by any statute or otherwise against Contractor and any other person. Neither the failure nor any delay on the part of the ABAG to exercise any such rights and remedies shall operate as a waiver thereof, nor shall any single or partial exercise by the ABAG of any such right or remedy preclude any other or further exercise of such right or remedy, or any other right or remedy.

### 2.3 Waiver of Damages.

Contractor, in having tendered the Proposal, shall be deemed to have waived any and all claims for damages because of termination of this Contract for any reason. Contractor shall not be entitled to any lost profit in the event of termination.

## **ARTICLE III GENERAL PROVISIONS**

### 3.1 Relationship of Parties.

Nothing contained in this Contract shall be interpreted or understood by any of the Parties, or by any third persons, as creating the relationship of employer and employee, principal and agent, limited or general partnership, or joint venture between ABAG and Contractor or its agents, employees or subcontractors, and Contractor shall at all times be deemed an independent contractor and shall be wholly responsible for the manner in which it or its agents, or both, perform the services required of it by the terms of this Contract. Contractor has and retains the right to exercise full control of employment, direction, compensation, and discharge of all persons assisting in the performance of services under the Contract. In regards to the construction of the Project, Contractor shall be solely responsible for all matters relating to payment of its employees, including compliance with Social Security, withholding, and all other laws and regulations governing such matters, and shall include requirements in each contract that subcontractors shall be solely responsible for similar matters relating to their employees. Contractor shall be solely responsible for its own acts and those of its agents and employees.

### 3.2 Change Orders.

(a) Changes affecting the time of performance, unit pricing, or total contract price shall be set forth in a written Change Order that shall specify:

- (1) The work performed in connection with the change to be made;
- (2) The amount of the adjustment to the Payment Limit, if any, and the basis for compensation for the work ordered; which adjustment may be a negotiated lump sum amount, agreed unit price, or paid under Section 9-1.04 "Force Account" of the 2010 State of California Department of Transportation Standard Specifications; and

(3) The amount of time to be adjusted in the schedule for performance, if any.

(b) A Change Order will become effective when signed by the Project Manager of ABAG/SFEP, or his or her representative, notwithstanding that Contractor has not signed it. A Change Order will become effective without Contractor's signature, provided the Project Manager of ABAG/SFEP or his or her representative so indicates by noting thereon "unilateral change order."

- (c) All changes in any plans and specification approved by any authority with jurisdiction over the Project may also require addenda or change orders approved by that authority.
- (d) Where ABAG requests, a performance bond rider covering the changed work must be executed and delivered to ABAG before proceeding with the changed work, or shortly in time thereafter.
- (e) The Project Manager of ABAG/SFEP or his or her representative has the authority to approve Change Orders with a cumulative dollar value of up to ten percent (10%) of the contract price.

### 3.3 Claims by Contractor.

(a) **No Third-Party Claims.** Nothing contained in this Contract shall create or justify any claim against ABAG by any person that Contractor may have employed or with whom Contractor may have contracted relative to the purchase of materials, supplies or equipment, or the furnishing or the performance of any work or services with respect to the construction of the Project, and Contractor shall include similar requirements in any contracts entered into for the construction of the Project.

(b) **Obligation to File Claims for Disputed Work.** Should it appear to the Contractor that the work to be performed or any of the matters relative to the Contract Documents are not satisfactorily detailed or explained therein, or should any questions arise as to the meaning or intent of the Contract Documents, or should any dispute arise regarding the true value of any work performed, work omitted, extra work that the Contractor may be required to perform, time extensions, payment to the Contractor during performance of the work, construction of the Project, and/or compliance with procedures or standards set forth in the Contract Documents, or should Contractor otherwise seek extra time or compensation **FOR ANY REASON WHATSOEVER**, then Contractor shall first follow the procedures set forth in this Contract, including but not limited to Section 3.2, "Change Orders." If a dispute remains, then Contractor shall give written notice to ABAG that expressly invokes this Section 3.3 and requests a determination of the issue. ABAG shall decide the issue in writing within 15 days; ABAG's decision shall be final and the limitations period for the filing of a claim shall commence upon the ABAG's issuance of its decision. If Contractor disagrees with ABAG's decision, or if Contractor contends that ABAG failed to provide a timely decision, then Contractor's **SOLE AND EXCLUSIVE REMEDY** is to file a written claim setting forth Contractor's position as required herein.

(c) **Form and Contents of Claim.** The Claim shall be submitted to the ABAG within thirty (30) days of receiving the ABAG's written decision regarding the dispute, or the date the Contractor contends such decision was due, and in no event later than the date of final payment. Contractor's written claim must identify itself as a "Claim" under this Section 3.3 and must include the following: (1) a narrative of pertinent events; (2) citation to contract provisions; (3) theory of entitlement; (4) complete pricing of all cost impacts; (5) a time impact analysis of all time delays that shows actual time impact on the critical path; (6) documentation supporting items 1 – 5; and (7) verification under penalty of perjury of the claim's accuracy. The Claim shall be priced like a Change Order, and must be updated every thirty (30) days as to cost and entitlement if it remains a continuing Claim. Routine contract materials, for example, correspondence, RFI, Change Order requests, or payment requests shall not constitute a Claim. Contractor shall bear all costs incurred in preparation, submittal, and administration of a Claim.

(d) **Administration after Claim Submittal**

- (1) ABAG may render a final decision based solely on the materials submitted in support of the Claim or may in its sole discretion conduct an administrative hearing on the Claim, in which case Contractor shall appear, participate, answer inquiries, and present any further evidence or analysis requested by

ABAG. Should ABAG take no action on the Claim within forty-five (45) days (if the Claim is for less than \$50,000) or within sixty (60) days (if the Claim is for \$50,000 or more) of submittal, it shall be deemed denied.

- (2) Notwithstanding and pending the resolution of any Claim or dispute, Contractor shall diligently perform the disputed work to final completion in accordance with the ABAG's direction.
- (3) After their submittal, claims less than \$375,000 shall also be subject to Section 20104 of the Local Agency Public Construction Act.

(e) Compliance.

- (1) The provisions of this Section 3.3 constitute a non-judicial claim settlement procedure that, pursuant to California Government Code Section 930.2, shall constitute a condition precedent to the submittal of a valid claim under the California Government Code. Any Government Code claims alleging disputed work must affirmatively indicate prior compliance with this Section 3.3. Government Code claims must be presented no later than the 100<sup>th</sup> day after the earlier of (i) the date the ABAG actively or passively denied the Claim, or (ii) substantial completion or termination of the contract.
- (2) Failure to submit and administer Claims as required in Section 3.3 shall waive Contractor's right to compensation for any disputed work not included in a timely Claim. Disputes not raised in a timely protest and timely Claim submitted under this Section 3.3 may not be asserted in any subsequent Government Code claim, administrative hearing, or civil action.
- (3) ABAG shall not be deemed to waive any provision under this Section 3.3 if, at ABAG's sole discretion, a Claim is administered in a manner not in accord with this Section 3.3. Waivers or modifications of this Section 3.3 may only be made by signed Change Order approved as to form by legal counsel for both ABAG and Contractor. Oral or implied modifications shall be of no force or effect.

### 3.6 Third Party Beneficiaries

There shall be no third party beneficiaries to this Contract, except for the Cities as defined herein and the Indemnitees as defined in Attachment 1 to the Special Provisions.

### 3.7 Conflict of Interest

- (a) Except for approved eligible administrative or personnel costs, no person described in Section 3.7(b) below who exercises or has exercised any functions or responsibilities with respect to the activities funded pursuant to this Contract or who is in a position to participate in a decision-making process or gain inside information with regard to such activities, may obtain a personal or financial interest or benefit from the activity, or have an interest in any contract, subcontract or agreement with respect thereto, or the proceeds thereunder, either for themselves or those with whom they have family or business ties, during, or at any time after, such person's tenure. Contractor shall exercise due diligence to ensure that the prohibition in this Section 3.7(a) is followed.

(b) The conflict of interest provisions of Section 3.7(a) above apply to any person who is an employee, agent, consultant, officer, or elected or appointed official of ABAG, and any immediate family member or dependent of such person.

### 3.8 Notices, Demands and Communications

If at any time after the execution of this Contract it shall become necessary or convenient for one of the Parties hereto to serve any notice, demand or communication upon the other Party, such notice, demand or communication shall be in writing and shall be served personally or by depositing the same in the registered United States mail, return receipt requested, postage prepaid or delivered by express delivery service, return receipt requested and

(a) if intended for the ABAG shall be addressed to:

SFEP  
1515 Clay Street, Suite 1400  
Oakland, CA 94612  
Attention: XXXX

With copy to:

ABAG  
101 Eighth Street  
Oakland, CA 94604  
Attention: ABAG Legal Counsel

(b) if intended for Contractor shall be addressed to:

XXXX  
XXXX  
XXXX  
Attn: XXXX

Any notice, demand or communication shall be deemed given, received, made or communicated on the date personal delivery is affected or, if mailed in the manner herein specified, on the delivery date or date delivery is refused by the addressee, as shown on the return receipt. Any Party may change its address at any time by giving written notice of such change at least ten (10) days prior to the date such change is desired to be effective.

### 3.9 Applicable Law

This Contract shall be governed by California law. This Contract is made in Oakland, California, and any action relating to this Contract shall be instituted and prosecuted in the courts of Alameda County, California.

### 3.10 Parties Bound.

Except as otherwise limited herein, the provisions of this Contract shall be binding upon and inure to the benefit of the Parties and their heirs, executors, administrators, legal representatives, successors, and assigns. Any reference in this Contract to a specifically named Party shall be deemed to apply to any successor, heir,

administrator, executor, successor, or assign of such Party who has acquired an interest in compliance with the terms of this Contract or under law. This Contract shall be binding upon and inure to the benefit of the heirs, administrators, executors, successors in interest, and assigns of each of the Parties.

### 3.11 Severability.

If any term of this Contract is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the provisions shall continue in full force and effect unless the rights and obligations of the Parties have been materially altered or abridged by such invalidation, voiding or unenforceability.

### 3.12 Force Majeure.

Performance by either Party shall not be deemed to be in default when delays in performance are due to war, insurrection, strikes, lock-outs, riots, floods, earthquakes, fires, quarantine restrictions, freight embargoes, or court order, or any other similar causes (other than lack of funds of Contractor) beyond the control or without the fault of the Party claiming an extension of time to perform ("Force-Majeure Delays"). In no event shall any extension of any period of time be deemed to have occurred unless the Party claiming the Force-Majeure Delay gives written notice to the other Party within ten (10) days following the commencement of any such delay, setting forth the facts giving rise to the Force-Majeure Delay request, the expected duration of the delay, and the steps the Party intends to take to minimize the Delay. During the Force-Majeure Delay, the Party whose performance is delayed shall keep the other Party reasonably informed of the situation and the steps taken by such Party to continue performance and minimize delay. After the Force-Majeure Delay is over, the Parties shall in good faith jointly prepare an accurate written record of the circumstances giving rise to delay, specifying the commencement date and duration of the Force-Majeure Delay and the cause thereof, which record shall be signed by each Party to confirm agreement with respect to its content. In no event shall the ABAG be required to agree to cumulative Force-Majeure Delays in excess of sixty (60) days unless the ABAG is the cause of such delay. In the event that the parties cannot agree upon a record of the circumstances giving rise to the Force-Majeure Delay, the procedures set forth in Section 3.3 of this Contract shall apply.

### 3.13 Waivers.

Any waiver by ABAG of any obligation or condition in this Contract must be in writing. No waiver will be implied from any delay or failure by ABAG to take action on any breach or default of Contractor or to pursue any remedy allowed under this Contract or applicable law. Any extension of time granted to Contractor to perform any obligation under this Contract shall not operate as a waiver or release from any of its obligations under this Contract. Consent by ABAG to any act or omission by Contractor shall not be construed to be consent to any other or subsequent act or omission or to waive the requirement for the ABAG's written consent to future waivers.

### 3.14 Title of Parts and Sections.

Any titles of the sections or subsections of this Contract are inserted for convenience of reference only and shall be disregarded in interpreting any part of the Contract's provisions.

### 3.15 NOT APPLICABLE

### 3.16 Entire Understanding of the Parties.

The Contract Documents – along with any written change orders and dispute determinations that may be issued by the ABAG in the course of performance – shall constitute the entire understanding and agreement of the Parties with respect to construction of the Project. The Contract Documents, written change orders (if any), and dispute determinations (if any) are deemed complementary and should be interpreted together.

### 3.18 Multiple Originals; Counterpart.

This Contract may be executed in multiple originals, each of which is deemed to be an original, and may be signed in counterparts. A facsimile or electronic signature to this Contract shall be as valid as an ink signed original.

*[Signatures on following page]*

WHEREAS, this Contract has been entered into by the undersigned as of the date first above written.

Reviewed By:

Association of Bay Area Governments (ABAG), a  
Joint Powers Authority:

\_\_\_\_\_  
ABAG Attorney

ATTEST:

\_\_\_\_\_  
ABAG Clerk

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

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

Its: \_\_\_\_\_

CONTRACTOR:

XXXX

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

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

Its: \_\_\_\_\_

**Exhibit A  
Proposal**

Bond No. \_\_\_\_\_

**PAYMENT BOND**

That we, \_\_\_\_\_ as Principal, and \_\_\_\_\_, organized and existing under the laws of the State of \_\_\_\_\_ and authorized to execute bonds and undertaking as sole surety, as Surety, are held and firmly bound unto any and all persons named in California Civil Code, Section 3181, whose claim has not been paid by the contractor, company, or corporation in the aggregate total of for the payment whereof, well and truly to be made, said Principal and Surety bind themselves, their heirs, administrators, successors and assigns, jointly and severally, firmly by these presents.

The Condition of the foregoing obligation is such that, whereas the above bounden Principal has entered into a contract dated with the Association of Bay Area Governments to do the following work, to wit:

Now, therefore, if the above bounden Principal or a subcontractor fails to pay any of the persons named in Section 3181, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over the Employment Development Department from the wages of employees of the contractor and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor that the sureties will pay for the same and also, in case suit is brought upon the bond, a reasonable attorney's fee, to be fixed by the court. The Principal may require of the subcontractors a bond to indemnify the Principal for any loss sustained by the Principal because of any default by the subcontractors.

This bond shall be insured to the benefit of any persons named in Section 3181 of the Civil Code of the State of California so as to give a right of action to them or their assignees in any suit brought upon this bond.

This bond is executed and filed to comply with the provisions of the act of Legislature of the State of California as designated in Civil Code, Sections 3247-3252, inclusive, and all amendments thereto.

The surety hereby waives notice of any alteration in the contract or extension of time made by the parties.

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

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

Title \_\_\_\_\_

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

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

Bond No. \_\_\_\_\_

**PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the Association of Bay Area Governments entered into a contract dated \_\_\_\_\_  
\_\_\_\_\_, with \_\_\_\_\_, hereinafter referred to as the  
"Principal", for the work described as follows:

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

NOW, THEREFORE, we, said Principal, and \_\_\_\_\_  
organized and existing under the laws of the State of \_\_\_\_\_ and duly authorized to transact business under the  
laws of the State of California and to execute bonds and undertakings as sole surety, hereinafter referred to as "Surety", are held  
and firmly bound unto the Association of Bay Area Governments in the penal sum of \_\_\_\_\_  
\_\_\_\_\_, lawful money of the United  
States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators,  
successors and assigns, jointly and severally, firmly by these presents:

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT, if the above bounden Principal, its heirs, executors, administrators,  
successors, or assigns, shall truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and  
agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Association  
of Bay Area Governments, with or without notice of the Surety, and shall fully indemnify and save harmless the Association of Bay  
Area Governments, its officers, employees and agents, from all costs and damages which they suffer by reason of the failure to do,  
and shall reimburse and repay the Association of Bay Area Governments, its officers, employees and agents, all outlay and expense  
which they may incur in making good any default, then this obligation shall become null and void; otherwise it shall be and remain  
in full force and effect.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the  
terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise  
affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to  
the terms of the contract or to the work or to the specifications.

As a part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs  
and reasonable expenses and fees, including reasonable attorney's fees, incurred by the Association of Bay Area Governments in  
successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this \_\_\_\_\_ day of \_\_\_\_\_,  
20\_\_\_\_\_.

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

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

Bond No. \_\_\_\_\_

**LANDSCAPE ESTABLISHMENT BOND**

KNOW ALL PERSONS BY THESE PRESENTS:

That We, \_\_\_\_\_, as Principal, and \_\_\_\_\_, as Surety, are hereby held and firmly bound unto the Association of Bay Area Governments, in the penal sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_) submitted by said Principal to the Association of Bay Area Governments for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT, whereas the Principal has agreed to install said landscaping improvements as herein described all in accordance with the terms, requirements, plans and specifications as approved by the Association of Bay Area Governments and pursuant to the Tree Ordinance and other applicable regulations of the Cities, and to make good any deficiencies or defects that become apparent within a period of two (2) years from the date such improvements are accepted by the Association of Bay Area Governments and has further agreed to maintain such improvements installed under the authority of this Landscape Establishment Bond for a period of two (2) years from the date of acceptance of the same by the Association of Bay Area Governments.

NOW, THEREFORE, if the said Principal shall well and truly perform in all aspects, in strict accordance with the requirements and shall save harmless from any loss, cost or damage by reason of their failure to install as required or maintain said landscaping improvements, then this obligation to be void, otherwise to remain in full force and effect.

In the event the Principal fails to install said landscaping or use materials thereon pursuant to the terms, requirements, plans and specifications as approved pursuant to the appropriate regulations of the Association of Bay Area Governments, or to make good any deficiencies or defects that become apparent before the end of the said two (2) year period, then the Principal or Surety on this Landscape Establishment Bond shall pay for the correction of said deficiencies or defects in an amount not exceeding the sum specified in this Landscape Establishment Bond and in case a suit is brought upon this Landscape Establishment Bond, said Principal or Surety or both, shall also pay a reasonable attorney's fee to be fixed by the Court and Court costs.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

Principal: \_\_\_\_\_  
(Name of Firm)

Surety: \_\_\_\_\_  
(Name of Firm)

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

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

**Attachment 1  
To  
San Pablo Avenue Green Stormwater Spine Project  
Package "B"  
Contractor No. 102215  
INSTRUCTION TO BIDDERS**

**Indemnity and Insurance Requirements**

1. General

Provide a copy of these indemnity and insurance requirements to your insurance broker or insurer to confirm compliance

2. Indemnity

To the fullest extent allowed by law, Contractor shall defend, indemnify, save harmless and waive subrogation against ABAG, the State of California, and the cities of San Pablo, Richmond, El Cerrito, Albany, Berkeley, and Oakland including each of their respective members, officers, employees, and agents (excluding agents who are design professionals), if any, (collectively, Indemnitees), from any and all claims, demands, causes of action, damages, costs, expenses, actual attorneys' fees, losses or liabilities, in law or in equity arising out of or in connection with your performance of this Contract (collectively, Claims) for bodily injury, personal injury, property damage or any violation of Federal, State or local laws, with the exception that this section shall in no event be construed to require indemnification by Contractor to a greater extent than permitted under the public policy or laws of the State of California.

These defense and indemnification obligations are undertaken in addition to, and shall not in any way be limited by, the insurance obligations set forth in this Attachment. Any inspection of the work by an Indemnatee is not a waiver of full compliance with these obligations. These defense and indemnification obligations shall survive the termination or expiration of the Contract for the full period of time permitted by law.

3. Insurance

Contractor shall maintain insurance as required by this contract to the fullest amount allowed by law and shall maintain insurance for a period of 5 years following the completion of this project. In the event Contractor fails to obtain or maintain completed operations coverage as required by this agreement, ABAG, at its sole discretion, may purchase the coverage required and the cost will be paid by Contractor. The limits of Insurance required in hereunder may be satisfied by a combination of primary and umbrella or excess insurance. Any umbrella or excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and non-contributory basis for the benefit of the Indemnitees (if agreed to in a written contract or agreement) before the any Indemnatee's own Insurance or self-insurance shall be called upon to protect it as a named insured.

(a) Minimum Scope of Insurance. Coverage shall be at least as broad as:

Insurance Services Office Commercial General Liability coverage  
(occurrence Form CG 0001).

Insurance Services Office Form Number CA 0001 covering Automobile Liability, Code 1 (any auto).

Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.

Errors and Omissions Liability insurance appropriate to the Consultant's profession. Architects' and engineers' coverage is to be endorsed to include contractual liability.

(b) Minimum Limits of Insurance. Consultant shall maintain limits no less than:

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.

Automobile Liability: \$1,000,000 per accident for bodily injury and property damage.

Employer's Liability: \$1,000,000 per accident for bodily injury or disease.

Errors and Omissions Liability: \$1,000,000 per claim/aggregate.

(c) Deductibles and Self-Insured Retentions. Any deductibles or self-insured retentions must be declared to and approved by ABAG. The insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Indemnitees; or the Contractor shall satisfy any such deductibles or self-insured retentions. In addition, policies containing any self-insured retention (SIR) provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named Insured or any of the Indemnitees.

(d) Other Insurance Provisions. The commercial general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:

(i) The Indemnitees are to be covered as additional insureds as respects: liability arising out of work or operations performed by or on behalf of Contractor; completed operations; or automobiles owned, leased, hired or borrowed by Contractor.

(ii) For any claims related to this project, the Consultant's insurance coverage shall be primary insurance as respects the Indemnitees.

(iii) Any insurance or self-insurance maintained by the Indemnitees shall be excess of Contractor's insurance and shall not contribute with it.

(iv) Except for General Liability and Automobile Liability, each insurance policy required by this clause shall be endorsed to state that coverage shall not be canceled by either party, except after thirty(30) days' prior written notice by certified mail, return receipt requested, has been given to ABAG. For General Liability and Automobile Liability, Contractor shall provide ABAG with thirty (30) day's prior notice of cancellation by either the insurer or Contractor.

(v) Coverage shall not extend to any defense or indemnity coverage for the active negligence of the Indemnitees in any case where an agreement to defend and indemnify the Indemnitees would be invalid under Subdivision (b) of Section 2782 of the Civil Code.

(e) Other Insurance Provisions – Workers Compensation. The Workers Compensation insurance shall be endorsed to waive subrogation against the Indemnitees.

(f) Acceptability of Insurers. Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A:VII, unless otherwise acceptable to ABAG.

(g) Verification of Coverage. Consultant shall furnish the ABAG with original certificates and amendatory endorsements effecting coverage required by this clause. All certificates and endorsements are to be received and approved by ABAG before work commences. ABAG reserves the right to require complete, certified copies of all required insurance policies, including endorsements affecting the coverage required by these specifications at any time.

#### 4. Subcontractors and Lower Tier Subcontractors

Contractor shall to include the same requirements and provisions of this Attachment, including the section, with any subcontractor to the extent they apply to the scope of the subcontractor's work. Any subcontractor further agrees to include the same requirements and provisions of this Attachment, including the section, with any lower tier subcontractor to the extent they apply to the scope of the lower tier subcontractor's work. Contractor will give a copy of this Attachment to any subcontractor, or lower tier subcontractor upon request.

I have read, understand and agree to comply with the above.

\_\_\_\_\_

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

\_\_\_\_\_  
Name, Title

## **APPENDIX B**

# **STORM WATER POLLUTION PREVENTION**

- **B-1 STORMWATER POLLUTION PREVENTION PLAN (CONCEPTUAL)**

WASTE DISCHARGE IDENTIFICATION (WDID) NUMBER:

# STORMWATER POLLUTION PREVENTION PLAN

for

San Pablo Avenue Green Stormwater Spine

CALTRANS ENCROACHMENT PERMIT NUMBER FOR LOCAL AGENCY / PRIVATE  
ENTITY:

CALTRANS ENCROACHMENT PERMIT NUMBER FOR CONTRACTOR:

RISK LEVEL: 2

Prepared for:

San Francisco Estuary Partnership  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

Submitted by:

,

Project Site Address

1-Oakland - Lat:37°48'24"N Long:122°16'20"W  
2-Emeryville - Lat:37°49'43"N Long:122°16'44"W  
3-Berkeley - Lat:37°52'58"N Long:122°17'48"W  
4-Albany - Lat:37°53'04"N Long:122°17'49"W  
6-Richmond - Lat:37°56'50"N Long:122°19'51"W  
7-San Pablo - Lat:37°57'23"N Long:122°20'14"W  
8-El Cerrito (Moeser) - Lat:37°54'40"N Long:122°18'30"W

Contractor's Water Pollution Control (WPC) Manager/Qualified S WPPP Developer(QSD)

Contractor's Qualified SWPPP Developer (QSD) (if SWPPP not developed by WPC Manager)

Contractor's Qualified S WPPP Practitioner (QSP) (if different from WPC Manager)

SWPPP Developed by:

Wilsey Ham

**3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
Brandon S Davis - Project Manager**

**SWPPP Date**

**February 26, 2015**

# Conceptual

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## SWPPP Appendices

Appendix A	.....	CEM-2008 SWPPP/WPCP Amendment Certification and Acceptance Form
Appendix B	.....	CEM-2009 SWPPP/WPCP Amendments Log Form
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Appendix I	.....	CEM-2035 Stormwater Corrective Actions Summary
Appendix J	.....	CEM-2045 Rain Event Action Plan Forms
Appendix K	.....	CEM- 2061 Notice of Discharge Form
Appendix L	.....	CEM-2058 Stormwater Meter Calibration Record– Specialty Meters Form
Appendix M	.....	CEM-2051 Stormwater Sampling and Testing Activity Log – Optional Form
Appendix N	.....	CEM-2052 Stormwater Sample Field Test Report Form
Appendix O	.....	CEM-2062 Numeric Action Level Exceedance Report Form
Appendix P	.....	CEM-2063 Numeric Effluent Limitation Violation Report – ATS Discharges Form

## SWPPP Files

File Category 20.01	.....	Stormwater Pollution Prevention Plan (SWPPP)
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File Category 20.03	.....	Water Pollution Control Schedule Updates
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# SECTION 100

## SWPPP Certifications and Approval

### 100.1 Legally Responsible Person Certification and Caltrans Approval

This SWPPP complies with the applicable requirements of the Construction General Permit (CAS000002, Order No. 2009-009-DWQ as amended by Order 2010-0014-DWQ and 2012-006-DWQ) issued by the State Water Resources Control Board. This SWPPP was developed pursuant to the contract Special Provisions, Caltrans Standard Specifications and the Caltrans Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual. The Contractor and Local Agency are responsible and liable at all times for compliance with applicable requirements of the Construction General Permit (CAS000002, Order No. 2009-009-DWQ as amended by Order 2010-0014-DWQ and 2012-006-DWQ) for which compliance is ultimately determined by the Regional Water Quality Control Board (RWQCB), the State Water Resources Control Board (SWRCB), and/or the U.S. Environmental Protection Agency (USEPA). Include copies of the SWRCB-issued WDID Number and NOI form as

*"For Local Agency Use Only"*

#### Local Agency Legally Responsible Person Certification of the Stormwater Pollution Prevention Plan

Project Name: San Pablo Avenue Green Stormwater Spine

Caltrans Encroachment Permit  
Number issued to Local Agency:

Caltrans Encroachment Permit  
Number issued to Contractor:

Local Agency Name: San Francisco Estuary Partnership

"I certify under a penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

\_\_\_\_\_  
Legally Responsible Person's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Legally Responsible Person's Name

\_\_\_\_\_  
Telephone Number



---

Contractor's Title

**QSD's Certification of SWPPP**

Project Name: San Pablo Avenue Green Stormwater Spine

Caltrans Encroachment Permit  
Number issued to Local Agency /  
Private Entity:

Conceptual

Caltrans Encroachment Permit  
Number issued to Contractor:

"I certify under penalty of law that I relied upon available project and site information, current watershed and basin plan maps and available soil data to develop this SWPPP so that Best Management Practices (BMPs) were designed and placed in accordance with industry standards and best professional judgment to reduce pollutants from leaving the job site. All other sources relied upon to gain information for this project's SWPPP were appropriate and dependable, based on my best professional judgment. To the best of my knowledge and belief, the information submitted in this SWPPP is in compliance with all requirements of the Construction General Permit (CAS000002, Order No. 2009-009-DWQ as amended by Order 2010-0014-DWQ and 2012-006-DWQ). I certify that the 'required text' portions of this document are unaltered from the original required text and content."

---

QSD's Signature

---

Date

---

QSD's Name

---

QSD's Telephone Number

---

Project Manager

---

QSD's Title

## **100.3 Amendments**

### **100.3.1 SWPPP Amendments Certification and Approval**

This SWPPP is meant to be a "living document," therefore, updated and additional information is expected to be added to the SWPPP as the project progresses, including information regarding changes in the field that do not require an amendment, such as the following:

- adding BMPs as required by a *Rain Event Action Plan*
- increasing or decreasing the quantity of BMPs in the field that are already part of the erosion control plan in the SWPPP,
- moving BMPs shown on the WPCDs to protect water quality during different phases of construction,
- updating WPCDs to reflect actual site conditions, and
- maintenance and repairs to BMPs.

This SWPPP shall be amended when:

- a change in construction or operations affects the discharge of pollutants to surface waters, groundwater(s), or a municipal separate storm sewer system (MS4);
- a contract change order includes additional water pollution control practices, not already specified in the approved SWPPP;
- deemed necessary by the RE;
- SWPPP objectives to reduce or eliminate pollutants in stormwater discharges have not been achieved; or
- a CGP violation has occurred; when the RWQCB determines that a CGP violation has occurred, the SWPPP shall be amended and corrective actions implemented within 14 calendar days after notification by the RWQCB.

The following information shall be included in each amendment:

- who requested the amendment;
- the location of proposed change;
- the reason for the change;
- the original BMP proposed, if any;
- the new BMP proposed; and
- any existing implemented BMP(s).

Approved and certified amendments shall be inserted into the appropriate section or attachment of the SWPPP. All SWPPP amendments prepared by the WPC Manager and approved by the Contractor shall be accepted and certified by the LRP or Approved Signatory. A blank copy of the CEM-2008 SWPPP/WPCP Amendment Certification and Approval form is in Appendix A. For approved amendments, the signed SWPPP Amendment Certification and Approval form shall be attached to the SWPPP amendment.

A copy of each approved and certified amendment shall be inserted into Attachment AA. All SWPPP amendments shall be listed in the SWPPP Amendment Log, available in Appendix B. The Amendment Log shall be kept in SWPPP File Category 20.02 and a copy shall be inserted into Attachment AA.

The SWPPP will be completely revised if either the number of amendments or the amount of information contained in the amendments makes implementation of the SWPPP confusing, as determined by the RE, or the Contractor requests to revise the SWPPP based on planned changes in activities that would require a major SWPPP amendment.

### **100.3.2 Amendment Log**

All approved and certified SWPPP amendments shall be shown on the SWPPP Amendment Log. A blank Amendment Log is available in Appendix B. The SWPPP Amendment Log shall include the following information:

- amendment number;
- amendment date;
- brief description of the amendment;
- name of individual requesting amendment; and
- approval date.

All SWPPP amendment(s) prepared and approved as discussed in Section 100.3.1 shall be documented in the Amendment Log and kept in SWPPP File Category 20.02: Stormwater Pollution Prevention Plan Amendments. A copy of the Amendment Log shall also be inserted into Attachment AA.

### ***100.4 Annual Compliance and Approval***

By July 15 of each year, the Local Agency / Private Entity shall submit an Annual Certification of Compliance to the Caltrans Oversight RE stating that the project is in compliance with the terms and conditions of the Permits and the SWPPP. By August 1 of each year, the Caltrans Oversight Engineer will review and accept the Annual Certification of Compliance. The Caltrans Oversight Engineer will document acceptance of the Annual Certificate of Compliance by completing and signing the Acceptance of Annual Certification of Compliance. A blank copy of the CEM-2070 SWPPP/WPCP Annual Certification of Compliance form is included in Appendix C. Completed Annual Certification of Compliance forms will be filed in SWPPP File Category 20.70: Annual Certification of Compliance.

# SECTION 200

## OBJECTIVES

This SWPPP has five (5) main objectives, which are listed below.

1. All pollutants and their sources, including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity, are controlled.
2. Where not otherwise required to be under a California Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated.
3. Site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non- stormwater discharges from the construction activity to the best available technology (BAT) / best conventional technology (BCT) standard.
4. Calculations and design details for site run-on, as well as BMP controls, are complete and correct.
5. Stabilization BMPs designed to eliminate or reduce pollutants after construction is complete have been installed

This SWPPP was developed to conform to the required elements of the CGP (CAS000002, Order No. 2009-0009-DWQ as amended by Order 2010-0014-DWQ and 2012-006-DWQ) issued by the SWRCB.

This SWPPP is designed to be a useful document for those who must implement the SWPPP on a daily basis in the field. Most of the information necessary for the daily implementation of the SWPPP is contained in Attachment BB: Water Pollution Control Drawings, Attachment CC: Water Pollution Control Best Management Practices List, and Attachment DD: Water Pollution Control Schedule.

This SWPPP is also a “living document” because updated and additional information is added to the SWPPP file categories as the project progresses, including:

- SWPPP Amendments;
- Subcontractor and Material Supplier Information;
- Contractor Personnel Training Documentation;
- Site Inspection Reports;
- Monthly Status Reports;
- Rain Event Action Plans;
- Sampling and Analysis Results; and
- Notice of Discharge Reports.

The SWPPP shall be readily available on site for the duration of the project.

# SECTION 300

## PROJECT AND CONTRACTOR INFORMATION

### 300.1 Project Description

The San Francisco Estuary Partnership has developed a program for implementing demonstration green street projects in seven different cities along the highly-used East Bay's San Pablo Avenue corridor. Named as a "Green Stormwater Spine", this project aims to implement bold catalyst green street projects that demonstrate a full tool box of design strategies that can be used regardless of jurisdictional boundaries. The performance goal of the stormwater project is to manage at least seven acres of runoff from the combined efforts of each city's green street site. The San Pablo Avenue Green Stormwater Spine's participating cities are Oakland, Emeryville, Berkeley, Albany, El Cerrito, Richmond, and San Pablo. The project is a first of its kind in the Bay Area and is slated for construction in 2015.

### 300.2 Project Risk Level

The risk level assessment of the project site was calculated to be Risk Level 2. This risk level will determine the minimum level of BMPs that will be acceptable based on the project site and the project construction activities. The risk level is the basis for the minimum level of site-specific monitoring and reporting that will be required. The risk level is based on project duration, proximity to impaired receiving waters, and soil conditions. The Risk Level Determination is discussed in Section 500.1.3 and the calculations are included in Attachment C.

### 300.3 Construction Sites Estimates

The following are estimates of the construction site.

- Construction site area 1.21ac Combined
- Percentage impervious area before construction 100% Combined
- Runoff coefficient before construction 0.95 Combined
- Percentage impervious area after construction 67% Combined
- Runoff coefficient after construction 0.80 Combined

Run-on from off-site areas anticipated:  Yes  No

Anticipated stormwater run-on flow rate to the construction site:

Anticipated drainage patterns following the completion of grading activities are shown on the WPCDs from Attachment BB.

Site Run-on Calculations for 10-yr Design Storm, Tc @ 10min

1-Oakland:

Area Runoff Coefficient = 0.95 (A)

Area Rainfall Intensity = 1.99 in/hr (B)

Drainage Area = 0.63 acres ©

Site Area Run-on Discharge (A) x (B) x © = 1.19 cfs (D)

2-Emeryville:

Area Runoff Coefficient = 0.75 (A)  
Area Rainfall Intensity = 1.99 in/hr (B)  
Drainage Area = 4.06 acres ©  
Site Area Run-on Discharge (A) x (B) x © = 6.06 cfs (D)

3-Berkeley:

Area Runoff Coefficient = 0.95 (A)  
Area Rainfall Intensity = 2.16 in/hr (B)  
Drainage Area = 0.49 acres ©  
Site Area Run-on Discharge (A) x (B) x © = 1.01 cfs (D)

4-Albany:

Area Runoff Coefficient = 0.85 (A)  
Area Rainfall Intensity = 2.16 in/hr (B)  
Drainage Area = 1.99 acres ©  
Site Area Run-on Discharge (A) x (B) x © = 3.65 cfs (D)

6-Richmond:

Area Runoff Coefficient = 0.95 (A)  
Area Rainfall Intensity = 2.19 in/hr (B)  
Drainage Area = 2.21 acres ©  
Site Area Run-on Discharge (A) x (B) x © = 4.60 cfs (D)

7-San Pablo:

Area Runoff Coefficient = 0.95 (A)  
Area Rainfall Intensity = 2.19 in/hr (B)  
Drainage Area = 0.58 acres ©  
Site Area Run-on Discharge (A) x (B) x © = 1.21 cfs (D)

8-El Cerrito (Moeser):

Area Runoff Coefficient = 0.85 (A)  
Area Rainfall Intensity = 2.10 in/hr (B)  
Drainage Area = 0.78 acres ©  
Site Area Run-on Discharge (A) x (B) x © = 1.39 cfs (D)

Locations of potential run-on with the estimated flow rates shall be noted on the WPCDs. The BMPs designed to handle the run-on flows are included in Section 500.3.1.

### **300.4 Vicinity and Site Map**

The construction project vicinity map showing the project location, surface water boundaries, geographic features, construction site perimeter, and general topography, is located in Attachment D. The project contract plan Title Sheet provides additional detail regarding the project location and is also included in Attachment D.

### **300.5 Unique Site Features**

Project has Fill Material:       Yes     No

Project has Native Material:     Yes     No

Hydrologic Soil Group:             A (high infiltration rate)     B (moderate infiltration rate)  
    C (slow infiltration rate)     D (very slow infiltration rate)

Soil Erodibility:                     Slight     Moderate     Severe

Unique Features Onsite:     Water Bodies     Wetlands     Endangered or Protected Species  
    Environmentally Sensitive Areas     Other     None

The majority of the soils excavated from the project sites will be removed and replaced with an engineered bio-filtration soil having a long term infiltration rate higher than 5" inches per hour. Limited soil sampling was conducted for each site and no hazardous materials were found.

### **300.6 Contact Information for Responsible Parties**

The following parties are responsible for this SWPPP:

#### **WPC Manager**

Name:

Title:                                    **Water Pollution Control Manager**

Company:

Address:

Phone Number:

Emergency Phone Number (24/7):

Email address:

#### **Qualified SWPPP Developer (QSD)**

Name:

Title:                                    **Qualified SWPPP Developer**

Company:                                **Wilsey Ham**

Address:                                **3130 La Selva Street, Suite 100**

San Mateo, CA 94403

Phone Number:

Email address: **bdavis@wilseyham.com**

**Resident Engineer**

Name:

**Conceptual**

Title:

**Resident Engineer**

Company:

**San Francisco Estuary Partnership**

Address:

**1515 Clay Street, Suite 1400**

**Oakland, CA 94612**

Phone Number:

Emergency Phone Number (24/7)

Email address:

**Contractor**

Name:

Title:

**Contractor**

Company:

Address:

,

Phone Number:

Emergency Phone Number (24/7)

Email address:

**Contractor Site Manager**

Name:

Title:

Company:

Address:

,

Phone Number:

Emergency Phone Number (24/7)

Email address:

**Qualified SWPPP Practitioner (QSP)**

Name:

Title:

Company:

Address:

Conceptual

Phone Number:

Emergency Phone Number (24/7)

Email address:

**Erosion and Sediment Control Provider**

Name:

Title:

Company:

Address:

Phone Number:

Emergency Phone Number (24/7)

Email address:

**Stormwater Sampling and Testing Agent**

Name:

Title:

Company:

Address:

Phone Number:

Emergency Phone Number (24/7)

Email address:

### **300.7 List of Subcontractor and Materials Suppliers**

The following subcontractors will be working on this project:

1

SWPPP Responsibility:

Contact information for each subcontractor will be provided in the SWPPP Notification log in SWPPP File Category 20.21: Subcontractor Contact Information and Notification Letters. Contact information shall include subcontractor name, type of work performed, contact name, phone number and emergency telephone number (24/7).

The following materials suppliers will be delivering materials to the project site and must comply with pertinent SWPPP requirements:

1

Contact information for each material supplier will be provided in the SWPPP Notification log in SWPPP File Category 20.22: Material Supplier Contact Information and Notification Letters. Contact information shall include company name, type of material supplied, contact name and phone number.

All subcontractors and material suppliers shall be notified that the project is covered by the

- SWRCB Order No. 2009-0009-DWQ as amended by Order 2010-0014-DWQ and 2012-006-DWQ, NPDES General Permit No. CAS000002, National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, September 02, 2009 (Construction General Permit).

Each subcontractor and material supplier shall also be notified that the project has a SWPPP and the pertinent water pollution control BMPs with which the subcontractor or material supplier must comply. If subcontractors or material suppliers are added during the project, appropriate notification that the project has a SWPPP and the pertinent water pollution control BMPs shall be given to the subcontractor or materials supplier prior to working or supplying materials on the project site.

A SWPPP Notification Letter shall be sent to all subcontractors and material suppliers. A sample notification letter and notification letter log is provided in Appendix D. A copy of SWPPP Notification Letters sent to subcontractors and material suppliers are in SWPPP File Category 20.21: Subcontractor Contact Information and Notification Letters or 20.22 Material Supplier Contact Information and Notification Letters. Notification letter logs and contact information are filed in SWPPP File Category 20.21: Subcontractor Contact Information and Notification Letters and File Category 20.22: Material Supplier Contact Information and Notification Letters.

### **300.8 Training**

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**San Pablo Avenue Green Stormwater Spine**

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The Contractor's WPC Manager is a QSD. The WPC Manager for this project, meets the qualifications and certification requirements of Section VII, Training Qualifications and Certification Requirements, of the CGP based on:

- 

The WPC Manager has received the following training:

- 

Conceptual

The WPC Manager has the following SWPPP development and implementation experience:

- 

The SWPPP for this project was developed by a QSD. The QSD that developed the SWPPP meets the qualifications and certification requirements of Section VII, Training Qualifications and Certification Requirements, of the CGP based on:

- Qualified SWPPP Developer #00159

The QSD has received the following training.

- 

The QSD has the following SWPPP development experience.

- 

A QSP will be assisting the WPC Manager to ensure that: required BMPs are implemented; non-stormwater and stormwater visual observations and sampling and analysis are performed; BMP maintenance is completed; and weekly training is provided. Since September 2, 2011, the QSP for this project, must meet the qualifications and certification requirements of Section VII, Training Qualifications and Certification Requirements, of the CGP based on:

- 

The QSP has received the following training.

- 

The QSP has the following SWPPP implementation experience.

- 

Ongoing, formal training sessions for individuals responsible for SWPPP development and implementation shall be selected from one of the following organizations.

- City of Los Angeles Storm Water Program
- County of Los Angeles Storm Water Program
- State of California RWQCB
- ICA-, ABAG- and/or AGC-sponsored training
- USEPA-sponsored training
- Recognized municipal stakeholder organizations throughout California
- Professional organizations and societies in the building and construction field
- 

Contractor or subcontractor employees responsible for water pollution control BMP installation, maintenance and repair have received the following training.

- 

Contractor and subcontractor employees shall be trained prior to working on the site in the following subjects:

- water pollution control rules and regulations
- implementation and maintenance for:
  - temporary soil stabilization,
  - temporary sediment control,
  - tracking control,
  - wind erosion control,
  - material pollution prevention control,
  - waste management, and
  - non-stormwater management
- identification and handling of hazardous substances
- potential dangers to humans and the environment from spills and leaks or exposure to toxic or hazardous substances

Informal employee training shall include tailgate site meetings to be conducted weekly; tailgate meetings should address the following topics:

- water pollution control BMP deficiencies and corrective actions;
- BMPs that are required for work activities during the week;
- spill prevention and control;
- material delivery, storage, use, and disposal;
- waste management; and

**Stormwater Pollution Prevention Plan (SWPPP)**  
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- non-stormwater management procedures.

A summary of formal and informal training of various personnel is shown in Attachment E. A copy of all training certificate(s) (e.g., Caltrans 24-Hour Training Class and CGP Training) for the WPC Manager and the Qualified SWPPP Developer are included in Attachment E.

Training records for project personnel shall be updated by completing the CEM-2023 Stormwater Training Record form, available in Appendix E, and the CEM-2024 Stormwater Training Log - Optional form, available in Appendix F. Records of training, with training certificates attached, when applicable, and the training log will be kept in SWPPP File Category 20.23: Contractor Personnel Training Documentation. Personnel training records, with required documentation attached and an updated training log, shall be submitted to the RE within five (5) days of completion of training.

Training information, consisting of the following items, shall be provided in the Stormwater Annual Report:

- documentation of all training for individuals responsible for all activities associated with compliance with CGP
- documentation of all training for individuals responsible for BMP installation, inspection, maintenance, and repair, and
- documentation of all training for individuals responsible for overseeing, revising, and amending the SWPPP.
-

# SECTION 400 REFERENCES, OTHER PLANS, PERMITS AND AGREEMENTS

The documents listed below are made a part of this SWPPP by reference.

- Standard Plans and Specifications, dated 2010.
- Contract Plans and Special Provisions for Contract No. , dated , prepared by .
- SWRCB-Order No. 2009-0009-DWQ, Order No. 2009-0009-DWQ as amended by Order 2010-0014-DWQ and 2012-006-DWQ NPDES General Permit No. CAS000002, National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities (Construction General Permit), September 2009
- *Caltrans Statewide Storm Water Management Plan* (SWMP), dated
- *Caltrans SWPPP/WPCP Preparation Manual*, dated
- *Caltrans Construction Site Monitoring Program Guidance Manual*,
- Project Plans and Specifications

Attachment F includes copies of the Caltrans Statewide Permit, the CGP, and other local, state, and federal plans and permits. A list of the other local, state, and federal plans and permits included in Attachment F is provided below.

-

# SECTION 500 DETERMINATION OF CONSTRUCTION SITE BEST MANAGEMENT PRACTICES

# Conceptual

## 500.1 Pollutant Sources

### 500.1.1 Inventory of Materials and Activities that May Pollute Stormwater

The following table contains a list of construction activities that have the potential to contribute pollutants, including sediment, to stormwater discharges. All potential pollutants, except sediment, and their locations shall be listed in this section, and, where possible, the locations shall be shown on the WPCDs from Attachment BB. Details for controlling these pollutants using soil stabilization and sediment control BMPs are discussed in Sections 500.3.1 through 500.3.5. Potential non-storm water and waste management-related discharges are further described in Sections 500.4.1 and 500.4.2, respectively.

TABLE 500.1.1 ANTICIPATED CONSTRUCTION SITE ACTIVITIES WITH THE POTENTIAL TO DISCHARGE POLLUTANTS	
<input checked="" type="checkbox"/> Demolition	<input checked="" type="checkbox"/> Pavement Removal (asphalt concrete, concrete) <input type="checkbox"/> Structure Demolition/Removal over or Adjacent to Water <input type="checkbox"/> Building Demolition (Structure, HVAC, insulation) <input checked="" type="checkbox"/> Hardscape Demolition (Parking areas, curbs, gutters, sidewalks)
<input checked="" type="checkbox"/> Earthwork	<input checked="" type="checkbox"/> Clearing and Grubbing <input checked="" type="checkbox"/> Grading Activities <input checked="" type="checkbox"/> Soil Import and Export <input checked="" type="checkbox"/> Stockpiling <input checked="" type="checkbox"/> Excavation <input type="checkbox"/> Disturbance of Contaminated Soil <input type="checkbox"/> Dewatering <input type="checkbox"/> Temporary Stream Crossing <input checked="" type="checkbox"/> Drainage Construction <input type="checkbox"/> Dredging <input type="checkbox"/> Pile Driving <input type="checkbox"/> Utilities <input type="checkbox"/> Line Flushing (hydrostatic test water, pipe flushing) <input checked="" type="checkbox"/> Landscaping, Planting and Plant Maintenance, Amending of Soil and Mulching <input type="checkbox"/> Material and Equipment Use over Water
<input checked="" type="checkbox"/> Masonry, Concrete, Asphalt Work	<input checked="" type="checkbox"/> Saw Cutting (cement and brick dust, saw cut slurries) <input checked="" type="checkbox"/> Paving and Grinding

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<b>TABLE 500.1.1 ANTICIPATED CONSTRUCTION SITE ACTIVITIES WITH THE POTENTIAL TO DISCHARGE POLLUTANTS</b>	
	<input checked="" type="checkbox"/> Concrete Placement (colored chalks) <input checked="" type="checkbox"/> Concrete Curing (curing and glazing compounds) <input checked="" type="checkbox"/> Concrete Finishing (surface cleaners) <input checked="" type="checkbox"/> Concrete Waste Management
<input type="checkbox"/> Building Construction	<input type="checkbox"/> Paint Preparation, Painting, Stenciling, and Etching <input type="checkbox"/> Material Use <input type="checkbox"/> Material Delivery and Storage <input type="checkbox"/> Adhesives (glues, resins, epoxy synthetics, caulks, sealers, putty, sealing agents and coal tars) <input type="checkbox"/> Cleaning, Polishing (metal, ceramic, tile), and Sandblasting Operations <input type="checkbox"/> Plumbing [solder (lead, tin), flux (zinc chloride), pipe fitting] <input type="checkbox"/> Framing (sawdust, particle board dust and treated woods) <input type="checkbox"/> Interior Construction (tile cutting, flashing, saw-cutting drywall, galvanized metal in nails and fences, and electric wiring)
<input type="checkbox"/> Equipment Use	<input type="checkbox"/> Vehicle and Equipment Cleaning <input type="checkbox"/> Vehicle and Equipment Fueling <input type="checkbox"/> Vehicle and Equipment Maintenance
<input checked="" type="checkbox"/> Waste Management	<input type="checkbox"/> Hazardous Waste Management <input checked="" type="checkbox"/> Solid Waste Management (litter, trash, and debris) <input checked="" type="checkbox"/> Liquid Waste Management (wash water) <input checked="" type="checkbox"/> Sanitary Septic Waste Management (portable toilets, disturbance of existing sewer lines)

The WPC Manager shall update the list of potential pollutants in accordance with onsite conditions, documenting all materials or equipment that have been received or produced onsite that are not designed to be outdoors and are potential sources of stormwater contamination.

**Materials Management Plan**

A list of construction materials that will be on site and have the potential to contribute pollutants, other than sediment, to stormwater runoff, which has been prepared to prevent or minimize the off-site discharge of those pollutants, are provided below.

The following stockpiles will be covered and bermed prior to likely precipitation events.

- 

The following materials will be kept off the ground or bermed and covered prior to likely precipitation events.

- 

The following materials will be properly stored according to Material Safety Data Sheet requirements.

- 

The following dumpsters shall be covered prior to likely precipitation events.

- 

The following areas will be inspected for leaks or spills prior to likely precipitation events.

- Portable Toilets

- 

Potential pollutants shall not be stored within 50 feet of stormwater conveyance features or concentrated flow paths. In addition, non-stormwater discharges shall not be made within 50 feet of potential pollutants.

### **500.1.2 Potential Pollutants from Site Features or Known Contaminates**

Former site usage or known site contamination may contribute pollutants to stormwater discharges from the site. Based on information available for the project site, the following site usage and historical contamination has been determined:

Former Industrial Operations:     Yes     No

Description of Former Industrial Operations

Historic Contamination:         Yes     No

- 

The following contaminants are known to exist at the project site locations identified:

- 

### **500.1.3 Risk Level Determination**

R Factor

EPA LEW Calculator 2/26/14. As instructed R factor calculated as follows:

Anticipated Start Date: 6/01/15

Anticipated Finish Date: 12/31/15

Using Latitude & Longitude for Albany Site.

Lat:37°53'04"N Long:122°17'49"W

R Factor = 25.30

K Factor (from Water Board Google Earth kml file)

1-Oakland - 0.15

2-Emeryville - 0.24

3-Berkeley - 0.37

4-Albany - 0.37

6-Richmond - 0.37

7-San Pablo - 0.24  
8-El Cerrito (Moeser) - 0.37

Use 0.37 (highest/most common)

LS Factor (from Water Board Google Earth kml file)

1-Oakland - 0.21  
2-Emeryville - 0.26  
3-Berkeley - 1.33  
4-Albany - 1.33  
6-Richmond - 0.86  
7-San Pablo - 0.69  
8-El Cerrito (Moeser) - 1.33

Conceptual

Use 1.33 (highest/most common)

Erosion Estimate (RxKxLS) = 12.5 tons/acre

Low Sediment Risk < 15 tons/acre

Berkeley tributary to Cordinices Creek. Cordinices Creek has existing beneficial uses: COLD & SPAWN & MIGRATORY (Waterboard Website)

Therefore Receiving Water Risk = High

Combined Risk: Level 2

## **500.2 Pre-Construction Existing Stormwater Control Measures**

The following are existing (pre-construction) control measures encountered within the project site.

- 

The project will create new stormwater treatment facilities in existing paved areas and sidewalks. There are no existing stormwater control measures.

## **500.3 BMP Selection for Erosion and Sediment Control**

The Contractor shall control construction site erosion through the implementation of effective erosion and sediment control measures in accordance with the CGP. The Contractor and the WPC Manager shall develop a schedule that includes the sequencing of construction activities and the implementation of effective erosion control BMPs while taking local climate (rainfall, wind, etc.) into consideration, thereby reducing the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking. The SWPPP schedule shall: describe when work activities will be performed that could cause the discharge of pollutants in stormwater; describe the water pollution control practices associated with each construction phase; and identify the soil stabilization and sediment control practices for all disturbed soil areas. Effective soil cover shall be provided for:

-

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Additional erosion and sediment control BMPs may be required in other locations on the project site as work progresses in order to prevent sediment from leaving the construction site. These measures shall be determined by the Contractor and the WPC Manager in the field. As long as the water pollution control measures consist of additions to the BMPs already selected in the approved SWPPP, then these additional measures do not require a SWPPP amendment and the WPC Manager shall simply show the additional measures on the WPCDs. If erosion control or sediment control BMPs must be changed because of field conditions or because they are determined to be ineffective, the SWPPP must be amended. Once deemed necessary, corrective actions/design changes to the SWPPP shall be reviewed and signed by the WPC Manager, implemented, as required by Standard Specification 13-1.03A, within 24 hours of identification unless a longer period is authorized (but cannot be authorized longer than required by the CGP: implemented within 72 hours of identification and completed as soon as possible thereafter). Immediate corrective action is required for numeric action level (NAL) exceedances. Routine BMP maintenance or the implementation of an additional quantity of a BMP included in the SWPPP as recommended by the WPC Manager does not require an amendment to the SWPPP.

An effective combination of erosion (soil stabilization) and sediment control BMPs shall be implemented and maintained during the project. The following principles shall be followed to the maximum extent practicable to control erosion and sedimentation in disturbed areas at the site.

- 

A more concise listing of the BMP control measures to be implemented and maintained at the project site are denoted in the BMP selection tables in the following sub-sections.

**500.3.1 Temporary Run-on Control BMPs**

TABLE 500.3.1 TEMPORARY RUN-ON CONTROL BMPs						
CONSTRUCTION BMP ID NO.(1)	BMP NAME	CONTRACT MIN REQUIRE- MENT(2)	CONTRACT BID ITEM	BMP USED		IF A CONTRACT MINIMUM REQUIREMENT BUT NOT USED, STATE REASON
				Yes	No	
SS-1	Scheduling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/>	<input type="radio"/>	
SS-2	Preservation of Property/ Preservation of Existing Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
SC-5	Fiber Rolls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
SC-6	Temporary Gravel Bag Berm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
SC-8	Temporary Sandbag Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
<b>ALTERNATIVE BMPs USED(3)</b>  <input type="radio"/> Yes <input checked="" type="radio"/> No						

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Notes:

- (1)The BMP designations (SS-1, SC-5, etc.) are solely for maintaining continuity with existing Caltrans documents and are not provided to imply that the Construction Site BMP Reference Manual is a required contract document.
- (2)Minimum requirements are based on the required Contract Provisions, Standard Special Provisions, Plans and Specifications. Not all minimum requirements may be applicable to every project. Applicability to a specific project shall be determined by the QSD or WPC Manager.
- (3)Use of alternative BMPs will require written approval by the RE.

**Implementation of Temporary Run-on Controls BMPs**

Conceptual

**500.3.2 Soil Stabilization (Erosion Control)**

Soil stabilization, also referred to as erosion control, consists of source control measures that are designed to prevent soil particles from detaching and becoming transported in stormwater runoff. Soil stabilization BMPs protect the soil surface by covering and/or binding soil particles. This project will incorporate SWPPP/WPCP Preparation Manual minimum temporary soil stabilization requirements, temporary soil stabilization measures required by the contract documents, and other measures selected by the Contractor.

Sufficient soil stabilization materials will be maintained on site to allow implementation in conformance with Caltrans requirements and as described in this SWPPP. This includes implementation requirements for active and non-active areas that require deployment before the onset of rain.

The following soil stabilization BMP selection table indicates the BMPs that shall be implemented to control erosion on the construction site. Temporary soil stabilization BMPs are listed by location in the WPCBMPL in Attachment CC and are shown on the WPCDs from Attachment BB. Any details for temporary soil stabilization BMPs are shown in Attachment BB.

TABLE 500.3.2 TEMPORARY EROSION CONTROL BMPs						
CONSTRUCTION BMP ID NO. (1)	BMP NAME	CONTRACT MIN REQUIRE- MENT (2)	CONTRACT BID ITEM	BMP USED		IF A CONTRACT MINIMUM REQUIREMENT BUT NOT USED, STATE REASON
				Yes	No	
SS-1	Scheduling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
SS-2	Preservation of Property/ Preservation of Existing Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
<b>ALTERNATIVE BMPs USED (3)</b>  <input type="radio"/> Yes <input checked="" type="radio"/> No						

Notes:

- (1)The BMP designations (SS-1, SC-3, etc.) are solely for maintaining continuity with existing Caltrans documents and are not provided to imply that the Construction Site BMP Reference Manual is a required contract document.
- (2)Minimum requirements are based on the required Contract Provisions, Standard Special Provisions, Plans and Specifications. Not all minimum requirements may be applicable to every project. Applicability to a specific project shall be determined by the QSD or WPC Manager.
- (3)Use of alternative BMPs will require written approval by the RE.

**Stormwater Pollution Prevention Plan (SWPPP)  
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The BMPs selected for the project are listed below along with an explanation of how they will be incorporated into the project.

- 

### 500.3.3 Sediment Control

Sediment controls are structural measures that are intended to complement and enhance the selected soil stabilization (erosion control) measures and reduce sediment discharges from construction areas. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water. This project will incorporate SWPPP/WPCP Preparation Manual minimum temporary sediment control requirements, temporary sediment control measures required by the contract documents, and other measures selected by the Contractor.

Sediment control BMPs will be installed at all appropriate locations along the site perimeter and at all operational internal inlets to storm drain systems at all times.

Throughout the duration of the project, temporary sediment control materials, equivalent to 10 percent of the materials installed on site, will be maintained on site for implementation in event of predicted rain, or the need for rapid response to failures or emergencies, in conformance with other Caltrans requirements, and as described in the SWPPP. This includes implementation requirements for active areas and non-active areas before the onset of rain.

The following sediment control BMP selection table indicates the BMPs that shall be implemented to control sediment on the construction site. Temporary sediment control BMPs are listed by location in the WPCBMPL in Attachment CC and are shown on the WPCDs from Attachment BB. Any details for temporary sediment control BMPs are shown in Attachment BB.

<b>TABLE 500.3.3 TEMPORARY SEDIMENT CONTROL BMPs</b>						
CONSTRUCTION BMP ID NO.(1)	BMP NAME	CONTRACT MIN REQUIRE- MENT(2)	CONTRACT BID ITEM	BMP USED		IF A CONTRACT MINIMUM REQUIREMENT BUT NOT USED, STATE REASON
				Yes	No	
SC-4	Temporary Check Dam	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	
SC-5	Fiber Rolls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	
SC-6	Temporary Gravel Bag Berm	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	
SC-7	Street Sweeping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	
SC-8	Temporary Sandbag Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	
SC-9	Temporary Straw Bale Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	

**Stormwater Pollution Prevention Plan (SWPPP)  
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SC-10	Temporary Drain Inlet Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
<b>ALTERNATIVE BMPs USED <sup>(3)</sup></b>						
<input type="radio"/> Yes <input checked="" type="radio"/> No						

Notes:

(1)The BMP designations (SS-1, SC-3, etc.) are solely for maintaining continuity with existing Caltrans documents and are not provided to imply that the Construction Site BMP Reference Manual is a required contract document.

(2)Minimum requirements are based on the required contract provisions, standard special provisions, plans and specifications. Not all minimum requirements may be applicable to every project. Applicability to a specific project shall be determined by the QSD or WPC Manager.

(3)Use of alternative BMPs will require written approval by the RE

The following list of BMPs and associated narratives explain how the selected BMPs will be incorporated into the project.

•

### 500.3.4 Tracking Control

Tracking control BMPs are implemented to reduce sediment tracking from the construction site onto private or public roads. This project will incorporate SWPPP/WPCP Preparation Manual minimum temporary tracking control requirements, temporary tracking control measures required by the contract documents, and other measures selected by the Contractor.

The following tracking control BMP selection table indicates the BMPs that shall be implemented to reduce sediment tracking from the construction site onto private or public roads. Temporary tracking control BMPs are listed by location in the WPCBMPL in Attachment CC and shown on the WPCDs from Attachment BB. Any details for temporary tracking control BMPs are shown in Attachment BB.

<b>TABLE 500.3.4 TEMPORARY TRACKING CONTROL BMPs</b>						
CONSTRUCTION BMP ID NO. (1)	BMP NAME	CONTRACT MIN REQUIREMENT (2)	CONTRACT BID ITEM	BMP USED		IF A CONTRACT MINIMUM REQUIREMENT BUT NOT USED, STATE REASON
				Yes	No	
SC-7	Street Sweeping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
TC-1	Temporary Construction Entrance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
TC-3	Temporary Entrance / Outlet Tire Wash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
<b>ALTERNATIVE BMPs USED <sup>(3)</sup></b>						
<input type="radio"/> Yes <input checked="" type="radio"/> No						

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Notes:

- (1)The BMP designations (SS-1, SC-3, etc.) are solely for maintaining continuity with existing Caltrans documents and are not provided to imply that the Construction Site BMP Reference Manual is a required contract document.
- (2) Minimum requirements are based on the required Contract Provisions, Standard Special Provisions, Plans and Specifications. Not all minimum requirements may be applicable to every project. Applicability to a specific project shall be determined by the QSD or WPC Manager.
- (3)Use of alternative BMPs will require written approval by the RE.

The following list of BMPs and associated narratives explain how the selected BMPs will be incorporated into the project.

- 

### 500.3.5 Wind Erosion Control

Wind erosion control BMPs will be implemented to prevent sediment from leaving the construction site. This project will incorporate SWPPP/WPCP Preparation Manual minimum temporary wind erosion control requirements, temporary wind erosion control measures required by the contract documents, and other measures selected by the Contractor.

The following temporary wind erosion control BMP selection table indicates the BMPs that shall be implemented to reduce wind erosion at the construction site. Temporary wind erosion control BMPs are listed by location in the WPCBMPL in Attachment CC and shown on the WPCDs from Attachment BB. Any details for temporary wind erosion control BMPs are shown in Attachment BB.

<b>TABLE 500.3.5 TEMPORARY WIND EROSION CONTROL BMPs</b>						
<b>CONSTRUCTION BMP ID NO. (1)</b>	<b>BMP NAME</b>	<b>CONTRACT MIN REQUIRE- MENT (2)</b>	<b>CONTRACT BID ITEM</b>	<b>BMP USED</b>		<b>IF A CONTRACT MINIMUM REQUIREMENT BUT NOT USED, STATE REASON</b>
				Yes	No	
WE-1	Wind Erosion Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
TC-1	Temporary Construction Entrance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
----	All Soil Stabilization Measures included in Section 500.3.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
<b>ALTERNATIVE BMPs USED (3)</b>						
<input type="radio"/> Yes <input checked="" type="radio"/> No						

Notes:

- (1)The BMP designations (SS-1, SC-3, etc.) are solely for maintaining continuity with existing Caltrans documents and are not provided to imply that the Construction Site BMP Reference Manual is a required contract document.
- (2) Minimum requirements are based on the required contract provisions, standard special provisions, plans and specifications. Not all minimum requirements may be applicable to every project. Applicability to a specific project shall be determined by the QSD or WPC Manager.
- (3)Use of alternative BMPs will require written approval by the RE.

The following list of BMPs and narrative explain how the selected BMPs shall be incorporated into the project.

- 

## **500.4 BMP Selection for Construction Site Management**

Construction site management shall consist of controlling potential sources of water pollution before they come in contact with stormwater systems or watercourses. The Contractor shall control material pollution and manage waste and non-stormwater discharges at the construction site by implementing effective handling, storage, use, and disposal practices.

### **500.4.1 Non-Stormwater Site Management**

Non-stormwater discharges into storm drainage systems or waterways, which are not authorized under the Caltrans Permit or authorized under a separate NPDES permit, shall be prohibited. The selection of non-stormwater BMPs is based on whether construction activities with a potential for non-stormwater discharges will be conducted, as discussed in the Materials Management Plan and in Section 500.4. This project will incorporate SWPPP/WPCP Preparation Manual minimum non-stormwater pollution control requirements, non-stormwater pollution temporary wind erosion control measures required by the contract documents, and other measures selected by the Contractor.

The following non-stormwater control BMP selection table indicates the BMPs that shall be implemented to prevent non-stormwater discharges from construction activities conducted at the project site. Non-stormwater pollution control BMPs are listed by location in the WPCBMPL in Attachment CC and shown on the WPCDs from Attachment BB. Any details for non-stormwater pollution control BMPs are shown in Attachment BB.

<b>TABLE 500.4.1 TEMPORARY NON-STORMWATER POLLUTION CONTROL BMPs</b>						
<b>CONSTRUCTION BMP ID NO. (1)</b>	<b>BMP NAME</b>	<b>CONTRACT MIN REQUIRE- MENT (2)</b>	<b>CONTRACT BID ITEM</b>	<b>BMP USED</b>		<b>IF A CONTRACT MINIMUM REQUIREMENT BUT NOT USED, STATE REASON</b>
				Yes	No	
NS-1	Water Control and Conservation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
NS-2	Dewatering(3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
NS-3	Paving, Sealing, Sawcutting, and Grinding Operations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
NS-6	Illegal Connection and Illegal Discharge Detection Reporting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
NS-7	Potable Water / Irrigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
NS-8	Vehicle and Equipment Cleaning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	

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NS-9	Vehicle and Equipment Fueling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
NS-10	Vehicle and Equipment Maintenance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
NS-12	Concrete Curing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
NS-14	Concrete Finishing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
<b>ALTERNATIVE BMPs USED<sup>(4)</sup></b>						
<input type="radio"/> Yes <input checked="" type="radio"/> No						

**Notes:**

(1)The BMP designations (SS-1, SC-3, etc.) are solely for maintaining continuity with existing Caltrans documents and are not provided to imply that the Construction Site BMP Reference Manual is a required contract document.

(2)Minimum requirements are based on the required contract provisions, standard special provisions, plans and specifications. Not all minimum requirements may be applicable to every project. Applicability to a specific project shall be determined by the QSD or WPC Manager.

(3)The BMPs listed above are incidental and do not include operations listed as separated line items in the contract.

(4)Use of alternative BMPs will require written approval by the RE.

The following list of BMPs and associated narratives explain how the selected BMPs will be incorporated into the project.

- 

### 500.4.2 Waste Management and Materials Pollution Control

An inventory of construction activities, materials, and wastes is provided in Section 500.1.1. The following BMP consideration checklist lists the BMPs that have been selected to control construction site wastes and materials. Locations and details of applicable materials handling and waste management BMPs are shown on the WPCDs from Attachment BB. In the narrative description, a list of waste disposal facilities and the type of waste to be disposed at each facility is also provided. The following list of BMPs and associated narratives explain how the selected BMPs will be incorporated into the project.

<b>TABLE 500.4.2 TEMPORARY WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL BMPs</b>						
CONSTRUCTION BMP ID NO.(1)	BMP NAME	CONTRACT MIN REQUIREMENT(2)	CONTRACT BID ITEM	BMP USED		IF A CONTRACT MINIMUM REQUIREMENT BUT NOT USED, STATE REASON
				Yes	No	
WM-1	Material Delivery and Storage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
WM-2	Material Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
WM-3	Stockpile Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	

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WM-4	Spill Prevention and Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
WM-5	Solid Waste Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
WM-6	Hazardous Waste Management (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
WM-7	Contaminated Soil Management (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
WM-8	Concrete Waste Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
WM-8	Temporary Concrete Washout (Portable)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
WM-8	Temporary Concrete Washout Facility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
WM-9	Sanitary/Septic Waste Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
WM-10	Liquid Waste Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
<b>ALTERNATIVE BMPs USED<sup>(4)</sup></b>						
<input type="radio"/> Yes <input checked="" type="radio"/> No						

**Notes:**

(1)The BMP designations (SS-1, SC-3, etc.) are solely for maintaining continuity with existing Caltrans documents and are not provided to imply that the Construction Site BMP Reference Manual is a required contract document.

(2)Minimum requirements are based on the required contract provisions, standard special provisions, plans and specifications. Not all minimum requirements may be applicable to every project. Applicability to a specific project shall be determined by the QSD or WPC Manager.

(3)The BMPs listed above are incidental and do not include operations listed as separated line items in the contract.

(4)Use of alternative BMPs will require written approval by the RE.

## 500.5 Water Pollution Control Drawings

The WPCDs are the component of the project SWPPP that show the BMPs, by project phase/stage, that are necessary for the project to be in compliance with the CGP. The construction activity phases used in this SWPPP are the preliminary phase, grading phase, highway construction phase, and the highway planting / erosion control establishment phase. These phases are defined below.

### Preliminary Phase (Pre-Construction Phase – Part of the Grading Phase)

Includes rough grading/or disking, clearing and grubbing operations, or any soil disturbance prior to mass grading.

### Grading Phase

Includes reconfiguring the topography for the highway, including excavation for roadway (e.g., necessary blasting of hard rock), highway embankment construction (fills); mass grading, and stockpiling of select material for capping operations.

### **Highway Construction Phase**

Encompasses both highway and structure construction. Highway construction includes final roadway excavation, placement of base materials and highway paving, finish grading, curbs, gutters and sidewalks, public utilities, public water facilities including fire hydrants, public sanitary sewer systems, storm drain systems and/or other drainage improvements, highway lighting, traffic signals and/or other highway electrical work, guardrail, concrete barriers, sign installation, pavement markers, traffic striping and pavement markings. Structure construction includes structure footings, bridges, retaining walls, major culverts, overhead sign structures and buildings.

### **Highway Planting / Erosion Control Establishment Phase**

Includes clearing and grubbing operations, soil preparation (grading, incorporation of soil amendments, and placement of topsoil), irrigation (trenching, installation and trench backfilling), minor grading (top dressing and fine grading of lawn and ground cover areas), planting (seeding and planting of vegetation), mulching (application of wood chips or other mulches) and plant establishment (weeding, plant replacement, and, if needed, fertilizer application, irrigation maintenance, and reapplication of mulch). Erosion control includes placement of permanent erosion control materials and maintenance of temporary sediment controls during the erosion control establishment period.

The WPCDs provide field staff with the information on where to install BMPs so that they are effective. The WPCDs, WPCBML and Water Pollution Control Schedule provide the necessary tools for a Contractor to plan and implement BMPs to meet the requirements of the project SWPPP.

The WPCD cover sheet(s) shall include a listing of the BMPs that will be used along with the associated BMP symbols used on the WPCDs.

WPCDs are provided for all areas that are directly related to the construction activity, including but not limited to staging areas, storage yards, material borrow areas and storage areas, access roads, etc., whether or not they reside within the Caltrans rights-of-way

The WPCDs shall show the construction project site in detail, including:

- the construction site perimeter;
- geographic features within or immediately adjacent to the site; include surface waters such as lakes, streams, springs, wetlands, estuaries, ponds, and the ocean;
- site topography before and after construction; include roads, paved areas, buildings, slopes, drainage facilities, and areas of known or suspected contamination; and
- permanent (post-construction) BMPs.

The WPCDs shall show the following site information:

- discharge points from the project to off-site storm drain systems or receiving waters;
- tributary areas and drainage patterns across the project area (show using flow arrows) into each on-site stormwater inlet or receiving water;
- tributary areas and drainage patterns to each on-site stormwater inlet, receiving water or discharge point;
- off-site tributary drainage areas that generate run-on to the project;

- temporary on-site drainage(s) to carry concentrated flows;
- drainage patterns and slopes anticipated after major grading activities are completed;
- outlines of all areas of existing vegetation, soil cover, or native vegetation that will remain undisturbed during the project;
- outlines of all areas of planned soil disturbance (disturbed soil areas, DSAs);
- known location(s) of contaminated or hazardous soils; and
- any potential non-stormwater discharges and activities, such as dewatering operations, concrete saw-cutting or coring, pressure washing, waterline flushing, diversions, cofferdams, and vehicle and equipment cleaning; if operations can't be located on the WPCDs, a narrative description should be provided.

The WPCDs show proposed locations of all construction site BMPs. Additional detail drawings are provided if necessary to convey site-specific BMP configurations. The WPCDs shall show construction site BMPs including the following:

- temporary soil stabilization and temporary sediment control BMPs that will be used during construction; any temporary on-site drainage(s) to carry concentrated flows, BMPs implemented to divert off-site drainage around or through the construction site, and BMPs that protect stormwater inlets;
- construction entrances used for site ingress and egress points and any proposed temporary construction roads;
- BMPs to mitigate or eliminate non-stormwater discharges;
- BMPs for waste management and materials pollution control, including, but not limited to storage of soil or waste; construction material loading, unloading, storage and access areas; and areas designated for waste handling and disposal; and
- BMPs for vehicle and equipment storage, fueling, maintenance, and cleaning.

The WPCDs can be found in Attachment BB of the SWPPP.

## **500.6 Water Pollution Control BMP List**

The Water Pollution Control Best Management Practices List (WPCBMPL) provides, by location and project phase/stage, the BMPs necessary for the project to be in compliance with the CGP. The WPCBMPL provides field staff both with a list of necessary BMPs and with an estimated quantity for each BMP by location and phase/stage of the project. The construction activity phases are typically the Preliminary Phase, Grading Phase, Highway Construction Phase, and the Highway Planting / Erosion Control Establishment Phase. The construction activity phases are defined in Section 500.5.

The WPCBMPL, water pollution control drawings and water pollution control schedule provide the tools necessary for the Contractor to plan and implement BMPs to meet the requirements of the project SWPPP. The BMPs listed on the WPCBMPL are the base line for site inspections and visual monitoring.

The WPCBMPL cover sheet includes a list of all BMPs to be used on the project based on Section 500 Determination of Construction Site Best Management Practices.

The names and number of locations listed on the WPCBMPL were established so that field staff and inspectors can easily identify where BMPs need to be located. The WPCBMPL includes all locations that are directly related to the construction activity, including but not limited to staging areas, storage yards, material borrow areas and storage areas, access roads, etc., whether or not they reside within Caltrans rights-of-way.

Necessary additional information to convey site-specific BMP configurations or BMP modifications are noted on the WPCBMPL.

All construction site BMPs are listed on the WPCBMPL including the following:

- temporary soil stabilization and temporary sediment control BMPs that will be used during construction; include temporary on-site drainage(s) to carry concentrated flows
- BMPs implemented to divert off-site drainage around or through the construction site, and BMPs that protect stormwater inlets
- BMPs to mitigate or eliminate non-stormwater discharges BMPs for waste management and materials pollution control, including, but not limited to storage of soil or waste; construction material loading, unloading, storage and access areas; and areas designated for waste handling and disposal
- BMPs for vehicle and equipment storage, fueling, maintenance, and cleaning
- permanent BMPs that are a component of the project SWPPP

The WPCBMPL can be found in Attachment CC of the SWPPP.

## **500.7 Water Pollution Control Schedule**

The Water Pollution Control Schedule (WPCS) is the component of the project SWPPP that shows the timeline for when BMPs will be installed so that the project is in compliance with the CGP. The WPCS provides field staff with the information necessary to plan for adequate materials and crews to install BMPs at the right time so that they are effective. The WPCS, WPCBMPL, and WPCDs provide the necessary tools for the Contractor to plan and implement BMPs to meet the requirements of the project SWPPP.

The WPCS shall contain an adequate level of detail to show major activities sequenced with the implementation of construction site BMPs, including:

- project start and finish dates, including each stage of the project
- SWPPP review and approval
- annual certifications
- mobilization dates
- mass clearing and grubbing/roadside clearing dates
- major grading/excavation dates
- dates named in other permits such as TRPA, Fish and Game and Army Corps of Engineers Permits
- dates for submittal of SWPPP amendments as required in the contract specifications

The WPCS shall show by location the dates for the deployment of:

- temporary soil stabilization BMPs
- temporary sediment control BMPs
- wind erosion control BMPs
- tracking control BMPs
- non-stormwater BMPs
- waste management and materials pollution control BMPs

The WPCS shall include:

- paving, saw-cutting, and any other pavement-related operations;
- major planned stockpiling operations;
- dates for other significant long-term operations or activities that may cause non-stormwater discharges, such as dewatering, grinding, etc; and
- final stabilization activities for each disturbed soil area of the project.

The WPCS shall be updated quarterly and the quarterly updates shall be filed in SWPPP File Category 20.03: Water Pollution Control Schedule Updates.

The Water Pollution Control Schedule can be found in Attachment DD of the SWPPP.

# SECTION 600

## PROJECT SITE IMPLEMENTATION PROGRAM

### **600.1 Water Pollution Control Manager Responsibilities**

The WPC Manager shall have primary responsibility and authority to implement the SWPPP and ensure the project is in compliance with the CGP. The WPC Manager is responsible for implementing the SWPPP and amending the SWPPP when any of the conditions specified in Section 100.3 are met. The Contractor has assigned authority to the WPC Manager to mobilize crews and subcontractors, as necessary, for SWPPP and CGP compliance. The WPC Manager will be available at all times throughout duration of the project.

Duties of the Contractor's WPC Manager include but are not limited to the following

- ensuring full compliance with the SWPPP and the CGP
- implementing all elements of the SWPPP, including but not limited to implementing:
  - prompt and effective erosion and sediment control measures
  - all non-stormwater management, and materials and waste management activities such as: monitoring discharges (dewatering, diversion devices); performing general site cleanup; cleaning vehicles and equipment, performing fueling and maintenance activities; providing spill control; ensuring that no materials other than stormwater are discharged in quantities that will have an adverse effect on receiving waters or storm drain systems, etc.
- overseeing and ensuring that the following site inspections and visual site monitoring are conducted:
  - daily required BMP inspections
  - weekly routine stormwater site BMP inspections
  - quarterly non-stormwater site inspections
  - pre-storm inspections prior to forecasted storm events
  - daily inspections during extended forecasted storm events
  - post-storm inspections for qualifying rain events
- mobilizing crews to repair, replace, and/or implement additional BMPs due to deficiencies, failures or other shortcomings identified during inspections, to be completed within 24 hours of identification in compliance with Standard Specification 13-1.03A (the contractor's WPC Manager shall be assigned authority by the Contractor to mobilize crews), unless a longer period is authorized.
- coordinating with the RE to assure that if design changes to BMPs are required due to deficiencies, failures or other shortcomings identified during inspections, the changes are completed as soon as possible and the SWPPP is revised accordingly
- monitoring NWS Forecast Office forecasts for both forecasted storm events and qualifying rain events; these events are defined as follows:
  - forecasted storm event is defined as a 50% or greater likelihood that 0.10 inch or more of precipitation will fall within a 24-hour period

- a qualifying rain event is defined as a rain event that may produce or has produced ½ inch or greater of precipitation at the time of discharge, with a 72-hour dry period between events
- monitoring weather at the project site
- preparing and implementing qualifying rain event sampling and analysis plans
- preparing and implementing Rain Event Action Plans for forecasted storm events
- mobilizing crews immediately, in the event of NAL exceedances, to repair existing BMPs and/or implement additional BMPs (the Contractor's WPC Manager shall be assigned authority by the Contractor to mobilize crews),
- coordinating with the RE in the event of NAL exceedances to assure that any SWPPP revisions (corrective actions) are made immediately, either to prevent pollutants and authorized non-stormwater discharges from contaminating stormwater, or to substantially reduce the pollutants to levels consistently below the NALs, so that the project complies with the SWPPP, the CGP and approved plans at all times,
- submitting NAL exceedances reports to the RE
- submitting test results for stormwater samples to the RE
- preparing amendments to the SWPPP when required
- preparing contractor's SWPPP Annual Compliance Certification
- preparing the Stormwater Annual Reports
- ensuring elimination of all unauthorized discharges
- preparing and submitting Notice of Discharge reports to the RE
- preparing and submitting reports of illicit connections or illegal discharges to the RE

## **600.2 Site Inspections**

Stormwater site inspections and visual monitoring are necessary to ensure that the project is in compliance with the requirements of the CGP. Project site visual monitoring requirements are covered in Section 700 Construction Site Monitoring Program. Project site inspections of stormwater BMPs are conducted to identify and record:

- that BMPs are properly installed
- what BMPs need maintenance to operate effectively
- what BMPs have failed
- what BMPs could fail to operate as intended.

Routine stormwater site inspections shall be conducted by the contractor's WPC Manager or other 24-hour trained staff at the following minimum frequencies:

- daily inspections of:
  - storage areas for hazardous materials and waste
  - hazardous waste disposal and transporting activities

- hazardous material delivery and storage activities
- vehicle and equipment cleaning facilities if vehicle and equipment cleaning occurs daily
- vehicle and equipment maintenance and fueling areas if vehicle and equipment maintenance and fueling occurs daily
- vehicles and equipment at the job site to verify that operators are inspecting vehicles and equipment each day of use.
- demolition sites within 50 feet of storm drain systems and receiving waters
- pile driving areas for leaks and spills if pile driving occurs daily
- temporary concrete washouts if concrete work occurs daily
- paved roads at job site access points for street sweeping if earthwork and other sediment or debris generating activities occur daily
- dewatering work if dewatering work occurs daily
- temporary active treatment system if temporary active treatment system activities occur daily
- work over water if work over water occurs daily
- daily inspections for projects within the Lake Tahoe Hydrologic Unit
- daily inspections of access roadways
- weekly inspection of site BMPs

Stormwater site inspections shall be documented on CEM-2030 Stormwater Site Inspection Report, in Appendix G. Completed stormwater inspection reports shall be submitted to the RE within 24 hours after completion of the inspection. Copies of completed inspection reports will be kept in SWPPP File Category 20.31: Contractor Stormwater Site Inspection Reports,

Deficiencies identified during site inspections and correction of deficiencies will be tracked on the CEM-2035 Stormwater Corrective Actions Summary, in Appendix I. Corrective Action Summary forms shall be submitted to the RE when corrections are completed but must be submitted within five (5) days after completion of the site inspection. Completed Stormwater Site Inspection Report Corrective Actions Summary forms shall be filed in SWPPP File Category 20.35: Corrective Actions Summary. A copy of the completed Corrective Actions Summary form will also be attached to the corresponding Stormwater Site Inspection Report that generated the need for the CEM-2035 Stormwater Corrective Actions Summary

### **600.3 Weather Forecast Monitoring**

The WPC Manager shall have primary responsibility to monitor the National Weather Service Forecast Office for forecasted precipitation based on project site location. Precipitation forecast information shall be obtained from the National Weather Service Forecast Office accessible at: <http://www.srh.noaa.gov/>.

The project site location to be used for obtaining forecast from National Weather Forecast Office website is:

1-Oakland - Lat:37°48'24"N Long:122°16'20"W  
2-Emeryville - Lat:37°49'43"N Long:122°16'44"W  
3-Berkeley - Lat:37°52'58"N Long:122°17'48"W  
4-Albany - Lat:37°53'04"N Long:122°17'49"W

6-Richmond - Lat:37°56'50"N Long:122°19'51"W  
7-San Pablo - Lat:37°57'23"N Long:122°20'14"W  
8-El Cerrito (Moeser) - Lat:37°54'40"N Long:122°18'30"W

The WPC Manager shall monitor the weather forecast on a daily basis for predicted precipitation within the following 96 hours. The WPC Manager shall monitor the forecast for the next 24, 48, 72 and 96 hours to determine if the forecast for precipitation is 50 percent or greater for any 6-hour period. If the forecast for precipitation is 50 percent or greater, the WPC Manager shall calculate the amount of precipitation forecasted for each 24-hour period and the total precipitation for the forecasted storm event and record the information. Weather forecast monitoring shall be recorded be filed in File Category 20.40: Weather Monitoring Logs.

When the forecast for precipitation is 50 percent or greater and the forecasted amount of precipitation is 0.10 inch or more for any 24-hour period within the next 72 hours, the WPC Manager shall perform a pre-storm site inspection and ensure that the site is prepared for the likely forecasted storm event.

For Risk Level 2 and 3 the WPC Manager will prepare a Rain Event Action Plan for forecasted storm events.

Forecasted storm event site preparation shall include, but is not limited to, the installation of soil stabilization and sediment BMPs on active disturbed soil areas and stockpiles.

## **600.4 Weather Monitoring**

The WPC Manager shall have primary responsibility to monitor weather at the project site. The WPC Manager, on a daily basis, shall monitor the weather and record the weather conditions.

When there is precipitation, the WPC Manager shall ensure that storm precipitation data is obtained from the project site rain gauge. Precipitation monitoring will include recording the time, amount of precipitation measured in the project site rain gauge, amount of precipitation within a 24-hour period, and total cumulative amount of precipitation for the forecasted storm event.

If no pre-storm visual site monitoring was performed, and the amount of precipitation for any 24-hour period is 0.10 inch or greater, the WPC Manager will implement during storm visual site monitoring, as discussed in Section 700.1.

When a forecasted storm event was not forecasted to be a qualifying rain event, but the measured cumulative amount of precipitation for the storm event and the expected severity of the continuing storm event results in ½ inch or more of precipitation, the WPC Manager will prepare to sample.

Weather monitoring will be conducted daily. Weather monitoring documentation shall be kept in File Category 20.40: Weather Monitoring Logs.

## **600.5 Best Management Practices Status Report**

The WPC Manager shall prepare a monthly status report of the water pollution control BMPs (site BMPs) installed on the project site. The monthly BMP status report will be based on the progress of the work and the WPCBMPL for the project, with any additional BMPs the WPC Manager has determined are necessary based on the stage of construction and construction activities.

Because the SWPPP, including the WPCBMPL and WPCDs, are based on the entire project site and all construction activities, the monthly BMP status report should be a “snapshot” of which BMPs are deployed on the project site, so a project inspector or reviewer can easily determine what could be expected to be seen on the project site that month. The monthly status report will be used by stormwater inspectors and contractor personnel to ensure SWPPP compliance.

The weekly status report will be used to ensure that weekly training meetings cover BMPs that are required for work activities during the week. The weekly status report will be provided to regulatory agency staff who visit the project site to indicate which BMPs should be in place and which are scheduled to be implemented during the coming week.

The monthly status of stormwater BMPs will be documented on CEM-2034 Stormwater Best Management Practices and Materials Inventory Report form, in Appendix H. Completed monthly status reports shall be submitted to the RE 48 hours prior to the beginning of the work week. Copies of the completed reports will be kept in SWPPP File Category 20.34: Monthly Best Management Practices and Materials Inventory Reports.

# Conceptual

## **600.6 Rain Event Action Plans (REAP)**

REAPs will be prepared by the WPC Manager when there is a forecasted storm event. A forecasted storm event is any weather pattern that is forecasted to have a 50 percent or greater probability of producing precipitation of 0.10 inch or more within any 24-hour period at the project site location. The WPC Manager will prepare the REAP for the forecasted storm event based on the current construction activity phase of the project. For REAPs, the construction activity phases are the Highway Construction Phase, Highway Planting / Erosion Control Establishment Phase or Inactive Project Phase. The construction activity phases are defined in Section 500.5.

When the NWS forecast for 72 hours and greater predicts a forecasted storm event, the WPC Manager will prepare a REAP using the REAP form appropriate to the current project stage. REAP forms are available in Appendix L. Prepared REAPs shall be submitted to the RE at least 48 hours prior to a forecasted storm event. If the NWS forecast changes and a storm event is forecasted to occur within 24-72 hours then a REAP must be prepared. If the NWS forecast changes and a storm event is forecasted to occur within the next 24 hours a REAP will not be prepared and the WPC Manager will take immediate actions to ready the project site for the forecasted storm event.

The WPC Manager shall implement a REAP within the 48 hours prior to the forecasted storm event. A copy of the REAP shall be available on the job site at least 48 hours prior to the forecasted storm event. Copies of REAPs will be maintained in SWPPP File Category 20.45: Rain Event Action Plans in reverse chronologic order.

# SECTION 700

## CONSTRUCTION SITE MONITORING PROGRAM

### 700.1 *Site Visual Monitoring Inspection*

This Construction Site Monitoring Program includes conducting site visual monitoring inspections of the project site to address the following objectives:

- determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives
- determine whether BMPs included in the SWPPP are effective in preventing or reducing pollutants in stormwater discharges and authorized non-stormwater discharges
- determine whether BMPs included in the REAP are effective in preventing or reducing pollutants in stormwater discharges and authorized non-stormwater discharges
- demonstrate that the site is in compliance with the discharge prohibitions and applicable NALs and Receiving Water Monitor Triggers of the CGP
- determine whether immediate corrective actions, additional BMP implementation, or SWPPP amendments are necessary to reduce pollutants in stormwater and authorized non-stormwater discharges
- demonstrate that the site is in compliance with the discharge prohibitions
- document the presence or evidence of any non-stormwater discharge (authorized or unauthorized), pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.), and source, if applicable, and the response taken to eliminate unauthorized non-stormwater discharges and to reduce or prevent pollutants from contacting non-stormwater discharges

#### 700.1.1 *Visual Monitoring Locations*

##### **Locations of Visual Monitoring Prior To A Storm Event**

Visual monitoring (a pre-storm inspection) of the project site is required when the forecast for precipitation is greater than 50 percent within the next 24, 48, 72, 96 hours, and the amount of precipitation forecasted for any 24-hour period is 0.10 inch or greater. Within 48 hours of a forecasted storm event, a stormwater visual monitoring site inspection shall be performed and shall include observations of:

- stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources
- BMPs to identify whether they have been properly implemented
- any stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard

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7 drainage area(s) on the project site and the Contractor’s yard, staging areas, and storage areas have been identified as required forecasted storm event visual observation location(s), according to Section I.3.e of Attachments C, D, and E of the CGP. Drainage area(s) are shown on the WPCDs in Attachment BB and are listed by drainage area location number and location description in Table 700.1.1.1: Drainage Areas.

<b>TABLE 700.1.1.1 DRAINAGE AREAS</b>	
<b>Drainage Area No.</b>	<b>Location</b>
1	Oakland
2	Emeryville
3	Berkeley
4	Albany
6	Richmond
7	San Pablo
8	El Cerrito (Moeser)

0 stormwater storage or containment area(s) are located on the project site. These stormwater storage and containment area(s) have been identified as required forecasted storm event visual observation location(s). Stormwater storage or containment area(s) are shown on the WPCDs from Attachment BB and are listed by storage or containment area location number and location description in Table 700.1.1.2: Stormwater Storage and Containment Areas.

<b>TABLE 700.1.1.2 STORMWATER STORAGE AND CONTAINMENT AREAS</b>	
<b>Location No.</b>	<b>Location</b>
None	N/A

**Locations of Visual Monitoring during Extended Forecasted Storm Events and within 48 Hours After a Qualifying Rain Event**

During any extended forecasted storm events and within 48 hours after a qualifying rain event (a rain event that has produced ½ inch or more of precipitation), a stormwater visual monitoring site inspection is required to observe:

- stormwater discharges at all discharge locations
- BMPs to identify and record those that need maintenance to operate effectively, those that have failed, and those that could fail to operate as intended
- the discharge of stored or contained stormwater

7 discharge location(s) are located on the project site. These stormwater discharge location(s) have been identified as required visual observation location(s). Stormwater discharge location(s) are shown on the WPCDs in Attachment BB and are listed in Table 700.1.1.3: Stormwater Discharge Locations.

**TABLE 700.1.1.3  
 STORMWATER DISCHARGE LOCATIONS**

Unique Sampling Location Identifier	Location
1	Oakland
2	Emeryville
3	Berkeley
4	Albany
6	Richmond
7	San Pablo
8	El Cerrito (Moeser)

BMP locations shown on the WPCDs in Attachment BB and are listed on the WPCBMPL in Attachment CC.

0 stormwater storage or containment area(s) are located on the project site. Stormwater storage or containment area(s) are shown on the WPCDs in Attachment BB and are listed on Table 700.1.1.2: Stormwater Storage and Containment Areas.

**Locations of Visual Monitoring for Non-Stormwater Discharges**

A visual monitoring site inspection for non-stormwater discharges requires that each drainage area be observed for the presence of or indications of prior unauthorized and authorized non-stormwater discharges.

7 drainage area(s) are located on the project site and in the contractor’s yard, staging areas, and storage areas that have been identified as observation location(s) for non-stormwater discharges. Drainage area(s) are shown on the WPCDs in Attachment BB and are listed in Table 700.1.1.1: Drainage Areas.

**700.1.2 Visual Monitoring Schedule**

On a daily basis, contractor personnel will visual monitor the all immediate access roadways.

On a daily basis contractor personnel will visually monitor BMPs during applicable activities:

- storage areas for hazardous materials and waste
- hazardous waste disposal and transporting activities
- hazardous material delivery and storage activities
- vehicle and equipment cleaning facilities if vehicle and equipment cleaning occurs daily
- vehicle and equipment maintenance and fueling areas if vehicle and equipment maintenance and fueling occurs daily
- vehicles and equipment at the job site to verify that operators are inspecting vehicles and equipment each day of use.
- demolition sites within 50 feet of storm drain systems and receiving waters
- pile driving areas for leaks and spills if pile driving occurs daily

- temporary concrete washouts if concrete work occurs daily
- paved roads at job site access points for street sweeping if earthwork and other sediment or debris generating activities occur daily
- dewatering work if dewatering work occurs daily
- temporary active treatment system if temporary active treatment system activities occur daily
- work over water if work over water occurs daily

Stormwater site visual monitoring inspections shall be conducted at a minimum:

- within 48 hours prior to a forecasted storm event (any weather pattern that is forecasted to have a 50 percent or greater probability of producing 0.1 inches or more of precipitation in the project area within a 24 period)
- at 24-hour intervals during any extended forecasted storm event
- within 48 hours after a qualifying rain event (a rain event that has produced ½ inch or more of precipitation)

Non-stormwater discharge site visual monitoring inspections shall be conducted, at a minimum, during each of the following periods: January-March, April-June, July-September, and October-December.

If visual monitoring of the site for stormwater is unsafe because of dangerous weather conditions, such as flooding and electrical storms, then the site inspector shall document the conditions that prevented the inspection. The documentation of the site visual monitoring inspection shall be filed in SWPPP File Category 20.33: Site Visual Monitoring Inspection Reports.

### **700.1.3 Visual Monitoring Procedures**

Site visual monitoring inspections shall be overseen by the contractor's WPC Manager. Site visual monitoring will be conducted by the WPC Manager, appointed QSP or stormwater inspector.

The name(s) and contact number(s) of the site visual monitoring inspection personnel are listed below and their training qualifications are provided in Attachment E:

- |                        |                |
|------------------------|----------------|
| ● Assigned Inspector:  | Contact phone: |
| ● Alternate Inspector: | Contact phone: |

#### **Daily Access Road Monitoring**

All immediate access roads must be inspected on a daily basis. Any sediment or other construction-related materials deposited on the roads must be removed daily (or more frequently when necessary) and prior to any rain event.

#### **Daily BMP Monitoring During Applicable Activities**

Standard Specification 13-1.03C requires that the contractor personnel on the site shall inspect the following activities on a daily basis:

- storage areas for hazardous materials and waste
- hazardous waste disposal and transporting activities
- hazardous material delivery and storage activities

- vehicle and equipment cleaning facilities if vehicle and equipment cleaning occurs daily
- vehicle and equipment maintenance and fueling areas if vehicle and equipment maintenance and fueling occurs daily
- vehicles and equipment at the job site to verify that operators are inspecting vehicles and equipment each day of use.
- demolition sites within 50 feet of storm drain systems and receiving waters
- pile driving areas for leaks and spills if pile driving occurs daily
- temporary concrete washouts if concrete work occurs daily
- paved roads at job site access points for street sweeping if earthwork and other sediment or debris generating activities occur daily
- dewatering work if dewatering work occurs daily
- temporary active treatment system if temporary active treatment system activities occur daily
- work over water if work over water occurs daily

#### **Discharge Monitoring**

During inspections, the contractor personnel shall be observant of any discharges or evidence of a prior discharge that could cause adverse conditions in the storm sewer system or the receiving water. If a discharge or evidence of a prior discharge is discovered by the contractor, the WPC Manager or contractor shall immediately notify the RE, and shall file a written report on the CEM-2061 Notice of Discharge form with the RE within 24 hours of the discharge or discovery of evidence of a prior discharge. Corrective measures shall be implemented immediately following the discovery of the discharge. Form CEM-2061 for reporting discharges is available in Appendix K.

Caltrans will notify the owner/operator of the MS4 and the RWQCB as soon as practicable, but no later than 24 hours after onset of or threat of discharge which can cause adverse conditions to the storm sewer system or the receiving water. This applies to any such discharge that is not covered by California Emergency Management Agency procedures for discharges from a highway to a storm sewer system subject to a MS4 permit.

Discharges requiring reporting include:

- stormwater from a DSA discharged to a waterway without treatment by an effective combination of temporary erosion and sediment control BMPs
- non-stormwater, except conditionally exempted discharges, discharged to a waterway or a storm drain system, without treatment by an approved control measure (BMP)
- stormwater discharged to a waterway or a storm drain system where the control measures (BMPs) have been overwhelmed or not properly maintained or installed
- discharge of hazardous substances above the reportable quantities, as provided in 40 CFR 110.3, 117.3 or 302.4
- stormwater runoff containing hazardous substances from spills discharged to a waterway or storm drain system

The initial notification to the RWQCB of a discharge or threat of discharge will be made immediately for any discharge that can cause adverse conditions to the storm sewer system or the receiving water, with a follow-up in writing within 24 hours. Adverse conditions include, but are not limited to, serious violations or serious threatened violations of Waste Discharge Requirements (WDRs), significant spills of petroleum products or toxic chemicals, or serious damage to control facilities that could affect compliance. Caltrans shall perform follow-up monitoring of major spills and/or perform confirmation sampling to ensure that threats to waters of the U.S. have been eliminated as determined by the local RWQCB.

### **Weekly BMP Monitoring**

Weekly monitoring is required to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. The weekly BMP monitoring shall include observations of:

- all stormwater storage and containment areas identified in Table 700.1.1.2 to detect leaks and ensure maintenance of adequate freeboard
- all BMPs for proper installation and adequate maintenance.

Observations of the site and any recommended corrective actions will be documented in the CEM-2030 Stormwater Site Inspection Report. Any photographs used to document observations will be referenced in the stormwater site inspection report. Corrective actions documented in site inspection reports shall be immediately reviewed by the WCP Manager and, if deemed necessary, implemented within 24 hours.

### **Visual Monitoring Prior To A Forecasted Storm Event**

Visual monitoring of the project site is required when the forecast for precipitation is greater than 50 percent within the next 24, 48, 72, or 96 hours and the amount of precipitation forecasted for any 24-hour period during the storm event is 0.10 inch or greater within a 24-hour period. Site visual monitoring shall be conducted within 48 hours prior to a forecasted storm event. The pre-storm site visual monitoring shall include observations of:

- all drainage areas identified in Table 700.1.1.1 to identify any spills, leaks, or uncontrolled pollutant sources;
- all stormwater storage and containment areas identified in Table 700.1.1.2 to detect leaks and ensure maintenance of adequate freeboard
- all BMPs for proper installation and adequate maintenance.

Observations of the site and any recommended corrective actions will be documented in the CEM-2030 Stormwater Site Inspection Report. Any photographs used to document observations will be referenced in the stormwater site inspection report. Corrective actions documented in site inspection reports shall be immediately reviewed by the WCP Manager and, if deemed necessary, implemented within 24 hours and prior to the forecasted storm event.

Any corrective actions identified by a pre-storm visual monitoring site inspection shall be included in the REAP for the forecasted storm event.

### **Visual Monitoring during Extended Forecasted Storm Events**

Stormwater visual monitoring site inspections shall be conducted at least once each 24-hour period during any extended forecasted storm events. During any extended forecasted storm event, the site visual monitoring inspector shall visually observe:

- stormwater discharges at all discharge locations (Table 700.1.1.3)

- all stored or contained stormwater that is derived from and discharged subsequent to the qualifying rain event producing precipitation of ½ inch or more at the time of discharge; stored or contained stormwater that will likely discharge after working hours, due to anticipated precipitation, shall be observed prior to the discharge during working hours

Stormwater discharges and stored or contained stormwater will be observed for the presence or absence of floating and suspended materials, sheens on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.

During any forecasted storm event, stormwater visual monitoring site inspections will include the observation of all site BMPs for:

- proper installation
- achievement of maintenance requirements
- possible failure
- BMPs that could fail to operate as intended
- effectiveness, so that design changes can be implemented as soon as feasible if needed

Observations of the site and any recommended corrective actions will be documented in the CEM-2030 Stormwater Site Inspection Report. Any photographs used to document observations will be referenced on the stormwater site inspection report. Corrective actions documented in site inspection reports shall be immediately reviewed by the WCP Manager and, if deemed necessary, implemented, as required by Standard Specification 13-1.03A, within 24 hours of identification unless a longer period is authorized (but cannot be authorized longer than required by the CGP: implemented within 72 hours of identification and completed as soon as possible thereafter). If BMPs require design changes, the changes shall be implemented and the SWPPP shall be amended to include the changes.

#### **Visual Monitoring Within 48 Hours after a Qualifying Rain Event**

Site visual monitoring post-qualifying rain events shall be conducted within 48 hours after the qualifying rain event. The post-storm site visual monitoring inspection shall include observations of:

- discharges of stormwater that have not been processed by a BMP or evidence of stormwater that has not been processed by a BMP at all discharge locations
- evidence of a breach at stored or contained stormwater that is derived from and discharged subsequent to the qualifying rain event producing precipitation of ½ inch or more at the time of discharge; stored or contained stormwater that will likely discharge after working hours, due to anticipated precipitation, shall be observed prior to the discharge during working hours

Stormwater discharges and stored or contained stormwater will be observed for the presence or absence of floating and suspended materials, sheens on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.

Post-qualifying rain event stormwater visual monitoring site inspections will include observation of all site BMPs to determine if BMPs have failed to operate as intended because of:

- improper installation
- lack of maintenance
- lack of effectiveness

Observations of the site and any recommended corrective actions will be documented in the CEM-2030 Stormwater Site Inspection Report. Any photographs used to document observations will be referenced on the stormwater site inspection report. Corrective actions documented in site inspection reports shall be immediately reviewed by the WCP Manager and, if deemed necessary, necessary implemented, as required by Standard Specification 13-1.03A, within 24 hours of identification unless a longer period is authorized (but cannot be authorized longer than required by the CGP: implemented within 72 hours of identification and completed as soon as possible thereafter). If BMPs require design changes, the changes shall be implemented and the SWPPP shall be amended to include the changes.

#### **Visual Monitoring of Non-Stormwater Discharges**

For non-stormwater site visual monitoring, each drainage area will be monitored quarterly for the presence or prior indications of unauthorized and authorized non-stormwater discharges, and their sources. The presence or absence of non-stormwater discharges based on site observations will be documented in the CEM-2030 Stormwater Site Inspection Report. Documentation of observed non-stormwater discharges will include presence or absence of floating and suspended materials, sheens on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.

Site observations of the site and any recommended corrective actions will be documented. Corrective actions documented in site inspection reports shall be immediately reviewed by the WCP Manager and, if deemed necessary implemented, as required by Standard Specification 13-1.03A, within 24 hours of identification unless a longer period is authorized (but cannot be authorized longer than required by the CGP: implemented within 72 hours of identification and completed as soon as possible thereafter). If BMPs require design changes, the changes shall be implemented and the SWPPP shall be amended to include the changes. Corrective actions shall be documented in the CEM-2035 Stormwater Corrective Actions Summary. Any photographs used to document observations will be referenced in the CEM-2030 Stormwater Site Inspection Report.

#### **700.1.4 Visual Monitoring Follow-up and Tracking Procedures**

For deficiencies identified during visual monitoring (site inspections), the required repairs or maintenance of BMPs shall begin and be completed as soon as possible, while taking into consideration worker safety. For deficiencies identified during visual site inspections that require design changes, including additional BMPs, the implementation, as required by Standard Specification 13-1.03A, will begin within 24 hours of identification unless a longer period is authorized (but cannot be authorized longer than required by the CGP: implemented within 72 hours of identification and completed as soon as possible thereafter). When design changes to BMPs are required, the SWPPP shall be amended, including the WCBMPL and WPCDs. If NALs are exceeded, corrective actions shall be approved by the WPC Manager and implemented immediately.

Deficiencies identified on site inspection reports, as well as corrections of deficiencies, will be tracked on the CEM-2035 Stormwater Corrective Actions Summary, in Appendix I. Corrective action summaries shall be submitted to the RE when corrections are completed, but must be submitted within five (5) days of a site inspection.

#### **700.1.5 Data Management and Reporting**

The results of site visual monitoring (pre-storm, during storm, post-storm, and quarterly inspections) shall be recorded on the CEM-2030 Stormwater Site Inspection Report, in Appendix G. A copy of each report shall be kept in SWPPP File Category 20.33.

All reports shall be provided to the RE within 24 hours of the site inspection.

Deficiencies identified during visual monitoring (site inspections) and correction of deficiencies will be tracked on the CEM-2035 Stormwater Corrective Actions Summary, in Appendix I. Corrective Action Summary forms shall be submitted to the RE when corrections are completed, but must be submitted within five (5) days of the site inspection. Completed Stormwater Corrective Actions Summary forms shall be filed in SWPPP File Category 20.35: Corrective Actions Summary. A copy of the completed Corrective Actions Summary form will also be attached to the corresponding inspection report and shall be kept in the SWPPP Category 20.33.

If a discharge or evidence of a prior discharge that could cause adverse condition in the storm sewer or the receiving water is discovered by the Contractor, the WPC Manager or Contractor shall immediately notify the RE, and no more than 6 hours after discovery, and will file a written report to the RE within 24 hours of the discovery of evidence of a prior discharge. The written report to the RE will contain:

- the date, time, location, and type of unauthorized discharge;
- The nature of the operation that caused the discharge;
- An initial assessment of any impacts caused by the discharge;
- the BMPs deployed before the discharge;
- the date of deployment and type of BMPs deployed after the discharge, including additional measures installed or planned to reduce or prevent re-occurrence
- steps taken or planned to reduce, eliminate and/or prevent recurrence of the discharge

Reporting of discharges shall be documented on the CEM-2061 Notice of Discharge form, in Appendix K. Completed Notice of Discharge reports shall be submitted to the RE within 24 hours of discovery of evidence of a discharge. Copies of the Notice of Discharge reports will be kept in SWPPP File Category 20.61: Notice of Discharge Reports.

## **700.2 Sampling and Analysis Plans**

### **700.2.1 General SAP**

A sampling and analysis plan (SAP) describes how samples will be collected, under what conditions, where and when the samples will be collected, what the sample will be tested for, what test methods and detection limits will be used, and what methods/procedures will be performed to ensure the integrity of the sample during collection, storage, shipping and testing (i.e., quality assurance/quality control protocols). Therefore, a SAP shall include the components listed below.

1. Scope of Monitoring Activities
2. Monitoring Preparation
3. Monitoring Strategy
4. Sample Collection and Handling
5. Sampling Analysis
6. Quality Control and Assurance
7. Data Management and Reporting
8. Data Evaluation

## 9. Change of Conditions

This SWPPP contains a non-visible pollutants SAP. The SWPPP may also contain four additional specific SAPS based on the project risk level, project dewatering requirements, RWQCB sampling and analysis requirements, and a SAP for monitoring an active treatment system.

### 700.2.1.1 Scope of Monitoring Activities

For specific details with regard to monitoring activities, refer to the specific SAP identified below.

- Non-visible Pollutants (Section 700.2.2.1)
- Non-Stormwater Discharges (Section 700.2.3.1)
- Stormwater pH and Turbidity (Section 700.2.4.1)
- Monitoring required by the Regional Board (Section 700.2.5.1)
- Monitoring for Active Treatment Systems (ATS) (Section 700.2.6.1)

### 700.2.1.2 Monitoring Preparation

To ensure an effective construction site monitoring and reporting program, the following monitoring preparation activities are required:

- identifying qualified sampling personnel
- ensuring the availability of an adequate quantity of monitoring supplies
- ensuring the availability of field instruments; field instruments must be properly maintained and calibrated prior to sampling events
- identifying a qualified testing laboratory that is capable of performing stormwater and non-stormwater analysis for those constituents that must be tested in a laboratory

#### 700.2.1.2.1 Qualified Sampling Personnel

Sampling personnel shall be trained to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring Program (SWAMP) 2008 Quality Assurance Program Plan (QAPrP).

Samples on the project site will be collected by the contractor sampling personnel.

- Stormwater sampling and field analysis will be performed by the following primary and alternative stormwater samplers:

- 

The primary stormwater sampler has received the following stormwater sampling training:

- 

The primary stormwater sampler has the following stormwater sampling experience:

-

The alternate stormwater sampler has received the following stormwater sampling training:

- 

The alternate stormwater sampler has the following stormwater sampling experience:

- 

Training records of designated contractor sampling personnel are provided in Attachment D, Contractor Personnel Stormwater Training.

Safety practices for sample collection will be in accordance with the .

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#### **700.2.1.2.2 Monitoring Supplies**

An adequate stock of monitoring supplies and equipment for sampling will be available on the project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool temperature environment that will prevent the supplies/equipment from coming into contact with rain or direct sunlight. Supplies maintained at the project site will include, but are not limited to, surgical gloves, sample collection equipment, coolers, appropriate number and volume of sample bottles, identification labels, re-sealable storage bags, paper towels, personal rain gear, and ice.

The contractor will obtain and maintain the field testing instruments, identified in Section 700.2.1.2.3, for analyzing samples in the field by contractor sampling and testing personnel.

#### **700.2.1.2.3 Field Instruments**

The field instrument(s) shown in Table 700.2.1.2.3: Field Instruments will be used to analyze the constituents shown:

<b>TABLE 700.2.1.2.3 FIELD INSTRUMENTS</b>	
<b>Field Instrument</b>	<b>Constituent</b>

The instrument(s) shall be maintained in accordance with manufacturer’s instructions.

The instrument(s) shall be calibrated before each sampling and analysis event.

A Standard Operating Procedure (SOP) for calibration and maintenance of field instruments shall be implemented based on the meter manufacturer’s instructions. A copy of the manufacturer’s instructions shall be attached to the SOP so that they are readily available.

Maintenance and calibration records shall be maintained in SWPPP File Category 20.55: Field Testing Equipment Maintenance and Calibration Records.

#### **700.2.1.2.4 Testing Laboratory**

Samples collected on the project site that require laboratory testing will be tested by a laboratory certified by the State Department of Health Services. Samples collected on the project site will be analyzed by:

Laboratory Name:

Address:

Contact Name:

Title:

Phone Number:

Emergency Phone Number (24/7):

Email Address:

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### **700.2.1.3 Monitoring Strategy**

The monitoring strategy includes identifying analytical constituents, potential sampling locations, identification of actual sampling locations, and sampling schedule,

#### **700.2.1.3.1 Analytical Constituents**

Stormwater and non-stormwater discharges shall be monitored for the analytical constituents specified in the specific SAP(s) in this SWPPP.

#### **700.2.1.3.2 Potential Sampling Locations**

Potential sampling locations must be representative of the stormwater and non-stormwater discharges from the construction site. Existing conditions and associated construction activities within each drainage area form the basis for determining representative stormwater sampling locations.

Project drainage areas and potential sampling locations have been determined by:

- reviewing project plans
- visiting project site
- reviewing topography maps

The WPCDs show the demarcation of all drainage areas that are either:

- within the project site
- cover part of the project site

The QSD must identify potential sampling locations where concentrated run-off:

- leaves the Caltrans right-of-way
- drains into an MS4
- discharges into a receiving water

Potential run-on sampling locations were determined where concentrated run-on:

- enters the right-of-way

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- combines with the stormwater on site and then discharges into an MS4, including the location(s) of discharge into the MS4

The following locations were determined when runoff discharges directly into receiving water bodies:

- the discharge location(s) into the receiving water
- a potential sampling location upstream of all discharge locations
- a potential sampling location downstream from all discharge location(s) into the receiving water.

Necessary potential sampling locations were determined when:

- there are potential sources of non-visible pollutants, as discussed in Section 500.1, and discharge locations are downgradient
- run-on locations are present that may contribute non-visible pollutants
- there are potential non-stormwater discharges and corresponding discharge locations are downgradient
- there are proposed dewatering construction activities

If an ATS is used on site, then sample locations must be included in Section 700.2.6.

Potential stormwater and non-stormwater sampling locations must be shown on the WPCDs in Attachment BB and listed in Attachment EE: Stormwater Sample Locations. The QSD has identified each of the potential sampling locations with a unique sample location identification code, as shown below. The identification code must start with a number and must be different for each location. If the construction site lies in a west-to-east orientation, starting with one (01) from the east, the potential sampling locations shall be numbered toward the west. If the construction site lies in a south-to-north orientation, the potential sampling locations shall be numbered toward the north.

To further distinguish among the locations, each potential sampling location has been identified with one of the following abbreviations based on the sampling location type:

- discharge locations leaving Caltrans right-of-way: DL
- discharge locations from areas with known non-visible pollutants: NVP
- discharge locations upgradient of areas with known non-visible pollutants: UNVP
- discharge locations to an MS4: MS
- run-on locations: RO
- discharge locations into a receiving water: RW
- downstream of all discharge locations: RWD
- upstream of all discharge locations: RWU
- dewatering discharge locations: DDL
- contained stormwater discharge locations: CSDL
- discharge locations for ATS: ATS

The unique sample location identification code shall follow this format, **SSSTTTTXX** , where:

SSS = sampling location identifier number (e.g., 010)  
TTTT = sampling location type (e.g. DL)  
XX = identifier number for the type of sampling location

For example, the sampling location identification for the 15th sampling location based on starting from the south end of the project for a stormwater discharge location that has been identified to be the ninth discharge location would be **015DL09**.

Potential sampling locations shown on the WPCDs shall be identified with unique sampling location identifiers. Each potential sample location must be listed on Stormwater Sample Locations in Attachment EE. The unique identification of each potential sampling location based on its number and abbreviation of type shall be used on all sampling documentation.

The WPC Manager may have to revise and/or add additional sampling locations during the course of construction as conditions dictate.

### **700.2.1.3.3 Identification of Actual Sampling Locations**

For each forecasted storm event, actual sampling locations will be determined by the WPC Manager based on the strategy described in each specific SAP.

### **700.2.1.3.4 Sampling Schedule**

For the sampling schedule, see the specific SAPs in this CSMP. If a scheduled sampling activity is unsafe because of dangerous weather conditions, such as flooding and electrical storms, then the stormwater sampler shall document why an exception to performing the sampling was necessary.

## **700.2.1.4 Sample Collection and Handling**

Sample collection procedures shall be used to ensure that representative samples are collected and that the potential for contamination of samples is minimized. Sample handling procedures are followed to ensure that samples are identified accurately and that the required analysis is clearly documented. Chain-of-custody requirements for samples are necessary to trace the possession of the sample from collection through analysis.

### **700.2.1.4.1 Sample Collection Procedures**

Samples shall be collected, maintained and shipped in accordance with the SWAMP's 2008 QAPrP.

Grab samples shall be collected and preserved in accordance with the methods identified in each specific SAP. Only personnel trained in proper water quality sampling shall collect samples.

Samples from areas of sheet flow can be collected using the collection procedures shown in the video at <http://www.youtube.com/watch?v=AmEJUNp44aU>. For pH and turbidity sampling, sheet flow sampling can be conducted as described below to concentrate the flow in order to collect a sample or follow other procedures approved by the RE.

- Place several rows of sandbags in a half circle directly in the path of the sheet flow to pond water, and wait for enough water to spill over. Then place a cleaned or decontaminated flexible hose along the top, and cover with another sandbag so that ponded water will only pour through the flexible hose and into sample bottles. Do not reuse the same sandbags during future sampling events as they may cross-contaminate future samples.
- Place a cleaned or decontaminated dustpan with open handle in the path of the sheet flow so that water will pour through the handle and into sample bottles.

For receiving water sampling, upstream samples shall be collected to represent the water body upgradient of the construction site. Downstream samples shall be collected to represent the water body mixed with direct discharge from the construction site. Samples shall not be collected directly from ponded, sluggish, or stagnant water.

Receiving water upstream and downstream samples shall be collected using one of the following methods:

- placing a sample bottle directly into the stream flow in or near the main current upstream of sampling personnel and allowing the sample bottle to fill completely;
- OR
- placing a decontaminated or sterile bailer or other sterile collection device in or near the main current to collect the sample and then transferring the collected water to appropriate sample bottles allowing the sample bottle to fill completely.

To maintain sample integrity and prevent cross-contamination, sampling collection personnel shall follow the procedures listed below.

- Wear a clean pair of surgical gloves donned prior to the collection and handling of each sample at each location.
- Decontaminate sampling equipment prior to sample collection using a TSP-soapy water wash, distilled water rinse, and final rinse with distilled water. Dispose of decontamination water/soaps appropriately (i.e., do not discharge to the storm drain system or receiving water).
- Do not allow the inside of the sample bottle to come into contact with any material other than the run-off sample.
- Discard sample bottles or sample lids that have been dropped onto the ground prior to sample collection.
- Do not leave the cooler lid open for an extended period of time once samples are placed inside.
- Do not sample near a running vehicle where exhaust fumes may impact the sample.
- Do not touch the exposed end of a sampling tube, if applicable.
- Avoid allowing rainwater to drip from rain gear or other surfaces into sample bottles.
- Do not eat, smoke, or drink during sample collection/field measurement.
- Do not sneeze or cough in the direction of an open sample bottle.
- Minimize the exposure of the samples to direct sunlight, as sunlight may cause biochemical transformation of the sample.

#### **700.2.1.4.2 Sample Handling Procedures**

Immediately following collection, sample bottles to be forwarded for laboratory analytical testing shall be capped, labeled, documented on the Chain-of-Custody Record, sealed in a re-sealable storage bag, placed in an ice-chilled cooler, at 0 ±4 degrees Celsius, and delivered within 24 hours to the laboratory shown in sub-section 700.2.1.2.4.

Immediately following collection, samples used for field analysis shall be tested in accordance with the field instrument manufacturer's instructions and results recorded on the CEM-2052 Stormwater Sample Field Test Report form.

#### **700.2.1.4.3 Sample Documentation Procedures**

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All original data documented on sample bottle identification labels, the Chain-of-Custody, and the CEM-2051 Stormwater Sampling and Testing Activity Log - Optional Form, shall be recorded using waterproof ink. These shall be considered accountable documents. If an error is made on an accountable document, the individual shall make corrections by lining through the error and entering the correct information. The erroneous information shall not be obliterated. All corrections shall be initialed and dated.

The following form, used for sample documentation, is provided in the SWPPP appendices:

- CEM-2051 Stormwater Sampling and Testing Activity Log - Optional Form, in Appendix M

Duplicate samples shall be identified in a manner consistent with the numbering system for other samples to prevent the laboratory from identifying duplicate samples. Duplicate samples can be identified in the CEM-2051 Stormwater Sampling and Testing Activity Log - Optional Form.

Sample Bottle Identification Labels: Sampling personnel shall attach an identification label to each sample bottle, which shall include, at a minimum, the following information:

- project name
- contract number and/or project identifier number
- unique sample identification code, which shall follow this format, **SSSSYYMMDDHHmmTT** , where

SSSSS = sampling location identifier number (e.g., 01MS1)

YY = last two digits of the year (e.g. 11)

MM = month (01-12)

DD = day (01-31)

HH = hour sample collected (00-23)

mm = minute sample collected (00-59)

TT = Type or QA/QC Identifier (if applicable)

G = grab

FS = field duplicate

For example, the sample number for a grab sample collected at Station 01MS1, collected at 4:15PM on December 8, 2011 would be **01MS11112081615G**.

- constituent to be analyzed
- initials of person who collected the sample

Stormwater Sampling and Testing Activity Log: A log of sampling events and test results shall include:

- sampling date
- separate times for collected samples and QA/QC samples, recorded to the nearest minute
- unique sample identification number and location
- constituent analyzed
- names of sampling personnel
- weather conditions (including precipitation amount)
- test results
- other pertinent data

Sample Information, Identification and Chain-of-Custody Record Forms: All samples to be analyzed by a laboratory will be accompanied by a Chain-of-Custody. The samplers will sign the Chain-of-Custody when samples are turned over to the testing laboratory. Chain-of-custody procedures will be strictly adhered to for QA/QC purposes.

#### **700.2.1.5 Sample Analysis**

For the analytical methods to be used to determine the presence of pollutant(s), see the specific SAPs in this CSMP.

#### **700.2.1.6 Quality Assurance/Quality Control**

For verification of laboratory or field analysis, duplicate samples shall be collected at a rate of 10 percent or 1 minimum duplicate per sampling event. The duplicate sample shall be collected, handled, and analyzed using the same protocols as primary samples. A duplicate sample shall be collected immediately after the primary sample has been collected. Duplicate samples shall not influence any evaluations or conclusions; however, they shall be used as a check on laboratory or field analysis quality assurance.

#### **700.2.1.7 Data Management and Reporting**

All test results shall be documented on either the CEM-2052 Stormwater Sample Field Test Report form and/or may be entered on the CEM-2051 Stormwater Sampling and Testing Activity Log - Optional Form. These shall be considered accountable documents. If an error is made on an accountable document, the individual shall make corrections by lining through the error and entering the correct information. The erroneous information shall not be obliterated. All corrections shall be initialed and dated.

For field tests, the submitted information shall include a signed copy of the Chain-of-Custody and CEM-2052 Stormwater Sample Field Test Report form. Appendix N contains the CEM-2052 Stormwater Sample Field Test Report form, which must accompany the Chain-of-Custody Record. The test results can be recorded on the CEM-2051 Stormwater Sampling and Testing Activity Log - Optional Form, in Appendix M.

For laboratory testing, all laboratory analysis results shall be reviewed for consistency among laboratory methods, sample identifications, dates, and times for both primary samples and QA/QC samples. The test results may be recorded on the CEM-2051 Stormwater Sampling and Testing Activity Log - Optional Form.

All sampling and testing documentation, including the Chain-of-Custody, CEM-2051 Stormwater Sampling and Testing Activity Logs - Optional Form, CEM-2052 Stormwater Sample Field Test Reports, and Laboratory Test Reports shall be kept in the appropriate SWPPP file category. Sampling and testing documentation shall be filed in the appropriate following SWPPP file category based on the specific SAP that required the sampling and analysis:

- non-visible pollutant sampling and testing – SWPPP File Category 20.51;
- non-stormwater discharge sampling and testing – SWPPP File Category 20.50
- turbidity, pH, and SSC sampling and testing – SWPPP File Category 20.52
- required RWQCB sampling and testing – SWPPP File Category 20.53
- ATS sampling and testing – SWPPP File Category 20.54

If corrective actions are taken as a result of the data evaluation, a copy of the completed CEM-2035 Stormwater Corrective Actions Summary shall be filed in File Category 20.35: Corrective Actions Summary.

A copy of completed sampling records and reports and an updated CEM-2051 Stormwater Sampling and Testing Log - Optional shall be submitted to the RE. All water quality analytical results, including QA/QC data, shall be submitted to the RE within 48 hours of sampling for field analyzed samples, and within 30 days for laboratory analyses.

In addition to a paper copy of the water quality test results, the test results shall be submitted electronically in Microsoft Excel (.xls) format, and shall include, at a minimum, the following information from the lab: Sample ID Number, Contract Number, Constituent, Reported Value, Laboratory Name, Method Reference, Method Number, Method Detection Limit, and Reported Detection Limit. Electronic copies of stormwater data shall be forwarded by email to [redacted] at [redacted] for inclusion into a statewide database.

### **700.2.1.8 Data Evaluation**

For data evaluation of stormwater sample test results, see specific SAPs.

### **700.2.1.9 Change of Conditions**

Whenever stormwater visual monitoring site inspections indicate a change in site conditions that might affect the appropriateness of sampling locations, sampling and testing protocols shall be revised accordingly. All such revisions shall be implemented as soon as feasible, and the SWPPP updated or amended.

## **700.2.2 Sampling and Analysis Plan for Non-Visible Pollutants**

This SAP has been prepared for monitoring non-visible pollutants in stormwater and non-stormwater discharges from the project site and off-site activities directly related to the project, in accordance with the requirements of the CGP and applicable requirements of the Caltrans Construction Site Monitoring Program Guidance Manual, . This SAP for monitoring non-visible pollutants includes all of the components listed in Section 700.2.1.

### **700.2.2.1 Scope of Monitoring Activities**

The scope of monitoring for discharges of non-visible pollutants from the construction site is based on the construction materials and construction activities to be performed on the project site, potential for the presence of non-visible pollutants, based on the historical use of the site, and potential non-visible pollutants in run-off from areas where soil amendments have been used on the project site.

The construction materials, wastes or activities listed below, and identified in Section 500.1.1, are potential sources of non-visible pollutants to stormwater discharges from the project. Storage, use, and operational locations are shown on the WPCDs in Attachment BB.

- 

The existing site features listed below, and identified in Section 500.1.2, are potential sources of non-visible pollutants to stormwater discharges from the project.

- 

The soil amendments listed below have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil and will be used on the project site.

- 

### **700.2.2.2 Monitoring Preparation**

Refer to the general requirements in General SAP Section 700.2.1.2 for monitoring preparation.

#### **700.2.2.2.1 Qualified Sampling Personnel**

Refer to the general requirements in General SAP Section 700.2.1.2.1 for Qualified Sampling Personnel.

#### **700.2.2.2.2 Monitoring Supplies**

Refer to the general information in General SAP Section 700.2.1.2.2 regarding monitoring supplies.

#### **700.2.2.2.3 Field Instruments**

Refer to the general information in General SAP Section 700.2.1.2.3 regarding field instruments.

#### **700.2.2.2.4 Testing Laboratory**

Refer to the contact information found in General SAP Section 700.2.1.2.4 for the Testing Laboratory.

### **700.2.2.3 Monitoring Strategy**

The monitoring strategy for non-visible pollutants in stormwater discharges is to identify all potential non-visible pollutants that may be on the project site, non-visible pollutant sources, and water quality indicators that will indicate the presence of the non-visible pollutant in stormwater discharges. Locations will be identified where sources of non-visible pollutants will be used, stored or exist because of historical use of the project site so that these areas are monitored prior to and during forecasted storm events.

Non-visible pollutant monitoring is only required where a discharge can cause or contribute to an exceedance of a water quality standard based on one of the following triggers:

- construction materials are waste are exposed
- the site contains historical non-visible pollutants
- construction activity has occurred or material has been placed within the past 24 hours that may cause an exceedance of a water quality standard
- there is run-on to the site that may contains non-visible pollutants
- there is a breach, malfunction, leak or spill from a BMP

When one of the triggers that indicates a non-visible pollutant source may have come in contact with stormwater is discovered during a site inspection conducted prior to, during or after a forecasted storm event, the WPC Manager will require that sampling and analysis of the stormwater discharge be conducted for the applicable non-visible pollutant water quality indicator(s).

For the forecasted storm event in which a trigger for a non-visible pollutant sampling and analysis has occurred, the WPC Manager will also require the collection of an uncontaminated sample of runoff as a background sample for comparison with the samples being analyzed for non-visible pollutants. The WPC Manager will perform an evaluation of the analysis results from the non-visible pollutant stormwater discharge sampling location and the analysis results from the uncontaminated run-off sampling location to determine if there is an increased level of the tested non-visible pollutant analyte in the stormwater discharge.

### 700.2.2.3.1 Analytical Constituents

#### Identification of Potential Non-Visible Pollutants

The following table lists the specific sources and types of potential non-visible pollutants on the project site and the applicable water quality indicator constituent(s) for that pollutant.

### 700.2.2.3.2 Potential Sampling Locations

Using the criteria in Section 700.2.1.3.2, the potential sampling locations on the project site for monitoring non-visible pollutants were identified. Sampling locations are based on: proximity to planned non-visible pollutant storage; occurrence or use; accessibility for sampling and personnel safety; and other factors in accordance with the applicable requirements in the Caltrans Construction Site Monitoring Program Guidance Manual, latest edition. Sampling locations shall be shown on the WPCDs in Attachment BB and listed on Stormwater Sampling Locations in Attachment EE:

sampling location(s) on the project site and the contractor’s support facilities have been identified as potential locations for the collection of samples of runoff from planned material and waste storage areas and areas where non-visible pollutant producing construction activities are planned. Potential non-visible pollutant sampling locations are listed in the Table 700.2.2.3.2.1: Potential Non-Visible Pollutant Sampling Locations.

<b>TABLE 700.2.2.3.2.1 POTENTIAL NON-VISIBLE POLLUTANT SAMPLING LOCATIONS</b>	
<b>Sampling Location Identifier</b>	<b>Location Description</b>

Potential non-visible pollutant sampling locations shall be shown on the WPCDs in Attachment BB and listed on Stormwater Sampling Locations in Attachment EE:

sampling location(s) has been identified for the collection of an uncontaminated sample of runoff as a background sample for comparison with the samples being analyzed for non-visible pollutants. This location(s) was selected such that the sample will not have come in contact with (1) operational or storage areas associated with the materials, wastes, and activities identified in Section 500.1.1; (2) potential non-visible pollutants due to historical use of the site, as identified in Section 500.1.2; (3) areas in which soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil have been applied; or (4) disturbed soils areas. Potential non-visible pollutant uncontaminated sampling locations are listed in Table 700.2.2.3.2.2: Potential Uncontaminated Non-visible Pollutant Sampling Locations.

<b>TABLE 700.2.2.3.2.2 POTENTIAL UNCONTAMINATED NON-VISIBLE POLLUTANT SAMPLING LOCATIONS</b>	
<b>Sampling Location Identifier</b>	<b>Location Description</b>

Potential non-visible pollutant uncontaminated sampling locations shall be shown on the WPCDs from Attachment BB and listed on Stormwater Sampling Locations in Attachment EE.

### **700.2.2.3.3 Actual Sampling Locations**

Sampling for non-visible pollutants at any potential non-visible pollutant sampling location will be based on any of the conditions listed below having been identified during the visual monitoring site inspections.

- Locations where materials or wastes containing potential non-visible pollutants are not stored under watertight conditions. Watertight conditions are defined as (1) storage in a watertight container, (2) storage under a watertight roof or within a building, or (3) protected by temporary cover and containment that prevents stormwater contact and runoff from the storage area.
- Locations where materials or wastes containing potential non-visible pollutants are stored under watertight conditions, but (1) a breach, malfunction, leakage, or spill is observed, (2) the leak or spill is not cleaned up prior to the forecasted storm event, and (3) the potential exists for discharge of non-visible pollutants to surface waters or a storm drain system.
- Locations where a construction activity ( including but not limited to those identified in Section 500.1.1) with the potential to contribute non-visible pollutants (1) was occurring during or within 24 hours prior to the forecasted storm event, (2) involved the use of applicable BMPs that were observed to be breached, malfunctioning, or improperly implemented, and (3) resulted in the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Locations where soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil have been applied, and the potential exists for discharge of non-visible pollutants to surface waters or a storm drain system.
- Locations where stormwater runoff from an area contaminated by historical usage of the site has been observed to combine with stormwater runoff from the site, and the potential exists for discharge of non-visible pollutants to surface waters or a storm drain system.

If the presence of a material storage, waste storage, or operations area where spills have been observed or the potential for the discharge of non-visible pollutants to surface waters or a storm drain system was noted during a site inspection conducted prior to or during a forecasted storm event and such an area has not been identified on the list of potential non-visible pollutant sampling locations, the WPC Manager must identify the corresponding discharge location and the corresponding upgradient sampling location as actual non-visible sampling locations. The additional sampling location for non-visible pollutant monitoring shall be shown on the WPCDs from Attachment BB and added to Attachment EE: Stormwater Sampling Locations.

For forecasted storm events, the selection of the actual sampling locations for non-visible pollutants by the WPC Manager will be documented on the CEM-2048 Storm Event Sampling and Analysis Plan form, in Appendix N. The completed SAP for each storm event will be filed in File Category 20.46: Storm/Rain Event Action, Sampling and Analysis Plans. Within 24 hours prior to a storm event, a copy of the storm event SAP shall be submitted to the RE.

For qualifying rain events, the selection of the actual sampling locations for non-visible pollutants by the WPC Manager will be documented on the CEM-2049 Qualifying Rain Event Sampling and Analysis Plan, in Appendix O. The completed SAP for each qualifying rain event will be filed in File Category 20.46: Storm/Rain Event Sampling and Analysis Plans. Within 24 hours prior to a storm event, a copy of the SAP shall be attached to the REAP and submitted to the RE.

#### **700.2.2.3.4 Sampling Schedule**

In addition to the general scheduling requirements in General SAP Section 700.2.1.3.4, samples for non-visible pollutant monitoring, including both the non-visible pollutants samples and uncontaminated background samples, shall be collected during the first two hours of discharge from storm events that result in a sufficient discharge for sample collection. Samples shall be collected during daylight hours, 7 days a week.

#### **700.2.2.4 Sample Collection and Handling**

Refer to the general requirements for sample collection and handling in General SAP Section 700.2.1.4.

##### **700.2.2.4.1 Sample Collection Procedures**

Refer to the general procedures for sample collection in General SAP Section 700.2.1.4.1.

##### **700.2.2.4.2 Sample Handling Procedures**

Refer to the general procedures for sample handling in General SAP Section 700.2.1.4.2.

##### **700.2.2.4.3 Sample Documentation Procedures**

In addition to the general sample documentation procedures provided in General SAP Section 700.2.1.4.3, when applicable, the contractor's stormwater inspector will document in the CEM-2030 Stormwater Site Inspection Report, that samples for non-visible pollutants were taken during a storm event, based on the criteria for non-visible pollutant sampling described in Section 700.2.2.3.3.

### **700.2.2.5 Sample Analysis**

For samples collected for field analysis, collection, analysis and equipment calibration shall be in accordance with the field instrument manufacturer's specifications.

Refer to General SAP Section 700.2.1.2.3 for general information regarding field instrument identification and requirements.

### **700.2.2.6 Quality Assurance/Quality Control**

Refer to the general requirements regarding Quality Assurance/Quality Control (QA/QC) in General SAP Section 700.2.1.6.

### **700.2.2.7 Data Management and Reporting**

Refer to general requirements for data management and reporting in Section General SAP 700.2.1.7.

### **700.2.2.8 Data Evaluation**

Water quality sample analytical results for non-visible pollutants shall be compared to the uncontaminated background sample results. Should the discharge (downgradient) sample show an increased level of the tested non-visible pollutant analyte relative to the background sample, the BMPs, site conditions, and surrounding influences shall be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs shall be repaired or modified to mitigate discharges of non-visual pollutant concentrations. Once deemed necessary, corrective actions shall be implemented, as required by Standard Specification 13-1.03A, within 24 hours of identification unless a longer period is authorized (but cannot be authorized longer than required by the CGP: implemented within 72 hours of identification and completed as soon as possible thereafter), and documented on the CEM-2035 Stormwater Corrective Actions Summary. Revisions/design changes to BMPs required as a result of data evaluation and site assessment shall be implemented based on an amendment to the SWPPP.

### **700.2.2.9 Change of Conditions**

Refer to the general requirements for change of conditions in General SAP Section 700.2.1.9.

## **700.2.3 Sampling and Analysis Plan for Non-Stormwater Discharges**

This SAP has been prepared for monitoring non-stormwater discharges from the project site and off-site activities directly related to the project, in accordance with the requirements of the CGP and applicable requirements of the Caltrans Construction Site Monitoring Program Guidance Manual, . This SAP for monitoring non-stormwater discharges includes all of the components listed in Section 700.2.1.

### **700.2.3.1 Scope of Monitoring Activities**

Non-stormwater discharges can be authorized by a separate NPDES permit or conditional exemption. For non-stormwater discharges that are unauthorized where runoff is discharged off site, sampling and testing of the discharge must be conducted in compliance with the CGP.

Examples of unauthorized non-stormwater discharges common to construction activities include:

- vehicle and equipment wash water, including concrete washout water
- slurries from concrete cutting and coring operations, or grinding operations
- slurries from concrete or mortar mixing operations
- residue from high-pressure washing of structures or surfaces
- wash water from cleaning painting equipment
- runoff from dust control applications of water or dust palliatives
- sanitary and septic wastes
- chemical leaks and/or spills of any kind, including but not limited to, petroleum, paints, cure compounds, etc

When an unauthorized non-stormwater discharge is discovered, the WPC Manager will require sampling and analysis of the effluent to detect whether non-visible pollutants are present in the discharge. Sampling and analysis of non-stormwater discharges shall be performed in accordance with Section 700.2.2, the SAP for non-visible pollutants.

Sampling and analysis for pH and turbidity of stored or impounded stormwater discharges subsequent to a qualifying rain event (a rain event that has produced ½ inch or more of precipitation at the time of discharge) shall be performed in accordance with Section 700.2.4, the SAP for stormwater pH and turbidity.

### **700.2.3.2 Monitoring Preparation**

Refer to the general requirements for monitoring preparation in General SAP Section 700.2.1.2.

#### **700.2.3.2.1 Qualified Sampling Personnel**

Refer to the general requirements for Qualified Sampling Personnel in General SAP Section 700.2.1.2.1.

#### **700.2.3.2.2 Monitoring Supplies**

Refer to the general information regarding monitoring supplies in General SAP Section 700.2.1.2.2.

#### **700.2.3.2.3 Field Instruments**

Refer to the general information regarding field instruments in General SAP Section 700.2.1.2.3.

#### **700.2.3.2.4 Testing Laboratory**

Refer to the contact information for the testing laboratory found in General SAP Section 700.2.1.2.4.

#### **700.2.3.3 Monitoring Strategy**

Non-stormwater discharges from the construction site will be monitored for exceedances of water quality standards.

Conceptual

##### **700.2.3.3.1 Analytical Constituents**

For non-stormwater dewatering discharges and discharges of stored stormwater, samples shall be analyzed for the following constituents:

- turbidity
- pH
- 

##### **700.2.3.3.2 Potential Sampling Locations**

Using the criteria in Section 700.2.1.3.2, potential sampling locations on the project site for monitoring dewatering discharges, discharges of impounded stormwater, and other non-stormwater discharges were identified. Sampling locations were based on: proximity to planned non-stormwater dewatering; non-stormwater occurrence or use; accessibility for sampling and personnel safety; and other factors in accordance with the applicable requirements in the

*Caltrans Construction Site Monitoring Program Guidance Manual,*

Sampling locations shall be shown on the WPCDs in Attachment BB and listed on Stormwater Sampling Locations in Attachment EE.

sampling location(s) on the project site have been identified as potential locations for the collection of non-stormwater dewatering samples and the sampling location(s) are listed in Table 700.2.3.3.2.1: Potential Non-stormwater Dewatering Sampling Locations.

<b>TABLE 700.2.3.3.2.1 POTENTIAL NON-STORMWATER DEWATERING SAMPLING LOCATIONS</b>	
<b>Sampling Location Identifier</b>	<b>Location Description</b>

sampling location(s) on the project site been identified as potential locations for the collection of discharge samples of impounded stormwater and the sampling location(s) are listed in Table 700.2.3.3.2.2: Potential Impounded Stormwater Discharge Sampling Locations.

**TABLE 700.2.3.3.2.2**  
**POTENTIAL IMPOUNDED STORMWATER DISCHARGE SAMPLING LOCATIONS**

<b>Sampling Location Identifier</b>	<b>Location Description</b>
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### **700.2.3.3.3 Actual Sampling Locations**

Actual sampling locations will be determined by the WPC Manager prior to dewatering activities based on the potential dewatering discharge sample locations initially selected.

When stormwater is impounded in excavations on the project site and the impounded stormwater has the potential to create runoff from the project site, the WPC Manager will determine the actual sampling location for collecting impounded stormwater discharge samples.

If new locations for dewatering discharges or impounded stormwater discharges that have not been identified on the list of potential stormwater and non-stormwater sampling locations are identified during the course of construction, the WPC Manager must create sampling location identifiers for the dewatering discharge sampling location. The additional sampling location for dewatering discharge monitoring shall be shown on the WPCDs in Attachment BB and added to Attachment EE: Stormwater Sampling Locations.

### **700.2.3.3.4 Sampling Schedule**

Whenever there are dewatering discharges or impounded stormwater discharges, sampling will be performed daily during discharging. Sampling will be performed upon commencement of the dewatering discharge or impounded stormwater discharge, and then at least a minimum of three (3) samples per day will be collected for analysis, depending on visual monitoring.

## **700.2.3.4 Sample Collection and Handling**

Refer to the general requirements for sample collection and handling in General SAP Section 700.2.1.4.

### **700.2.3.4.1 Sample Collection Procedures**

Refer to the general procedures for sample collection in General SAP Section 700.2.1.4.1.

### **700.2.3.4.2 Sample Handling Procedures**

Refer to the general procedures for sample handling in General SAP Section 700.2.1.4.2.

**700.2.3.4.3 Sample Documentation Procedures**

In addition to the general procedures for sample documentation in General SAP Section 700.2.1.4.3, when applicable, the contractor’s stormwater inspector will document on the CEM-2030 Stormwater Site Inspection Report that samples for non-stormwater discharge pollutants were taken based on a visual monitoring site inspection.

**700.2.3.5 Sample Analysis**

Conceptual

Samples from non-stormwater discharges shall be analyzed for pH and turbidity.

The WPC Manager may determine that samples of non-stormwater discharges, need to be analyzed for non-visible pollutants. If the WPC Manager determines that non-visible pollutants may have contaminated the discharge, the samples shall be analyzed for the suspected pollutants. Sampling and analysis for non-visible pollutants in non-stormwater discharges shall be performed following the guidance in Section 700.2.2, the SAP for non-visible pollutants.

Samples shall be analyzed for the constituents indicated in the following table, titled “Sample Collection, Preservation and Analysis for Monitoring Water Extracted by Dewatering or Impounded Stormwater Discharges.”

<b>TABLE 700.2.3.5 SAMPLE COLLECTION, PRESERVATION AND ANALYSIS FOR MONITORING WATER EXTRACTED BY DEWATERING OR IMPOUNDED STORMWATER DISCHARGES</b>						
<b>Parameter</b>	<b>Test Method</b>	<b>Sample Preservation</b>	<b>Minimum Sample Volume<sup>(1)</sup></b>	<b>Sample Bottle</b>	<b>Maximum Holding Time</b>	<b>Detection Limit (min)</b>
Turbidity	Field test with calibrated portable instrument	Store at 4° C (39.2° F)	100 mL	Polypropylene or Glass	48 hours	1 NTU
pH	Field test with calibrated portable instrument	Store at 4° C (39.2° F)	100 mL	Polypropylene	15 Minutes	0.2

Notes: 1. Minimum sample volume recommended. Specific volume requirements will vary by instrument; check instrument manufacturer instructions.

- °C - degrees Celsius
- °F - degrees Fahrenheit
- L - liter
- ml - milliliters
- NTU - Nephelometric Turbidity Unit

For samples collected for field analysis, collection, analysis and equipment calibration shall be in accordance with the field instrument manufacturer’s specifications.

Refer to general information for field instrument identification and requirements in General SAP Section 700.2.1.2.3.

**700.2.3.6 Quality Assurance/Quality Control**

Refer to the general requirements regarding Quality Assurance/Quality Control (QA/QC) in Section General SAP 700.2.1.6. For samples analyzed for turbidity and pH the following replaces the requirements for QA/QC in Section 700.2.1.6:

The contractor shall coordinate with the Caltrans RE on sampling locations and timing for quality assurance verification of field sampling and analysis. The contractor shall notify the RE at least 24 hours prior to dewatering discharge or impounded stormwater discharge sampling events.

### **700.2.3.7 Data Management and Reporting**

Refer to the general requirements for data management and reporting in General SAP Section 700.2.1.7.

### **700.2.3.8 Data Evaluation**

An evaluation of the water quality sample analytical results, including sampling locations and the QA/QC data, shall be submitted to the RE for every day that the water from dewatering is discharged. Should the dewatering discharge concentrations exceed applicable water quality standards, discharging will be stopped immediately and the WPC Manager or other personnel shall evaluate the dewatering BMPs to determine the probable cause for the exceedance. For dewatering discharges, Caltrans requires that the turbidity of any sample must not exceed 200 NTU. The pH value of any sample must be within the range of 6.7 to 8.3 pH units.

Samples of non-stormwater collected during discharge shall be evaluated by determining if suspected contaminants are present. Unauthorized discharges will be stopped as soon as possible and the RE will be notified immediately and a written report of discharge shall be completed and submitted to the RE. Authorized discharges shall be sampled for pH and turbidity and all suspected pollutants. For pH and turbidity, sample results shall be compared to the NAL.

As determined by the data evaluation and project site assessment, appropriate BMPs shall be repaired or modified to mitigate the exceedances. Corrective actions taken shall be documents on the CEM-2035 Stormwater Corrective Actions Summary. Any revisions/design changes to BMPs shall be implemented based on an amendment to the SWPPP.

### **700.2.3.9 Changes of Conditions**

Refer to the general requirements for changes of conditions in General SAP Section 700.2.1.9.

## **700.2.4 Sampling and Analysis Plan for Stormwater pH and Turbidity**

This SAP has been prepared for monitoring pH and turbidity in stormwater discharges from the project site and off-site activities directly related to the project in accordance with the requirements of the CGP and applicable requirements of the Caltrans Construction Site Monitoring Program Guidance Manual, . This SAP for monitoring pH and turbidity includes all of the components listed in Section 700.2.1.

### **700.2.4.1 Scope of Monitoring Activities**

The scope of monitoring for this SAP includes monitoring for pH and turbidity in stormwater discharges from the project site and, run-on to the project site.

This project discharges into Cordinices Creek, a water body that is sediment-sensitive. Monitoring of the receiving water will be required when direct discharges to the receiving water.

## **700.2.4.2 Monitoring Preparation**

Refer to the general requirements for monitoring preparation in General SAP Section 700.2.1.2.

### **700.2.4.2.1 Qualified Sampling Personnel**

Refer to the general requirements for Qualified Sampling Personnel in General SAP Section 700.2.1.2.1.

### **700.2.4.2.2 Monitoring Supplies**

Refer to the general information regarding monitoring supplies in General SAP Section 700.2.1.2.2.

### **700.2.4.2.3 Field Instruments**

Refer to the general information regarding field instruments in General SAP Section 700.2.1.2.3.

### **700.2.4.2.4 Testing Laboratory**

Refer to the contact information for the testing laboratory found in General SAP Section 700.2.1.2.4.

## **700.2.4.3 Monitoring Strategy**

Monitor representative stormwater discharges from the project site for pH and turbidity during qualifying rain events (a rain event that has produced precipitation in the form of rain and produced run-off at the time of discharge).

### **700.2.4.3.1 Analytical Constituents**

Stormwater discharge samples are to be analyzed for pH and turbidity.

### **700.2.4.3.2 Potential Sampling Locations**

Using the criteria in Section 700.2.1.3.2, the potential sampling locations on the project site for monitoring pH and turbidity were identified. Potential sampling locations for monitoring stormwater discharges for pH and turbidity are based on drainage areas; run-on and runoff locations; accessibility for sampling and personnel safety; and other factors in accordance with the applicable requirements in the Caltrans Construction Site Monitoring Program Guidance Manual, . Stormwater discharge locations shall be shown on the WPCDs in Attachment BB and listed on Stormwater Sample Locations in Attachment EE:

The stormwater discharge locations on the project site are listed in Table 700.2.4.3.2.1 “Stormwater Discharge Locations.”

**TABLE 700.2.4.3.2.1  
STORMWATER DISCHARGE LOCATIONS**

Sampling Location Identifier	Location
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The project receives run-on with the potential to combine with stormwater discharges at the locations listed in Table 700.2.4.3.2.4 “Run-on Locations With Potential to Combine With Stormwater Discharges.”

Potential run-on sampling locations shall be shown on the WPCDs in Attachment BB and listed on Stormwater Sampling Locations in Attachment EE:

### 700.2.4.3.3 Actual Sampling Locations

The WPC Manager shall select sampling locations from the list of potential sampling locations for stormwater discharge sampling shown on the WPCDs from Attachment BB and listed on Stormwater Sampling Locations in Attachment EE. If the construction activity has not started within the drainage area at a sampling location, and there is no disturbed soil within a drainage area, sampling from the stormwater discharge location from that drainage area is not required.

Within 72 to 48 hours prior to each qualifying rain event, the WPC Manager must identify the drainage areas that must be sampled. To identify these drainage areas, the WPC Manager must refer to the WPCDs and consider the conditions described below and activities within each drainage area that could have an effect on the stormwater discharge pH or turbidity.

1. Turbidity: The area of the disturbed soil at the time of precipitation could have an impact on the stormwater run-off turbidity. The area of the disturbed soil at the time of predicted precipitation must be expressed as a percentage of the total drainage area. It is reasonable to assume that a larger percentage of disturbed soil area could result in a more turbid run-off.
2. pH: The type of construction activities that could have an impact on stormwater run-off pH (for example, concrete work and saw cutting, lime stabilization work, use of crushed concrete, etc).

For representative sampling of construction site discharges, 20 percent of the drainage areas with disturbed soil areas and 20 percent of the drainage areas where activities that could potentially have an impact on the discharge pH must be sampled. At least five (5) drainage area discharge locations for each qualifying rain event must be sampled. If there are five (5) or fewer drainage area sampling locations in a project, then all drainage area sampling locations must be sampled. The drainage areas with the largest percentage of disturbed soil area must be included in the selected drainage areas to be sampled. The drainage areas where the most extensive activities (activities that potentially can alter discharge pH) are in progress must be included in the selected drainage areas to be sampled.

This representative monitoring strategy for stormwater discharges requires collection of additional samples based upon the preceding sampling event stormwater discharge pH or turbidity analysis results when the:

- turbidity analysis results – even in one sampling location – in the previous sampling event have exceeded 200 NTU, the number of drainage areas with disturbed soil areas requiring sampling will be raised to 50 percent.

- turbidity analysis results – even in one sampling location – in the previous sampling event have exceeded 250 NTU, the number of drainage areas with disturbed soil areas requiring sampling will be raised to 100 percent.
- pH analysis results – even in one sampling location – in the previous sampling event have not fallen within 6.5 to 8.5 pH unit range, the number of drainage areas requiring sampling where construction activities could have an impact on the discharge pH readings will be raised to 50 percent.
- pH analysis results – even in one sampling location – in the previous sampling event have not fallen within 6.0 to 9.0 pH unit range, the number of drainage areas requiring sampling where construction activities could have an impact on the discharge pH readings will be raised to 100 percent.

The selection of additional sampling locations, based on turbidity results, will involve drainage areas with the highest percentage of disturbed soil area. The selection of additional sampling locations, based on pH results, will be involve drainage areas with construction activities that are most likely to affect stormwater discharge pH.

This project receives run-on from surrounding area that may contribute to exceedances of NALs or Receiving Water Monitoring Triggers. Potential sampling locations have been selected from locations where run-on enters the Caltrans right-of-way.

potential sampling location(s) have been identified for the collection of samples of run-on with the potential to combine with runoff from the construction site, which discharge either to an MS4 or to a sediment-sensitive water body. Run-on samples taken from these locations will be analyzed to identify potential turbidity and pH that originates off the project site and contributes directly to stormwater discharges from the construction site to the MS4 or receiving water body.

The selection of run-on sampling locations will be made by the WPC Manager. Run-on sampling locations will be selected based on stormwater discharge locations. If there is an NAL or Receiving Water Monitoring Trigger exceedance at a stormwater discharge location, any stormwater run-on location that contributes to the stormwater discharges from the construction site shall be selected for sampling.

#### **700.2.4.3.4 Sampling Schedule**

Discharge samples shall be collected for turbidity and pH for qualifying rain events that result in a discharge from the project site. When applicable, upstream, downstream, and run-on samples shall be collected for analysis of turbidity and pH. Sampling and testing for turbidity and pH will be performed daily during all qualifying rain events. Samples shall be collected during working hours.

At least 48 hours prior to each qualifying rain event, the WPC Manager must prepare a list of sampling locations that must be sampled for the qualifying rain event.

The locations shall include all of the following sampling location types:

- discharge locations from the drainage areas with the largest percentage of disturbed soil areas,
- discharge locations from the drainage areas where construction activities that could have an impact on stormwater run-off pH are in progress, and
- if applicable, at least one sampling location from drainage areas where the disturbed soil areas have been stabilized.

The sampling locations must be sampled in the following order: starting with the sampling location on the northwest corner of the WPCDs as the first entry and move clockwise on the WPCDs.

The Caltrans stormwater site inspector and contractor inspector must coordinate and select the sampling locations and the time to meet and collect simultaneous samples for the purposes of QA/QC.

Every reasonable attempt has to be made to collect at least three grab samples per day from each sampling location during the qualifying rain event.

Sampling must start immediately after the flow begins or as soon as possible thereafter. The individual responsible for collecting samples must begin sampling with the first sampling location identified and move on to the next sampling location until all locations are sampled. It is preferable that the three rounds of sampling are performed over the first three hours of the flow; however, depending on the time of the day or other dictating conditions in the field, the three rounds of sampling could be performed over a shorter period of time to ensure that three samples per location are collected.

If stormwater sampling is unsafe because of dangerous weather conditions, such as flooding and electrical storms, then the stormwater sampler shall document the conditions resulting in the sampling not being performed as planned.

#### **700.2.4.4 Sample Collection and Handling**

Refer to the general requirements for sample collection and handling in General SAP Section 700.2.1.4.

##### **700.2.4.4.1 Sample Collection Procedures**

In addition to the general procedures for sample collection in General SAP Section 700.2.1.4.1, the procedures described below apply to sample collection for monitoring of pH and turbidity.

- Grab samples shall be collected and preserved in accordance with the methods identified in Table 700.2.4.5.1: Sample Collection, Preservation and Analysis for Monitoring Turbidity and pH, provided in Section 700.2.4.5.
- Only personnel trained in proper water quality sampling shall collect samples.

##### **700.2.4.4.2 Sample Handling Procedures**

Refer to the general procedures for sample handling in General SAP Section 700.2.1.4.2.

##### **700.2.4.4.3 Sample Documentation Procedures**

Refer to the general procedures for sample documentation in General SAP Section 700.2.1.4.3.

#### **700.2.4.5 Sample Analysis**

Samples shall be analyzed for the constituents indicated in Table 700.2.4.5.1: “Sample Collection, Preservation and Analysis for Monitoring Turbidity and pH.”

**TABLE 700.2.4.5.1**

*Stormwater Pollution Prevention Plan (SWPPP)*  
**San Pablo Avenue Green Stormwater Spine**

**SAMPLE COLLECTION, PRESERVATION AND ANALYSIS FOR MONITORING TURBIDITY AND PH**

Parameter	Test Method	Sample Bottle	Minimum Sample Volume <sup>(1)</sup>	Sample Preservation	Maximum Holding Time	Detection Limit (min)
Turbidity	Field test with calibrated portable instrument	Polypropylene or Glass	100 mL	Store at 4° C (39.2° F)	48 hours	1 NTU
pH	Field test with calibrated portable instrument	Polypropylene	100 mL	Store at 4° C (39.2° F)	15 minutes	0.2

**Acronyms/Notes:**

- C = Celsius
- F = Fahrenheit
- Min = minimum
- mL = milliliter
- NTU = Nephelometric Turbidity Units

(1) Minimum sample volume recommended. Specific volume requirements will vary by instrument; check instrument manufacturer instructions.

**700.2.4.6 Quality Assurance/Quality Control**

Refer to the general requirements regarding Quality Assurance/Quality Control (QA/QC) in General SAP Section 700.2.1.6. The following replaces the requirements for QA/QC in Section 700.2.1.6 for turbidity and pH quality assurance testing. However, Section 700.2.1.6 requirements apply for SSC quality assurance testing: The contractor shall coordinate with Caltrans RE on sampling locations and timing for quality assurance verification of field sampling and analysis activities. The contractor shall notify the RE at least 24 hours prior to sampling events.

**700.2.4.7 Data Management and Reporting**

Refer to general requirements for data management and reporting in General SAP Section 700.2.1.7.

In addition to the general requirements for data management and reporting in Section 700.2.1.7, the additional reporting described below is required.

**Numeric Action Limit Exceedance Reportin** - This project is subject to NALs for pH and turbidity as shown in Table 700.2.4.7.1 “NALs for Monitoring pH and Turbidity.”

**Stormwater Pollution Prevention Plan (SWPPP)  
San Pablo Avenue Green Stormwater Spine**

**TABLE 700.2.4.7.1  
NALs FOR MONITORING pH AND TURBIDITY**

Parameter	Test Method	Detection Limit (min)	Unit	Numeric Action Level
pH	Field test with calibrated portable instrument	0.2	pH units	Lower NAL = 6.5 Upper NAL = 8.5
Turbidity	Field test with calibrated portable instrument	1	NTU	250 NTU

**Acronyms:**

Min = Minimum

NAL = numeric action level

NTU = Nephelometric Turbidity Units

If an NAL for pH is exceeded, then form CEM-2062 NAL Exceedance Report will be completed and submitted to the RE within 48 hours after the sampling and analysis event. The NAL Exceedance Report will include:

- test results, analytical methods, reporting units, and detection limits
- date, sampling location, time of sampling, and visual observations
- predicted quantity of precipitation of the forecasted storm event, and estimated quantity of precipitation at the time of sampling
- description of BMPs
- corrective actions taken to manage the NAL exceedance

Once deemed necessary, corrective actions shall be immediately implemented and documented. Appendix I contains the CEM-2035 Stormwater Corrective Actions Summary form and Appendix O contains the CEM-2062 NAL Exceedance Report form. NAL exceedance reports will be filed in SWPPP File Category 20.62: Numeric Action Level Exceedance Reports.

**700.2.4.8 Data Evaluation**

An evaluation of the water quality sample analytical results, including sampling locations and the QA/QC data, shall be submitted to the RE for every day of stormwater sampling. If the stormwater discharge concentrations exceed applicable water quality standards, the WPC Manager or other personnel shall evaluate the project site BMPs to determine the probable cause for the exceedance.

As determined by the data evaluation and project site assessment, appropriate BMPs shall be repaired or modified to mitigate the exceedances. Corrective actions taken shall be documented on the CEM-2035 Stormwater Corrective Actions Summary. Any revisions/design changes to BMPs shall be implemented based on an amendment to the SWPPP.

**700.2.4.9 Change of Condition**

Refer to the general requirements for changes of conditions in General SAP Section 700.2.1.9.

**700.2.5 *Sampling and Analysis Plan for Monitoring Required by Regional Board***

This project does not require a Sampling and Analysis Plan for Monitoring required by a RWQCB.

**700.2.6 *Sampling and Analysis Plan for Monitoring of Active Treatment System***

This project does not require a SAP for an ATS because deployment of such a system is not planned.

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# SECTION 800

## POST-CONSTRUCTION CONTROL PRACTICES

### **800.1 Post-Construction Control Practices**

The following are the post-construction BMPs for the project site

- 2-Emeryville
- 3-Berkeley
- 4-Albany
- 6-Richmond
- 7-San Pablo
- 8-El Cerrito (Moeser)
- 1-Oakland

The project consists of the construction of Stormwater Treatment Facilities (post-construction BMPs). These facilities are Rain Gardens (Landscaped Bio-Filtration Areas).

### **800.2 Post-Construction Operation/Maintenance**

The post-construction BMPs that are listed above will be funded and maintained in the following manner.

short-term funding: Proposition 84 water bond money (Grant) through the Department of Water Resources' Integrated Water Management Program (IRWMP)

long-term funding: Local Municipality Funds

The responsible party for the long-term maintenance of post-construction BMPs is Local Municipality

# SECTION 900

## SWPPP REPORTING REQUIREMENTS

### 900.1 Recordkeeping

To manage the various documents required by the SWPPP and to provide easy access to the documents, the following SWPPP file categories will be used to file SWPPP compliance documents:

File Category 20.01	Stormwater Pollution Prevention Plan (SWPPP)
File Category 20.02	Stormwater Pollution Prevention Plan Amendments
File Category 20.03	Water Pollution Control Schedule Updates
File Category 20.05	Notice of Construction or Notice of Intent
File Category 20.06	Legally Responsible Person Authorization of Approved Signatory
File Category 20.10	Correspondence
File Category 20.21	Subcontractor Contact Information and Notification Letters
File Category 20.22	Material Suppliers Contact Information and Notification Letters
File Category 20.23	Contractor Personnel Training Documentation
File Category 20.31	Contractor Stormwater Site Inspection Reports
File Category 20.32	Caltrans Stormwater Site Inspection Reports
File Category 20.33	Site Visual Monitoring Inspection Reports
File Category 20.34	Best Management Practices Weekly Status Reports
File Category 20.35	Corrective Actions Summary
File Category 20.40	Weather Monitoring Logs
File Category 20.45	Rain Event Action Plans
File Category 20.46	Storm/Rain Event Sampling and Analysis Plan
File Category 20.50	Non-Stormwater Discharge Sampling and Test Results
File Category 20.51	Non-Visible Pollutant Sampling and Test Results
File Category 20.52	Turbidity, pH and SSC Sampling and Test Results
File Category 20.53	Required Regional Water Board Monitoring Sampling and Test Results
File Category 20.54	ATS Monitoring Sampling and Test Results
File Category 20.55	Field Testing Equipment Maintenance and Calibration Records
File Category 20.61	Notice of Discharge Reports
File Category 20.62	Numeric Action Level Exceedance Reports
File Category 20.63	Numeric Effluent Limitation Violation Reports
File Category 20.70	Annual Certification of Compliance
File Category 20.80	Stormwater Annual Reports
File Category 20.90	Notice of Termination

Records shall be retained for a minimum of three years for the following items:

- approved SWPPP document and amendments
- Stormwater Site Inspection Reports
- Site Inspection Report Corrections Summary
- Rain Event Action Plans (REAPs)
- Notice of Discharge Reports
- Numeric Action Limit (NAL) Exceedance Reports
- Numeric Effluent Limitation (NEL) Violation Reports
- sampling records and analysis reports
- Annual Compliance Certifications
- copies of all applicable permits

## **900.2 Stormwater Annual Report**

A Stormwater Annual Report will be prepared for this project to document the stormwater monitoring information and training information.

The stormwater monitoring information listed below shall be included in the Stormwater Annual Report.

- A summary and evaluation of all sampling and analysis results, including copies of laboratory reports.
- The analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter.
- A summary of all corrective actions taken during the compliance year.
- Identification of any compliance activities or corrective actions that were not implemented.
- A summary of all violations of the CGP.
- The names of individual(s) who performed site inspections, sampling, site visual monitoring inspections and/or measurements.
- The date, place, and time of site inspections, sampling, site visual monitoring inspections, and/or measurements, including precipitation (rain gauge).
- Any site visual monitoring inspection and sample collection exception records.

The stormwater training information listed below shall be included in the Stormwater Annual Report.

- Documentation of all training for individuals responsible for all activities associated with compliance with the CGP.
- Documentation of all training for individuals responsible for BMP installation, inspection, maintenance, and repair.
- Documentation of all training for individuals responsible for overseeing, revising and amending the SWPPP.

## **900.3 Discharge Reporting**

If an unauthorized discharge is discovered or evidence of a previously unseen discharge is discovered, the Contractor shall notify the RE within 6 hours of the discovery, and will file a written report with the RE within 24 hours after the discovery. The written report to the RE will contain the following items:

- date, time, location, and type of unauthorized discharge
- nature of operation that caused the discharge
- initial assessment of any impacts caused by the discharge
- BMPs deployed before the discharge event and date(s) of deployment
- BMPs deployed after the discharge event, including re-installation, maintenance or repair of initial BMPs
- steps taken or planned to reduce, eliminate and/or prevent recurrence of the discharge

Reporting of discharges shall be documented on the CEM-2061 Notice of Discharge form in Appendix M. A log of all reportable discharges shall be documented on CEM-2065 Discharge Reporting Log form in Appendix Z. Completed CEM-2061 Notice of Discharge forms shall be submitted to the RE within 24 hours after the discharge event or discovery of evidence of a prior discharge. Copies of completed forms will be kept in File Category 20.61: Notice of Discharge Reports.

#### **900.4 Regulatory Agency Notice or Order Reporting**

If a written notice or order is issued to the project by any regulatory agency, the Contractor will notify the RE within 6 hours of receiving the notice or order and will file a written report to the RE within 48 hours of receiving the notice or order. Corrective measures will be implemented immediately following receipt of the notice or order.

The report to the RE will contain the following items

- the date, time, location, and cause or nature of the notice or order
- the BMPs deployed prior to receiving the notice or order
- the date of deployment and type of BMPs deployed after receiving the notice or order, including additional BMPs installed or planned to reduce or prevent recurrence
- an implementation and maintenance schedule for any affected BMPs

#### **900.5 Illicit Connection/Illegal Discharge Reporting**

If the Contractor discovers an illicit connection to a storm drain system or any pipe discharging onto the project site, not shown on the project plans, the Contractor shall notify the RE within 6 hours of the discovery and shall file a written report to the RE within 48 hours of the discovery.

If the Contractor discovers any illegal discharge, including illegal disposing of material on the project site, the Contractor shall immediately notify the RE and shall file a written report to the RE within 3 days of discovery.

The report to the RE will contain the following items:

- the date, time, and location of the discovery
- the details for the illicit connection or illegal discharge, including any photographs taken
- any actions taken to contain the illegal discharge

- any sampling and testing performed on material that was illegally disposed of or discharged

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## **APPENDIX C**

# **SAMPLE CONSTRUCTION AREA SIGN**

## **APPENDIX D**

# **LANDSCAPE MAINTENANCE**

- **D-1 LANDSCAPE MAINTENANCE GUIDELINES**
- **D-2 PLANT SPECIES LIST**

STORM WATER PLANTER LANDSCAPE MAINTENANCE MANUAL

PART 1 - GENERAL INFORMATION

1.1 GENERAL SCOPE OF WORK

- A. The scope of work for the San Pablo Avenue Green Stormwater Spine includes (6) seven separate sites located in (6) seven cities. The individual cities and number of sites per city are as follows:
  - 1. Oakland (1)
  - 2. Berkeley (1)
  - 3. Albany (1)
  - 4. El Cerrito (1)
  - 5. Richmond (1)
  - 6. San Pablo (1)
- B. Scope of work shall include all supervision, labor, materials, equipment, tools, supplies and services to maintain in a superior condition all landscape areas, irrigation and drainage systems and other related work. All work shall be performed in a workmanlike manner, using quality equipment, Bay-Friendly methods and materials.
- C. All work shall be in accordance with all local codes and ordinances.
- D. Maintenance period shall be for a period of two (2) years from the date the contractor is given notice of completion.
- E. Bay-Friendly Landscape Maintenance practices shall be employed to minimize waste, protect air and water quality, conserve energy and water, and protect natural ecosystems. Contractor shall maintain the landscape in an integrated approach, consistent with the principles set forth in the Bay-Friendly Landscape Guidelines, [www.BayFriendly.org](http://www.BayFriendly.org). The seven Bay-Friendly principles are:
  - 1. Landscape locally - The Project landscape is part of a larger natural ecosystem of the San Francisco Bay Area. The materials and methods used to maintain the Project can support the health, diversity and sustainability of the Bay.
  - 2. Landscape for less to the landfill - Reducing waste starts with not generating plant debris in the first place by fertilizing, irrigating and pruning judiciously, grasscycling, mulching and composting plant debris. Using recycled content, salvaged, durable or local materials conserves resources and reduces the amount of energy consumed by the landscape.

## SAN PABLO AVENUE GREEN STORMWATER SPINE

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Package B - Oakland • Berkeley • Albany • El Cerrito • Richmond • San Pablo

3. Nurture the soil - Create a healthy soil that supports a healthy landscape by protecting the soil from compaction and erosion, replenishing organic matter and mulching, using slow-release and organic fertilizers and minimizing use of chemicals that harm beneficial soil organisms.
  4. Conserve water - Use California's water supply efficiently by reducing irrigation requirements, irrigating according to plant need, maximizing irrigation system performance, increasing the water holding capacity of the soil and using recycled water.
  5. Conserve energy - Conventional landscapes are fossil fuel consumptive. Nationally it is estimated that lawn mowers consume 400 million gallons of gas. Look for opportunities to conserve fuel and energy by choosing and maintaining materials and equipment for fuel conservation.
  6. Protect water and air quality -Reduce runoff, reduce contaminants in runoff through an integrated pest management (IPM) program, and increase the soil's ability to remove pollutants from runoff through steps such as mulching bare soil. Reduce air pollution by reducing fossil fuel consumption, recycling plant debris on -site and planting trees to remove CO2 and absorb air pollutants.
  7. Protect and maintain wildlife habitat - The Project may provide food, water, shelter and nesting sites for birds, butterflies, beneficial insects and animals that contribute to the ecological diversity of the Bay. Methods to protect them include minimizing application of chemicals by implementing an integrated pest management (IPM) program, and conserving flowers, berries, fruits, seed heads, low branch cover, and natural vegetation in open space areas.
- F. Applicable standards and Best Management Practices (BMP's).  
Contractor shall adhere to applicable professional standards as defined by a professional organization including:
1. American National Standard for Tree Care Operations - ANSI A300, Parts 1 and 2
  2. International Society of Arboriculture BMP for Tree and Shrub Fertilization, and BMP for Tree Pruning
  3. Irrigation Association BMPs
  4. Bay-Friendly Landscape Guidelines

### 1.2 RELATED DOCUMENTS

- A. As Built Plans
- B. Plant Species List & Special Instructions
- C. Initial Soil Analysis
  1. Soil sample as processed by the installing Landscape Contractor
- D. Water Budget Calculations (Maximum Applied Water Allowance)
  1. As shown on the As-Built Plans

- E. Irrigation Schedule
  - 1. As shown on the As-Built Plans

### 1.3 DEFINITIONS

- A. "Agency" is defined in these documents as the San Francisco Estuary Partnership.
- B. "Excluded Damages" is defined in these documents as damages that the Contractor will not be held accountable for. This includes:
  - 1. Any damage to plant material, except for those caused by or allowed to decline or die by the Contractor.
  - 2. Any damage to irrigation systems or components, except for those caused by or allowed to decline by the Contractor.

### 1.4 LIMITS OF WORK

Specific items not included in scope of work

- A. Extra Services
  - 1. New and unforeseen work will be classed as extra work when determined by the Agency that such work is not covered by these specifications. Upon notification that extra work will be required, the Contractor shall submit an itemized, written cost proposal for such work to the Agency. The Agency shall retain the right to reject such cost proposal and perform the extra work with Agency forces or other contractors. Should the proposal be acceptable to the Agency, the Contractor shall be advised in writing, and upon receipt of such written notification, shall begin the work within five (5) working days or as agreed to between the Contractor and the Agency.
  - 2. Extra work may include but is not limited to:
    - 2a. As Needed soil testing outside those scheduled in Section 3.2 will be expensed by the contractor per this agreement.
    - 2b. Excluded damages
  - 3. The Contractor shall do such extra work in accordance with the agreement for extra work and with the provisions of these specifications and shall furnish all labor, materials and equipment. Payment for extra work performed shall be as agreed to by the Contractor and the Agency and as bid. Compensation for material will not exceed Contractor cost plus 10%. Contractor must provide invoice copies to be compensated for material.
- B. Emergency Work
  - 1. Contractor shall supply office and mobile phone numbers of employee responsible for emergencies. Said employee shall be fluent in English.

2. Agency will provide Contractor with emergency numbers for Agency's representatives and emergency personnel. Said employee shall be fluent in English.

## 1.5 TECHNICAL REPORTS

- A. Technical Reports for maintenance soil analysis, as required, shall be performed by:

Soil and Plant Laboratory, Inc.  
352 Mathew Street  
Santa Clara, CA 95030  
408-727-0330

Agronomy Reports: Contractor shall have agronomy reports prepared annually during late winter for each site as outlined in Section 3.2. A minimum of **two (2) separate Agronomy Reports** shall be prepared per site, which shall include Soil pH, basic and minor nutrients, salinity, organic content, percolation rate as well as a textural analysis of each sample. Each of the samples for reporting shall consist of a composite of three shovelfuls of soil. Reports shall include recommendations for maintenance planting fertilizing.

## 1.6 SUPPLEMENTAL RESOURCES

- A. StopWaste.Org [www.BayFriendly.org](http://www.BayFriendly.org)
  1. Bay-Friendly Landscape Guidelines
  2. A Landscaper's Guide to Grasscycling
  3. A Landscaper's Guide to Mulch
- B. A Guide to Estimating Irrigation of Water Needs of Landscape Plantings, California Dept of Water Resources, [www.cdec.water.ca.gov](http://www.cdec.water.ca.gov).
- C. C. Irrigation water audits, Irrigation Association, [www.irrigation.org](http://www.irrigation.org), and the Irrigation Technology Research Center, [www.itrc.org](http://www.itrc.org).
- D. California Irrigation Management Information System, [www.cimis.water.ca.gov](http://www.cimis.water.ca.gov), Waste management and recycling, [www.ciwmb.ca.gov](http://www.ciwmb.ca.gov).
- E. The Weed Worker's Handbook, A Guide to Techniques for Removing Bay Area Invasive Plants, The Watershed Council (510) 231-5655 and the California, Invasive Plant Council (510) 843-3902, [www.cal-ipc.org/ip/management/wwh/](http://www.cal-ipc.org/ip/management/wwh/).
- F. Pests of Landscape Trees and Shrubs: An Integrated Pest Management Guide, 2nd ed., UC Publication 3359, [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu).

- G. G. A Field Guide to Compost Use, The Composting Council, 114 South Pitt Street, Alexandria, Virginia 22314, (703) 739-2401, [www.compostingcouncil.org/index.cfm](http://www.compostingcouncil.org/index.cfm).

## PART 2 - GENERAL REQUIREMENTS

### 2.1 CONTRACTOR REQUIREMENTS

#### A. Qualifications

1. Contractor must have a valid California C-27 contractor's license authorized by the State of California.
2. Contractor must have assigned to the project at least one employee possessing a California State Chemical Applicator's License for the control of weeds, plant diseases and other pests.
3. Contractor must have assigned to the project at least one employee who has successfully completed the Pollution Prevention Training & Certification Program For Surface Cleaners issued by the Bay Area Stormwater Management Agencies Association (BASMAA).
4. It is required that the Contractor have assigned to the project at least one employee who is a Certified Irrigation Contractor (Irrigation Association).
5. It is required that the Contractor have assigned to the project at least one employee who is a Certified Arborist or Certified Tree Worker (International Society of Arboriculture).
6. It is required that the Contractor have assigned to the project at least one employee who has experience or training in Integrated Pest Management (IPM) techniques.
7. It is required that the Contractor have assigned to the project at least one employee who has experience or training in Bay-Friendly Landscaping practices.

### 2.2 WORK REQUIREMENTS

#### A. Work Schedule

1. Contractor is to provide Agency with a biweekly work schedule describing the work to be performed in the Project Areas.
2. The Contractor shall conduct all operations during the hours of 8:00 a.m. to 5:00 p.m. Monday through Friday, unless otherwise approved by the Agency. Contractor may not work on any Federal, State, or local holidays.
3. Any non-emergency work that may be deemed hazardous or disruptive (i.e., chemical spraying, tree pruning, etc.) shall be scheduled at least two (2) weeks in advance with the Agency's representative. For emergency work, Contractor must obtain written approval from Agency's representative prior to commencing work.
4. Agency reserves the right to change schedules for special events, conflicts with adjacent property owners/tenants within five (5) working days advance notice.

B. Protection of Existing Property

1. Contractor must protect all existing plant materials, site improvements, structures, facilities, utilities, and natural areas from damage, both above and below ground. Any damages shall be reported immediately to the Agency's representative. Any damages caused by Contractor shall be corrected and/or paid for by the Contractor at no cost to the Agency.
2. Contractor shall protect property from accidental chemical, fuel, oil or other contaminate spills.
3. Contractor shall not wash or blow soil, chemicals, litter, mulch, soil amendments or other materials into storm drains.

C. Safety

1. Contractor must at all times exercise necessary precautions to provide for the protection of the public and employees.
2. Chemical Applications

**Note: Bay-Friendly Landscaping emphasizes Integrated Pest Management (IPM) practices to control pests and diseases in the landscape.** IPM uses cultural, mechanical, physical, and biological control methods before using pesticides. 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. Contractor shall apply all chemicals in a safe manner and according to label instructions and Agency, State and Federal requirements. A California Chemical Applicators license is required by the contractor for chemical applications. The Contractor shall mix and apply chemicals to protect against

accidental spills and drift to non-target areas, and to insure safety of the applicator. Any spilled chemicals, as well as contaminated soil, water, and/or landscape materials must be removed from the Project and disposed of in accordance with applicable local, State and Federal regulations. The Contractor shall maintain applicator's licenses and records of applications as required by the State. A Chemical Work Report shall be completed for each chemical application. The Contractor is responsible for submitting chemical usage reports to the County Agricultural Department. Copies are to be sent to the Agency's representative as part of the Contractor's monthly report.

D. Contractor's Personnel and Supervision

1. The Contractor shall assign a qualified trained supervisor to oversee work performed at the work site and to act as the Contractor's liaison with the Agency representative. This supervisor must inspect the Project biweekly and provide direction to the Contractor's workers. This supervisor shall speak, write, read and understand English and be capable of writing schedules, monthly reports noting any deficiency that needs correcting and major projects for the coming month. This supervisor shall have at least three (3) years of landscape maintenance supervision experience.
2. All Contractor's personnel shall adhere to basic public works standards for working attire including; uniform shirts with Contractor's name or logo clearly visible at all times when working at all locations, proper shoes and other equipment required by State Safety Regulations. Shirts are to be maintained in a neat and presentable condition.
3. All Contractor vehicles are to have a readable sign with Contractor's name or logo and telephone number. Trucks are to be kept in a clean and presentable condition

E. Supplies and Equipment

1. Fuel conservation and low emission equipment- The Contractor will implement strategies in work operations to reduce fossil fuel consumption and emissions, such as:
  - 1a. Use hand-powered equipment when possible.
  - 1b. Minimize use of gas-powered blowers, especially on planting beds.
  - 1c. Select smallest, most fuel efficient equipment to accomplish task.
  - 1d. Consider vehicles that operate on natural gas or biodiesel.
  - 1e. Maintain equipment properly and keep it well tuned.
  - 1f. Emphasize employee carpooling to Project.
2. Use local products and suppliers- The Contractor shall use local products and suppliers (produced within 150 miles from the project site) to the extent possible to minimize fuel consumption and emissions.
3. Use recycled and salvaged materials- The Contractor shall use salvaged and recycled-content products where possible materials for reuse may be found by contacting the CalMax website at [www.ciwmb.ca.gov](http://www.ciwmb.ca.gov) or at [www.stopwaste.org](http://www.stopwaste.org).
4. Equipment refueling and repair- The Contractor shall refuel and repair equipment in a safe manner to protect against accidental spills. Limit refueling to specific areas on a site. Measures shall be taken to prevent, control, and clean-up spills. Clean-ups should be immediate, automatic and routine and performed by a trained staff member or a licensed cleaning company. Contact the local emergency response team agencies to report all spills.

- F. Reporting and inspecting
  - 1. The Contractor shall submit a written report each month stating all contract work completed. The report shall show the work completed during each week contract work was accomplished, and shall be submitted with and cover the same work as the Contractor's billing statement for the previous month's work. The report shall include documentation of stormwater and irrigation inspections, IPM monitoring, soil and pest management treatments and other chemical applications.
  - 2. Unusual horticultural problems such as pests, disease and damages that are beyond the scope of the Contractor's responsibility shall be brought to the attention of the Agency representative immediately.
  - 3. The Agency, through a designated representative, shall make periodic inspections to insure that complete and continuous maintenance is fulfilled. In addition, the Agency may obtain the services of an approved horticultural specialist to inspect plantings and make recommendations for improvements in the maintenance program.
  
- G. Work Performance
  - 1. Contractor is responsible for (a) having thoroughly investigated and considered the scope of services to be performed, (b) carefully considering how the services should be performed, and (c) fully understanding the facilities, difficulties, and restrictions attending to the performance of the services required. Contractor is responsible to investigate the area and be fully acquainted with the conditions.
  - 2. Should the Contractor discover any latent or unforeseeable conditions, which will materially affect the performance of services, Contractor shall immediately inform the Agency of such fact and shall not proceed except at Contractor's risk until written instructions are received from the Agency.
  - 3. Plants, irrigation systems, etc., damaged by traffic accidents or vandalism, shall be reported immediately to the Agency.

## PART 3 - GENERAL MAINTENANCE GUIDELINES

### 3.1 SOIL MANAGEMENT

- A. Goals
  - 1. A healthy, biologically diverse soil is required to sustain a healthy landscape. A basic concept of Bay-Friendly Landscaping is to cultivate a functional, living soil food web which shall then provide nutrient elements as needed to sustain healthy and attractive plants while avoiding excessive growth that might attract pests and/ or need to be removed through pruning or edging. Landscape maintenance activities shall be implemented to nurture biological activity, provide organic material, and protect soil from damage. Bay and riparian water quality and soil and aquatic habitat shall be protected by controlling soil erosion.
  
- B. Contractor shall protect soil from compaction by:
  - 1. Cultivating soil when it is moderately moist; wet and dry soils shall not be cultivated.
  - 2. Scheduling maintenance operations that require driving equipment over the soil when the soil is dry.
  - 3. Confining traffic to paved areas.
  
- C. Contractor shall protect the soil from erosion by:

1. Maintaining vegetative cover over the soil to the extent possible.
  2. Maintaining a minimum 3" mulch layer.
  3. Minimizing use of blowers in planting beds.
- D. Soil and plant analysis
1. Contractor shall submit soil samples annually for testing as described in Section 3.2. The types and quantities of fertilizer and/or soil amendments to be applied shall be determined from the results of the soil analysis and shall be based on an 'organic' approach to soil management.

### 3.2 MAINTENANCE SOIL TESTING

- A. Contractor shall annually collect and submit (2) two separate soil samples from each site to an accredited and approved testing laboratory, as outline in Part 1, for preparation of two (2) separate Agronomy Reports per site. Agronomy reports are to be generated in late winter of each year. Contractor shall request additional soil testing as required to resolve ongoing soil problems. As needed additional soil testing will be expensed to the Agency as an Extra Service. Sample collection procedures shall adhere to recommendations of the soil testing laboratory. Contractor shall request that the laboratory make recommendations based on an 'organic' approach to soil and landscape management. Submit soil lab report and any proposed soil amendments and cost adjustments to Agency Representative for written approval. After review and written approval by the Agency, Contractor to amend the soils according to said laboratory's recommendations. The approved soils laboratory recommendations shall be considered a part of this specification. Analyses to be performed include:
- Soil pH, basic and minor nutrients, salinity, organic content, percolation rate as well as a textural analysis of each sample.

### 3.3 MULCH

- A. Arbor mulch and/or stone mulch layer shall be cared for as needed to create and maintain an even and uniform appearance over the visible soil surface of each planter area.
- B. The landscape maintenance contractor shall add additional mulch regularly to maintain a layer no less than 3 inches deep at all times in stormwater planters. Decomposition of organic mulch is considered normal wear and tear and replenishment of mulch shall be made by the landscape maintenance contractor as part of these guidelines. Arbor mulch and/or stone mulch is not required in areas where plant foliage completely covers the soil surface, such that the soil is not visible through the foliage. Note: only 3 inches of mulch is required, however maintaining a deeper layer of mulch and/or decorative rock greatly reduces the labor and chemicals needed to control weeds, reduces water use, and helps the plants stay healthy.

3.4 SEDIMENT CONTROL

- A. Sediment accumulation in stormwater planters shall be hand removed with minimum damage to vegetation using proper erosion control measures. Sediment shall be removed if it is more than 4 inches thick or so thick as to damage or kill vegetation.
- B. Sediment accumulation at drain inlets shall be cleared as it occurs on a biweekly basis.

3.5 WEED CONTROL

- A. Weeds in stormwater planters, sidewalks, curbs, gutters, or pavement shall be removed biweekly as the weeds emerge. Weeds shall be removed if they are larger than 2 inches in height or diameter. Weeding shall be accomplished through mechanical means. Dispose of weeds off-site. Pre and post-emergent herbicides may not be used. The cost of all weed control work shall be included in the contract price for landscape maintenance. Regular maintenance of the mulch layer will help minimize weeds in the stormwater planters.

3.6 INTEGRATED PEST MANAGEMENT (IPM)

- A. Goals - An integrated pest management program shall be implemented to:
  - 1. Maintain healthy, attractive plants, maximize resistance to pests and out-compete weeds;
  - 2. Monitor for presence of pests and to evaluate pest impact to plant health and appearance, and nuisance to the public;
  - 3. Provide control treatments that have minimal negative effects on all but the pest and that protect air and water quality.

Contractor shall assume pesticides are potentially hazardous to human and environmental health. Preference shall be given to reasonably available non-pesticide alternatives when considering the use of pesticides.

- B. Insects and diseases
  - 1. Key plant pests - Contractor shall identify primary plant species and cultivars in the landscape (key plants) and the pests that commonly cause significant harm to plant health or appearance (key pests).
  - 2. Monitoring - Contractor shall monitor landscape areas to identify presence of beneficial insects and pests, determine populations, life stage, and degree of damage to plants. Key plant pests will be monitored closely during normal periods of pest activity. This information will be the basis on which pest control methods are initiated. Records of monitoring activity shall be kept.
  - 3. Controls- Bay-Friendly Landscaping seeks to control pests without harming non-target organisms, or negatively affecting air and water quality and public health. It relies on IPM which uses a range of cultural, mechanical, physical, and biological control methods before using pesticides. 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. Pesticides are not applied on a prescheduled basis.

3a. Cultural/Mechanical/physical methods. A number of maintenance practices or modifications of them can make the environment unfavorable for pest reproduction, movement, or survival. Often simply modifying an existing maintenance practice, such as timing of pruning or fertilization, can produce positive results. Other mechanical or physical practices may specifically combat plant pests or increase host resistance. Key treatments include:

- 1) Fostering a healthy soil, judicious fertilization only when needed, and managing irrigation appropriately.
- 2) Pruning to remove infected or infested branches and shoots. Time pruning to avoid periods of insect infestation. For example prune pines and eucalyptus in the winter (December-February) when bark beetles and borers are inactive.
- 3) Removing fallen twigs, leaves, and fruit that contain disease inoculum.
- 4) Mulching soil surface to reduce weeds and to reduce splashing and the drops of mud that would protect spores deposited on plant surfaces.
- 5) Trapping insects using sticky surfaces (also used for monitoring). Mechanical traps can be used to control rodents.
- 6) Bringing to attention of Agency plants that are disease or insect prone and suggesting resistant plant replacements or those better suited to the site and microclimate

3b. Biological methods- Biological controls are pesticides of natural origin that have limited or no adverse effects on the environment or beneficial organisms. Determining the effective biological control and proper timing of application are critical to success in pest control. The Contractor shall consider the following biological control methods when cultural/mechanical/physical methods are not adequate to lower pest populations to the target level.

- 1) Beneficial insect release and conservation
- 2) Pheromone Traps
- 3) Parasitic nematodes
- 4) *Bacillus thuringiensis* (Bt)

3c. Pesticides- The term pesticide applies to insecticides, fungicides and other substances used to control pests. Antimicrobial agents are not included in this definition of pesticides.

- 1) Least toxic pesticides- When cultural, mechanical, physical and biological controls have provided inadequate pest control, the Contractor may select and apply an appropriate least-toxic pesticide as a last resort. Least-toxic pesticides have a high LD-50, low residual,

and narrow range of toxicity. Application must be timed to the appropriate life stage of the pest. Examples are:

- a) Insecticidal soaps,
  - b) Horticultural oils,
  - c) Herbicidal soaps,
  - d) Neem,
  - e) Pyriproxyfen insect growth regulator (e.g. Distance IGR)
- 2) Restricted chemicals- Organophosphate-containing pesticides have been found to persist in the environment and cause water quality impairment of some creeks and streams. They are restricted from use. Examples include:
- a) Diazinon, trade names Spectracide®, Knox-out® and
  - b) Chlorpyrifos, trade names Dursban®, Pageant®)
  - c) Malathion and carbaryl (trade name Sevin®)

Water quality agencies recommend against using pyrethroids and pyrethrins containing piperonyl butoxide (PBO). These chemicals are restricted from use. Pyrethrins are toxic to birds, fish, and beneficial insects, should be used only as a last resort, and carefully applied to avoid runoff and contact with non-target plants.

Contractor shall not apply any Toxicity Category I or II Pesticide Product, any pesticide containing a chemical identified by the State of California as a chemical known to the State to cause cancer or reproductive toxicity pursuant to the California Safe Drinking Water and Toxic Enforcement Act of 1986, and any pesticide classified as a human carcinogen, probable human carcinogen or possible human carcinogen by the United States Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances.

- 3) Contractor shall not apply any Toxicity Category I or II Pesticide Product, any pesticide containing a chemical identified by the State of California as a chemical known to the State to cause cancer or reproductive toxicity pursuant to the California Safe Drinking Water and Toxic Enforcement Act of 1986, and any pesticide classified as a human carcinogen, probable human carcinogen or possible human carcinogen by the United States Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances.
- 4) All chemical applications shall be performed by a licensed, trained technician. Contractor must be a licensed Pest Control Operator as required by the State of California, registered in Alameda Co., and strictly adhere to all laws.

4. Notice of pesticide use

- 4a. Signs shall be posted at least three days before application of the pesticide product and remain posted at least four days after application of the pesticide.
  - 1) Signs shall be posted (i) at every entry point where the pesticide is applied if the pesticide is applied in an enclosed area, and (ii) in highly visible locations around the perimeter of the area where the pesticide is applied if the pesticide is applied in an open area.
  - 2) Signs shall be of a standardized design that are easily recognizable to the public and workers.
  - 3) Signs shall contain the name and active ingredient of the pesticide product, the target pest, the date of pesticide use, the signal word indicating the toxicity category of the pesticide product, the date for re-entry to the area treated, and the name and contact number for the agency responsible for the application.
- 4b. Contractor shall not be required to post signs in right-of-way locations that the general public does not use for recreational purposes. However, Contractor shall notify Agency in writing three days prior to pesticide applications in the right-of-way areas.
- 4c. Contractor shall obtain authorization from the Agency to apply a pesticide without providing a three-day advance notification in the event of a public health emergency or to comply with worker safety requirements. Signs shall be posted for at least four days after application of the pesticide, as described in the Section above, 3.5.B.4.a., *Notice of Pesticide Use*.

5. Recordkeeping and reporting

- 5a. Contractor shall maintain records of all pest management activities. Each record shall include the following information:
  - 1) Target pests
  - 2) Type and quantity of pesticide used
  - 3) Site of the pesticide application
  - 4) Date the pesticide was used
  - 5) Name of the pesticide applicator
  - 6) Application equipment used
  - 7) Prevention and other non-chemical methods of control used.
- 5b. Contractor shall submit the pest management record to Agency on a monthly basis.

C. Vertebrate pests

- 1. Identify key pests that significantly affect plant health and appearance. Accurate identification is critical to appropriate control. Common vertebrate pests are: rodents including rats, mice, voles, moles, gophers.

2. Controls

2a. Mechanical/physical/cultural methods shall be implemented as a first course of action. Preferred treatments include:

- 1) Application of repellents that are suitable for use in public areas.
- 2) Traps may be used where mechanical/physical/cultural methods have been insufficient to control moles, voles, gophers, rats and mice.

3.7 WASTE MANAGEMENT

- A. Goals- Bay Friendly landscapes are maintained to minimize producing waste and to use as much of the plant debris generated on-site as is possible and to recycle plant debris and discarded materials to the maximum extent feasible at appropriate recycling centers to avoid adding it to landfill.
- B. Debris removal and clean-up- Contractor shall keep all landscaped areas, walkways, building entries and exits free from trash and debris. Debris clean up with brooms and rakes is preferred to blowers.
- C. Recycle waste- Contractor shall separate all plant debris that cannot be reused on site and other discarded materials that are readily recyclable and transport to appropriate recycling facilities. If shrub and tree trimmings, or prunings must be removed from site, they must be kept free of other types of debris and transported to a local composting facility or transfer station that offers a separate processing (and often discounts) of plant debris for composting.

3.8 FERTILIZERS AND SOIL CONDITIONERS

- A. Bay-Friendly Landscaping relies on organic fertilizers and soil amendments from natural sources that release elements slowly, which shall be preferred.
- B. Additional amendments and fertilizers that are approved for use by the Organics Materials Research Institute (OMRI) for use in crop production are approved for use in landscape. See [www.omri.org](http://www.omri.org). Contractor must supply fertilizer and soil amendment labels including the guaranteed analysis identifying components of the material and the percent nutrient content. Contractor is required to apply the appropriate amount of fertilizer to supply the specified quantity of nutrient as determined by soil analysis and/or plant tissue analysis.
- C. Contractor shall apply and manage fertilizers and amendments to prevent pollution of surface and ground water and to avoid creating a nitrogen draft in the soil or toxicity to plants.

- D. Application Frequency- Fertilizers shall be applied on a prescription base only. Application frequency shall be determined by plant need and assessed through soil and/or tissue analyses. For bidding purposes the following maximum annual number of applications are provided
1. Trees, shrubs, woody ground covers: One time per year
  2. Herbaceous ground covers, perennials and grasses: Two times per year
  3. Fertilizers that are not approved or are restricted for use in crop production by OMRI shall not be applied.

### 3.9 PRUNING

#### A. General Pruning Guidelines

1. All tree pruning shall be performed only by trained, experienced personnel. An I.S.A. Certified Arborist or Tree Worker is to be present at all times during pruning. Arborist must have a State of Calif. Contractor's License for Tree Service (C61-D49).
2. All pruning shall be in accordance with the Best Management Practices for Pruning (International Society of Arboriculture, 2002) and adhere to the most recent editions of the American National Standard for Tree Care Operations (Z133.1) and Pruning (A300).
3. Young trees shall receive annual pruning for up to five years after planting by personnel trained in pruning to develop tree structure. The purpose of the pruning is to direct the tree into the appropriate form for the species and the site and to develop a strong branch structure. Trees with co-dominant trunks and multiple branch attachments shall be pruned to correct those defects over a period of several years.
4. Trees shall be pruned in the following manner:
  - 4a. Clear the crown of diseased, crossing, weak and dead branches. Trees shall not be routinely thinned.
  - 4b. Provide 14' vertical clearance over roads, 8' over walkways;
  - 4c. Reduce end weight on heavy, horizontal branches
  - 4d. Create a strong central trunk with lateral branches spaced vertically and horizontally.
  - 4e. Interior branches shall not be stripped out.
  - 4f. No more than 20% of live foliage shall be removed within the trees.
  - 4g. Trees shall not be climbed with spurs.

- 4h. Branch removal or reduction cuts (thinning cuts) are to be employed rather than heading cuts. Trees shall not be topped or headed back.
5. Schedule pruning to avoid time of bud break, flowering and leaf drop on live branches, and to avoid peak periods of insect and disease activity for pests to which the tree species is susceptible.
6. Pruning operations shall be conducted in a manner that does not damage surrounding and understory plants and structures.
7. There are two basic types of pruning cuts: heading cuts, and thinning cuts. Heading cuts stimulate growth of buds closest to the wound. The direction in which the top remaining bud is pointing will determine the direction of new growth. Make heading cuts selectively to reduce shrub height and retain natural form. Non-selective heading cuts made indiscriminately will stimulate rapid regrowth from buds below the cut. These vigorous shoots are unattractive and make shrubs bushier, but not smaller. Non-selective heading cuts are only justifiable when using hedge clippers on a hedge or topiaried shrub.
8. Thinning cuts remove branches at their points of origin or attachment. Used in moderation, thinning cuts reduce shrub density without stimulating regrowth.
9. Make pruning cuts correctly. For heading cuts, prune 1/4 inch above the bud, sloping down and away from it. Avoid cutting too close, or steep, or the bud may die. When pruning above a node with two or more buds, remove the inward-facing ones. Make thinning cuts just above parent or side branches and roughly parallel to them.
10. Do not coat pruning cuts on shrubs with paint or wound dressing. These materials will not prevent decay or promote wound closure.
11. Pruning at different seasons triggers different responses. Late winter or early spring, before bud break, is usually the best time to prune many species because new tissue forms rapidly. However, pruning should be delayed for most spring-blooming shrubs until immediately after flowering to avoid reducing the floral display.
12. Summer pruning tends to suppress growth of both suckers and foliage. Summer-blooming shrubs should be pruned in early spring prior to bud set, or in summer immediately following flowering.
13. Late summer or early fall pruning causes vigorous regrowth, which in some cases may not harden off by winter, leading to possible cold damage. Whenever unexpected damage from vandalism or bad weather occurs, prune at once.
14. The second technique for shrub rejuvenation removes growth more gradually. The first year, remove one-third of the oldest, unproductive branches. The next year, take one-half of the old, lingering stems. Finally, in the third year, prune out the remainder of the old branches. New, productive stems should quickly replace the old wood. This method takes longer to complete, but the shrub stays more attractive throughout the rejuvenation period.
15. For trees or shrubs that bloom in summer or fall on current year's growth, prune in winter.

16. For trees or shrubs that bloom in spring from buds on one-year-old wood (e.g., Cercis), prune when their flowers fade.

B. Maintenance Pruning Guidelines

1. Deciduous shrubs require maintenance pruning to keep them healthy and in scale with their surroundings. Maintenance pruning practices should begin at the time of planting, or after rejuvenation of older shrubs.
2. Always remove dead, diseased, or broken branches promptly. When pruning dead or diseased branches, make thinning cuts into healthy wood, well below the affected area. Disinfect tools between each cut with products such as "Lysol," "Listerine," or rubbing alcohol. Tests have shown that "Pine-Sol" and household bleach are highly corrosive to metal tools.
3. To reduce the height of shrubs with a cane habit, first remove the tallest canes by cutting or sawing them out near ground level. Then, thin out any canes crowding the center, as well as those growing in an unwanted or unruly direction.
4. For height maintenance of mounding-type shrubs, prune only the longest branches. Make thinning cuts well inside the shrub mass where they won't be visible. This method reduces mounding shrubs by up to one-third their size without sacrificing their shape.
5. Shrubs with a tree-like habit are the most difficult to shorten. After removing any rubbing branches, prune to open up the center of the shrub. Keep the crown open and maximize light penetration by careful use of thinning cuts. Prune branches that touch the ground and suckers originating from the roots. Wait until the very end of the job to make any heading cuts. Tree-like shrubs can usually tolerate removal of one-eighth to one-fourth of their branches.

3.10 TREE MAINTENANCE

- A. Refer to the "Plant Species List & Special Instructions" for specific maintenance guidelines for each tree species.
- B. All tree pruning shall be performed only by trained, experienced personnel. An I.S.A. Certified Arborist or Tree Worker is to be present at all times during pruning. Arborist must have a State of Calif. Contractor's License for Tree Service (C61-D49).
- C. Trees shall be maintained in a healthy, vigorous growing condition, free from disease and large concentrations of pests.
- D. Prune trees only to remove dead, diseased, broken, dangerous, or crossing branches, and as required below. Pruning of this type is a minor, non-reimbursable, cost to be included as part of the regular maintenance.
- E. Prune trees only in appropriate months as determined by an arborist. Prune in accordance with generally accepted standards for proper pruning.
- F. Discard all tree trimmings off-site using a legal method.

- G. Any tree found to be dead or missing shall be replaced with plant material of identical species at the landscape maintenance contractor's expense, unless the loss was due to excluded damage. If the loss resulted from excluded damage, replacement will be paid for as additional work. Submit a quote for replacement within two weeks of the loss as outlined in the General Requirements section of these specifications. Replacement trees shall be equal in size to the originally installed tree at the time it was planted at the site. Example: if the tree was a 24" box size when originally planted the replacement shall be a 24" box size.
- H. Replacement trees shall be approved for size and appearance by Agency's Representative prior to planting. Replacement trees shall be double staked with 2 inch diameter stakes unless otherwise approved by the Agency's authorized representative. state
- I. Remove tree stakes from trees when the trunks are larger than 2 inch caliper and the trees are able to support themselves. Remove stakes from site and dispose of by a legal method. Recycle used stakes if possible.
- J. Once a year, prune all trees to encourage a high-branching structure. Remove all non-structural branches between the ground and eight (8) feet high. Exception to the above: trees planted for screening purposes, such as those at rear perimeters of many sites shall not be pruned except as needed to remove dead, diseased, broken, dangerous, or crossing branches. Some municipalities prohibit pruning trees without a permit. Check with local authorities prior to pruning.
- K. The cutting blades on pruning shears, clippers, blades, saws, etc. shall be sterilized after pruning each tree to minimize the possibility of spreading disease. When pruning trees known or suspected to be diseased, cutting blades shall be sterilized after each cut. Sterilize blades by dipping them in a solution of 1 part bleach and 9 parts water or heavily spray them with a disinfectant spray, such as Lysol. After dipping or spraying, wait 20 seconds before using again.
- L. A vertical clearance of 14' is required above all roads. A vertical clearance of 10' is required above all parking spaces. A vertical clearance of 8' is required above all walkways. Trim trees to remove all limbs within these areas.
- M. Pest Management
  - 1. Contractor is responsible for monitoring trees to identify, assess pest problems and taking action to control pests that affect tree health and appearance when pest populations or damage exceed established thresholds.
  - 2. Contractor shall employ integrated pest management procedures (see also Section 3.6, *Integrated Pest Management*).

### 3.11 SHRUB MAINTENANCE

- A. Refer to the "Plant Species List & Special Instructions" for specific maintenance guidelines for each shrub and vine species.
- B. Shrubs shall be kept in a healthy, vigorous condition, free from disease and large concentrations of pests.

- C. Shrubs shall be pruned only as needed to remove branches that are dead, broken, or interfere with pedestrian circulation. Allow the shrubs to grow unpruned to their natural sizes.
- D. Allow shrubs three (3) months to rejuvenate following a hard frost prior to pruning or replacing.
- E. Any shrub found to be dead or missing shall be replaced with plant material of identical species at the landscape maintenance contractor's expense, unless the loss was due to excluded damage. If the loss resulted from excluded damage, replacement will be paid for as additional work. Submit a quote for replacement within two weeks of the loss as outlined in the General Requirements section of these specifications. Replacement shrubs shall be from 5 gallon containers.
- F. Replacement shrubs shall be at least 18 inches in height when planted, unless otherwise approved by the Agency's Representative.
- G. The cutting blades on pruning shears, clippers, blades, saws, etc. shall be sterilized between every three shrubs to minimize the possibility of spreading disease. When pruning shrubs known or suspected to be diseased, the cutting blades shall be sterilized after each cut. Sterilize blades by dipping them in a solution of 1 part bleach and 9 parts water or heavily spray them with a disinfectant spray, such as Lysol. After dipping or spraying, wait 20 seconds before using again.
- H. Pest Management
  - 1. Contractor is responsible for monitoring shrubs to identify, assess pest problems and taking action to control pests that affect shrub health and appearance when pest populations or damage exceed established thresholds.
  - 2. Contractor shall employ integrated pest management procedures (see also Section 3.6, *Integrated Pest Management*).

### 3.12 GROUNDCOVER MAINTENANCE

- A. Refer to the "Plant Species List & Special Instructions" for specific maintenance guidelines for each groundcover species.
- B. Groundcover shall be maintained in a healthy, vigorous growing condition. Ground covers shall be kept free of trash and debris.
- C. Any groundcover found to be dead or missing shall be replaced with plant material of identical species at the landscape maintenance contractor's expense, unless the loss was due to excluded damage. If the loss resulted from excluded damage, replacement will be paid for as additional work. Submit a quote for replacement within two weeks of the loss as outlined in the General Requirements section of these specifications. Replacement groundcover shall be planted at spacing per installation plan from 1 gallon containers.
- D. Keep groundcover trimmed back from sidewalks, curbs, and paved areas on a biweekly basis. Do not create vertical edges when pruning groundcover. Cut the edges at an angle /-\ for a more natural appearance and healthier plants.

E. Pest Management

1. Contractor is responsible for monitoring ground cover to identify, assess pest problems and taking action to control pests that affect ground cover health and appearance when pest populations or damage exceed established thresholds.
2. Contractor shall employ integrated pest management procedures (see also Section 3.6, *Integrated Pest Management*).

3.13 GRASS & PERENNIAL MAINTENANCE

- A. Refer to the "Plant Species List & Special Instructions" for specific maintenance guidelines for each groundcover species
- B. Grasses and perennials shall be maintained in a healthy, vigorous growing condition and shall be kept free of trash and debris.
- C. Any grass or perennial found to be dead or missing shall be replaced with plant material of identical species at the landscape maintenance contractor's expense, unless the loss was due to excluded damage. If the loss resulted from excluded damage, replacement will be paid for as additional work. Submit a quote for replacement within two weeks of the loss as outlined in the General Requirements section of these specifications. Replacement groundcover shall be planted at spacing per installation plan from 1 gallon containers.
- D. Pest Management
  1. Contractor is responsible for monitoring ground cover to identify, assess pest problems and taking action to control pests that affect grass and perennial health and appearance when pest populations or damage exceed established thresholds.
  2. Contractor shall employ integrated pest management procedures (see also Section 3.6, *Integrated Pest Management*).

3.14 IRRIGATION SYSTEM WATERING SCHEDULE

- A. The irrigation system shall be inspected for damage or malfunction biweekly. Report any evidence of damage or malfunction to the Agency.
- B. Adjust watering times monthly. Do not overwater plantings. Use multiple-start times and short run times to prevent run-off. Do not allow run-off from any irrigation.
- C. Contractor shall determine infiltration rate and drainage characteristics within the Project. This information shall be considered when scheduling irrigation.
- D. Irrigation intervals and frequency shall be suitable for weather conditions, soil infiltration rates, and plant species' rooting depth and water requirements within each hydrozone. Calculation methods are described in *A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California*, available from the Dept. of Water Resources, Sacramento, CA., [www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf](http://www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf)

- E. Irrigation frequency shall be based on ET (evapotranspiration) data (available through CIMIS). Irrigation shall be applied at approximately 60% allowable depletion (AD) for turf and annuals, 70% for non-drought tolerant and 90% for drought tolerant plantings.
- F. Irrigation duration within each hydrozone shall be based on the soil infiltration rate, species water requirement and rooting depth within the hydrozone, and the application rate and distribution uniformity of the irrigation system within that zone. Enough water shall be applied at each irrigation cycle to wet through the depth of root zone. Where runoff occurs, the application time shall be divided into shorter time intervals and repeated as needed.
- G. Irrigation frequency for each hydrozone shall be adjusted a minimum of every four weeks to reflect ET expected in the next month.
- H. For sites with controllers that monitor ET and adjust schedules automatically, the Contractor shall program the controller according to manufacturer specifications, and monitor to ensure that frequency is appropriate.
- I. Landscape irrigation shall be scheduled between 2:00 a.m. and 6:00 a.m. to avoid irrigating during times of high wind or high temperature.

### 3.15 IRRIGATION SYSTEM SCHEDULED MAINTENANCE

- A. Each valve zone shall be observed for signs of damage on a biweekly basis during the irrigation season.
- B. The landscape maintenance contractor shall maintain the irrigation system, including cleaning of filter screens yearly or more often as needed, and flushing pipes, as part of his contract.
- C. Run-off of water from irrigation systems into or onto streets, sidewalks, stairs, or gutters is not permitted. The landscape maintenance contractor shall immediately shut down the irrigation system and make adjustments, repairs, or replacements as soon as possible to correct the source of the run-off.
- D. Test soil sensors annually per manufacturer's testing instructions
- E. Replace batteries to the automatic controller and soil sensor module annually

### 3.16 IRRIGATION SYSTEM REPAIR

- A. The landscape maintenance contractor shall replace or repair, at the landscape maintenance contractor's expense, any irrigation components damaged, unless due to excluded damage. Repair shall be made within two weeks of the day the damage occurred. If the damage was due to excluded damage, the irrigation repairs will be paid for as additional work. The contractor shall make notification of needed repairs within two weeks of the day the damage occurred as noted in the General Requirements section of these specifications. Regardless of the cause of damage, the contractor shall take immediate action to prevent further damage by shutting off the damaged part of the irrigation system and commencing with hand watering as needed. As soon as possible after receiving written authorization to proceed, the contractor shall make repairs. The following items are considered to be minor repairs: damaged or clogged sprinkler nozzles, adjustment of sprinkler patterns or arcs, adjustment of sprinkler position (ie; raise, lower, or straighten sprinkler head). These minor repair items shall be corrected by landscape maintenance contractor at contractor's expense.

- B. Any replacement of irrigation system components shall be made with materials of the same manufacturer and model as the original equipment. Substitutions of materials other than original equipment will be approved only when the original equipment has been discontinued and is no longer available for purchase at any location. The substituted equipment must be completely compatible with the original and must be approved in advance by the Agency's authorized representative. All repairs to the system shall be identical to the original installation, unless approved otherwise in advance by the Agency's authorized representative. If a change to the installation will result in lower future maintenance costs, less frequent breakage, or an increase in public safety, request authorization to make the change from the Agency's authorized representative.
- C. The landscape maintenance contractor shall check the entire irrigation system biweekly for items such as dry spots and missing or malfunctioning irrigation components. Check for leaking valves, water running across sidewalks, water standing in puddles, or any other condition which hampers the correct operation of the system or the public safety. The contractor shall carefully observe plant materials for signs of wilting, indicating a lack of water. Plants which die due to irrigation failure will be considered to have died due to the contractor's negligence and shall be replaced at the contractor's expense.
- D. Contractor shall maintain the irrigation system for optimum performance, as per manufacturer's specifications, by inspecting the entire system on an ongoing basis. This includes cleaning and adjusting all sprinkler and bubbler heads, drip emitters and valves for proper coverage.
- E. Contractor shall inspect the irrigation system in operation to ensure proper function according to the following schedule:
  - 1. April - October; per site visit
  - 2. November - March, Monthly (when system operating)
- F. All malfunctioning equipment shall be repaired prior to the next scheduled irrigation.
- G. All irrigation replacement parts shall be of the same manufacturer, type, and application rates as existing, or approved equals or upgrades.
- H. Irrigation system pressure shall be checked and adjusted at least monthly during season of operation.
- I. Twice a year, at a minimum, the Contractor shall:
  - 1. Ensure all flush valve/cap locations are visible.
  - 2. Ensure valve boxes are visible and can be opened.
  - 3. Inspect valves, filters, and pressure regulators for damage or leaks. Check wire splices.
  - 4. Clean valve boxes of dirt and debris.
  - 5. Flush filters. A hose can be attached to the flush cap to keep water out of the valve box.
  - 6. Inspect and clean filters. Replace damaged or torn filters.
  - 7. Flush laterals.

8. Make sure plants have adequate numbers of drip emitters for their size.
9. Contractor shall maintain and submit monthly documentation of irrigation checks and as built plans of any changes or adjustments to the system. See Section 2.2 F. *Reporting and Inspecting*.

#### PART 4 - SPECIFIC MAINTENANCE GUIDELINES

##### 4.1 STORMWATER PLANTERS

- A. Stormwater planters are defined as those planting areas that remove pollutants from the stormwater by filtering runoff slowly through an active layer of soil. They shall be maintained to ensure that flow is not obstructed, erosion is prevented and they continue to be effective without causing flooding or harboring vectors. Stormwater planters depend on soils that are biologically active and held together by plant roots. They shall be maintained using materials and methods that support this biological activity, protect environmental quality and human health, conserve water and energy, minimize waste, and reuse and recycle materials to the extent possible. Stormwater planters include the following features:
  1. Plant material
  2. Overflow Drain
  3. Sub Drain
  4. Curb inlet
  5. Cobble dissipaters
  6. Roof leader tie-ins
- B. Monitoring and inspection
  1. Inspect inlets for channels and exposure of soils and report to the Agency if evidence of erosion is found. Examine rock or other material and report to the Agency if it requires replacement.
  2. Inspect inlets and stormwater planters for instability, erosion or obstructions. Report indications of problems to Agency.
  3. Observe soil at the bottom of the stormwater planter for uniform infiltration. Confirm that irrigation is adequate but not excessive. Report water that does not drain within 48 hours of a storm.
  4. Confirm that check dams and flow spreaders are in place and level, if applicable. Report problems to Agency.
  5. Inspect overflow drain grates for debris and blockages. Remove trash, debris and leaf litter from grates as necessary to maintain conveyance capacity.

6. Inspect sub-drains and drain structures for signs of sedimentation or blockages. Clear sub drains and drain structures as necessary to maintain conveyance capacity.
7. Inspect cobble dissipaters for missing or displaced cobble. Add or relocate cobble as necessary to maintain original dissipater area.

C. Sediment Control

1. Clear minor obstructions and inspect for accumulation of sediment and plant debris. Contractor shall remove accumulated sediment by hand in stormwater planters and around catch basins and inlets as necessary to maintain adequate flow.

D. Vegetation Management

1. Examine vegetation to ensure that it is healthy, adequately but not overwatered, and dense enough to provide filtering. Remove trash and debris. Maintain plant material per Part 3 of these guidelines.

#### 4.2 GREEN GUTTERS

- A. Green Gutters are defined as below grade planting areas within the street and covered by metal grating that convey stormwater and remove pollutants by filtering runoff slowly through an active layer of soil. They shall be maintained to ensure that flow is not obstructed, erosion is prevented and they continue to be effective without causing flooding or harboring vectors. Green gutters depend on soils that are biologically active and held together by plant roots. They shall be maintained using materials and methods that support this biological activity, protect environmental quality and human health, conserve water and energy, minimize waste, and reuse and recycle materials to the extent possible. Green gutters including the following features:

1. Plant material
2. Grates

B. Monitoring and inspection

1. Inspect inlets for channels and exposure of soils and report to the Agency if evidence of erosion is found. Examine rock or other material and report to the Agency if it requires replacement.
2. Inspect green gutter inlets for instability, erosion or obstructions. Report indications of problems to Agency.
3. Observe soil at the bottom of the green gutter for uniform infiltration. Report water that does not drain within 48 hours of a storm.
4. Inspect grates to ensure they are properly secured and show no signs of malfunction or damage. Report any evidence of damage or malfunction to the Agency.
5. Inspect grates for debris and blockages. Remove trash, debris and leaf litter from grates as necessary.

C. Sediment Control

1. Clear minor obstructions and inspect for accumulation of sediment and plant debris. Contractor shall remove accumulated sediment by hand in green gutters and around catch basins and culverts as necessary to maintain adequate flow.

D. Vegetation Management

1. Examine vegetation to ensure that it is healthy, adequately but not overwatered, and dense enough to provide filtering. Remove trash and debris. Maintain plant material per Part 3 of these guidelines.

4.3 BOARDWALK DECKING

- A. Contractor shall keep all decking areas free from trash and debris.
- B. Contractor will surface clean decking surfaces as needed to remove accumulation of sediment, dirt, or other material that distracts from the visual impact of the area or creates a safety hazard. Decking may be cleaned with water and brushes, followed by high-pressure hosing of the surface. Do not use soaps or detergents. Cleaning methods must be consistent with the Bay Area Stormwater Management Agencies Association.
- C. Visual Inspection- Check for loose/missing screws, loose/missing bolts, damaged decking boards, and damaged structural members. Report any evidence of damage or malfunction to the Agency.

4.4 PERMEABLE CONCRETE PAVERS

- A. Contractor shall keep all permeable paving areas free from trash and debris.
- B. Contractor shall clean the surface of permeable pavers and aggregate filled joints to remove fine debris, organic material and dirt as needed to maintain permeability (approximately four times per year). Pavement may be cleaned with water and brushes, followed by low-pressure hosing of surface, taking care not to dislodge aggregate filled joints. If necessary, replace displaced aggregate filled joints with clean gravel. Do not compact aggregate filled joints and do not use soaps or detergents. Cleaning methods must be consistent with the Bay Area Stormwater Management Agencies Association. (BASMAA) criteria (listed below in section 4.9.E., *BASMAA Certification*).

PART 5 - MONTHLY GUIDELINES

In addition to those described in the "Plant Species List & Special Instructions".

JANUARY

1. Prune any tree branches that interfere with public safety. Prune all stormwater planter trees and street trees yearly to encourage strong upward growth. Remove dead or diseased branches/parts from trees and shrubs.
2. Adjust the irrigation controllers for current water needs of plants.
3. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

## SAN PABLO AVENUE GREEN STORMWATER SPINE

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Package B - Oakland • Berkeley • Albany • El Cerrito • Richmond • San Pablo

### FEBRUARY

1. Apply granular fertilizer to planting areas in late February (early spring) per Agronomy Report to trees, shrubs, perennials and grasses. Be sure to make application prior to a moderate rainfall so the rain will wash the fertilizer in.
2. Adjust the irrigation controllers for current water needs of plants.
3. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

### MARCH

1. Adjust the irrigation controllers for current water needs of plants.
2. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

### APRIL

1. Flush out irrigation systems as needed and check for proper operation of each valve zone.
2. Conduct semiannual Irrigation system test. Make repairs as necessary.
3. Adjust the irrigation controllers for current water needs of plants.
4. Replace irrigation controller batteries.
5. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

### MAY

1. Adjust the irrigation controllers for current water needs of plants.
2. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

### JUNE

1. Prune spring & winter-flowering shrubs as needed to maintain proper shape. Refer to the "Plant Species List & Special Instructions" for specific maintenance guidelines for each species.
2. Adjust the irrigation controllers for current water needs of plants.
3. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

### JULY

1. Adjust the irrigation controllers for current water needs of plants.
2. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

### AUGUST

## SAN PABLO AVENUE GREEN STORMWATER SPINE

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Package B - Oakland • Berkeley • Albany • El Cerrito • Richmond • San Pablo

1. Adjust the irrigation controllers for current water needs of plants.
2. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

### SEPTEMBER

1. Adjust the irrigation controllers for current water needs of plants.
2. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.
3. Clear sub drains and drain structures of sediment and debris blockages to maintain conveyance capacity.

### OCTOBER

1. Conduct semiannual Irrigation system test. Make repairs as necessary.
2. Adjust the irrigation controllers for current water needs of plants.
3. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

### NOVEMBER

1. Adjust the irrigation controllers for current water needs of plants.
2. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

### DECEMBER

1. Prune any tree branches that interfere with public safety. Remove dead or diseased branches/parts from trees and shrubs.
2. Prune summer and fall-blooming shrubs as needed to maintain proper shape. Refer to the "Plant Species List & Special Instructions" for specific maintenance guidelines for each species.
3. Adjust the irrigation controllers for current water needs of plants.
4. Add bark mulch to planting areas where the mulch has been reduced to less than 3" deep.

## PART 6 – SITE VISIT CHECKLIST

In addition to those described in the "Plant Species List & Special Instructions".

### ITEMS TO BE MONITORED AT EACH SITE VISIT

1. Prune back any shrubs or groundcovers overhanging curbs or sidewalks.

2. Remove trash, leaf and fruit tree litter from lawns, planting areas and hardscape.
3. Remove any broken or fallen branches from trees. Remove sucker growth from tree trunks.
4. Remove visible weeds from stormwater planters.
5. Replace bark mulch which has been knocked or washed out of planters. Smooth mulch layer if it has been disturbed.
6. Check plants for signs of stress, disease or pest infestation.
7. Replace any dead or missing plants with same species and container size.
8. Sweep or blow clean all hardscape, curbs, and gutters.
9. Visually inspect stormwater planters and green gutters.
10. Remove sediment or obstructions from stormwater planters, green gutters, and all inlets
11. Visually inspect decking and permeable pavers.
12. Inspect grates, drain structures and inlets for debris and blockages. Remove trash, debris and leaf litter from as necessary.
13. Check the irrigation system for function and leaks. Make repairs as needed.
14. Inspect cobble dissipaters for missing or displaced cobble.
15. Complete any items required on Monthly Guidelines, Part 4 Monitoring and Inspections and "Plant Species List & Special Instructions".

PLANT SPECIES LIST & SPECIAL INSTRUCTIONS

TREES

*Cercis canadensis* (Eastern Redbud, standard form)

- Prune in late winter for size control and pedestrian safety, to remove dead or diseased plant parts, and to maintain standard form. Do Not Top Trees. Lightly fertilize in early spring per soils report.

*Ginkgo biloba* 'Autumn Gold' (Ginkgo)

- Prune in late winter for size control and pedestrian safety, to remove dead or diseased plant parts, and to maintain existing shape. Do Not Top Trees. Lightly fertilize in early spring per soils report.

*Nyssa Sylvatica* (Tupelo)

- Prune in late winter for size control and pedestrian safety, to remove dead or diseased plant parts, and to maintain existing shape. Do Not Top Trees. Lightly fertilize in early spring per soils report.

*Quercus nuttallii* (Nuttall Oak)

- Prune in late winter for size control and pedestrian safety, to remove dead or diseased plant parts, and to maintain existing shape. Do Not Top Trees. Lightly fertilize in early spring per soils report.

*Quercus coccinea* (Scarlet Oak)

- Prune in late winter for size control and pedestrian safety, to remove dead or diseased plant parts, and to maintain existing shape. Do Not Top Trees. Lightly fertilize in early spring per soils report.

*Quercus rubra* (Red Oak)

- Lightly prune in late winter, if required, to maintain columnar shape. Prune new growth only, as required. Do Not Top Trees or Prune Hard. Lightly fertilize in early spring per soils report.

SHRUBS

## SAN PABLO AVENUE GREEN STORMWATER SPINE

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*Callistemon viminalis* 'Little John' (Dwarf Bottlebrush)

- Lightly prune in late spring after bloom for size control, to remove dead or diseased plant parts, and to maintain existing shape. Do Not Hedge or Box Shrubs. Lightly fertilize in early spring per soils report.

*Cornus sericea* 'Kelseyi' (Dwarf Red Twig Dogwood)

- Lightly prune in late dormant season to remove dead or diseased plant parts and to maintain existing shape. Do Not Hedge or Box Shrubs. Lightly fertilize in early spring per soils report.

*Mahonia aquifolium* 'Orange Flame' (Oregon Grape)

- Lightly prune in early summer after bloom for size control, to remove dead or diseased plant parts, and to maintain existing shape. Do Not Hedge or Box Shrubs. Lightly fertilize in early spring per soils report.

*Nandina domestica* 'Gulf Stream' (Heavenly Bamboo)

- Lightly prune in fall after bloom for size control, to remove dead or diseased plant parts, and to maintain existing shape. Do Not Hedge or Box Shrubs. Lightly fertilize in early spring per soils report.

*Westringia fruticosa* 'Morning Light'

- Lightly prune in early summer after bloom for size control, to remove dead or diseased plant parts, and to maintain existing shape. Do Not Hedge or Box Shrubs. Lightly fertilize in early spring per soils report.

## PERIENNIALS & GRASSES

*Calamagrostis* 'Karl Foerster' (Reed Grass)

- Maintain foliage and seed head plumes into winter. Remove seed stalks that have toppled over. Cut back foliage to a height of 6 inches at the end of February.

*Carex divulsa* (Berkeley Sedge)

- Shear flowers when they begin to brown with age to keep plants tidy and prevent reseeding.
- Rake or comb through foliage with a rubber coated glove to remove spent foliage.

## SAN PABLO AVENUE GREEN STORMWATER SPINE

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Package B - Oakland • Berkeley • Albany • El Cerrito • Richmond • San Pablo

### Carex Pansa (Dune Sedge)

- Rake or comb through foliage with a rubber coated glove to remove spent foliage.

### Chandropetalum tectorum (Cape Rush)

- Do not cut back foliage as with other grasses.
- Rake or comb through foliage with a rubber coated glove to remove spent foliage.

### Deschampsia cespitosa (Tufted Hairgrass)

- Maintain foliage and seed head plumes into winter. Cut back foliage to a height of 4 inches at the end of February.

### Dianella revoluta 'Little Rev' (Flax Lily)

- Do not shear foliage.
- Remove spent flower stalks at the base of the plant

### Dietes bicolor (Fortnight Lily)

- Do not shear foliage.
- Remove spent flower stalks at the base of the plant
- Rake out spent foliage or prune out at the base of the plant

### Dietes iridioides (Fortnight Lily)

- Do not shear foliage.
- Remove spent flower stalks at the base of the plant
- Rake out spent foliage or prune out at the base of the plant

### Festuca californica (California Fescue)

- Maintain foliage into winter. Cut back foliage to a height of 6 inches at the end of February.

## SAN PABLO AVENUE GREEN STORMWATER SPINE

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Package B - Oakland • Berkeley • Albany • El Cerrito • Richmond • San Pablo

*Iris douglasiana* (Pacific Coast Iris)

- Remove spent flower stalks at the base of the plant
- Rake out spent foliage or prune out at the base of the plant

*Juncus patens* 'Elk Blue' (California Gray Rush)

- Do not cut back foliage as with other grasses.
- Rake or comb through foliage with a rubber coated glove to remove spent foliage.

*Lomandra longifolia* 'Breeze' (Dwarf Mat Rush)

- Rake or comb through foliage with a rubber coated glove to remove spent foliage.

*Muhlenbergia capilaris* (Muhly Grass)

- Maintain foliage into winter. Cut back foliage to a height of 6 inches at the end of February.

*Muhlenbergia rigens* (Deer Grass)

- Maintain foliage into winter. Cut back foliage to a height of 6 inches at the end of February.

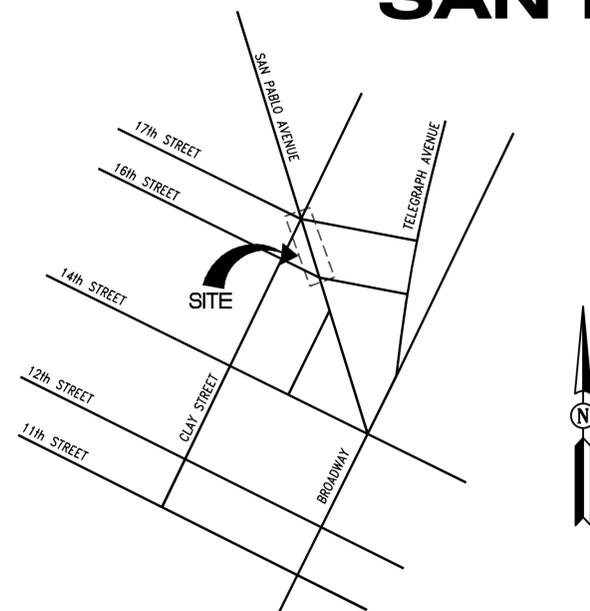
*Penstemon* 'Margarita BOP' (Penstemon)

- Trim back in late winter to keep plants compact.

# CITY OF OAKLAND

## SAN PABLO AVENUE GREEN STORMWATER SPINE

APRIL 2016



**VICINITY MAP**  
NOT TO SCALE

**BENCHMARK/DATUM**

FOUND CUT CROSS @ SOUTH WESTERLY RETURN OF 16TH STREET AND SAN PABLO AVENUE  
ELEVATION 34.14 NAVD88  
CITY DATUM = NAVD 88+5.7'

**RECORD DRAWINGS**

CONTRACTOR SHALL KEEP ACCURATE RECORD DRAWINGS WHICH SHOW THE FINAL LOCATION, ELEVATION, AND DESCRIPTION OF ALL WORK. CONTRACTOR SHALL ALSO NOTE THE LOCATION AND ELEVATION OF ANY EXISTING IMPROVEMENTS ENCOUNTERED. RECORDS SHALL BE "REDLINED" ON A SET OF CONSTRUCTION PLAN DRAWINGS AND GIVEN TO THE OWNER UPON COMPLETION OF WORK.

**UNAUTHORIZED CHANGES**

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY WILSEY HAM.

**REVISIONS**

ALL REVISIONS TO THESE PLANS MUST BE REVIEWED AND APPROVED IN WRITING BY WILSEY HAM AND THE CITY ENGINEER PRIOR TO CONSTRUCTION OF AFFECTED ITEMS.

**ACCURACY**

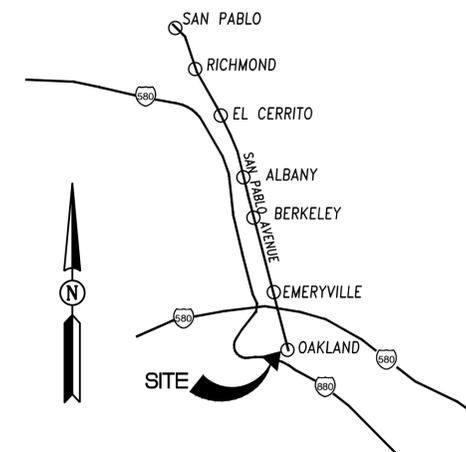
AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD, ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF WILSEY HAM PRIOR TO START OF CONSTRUCTION OF THE PARTICULAR ITEM OF WORK.

**ACCURACY OF UTILITIES**

EXISTING UTILITY INFORMATION WAS PROVIDED TO WILSEY HAM AND MAY NOT HAVE BEEN VERIFIED IN THE FIELD. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS AND REPORT ANY CONFLICTS TO WILSEY HAM BEFORE CONSTRUCTION BEGINS.

**CONSTRUCTION STAKING**

CONSTRUCTION LAYOUT MUST BE PROVIDED BY CONTRACTOR. WILSEY HAM CAN PROVIDE CONSTRUCTION STAKING SERVICES FOR THIS PROJECT. CONTACT KEN MOORE AT 650-349-2151 FOR MORE INFORMATION ON THESE SERVICES AND A FEE PROPOSAL.



**LOCATION MAP**  
NOT TO SCALE

**SHEET DESCRIPTION**

- 1 TITLE SHEET
- 2 NOTES
- 3 DEMOLITION PLAN
- 4 STREET IMPROVEMENT PLAN
- 5 GRADING & DRAINAGE PLAN
- 6 CIVIL DETAILS
- 7 CIVIL DETAILS
- 8 LANDSCAPE PLANTING PLAN
- 9 LANDSCAPE PLANTING LEGEND & DETAILS
- 10 LANDSCAPE PLANTING DETAILS
- 11 LANDSCAPE PLANTING INSTRUCTIONS
- 12 LANDSCAPE IRRIGATION PLAN
- 13 LANDSCAPE IRRIGATION LEGEND
- 14 LANDSCAPE IRRIGATION DETAILS
- 15 LANDSCAPE IRRIGATION DETAILS
- 16 LANDSCAPE IRRIGATION INSTRUCTIONS
- 17 ALAMEDA COUNTY POLLUTION PREVENTION

TO BE SUPPLEMENTED BY CALTRANS STANDARD PLANS DATED 2010

**LEGEND**

PROPOSED	EXISTING	APPROXIMATE R/W
		CURB
		PARKING STRIPE
		BUILDING LINE
		SUBDRAIN LINE
		SAWCUT LINE
		ASPHALT PATCH
		BIO-RETENTION AREA
		CONCRETE SIDEWALK
		COMMUNICATIONS LINE
		ELECTRIC LINE
		GAS LINE
		STORM DRAIN LINE
		SANITARY SEWER LINE
		WATER LINE
		SIGN
		BIKE RACK

**LEGEND**

PROPOSED	EXISTING	STORM DRAIN INLET
		STORM DRAIN AREA DRAIN
		STORM DRAIN CATCH BASIN
		STORM DRAIN MANHOLE
		SANITARY SEWER MANHOLE
		ELECTRIC MANHOLE
		COMMUNICATION BOX
		TRAFFIC SIGNAL BOX
		ELECTRIC BOX
		LIGHT POLE
		WATER VALVE
		WATER METER
		BENCHMARK
		INLET PROTECTION
		DRAINAGE DIRECTION
		PARKING METER
		PARKING KIOSK

**ABBREVIATIONS**

AC	ASPHALT CONCRETE
APPROX	APPROXIMATE
BM	MENCHMARK
BW	BACK OF WALK
CT	CALTRANS
EX, (E)	EXISTING
FD	FOUND
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FS	FINISHED SURFACE
GB	GRADE BREAK
LIP	LIP OF GUTTER
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MNW	MAGNAIL & WASHER
(N)	NEW
R/W	RIGHT-OF-WAY
SDAD	STORM DRAIN AREA DRAIN
SDCB	STORM DRAIN CATCH BASIN
SL	STREET LIGHT
SLD	SEE LANDSCAPE DRAWINGS
STD	STANDARD
TC	TOP OF CURB
TYP	TYPICAL
WM	WATER METER

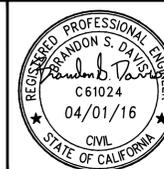
H:\936-SF Estuary Partnership\936-001 San Pablo Ave GSS\Engineering\Construction Drawings\TITLE SHEET OAKLAND.dwg@ 11:38:46 AM

SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
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**WILSEY HAM**  
Engineering, Surveying & Planning  
3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/01/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
TITLE SHEET

ALAMEDA COUNTY

CALIFORNIA

SHEET	1	OF	17
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	APRIL 01, 2016		

## GENERAL NOTES

- CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD THE OWNER AND DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONJUNCTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF OWNER OR DESIGN PROFESSIONAL.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED TO PERFORM THE WORK.
- THE ENGINEER ASSUMES NO RESPONSIBILITY BEYOND THE ADEQUACY OF THE DESIGN CONTAINED HEREIN.
- SHOULD IT APPEAR THAT THE WORK TO BE DONE, OR ANY MATTER RELATIVE THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT WILSEY HAM FOR FURTHER EXPLANATIONS AS MAY BE NECESSARY.
- ANY DISCREPANCY IN THESE PLANS OR IN ANY FIELD CONDITIONS DISCOVERED BY THE CONTRACTOR THAT MAY DELAY OR OBSTRUCT THE PROPER COMPLETION OF THE WORK PER THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. SAID NOTIFICATION SHALL BE IN WRITING.
- CONTRACTOR SHALL VERIFY ALL MEASUREMENTS PRIOR TO PROCEEDING WITH THE WORK.
- RECORD IMPROVEMENTS AND UTILITIES SHOWN ON PLANS HAVE BEEN SUPPLEMENTED BY FIELD SURVEYS PERFORMED BY WILSEY HAM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MATCHING STREETS, SURROUNDING LANDSCAPE AND OTHER IMPROVEMENTS WITH A SMOOTH TRANSITION IN PAVING, CURBS, GUTTERS, SIDEWALKS AND GRADING, TO AVOID ANY ABRUPT OR APPARENT CHANGES IN GRADES OR CROSS SLOPE, LOW SPOTS OR HAZARDOUS CONDITIONS. PAVING CONFORMS SHALL MADE AT A SMOOTHLY TRIMMED BUTT JOINT. DO NOT OVERLAP EXISTING PAVEMENT.
- REFERENCES TO CALTRANS SPECIFICATIONS STATED HEREIN REFER TO THE MOST CURRENT VERSION OF THE CALIFORNIA STATE STANDARD SPECIFICATIONS OF THE DEPARTMENT OF TRANSPORTATION (SSDOT). ALL FLAGGING, TEMPORARY SOIL STABILIZATION, TEMPORARY SEDIMENT CONTROL, AND TEMPORARY TRACKING CONTROL COSTS ARE BORNE BY THE CONTRACTOR. COST SHARING AS DESCRIBED IN SECTIONS 12-1.03, 13-5.04, 13-6.04, AND 13-7.04 OF THE SSDOT DOES NOT APPLY
- RIGHT-OF-WAY AND PROPERTY DEFINITIONS ARE APPROXIMATE AND SHOWN FROM RECORD INFORMATION SUPPLIED BY THE PROJECT SPONSOR AND IS NOT INTENDED TO REPRESENT ACTUAL BOUNDARY DEFINITIONS. NO BOUNDARY OR RIGHT-OF-WAY SURVEYS HAVE BEEN PERFORMED.
- ALL CITY OF OAKLAND MONUMENTS LOCATED WITHIN THE PROJECT AREA MUST BE REFERENCED, PRIOR TO WORK COMMENCING, BY A LICENSED LAND SURVEYOR AS REQUIRED BY SECTION 8771 OF THE BUSINESS AND PROFESSIONS CODE. CORNER RECORDS OF THIS WORK MUST BE SUBMITTED FOR FILING TO BOTH THE COUNTY SURVEYOR OF ALAMEDA COUNTY, AND THE CITY SURVEYOR.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF EXISTING SURVEY MONUMENTS, BENCHMARKS, REFERENCE POINTS AND STAKES. SHOULD ANY SURVEY MONUMENTS, BENCHMARKS, REFERENCE POINTS, OR STAKES BE DAMAGED OR DESTROYED DURING PERFORMANCE OF THIS WORK, THE CONTRACTOR SHALL REPLACE SAID ITEMS PER CITY STANDARDS IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
  - NO MONUMENTS MAY BE DISTURBED OR REMOVED WITHOUT WRITTEN PERMISSION OF THE CITY SURVEYOR.
  - THE CITY CHARGES A FLAT RATE PER CURRENT CITY MASTER BASE SCHEDULE CURRENTLY \$5800 PER MONUMENT FOR MONUMENTS DISTURBED WITHOUT WRITTEN PERMISSION. SAID MONEY TO BE DEDUCTED FROM NEXT DUE PROGRESS PAYMENT.
  - NO BENCHMARKS SHALL BE REMOVED DURING THIS WORK WITHOUT WRITTEN PERMISSION FROM THE CITY SURVEYOR.
- THE CONTRACTOR MUST OBTAIN AN ENCROACHMENT PERMIT FROM THE CITY OF OAKLAND PRIOR TO THE COMMENCEMENT OF ANY WORK.

## ORDER OF WORK

- MEDIAN WORK SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF ANY WORK ON THE SHOULDER.

## CONSTRUCTION NOTES

THE FOLLOWING CONTROL MEASURES FOR CONSTRUCTION ACTIVITIES SHALL BE ADHERED TO, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

- CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF ANY EXCESS MATERIALS FROM THE WORK SITE.
- THE CONTRACTOR SHALL ACQUIRE ANY NECESSARY PERMITS REQUIRED TO DISCHARGE WATER FROM THE TRENCH DEWATERING SYSTEM INTO THE STORM DRAIN SYSTEM. ALL DEWATERING DISCHARGE SHALL BE TREATED BY FILTRATION, SEDIMENT TANK, AND/OR OTHER MEANS TO REMOVE SUSPENDED SOLIDS, SILT, AND WASTE MATERIAL.
- EROSION CONTROL MEASURES SHALL BE INSTALLED AS NECESSARY TO PREVENT SEDIMENT RUNOFF TO DRAINAGE FACILITIES, ADJACENT PROPERTIES AND THE SAN FRANCISCO BAY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES ON OR OFF THE PROJECT SITE AS A RESULT OF LACK OF DUST CONTROL.
- THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY AND TO MAINTAIN SMOOTH FLOW OF TRAFFIC AT ALL TIMES.
- DURING THE PROGRESS OF THE CONSTRUCTION WORK THE CONTRACTOR SHALL MAINTAIN THE PREMISES IN A NEAT AND CLEAN CONDITION, DISPOSING OF REFUSE IN A SATISFACTORY MANNER AS OFTEN AS DIRECTED OR AS MAY BE NECESSARY SO THAT THERE SHALL BE AT NO TIME ANY UNSIGHTLY ACCUMULATION OF RUBBISH AT THE JOB SITE.
- CONTRACTOR TO ADHERE TO ALL REQUIREMENTS OF THE ALAMEDA COUNTY HEALTH SERVICES AGENCY.
- CONTRACTOR SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE STATE CONSTRUCTION SAFETY ORDERS.
- THE CONTRACTOR SHALL IMMEDIATELY REPORT ANY SOIL OR WATER CONTAMINATION NOTICED DURING CONSTRUCTION TO THE CITY OF OAKLAND, THE ALAMEDA COUNTY DEPARTMENT OF HEALTH, AND THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE SITE OR SURROUNDING AREA DUE TO DUST OR EROSION, RESULTING FROM WORK DONE BY THE CONTRACTOR. CONTRACTOR SHALL PROVIDE A SEVEN (7) DAY, 24-HOUR, PHONE NUMBER TO RECEIVE AND RESPOND TO DUST COMPLAINTS RESULTING FROM ALL CONSTRUCTION OPERATIONS AND SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETE.
- CONTRACTOR SHALL REPLACE OR REPAIR, AT CONTRACTOR'S EXPENSE, ALL DAMAGED, REMOVED OR OTHERWISE DISTURBED WALLS, FENCES, SERVICES, UTILITIES, IMPROVEMENTS OR FEATURES OF WHATEVER NATURE, TO THEIR ORIGINAL CONDITION, WHETHER SHOWN ON THE PLANS OR NOT; PROVIDED SUCH REPAIR OR REPLACEMENT IS CAUSED BY CONTRACT WORK OPERATIONS.
- CONTRACTOR TO DETERMINE ACTUAL BASEMENT LIMITS AND PROTECT "COKE BOTTLE" CEILING IN PLACE. NO HEAVY EQUIPMENT OR MATERIALS SHALL BE PLACED ON BASEMENT.

## UNDERGROUND NOTES

- LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES SHOWN ARE BASED ON AVAILABLE UTILITY COMPANY INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE ACTUAL LOCATION AND DEPTH OF UTILITIES PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (U.S.A.) AT (800)227-2600 AT LEAST 48 HOURS IN ADVANCE OF ANY EXCAVATING. PHYSICAL VERIFICATION OF UTILITY LOCATION SHALL BE PERFORMED BY POT HOLING OR HAND DIGGING AND CAREFUL SUBSURFACE PROBING IN CONFORMANCE WITH ARTICLE 6 OF THE CAL/OSHA CONSTRUCTION SAFETY ORDERS. ANY DEVIATIONS FROM LOCATIONS SHOWN ON PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION BEFORE STARTING CONSTRUCTION. NEITHER THE OWNER NOR THE ENGINEER ASSUMES RESPONSIBILITY THAT THE OBSTRUCTIONS INDICATED ON THE PLANS WILL BE THE OBSTRUCTIONS ENCOUNTERED.
- EXISTING UTILITIES ARE SHOWN PER AVAILABLE INFORMATION. THERE MAY BE ADDITIONAL EXISTING LINES NOT SHOWN ON THE PLANS. CONTRACTOR SHALL BE CAREFUL TO AVOID ANY DAMAGE TO ANY UTILITY INTENDED TO REMAIN.
- ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE CITY ENGINEER AND THE UTILITY OWNER AT THE CONTRACTOR'S SOLE EXPENSE.
- CONTRACTOR SHALL PROTECT THE EXISTING STREETLIGHT ELECTRICAL CONDUIT FROM DAMAGE. PRIOR TO ANY CONSTRUCTION THE CONTRACTOR SHALL PERFORM A FUNCTIONAL TEST AND NOTE ANY NEED REPAIRS. CONTRACTOR WILL BE REQUIRED TO REPLACE AT CONTRACTOR'S EXPENSE ALL CONDUIT AND WIRING IN ENTIRETY IF IT IS DAMAGED DURING CONSTRUCTION.
- COVER STREET LIGHTING CONDUIT TRENCH WITH MIN 10 MIL THICK PLASTIC SHEETING PRIOR TO PLACEMENT OF BIO-FILTRATION SOIL MIX. LAP SHEETING MIN 18" BEYOND TRENCH WALL.

## EROSION CONTROL NOTES

- TEMPORARY EROSION CONTROL DEVICES SHOWN HEREON, WHICH INTERFERE WITH THE WORK SHALL BE RELOCATED OR MODIFIED AS THE WORK PROGRESSES TO MAINTAIN PROTECTION.
- ALL LOOSE SOIL AND DEBRIS SHALL BE REMOVED FROM THE STREET AREAS UPON STARTING OPERATIONS AND NO LESS OFTEN THAN DAILY THEREAFTER. INSPECTOR MAY REQUIRE MORE FREQUENT CLEANING AS WEATHER CONDITIONS DICTATE.
- EARTH BERMS SHALL BE CONSTRUCTED AND MAINTAINED ALONG THE TOP OF THE SLOPES UPON WHICH GRADING IS NOT IN PROGRESS.
- AFTER UTILITY TRENCHES ARE BACKFILLED AND COMPACTED, THE SURFACES OVER SUCH TRENCHES SHALL BE MOUNDING SLIGHTLY TO PREVENT CHANNELING OF WATER IN THE TRENCH AREA.
- EXCEPT AS OTHERWISE DIRECTED BY THE INSPECTOR, ALL DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE FORECAST OF RAIN PROBABILITY EXCEEDS 40%.
- THE SWPPP AND ALL BMP'S ARE CONDITIONAL, AND SUBJECT TO CHANGE DUE TO LOCAL CONDITIONS. THE ONSITE SUPERINTENDENT SHALL AMEND THE SWPPP TO MEET THESE CONDITIONS TO PREVENT EROSION, TO CONTROL SEDIMENT, AND TO PREVENT DISCHARGE OF POLLUTANTS TO THE STORM DRAINAGE SYSTEM. PLEASE SEND PROPERLY DOCUMENTED SWPPP AMENDMENTS TO THE CONSTRUCTION MANAGER WITHIN 5 WORKING DAYS.
- ALL PAVED AREAS WILL BE KEPT CLEAR OF EARTHEN MATERIAL AND DEBRIS. THE SITE WILL BE MAINTAINED SO THAT SEDIMENT-LADEN RUNOFF DOES NOT ENTER STORM DRAINS OR CREEKS.
- AS STORM DRAIN IMPROVEMENTS ARE CONSTRUCTED, ALL STRUCTURES AND INLET PIPES SHALL BE PROTECTED PER THE DETAILS SHOWN HEREON.
- CONTRACTOR SHALL HAVE TOOLS, EQUIPMENT, AND MATERIALS TO PROVIDE EROSION CONTROL MEASURES MADE NECESSARY BY A CONSTRUCTION OPERATION, ON THE JOB SITE BEFORE BEGINNING THAT OPERATION.
- ADJACENT PROPERTIES SHALL BE PROTECTED FROM STORM WATERS, MUD, SILT, ETC. AND INSPECTED ON A DAILY BASIS.
- DUST CONTROL SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND UNTIL FINAL COMPLETION, REFER TO THE SOIL MANAGEMENT PLAN FOR DUST CONTROL MEASURES.
- MAINTENANCE IS TO BE PERFORMED AS FOLLOWS:
  - ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED DAILY, PRIOR TO AND IMMEDIATELY AFTER EACH STORM EVENT, AND AT LEAST ONCE EVERY 24-HOURS DURING AN EXTENDED STORM EVENT. EACH INSPECTION SHALL BE DOCUMENTED, KEPT ON FILE AT THE ON-SITE CONSTRUCTION OFFICE, AND BE IMMEDIATELY AVAILABLE FOR REVIEW BY INSPECTORS.
  - TEMPORARY FIBER ROLLS, BERMS AND SWALES ARE TO BE INSPECTED AFTER EACH STORM AND REPAIRS MADE AS NEEDED. GRAVEL BAGS PLACED AROUND THE CURB INLETS SHALL BE INSPECTED AND REPLACED IF DAMAGED.
  - SEDIMENT SHALL BE REMOVED & SEDIMENT TRAPS RESTORED TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO WITHIN A FOOT OF OUTLET ELEVATION.
  - SEDIMENT REMOVED FROM TRAPS SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. SEEDED AREAS SHALL BE REPAIRED, RESEEDED, AND MULCHED WITHIN 48 HOURS AFTER DAMAGE.
- ALL DISTURBED AREAS NOT SCHEDULED FOR DISTURBANCE FOR AT LEAST 14 DAYS SHALL BE HYDROMULCHED WITH TACKIFIED STRAW (2 TONS/ACRE).
- CONCRETE WASH AREA SHALL BE CONSTRUCTED IN ACCORDANCE WITH CASQA CA STORMWATER BMP HANDBOOK, DETAIL WM-8.
- ANY EARTHEN MATERIAL STOCKPILED SHALL BE STABILIZED. FIBER ROLLS SHALL BE PLACED AT THE BASE FULLY ENCLOSED THE PERIMETER OF THE STOCKPILE.
- ALL COMPLETED GRADED AREAS SHALL BE STABILIZED UPON COMPLETION WITH TEMPORARY FIBER ROLLS, SILT FENCE OR PERMANENT LANDSCAPING, OR OTHERWISE AS SHOWN ON THE PLANS.
- THIS PLAN IS INTENDED TO BE USED FOR EROSION CONTROL ONLY. OTHER INFORMATION SHOWN HEREIN MAY NOT BE MOST CURRENT. SEE GRADING & IMPROVEMENT PLANS FOR OTHER INFORMATION.
- THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO CHANGING FIELD CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADD AND MODIFY BMPS TO PREVENT POLLUTION. VARIATIONS MAY BE MADE TO THE PLAN IN THE FIELD SUBJECT TO THE APPROVAL OF THE CONSTRUCTION MANAGER.

- CONTRACTOR TO EMPLOY BEST MANAGEMENT PRACTICES (BMP'S), IN ACCORDANCE WITH CASQA CA STORMWATER BMP HANDBOOK LATEST RECOMMENDATIONS.
- STORE, HANDLE AND DISPOSE OF CONSTRUCTION MATERIALS AND WASTES SO AS TO PREVENT THEIR ENTRY TO THE STORM DRAIN SYSTEM. CONTRACTOR MUST NOT ALLOW CONCRETE, WASH WATERS, SLURRIES, PAINT OR OTHER MATERIALS TO ENTER CATCH BASINS OR TO ENTER SITE RUNOFF.
- USE FILTRATION OR OTHER MEASURES TO REMOVE SEDIMENTS FROM DEWATERING EFFLUENT.
- CLEANING, OR MAINTAINING VEHICLES ON SITE SHALL NOT BE PERMITTED. CONTRACTOR SHALL NOT ALLOW DELETERIOUS MATERIALS TO ENTER CATCH BASINS OR TO ENTER SITE RUNOFF.
- USE OF PESTICIDES IS PROHIBITED. FERTILIZERS SHALL BE APPLIED AND CONTROLLED TO PREVENT POLLUTION RUNOFF.
- CONTRACTOR MAY RELOCATE STORAGE, DELIVERY, OR WASH OUT AREAS TO SUIT THEIR OPERATIONS UPON APPROVAL BY THE CONSTRUCTION MANAGER.
- THIS PLAN TO BE USED IN CONJUNCTION WITH THE WRITTEN REPORT OF STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED BY WILSEY HAM. THE CONTRACTOR IS REQUIRED TO PREPARE THE FINAL SWPPP BASED ON THE CONCEPTUAL SWPPP. ONCE PREPARED AND APPROVED THE FINAL SWPPP SUPERCEDES THE CONCEPTUAL SWPPP.

## WORKING HOURS AND TRAFFIC CONTROL

- WORKING HOURS ARE LIMITED TO BETWEEN 8AM AND 6PM.
- NO WORK IS PERMITTED ON WEEKENDS OR HOLIDAYS.
- LANE CLOSURES ARE LIMITED TO BETWEEN 9AM AND 3PM AND AS FURTHER RESTRICTED BY CALTRANS ENCROACHMENT PERMIT.
- ONE LANE OF TRAFFIC IN EACH DIRECTION MUST BE KEPT OPEN AT ALL TIMES.
- LANE CLOSURES SHALL CONFORM TO CALTRANS STANDARD DETAILS T11 AND T12 AS APPROPRIATE AND THE CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CAMUTCD).
- CONTRACTOR MUST SUBMIT A MUTCD COMPLIANT TRAFFIC CONTROL PLAN TO THE CITY.
- ADA COMPLIANT PEDESTRIAN ACCESS MUST BE MAINTAINED. CONTRACTOR MUST SUBMIT MUTCD COMPLIANT PLAN TO THE CITY FOR PEDESTRIAN ROUTING AND IF PROPOSED, ALTERNATE PEDESTRIAN ACCESS.
- ACCESS TO BUSINESSES MUST BE MAINTAINED. NO MORE THAN ONE DRIVEWAY SHALL BE CLOSED AT A TIME.

## MATERIALS NOTES:

- BOARDWALK DECK BOARDS & EDGE GUIDES SHALL BE: EVOLVE HIGH DENSITY PREMIUM PLASTIC LUMBER, "DARK REDWOOD" COLOR, "WOOD GRAIN" TEXTURE AS MANUFACTURED BY RENEW PLASTICS (800)666-5207 OR EQUAL.
- BOARDWALK FRAME (JOISTS, LEDGERS, ETC.) SHALL BE: FRAME AND STRUCTURAL MEMBERS SHALL BE TRIMAX STRUCTURAL LUMBER, "STEEL GREY" COLOR AS MANUFACTURED BY RENEW PLASTICS (800) 666-5207 OR EQUAL.
- SUBMIT BOARDWALK MATERIALS CUT SHEETS FOR APPROVAL PRIOR TO ORDERING BOARDWALK MATERIALS.
- SUBMIT TRENCH DRAIN GRATE SHOP DRAWINGS AND LOAD RATING AND ADA COMPLIANCE DATA FOR APPROVAL PRIOR TO ORDERING TRENCH DRAIN GRATE MATERIALS.

## ACCESSIBILITY:

- ALL ADA RAMPS SHALL BE DESIGNED PER CALTRANS & FEDERAL ADA STANDARDS AND FIELD VERIFIED PER COMPLIANCE.

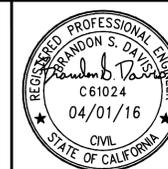
SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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NO.	DATE	ISSUE / REVISION DESCRIPTION		BY

**WILSEY HAM**  
Engineering, Surveying & Planning

3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
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Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
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Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/01/16
	BY	DATE

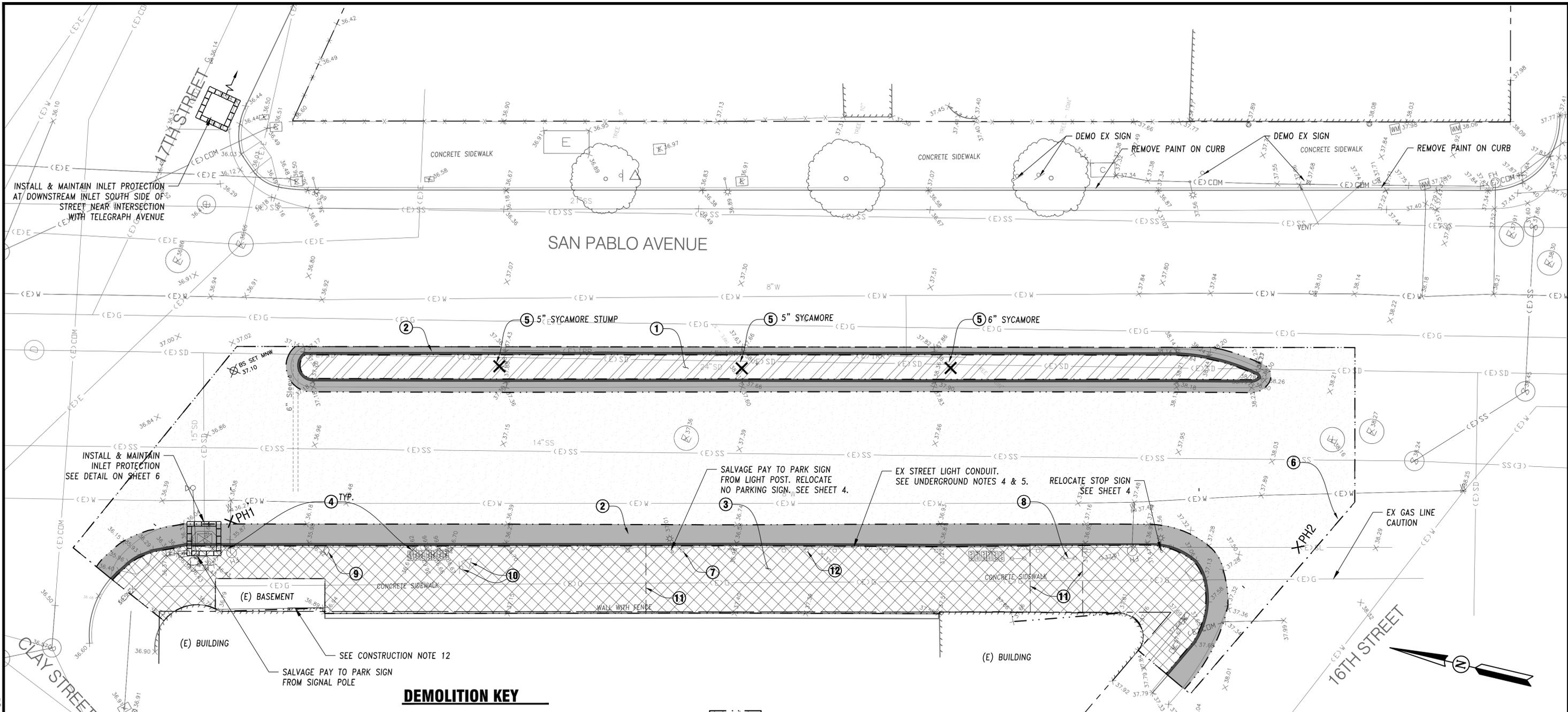
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
NOTES

SHEET	2	OF	17
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	APRIL 01, 2016		

ALAMEDA COUNTY

CALIFORNIA

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- ### NOTES
1. PROTECT-IN-PLACE EXISTING UTILITIES & IMPROVEMENTS NOT SHOWN FOR REMOVAL.
  2. NEATLY SAWCUT ALL CONCRETE & ASPHALT AT LIMIT OF REMOVAL. NEATLY SAWCUT SIDEWALK TO NEAREST SCOREMARK BEYOND LIMITS SHOWN.
  3. SEE NOTES SHEET 2.
  4. ESTABLISH PROJECT CONTROL PRIOR TO ANY DEMOLITION. SEE CONTROL DIAGRAM ON SHEET 4.
  5. SEE SHEET 4 FOR LAYOUT DIMENSIONS.
  6. SALVAGED ITEMS TO BE DELIVERED TO CITY.
  7. MAINTAIN SAFE PEDESTRIAN ROUTE DURING CONSTRUCTION.
  8. PROTECT TREES TO REMAIN. SEE LANDSCAPE NOTES 14-17.
  9. OBTAIN TREE REMOVAL PERMIT FROM CITY BEFORE TREE REMOVAL.

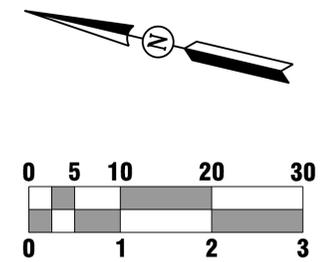
### DEMOLITION KEY

- |   |  |  |   |                                      |
|---|--|--|---|--------------------------------------|
| ① | MEDIAN LANDSCAPING AND IRRIGATION TO BE REMOVED - 941 SF |  | ⑦ | SALVAGE PARKING SIGNS - 10           |
| ② | CURB & GUTTER TO BE REMOVED - 662 LF                     |  | ⑧ | RELOCATE BIKE RACKS - 3 SEE SHEET 4  |
| ③ | SIDEWALK TO BE REMOVED - 2924 SF                         |  | ⑨ | SALVAGE PARKING METER - 1            |
| ④ | PROTECT EXISTING UTILITIES IN PLACE                      |  | ⑩ | SALVAGE PARKING KIOSK & SIGN - 1     |
| ⑤ | TREE/STUMP TO BE REMOVED - 3                             |  | ⑪ | REMOVE CURB DRAIN                    |
| ⑥ | AC PAVEMENT TO BE REMOVED - 7404 SF                      |  | ⑫ | RELOCATE BIKE ROUTE SIGN SEE SHEET 4 |

### POTHOLE LEGEND

PH #	UTILITY	DEPTH <sup>1</sup>	ASPHALT	CONC.
1	6" STEEL WATER	31"	4"	5"
2	2" STEEL ELEC	22"	5"	0

NOTE:  
1. DEPTH TO TOP OF FACILITY OR TOP/BOTTOM OF FACILITY

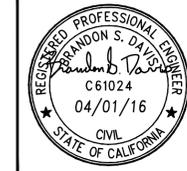


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1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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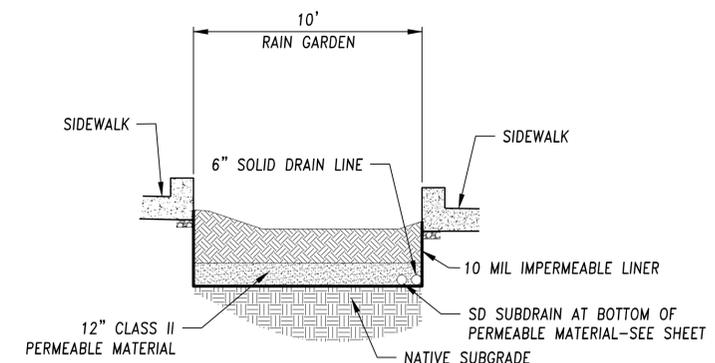
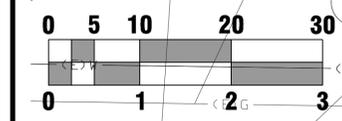
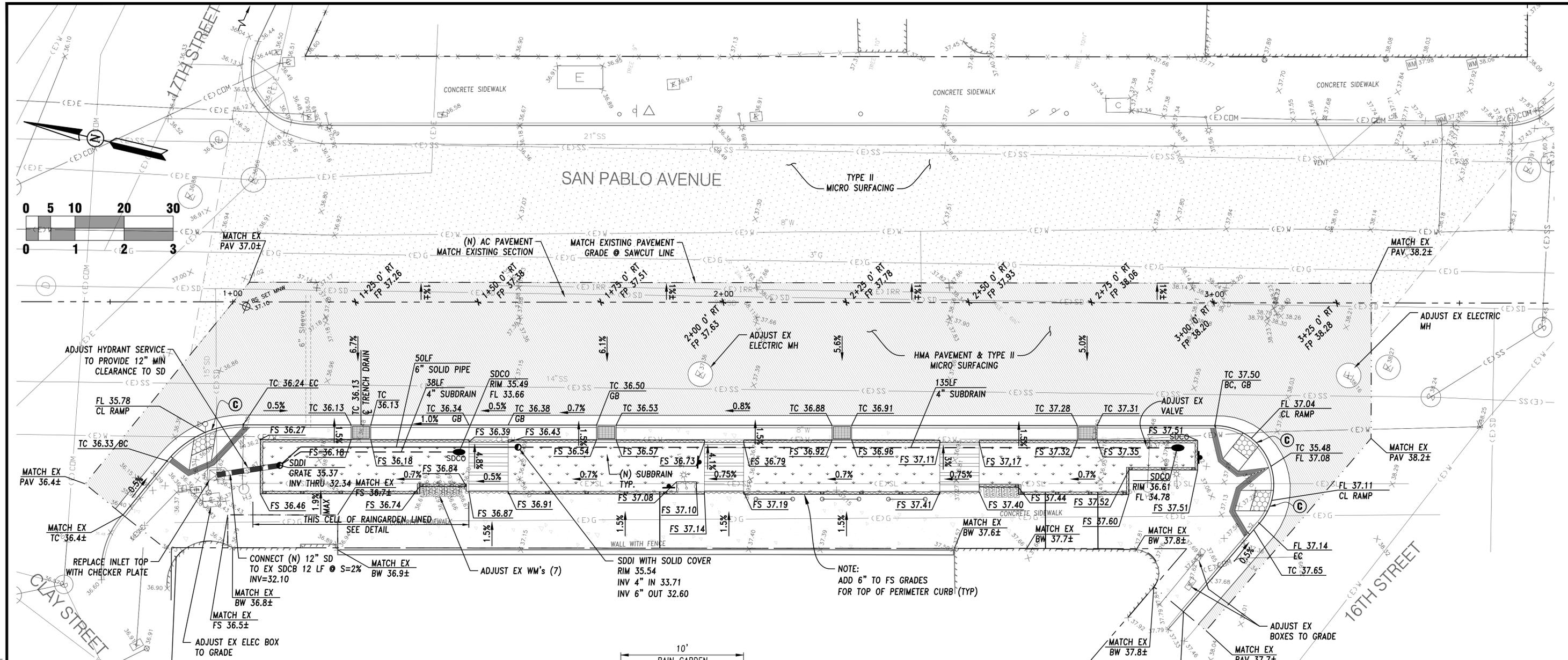
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
DEMOLITION PLAN

ALAMEDA COUNTY

CALIFORNIA

SHEET	3	OF	17
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		





**RAINGARDEN CELL LINER**  
N.T.S.

- NOTES**
1. PROVIDE TRENCH PLUG PER DETAIL ON SHEET 6 FOR ALL EXISTING UTILITIES WITHIN THE BIO-RETENTION AREA.

- KEY NOTES**
1. COUNTER SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT AND WITHIN 48 INCHES OF THE CURB RAMP SHALL NOT BE STEEPER THAN 1:20 (5.0%). GUTTER PAN SLOPE SHALL NOT EXCEED 1" OF DEPTH FOR EACH 24" OF WIDTH WITHIN THIS SAME AREA.

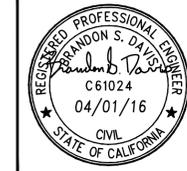
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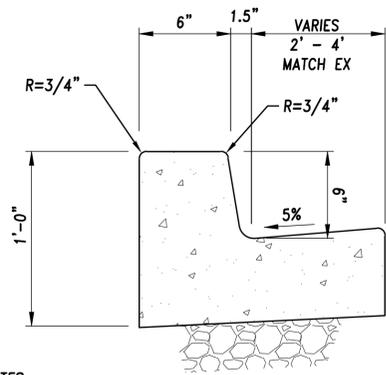
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Drawn: P. Businger	04/01/16
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SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
GRADING & DRAINAGE PLAN

ALAMEDA COUNTY CALIFORNIA

SHEET	5	OF	17
PROJ. NO.:	936-001	SCALE:	1" = 10'
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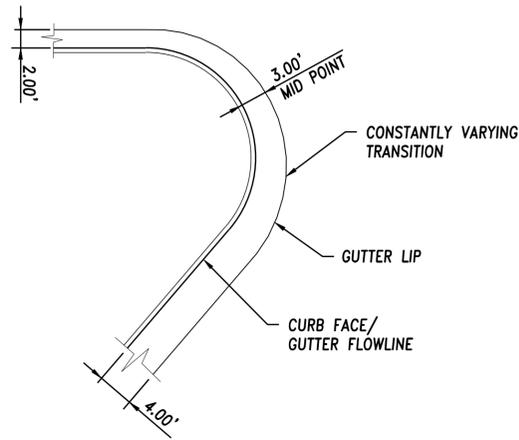




- NOTES:  
1. PROVIDE EXPANSION JOINTS AT 16' MAX SPACING

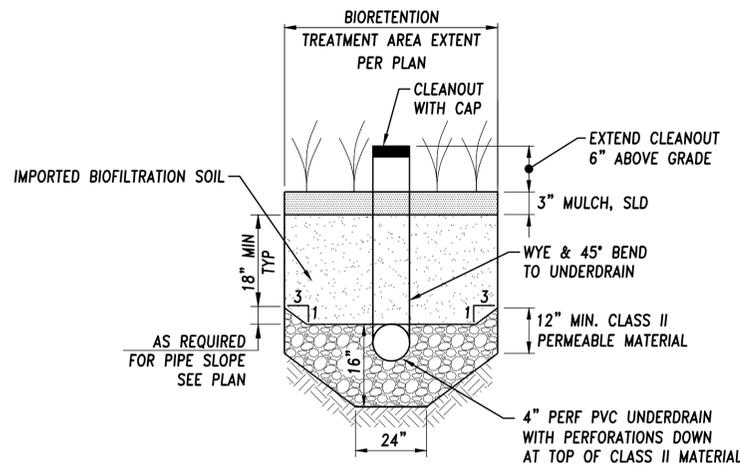
**STANDARD CURB & GUTTER DETAIL**

N.T.S.



**RADIAL GUTTER TRANSITION DETAIL**

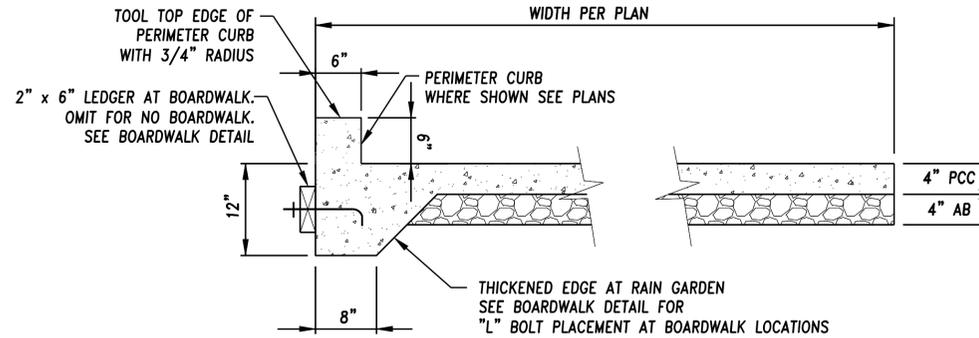
N.T.S.



- NOTES:  
1. ALL BIOFILTRATION SOIL SHALL COMPLY WITH THE SPECIFICATION IN ATTACHMENT "L" OF THE MUNICIPAL STORMWATER PERMIT.  
2. NATIVE SUBGRADE SHOULD BE RIPPED AND LOOSENEED AND THEN TAMPED GENTLY AT THE DIRECTION OF THE ENGINEER.

**SD SUBDRAIN DETAIL**

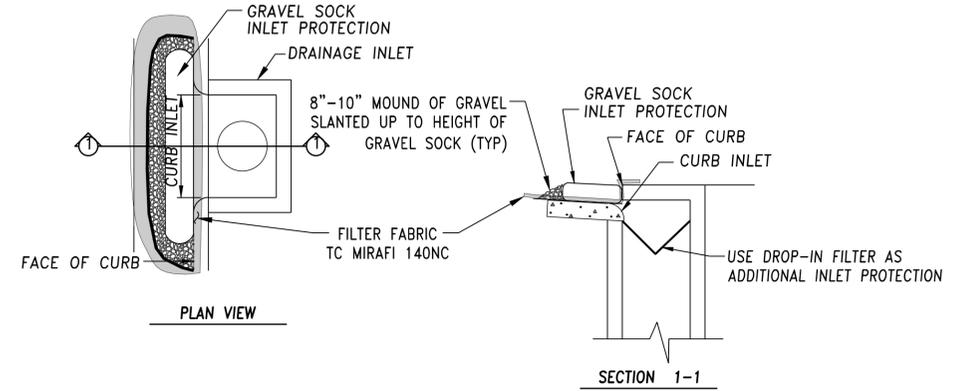
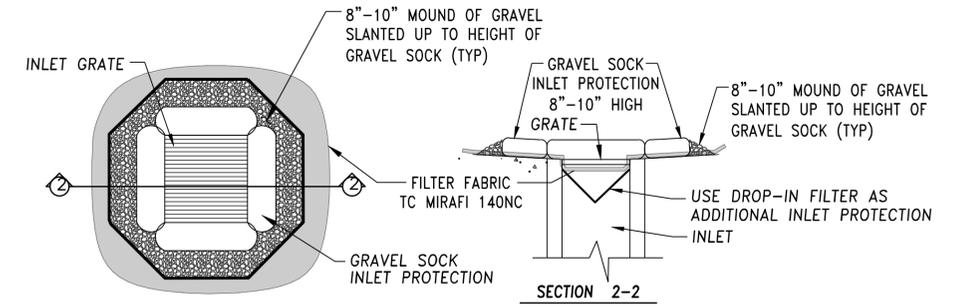
N.T.S.



- NOTES:  
1. SAWCUT EXISTING SIDEWALK TO NEAREST SCORE LINE.  
2. TOOL SCORE LINES AT EQUAL INTERVALS ROUGHLY EQUAL TO 1/2 OVERALL LENGTH.  
3. PLACE EXPANSION JOINTS AT 16' MAX SPACING.  
4. DRILL & EPOXY 12" DOWELS MINIMUM 4" INTO EXISTING CONCRETE EDGE AT 24" O.C. MAX.

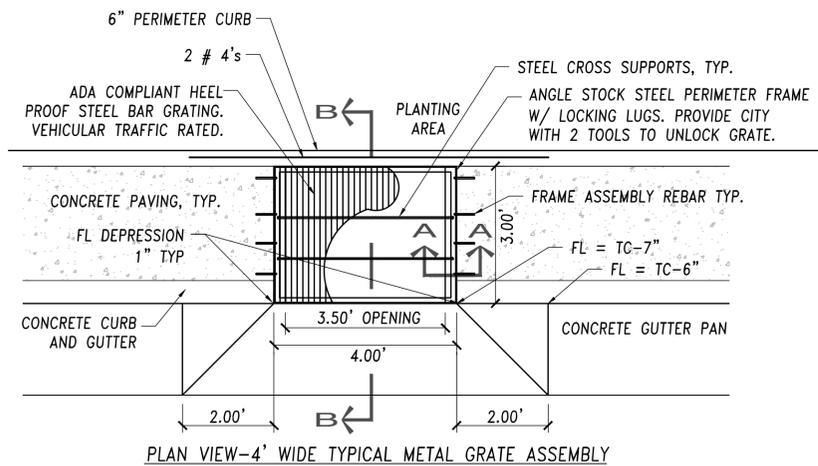
**SIDEWALK DETAIL**

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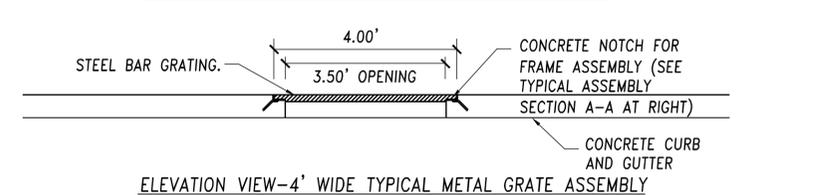


**3 TEMPORARY INLET PROTECTION**

NOT TO SCALE



PLAN VIEW-4' WIDE TYPICAL METAL GRATE ASSEMBLY

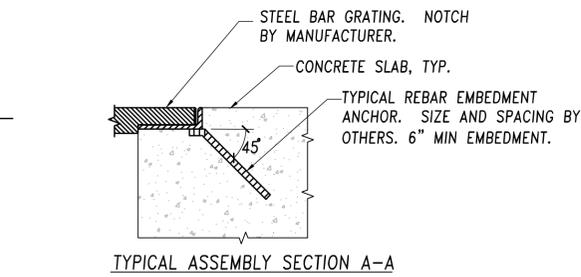


ELEVATION VIEW-4' WIDE TYPICAL METAL GRATE ASSEMBLY

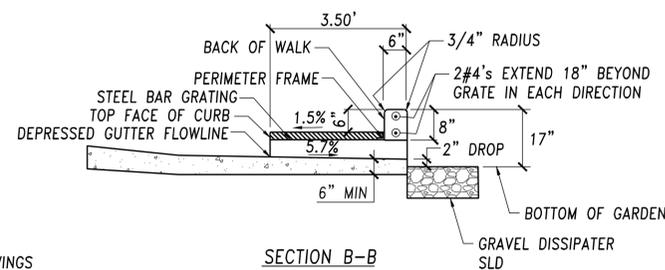
- NOTE: CONTRACTOR TO PROVIDE SHOP DRAWINGS PRIOR TO MANUFACTURE OF FRAME & GRATE

**WIDE TRENCH DRAIN**

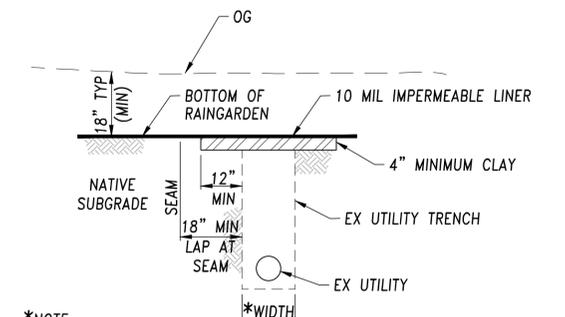
Scale: 1" = 2'



TYPICAL ASSEMBLY SECTION A-A



SECTION B-B



- \*NOTE:  
EXTEND PLUG AND LINER 12" MIN AND 18" MIN RESPECTIVELY BEYOND EXISTING TRENCH WALL. WHERE TRENCH WALL IS NOT DISCERNIBLE, TRENCH WIDTH SHALL BE TAKEN AS A MINIMUM OF 24" PLUS THE OUTSIDE DIMENSION OF THE SUBJECT UTILITY FACILITY.

**TRENCH PLUG DETAIL**

N.T.S.

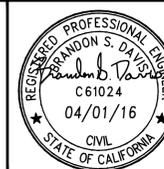
SAN FRANCISCO ESTUARY PARTNERSHIP  
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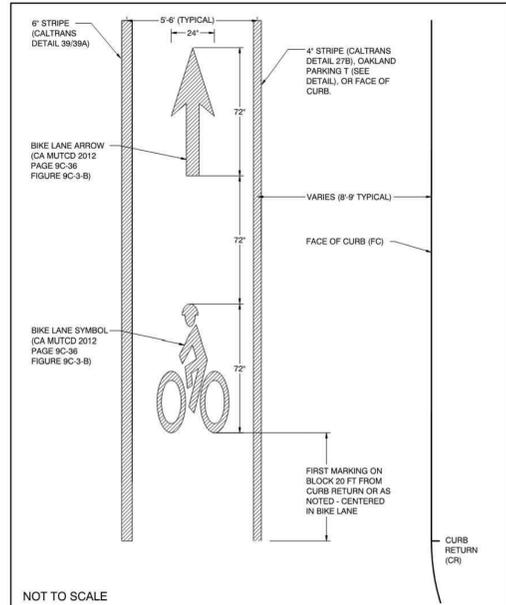
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Project Eng:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/01/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
CIVIL DETAILS

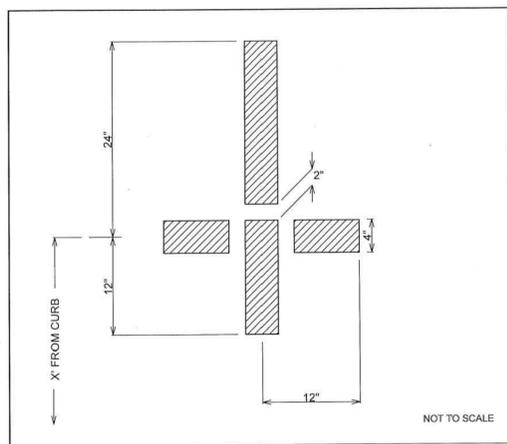
ALAMEDA COUNTY

CALIFORNIA

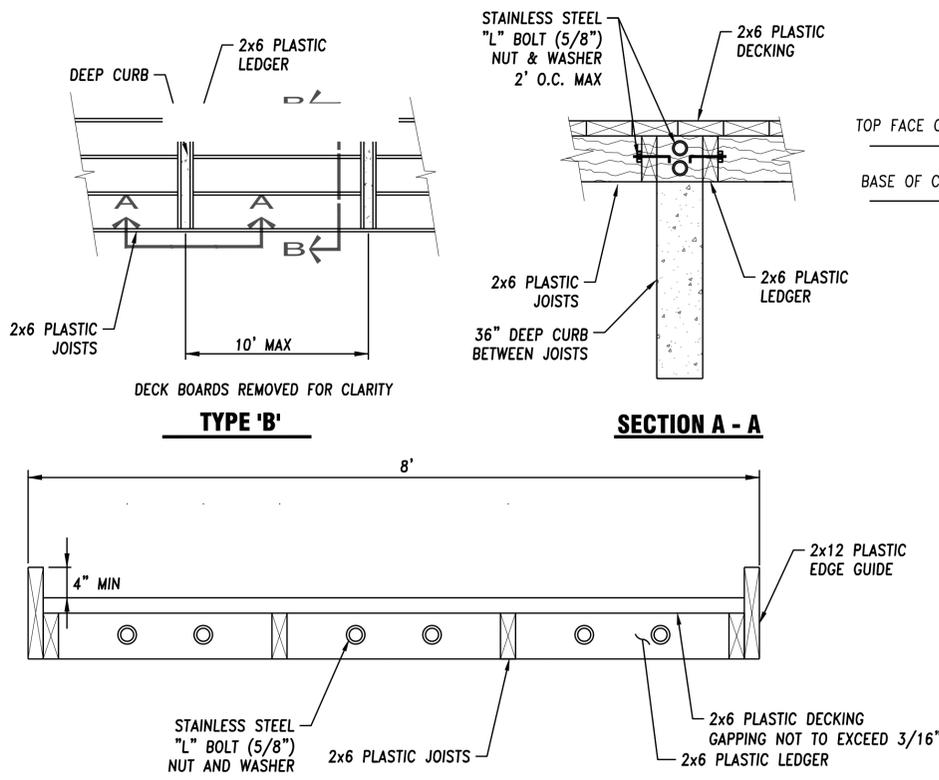
SHEET	6	OF	17
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	APRIL 01, 2016		



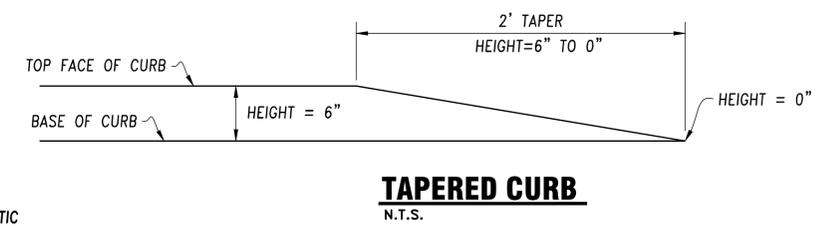
CITY OF OAKLAND	DEPARTMENT OF ENGINEERING AND CONSTRUCTION
<b>BIKE LANE SYMBOL AND ARROW DETAIL</b>	
DATE: NOVEMBER 2012	DWG: X-1



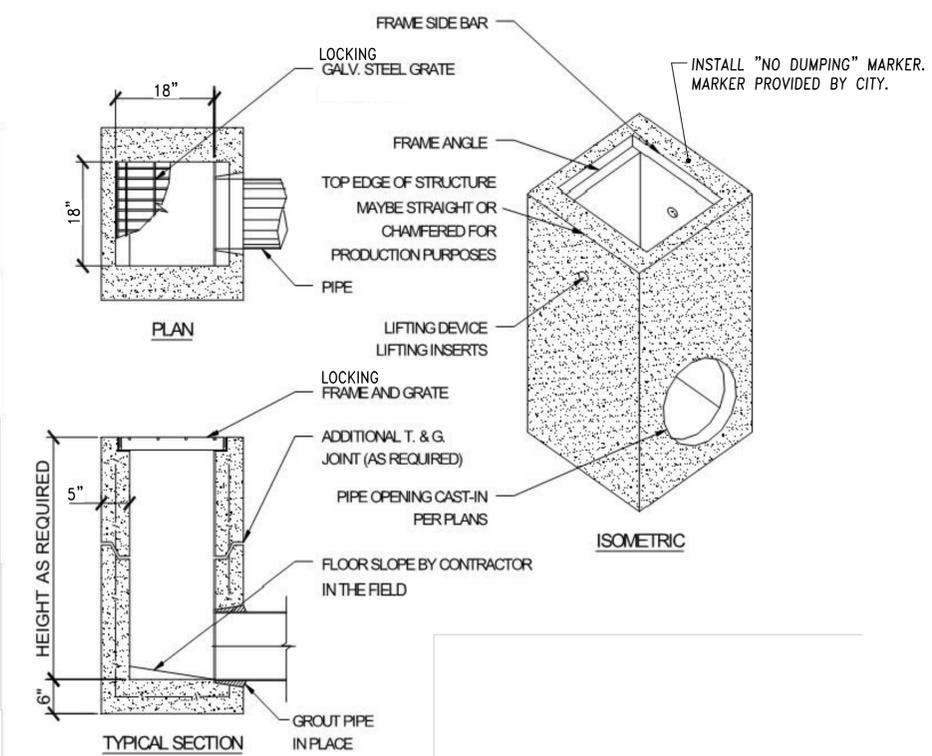
CITY OF OAKLAND	DEPARTMENT OF ENGINEERING AND CONSTRUCTION
<b>PARKING STALL "TEE"</b>	
DATE: APRIL 2008	DWG: T-7



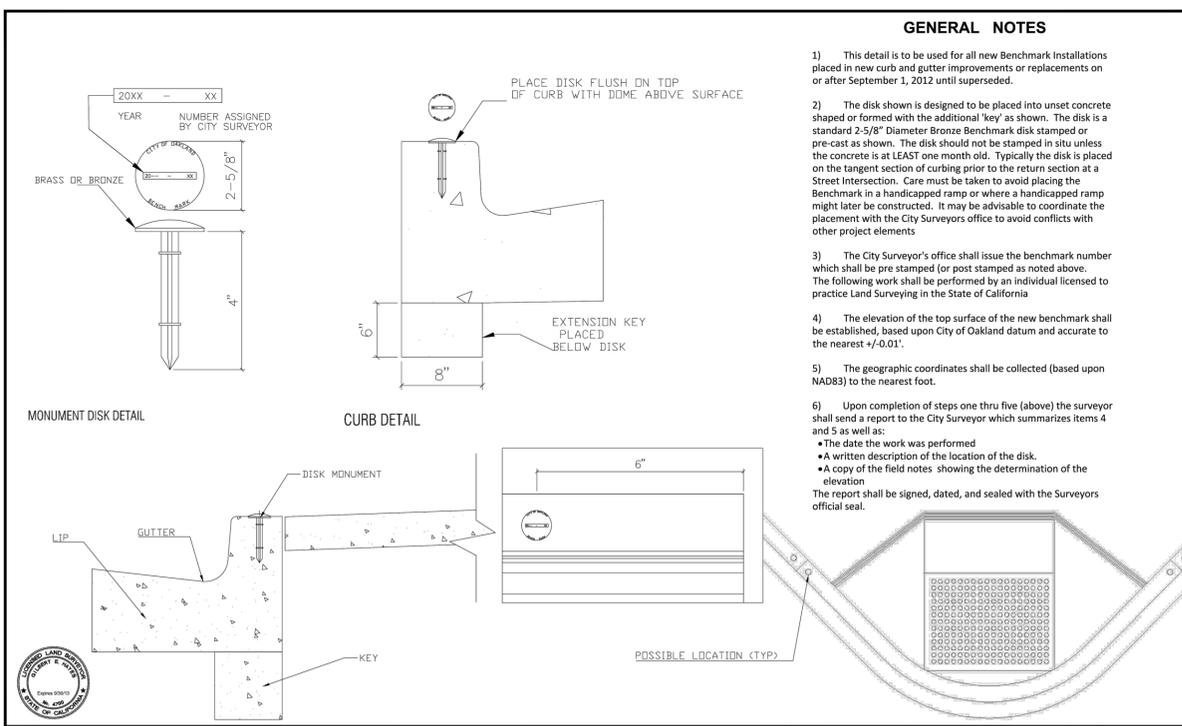
**SECTION B-B BOARDWALK DETAILS**  
N.T.S.



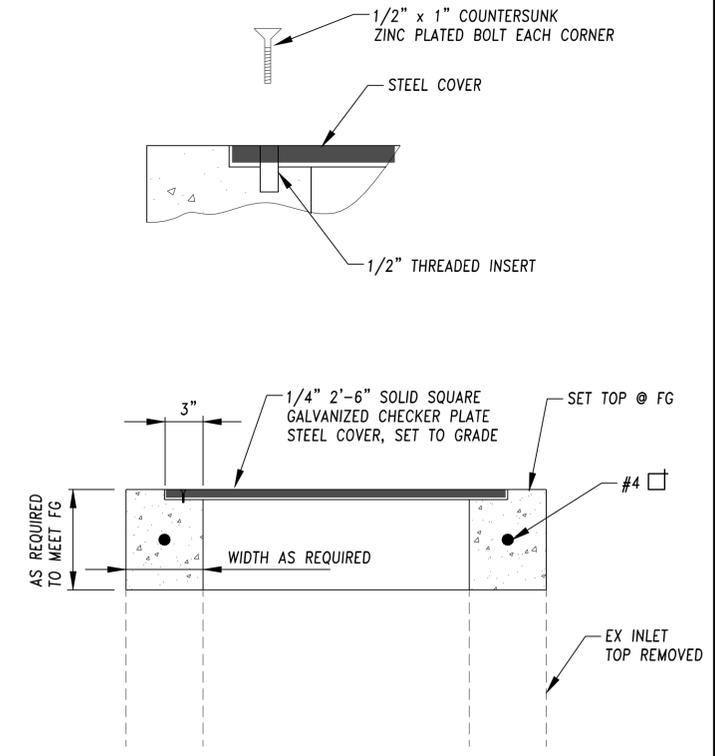
**TAPERED CURB**  
N.T.S.



**INLET DETAIL**  
N.T.S.



DESIGNED: G. HAYES	DESIGNED: G. HAYES	CITY OF OAKLAND	NOVEMBER 2012
CHECKED: [Signature]	CHECKED: [Signature]	OFFICE OF THE CITY LAND SURVEYOR	As shown
REVIEWED: [Signature]	REVIEWED: [Signature]	DISK MONUMENT DETAIL	SHEET OF SHEETS



**INLET TOP REPLACEMENT**  
N.T.S.

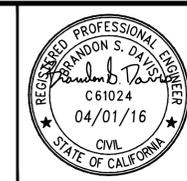
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650.349.2151  
wilseyham.com

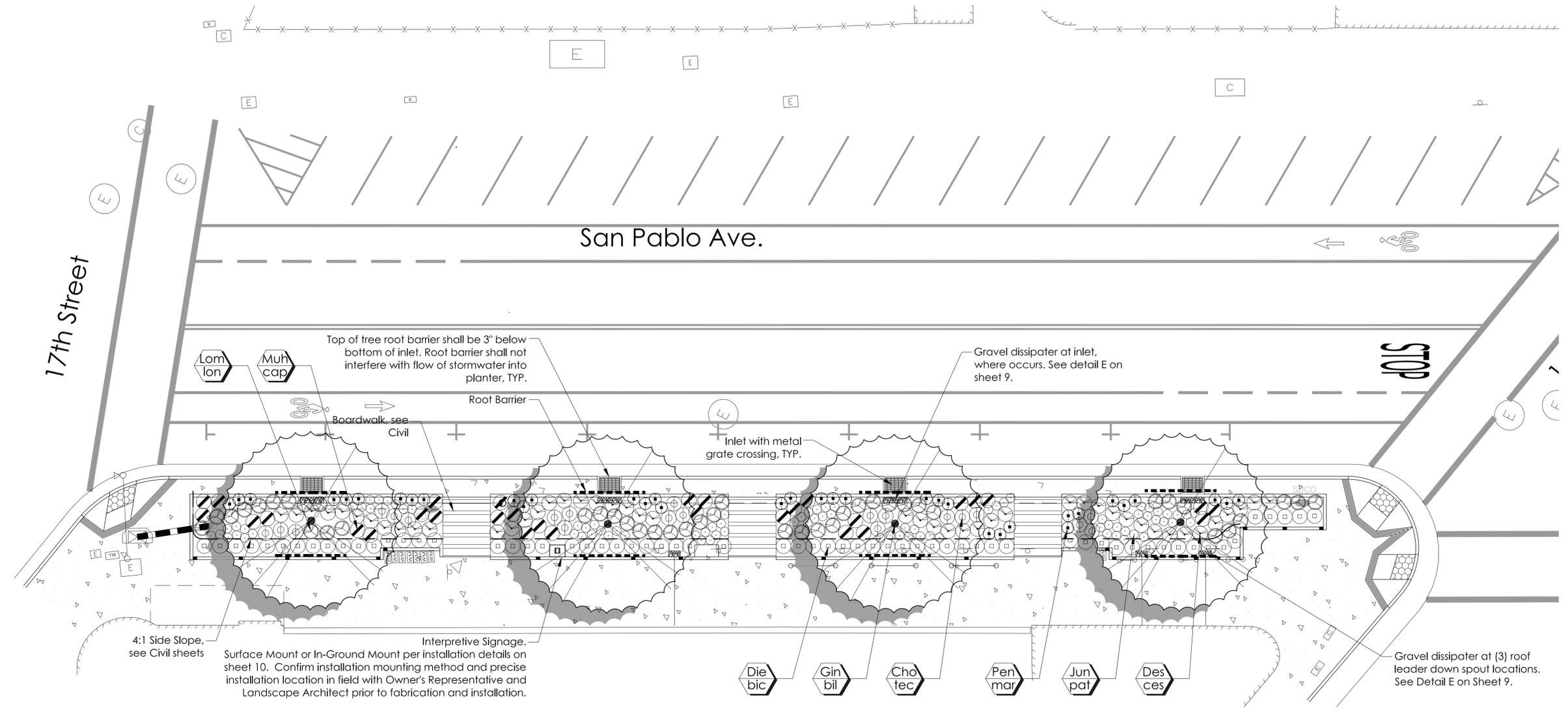


Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
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SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
CIVIL DETAILS

ALAMEDA COUNTY CALIFORNIA

SHEET 7 OF 17  
PROJ. NO.: 936-001  
SCALE: AS SHOWN  
DATE: APRIL 01, 2016

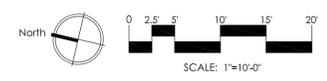


**PLANTING NOTES**

- The plant list is provided for the convenience of the Contractor. The Contractor shall verify all plant counts and if a discrepancy exists, the plan shall govern.
- Substitution of specified plant material shall not be made unless otherwise approved by the Landscape Architect. Same genus different species substitutions are acceptable provided the variety is similar in growth habit to the specified plant and water use is the same. Example: Escallonia 'Terra' could sub for 'Red Elf'. Rhaphiolepis can not substitute for Escallonia as they have different water use requirements. Certificates of compliance will not be completed for projects which exceed the water use of specified plant materials until conformance with the water efficient landscape requirements is achieved.
- Finish grade in planting areas shall be smooth and even prior to installation of mulch. All landscape areas not covered with live material shall be covered with 4" of mulch.
- Planting areas shall be kept clean and free from all concrete, asphaltic waste, lumber or other such materials, shall be removed by excavation of the soil and replaced with clean native top soil.
- See details and specifications for procedures, material, and installation requirements.
- Soils reports shall be provided for all imported soils, per specification section. Reports shall be submitted to the SFEP's Representative and Landscape Architect for review and approval.
- Adjacent streets, sidewalks and other areas shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
- Any damaged or destroyed landscaping shall be replaced to the satisfaction of the Owner's Representative.
- For best results, native plant materials should not have their roots disturbed. For plastic cans, remove bottom of can, place in plant pit and cut sides to remove. Cut metal cans in three places minimum and carefully slide root ball into plant pit, for large plant material, use bottom support as necessary.
- Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.
- Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.
- Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape Maintenance Manual for complete information.
- Synthetic pre-emergents are prohibited in the construction and maintenance of this project.
- Upon award of contract, the Contractor is to schedule an on-site meeting with the Landscape Architect and City's Arborist to review protection measures for all existing trees on site that are to remain.
- The Contractor to minimize disturbance to existing tree roots on site. If required, cut minor roots (less than 2" in diameter) of trees indicated to remain in a clean and careful manner where such roots obstruct installation of new construction. If any roots greater than 2" are encountered stop work and contact the Landscape Architect immediately.
- All excavation and or trenching work done within the drip line of existing trees shall be done by hand or air tools only.
- It is required that the Contractor have assigned to the project at least one employee who is a Certified Arborist or Certified Tree Worker (International Society of Arboriculture. Certified Arborist or Tree Worker shall meet with the Landscape Architect and City's Arborist on site to discuss tree preservation prior to construction and be present onsite for all work within the dripline of existing trees.
- This is a functioning storm water planter with an engineered imported soil mix designed for specific performance criteria. Amend only planting pits and associated planting backfill per the planting instructions.
- Soil shall not be worked when wet to avoid compaction.

All trees are to be planted a minimum of 10' from utility poles, fire hydrants, driveways, and highway signs.

**Note:**  
See sheet 9 for planting legend & installation details.



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1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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△	4/1/16	FINAL SUBMITTAL	JS
△	3/28/14	90% SUBMITTAL	JS

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Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
LANDSCAPE PLANTING PLAN

ALAMEDA COUNTY

CALIFORNIA

SHEET  
8  
OF  
17  
PROJ. NO.: 936-001  
SCALE: 1"=10'-0"  
DATE: 4/1/16

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# OAKLAND PLANTING LEGEND

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	WATER REQ.	REFERENCE	PROJECT SPACING	MIN-MAX SPREAD	NATIVE
<b>TREES</b>									
4	Gin bil	Ginkgo biloba 'Autumn Gold'	Maidenhair Tree	15 gal.	MOD	EBMUD	30'	30'-40'	N
<b>GRASSES &amp; PERENNIALS</b>									
21	Cho tec	Chondropetalum tectorum	Cape Rush	1 gal.	INF-OCC	MONROVIA	30"	2'-3'	N
46	Des ces	Deschampsia cespitosa	Tufted Hairgrass	1 gal.	MOD	EBMUD	30"	2'-3'	Y
63	Die bic	Dietes bicolor	African iris	1 gal.	INF-OCC	MONROVIA	30"	2'-3'	N
1,500 s.f.	Not Shown	Carex pansa	California Meadow Sedge	plugs	OCC-MOD	EBMUD	12"	1'-2'	Y
82	Jun pat	Juncus patens 'Elk Blue'	California Gray Rush	1 gal.	NONE-MOD	SUNSET	18"	18"-24"	Y
43	Lom lon	Lomandra longifolia 'Breeze'	Dwarf Mat Rush	1 gal.	INF-OCC	MONROVIA	3"	2'-4'	N
31	Muh cap	Muhlenbergia capilaris	Muhly Grass	1 gal.	NONE-OCC	EBMUD	3"	2'-4'	N
37	Pen Mar	Penstemon 'Margarita B.O.P.'	Foothill Penstemon	1 gal.	MOD	EBMUD	2"	1'-3'	Y

\*Note: Carex pansa (not shown) to be interplanted as plugs throughout planting area. Exclude areas under boardwalk decking.

## Mulch

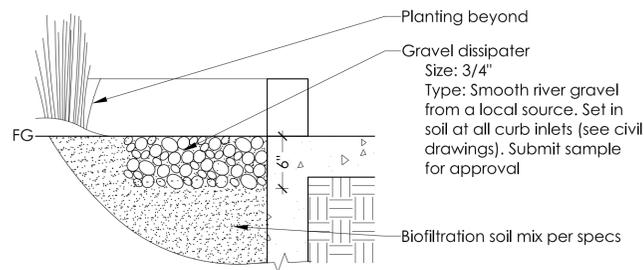
Shredded arbor mulch from a local source. Apply 4" thick layer at all plantings areas and as shown. Exclude areas under boardwalk decking. Submit sample for approval. See notes.

## Root Barriers

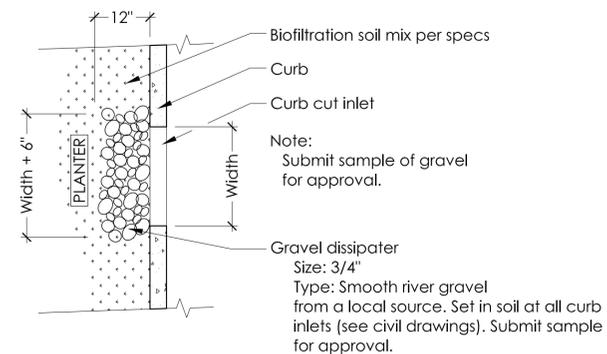
Tree Root Barrier. Center on tree and extend 6'-0" in each direction as shown. See detail.

## Hydrozone

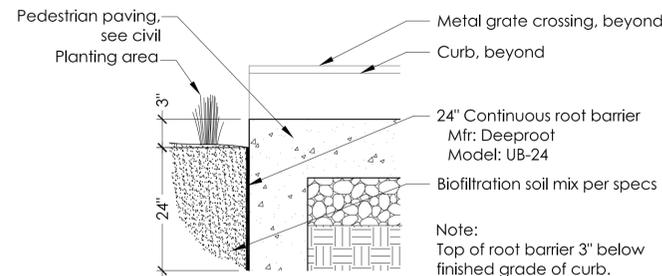
All planting areas are a mixture of medium and low water using plant material per W.U.C.O.L.S. Guidelines. Per the California Model Water Ordinance, all planting areas are considered medium water use.



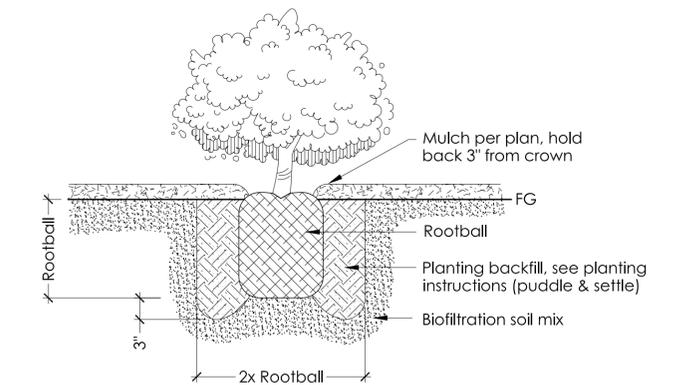
**E** GRAVEL DISSIPATER AT INLET  
SCALE: N.T.S.



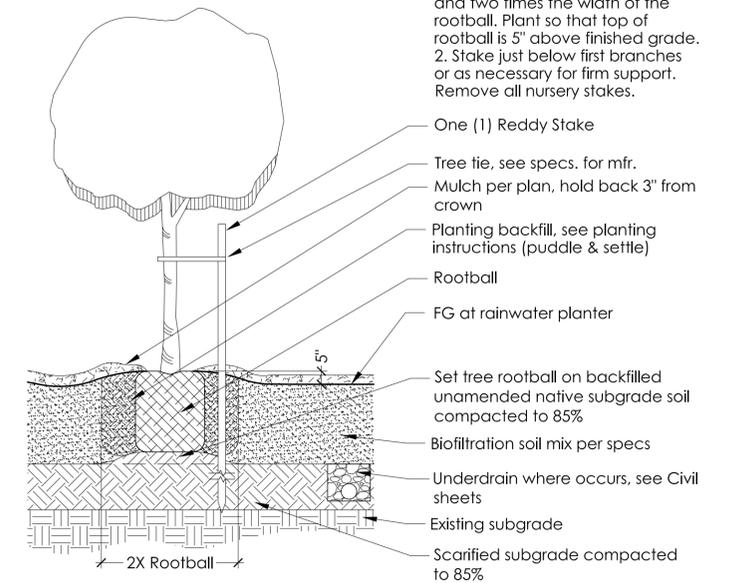
**D** ROOT BARRIER AT INLET  
SCALE: N.T.S.



**C** ROOT BARRIER AT PAVING  
SCALE: N.T.S.



**B** SHRUB AND GRASS PLANTING  
SCALE: N.T.S.



**A** STORMWATER TREE PLANTING  
SCALE: N.T.S.

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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
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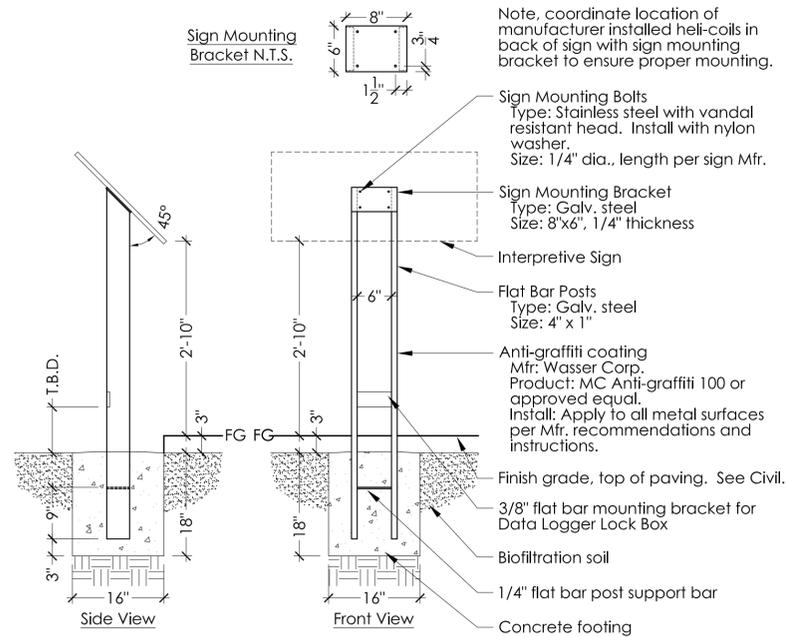


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Drawn:	BJ	01/30/15
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SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
LANDSCAPE PLANTING LEGEND & DETAILS  
ALAMEDA COUNTY CALIFORNIA

SHEET  
9 OF 17  
PROJ. NO.: 936-001  
SCALE: AS SHOWN  
DATE: 4/1/16

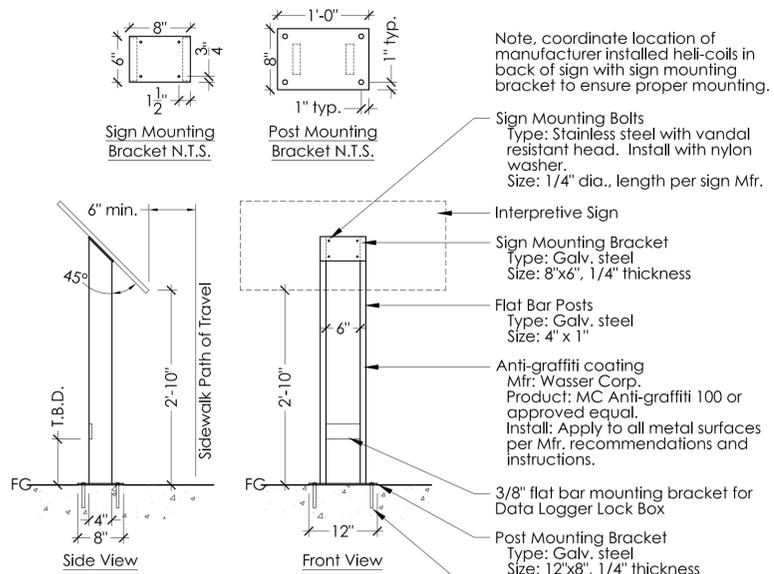
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Notes:

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.
5. Contractor to coordinate Data Logger Lock Box position, size and mounting requirements with Agency's Rep. prior to fabrication. Lock Box provided by others.

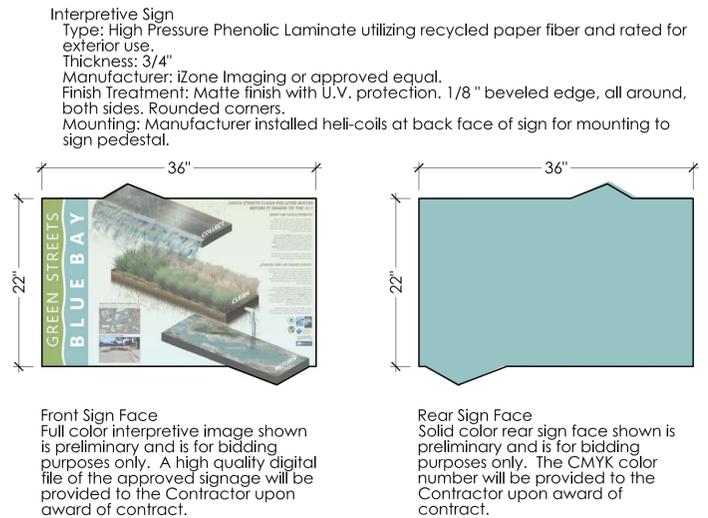
**H** IN-GROUND SIGN PEDESTAL  
SCALE: N.T.S.



Notes:

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2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.
5. Contractor to coordinate Data Logger Lock Box position, size and mounting requirements with Agency's Rep. prior to fabrication. Lock Box provided by others.

**G** SURFACE MOUNT SIGN PEDESTAL  
SCALE: N.T.S.



**F** INTERPRETIVE SIGN  
SCALE: N.T.S.

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SHEET	10	OF	17
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	4/1/16		

PLANTING INSTRUCTIONS

**PART 1 - GENERAL**

1.1 SUMMMARY

A. Work included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and project specifications sections, apply to these instructions.

B. Contractor shall refer to and incorporate Bay-Friendly Landscape Guidelines and Principals into the installation of the landscape. The 7 Principals of Bay-Freindly Landscaping and Gardening are:

- |                                       |  |
|---------------------------------------|--|
| 1. Landscape Locally                  | 5. Conserve Energy                       |
| 2. Landscape for Less to the Landfill | 6. Protect Water & Air Quality           |
| 3. Nurture the Soil                   | 7. Protect and Maintain Wildlife habitat |
| 4. Conserve Water                     |  |

1.3 SUBMITTALS

A. Comply with submittal procedures per project specifications.

B. Samples: samples of quarry fines, soil amendments, gravel, cobble, fertilizers, compost and mulches shall be submitted for review and stored on site until furnishing of materials is completed. Delivery may begin upon approval of samples or as directed by the Landscape Architect.

C. Technical reports: Submit copies of technical reports. Work is to be performed by:

Soil and Plant Laboratory, Inc.  
352 Mathew Street  
Santa Clara, CA 95030  
408-727-0330

1. Agronomy reports: one (1) agronomy report shall be prepared for each site, which shall include basic and minor nutrients, as well as a textural analysis of each sample. Sample shall consist of a composite of three shovelfuls of soil.

D. Fertilizers, soil conditioners, and compost: submit product data for fertilizers, soil conditioners, and compost to be installed at time of planting. Quantities of fertilizers and soil conditioners shall be per the agronomy report. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

E. Cost adjustments: Contractor shall provide a line item cost for installation of the soil conditioners and fertilizers according to these specifications. Should the agronomy reports recommend a lesser degree of soil conditioning and fertilizing, Contractor shall adjust fees or provide a credit to the client accordingly. In the event that the required soil conditioners and fertilizers are greater than these specifications, the Contractor shall not be responsible for funding the difference.

F. Post-planting fertilizers: submit product data for fertilizers for use post-planting. Quantities of fertilizers shall be per the post-amendment agronomy report. Submit certificates, trip slips and invoices for soil preparation materials. See Section 1.5 Review of Plant Invoices and Soil Preparation Conformance Test.

Manufacturer's instructions: Contractor to submit installation instructions for planting items not herein outlined or detailed on drawings.

1.4 GENERAL REQUIREMENTS

A. The term "planting area" shall mean all areas to be planted with trees, shrubs, groundcovers, and areas covered with organic mulch.

B. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice.

C. All rock and other growth or debris accumulated during the duration of the project shall be removed from the site.

D. Prior to excavation for planting or placing of plant materials, locate all underground utility lines still in use and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and plant locations, notify the Landscape Architect who shall arrange for the relocation of one or the other. The Contractor assumes all responsibility for making any and all repairs for damages resulting from work as herein specified.

E. Grading and soil preparation work shall be performed only during the period when beneficial and optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy soil structure, spreading and grading operations shall be suspended until the moisture content is increased or reduced to acceptable levels. Soil shall not be worked when wet to avoid compaction.

F. All scaled dimensions are approximate. Before proceeding with any work carefully check and verify all dimensions and immediately inform the Landscape Architect of any discrepancy between the drawings and/or specifications and actual conditions.

G. Quantities for plant materials are shown for convenience only, and not guaranteed. Check and verify count and supply sufficient number to fulfill intent of drawings.

H. Adequately stake, barricade, and protect all irrigation equipment, manholes, utility lines, and other existing property during all phases of the soil amending and grading operations.

I. Observation of plant material:

- All plant material shall be delivered to the project site for observation by the Architect, for approval prior to installation.
- All trees shall conform to the "Guideline Specifications for Nursery Tree Quality", Urban Tree Foundation.
- The Contractor shall immediately remove any plant material not approved.
- Approved plant material shall remain on the site and shall be maintained by the Contractor as standards of comparison for material to be furnished.
- The Contractor, at his option and at his expense, can retain the services of the Landscape Architect to review trees 15 gallon and larger tagged at the nursery and/or at its place of growth, or as otherwise specified on drawings.

J. Rejection and substitution:

1. All plants not conforming to the requirements herein specified shall be considered defective, and such plants, whether in place or not, shall be marked as rejected and be immediately removed from the site of the work and replaced with acceptable plant materials. The plant materials shall meet all applicable observations required by law. All plants shall be of the species, variety, size, age, flower color and condition as specified herein and/or as indicated on the drawings. Under no condition will there be any substitution of plant species, variety, or reduced sizes for those listed on the accompany drawings, except with the express written consent of the Landscape Architect.

1.5 REVIEW OF PLANT INVOICES AND SOIL PREPARATION CONFORMANCE TEST

A. Upon delivery of materials and/or completion of all soil conditioning and grading but prior to initiating planting operations, the Contractor shall provide Landscape Architect with signed copies of required certificates, trip slips and invoices for soil preparation materials. The Landscape Architect shall review such material, comparing the total quantities of each material furnished against the total area to each operation. If the minimum rates of application have not been met, the Landscape Architect will require the incorporation of additional quantities of these materials to fulfill the minimum application requirements specified.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All products shall be delivered to the site in manufacturer's unopened standard containers bearing original labels showing quantity, analysis and name of manufacturer.

B. All materials shall be stored in designated areas and in such a manner as to protect from weather or other conditions that might impair the effectiveness of the product.

1.7 OBSERVATION

A. Observations herein specified shall be made by the Landscape Architect. The Contractor shall request observations in writing, 3 days in advance of the time observation is required.

B. The Contractor or his authorized representative shall be on the site at the time of each observation.

C. Observation will be required for the following parts of the work:

- Upon the completion of grading prior to planting.
- Approval of plant materials (refer to 1.4 general requirements).
- When trees and shrubs are spotted in place for planting, but before planting holes are excavated. Approval of mulch product shall be obtained prior to spreading.
- When all planting, except the maintenance period, has been completed. Acceptance and written approval shall establish start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- At the end of ninety (90) days from the start of the maintenance period. The Agency's Representative and City's Representative and/or City's Arborist shall be requested to be present for this observation.
- At the end of one (1) year from the start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- Final observation at the completion of the two (2) year maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.

D. Acceptances: upon completion of the final observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable, (2) of any requirements necessary for completion and acceptance.

E. The Contractor will be charged, and responsible for, any time and mileage used by the Landscape Architect as a result of prematurely scheduled site visit.

1.8 MAINTENANCE/PLANT ESTABLISHMENT

A. The maintenance period begins on the day the Landscape Architect has given notice of completion and shall continue thereafter for no less than two (2) years.

- These instructions are to be used in conjunction with the project's Storm Water Planter Maintenance Manual.
- The Contractor shall call for inspections per the Observation section above.
- Phased maintenance periods, if required, shall be negotiated prior to construction.
- If phased maintenance periods are not negotiated prior to construction, the maintenance period for all areas will begin after the entire project is 100% complete per contract documents. Portions completed earlier shall be maintained up to and including the specified maintenance period without additional compensation.

B. The Contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period until the final acceptance of the work.

C. A protective temporary fence shall be installed and remain in place until the 90-day review inspection. Contractor is responsible for removal of the protective temporary fence at the close of the 90-day period.

D. Regular planting maintenance operations shall begin immediately after each plant is planted. Plants shall be kept in a healthy, growing condition and in a visually pleasing appearance by watering, pruning, mowing, rolling, trimming, edging, fertilizing, restaking, pest and disease controlling, spraying, weeding, cleaning up and any other necessary operation of maintenance. Landscape areas shall be kept free of weeds, noxious grass, and all other undesired vegetative growth and debris. All plants found to be dead or in an impaired condition shall be replaced immediately. See post-planting fertilizing requirements in the Storm Water Planter Maintenance Manual.

E. The contract completion date of the contract maintenance period will be extended, when in the opinion of the Landscape Architect, improper maintenance and/or possible poor or unhealthy condition of planted material are evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work at no change in contract price until all of the work is completed and acceptable.

F. The Contractor shall be responsible for maintaining adequate protection of the planting areas. Damaged areas shall be repaired immediately per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

G. All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

1.9 GUARANTEES AND REPLACEMENTS

A. All plants (except trees- see 1.09b) shall be guaranteed to remain healthy and vigorously growing for the duration of the two (2) year maintenance period.

B. All trees that have been supplied and installed under this contract shall be guaranteed to live in a healthy condition for the duration of the two (2) year maintenance period. Trees are to be inspected for disease and certified by an authorized arboriculturist prior to planting.

C. All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

D. Plants used for replacement shall be the same kind and size as specified in the plant list. They shall be furnished, planted and fertilized as originally specified.

**PART 2 - PRODUCTS**

2.1 SOIL AMENDMENT AND FERTILIZER

A. Planting pit backfill is to be amended with quality compost at the rates indicated by a soil analysis to bring soil organic matter content to a minimum of 3.5% quality compost by dry weight.

B. Compost shall be a well decomposed, stable, weed free organic matter source. The product shall be certified through the US Composting Council's (USCC) Seal of Testing Assurance (STA) Program (a compost testing and information disclosure program). It shall be derived from agricultural and/or food waste and/or yard trimmings. The product shall contain no substances toxic to plants, will possess no objectionable odors and shall not resemble the feedstock (the organic materials from which it was derived).

C. Before delivery of the compost, the supplier will submit proof of STA certification and a copy of lab analysis performed by a laboratory that is enrolled in the US Composting Council's CAP and using the approved Test Methods for the Evaluation of Composting and Compost (TMECC).

D. The delivery tags indicating the quantity delivered to the job site shall be submitted by contractor. Compost exhibiting a sour or putrid smell, containing recognizable grass or leaves, or heat (120F) upon delivery or rewetting will not be accepted.

E. Quantities shall be furnished as needed to complete work shown on drawings.

F. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

2.2 PLANTING

A. Backfill: Amend only planting pit backfill. The following planting backfill ratios are to be used for bidding purposes only. Contractor is responsible for providing agronomy reports as described in 1.3-c, which shall outline backfill specifications. Fully amended (upper) excavation materials shall be put in one pile to go around the rootball. Any deeper un-amended materials shall be put in a separate pile. Condition this deeper soil at the following rates and use for the planting pit below the rootball:

Gypsum 16 lbs /cy.

B. Over-excavate the planting pits so that there shall be one foot of this material between native soil and the bottom of the rootball. No OM or fertilizer shall be used below the rootball.

C. Tree staking:

1. Stakes shall be Reddy Stakes, with length as required to meet staking requirements per detail. Stake quantity per detail.

2. Tree ties shall be V.I.T. cinch-tie, or approved equal.

D. Weed eradication: pre-emergent and post-emergent herbicides shall not be used in the construction and maintenance of this project. All weeding shall be accomplished through mechanical methods.

2.3 PLANT MATERIAL

A. All plants shall be vigorous, of normal growth free from disease, insects, insect eggs, and meet or exceed the measurements specified.

B. Identify plant species or varieties correctly on legible, weatherproof labels attached securely to the plant. There shall be a minimum of one labeled plant for each 5 plants in a lot.

C. Substitutions will not be permitted except if proof is submitted that any plant specified is not obtainable, in which case a proposed substitution will be considered for use of the nearest equivalent size or variety and cost. All proposed substitutions shall be approved by Landscape Architect prior to ordering.

2.4 MULCH

Contractor shall maintain a minimum of 4" of coarse organic 'Arbor Mulch' at all times over soil surface that is not covered by vegetation or boardwalk. Mulch materials shall be recycled chipped or shredded wood chips from pruning operations, or chipped landscape prunings. Mulch shall be from a local source. Shredded redwood bark mulch ("Gorilla hair") shall not be use. Non-porous material (e.g. plastic weed barriers) shall not be placed under the mulch.

2.5 ROOT BARRIER

A. Root Barrier shall be Deeproot, 24" Universal Barrier, UB 24-2, or equal.

**PART 3 - EXECUTION**

3.1 SOIL CONDITIONING

A. Grub and clean planting area, removing all weeds, debris and rocks from the site.

3.2 INTEGRATED PEST MANAGEMENT (IPM)

A. Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape Maintenance Manual for complete information.

B. Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.

3.3 FINISH GRADING

A. Finish grades shall be as indicated on the Civil Engineer's drawings.

B. Planting surfaces shall be graded with no less than 2 percent surface slope for positive drainage, or as otherwise noted according to Civil Engineer's plans.

C. Final finish grades shall insure positive drainage of the site with all surface drainage away from buildings, walls, and toward roadways, drains and catch basins.

D. Finish grades shall be measured as the final water compacted and settled surface grades, and shall be acceptable to the Landscape Architect before planting operations will be allowed to begin.

E. All undulations and irregularities in the planting surfaces resulting from tillage, rototilling and all other operations shall be leveled and floated out before planting operations are initiated.

F. The Contractor shall take every precaution to protect and avoid damage to sprinkler heads, irrigation lines, and other underground utilities during his grading and conditioning operations.

3.4 PLANTING

A. The layout of locations for plants and outlines of groundcover to be planted shall be approved on the site by the Landscape Architect, prior to their planting. All such locations shall be checked for possible interference with existing underground piping, prior to excavation of holes. If underground construction or utility lines are encountered in the excavation of planting areas, other locations for the planting may be selected by the Landscape Architect. Damage to existing utilities shall be the responsibility of the Contractor.

B. Planting trees, shrubs, and container-stock groundcovers, vines, and grasses:

1. All excavated holes shall have vertical sides with roughened surfaces and shall be of the minimum sizes indicated on detailed drawings. Holes shall be, in all cases, large enough to permit handling and planting without injury or breakage of root balls or roots.

2. Root barriers shall be installed where indicated on plans in accordance with manufacturer's recommendations.

3. Excavation shall include the stripping and staking of all acceptable soil encountered within the areas to be excavated for plant pits and planting beds. Protect all areas that are to be trucked over and upon which soil is to be temporarily stacked pending its re-use for the filling of holes, pits and beds.

4. Plants in can containers shall have the cans opened by cutting vertically on opposite sides of each can with nursery can openers, tin snips or other approved instruments for this purpose. All used cans shall be removed to the storage areas or from the site daily.

5. The plants shall be planted at approved locations with the heretofore specified conditioner and soil planting backfill.

6. The plants shall be placed in the planting pits on the backfill material which has been hand tamped and water settled to the rootball base levels prior to the placement of the plants. After setting the plants, the remaining backfill material shall be carefully tamped and settled around each rootball to fill all voids.

7. Each plant shall be placed in the center of the hole and shall be set plumb and held rigidly in position until the planting backfill has been tamped from around each root ball.

8. All plants shall be set at such a level that after settling they bear the same relationship to the surrounding finish grade as they bore to the soil line grade in the container, unless otherwise noted.

9. No plant will be accepted if the rootball is broken or cracked before, during, or after the process of installation.

10.All plants shall be thoroughly watered in to the full depth of each planting hole immediately after planting.

11.All trees, 15 gallon and larger, shall be staked. One of the stakes shall be driven into the ground of the windward side of the tree. The stakes shall be driven in plumb and secure. Special care shall be taken that the driving in of the stake does not damage the tree roots or root ball. tree ties shall be fastened to each tree and stake by looping figure 8's with the inside diameter of the tie at 2 or 3 times the diameter of the tree (also see detailed drawings).

12.The staking shall be accomplished in such a manner as to insure the proper and healthy growth and safety of the plants, property, and the public.

13.The Contractor shall be responsible for all surface and subsurface drainage required which may affect his guarantee of the plants.

C. Planting groundcovers (From Flats):

1. Groundcovers shall be planted in the areas indicated on the drawings. The groundcover plants shall be rooted cuttings grown in flats, and shall remain in those flats until transplanting.

2. All groundcover plants shall be planted with soil around roots, evenly spaced at the intervals called out on the drawings.

3. The groundcover plants shall be planted sufficiently deep to cover all roots and planting tablets shall be placed in each planting hole and shall be immediately sprinkled after planting until the entire area is soaked to the full depth of all holes.

4. The groundcover planting areas shall be hand smoothed after planting to provide an even, smooth final finish grade.

D. Mulch:

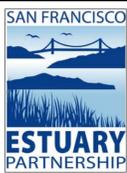
1. Apply a 4" deep layer of specified Arbor Mulch throughout all planting areas, unless otherwise noted on plans. Also refer to planting details for mulch requirements.

3.5 CLEANUP

A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete, and planter walls adjacent to plantings.

End of Instructions

SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



△				
△				
△				
△				
△	4/1/16	FINAL SUBMITTAL		JS
△	3/28/14	90% SUBMITTAL		JS
NO.	DATE	ISSUE / REVISION DESCRIPTION		BY

**WILSEY HAM**  
Engineering, Surveying & Planning

3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
	BY	DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
**LANDSCAPE PLANTING INSTRUCTIONS**

ALAMEDA COUNTY

CALIFORNIA

SHEET
11 OF 17
PROJ. NO.: 936-001
SCALE: AS SHOWN
DATE: 4/1/16

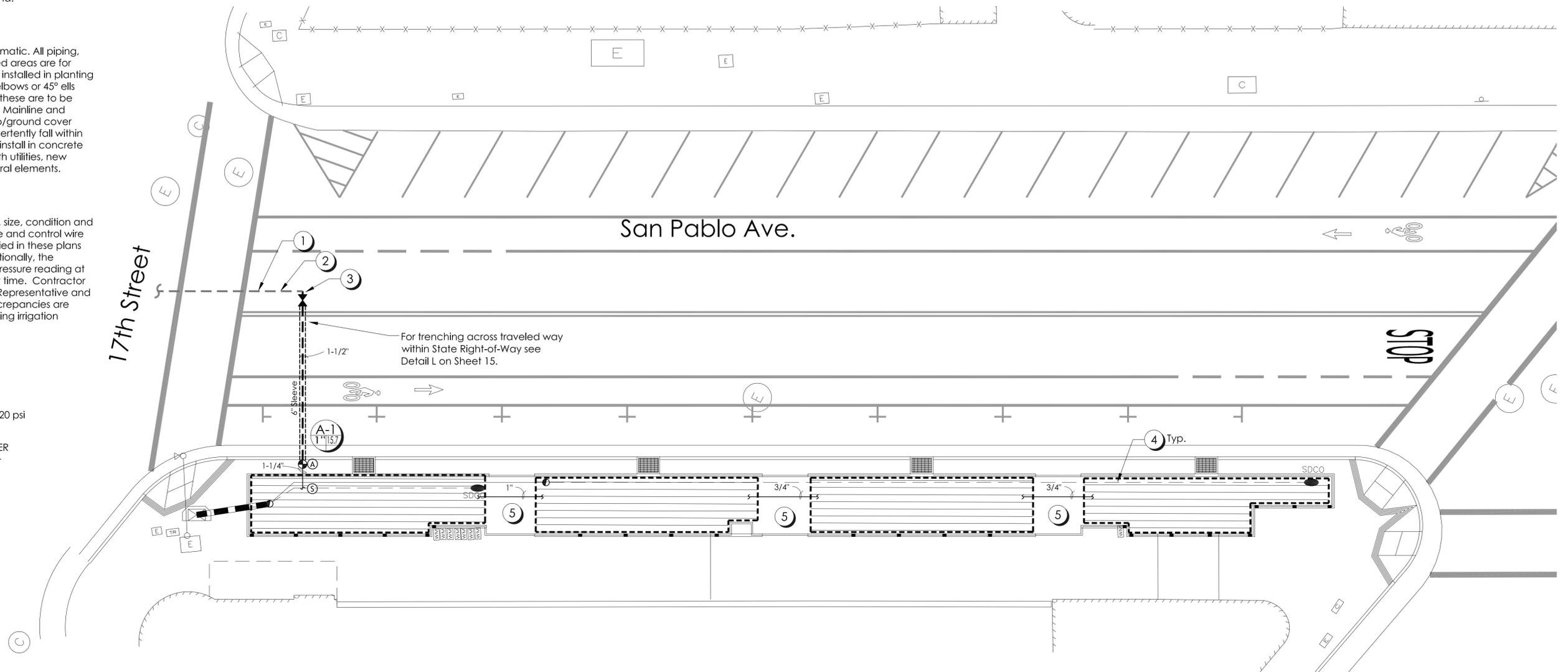
Potable water irrigation systems are to be installed and fully tested, but not operated prior to November 1, 2016 unless otherwise notified by the Department of Water Resources that drought conditions no longer exist. Prior to November 1, 2016, all storm water planters (including those with no irrigation system installed) must be irrigated with recycled water provided by EBMUD and delivered and applied by water truck.

**Note:**  
See sheet 13 for Irrigation Legend.

**Note:**  
The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarity only and shall be installed in planting areas whenever possible. No elbows or 45° ells may be placed under paving, these are to be located in planting areas only. Mainline and valves shall be installed in shrub/ground cover areas only. Where valves inadvertently fall within paved areas, Contractor must install in concrete valve boxes. Avoid conflicts with utilities, new planting, new site or architectural elements.

**Note:**  
Contractor to confirm location, size, condition and function of the existing mainline and control wire at points of connection identified in these plans upon award of contract. Additionally, the Contractor is to take a water pressure reading at the point of connection at that time. Contractor to immediately notify Owner's Representative and Landscape Architect if any discrepancies are found between plans and existing irrigation conditions.

**System Operating Flow & Pressure**  
Maximum Flow: 12 gpm  
Static Design Pressure: 20 psi  
Normal Operating Pressure: 15-20 psi



**IRRIGATION CALLOUTS**

- Existing mainline in existing landscape median. Contractor to Confirm mainline is a minimum 1-1/2" in diameter. Median to be removed and paved, see Civil sheets.
- Capture any spare existing control wire at existing mainline and splice and extend to RCV valve box, cap w/ waterproof wire connector per Irrigation Instructions, for future use.
- Point of Connection to existing irrigation mainline in street. Install gate valve and mainline elbow in a Caltrans approved locking vehicular rated concrete valve box at connection in street to existing mainline. Gate valve and 45° elbow shall be accessible. Contractor to coordinate exact point of connection to existing mainline with the Landscape Architect and City's Representative in field. Top of valve box to be flush with paving.
- Sub drain, see Civil sheets.
- Boardwalk, see Civil sheets.

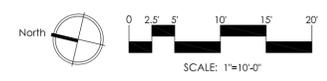
**IRRIGATION NOTES**

- The landscape Contractor shall inspect the site and verify conditions and dimensions prior to construction.
- Install irrigation system in accordance with all local codes and ordinances.
- See details, instructions and specifications for procedures, material and installation requirements.
- Prior to cutting into soil, locate all cables, conduits, sewers, and other utilities or architectural features that are commonly encountered underground and take proper precautions not to damage or disturb such improvements. Any damage made during the installation of the irrigation system of the aforementioned items shall be repaired and/or replaced to the satisfaction of the owner at the Contractor's own expense.
- The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarification only and shall be installed in planting areas. Main and valves shall be installed in shrub/ground cover areas only. Avoid conflicts with utilities, new planting, new site or architectural elements.
- All valves shall be placed in Carson 1419b-12b, or equal, green valve box. All valve boxes shall be located in groundcover areas and shall be bolted.
- All lateral end runs shall be 3/4" size unless otherwise noted.
- Contractor shall coordinate sleeving for irrigation piping with paving contractor prior to paving installation. It is the contractor's responsibility for providing appropriate sleeving under

- At each mainline sleeve, provide a separate, appropriate-size sleeve for control/common wiring. Where sleeve only is installed, install a pull rope that extends past the end of the sleeve. The Contractor is to supply extra sleeving as indicated on plans.
- The irrigation systems are designed to operate at a minimum pressure of 20 psi at point of connection to water supply at existing irrigation mainline. Landscape Contractor shall test pressure at point of connection upon award of contract. Notify landscape architect if pressure is below 15 psi or over 35 psi to determine needed pressure regulation devices. (ie: boost pump or regulating valve).
- It is required that the Contractor have assigned to the project at least one employee who is a Certified Arborist or Certified Tree Worker (International Society of Arboriculture).
- Upon award of contract, the Contractor is to schedule an on-site meeting with the Landscape Architect and City's Arborist to review protection measures for all existing trees on site that are to remain.
- The Contractor shall minimize disturbance to existing tree roots on site. If required, cut minor roots (less than 2" in diameter) of trees indicated to remain in a clean and careful manner where such roots obstruct installation of new construction. If any roots greater than 2" are encountered, stop work and contact the Landscape Architect immediately.
- All excavation and or trenching work done within the drip line or tree protection zone of existing trees shall be done by air tools only.

**STATEMENT OF COMPLIANCE**

I have complied with the criteria of the landscape water conservation ordinance and applied them for the efficient use of water for the landscape design plan.  
 PREPARER NAME: William Mastick  
 PREPARER SIGNATURE: [Signature]  
 PROFESSIONAL LICENSE: PLA CA #2451



**QUADRIGA**  
landscape architecture and planning, inc.  
sacramento | santa rosa | san francisco  
916.441.2129 | www.quadrigo-inc.com

SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
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△	4/1/16	FINAL SUBMITTAL	JS
△	3/28/14	90% SUBMITTAL	JS

**WILSEY HAM**  
Engineering, Surveying & Planning  
3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



BY	DATE
Project Mgr.: JS	01/30/15
Project LA: JS	01/30/15
Designer: BJ	01/30/15
Checked: WM	01/30/15
Drawn: BJ	01/30/15
Plotted: Brenna	03/25/16

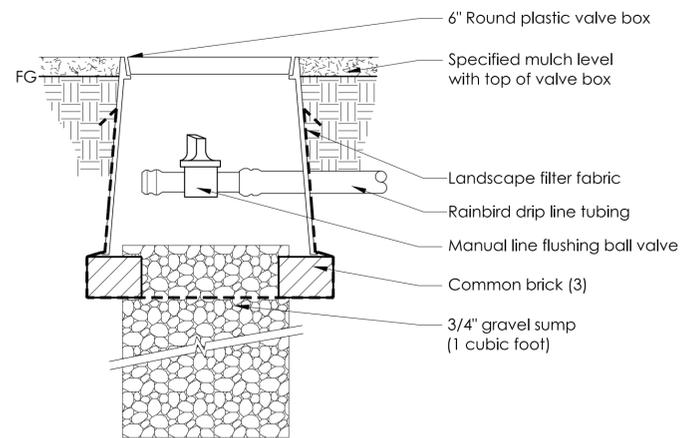
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
LANDSCAPE IRRIGATION PLAN

ALAMEDA COUNTY CALIFORNIA

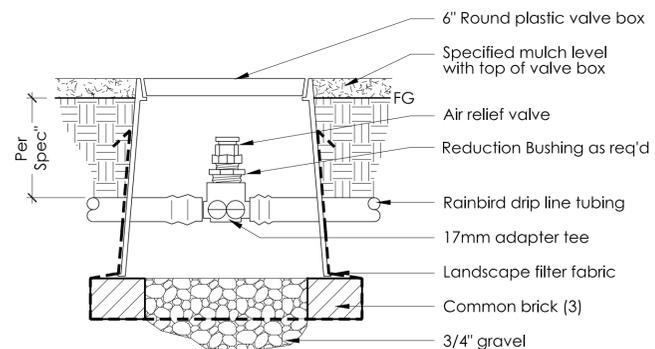
SHEET  
12 OF 17  
PROJ. NO.: 936-001  
SCALE: 1"=10'-0"  
DATE: 4/1/16

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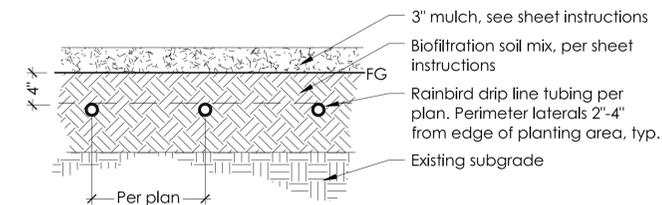




**E** **MANUAL FLUSH VALVE**  
SCALE: N.T.S.

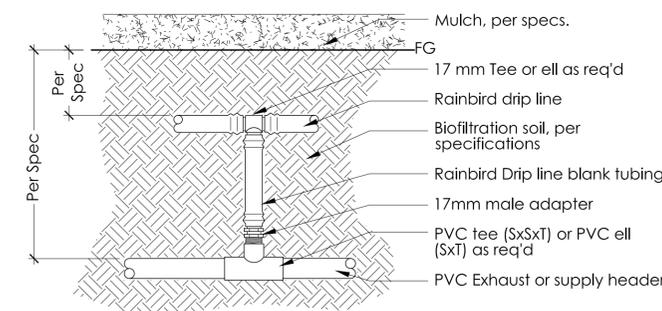


**F** **AIR RELIEF VALVE**  
SCALE: N.T.S.

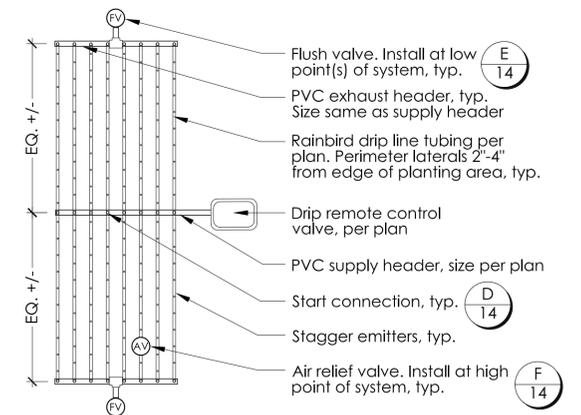


Note:  
Install Techline tubing 4" below finish grade, staple in place, per layout detail, then backfill with biofiltration soil, per planting specifications.

**C** **SUB-SURFACE DRIP INSTALLATION**  
SCALE: N.T.S.

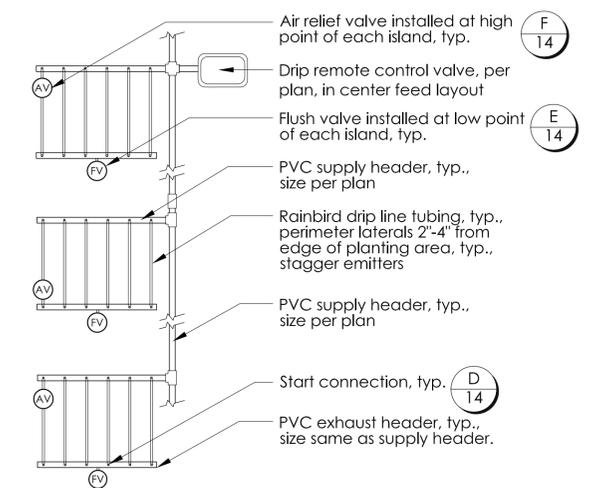


**D** **START CONNECTION**  
SCALE: N.T.S.



Notes:  
1. Affix all lines to ground using soil staples every 3' from drip valve.  
2. See legend for emitter and row spacing.  
3. Install check valves on supply and exhaust headers where elevation meets/exceeds 4-1/2' & as needed to prevent low-head drainage.

**A** **SUB-SURFACE DRIP LINEAR LAYOUT**  
SCALE: N.T.S.



Notes:  
1. Affix all lines to ground using soil staples approximately every 3' from drip valve.  
2. Do not exceed manufacturer's recommended maximum length of a single lateral, see chart.  
3. See legend for emitter and row spacing.  
4. Install check valves on supply headers where elevation meets/exceeds 4-1/2' and as needed to prevent low-head drainage.

**B** **SUB-SURFACE DRIP ISLAND LAYOUT**  
SCALE: N.T.S.

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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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Project Mgr.:	JS	01/30/15
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Designer:	BJ	01/30/15
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Plotted:	Brenna	03/25/16
	BY	DATE

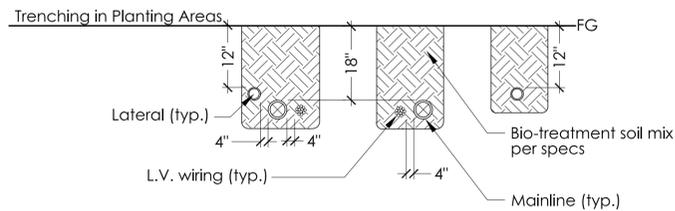
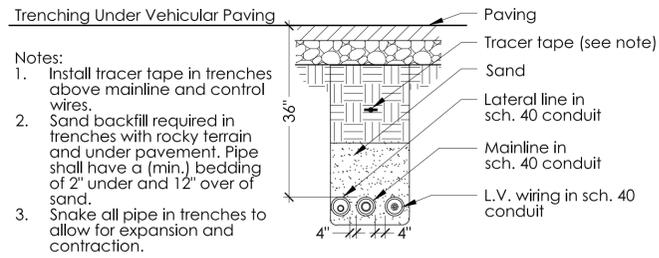
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
LANDSCAPE IRRIGATION DETAILS

ALAMEDA COUNTY

CALIFORNIA

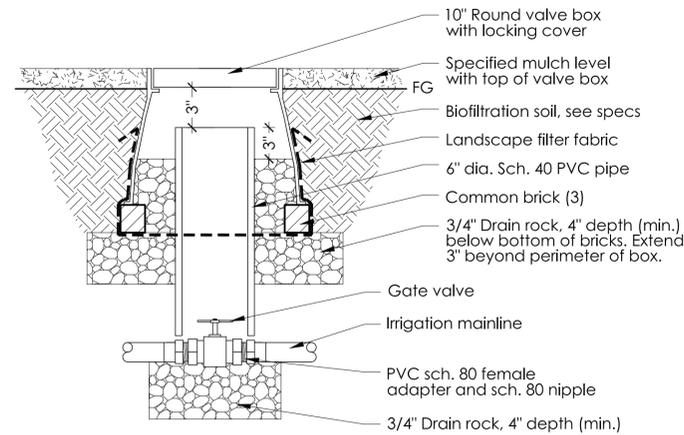
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SHEET	14	OF	17
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	4/1/16		



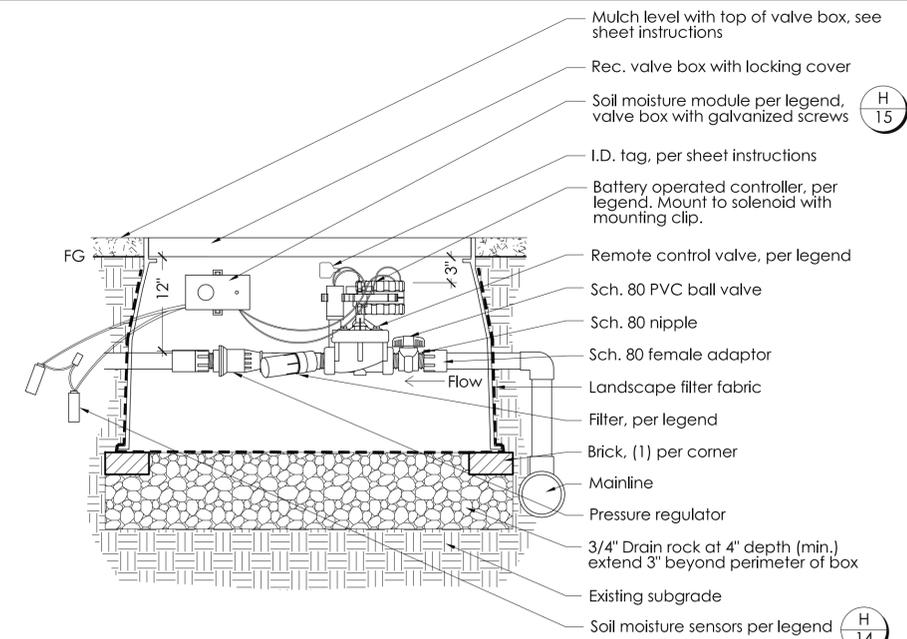
### K PIPE AND TRENCHING

SCALE: N.T.S.



### I GATE VALVE

SCALE: N.T.S.

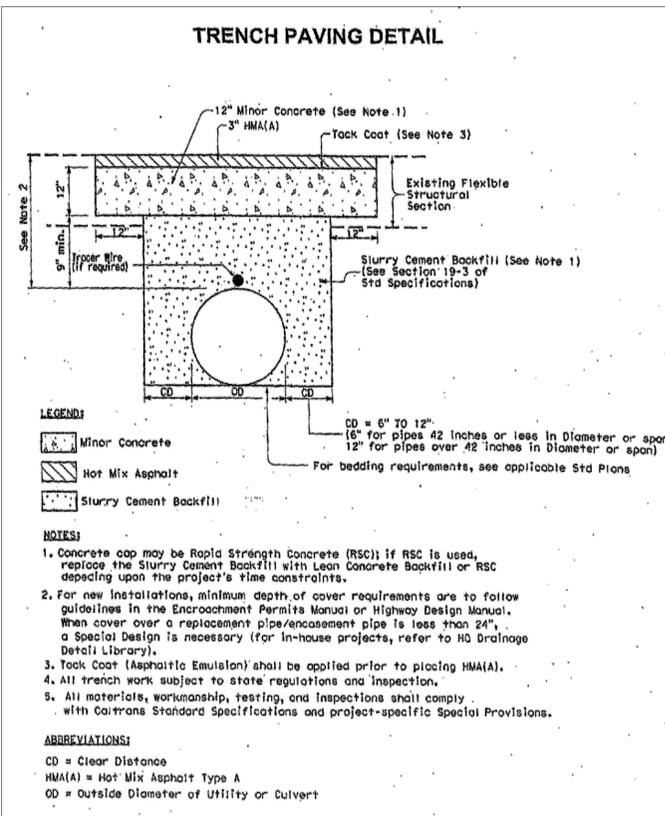


Notes:

1. Filter position as shown preferred to minimize debris in housing when servicing. Filter may be mounted horizontally or upside-down if needed due to space constraints.
2. Supply PVC sch. 80 nipples and adapters as required.
3. Supply jumbo valve box and/or housing extensions as required to fit equipment.
4. Each RCV to receive a permanent metal tag with controller and station number.
5. Provide an 18\"/>

### G REMOTE CONTROL VALVE w/ BATTERY OPERATED CONTROLLER

SCALE: N.T.S.



**LEGEND:**

- Minor Concrete
- Hot Mix Asphalt
- Slurry Cement Backfill

**NOTES:**

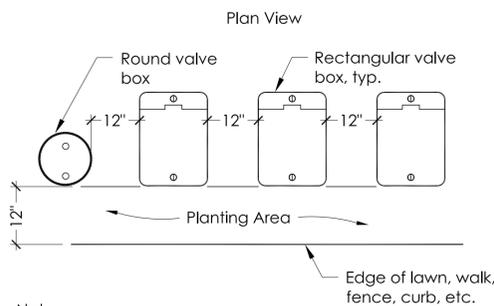
1. Concrete cap may be Rapid Strength Concrete (RSC); if RSC is used, replace the Slurry Cement Backfill with Lean Concrete Backfill or RSC depending upon the project's time constraints.
2. For new installations, minimum depth of cover requirements are to follow guidelines in the Encroachment Permits Manual or Highway Design Manual. When cover over a replacement pipe/encasement pipe is less than 24\", a Special Design is necessary (for in-house projects, refer to HD Drainage Detail Library).
3. Tack Coat (Asphaltic Emulsion) shall be applied prior to placing HMA(A).
4. All trench work subject to state regulations and inspection.
5. All materials, workmanship, testing, and inspections shall comply with Caltrans Standard Specifications and project-specific Special Provisions.

**ABBREVIATIONS:**

- CD = Clear Distance
- HMA(A) = Hot Mix Asphalt Type A
- OD = Outside Diameter of Utility or Culvert

### L CALTRANS TRENCHING DETAIL

SCALE: N.T.S.

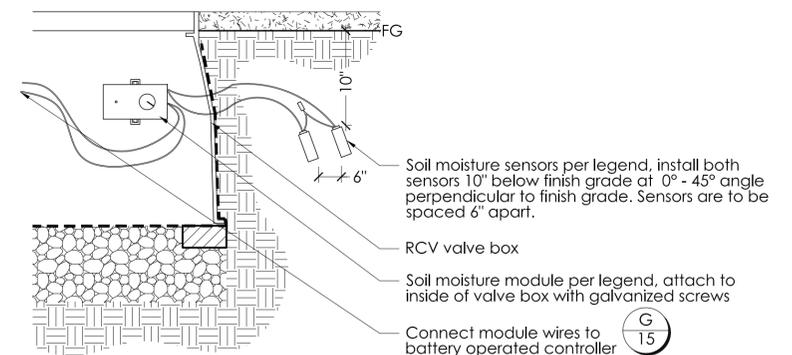


Notes:

1. Center boxes over valves.
2. Set boxes in ground cover/shrub area where possible.
3. Set boxes parallel to each other and perpendicular to edge of hardscape.
4. Valve boxes shall be green in color.

### J VALVE BOX DETAIL

SCALE: N.T.S.



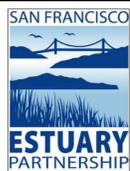
Notes:

1. Install sensors and wiring per manufacturers instructions.
2. Splices for sensor shall be located in RCV valve box.
3. Soak sensors prior to installation. Sensors are to be wet at time of installation.
4. Sensors must be located in and irrigated by the last valve to run in each valve group.
5. Sensors shall not be buried more than 14\"/>

### H MOISTURE SENSOR INSTALLATION

SCALE: N.T.S.

SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
△			
△			
△			
△	4/1/16	FINAL SUBMITTAL	JS
△	3/28/14	90% SUBMITTAL	JS

**WILSEY HAM**  
Engineering, Surveying & Planning

3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
LANDSCAPE IRRIGATION DETAILS

ALAMEDA COUNTY

CALIFORNIA

**QUADRIGA**  
landscape architecture and planning, inc.  
sacramento | santa rosa | san francisco  
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SHEET	15
OF	17
PROJ. NO.:	936-001
SCALE:	AS SHOWN
DATE:	4/1/16

IRRIGATION INSTRUCTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Work included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and project specifications sections, apply to these instructions.

1.3 SCOPE OF WORK

A. The Contractor shall furnish all service, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings as specified and shall perform other incidental work necessary to meet the intent of this specification and the approved plans including the following:

- 1. Submittals of materials lists, as-builts, controller charts, manuals and guarantee.
2. Furnishing, delivery, storage, handling, assembly and installation of materials described in these instructions and as indicated on the drawings.
3. System adjustment and testing.
4. Notification of the Landscape Architect in advance of scheduled observations.
5. Cross connection inspections and testing as required by state or local agencies for non-potable, or potable water.
6. Construction-site clean up.
7. Maintenance period.
8. One-year guarantee.
9. Protection of work and materials.

B. All work called for in the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specification.

C. The Contractor shall coordinate his work with other trades involved; i.e. Grading, plumbing and electrical contractors.

D. Physical layout:

1. Due to the scale of drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such fittings, etc. As may be required to meet such conditions.

2. The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarification only and shall be installed in planting areas to the greatest extent possible. Avoid conflict with utilities, new planting, new site or architectural elements, and existing trees.

3. Paving, walls, landscape headers and mowing strips shall be in place before installation of sprinkler system.

4. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that unknown obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect. In the event this notification is not performed, the irrigation contractor shall assume full responsibility for any revision necessary and shall perform such revisions at his own expense.

E. Contractor shall acquaint himself with all site conditions prior to submitting bid proposal.

1.4 SUBMITTALS REQUIRED

A. Comply with submittal procedures, unless otherwise indicated.

B. Material list:

1. The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and specifications. No substitution will be allowed without prior written approval by the Landscape Architect.

2. Complete material list shall be submitted prior to performing any work. Material list shall include the manufacturer, model number and description of all materials and equipment to be used.

3. Equipment or materials installed or furnished without prior approval of the Landscape Architect may be rejected and the Contractor required to remove such materials from the site at his own expense.

4. Approval of any item, alternate or substitute indicates only that the product or products apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.

5. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

C. Record and as-built drawings:

1. The Contractor shall provide and keep up to date a complete "as built" record set of plans which shall be corrected daily and show every change from the original drawings and specifications and the exact "as built" locations, sizes, and kinds of equipment. This set of drawings shall be kept on the site and shall be used only as a record set.

2. These drawings shall also serve as work progress sheets, and the Contractor shall make neat and legible annotations therein daily as the work proceeds, showing the work as actually installed. These drawings shall be available at all times for review.

3. Contractor shall provide Landscape Architect and owner with a record set of drawings before final acceptance of work.

4. Contractor shall dimension from two (2) permanent points of reference, building corners, sidewalk, or road intersections, etc., the location of the following items:

- a. Connection to existing water lines
b. Connection to existing electrical power
c. Ball valves
d. Routing of sprinkler pressure lines (dimension max 100' along routing)
e. Remote control valves
f. Routing of control wiring
g. Quick coupling valves
h. Other related equipment as directed by Landscape Architect significant changes in routing of lateral lines from those indicated on the plans.

6. On or before the date of the final observation, the Contractor shall deliver the corrected and completed "as-built" plans to the Landscape Architect. Delivery of the "as-built" plans will not relieve the Contractor of the responsibility of furnishing required information that may be omitted from the plans.

D. Controller charts:

- 1. As-built drawings shall be approved by the Landscape Architect before controller charts are prepared.
2. Provide one controller chart for each controller supplied.

3. The chart shall show the area controlled by the automatic controller and shall be the maximum size which the controller door will allow.

4. The chart is to be a reduced drawing of the actual as-built system. However, in the event the controlled sequence is not legible when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced.

5. The chart shall be a photocopy print and a different color shall be used to indicate the area of coverage for each station.

6. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 10 mils. Thick.

7. These charts shall be completed and approved prior to final observation of the irrigation system.

E. Operation and maintenance manuals:

1. Prepare and deliver to the owner within ten calendar days prior to completion of construction, two hard cover binders with three rings containing the following information:

- a. Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturer's representatives.
b. Catalog and parts sheets on every material and equipment installed under this contract.
c. Guarantee statement.
d. Complete operating and maintenance instructions on all major equipment.
e. In addition to the above mentioned maintenance manuals, provide the owner's maintenance personnel with instructions for major equipment and show evidence in writing to the owner at the conclusion of the project that this service has been rendered.

F. Equipment to be furnished:

1. Supply as part of this contract the following tools: Two (2) sets of special tools required for removing, disassembling and adjusting each type of valve supplied on this project as applicable.

Two (2) keys for each automatic controller. One (1) quick coupler key and matching hose swivel for every five (5) of each type of quick coupling valve installed.

Two (2) sets of special tools required for adjusting each type of sprinkler supplied on this project. The above mentioned equipment shall be turned over to the owner at the conclusion of the project. Before final observation can occur, evidence that the owner has received material must be shown to the Landscape Architect.

G. Guarantee: the irrigation system guarantee shall be made in accordance with the form below.

1. A copy of the guarantee form shall be included in the operations and maintenance manual. The guarantee form shall be re-typed onto the Contractor's letterhead as follows:

GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM

We hereby guarantee that the sprinkler irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted. We agree to repair or replace any defects in material or workmanship, including settling of backfilled areas below grade which may develop during the period of one year from date of acceptance and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the owner. We shall make such repairs or replacements within 72 hours after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt. A of written notice from the owner, we authorize the owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

Project: \_\_\_\_\_
Location: \_\_\_\_\_
Signed: \_\_\_\_\_ Contractor
Address: \_\_\_\_\_
Phone: \_\_\_\_\_
Date of acceptance: \_\_\_\_\_

1.5 PROTECTION OF WORK AND MATERIALS

A. Packing and shipping: deliver products in original unopened packaging with legible manufacturer's identification.

B. Storage and protection: comply with manufacturer's recommendations.

- 1. Store in a cool, dry place out of direct sunlight.
2. Protect from damage by the elements and construction procedures.
3. Store at temperature above 40 degrees f.

C. Contractor shall protect his work and the work of others for the duration of this contract.

D. Contractor shall protect pipes and fittings from direct sunlight and avoid undue bending and any concentrated external loading. Beds on which pipe is stored shall be full length of pipe. Pipe or fittings that have been damaged shall not be used.

E. Extreme care shall be exercised in excavating and working in the area due to existing utilities. Contractor shall be responsible for damages caused by his operations.

F. Contractor shall take necessary precautions to protect site conditions and plant material that is to remain. Should damage be incurred, contractor shall repair damage and restore to original condition or furnish and install equal replacements.

G. All existing irrigation systems that are to remain shall be kept in operation at all times. If the existing system is damaged by contractor, he shall be responsible for immediate repair of such damage. After each repair, all heads of the repaired system shall be removed so that the lines can be cleared of all dirt and foreign matter.

PART 2 - PRODUCTS

2.1 MATERIALS

A. When using materials with non-potable water, use an appropriate model designated and manufactured for this purpose.

B. Piping: pipe sizes shown are nominal inside diameter unless otherwise noted.

- 1. PVC plastic pressure lines: for piping upstream of remote control valves and quick couplers: all 2" pipe and larger shall be class 315: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, conforming to commercial standards CS256-63 and ASTM D2241. All 1-1/2" pipe and smaller shall be Schedule 40: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, conforming to

commercial standards CS256-63 and ASTM D1785. All pipe carrying non-potable water shall be pantone 512 purple in color and imprinted with the admonition, "caution - recycled water - do not drink" every three feet on opposite sides.

2. PVC plastic non-pressure lines: for piping downstream of remote control valves: all pipe shall be Schedule 40: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, (SDR21), conforming to commercial standards CS256-63 and ASTM d2241. All pipe carrying non-potable water shall be pantone 512 purple in color and imprinted with the admonition, "caution - recycled water - do not drink" every three feet on opposite sides.

3. For sub-surface drip irrigation: For sub-surface drip piping downstream of remote control valves, all pipe shall be per plan and sub-surface dripline product Manufacturer's specifications, including for supply and exhaust headers.

C. Fittings and connections:

1. Polyvinyl chloride pipe fittings and connections: Type 1, Grade 1, Schedule 40, high impact molded fittings, manufactured from virgin compounds as specified for piping, tapered socket or molded thread type, suitable for either solvent weld or screwed connections. Machine threaded fittings and plastic saddle and flange fittings are not acceptable. Furnish fittings permanently marked with following information: nominal pipe size, type and schedule of material, and national sanitation foundation (NSF) seal of approval. PVC fitting shall conform to ASTM D2464 and D2466.

2. ABS and PVC pipe fittings and connections (for drip irrigation): for above-ground drip piping downstream of remote control valves: all fittings shall be UV-rated unless otherwise shown on plans.

D. Automatic control wire: electric wiring runs from the automatic controller to the electric control valves shall be solid single conductor, copper wire. Neutral (common) wires shall be a minimum size of #12 and colored white. Control wires shall be a minimum size of #14 in colors other than white. All wire shall have a PVC UF jacket with a minimum of .045" thick insulation. Wire shall be UL listed and approved for direct burial.

E. Valve-mounted battery operated in-ground controllers: as shown on plans.

F. Control valves: remote control valves shall be as shown on plans.

G. Valve box: for remote control valves and ball valves, use rectangular box with locking cover by NDS Pro Series or approved equal. Valve box shall be of a size that accommodates all equipment as illustrated on the plans.

H. Gate valves: gate valves shall be as shown on plans.

I. Pressure reducing valves: pressure reducing valves shall be as shown on plans.

J. Tracer wire: tracer wire shall be installed above mainline and shall be metal detectable and Tapex or equal. Include "Dymo-tape" type plastic label with the designation "Tracer wire".

K. Drip emission devices: drip emitters, inline emitter tubing shall be as shown on plans.

L. Sensors:

1. Soil sensors shall be as shown on plans and installed per manufacturer's specifications.

M. Wire connectors: wire connectors shall be Scotchklok or equal.

N. Filter fabric: filter fabric under valve boxes shall be landscape quality, non-woven geotextile fabric with 3 oz/sy minimum weight.

O. PVC Ball Valves: as shown on plans and shall be installed before each electric control valve and shall be as shown on plans.

P. PVC Unions: as shown on plans and shall be installed before and after each electric control valve and shall be as shown on plans.

1. PART 3 - EXECUTION

3.1 INSTALLATION OF IRRIGATION SYSTEM

A. Code requirements:

1. Code requirements shall be those of state and municipal codes and regulations locally governing this work, providing that any requirements of the drawings and specifications, not conflicting therewith but exceeding the code requirements, shall govern, unless written permission to the contrary is granted by the Landscape Architect.

2. Install irrigation system in accordance with all local and state codes and ordinances.

B. Prior to construction:

1. The Contractor shall inspect the site and verify conditions and dimensions, as scaled dimensions are approximate.

2. The Contractor shall locate all cables, conduits, sleeves and other utilities or architectural features that are commonly encountered underground and take proper precautions not to damage or disturb such improvements. Any damage made during the installation of the irrigation system of the aforementioned items shall be prepared and/or replaced to the satisfaction of the owner at the contractor's own expense. Contact USA at 1-800-227-2600.

C. Point of connection

1. Contractor is responsible for making final connection between water source and irrigation system. Water source shall be provided by others unless specified otherwise on plans.

2. Connections shall be made at approximately the locations shown on the drawings. Contractor shall be responsible for minor changes caused by actual site conditions. Connect new underground piping and valves and provide all flanges, adapters or other necessary fittings for connection.

3. Permission to shut off any existing in-use water line must be obtained 48 hours in advance, in writing from the owner. The Contractor shall receive instructions from the owner as to the exact length of time of each shut-off.

D. Sleeves:

1. Contractor is responsible for installation of sleeves under all hardscape surfaces. Sleeves are diagrammatically depicted on the drawings only, and may not depict actual field conditions or quantity of sleeves.

2. If sleeves are to be installed by others, the Contractor is responsible for coordinating installation of sleeves under paved areas with Paving Contractor.

E. Excavation and backfilling of trenches:

1. Do not trench in lime-treated soils.

2. Underground trenching for utilities shall avoid major support and absorbing tree roots of protected trees.

3. Excavate trenches, prepare subgrade, and backfill to line and grade with sufficient room for pipe fittings, testing and observation operations. Do not backfill until the pipe system has been subjected to a hydrostatic test as specified.

4. Depth of piping: as specified unless otherwise noted on plans.

Under pedestrian paving:

- Pressure mainline 24" min.
Control wiring 24" min.
Non-pressure lateral line 24" min.

Under vehicular paving:

- Pressure mainline 36" min.
Control wiring 36" min.

Non-pressure lateral line 36" min.

Under planting areas:

- Pressure mainline 18" min.
Control wiring 18" min.
Non-pressure lateral line 12" min.

5. When trenching through areas where topsoil or biofiltration soil has been spread, deposit topsoil/biofiltration soil on one side of trench and sub-soil on opposite side.

6. Repair any leaks and replace all defective pipe or fittings until lines meet test requirements. Do not cover any lines until they have been inspected and approved for tightness, quality of workmanship and materials.

7. Backfill: compact specified backfill to be equal the compaction of the existing, adjacent, undisturbed soil.

F. Sub-soil backfill shall be free of all rocks over one inch diameter, debris and litter.

G. Sand backfill shall be used at the bottom of all trenches under paving, or in rocky terrain. Sand depth to include a minimum of 2" under and 4" over piping.

1. Generally, piping under existing sidewalks and/or concrete may be accomplished by jacking or boring, but where any cutting or breaking of sidewalk and/or concrete is necessary, it shall be done and replaced by the contractor as part of the contract cost. Permission to cut or break sidewalks and/or concrete shall be obtained from the owner.

H. Installation of polyvinyl chloride pipe:

1. Because of the nature of plastic pipe and fittings, exercise caution in handling, loading and storing, to avoid damage.

2. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.

3. Any pipe that has been dented or damaged shall be discarded until such dent or damaged section is cut and rejoined with a coupling.

4. Pipe depth in trench shall be as specified above, from the finish grade to the top of the pipe. The bottom of the trench shall be free of rocks, clods, and other sharp-edged objects.

5. Pipe ends and fittings shall be wiped with MEK, or equal, before welding solvent is applied. Welded joints shall be given a minimum of 15 minutes to set before moving or handling. All field cuts shall be beveled to remove burrs and excess before fitting and gluing together.

6. Pipe shall be snaked from side-to-side of trench bottom to allow for expansion and contraction.

7. Center load pipe with small amount of backfill to prevent arching and slipping under pressure. Leave joints exposed for observation(s) during testing.

8. No water shall be permitted in the pipe until observations have been completed and a period of at least 24 hours has elapsed for solvent weld setting and curing.

9. Plastic to metal joints shall be made with plastic male adapters, metal nipple hand tightened, plus one turn with a strap wrench.

10. Plastic to plastic joints: solvent-weld, using solvent recommended by pipe manufacturer only.

11. Solvent-weld joints: assemble per manufacturer's recommendations.

12. All lateral end runs shall be 3/4" size unless otherwise specified.

I. Installation of polyethylene (PE) pipe:

1. Because of the nature of plastic pipe and fittings, exercise caution in handling, loading and storing, to avoid damage.

2. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.

3. Any pipe that has been dented or damaged shall be discarded until such dent or damaged section is cut and rejoined with a coupling.

4. Plastic to plastic joints: assemble with PVC or ABS compression fittings unless otherwise specified on plans.

5. Stake pipe to ground every 3' on center.

J. Remote control wiring:

1. Direct burial control wire sizes: as specified herein, before.

2. Provide one control wire and one common ground wire to service each valve in system. Provide 3 foot minimum expansion loop at each valve to permit removal and maintenance of valves. Do not interconnect neutral wires between controllers.

3. Install control wires at least 18" below finish grade and minimum of 4" from any pipe or fittings except at terminal points.

4. Install control wires and irrigation piping in common trenches wherever possible.

5. Control wire splices: allow only on runs of more than 300-feet and shall be made only in valve or pull boxes only, splices as follows:

- a. Strip off minimum of 2-1/2" of insulation from each wire.
b. Twist on Scotchklok electrical spring connector, minimum four complete turns.
c. Seal connector in Epoxy resin.
d. Tape completed splice with Scotch 33 electrical tape.

K. Numbering and tagging: identify direct burial control wires from automatic valves to terminal strips or controller at terminal strip by color coding and tagging wire with number of connected valve.

L. Include two (2) red (#14 AWG) spare wires from furthest valve to each controller.

M. Each individual controller clock's control wires shall be bundled and taped together with colored tape at intervals not exceeding 10'-0". Use a different-colored tape for each controller.

N. Valve mounted battery operated in-ground controller: Battery operated controllers shall be installed as shown on plans and per Manufacturer's specifications.

O. Remote control valves: install remote control valves in locations as shown on the drawings, with a clearance of 4 1/2 inches minimum over top of flow control stem. Install a union type connections and PVC ball valve. Fit with valve box and cover.

P. Valve boxes: install valve boxes as shown on detail. Install no more than one valve per box. Install valve boxes so that the top of the valve box is 3" above finished grade in areas receiving 3" layer of mulch. See planting specifications, as actual depth of mulch may vary. Stencil valve number and controller letter on underside of valve box lid. Valve boxes shall be identified on the top surface of the covers by heat branding the box lid with the appropriate abbreviations for the irrigation facilities contained in the valve boxes as shown on the plans. Valve boxes that contain remote control valves shall be identified by the appropriate letters and numbers (controller and station numbers). Identification letters or numbers shall be 2 inch high. Heat branding shall be accomplished using branding irons specifically designed for this purpose. Heat branding shall not weaken or in any way puncture the valve box cover.

P. Sensors: Soil sensors shall be installed as shown on plans and per Manufacturer's specifications.

Q. Tracer Wire:

1. Tracer tape shall be installed in trenches above main line and control wires.

2. Tracer tape shall follow the main line pipe and/or branch lines and terminate in the yard box with the control valves. Provide enough length of wire or tape to make a loop and attach a "Dymo-tape" type plastic label with the designation "Tracer wire".

Q. Flushing of system:

1. After all new main lines and lateral lines are in place and connected, all necessary work has been completed, and prior to installation of drip lines, the control valves shall be opened and a full head of water used to flush out the system.

2. Drip irrigation shall be installed only after flushing of the system has been accomplished to the complete satisfaction of the Landscape Architect.

R. Pressure test the system before covering trenches to pre-test for leaks.

S. Pre-irrigate planting areas to ensure that the soil is hydrated to field capacity before planting begins.

3.2 SYSTEM ADJUSTMENT AND TESTING

A. Adjustment of the system:

1. If it is determined that adjustment in the irrigation equipment will provide proper and more adequate coverage, the Contractor shall make such adjustments prior to planting.

B. Testing of the system:

1. Test all pressure lines under hydrostatic pressure of 150 pounds per square inch, and prove watertight for 3 hours. Note: testing of pressure mainlines shall occur prior to installation of electric control valves.

2. All piping under paved areas shall be tested under hydrostatic pressure of 150 pounds per square inch, and proved watertight, prior to paving.

C. Watering schedules:

1. Station operating times shall not exceed the soil's infiltration rate as determined by the soils report.
2. Watering schedules shall be adjusted not to exceed local evapotranspiration (ETO) rate.

3.3 OBSERVATION SCHEDULE

A. Observations herein specified shall be made by the Landscape Architect. The Contractor shall request observations in writing, 3 days in advance of the time observation is required.

B. The Contractor or his authorized representative shall be on the site at the time of each observation.

C. Observation will be required for the following parts of the work:

1. Pre-construction meeting (this includes planting review also).

2. When all irrigation installations, except the maintenance period, have been completed. Acceptance and written approval shall establish start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

3. At the end of ninety (90) days from the start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

4. At the end of one (1) year from the start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

5. Final observation at the completion of the two (2) year maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

D. Acceptances: upon completion of the final observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable, (2) of any requirements necessary for completion and acceptance.

E. The Contractor will be charged, and responsible for, any time and mileage used by the Landscape Architect as a result of prematurely scheduled site visit.

3.4 CLEAN-UP

A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete areas adjacent to plantings.

3.5 MAINTENANCE/PLANT ESTABLISHMENT

A. The maintenance period begins on the day the Landscape Architect has given notice of substantial completion and shall continue thereafter for no less than two (2) years.

1. These instructions are to be used in conjunction with the project's Storm Water Planter Maintenance Manual.

2. The Contractor shall call for inspections per the Observation section above.

3. Phased maintenance periods, if required, shall be negotiated prior to construction.

4. If phased maintenance periods are not negotiated prior to construction, the maintenance period for all areas will begin after the entire project is 100% complete per contract documents. Portions completed earlier shall be maintained up to and including the specified maintenance period without additional compensation.

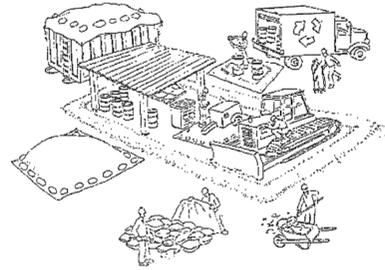
B. The Contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period until the final acceptance of the work.

C. Regular irrigation maintenance operations shall begin immediately after each system is installed.

D. The contract completion date of the contract maintenance period will be extended, when in the opinion of the Landscape Architect, improper maintenance is evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work at no change in contract price until all of the work is completed and acceptable.

E. The Contractor shall be responsible for maintaining adequate protection of the areas. Damaged areas shall be repaired immediately per the Definitions and Limits of Work as described in the

# Pollution Prevention - It's Part of the Plan



## Make sure your crews and subs do the job right!

Runoff from streets and other paved areas is a major source of pollution and damage to creeks and the San Francisco Bay. Construction activities can directly affect the health of creeks and the Bay unless contractors and crews plan ahead to keep dirt, debris, and other construction waste away from storm drains and local creeks. Following these guidelines and the project specifications will ensure your compliance with County of Alameda requirements.

### Materials storage & spill cleanup

#### Non-hazardous materials management

- ✓ Sand, dirt, and similar materials must be stored at least 10 feet (3 meters) from catch basins. All construction material must be covered with a tarp and contained with a perimeter control during wet weather or when rain is forecasted or when not actively being used within 14 days.
- ✓ Use (but don't overuse) reclaimed water for dust control as needed.
- ✓ Sweep or vacuum streets and other paved areas daily. Do not wash down streets or work areas with water!
- ✓ Recycle all asphalt, concrete, and aggregate base material from demolition activities. Comply with Alameda County Ordinances for recycling construction materials, wood, gyp board, pipe, etc.
- ✓ Check dumpsters regularly for leaks and to make sure they are not overfilled. Repair or replace leaking dumpsters promptly.
- ✓ Cover all dumpsters with a tarp at the end of every work day or during wet weather.

#### Hazardous materials management

- ✓ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state, and federal regulations.
- ✓ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecasted.
- ✓ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecasted within 24 hours.
- ✓ Be sure to arrange for appropriate disposal of all hazardous wastes.

#### Spill prevention and control

- ✓ Keep a stockpile of spill cleanup materials (rags, absorbents, etc.) available at the construction site at all times.
- ✓ When spills or leaks occur, contain them immediately and be particularly careful to prevent leaks and spills from reaching the gutter, street, or storm drain. Never wash spilled material into a gutter, street, storm drain, or creek!
- ✓ Dispose of all containment and cleanup materials properly.
- ✓ Report any hazardous materials spills immediately! Dial 911 or Alameda County Public Works Agency dispatch at (510) 670-5500

#### Construction Entrances and Perimeter

- ✓ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ✓ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking.

### Vehicle and equipment maintenance & cleaning

- ✓ Inspect vehicles and equipment for leaks frequently. Use drip pans to catch leaks until repairs are made; repair leaks promptly.
- ✓ Fuel and maintain vehicles on site only in a bermed area or over a drip pan that is big enough to prevent runoff.
- ✓ If you must clean vehicles or equipment on site, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or creeks.
- ✓ Do not clean vehicles or equipment on-site using soaps, solvents, degreasers, steam cleaning equipment, etc.



### Earthwork & contaminated soils

- ✓ Keep excavated soil on the site where it will not collect in the street.
- ✓ Transfer to dump trucks should take place on the site, not in the street.
- ✓ Use fiber rolls, silt fences, or other control measures to minimize the flow of silt off the site.
- ✓ Earth moving activities are only allowed during dry weather by permit and as approved by the County Inspector in the Field.
- ✓ Mature vegetation is the best form of erosion control. Minimize disturbance to existing vegetation whenever possible.
- ✓ If you disturb a slope during construction, prevent erosion by securing the soil with erosion control fabric, or seed with fast-growing grasses as soon as possible. Place fiber rolls down-slope until soil is secure.
- ✓ If you suspect contamination (from site history, discoloration, odor, texture, abandoned underground tanks or pipes, or buried debris), call the Engineer for help in determining what should be done, and manage disposal of contaminated soil according to their instructions.



### Dewatering operations

- ✓ Effectively manage all run-on, all runoff within the site, and all runoff that discharges from the site. Run-on from off site shall be directed away from all disturbed areas or shall collectively be in compliance.
- ✓ Reuse water for dust control, irrigation, or another on-site purpose to the greatest extent possible.
- ✓ Be sure to notify and obtain approval from the Engineer before discharging water to a street, gutter, or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ✓ In areas of known contamination, testing is required prior to reuse or discharge of groundwater. Consult with the Engineer to determine what testing is required and how to interpret results. Contaminated groundwater must be treated or hauled off-site for proper disposal.



### Saw cutting

- ✓ Always completely cover or barricade storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or sand/gravel bags to keep slurry out of the storm drain system.
- ✓ Shovel, absorb, or vacuum saw-cut slurry and pick up all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ✓ If saw cut slurry enters a catch basin, clean it up immediately.

### Paving/asphalt work

- ✓ Always cover storm drain inlets and manholes when paving or applying seal coat, tack coat, slurry seal, or fog seal.
- ✓ Protect gutters, ditches, and drainage courses with sand/gravel bags, or earthen berms.
- ✓ Do not sweep or wash down excess sand from sand sealing into gutters, storm drains, or creeks. Collect sand and return it to the stockpile, or dispose of it as trash.
- ✓ Do not use water to wash down fresh asphalt concrete pavement.



### Concrete, grout, and mortar storage & waste disposal

- ✓ Store concrete, grout, and mortar under cover, on pallets, and away from drainage areas. These materials must never reach a storm drain.
- ✓ Wash out concrete equipment/trucks off-site or into contained washout areas that will not allow discharge of wash water onto the underlying soil or onto the surrounding areas.
- ✓ Collect the wash water from washing exposed aggregate concrete and remove it for appropriate disposal off site.



### Painting

- ✓ Never rinse paint brushes or materials in a gutter or street!
- ✓ Paint out excess water-based paint before rinsing brushes, rollers, or containers in a sink.
- ✓ Paint out excess oil-based paint before cleaning brushes in thinner.
- ✓ Filter paint thinners and solvents for reuse whenever possible. Dispose of oil-based paint sludge and unusable thinner as hazardous waste.



### Landscape Materials

- ✓ Contain, cover, and store on pallets all stockpiled landscape materials (mulch, compost, fertilizers, etc.) during wet weather or when rain is forecasted or when not actively being used within 14 days.
- ✓ Discontinue the application of any erodible landscape material within 2 days of forecasted rain and during wet weather.

REVISIONS

NO.	DESCRIPTION	BY	DATE	APP'D

COUNTY OF ALAMEDA ☆ PUBLIC WORKS AGENCY

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
OAKLAND, CA SITE  
POLLUTION PREVENTION

WORK ORDER NO.	
SPECIFICATION NO.	
SHEET NO.	17 OF 17
FILE NO.	

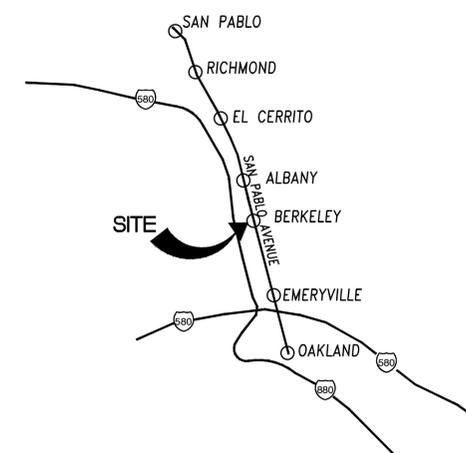
# CITY OF BERKELEY

## SAN PABLO AVENUE GREEN STORMWATER SPINE

APRIL 2016



**VICINITY MAP**  
NOT TO SCALE



**LOCATION MAP**  
NOT TO SCALE

**BENCHMARK/DATUM**

BENCHMARK NGS-HT0966, ELEVATION 43.14 NAVD 88 DESCRIBED BY COAST AND GEODETIC SURVEY 1969 AT ALBANY, AT THE NORTHEAST CORNER OF THE JUNCTION OF SAN PABLO AND MARIN AVENUES, IN THE TOP OF THE NORTHWEST CORNER OF A CONCRETE CATCH BASIN WHICH IS ALONG THE NORTH CURB OF MARIN AVENUE, 15.5 FEET EAST OF THE EAST CURB OF SAN PABLO AVENUE, 1.0 FEET NORTH OF THE NORTHWEST CORNER OF A STEEL GRATE OF THE CATCH BASIN, 1.5 FEET SOUTHWEST OF A STREET SIGN POST, AND ABOUT 1/2 FOOT HIGHER THAN THE AVENUES.

**RECORD DRAWINGS**

CONTRACTOR SHALL KEEP ACCURATE RECORD DRAWINGS WHICH SHOW THE FINAL LOCATION, ELEVATION, AND DESCRIPTION OF ALL WORK. CONTRACTOR SHALL ALSO NOTE THE LOCATION AND ELEVATION OF ANY EXISTING IMPROVEMENTS ENCOUNTERED. RECORDS SHALL BE "REDLINED" ON A SET OF CONSTRUCTION PLAN DRAWINGS AND GIVEN TO THE OWNER UPON COMPLETION OF WORK.

**UNAUTHORIZED CHANGES**

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY WILSEY HAM.

**REVISIONS**

ALL REVISIONS TO THESE PLANS MUST BE REVIEWED AND APPROVED IN WRITING BY WILSEY HAM AND THE CITY ENGINEER PRIOR TO CONSTRUCTION OF AFFECTED ITEMS.

**ACCURACY**

AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD, ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF WILSEY HAM PRIOR TO START OF CONSTRUCTION OF THE PARTICULAR ITEM OF WORK.

**ACCURACY OF UTILITIES**

EXISTING UTILITY INFORMATION WAS PROVIDED TO WILSEY HAM AND MAY NOT HAVE BEEN VERIFIED IN THE FIELD. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS AND REPORT ANY CONFLICTS TO WILSEY HAM BEFORE CONSTRUCTION BEGINS.

**CONSTRUCTION STAKING**

CONSTRUCTION LAYOUT MUST BE PROVIDED BY CONTRACTOR. WILSEY HAM CAN PROVIDE CONSTRUCTION STAKING SERVICES FOR THIS PROJECT. CONTACT KEN MOORE AT 650-349-2151 FOR MORE INFORMATION ON THESE SERVICES AND A FEE PROPOSAL.

**SHEET DESCRIPTION**

- 1 TITLE SHEET
- 2 NOTES
- 3 DEMOLITION PLAN
- 4 STREET IMPROVEMENT PLAN
- 5 GRADING & DRAINAGE PLAN
- 6 CIVIL DETAILS
- 7 CIVIL DETAILS
- 8 LANDSCAPE PLANTING PLAN
- 9 LANDSCAPE PLANTING LEGEND & DETAILS
- 10 LANDSCAPE PLANTING DETAILS
- 11 LANDSCAPE PLANTING INSTRUCTIONS
- 12 LANDSCAPE IRRIGATION PLAN
- 13 LANDSCAPE IRRIGATION LEGEND
- 14 LANDSCAPE IRRIGATION DETAILS
- 15 LANDSCAPE IRRIGATION DETAILS
- 16 LANDSCAPE IRRIGATION INSTRUCTIONS

TO BE SUPPLEMENTED BY CALTRANS STANDARD PLANS DATED 2010

**LEGEND**

PROPOSED	EXISTING

**LEGEND**

PROPOSED	EXISTING

**ABBREVIATIONS**

AC	ASPHALT CONCRETE
COM	COMMUNICATIONS
CT	CALTRANS
D	DELTA ANGLE
ELEC	ELECTRIC
EX, (E)	EXISTING
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FS	FINISHED SURFACE
GB	GRADE BREAK
INV	INVERT ELEVATION
L	LENGTH
LIP	LIP OF GUTTER
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
(N)	NEW
R	RADIUS
RIM	RIM ELEVATION
SD	STORM DRAIN
SDAD	STORM DRAIN AREA DRAIN
SDCO	STORM DRAIN CLEANOUT
SL	STREET LIGHT
SLD	SEE LANDSCAPE DRAWINGS
STD	STANDARD
TC	TOP OF CURB
TEL	TELEPHONE
TV	TELEVISION
TYP	TYPICAL

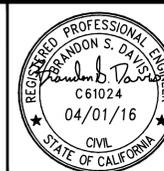
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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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**WILSEY HAM**  
Engineering, Surveying & Planning  
3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/01/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
TITLE SHEET

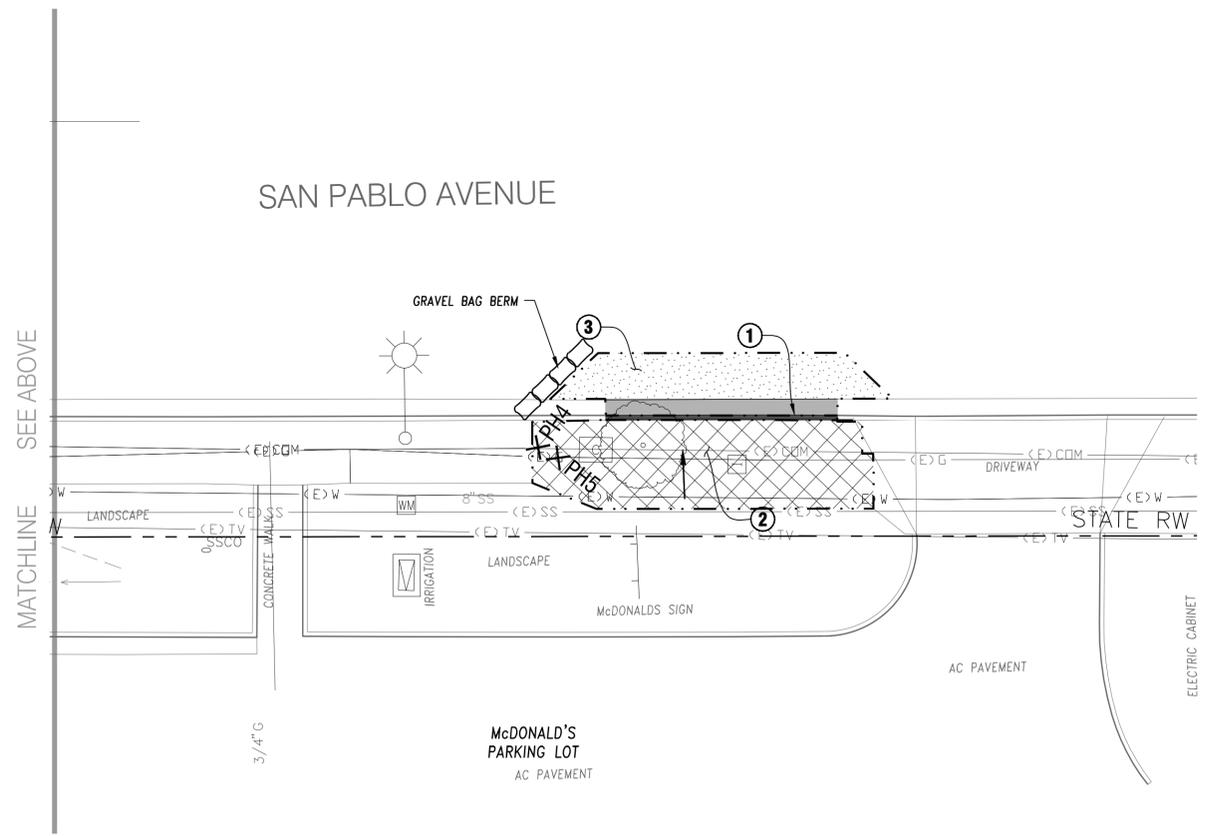
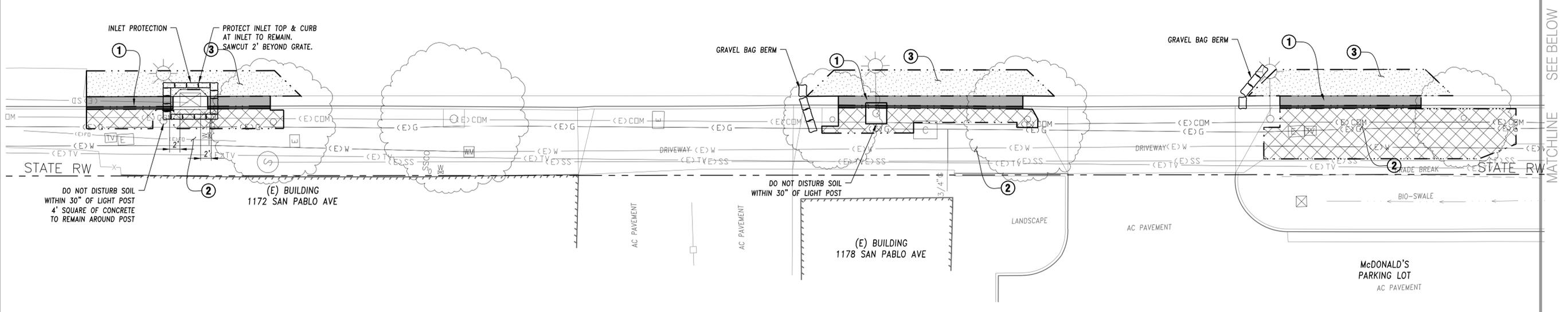
ALAMEDA COUNTY CALIFORNIA

SHEET	1	OF	16
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	APRIL 01, 2016		



NOTE: FOR ACCURATE RIGHT OF WAY DATA,  
CONTACT RIGHT OF WAY ENGINEERING AT  
CALTRANS DISTRICT 4.

### SAN PABLO AVENUE



#### DEMOLITION KEY

- ① CURB & GUTTER TO BE REMOVED - 116 LF
- ② SIDEWALK TO BE REMOVED - 1032 SF
- ③ AC PAVEMENT TO BE REMOVED - 722 SF

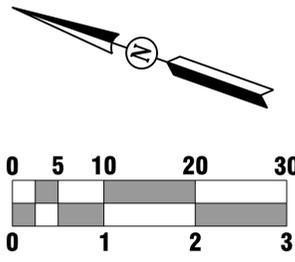
#### POTHOLE LEGEND

PH #	UTILITY	DEPTH <sup>1</sup>	ASPHALT	CONC.
4	MULTIPLE COM 1", 2" & 4" PVC	11"/23"	-	-
5	3" STEEL GAS	30"	-	-

NOTE:  
1. DEPTH TO TOP OF FACILITY OR TOP/BOTTOM OF FACILITY

#### NOTES

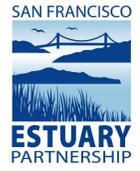
1. PROTECT-IN-PLACE EXISTING UTILITIES & IMPROVEMENTS NOT SHOWN FOR REMOVAL.
2. NEATLY SAWCUT ALL CONCRETE & ASPHALT AT LIMIT OF REMOVAL. NEATLY SAWCUT SIDEWALK TO NEAREST SCOREMARK BEYOND LIMITS SHOWN.
3. SEE NOTES SHEET 2.
4. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
5. MAINTAIN SAFE PEDESTRIAN ROUTE THROUGH PROJECT DURING CONSTRUCTION.
6. BIO-SWALE AT McDONALD'S IS FOR McDONALD'S FACILITY. CONTRACTOR SHALL NOT USE BIO-SWALE FOR CONTRACTOR'S PURPOSES.
7. SEE SHEET 4 FOR DIMENSIONS.
8. PROTECT TREES TO REMAIN. SEE LANDSCAPE NOTES 14-17.



CALL UTILITY NOTIFICATION CENTER OF CALIFORNIA  
**811**  
Know what's below.  
Call before you dig.  
CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

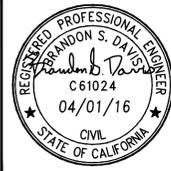
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**WILSEY HAM**  
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Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/01/16
BY		DATE

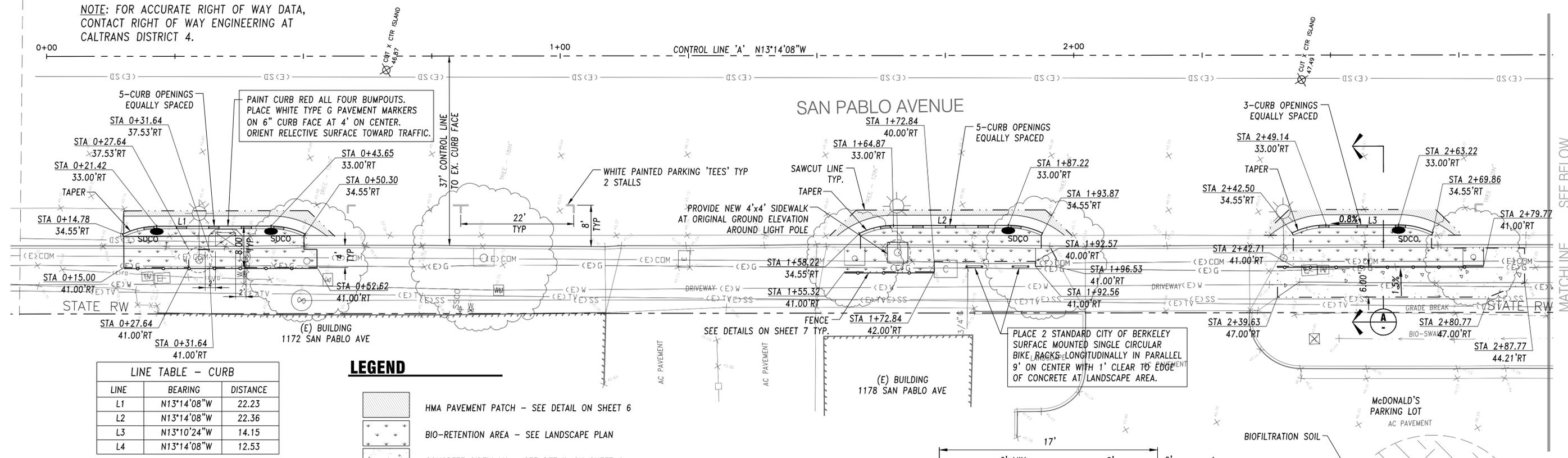
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
DEMOLITION PLAN

ALAMEDA COUNTY

CALIFORNIA

SHEET	3	OF	16
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		

NOTE: FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT CALTRANS DISTRICT 4.



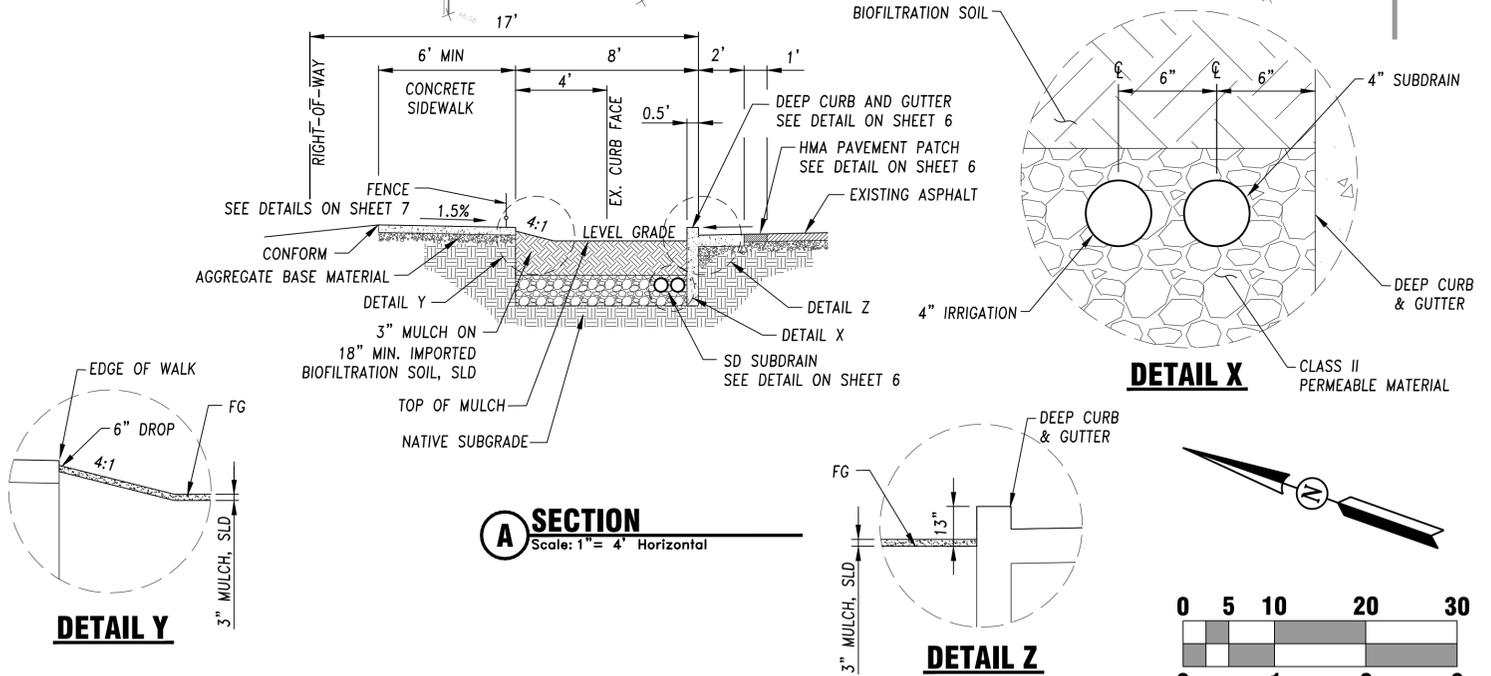
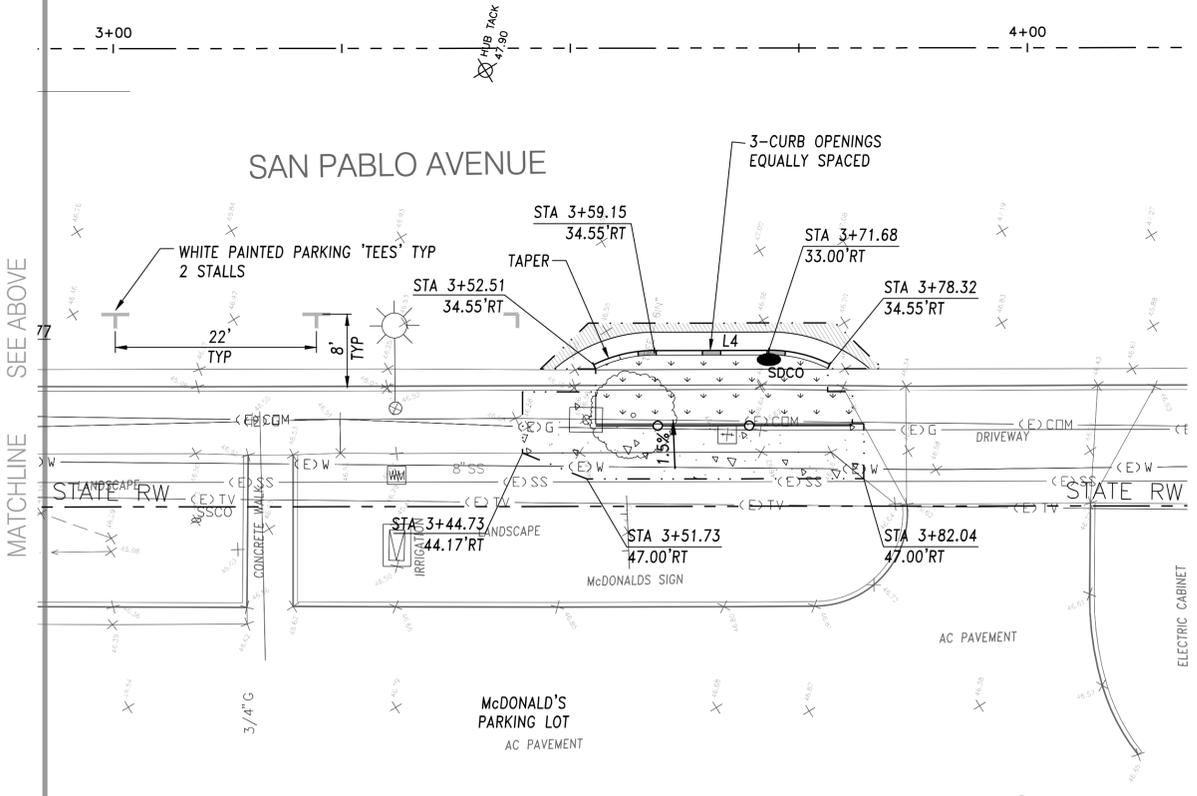
**LINE TABLE - CURB**

LINE	BEARING	DISTANCE
L1	N13°14'08"W	22.23
L2	N13°14'08"W	22.36
L3	N13°10'24"W	14.15
L4	N13°14'08"W	12.53

**LEGEND**

- HMA PAVEMENT PATCH - SEE DETAIL ON SHEET 6
- BIO-RETENTION AREA - SEE LANDSCAPE PLAN
- CONCRETE SIDEWALK - SEE DETAIL ON SHEET 6

ALL CURB CURVES ARE R=15.00' L=6.88' D=26°17'30"

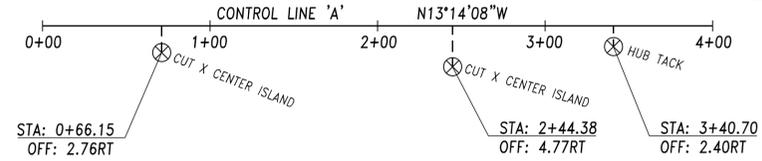


**A SECTION**  
Scale: 1" = 4' Horizontal

**DETAIL Y**

**DETAIL Z**

**DETAIL X**



**CONTROL DIAGRAM**  
SCALE: N.T.S.



CALL UTILITY NOTIFICATION CENTER OF CALIFORNIA  
**811**  
Know what's below.  
Call before you dig.  
CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

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3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



BY	DATE
Project Mgr.: B. Davis	04/01/16
Project Eng.: E. Cohen	04/01/16
Designer: E. Cohen	04/01/16
Checked: B. Davis	04/01/16
Drawn: P. Businger	04/01/16
Plotted: P. Businger	04/09/16

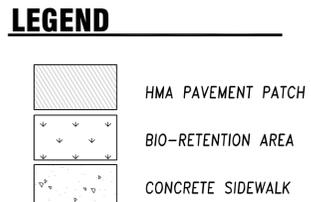
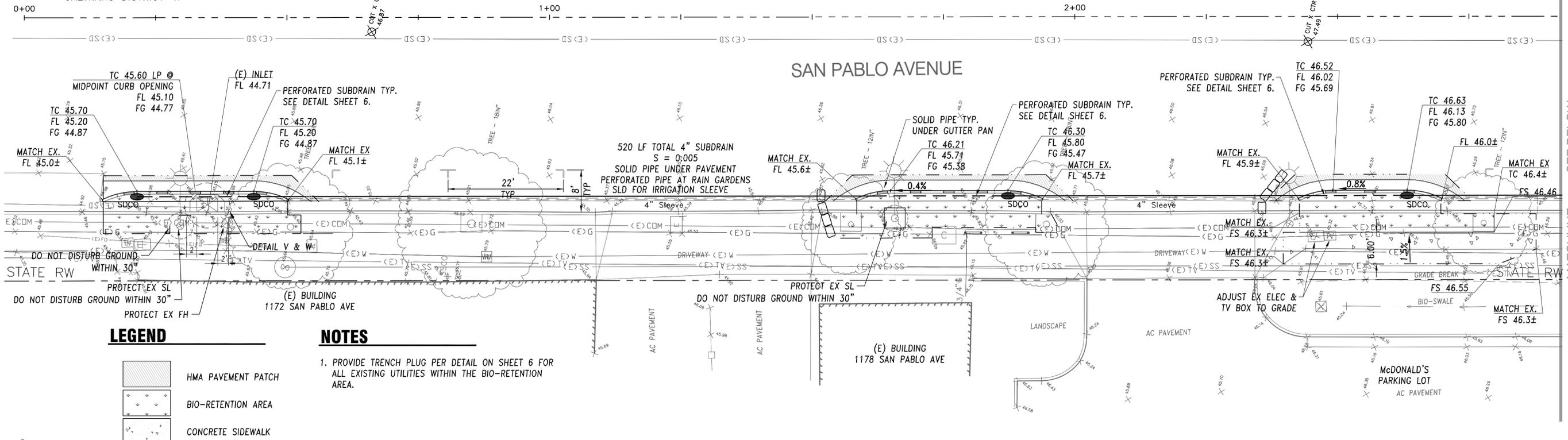
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
STREET IMPROVEMENTS

ALAMEDA COUNTY

CALIFORNIA

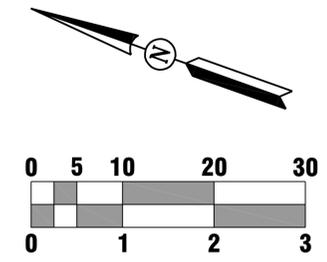
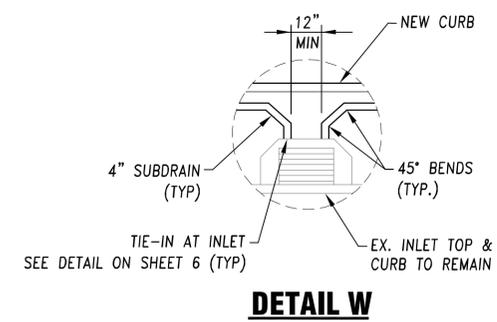
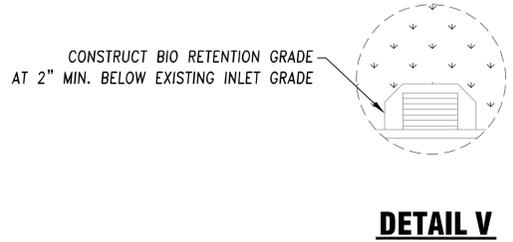
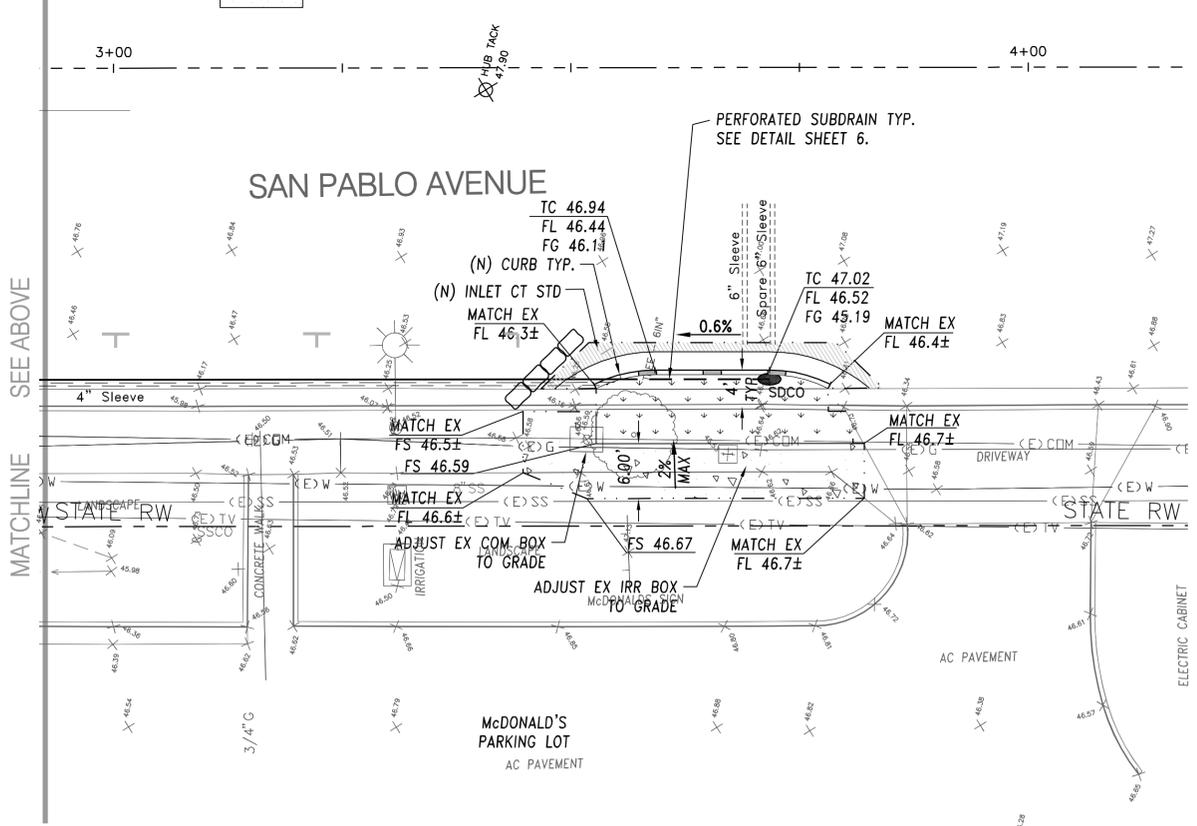
SHEET	4	OF	16
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		

NOTE: FOR ACCURATE RIGHT OF WAY DATA,  
CONTACT RIGHT OF WAY ENGINEERING AT  
CALTRANS DISTRICT 4.



**NOTES**

1. PROVIDE TRENCH PLUG PER DETAIL ON SHEET 6 FOR ALL EXISTING UTILITIES WITHIN THE BIO-RETENTION AREA.



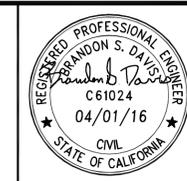
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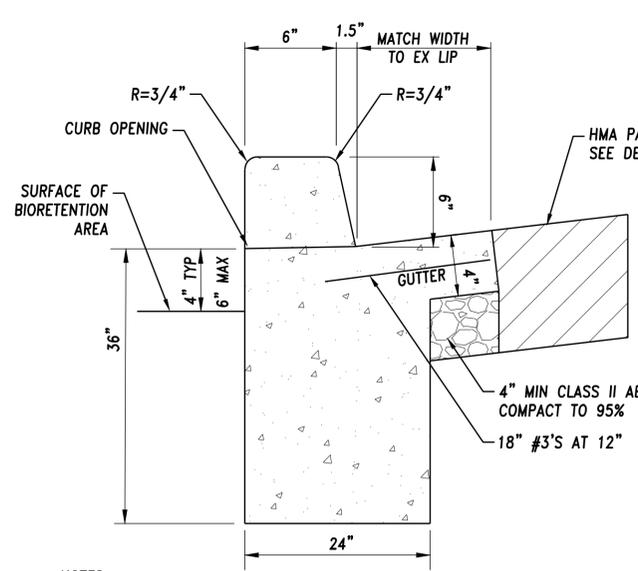
BY	DATE
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Checked: B. Davis	04/01/16
Drawn: P. Businger	04/01/16
Plotted: P. Businger	04/07/16

**SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
GRADING & DRAINAGE**

ALAMEDA COUNTY CALIFORNIA

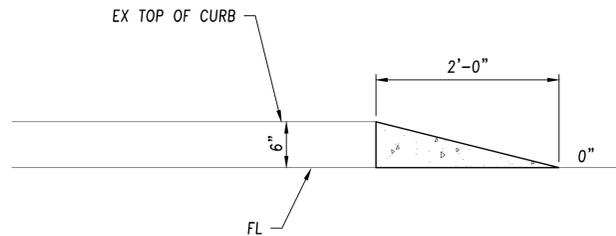
SHEET  
5 OF 16  
PROJ. NO.: 936-001  
SCALE: 1" = 10'  
DATE: APRIL 01, 2016



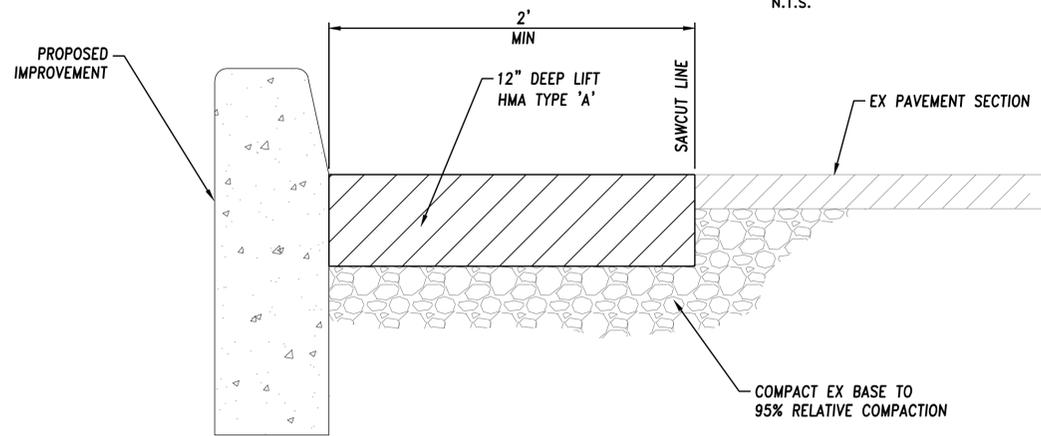


- NOTES:
- BROOM FINISH CONCRETE.
  - PROVIDE EXPANSION JOINTS AT 16' MAX SPACING.
  - PROVIDE 4" THICK CONCRETE SPLASH PAD AT OPENINGS.
  - PAINT CURB RED.

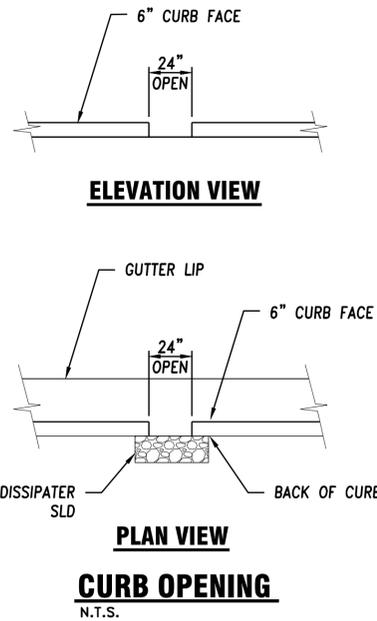
**DEEP CURB & GUTTER DETAIL**  
N.T.S.



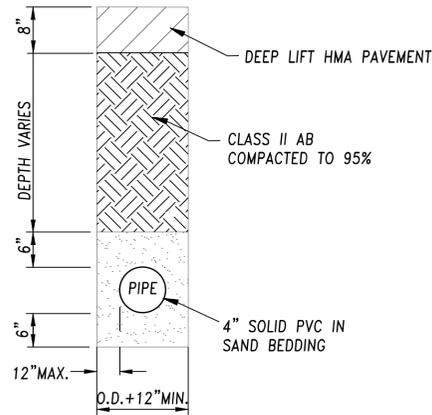
**TAPER DETAIL ELEVATION VIEW**  
N.T.S.



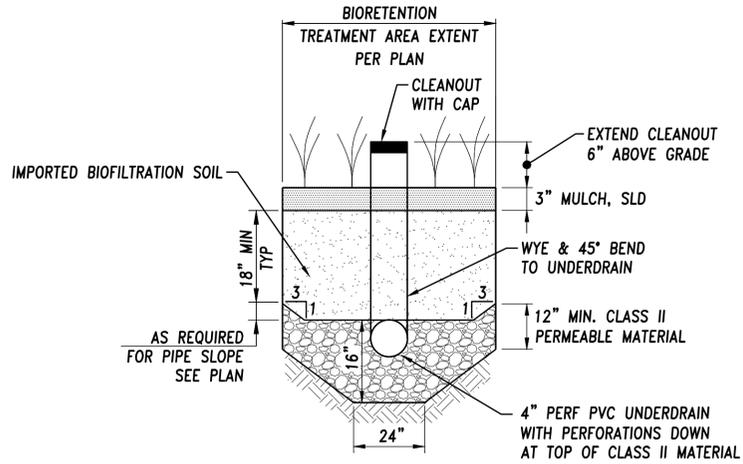
**HOT MIX ASPHALT (HMA) PAVEMENT PATCH**  
N.T.S.



**CURB OPENING**  
N.T.S.

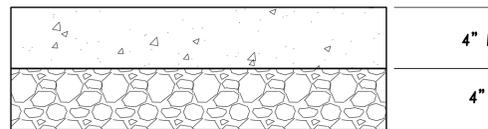


**SD SUBDRAIN IN PAVEMENT**  
N.T.S.



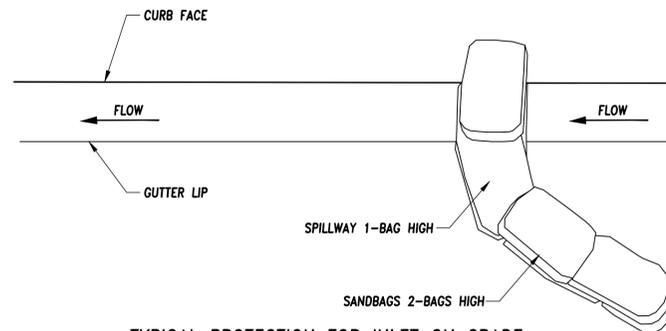
- NOTES:
- ALL BIOFILTRATION SOIL SHALL COMPLY WITH THE SPECIFICATION IN ATTACHMENT "L" OF THE MUNICIPAL STORMWATER PERMIT.
  - NATIVE SUBGRADE SHOULD BE RIPPED AND LOOSENED AND THEN TAMPED GENTLY AT THE DIRECTION OF THE ENGINEER.

**SD SUBDRAIN DETAIL IN RAINGARDEN**  
Scale: 1"=1' Horizontal

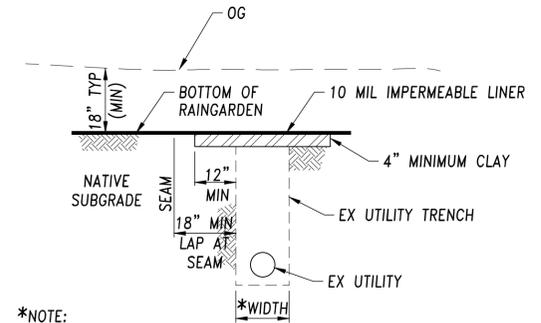


- NOTES:
- SAWCUT EXISTING SIDEWALK TO THE NEAREST SCORELINE.
  - TOOL SCORELINES AT EQUAL INTERVALS ROUGHLY EQUAL TO THE SIDEWALK WIDTH.
  - PROVIDE EXPANSION JOINTS AT 16' MAX SPACING.

**SIDEWALK DETAIL**  
N.T.S.

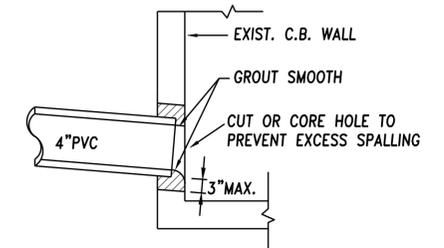


**TEMPORARY GRAVEL BAG BERM**  
N.T.S.

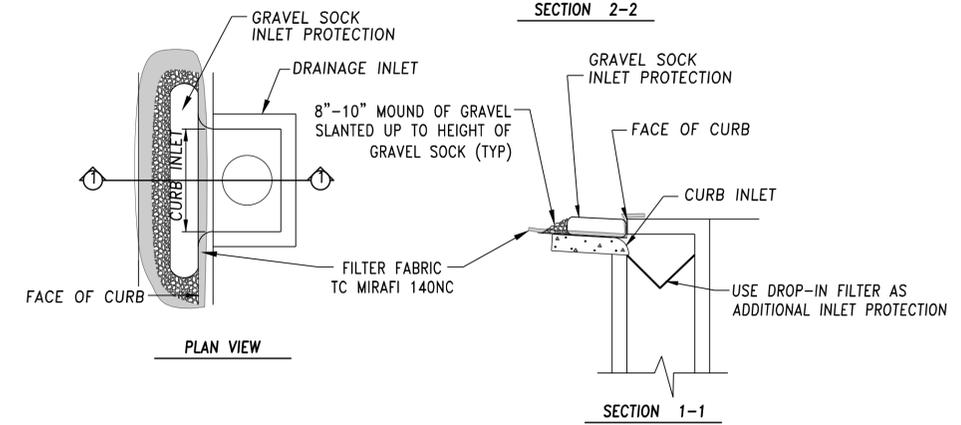
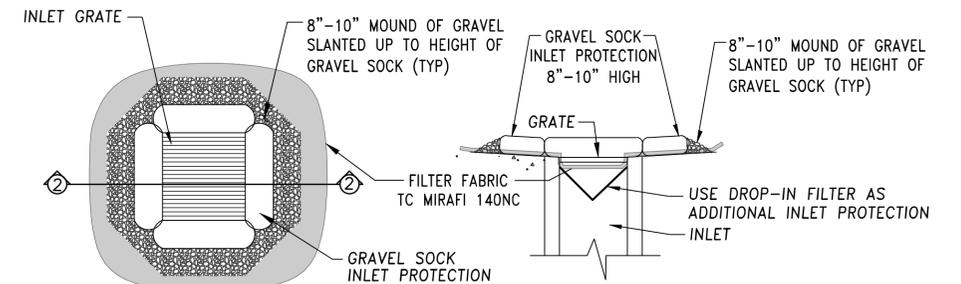


- \*NOTE:  
EXTEND PLUG AND LINER 12" MIN AND 18" MIN RESPECTIVELY BEYOND EXISTING TRENCH WALL. WHERE TRENCH WALL IS NOT DISCERNIBLE, TRENCH WIDTH SHALL BE TAKEN AS A MINIMUM OF 24" PLUS THE OUTSIDE DIMENSION OF THE SUBJECT UTILITY FACILITY.

**TRENCH PLUG DETAIL**  
NOT TO SCALE



**PIPE CONNECTION TIE-IN AT INLET**  
N.T.S.



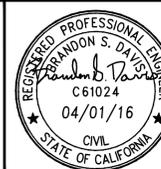
**TEMPORARY INLET PROTECTION**  
N.T.S.

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OAKLAND, CA 94612



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3130 La Selva Street, Suite 100  
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650.349.2151  
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Project Mgr.	B. Davis	04/01/16
Project Eng.	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/09/16
BY		DATE

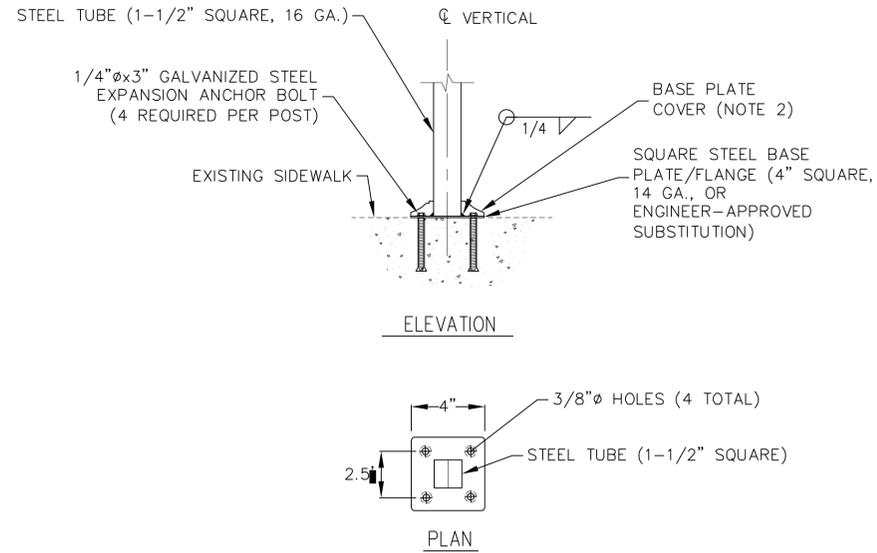
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
CIVIL DETAILS

ALAMEDA COUNTY

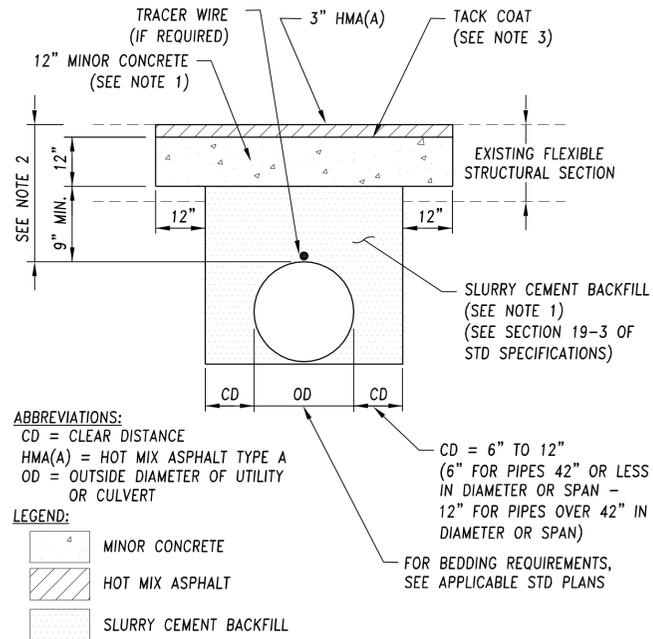
CALIFORNIA

SHEET	6	OF	16
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		

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**ORNAMENTAL FENCE POST ANCHORAGE**  
N.T.S.



**ABBREVIATIONS:**

- CD = CLEAR DISTANCE
- HMA(A) = HOT MIX ASPHALT TYPE A
- OD = OUTSIDE DIAMETER OF UTILITY OR CULVERT
- CD = 6" TO 12" (6" FOR PIPES 42" OR LESS IN DIAMETER OR SPAN - 12" FOR PIPES OVER 42" IN DIAMETER OR SPAN)

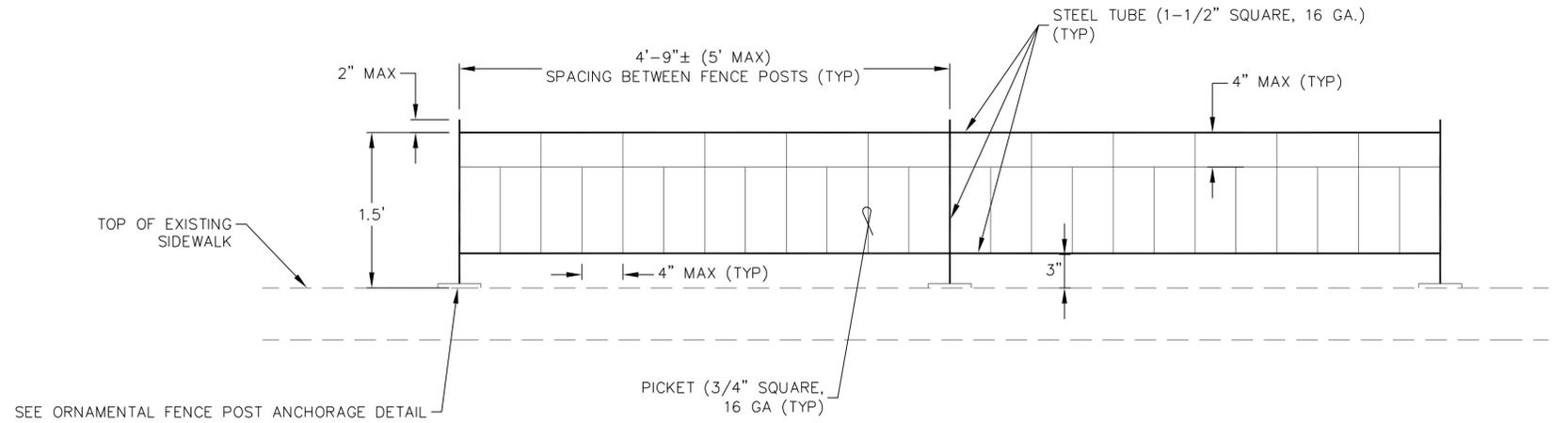
**LEGEND:**

- MINOR CONCRETE
- HOT MIX ASPHALT
- SLURRY CEMENT BACKFILL

**NOTES:**

1. CONCRETE CAP MAY BE RAPID STRENGTH CONCRETE (RSC); IF RSC IS USED, REPLACE THE SLURRY CEMENT.
2. FOR NEW INSTALLATIONS, MINIMUM DEPTH OF COVER REQUIREMENTS ARE TO FOLLOW GUIDELINES IN THE ENCROACHMENT PERMITS MANUAL OR HIGHWAY DESIGN MANUAL. WHEN COVER OVER A REPLACEMENT PIPE/ENCASEMENT PIPE IS LESS THAN 24", A SPECIAL DESIGN IS NECESSARY (FOR IN-HOUSE PROJECTS, REFER TO HQ DRAINAGE DETAIL LIBRARY)
3. TACK COAT (ASPHALTIC EMULSION) SHALL BE APPLIED PRIOR TO PLACING HMA(A).
4. ALL TRENCH WORK SUBJECT TO STATE REGULATIONS AND INSPECTION.
5. ALL MATERIALS, WORKMANSHIP, TESTING, AND INSPECTIONS SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATIONS AND PROJECT-SPECIFIC SPECIAL PROVISIONS.

**TRENCH DETAIL**  
N.T.S.



**ORNAMENTAL FENCE**  
N.T.S.

**NOTES:**

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ORNAMENTAL FENCE, POSTS, AND MOUNTING HARDWARE PRIOR TO FABRICATION.
2. CONTRACTOR TO SUBMIT BASE PLATE COVER AND POST CAP OPTIONS FOR CITY REVIEW AND APPROVAL.

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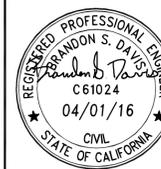
SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
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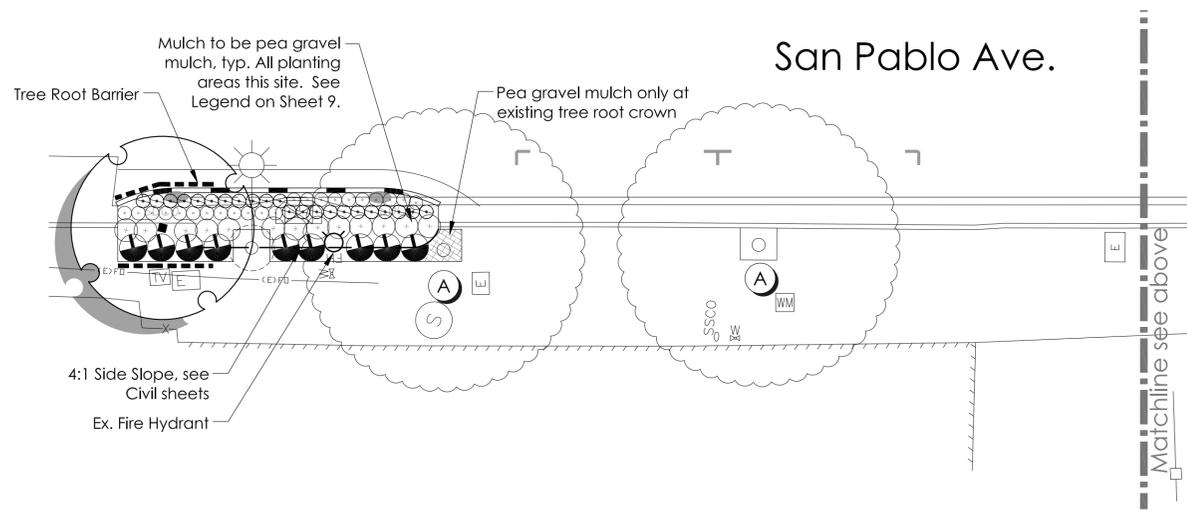
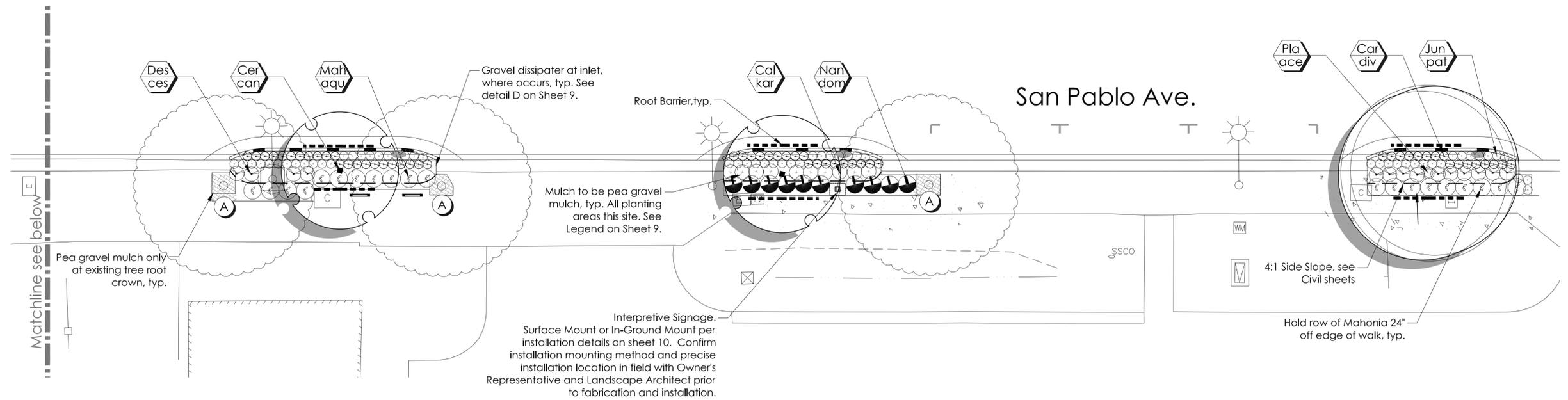
Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
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Plotted:	P. Businger	04/07/16
BY	DATE	

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
CIVIL DETAILS

ALAMEDA COUNTY

CALIFORNIA

SHEET	7	OF	16
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	APRIL 01, 2016		



## PLANTING NOTES

- The plant list is provided for the convenience of the Contractor. The Contractor shall verify all plant counts and if a discrepancy exists, the plan shall govern.
- Substitution of specified plant material shall not be made unless otherwise approved by the Landscape Architect. Same genus different species substitutions are acceptable provided the variety is similar in growth habit to the specified plant and water use is the same. Example: Escallonia 'Terri' could sub for 'Red Elf'. Rhampholepis can not substitute for Escallonia as they have different water use requirements. Certificates of compliance will not be completed for projects which exceed the water use of specified plant materials until conformance with the water efficient landscape requirements is achieved.
- Finish grade in planting areas shall be smooth and even prior to installation of mulch. All landscape areas not covered with live material shall be covered with 3" of mulch, except where noted.
- Planting areas shall be kept clean and free from all concrete, asphaltic waste, lumber or other such materials, shall be removed by excavation of the soil and replaced with clean native top soil.
- See details and specifications for procedures, material, and installation requirements.
- Soils reports shall be provided for all imported soils, per specification section. Reports shall be submitted to the SFEP's Representative and Landscape Architect for review and approval.
- Adjacent streets, sidewalks and other areas shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
- Any damaged or destroyed landscaping shall be replaced to the satisfaction of the Owner's Representative.
- For best results, native plant materials should not have their roots disturbed. For plastic cans, remove bottom of can, place in plant pit and cut sides to remove. Cut metal cans in three places minimum and carefully slide root ball into plant pit, for large plant cans in three places minimum and carefully slide root ball into plant pit, for large plant cans in three places minimum and carefully slide root ball into plant pit.
- Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.
- Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.
- Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape Maintenance Manual for complete information.
- Synthetic pre-emergents are prohibited in the construction and maintenance of this project.
- If it is required that the Contractor have assigned to the project at least one employee who is a Certified Arborist or Certified Tree Worker (International Society of Arboriculture, Certified Arborist or Tree Worker shall meet with the Landscape Architect and City's Arborist on site to discuss tree preservation prior to construction and be present onsite for all work within the dripline or Tree Protection Zone of existing trees.
- Upon award of contract, the Contractor is to schedule an on-site meeting with the Landscape Architect and City's Arborist to review protection measures for all existing trees on site that are to remain.
- The Contractor is to minimize disturbance to existing tree roots on site. If required, cut minor roots (less than 2" in diameter) of trees indicated to remain in a clean and careful manner where such roots obstruct installation of new construction. If any roots greater than 2" are encountered stop work and contact the Landscape Architect and City's Arborist immediately.
- All excavation and/or trenching work done within the drip line of existing trees shall be done by air tools only.
- The contractor shall be responsible for the health and protection of all existing trees on site that are to remain. The contractor shall replace any trees that have been killed or damaged and warrant replacement as determined by the City's Arborist. Replacement trees shall be 24" box specimen trees, species shall be per the City's Arborist or Authorized Representative.
- This is a functioning storm water planter with an engineered imported soil mix designed for specific performance criteria. Amend only planting pits and associated planting backfill per the planting instructions.
- Soil shall not be worked when wet to avoid compaction.

All trees are to be planted a minimum of 10' from utility poles, fire hydrants, driveways, and highway signs.

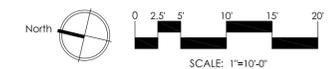
### Existing Trees:

- (A) Existing Platanus Tree to Remain.

Contractor shall consult with the City's Arborist regarding tree protection measures upon award of contract.

### Note:

See sheet 8 for planting legend & installation details.



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1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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△	4/1/16	FINAL SUBMITTAL	JS
△	3/28/14	90% SUBMITTAL	JS

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San Mateo, CA 94403  
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	BY	DATE
Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
LANDSCAPE PLANTING PLAN

ALAMEDA COUNTY

CALIFORNIA

SHEET	8	OF	16
PROJ. NO.:	936-001	SCALE:	1"=10'-0"
DATE:	4/1/16		

# BERKELEY CANDIDATE PLANT LIST

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	WATER REQ.	REFERENCE	PROJECT SPACING	MIN-MAX SPREAD	NATIVE
<b>TREES</b>									
3	Cer can	Cercis canadensis (Standard)	Eastern Redbud	15 gal.	INF-OCC	SUNSET	20'	20'-30'	N
1	Pla ace	Platanus x acarfolia 'Columbia'	London Plane Tree	15 gal.	MOD	EBMUD	30'	30'-40'	N
<b>SHRUBS</b>									
20	Mah aqu	Mahonia aquifolium 'Orange Flame'	Oregon Grape	5 gal.	INF-MOD	SUNSET	3'	3'-4'	Y
20	Nan dom	Nandina domestica 'Gulf Stream'	Heavenly Bamboo	5 gal.	INF-OCC	SUNSET	3'	3'-4'	N
<b>GRASSES &amp; PERENNIALS</b>									
23	Cal kar	Calamagrostis 'Kari Foerster'	Reed Grass	1 gal.	OCC-MOD	EBMUD	30"	2'-3'	Y
78	Car div	Carex divulsa	Berkeley Sedge	1 gal.	OCC-MOD	EBMUD	18"	1'-2'	N
14	Des ces	Deschampsia cespitosa	Tufted Hairgrass	1 gal.	MOD	EBMUD	30"	2'-3'	Y
79	Jun pat	Juncus patens 'Elk Blue'	California Gray Rush	1 gal.	NONE-MOD	SUNSET	18"	18"-24"	Y

## Pea Gravel Mulch

Smooth pea gravel from a local source. Size: 3/8". Color: gray. Apply 3" thick layer in areas indicated on plan. Submit sample for approval. See notes.

## Gravel Dissipator

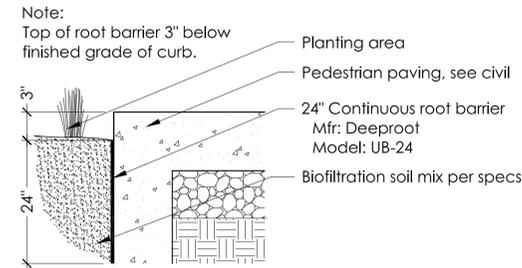
Gravel Dissipator at inlet. See detail.

## Root Barriers

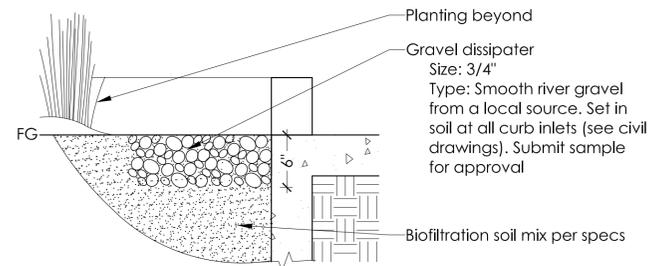
Tree Root Barrier. Center on tree and extend 6'-0" in each direction as shown. See detail.

## Hydrozone

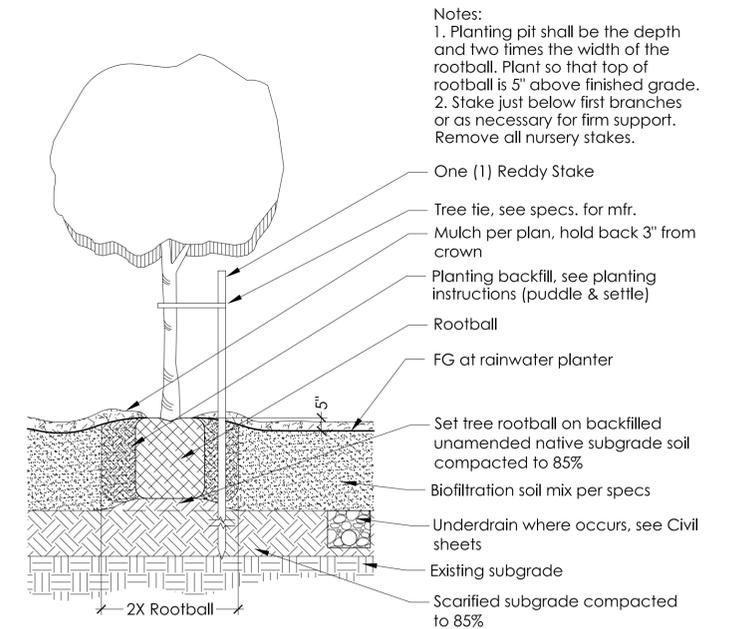
All planting areas are a mixture of medium and low water using plant material per W.U.C.O.L.S. Guidelines. Per the California Model Water Ordinance, all planting areas are considered medium water use.



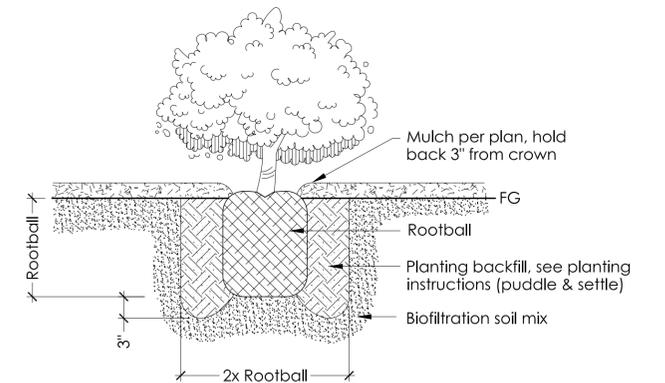
**C ROOT BARRIER AT PAVING**  
SCALE: N.T.S.



**D GRAVEL DISSIPATER AT INLET**  
SCALE: N.T.S.



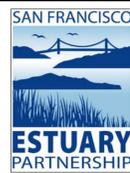
**A STORMWATER TREE PLANTING**  
SCALE: N.T.S.



**B SHRUB AND GRASS PLANTING**  
SCALE: N.T.S.

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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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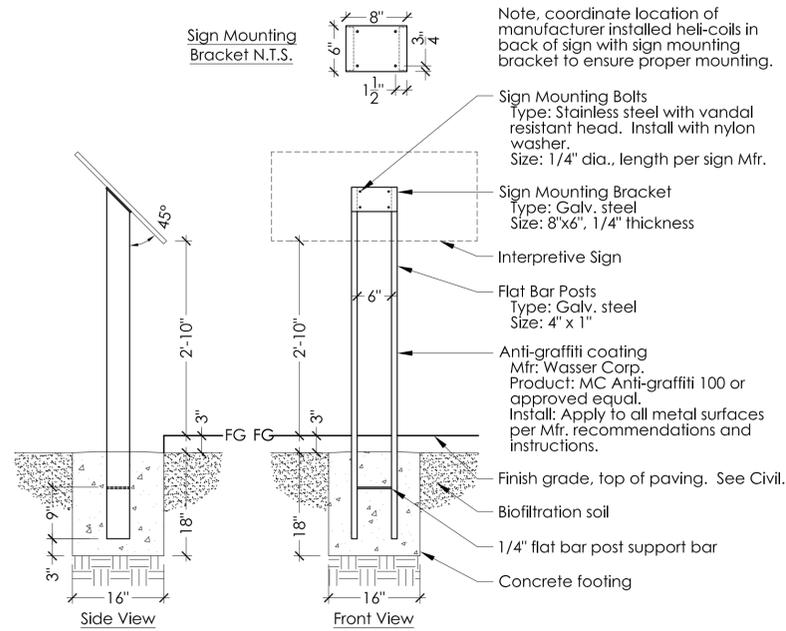


Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
LANDSCAPE PLANTING LEGEND & DETAILS  
ALAMEDA COUNTY CALIFORNIA

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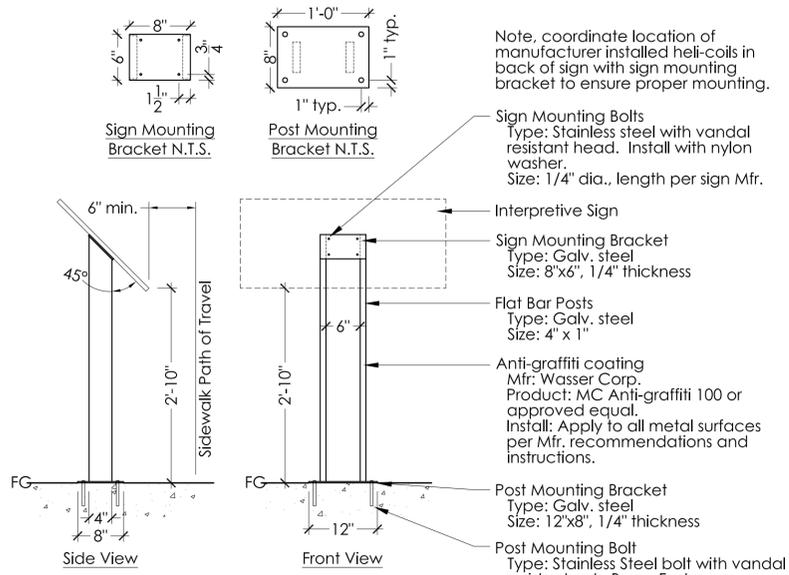
SHEET	9	OF	16
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	4/1/16		



**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

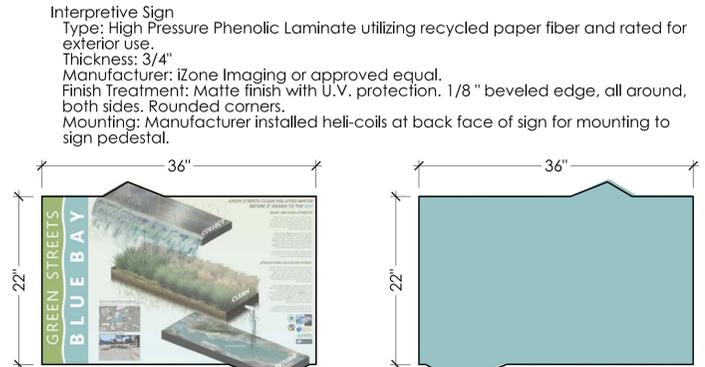
**G IN-GROUND SIGN PEDESTAL**  
SCALE: N.T.S.



**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

**F SURFACE MOUNT SIGN PEDESTAL**  
SCALE: N.T.S.



**Interpretive Sign**  
Type: High Pressure Phenolic Laminate utilizing recycled paper fiber and rated for exterior use.  
Thickness: 3/4"  
Manufacturer: iZone Imaging or approved equal.  
Finish Treatment: Matte finish with U.V. protection. 1/8" beveled edge, all around, both sides. Rounded corners.  
Mounting: Manufacturer installed heli-coils at back face of sign for mounting to sign pedestal.

**Front Sign Face**  
Full color interpretive image shown is preliminary and is for bidding purposes only. A high quality digital file of the approved signage will be provided to the Contractor upon award of contract.

**Rear Sign Face**  
Solid color rear sign face shown is preliminary and is for bidding purposes only. The CMYK color number will be provided to the Contractor upon award of contract.

**E INTERPRETIVE SIGN**  
SCALE: N.T.S.

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SAN PABLO AVENUE  
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**LANDSCAPE PLANTING DETAILS**  
ALAMEDA COUNTY CALIFORNIA

SHEET	10	OF	16
PROJ. NO.:	936-001	SCALE:	AS SHOWN
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PLANTING INSTRUCTIONS

**PART 1 - GENERAL**

**1.1 SUMMMARY**

A. Work included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

**1.2 RELATED DOCUMENTS**

A. Drawings and general provisions of contract, including general and supplementary conditions and project specifications sections, apply to these instructions.

B. Contractor shall refer to and incorporate Bay-Friendly Landscape Guidelines and Principals into the installation of the landscape. The 7 Principals of Bay-Freindly Landscaping and Gardening are:

- |                                       |  |
|---------------------------------------|--|
| 1. Landscape Locally                  | 5. Conserve Energy                       |
| 2. Landscape for Less to the Landfill | 6. Protect Water & Air Quality           |
| 3. Nurture the Soil                   | 7. Protect and Maintain Wildlife habitat |
| 4. Conserve Water                     |  |

**1.3 SUBMITTALS**

A. Comply with submittal procedures per project specifications.

B. Samples: samples of quarry fines, soil amendments, gravel, cobble, fertilizers, compost and mulches shall be submitted for review and stored on site until furnishing of materials is completed. Delivery may begin upon approval of samples or as directed by the Landscape Architect.

C. Technical reports: Submit copies of technical reports. Work is to be performed by:

Soil and Plant Laboratory, Inc.  
352 Mathew Street  
Santa Clara, CA 95030  
408-727-0330

1. Agronomy reports: one (1) agronomy report shall be prepared for each site, which shall include basic and minor nutrients, as well as a textural analysis of each sample. Sample shall consist of a composite of three shovelfuls of soil.

D. Fertilizers, soil conditioners, and compost: submit product data for fertilizers, soil conditioners, and compost to be installed at time of planting. Quantities of fertilizers and soil conditioners shall be per the agronomy report. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

E. Cost adjustments: Contractor shall provide a line item cost for installation of the soil conditioners and fertilizers according to these specifications. Should the agronomy reports recommend a lesser degree of soil conditioning and fertilizing, Contractor shall adjust fees or provide a credit to the client accordingly. In the event that the required soil conditioners and fertilizers are greater than these specifications, the Contractor shall not be responsible for funding the difference.

F. Post-planting fertilizers: submit product data for fertilizers for use post-planting. Quantities of fertilizers shall be per the post-amendment agronomy report. Submit certificates, trip slips and invoices for soil preparation materials. See Section 1.5 Review of Plant Invoices and Soil Preparation Conformance Test.

Manufacturer's instructions: Contractor to submit installation instructions for planting items not herein outlined or detailed on drawings.

**1.4 GENERAL REQUIREMENTS**

A. The term "planting area" shall mean all areas to be planted with trees, shrubs, groundcovers, and areas covered with organic mulch.

B. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice.

C. All rock and other growth or debris accumulated during the duration of the project shall be removed from the site.

D. Prior to excavation for planting or placing of plant materials, locate all underground utility lines still in use and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and plant locations, notify the Landscape Architect who shall arrange for the relocation of one or the other. The Contractor assumes all responsibility for making any and all repairs for damages resulting from work as herein specified.

E. Grading and soil preparation work shall be performed only during the period when beneficial and optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy soil structure, spreading and grading operations shall be suspended until the moisture content is increased or reduced to acceptable levels. Soil shall not be worked when wet to avoid compaction.

F. All scaled dimensions are approximate. Before proceeding with any work carefully check and verify all dimensions and immediately inform the Landscape Architect of any discrepancy between the drawings and/or specifications and actual conditions.

G. Quantities for plant materials are shown for convenience only, and not guaranteed. Check and verify count and supply sufficient number to fulfill intent of drawings.

H. Adequately stake, barricade, and protect all irrigation equipment, manholes, utility lines, and other existing property during all phases of the soil amending and grading operations.

I. Observation of plant material:

- All plant material shall be delivered to the project site for observation by the Architect, for approval prior to installation.
- All trees shall conform to the "Guideline Specifications for Nursery Tree Quality", Urban Tree Foundation.
- The Contractor shall immediately remove any plant material not approved.
- Approved plant material shall remain on the site and shall be maintained by the Contractor as standards of comparison for material to be furnished.
- The Contractor, at his option and at his expense, can retain the services of the Landscape Architect to review trees 15 gallon and larger tagged at the nursery and/or at its place of growth, or as otherwise specified on drawings.

J. Rejection and substitution:

1. All plants not conforming to the requirements herein specified shall be considered defective, and such plants, whether in place or not, shall be marked as rejected and be immediately removed from the site of the work and replaced with acceptable plant materials. The plant materials shall meet all applicable observations required by law. All plants shall be of the species, variety, size, age, flower color and condition as specified herein and/or as indicated on the drawings. Under no condition will there be any substitution of plant species, variety, or reduced sizes for those listed on the accompany drawings, except with the express written consent of the Landscape Architect.

**1.5 REVIEW OF PLANT INVOICES AND SOIL PREPARATION CONFORMANCE TEST**

A. Upon delivery of materials and/or completion of all soil conditioning and grading but prior to initiating planting operations, the Contractor shall provide Landscape Architect with signed copies of required certificates, trip slips and invoices for soil preparation materials. The Landscape Architect shall review such material, comparing the total quantities of each material furnished against the total area to each operation. If the minimum rates of application have not been met, the Landscape Architect will require the incorporation of additional quantities of these materials to fulfill the minimum application requirements specified.

**1.6 PRODUCT DELIVERY, STORAGE AND HANDLING**

A. All products shall be delivered to the site in manufacturer's unopened standard containers bearing original labels showing quantity, analysis and name of manufacturer.

B. All materials shall be stored in designated areas and in such a manner as to protect from weather or other conditions that might impair the effectiveness of the product.

**1.7 OBSERVATION**

A. Observations herein specified shall be made by the Landscape Architect. The Contractor shall request observations in writing, 3 days in advance of the time observation is required.

B. The Contractor or his authorized representative shall be on the site at the time of each observation.

C. Observation will be required for the following parts of the work:

- Upon the completion of grading prior to planting.
- Approval of plant materials (refer to 1.4 general requirements).
- When trees and shrubs are spotted in place for planting, but before planting holes are excavated. Approval of mulch product shall be obtained prior to spreading.
- When all planting, except the maintenance period, has been completed. Acceptance and written approval shall establish start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- At the end of ninety (90) days from the start of the maintenance period. The Agency's Representative and City's Representative and/or City's Arborist shall be requested to be present for this observation.
- At the end of one (1) year from the start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- Final observation at the completion of the two (2) year maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.

D. Acceptances: upon completion of the final observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable, (2) of any requirements necessary for completion and acceptance.

E. The Contractor will be charged, and responsible for, any time and mileage used by the Landscape Architect as a result of prematurely scheduled site visit.

**1.8 MAINTENANCE/PLANT ESTABLISHMENT**

A. The maintenance period begins on the day the Landscape Architect has given notice of completion and shall continue thereafter for no less than two (2) years.

- These instructions are to be used in conjunction with the project's Storm Water Planter Maintenance Manual.
- The Contractor shall call for inspections per the Observation section above.
- Phased maintenance periods, if required, shall be negotiated prior to construction.
- If phased maintenance periods are not negotiated prior to construction, the maintenance period for all areas will begin after the entire project is 100% complete per contract documents. Portions completed earlier shall be maintained up to and including the specified maintenance period without additional compensation.

B. The Contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period until the final acceptance of the work.

C. A protective temporary fence shall be installed and remain in place until the 90-day review inspection. Contractor is responsible for removal of the protective temporary fence at the close of the 90-day period.

D. Regular planting maintenance operations shall begin immediately after each plant is planted. Plants shall be kept in a healthy, growing condition and in a visually pleasing appearance by watering, pruning, mowing, rolling, trimming, edging, fertilizing, restaking, pest and disease controlling, spraying, weeding, cleaning up and any other necessary operation of maintenance. Landscape areas shall be kept free of weeds, noxious grass, and all other undesired vegetative growth and debris. All plants found to be dead or in an impaired condition shall be replaced immediately. See post-planting fertilizing requirements in the Storm Water Planter Maintenance Manual.

E. The contract completion date of the contract maintenance period will be extended, when in the opinion of the Landscape Architect, improper maintenance and/or possible poor or unhealthy condition of planted material are evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work at no change in contract price until all of the work is completed and acceptable.

F. The Contractor shall be responsible for maintaining adequate protection of the planting areas. Damaged areas shall be repaired immediately per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

G. All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

**1.9 GUARANTEES AND REPLACEMENTS**

A. All plants (except trees- see 1.09b) shall be guaranteed to remain healthy and vigorously growing for the duration of the two (2) year maintenance period.

B. All trees that have been supplied and installed under this contract shall be guaranteed to live in a healthy condition for the duration of the two (2) year maintenance period. Trees are to be inspected for disease and certified by an authorized arboriculturist prior to planting.

C. All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

D. Plants used for replacement shall be the same kind and size as specified in the plant list. They shall be furnished, planted and fertilized as originally specified.

**PART 2 - PRODUCTS**

**2.1 SOIL AMENDMENT AND FERTILIZER**

A. Planting pit backfill is to be amended with quality compost at the rates indicated by a soil analysis to bring soil organic matter content to a minimum of 3.5% quality compost by dry weight.

B. Compost shall be a well decomposed, stable, weed free organic matter source. The product shall be certified through the US Composting Council's (USCC) Seal of Testing Assurance (STA) Program (a compost testing and information disclosure program). It shall be derived from agricultural and/or food waste and/or yard trimmings. The product shall contain no substances toxic to plants, will possess no objectionable odors and shall not resemble the feedstock (the organic materials from which it was derived).

C. Before delivery of the compost, the supplier will submit proof of STA certification and a copy of lab analysis performed by a laboratory that is enrolled in the US Composting Council's CAP and using the approved Test Methods for the Evaluation of Composting and Compost (TMECC).

D. The delivery tags indicating the quantity delivered to the job site shall be submitted by contractor. Compost exhibiting a sour or putrid smell, containing recognizable grass or leaves, or heat (120F) upon delivery or rewetting will not be accepted.

E. Quantities shall be furnished as needed to complete work shown on drawings.

F. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

**2.2 PLANTING**

A. Backfill: Amend only planting pit backfill. The following planting backfill ratios are to be used for bidding purposes only. Contractor is responsible for providing agronomy reports as described in 1.3-c, which shall outline backfill specifications. Fully amended (upper) excavation materials shall be put in one pile to go around the rootball. Any deeper un-amended materials shall be put in a separate pile. Condition this deeper soil at the following rates and use for the planting pit below the rootball:

Gypsum 16 lbs /cy.

B. Over-excavate the planting pits so that there shall be one foot of this material between native soil and the bottom of the rootball. No OM or fertilizer shall be used below the rootball.

C. Tree staking:

- Stakes shall be Reddy Stakes, with length as required to meet staking requirements per detail. Stake quantity per detail.
- Tree ties shall be V.I.T. cinch-tie, or approved equal.

D. Weed eradication: pre-emergent and post-emergent herbicides shall not be used in the construction and maintenance of this project. All weeding shall be accomplished through mechanical methods.

**2.3 PLANT MATERIAL**

A. All plants shall be vigorous, of normal growth free from disease, insects, insect eggs, and meet or exceed the measurements specified.

B. Identify plant species or varieties correctly on legible, weatherproof labels attached securely to the plant. There shall be a minimum of one labeled plant for each 5 plants in a lot.

C. Substitutions will not be permitted except if proof is submitted that any plant specified is not obtainable, in which case a proposed substitution will be considered for use of the nearest equivalent size or variety and cost. All proposed substitutions shall be approved by Landscape Architect prior to ordering.

**2.4 MULCH**

Contractor shall maintain a minimum of 3" of coarse organic Arbor Mulch or Pea Gravel Mulch over soil surface that is not covered by vegetation or boardwalk, per plan. Arbor mulch materials shall be recycled chipped or shredded wood chips from pruning operations, or chipped landscape prunings. All mulch shall be from a local source. Shredded redwood bark mulch ("Gorilla hair") shall not be used. Non-porous material (e.g. plastic weed barriers) shall not be placed under the mulch.

**2.5 ROOT BARRIER**

A. Root Barrier shall be Deeproot, 24" Universal Barrier, UB 24-2, or equal.

**PART 3 - EXECUTION**

**3.1 SOIL CONDITIONING**

A. Grub and clean planting area, removing all weeds, debris and rocks from the site.

**3.2 INTEGRATED PEST MANAGEMENT (IPM)**

A. Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape Maintenance Manual for complete information.

B. Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.

**3.3 FINISH GRADING**

A. Finish grades shall be as indicated on the Civil Engineer's drawings.

B. Planting surfaces shall be graded with no less than 2 percent surface slope for positive drainage, or as otherwise noted according to Civil Engineer's plans.

C. Final finish grades shall insure positive drainage of the site with all surface drainage away from buildings, walls, and toward roadways, drains and catch basins.

D. Finish grades shall be measured as the final water compacted and settled surface grades, and shall be acceptable to the Landscape Architect before planting operations will be allowed to begin.

E. All undulations and irregularities in the planting surfaces resulting from tillage, rototilling and all other operations shall be leveled and floated out before planting operations are initiated.

F. The Contractor shall take every precaution to protect and avoid damage to sprinkler heads, irrigation lines, and other underground utilities during his grading and conditioning operations.

**3.4 PLANTING**

A. The layout of locations for plants and outlines of groundcover to be planted shall be approved on the site by the Landscape Architect, prior to their planting. All such locations shall be checked for possible interference with existing underground piping, prior to excavation of holes. If underground construction or utility lines are encountered in the excavation of planting areas, other locations for the planting may be selected by the Landscape Architect. Damage to existing utilities shall be the responsibility of the Contractor.

B. Planting trees, shrubs, and container-stock groundcovers, vines, and grasses:

1. All excavated holes shall have vertical sides with roughened surfaces and shall be of the minimum sizes indicated on detailed drawings. Holes shall be, in all cases, large enough to permit handling and planting without injury or breakage of root balls or roots.

2. Root barriers shall be installed where indicated on plans in accordance with manufacturer's recommendations.

3. Excavation shall include the stripping and staking of all acceptable soil encountered within the areas to be excavated for plant pits and planting beds. Protect all areas that are to be trucked over and upon which soil is to be temporarily stacked pending its re-use for the filling of holes, pits and beds.

4. Plants in can containers shall have the cans opened by cutting vertically on opposite sides of each can with nursery can openers, tin snips or other approved instruments for this purpose. All used cans shall be removed to the storage areas or from the site daily.

5. The plants shall be planted at approved locations with the heretofore specified conditioner and soil planting backfill.

6. The plants shall be placed in the planting pits on the backfill material which has been hand tamped and water settled to the rootball base levels prior to the placement of the plants. After setting the plants, the remaining backfill material shall be carefully tamped and settled around each rootball to fill all voids.

7. Each plant shall be placed in the center of the hole and shall be set plumb and held rigidly in position until the planting backfill has been tamped from around each root ball.

8. All plants shall be set at such a level that after settling they bear the same relationship to the surrounding finish grade as they bore to the soil line grade in the container, unless otherwise noted.

9. No plant will be accepted if the rootball is broken or cracked before, during, or after the process of installation.

10.All plants shall be thoroughly watered in to the full depth of each planting hole immediately after planting.

11.All trees, 15 gallon and larger, shall be staked. One of the stakes shall be driven into the ground of the windward side of the tree. The stakes shall be driven in plumb and secure. Special care shall be taken that the driving in of the stake does not damage the tree roots or root ball. tree ties shall be fastened to each tree and stake by looping figure 8's with the inside diameter of the tie at 2 or 3 times the diameter of the tree (also see detailed drawings).

12.The staking shall be accomplished in such a manner as to insure the proper and healthy growth and safety of the plants, property, and the public.

13.The Contractor shall be responsible for all surface and subsurface drainage required which may affect his guarantee of the plants.

**C. Planting groundcovers (From Flats):**

1. Groundcovers shall be planted in the areas indicated on the drawings. The groundcover plants shall be rooted cuttings grown in flats, and shall remain in those flats until transplanting.

2. All groundcover plants shall be planted with soil around roots, evenly spaced at the intervals called out on the drawings.

3. The groundcover plants shall be planted sufficiently deep to cover all roots and planting tablets shall be placed in each planting hole and shall be immediately sprinkled after planting until the entire area is soaked to the full depth of all holes.

4. The groundcover planting areas shall be hand smoothed after planting to provide an even, smooth final finish grade.

D. Mulch:

1. Apply a 3" deep layer of specified Arbor Mulch throughout all planting areas, unless otherwise noted on plans. Also refer to planting details for mulch requirements.

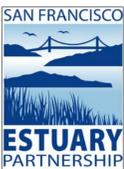
**3.5 CLEANUP**

A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete, and planter walls adjacent to plantings.

**End of Instructions**

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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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NO.	DATE	ISSUE / REVISION DESCRIPTION		BY

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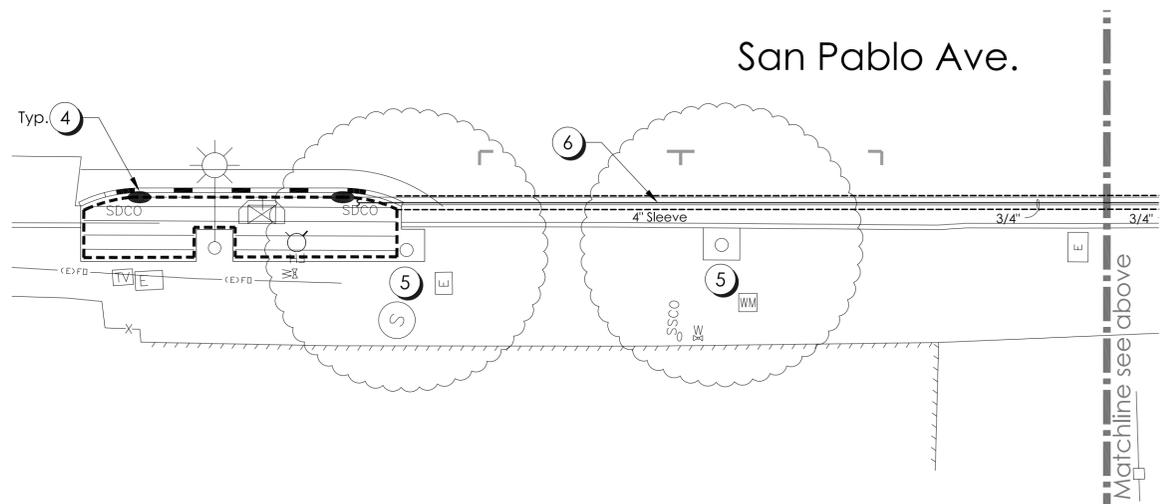
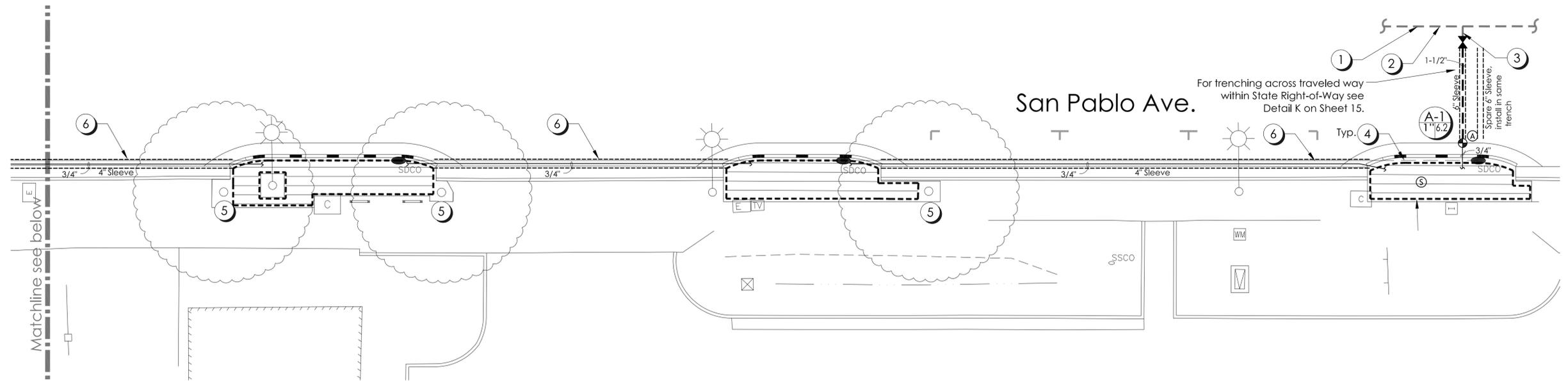
Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
	BY	DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
**LANDSCAPE PLANTING INSTRUCTIONS**

ALAMEDA COUNTY

CALIFORNIA

SHEET
11 OF 16
PROJ. NO.: 936-001
SCALE: AS SHOWN
DATE: 4/1/16



**Note:**  
See sheet 12 for Irrigation Legend.

**Note:**  
The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarity only and shall be installed in planting areas whenever possible. No elbows or 45° ells may be placed under paving, these are to be located in planting areas only. Mainline and valves shall be installed in shrub/ground cover areas only. Where valves inadvertently fall within paved areas, Contractor must install in concrete valve boxes. Avoid conflicts with utilities, new planting, new site or architectural elements.

**Note:**  
Contractor to confirm location, size, condition and function of the existing mainline and control wire at points of connection identified in these plans upon award of contract. Additionally, the Contractor is to take a water pressure reading at the point of connection at that time. Contractor to immediately notify Owner's Representative and Landscape Architect if any discrepancies are found between plans and existing irrigation conditions.

**System Operating Flow & Pressure**  
Maximum Flow: 7 gpm  
Static Design Pressure: 20 psi  
Normal Operating Pressure: 15-20 psi



Potable water irrigation systems are to be installed and fully tested, but not operated prior to November 1, 2016 unless otherwise notified by the Department of Water Resources that drought conditions no longer exist. Prior to November 1, 2016, all storm water planters (including those with no irrigation system installed) must be irrigated with recycled water provided by EBMUD and delivered and applied by water truck.

**IRRIGATION CALLOUTS**

- Existing mainline in landscape median. Contractor to Confirm mainline is a minimum 1-1/2" in diameter.
- Capture any spare existing control wire at existing mainline and splice and extend to RCV valve box, cap w/ waterproof wire connector per Irrigation Instructions, for future use.
- Point of Connection at existing irrigation mainline in median planting area. Install gate valve in planting area at connection to existing mainline. Contractor shall repair or replace existing planting damaged or destroyed to existing condition. Contractor to coordinate exact point of connection to existing mainline with the Landscape Architect and City's Representative in field.
- Sub drain, see Civil sheets.
- Existing tree to remain. Contractor shall consult with the City's Arborist regarding tree protection measures upon award of contract.
- Irrigation lateral lines and sleeves to be installed in the storm drain line trench, above storm drain line, see Civil sheets.

**IRRIGATION NOTES**

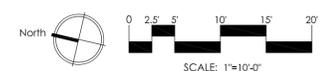
- The landscape Contractor shall inspect the site and verify conditions and dimensions prior to construction.
- Install irrigation system in accordance with all local codes and ordinances.
- See details, instructions and specifications for procedures, material and installation requirements.
- Prior to cutting into soil, locate all cables, conduits, sewers, and other utilities or architectural features that are commonly encountered underground and take proper precautions not to damage or disturb such improvements. Any damage made during the installation of the irrigation system of the aforementioned items shall be repaired and/or replaced to the satisfaction of the owner at the Contractor's own expense.
- The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarification only and shall be installed in planting areas. Main and valves shall be installed in shrub/ground cover areas only. Avoid conflicts with utilities, new planting, new site or architectural elements.
- All valves shall be placed in Carson 1419b-12b, or equal, green valve box. All valve boxes shall be located in groundcover areas and shall be bolted.
- All lateral end runs shall be 3/4" size unless otherwise noted.
- Contractor shall coordinate sleeving for irrigation piping with paving contractor prior to paving installation. It is the contractor's responsibility for providing appropriate sleeving under

- The irrigation systems are designed to operate at a minimum pressure of 20 psi at point of connection to water supply at existing irrigation mainline. Landscape Contractor shall test pressure at point of connection upon award of contract. Notify landscape architect if pressure is below 15 psi or over 35 psi to determine needed pressure regulation devices. (ie: boost pump or regulating valve).
- It is required that the Contractor have assigned to the project at least one employee who is a Certified Arborist or Certified Tree Worker (International Society of Arboriculture).
- Upon award of contract, the Contractor is to schedule an on-site meeting with the Landscape Architect and City's Arborist to review protection measures for all existing trees on site that are to remain.
- The Contractor shall minimize disturbance to existing tree roots on site. If required, cut minor roots (less than 2" in diameter) of trees indicated to remain in a clean and careful manner where such roots obstruct installation of new construction. If any roots greater than 2" are encountered, stop work and contact the Landscape Architect immediately.
- All excavation and or trenching work done within the drip line or tree protection zone of existing trees shall be done by air tools only.

**STATEMENT OF COMPLIANCE**

I have complied with the criteria of the landscape water conservation ordinance and applied them for the efficient use of water for the landscape design plan.

PREPARER NAME: William Mastick  
PREPARER SIGNATURE: [Signature]  
PROFESSIONAL LICENSE: PLA CA #2451



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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
BY		DATE

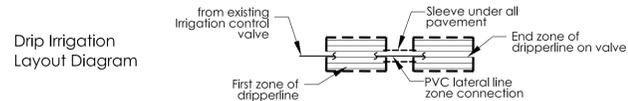
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
LANDSCAPE IRRIGATION PLAN

ALAMEDA COUNTY CALIFORNIA

SHEET  
12 OF 16  
PROJ. NO.: 936-001  
SCALE: 1"=10'-0"  
DATE: 4/1/16

## IRRIGATION LEGEND

Symbol	Description	GPH	PSI	Rad.
<b>Heads</b>				
	Sub-Surface Drip Netafim Techline CV 17mm dripline. Spaced 18" O.C. with 18" emitter spacing. See details and manufacturer's specifications for installation. Part No. TLCV9-1810	0.9	20	N/A



## Equipment

- Gate Valve Nibco T-619, line sized
- Remote Control Valve Hunter ICZ-101 Drip Control Zone Kit w/ 1" HY100 filter system and 40 PSI pressure regulator.
- Single Station Battery Operated Automatic Controller Hunter Node-100 battery operated water-proof controller. Mount in valve box per installation detail.
- Soil Moisture Sensor Irometer Watermark Electronic Module-Battery Version(WEM-B). Install per Manufacturers instructions.
- Manual Flush Valve Netafim Manual flush valve Model TLSOV, install one per in-line drip circuit at low point, per manufacturer's installation details and specifications.

## Pipe & Sleeving

- Pressure mainline - PVC Schedule 40, size per plan, sleeve under all paving.
- Non-pressure lateral line - PVC Schedule 40, size per plan, sleeve under all paving.
- Sleeving - PVC Schedule 40, mainline sleeving shall be 6" minimum diameter, lateral line sleeving shall be 4" minimum diameter.

## LATERAL SIZING GUIDE

CIRCUIT GPM	PIPE SIZE	PIPE CLASS
0-8 GPM	3/4"	SCH. 40 PVC
9-12 GPM	1"	SCH. 40 PVC
13-22 GPM	1-1/4"	SCH. 40 PVC
23-30 GPM	1-1/2"	SCH. 40 PVC
31-50 GPM	2"	SCH. 40 PVC
51-70 GPM	2-1/2"	SCH. 40 PVC
71-110 GPM	3"	SCH. 40 PVC

## DRIP SUPPLY/EXHAUST HEADER SIZING GUIDE

ZONE FLOW	HEADER SIZE	HEADER TYPE
0-5 GPM	1/2"	POLY TUBING
5-8 GPM	3/4"	SCH. 40 PVC
8-13 GPM	1"	SCH. 40 PVC
13-22 GPM	1-1/4"	SCH. 40 PVC
22-31 GPM	1-1/2"	SCH. 40 PVC

## CONTROL WIRE SIZING GUIDE

Control/ Common Wire	No. 14	No. 12	No. 10	No. 8
No. 14	1700'	2000'	2400'	2700'
No. 12		2700'	3300'	3800'
No. 10			4800'	5200'
No. 8				6700'

## PROJECT IRRIGATION NARRATIVE

The project consists of 926 square feet of total landscape area. The project contains 926 square feet of mixed medium water use planting areas as defined by W.U.C.O.L.S. guidelines. The irrigation system utilizes subsurface drip. The irrigation water source for the project is public potable water.

## IRRIGATION SCHEDULE

Station	GPM	Soil Type	Plant Type	Area SF	Irrigation Type	Kc	IE	PR	No. of Cycles	MINUTES PER CYCLE AT 100% ET												Total InYr
										JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
A-1	6.2	1.0	MM	926	Drip	0.4	0.9	0.64	1	2.0	3.5	6.3	9.7	12.7	14.5	15.3	13.5	10.4	6.9	3.3	1.9	18.58

## HYDROZONE TABLE

Station (Valve No.)	Area (Square Feet)	Plant Factor	Irrigation Efficiency	Percent of Landscape Area
<b>Hydrozone - Medium Water Use Plants, Drip Irrigation</b>				
A-1	926	0.4	0.9	100.00%
<b>Totals:</b>	<b>926</b>			<b>100.00%</b>

## MAWA CALCULATION

Maximum Applied Water Allowance

$$MAWA = \frac{(ET_o) \cdot (PF) \cdot (S.F.) \cdot (0.62)}{IE}$$

MAWA = 16,799 Gallons/Year

Estimated Total Water Use

$$ETWU = \frac{(ET_o) \cdot (PF) \cdot (S.F.) \cdot (0.62)}{IE}$$

ETWU = 10,666 Gallons/Year

$$Hydrozone = \frac{(41.8) \cdot (0.4) \cdot (926) \cdot (0.62)}{0.9}$$

Hydrozone = 10,666 Gallons/Year

Total: 10,666

The ETWU (10,666) is less than the MAWA (16,799), therefore this design complies with the California Code of Regulations Title 23, Waters- Model Water Efficient Landscape Ordinance.

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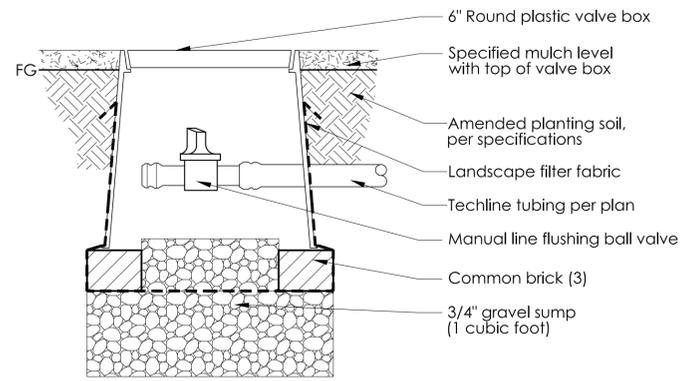
SAN PABLO AVENUE  
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BERKELEY, CA SITE  
LANDSCAPE IRRIGATION LEGEND

ALAMEDA COUNTY

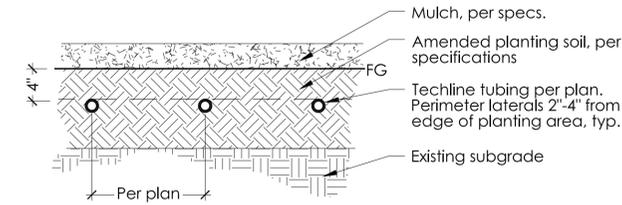
CALIFORNIA

SHEET	13	OF	16
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	4/1/16		

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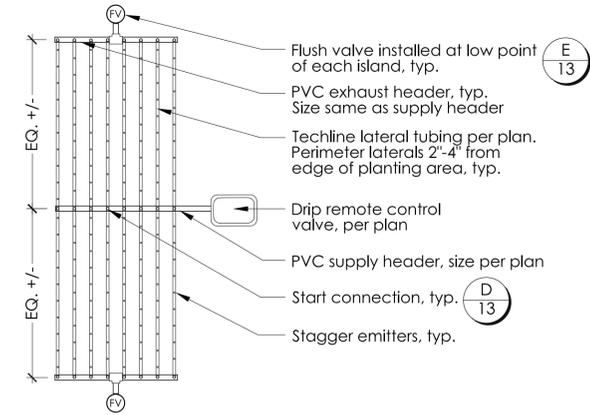


**E** MANUAL FLUSH VALVE  
SCALE: N.T.S.



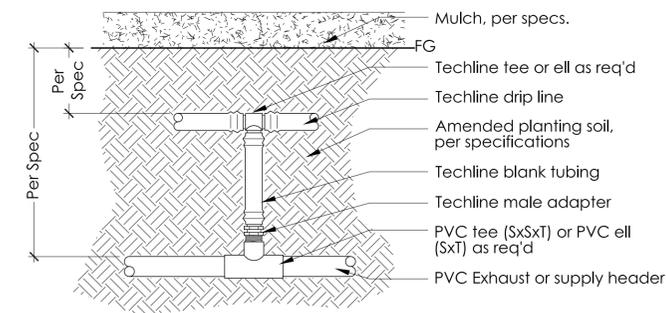
Note:  
Install Techline tubing 4" below finish grade, staple in place, per layout detail, then backfill with biofiltration, per planting specifications.

**C** TECHLINE SUBGRADE INSTALLATION  
SCALE: N.T.S.

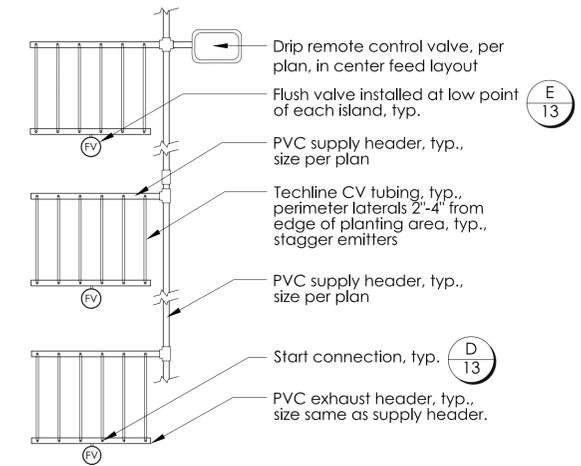


Notes:  
1. Affix all lines to ground using soil staples every 3' from drip valve.  
2. Techline CV emitters are pressure compensating and have check valves.  
3. See legend for emitter and row spacing.  
4. Install check valves on supply and exhaust headers where elevation meets/exceeds 4-1/2' & as needed to prevent low-head drainage.

**A** TECHLINE LINEAR LAYOUT  
SCALE: N.T.S.



**D** START CONNECTION  
SCALE: N.T.S.

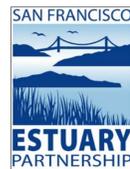


Notes:  
1. Affix all lines to ground using soil staples approximately every 3' from drip valve.  
2. Do not exceed manufacturer's recommended maximum length of a single lateral, see chart.  
3. See legend for emitter and row spacing.  
4. Install check valves on supply headers where elevation meets/exceeds 4-1/2' and as needed to prevent low-head drainage.

**B** TECHLINE ISLAND LAYOUT  
SCALE: N.T.S.

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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
△			
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△			
△	4/1/16	FINAL SUBMITTAL	JS
△	3/28/14	90% SUBMITTAL	JS

**WILSEY HAM**  
Engineering, Surveying & Planning  
3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
	BY	DATE

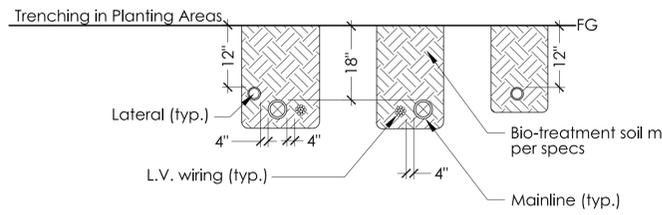
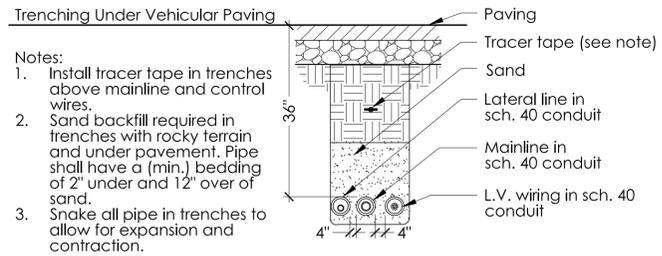
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BEREKELY, CA SITE  
LANDSCAPE IRRIGATION DETAILS

ALAMEDA COUNTY

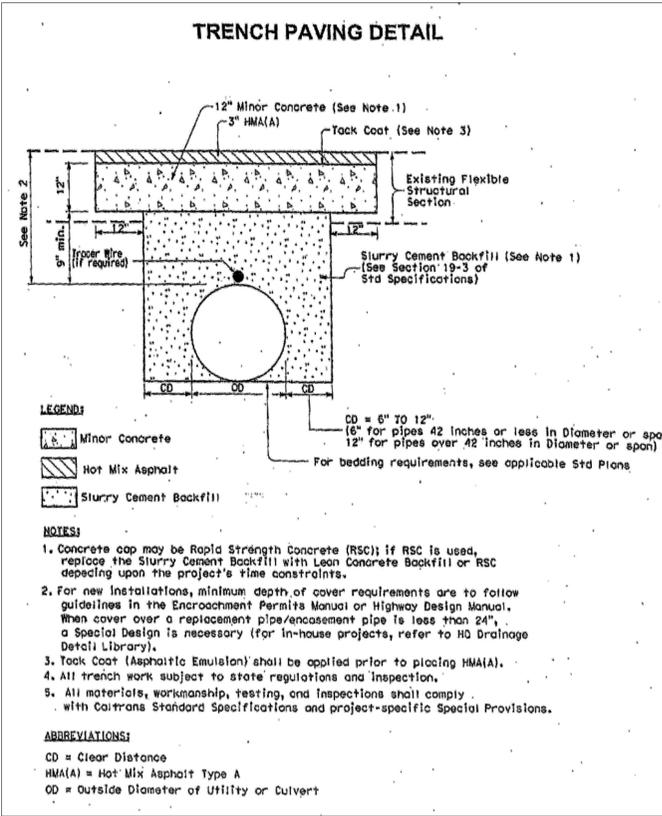
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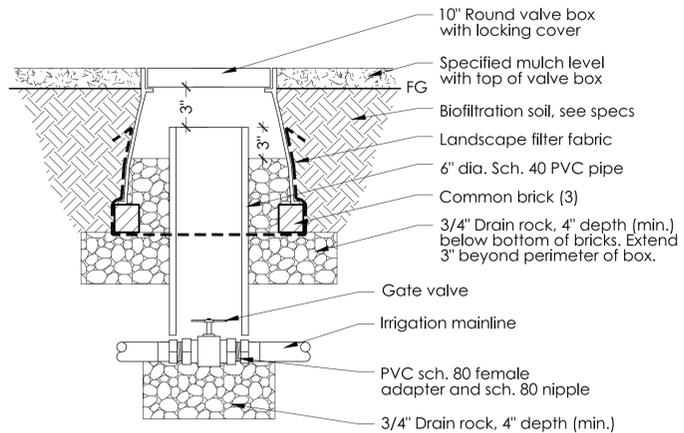
SHEET	14
	OF 16
PROJ. NO.:	936-001
SCALE:	AS SHOWN
DATE:	4/1/16



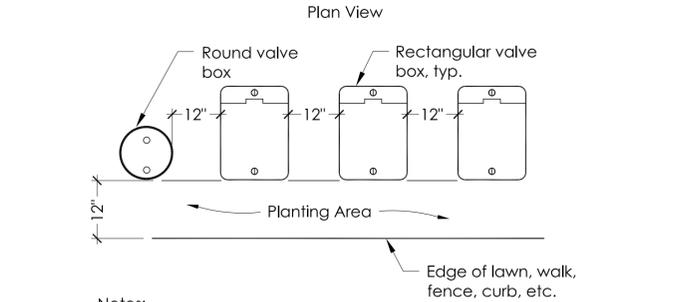
**J PIPE AND TRENCHING**  
SCALE: N.T.S.



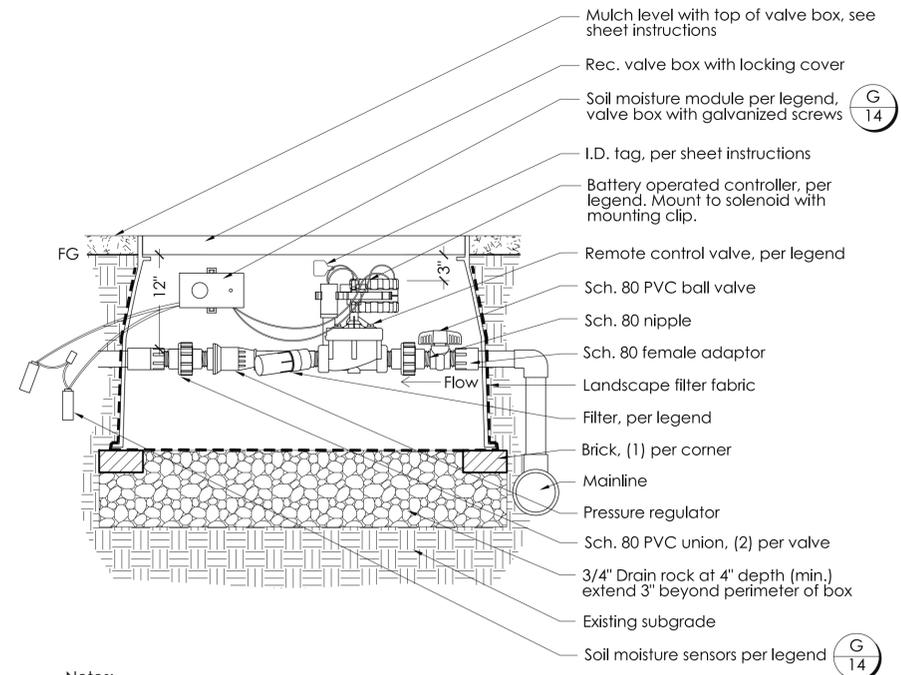
**K CALTRANS TRENCHING DETAIL**  
SCALE: N.T.S.



**H GATE VALVE**  
SCALE: N.T.S.

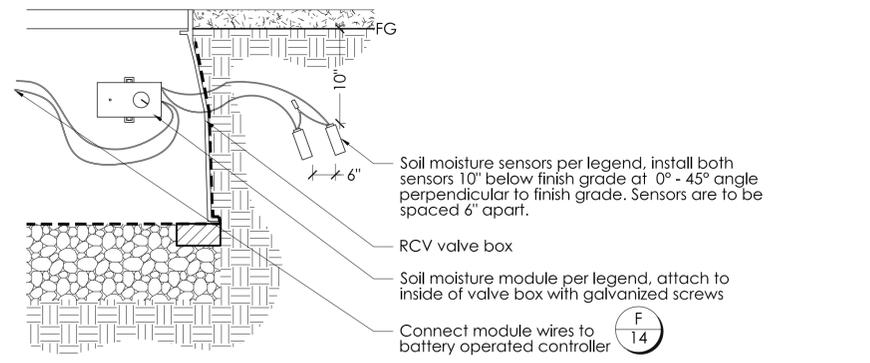


**I VALVE BOX DETAIL**  
SCALE: N.T.S.



- Notes:  
 1. Filter position as shown preferred to minimize debris in housing when servicing. Filter may be mounted horizontally or upside-down if needed due to space constraints.  
 2. Supply PVC sch. 80 nipples and adapters as required.  
 3. Supply jumbo valve box and/or housing extensions as required to fit equipment.  
 4. Each RCV to receive a permanent metal tag with controller and station number.  
 5. Provide an 18" control wire expansion coil and waterproof connectors as required.

**F REMOTE CONTROL VALVE w/ BATTERY OPERATED CONTROLLER**  
SCALE: N.T.S.



- Notes:  
 1. Install sensors and wiring per manufacturers instructions.  
 2. Splices for sensor shall be located in RCV valve box.  
 3. Soak sensors prior to installation. Sensors are to be wet at time of installation.  
 4. Sensors must be located in and irrigated by the last valve to run in each valve group.  
 5. Sensors shall not be buried more than 14" below finish grade.

**G MOISTURE SENSOR INSTALLATION**  
SCALE: N.T.S.

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OAKLAND, CA 94612



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SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
BERKELEY, CA SITE  
LANDSCAPE IRRIGATION DETAILS  
ALAMEDA COUNTY CALIFORNIA

SHEET	15	OF	16
PROJ. NO.:	936-001	SCALE:	AS SHOWN
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IRRIGATION INSTRUCTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Work included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and project specifications sections, apply to these instructions.

1.3 SCOPE OF WORK

A. The Contractor shall furnish all service, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings as specified and shall perform other incidental work necessary to meet the intent of this specification and the approved plans including the following:

- 1. Submittals of materials lists, as-builts, controller charts, manuals and guarantee.
2. Furnishing, delivery, storage, handling, assembly and installation of materials described in these instructions and as indicated on the drawings.
3. System adjustment and testing.
4. Notification of the Landscape Architect in advance of scheduled observations.
5. Cross connection inspections and testing as required by state or local agencies for non-potable, or potable water.
6. Construction-site clean up.
7. Maintenance period.
8. One-year guarantee.
9. Protection of work and materials.

B. All work called for in the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specification.

C. The Contractor shall coordinate his work with other trades involved; i.e. Grading, plumbing and electrical contractors.

D. Physical layout:

1. Due to the scale of drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such fittings, etc. As may be required to meet such conditions.

2. The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarification only and shall be installed in planting areas to the greatest extent possible. Avoid conflict with utilities, new planting, new site or architectural elements, and existing trees.

3. Paving, walls, landscape headers and mowing strips shall be in place before installation of sprinkler system.

4. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that unknown obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect. In the event this notification is not performed, the irrigation contractor shall assume full responsibility for any revision necessary and shall perform such revisions at his own expense.

E. Contractor shall acquaint himself with all site conditions prior to submitting bid proposal.

1.4 SUBMITTALS REQUIRED

A. Comply with submittal procedures, unless otherwise indicated.

B. Material list:

1. The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and specifications. No substitution will be allowed without prior written approval by the Landscape Architect.

2. Complete material list shall be submitted prior to performing any work. Material list shall include the manufacturer, model number and description of all materials and equipment to be used.

3. Equipment or materials installed or furnished without prior approval of the Landscape Architect may be rejected and the Contractor required to remove such materials from the site at his own expense.

4. Approval of any item, alternate or substitute indicates only that the product or products apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.

5. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

C. Record and as-built drawings:

1. The Contractor shall provide and keep up to date a complete "as built" record set of plans which shall be corrected daily and show every change from the original drawings and specifications and the exact "as built" locations, sizes, and kinds of equipment. This set of drawings shall be kept on the site and shall be used only as a record set.

2. These drawings shall also serve as work progress sheets, and the Contractor shall make neat and legible annotations therein daily as the work proceeds, showing the work as actually installed. These drawings shall be available at all times for review.

3. Contractor shall provide Landscape Architect and owner with a record set of drawings before final acceptance of work.

4. Contractor shall dimension from two (2) permanent points of reference, building corners, sidewalk, or road intersections, etc., the location of the following items:

- a. Connection to existing water lines
b. Connection to existing electrical power
c. Ball valves
d. Routing of sprinkler pressure lines (dimension max 100' along routing)
e. Remote control valves
f. Routing of control wiring
g. Quick coupling valves
h. Other related equipment as directed by Landscape Architect significant changes in routing of lateral lines from those indicated on the plans.

6. On or before the date of the final observation, the Contractor shall deliver the corrected and completed "as-built" plans to the Landscape Architect. Delivery of the "as-built" plans will not relieve the Contractor of the responsibility of furnishing required information that may be omitted from the plans.

D. Controller charts:

- 1. As-built drawings shall be approved by the Landscape Architect before controller charts are prepared.
2. Provide one controller chart for each controller supplied.

3. The chart shall show the area controlled by the automatic controller and shall be the maximum size which the controller door will allow.

4. The chart is to be a reduced drawing of the actual as-built system. However, in the event the controlled sequence is not legible when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced.

5. The chart shall be a photocopy print and a different color shall be used to indicate the area of coverage for each station.

6. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 10 mils. Thick.

7. These charts shall be completed and approved prior to final observation of the irrigation system.

E. Operation and maintenance manuals:

1. Prepare and deliver to the owner within ten calendar days prior to completion of construction, two hard cover binders with three rings containing the following information:

- a. Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturer's representatives.
b. Catalog and parts sheets on every material and equipment installed under this contract.
c. Guarantee statement.
d. Complete operating and maintenance instructions on all major equipment.
e. In addition to the above mentioned maintenance manuals, provide the owner's maintenance personnel with instructions for major equipment and show evidence in writing to the owner at the conclusion of the project that this service has been rendered.

F. Equipment to be furnished:

1. Supply as part of this contract the following tools: Two (2) sets of special tools required for removing, disassembling and adjusting each type of valve supplied on this project as applicable.

Two (2) keys for each automatic controller. One (1) quick coupler key and matching hose swivel for every five (5) of each type of quick coupling valve installed. Two (2) sets of special tools required for adjusting each type of sprinkler supplied on this project.

2. The above mentioned equipment shall be turned over to the owner at the conclusion of the project. Before final observation can occur, evidence that the owner has received material must be shown to the Landscape Architect.

G. Guarantee: the irrigation system guarantee shall be made in accordance with the form below.

1. A copy of the guarantee form shall be included in the operations and maintenance manual. The guarantee form shall be re-typed onto the Contractor's letterhead as follows:

GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM

We hereby guarantee that the sprinkler irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted. We agree to repair or replace any defects in material or workmanship, including settling of backfilled areas below grade which may develop during the period of one year from date of acceptance and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the owner. We shall make such repairs or replacements within 72 hours after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt. A of written notice from the owner, we authorize the owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

Project: \_\_\_\_\_
Location: \_\_\_\_\_
Signed: \_\_\_\_\_ Contractor
Address: \_\_\_\_\_
Phone: \_\_\_\_\_
Date of acceptance: \_\_\_\_\_

1.5 PROTECTION OF WORK AND MATERIALS

A. Packing and shipping: deliver products in original unopened packaging with legible manufacturer's identification.

B. Storage and protection: comply with manufacturer's recommendations.

- 1. Store in a cool, dry place out of direct sunlight.
2. Protect from damage by the elements and construction procedures.
3. Store at temperature above 40 degrees f.

C. Contractor shall protect his work and the work of others for the duration of this contract.

D. Contractor shall protect pipes and fittings from direct sunlight and avoid undue bending and any concentrated external loading. Beds on which pipe is stored shall be full length of pipe. Pipe or fittings that have been damaged shall not be used.

E. Extreme care shall be exercised in excavating and working in the area due to existing utilities. Contractor shall be responsible for damages caused by his operations.

F. Contractor shall take necessary precautions to protect site conditions and plant material that is to remain. Should damage be incurred, contractor shall repair damage and restore to original condition or furnish and install equal replacements.

G. All existing irrigation systems that are to remain shall be kept in operation at all times. If the existing system is damaged by contractor, he shall be responsible for immediate repair of such damage. After each repair, all heads of the repaired system shall be removed so that the lines can be cleared of all dirt and foreign matter.

PART 2 - PRODUCTS

2.1 MATERIALS

A. When using materials with non-potable water, use an appropriate model designated and manufactured for this purpose.

B. Piping: pipe sizes shown are nominal inside diameter unless otherwise noted.

- 1. PVC plastic pressure lines: for piping upstream of remote control valves and quick couplers: all 2" pipe and larger shall be class 315: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, conforming to commercial standards CS256-63 and ASTM D2241. All 1-1/2" pipe and smaller shall be Schedule 40: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, conforming to

commercial standards CS256-63 and ASTM D1785. All pipe carrying non-potable water shall be pantone 512 purple in color and imprinted with the admonition, "caution - recycled water - do not drink" every three feet on opposite sides.

2. PVC plastic non-pressure lines: for piping downstream of remote control valves: all pipe shall be Schedule 40: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, (SDR21), conforming to commercial standards CS256-63 and ASTM d2241. All pipe carrying non-potable water shall be pantone 512 purple in color and imprinted with the admonition, "caution - recycled water - do not drink" every three feet on opposite sides.

3. For sub-surface drip irrigation: For sub-surface drip piping downstream of remote control valves, all pipe shall be per plan and sub-surface dripline product Manufacturer's specifications, including for supply and exhaust headers.

C. Fittings and connections:

1. Polyvinyl chloride pipe fittings and connections: Type 1, Grade 1, Schedule 40, high impact molded fittings, manufactured from virgin compounds as specified for piping, tapered socket or molded thread type, suitable for either solvent weld or screwed connections. Machine threaded fittings and plastic saddle and flange fittings are not acceptable. Furnish fittings permanently marked with following information: nominal pipe size, type and schedule of material, and national sanitation foundation (NSF) seal of approval. PVC fitting shall conform to ASTM D2464 and D2466.

2. ABS and PVC pipe fittings and connections (for drip irrigation): for above-ground drip piping downstream of remote control valves: all fittings shall be UV-rated unless otherwise shown on plans.

D. Automatic control wire: electric wiring runs from the automatic controller to the electric control valves shall be solid single conductor, copper wire. Neutral (common) wires shall be a minimum size of #12 and colored white. Control wires shall be a minimum size of #14 in colors other than white. All wire shall have a PVC UF jacket with a minimum of .045" thick insulation. Wire shall be UL listed and approved for direct burial.

E. Valve-mounted battery operated in-ground controllers: as shown on plans.

F. Control valves: remote control valves shall be as shown on plans.

G. Valve box: for remote control valves and ball valves, use rectangular box with locking cover by NDS Pro Series or approved equal. Valve box shall be of a size that accommodates all equipment as illustrated on the plans.

H. Gate valves: gate valves shall be as shown on plans.

I. Pressure reducing valves: pressure reducing valves shall be as shown on plans.

J. Tracer wire: tracer wire shall be installed above mainline and shall be metal detectable and Tapex or equal. Include "Dymo-tape" type plastic label with the designation "Tracer wire".

K. Drip emission devices: drip emitters, inline emitter tubing shall be as shown on plans.

L. Sensors:

1. Soil sensors shall be as shown on plans and installed per manufacturer's specifications.

M. Wire connectors: wire connectors shall be Scotchklok or equal.

N. Filter fabric: filter fabric under valve boxes shall be landscape quality, non-woven geotextile fabric with 3 oz/sy minimum weight.

O. PVC Ball Valves: as shown on plans and shall be installed before each electric control valve and shall be as shown on plans.

P. PVC Unions: as shown on plans and shall be installed before and after each electric control valve and shall be as shown on plans.

1. PART 3 - EXECUTION

3.1 INSTALLATION OF IRRIGATION SYSTEM

A. Code requirements:

1. Code requirements shall be those of state and municipal codes and regulations locally governing this work, providing that any requirements of the drawings and specifications, not conflicting therewith but exceeding the code requirements, shall govern, unless written permission to the contrary is granted by the Landscape Architect.

2. Install irrigation system in accordance with all local and state codes and ordinances.

B. Prior to construction:

1. The Contractor shall inspect the site and verify conditions and dimensions, as scaled dimensions are approximate.

2. The Contractor shall locate all cables, conduits, sleeves and other utilities or architectural features that are commonly encountered underground and take proper precautions not to damage or disturb such improvements. Any damage made during the installation of the irrigation system of the aforementioned items shall be prepared and/or replaced to the satisfaction of the owner at the contractor's own expense. Contact USA at 1-800-227-2600.

C. Point of connection

1. Contractor is responsible for making final connection between water source and irrigation system. Water source shall be provided by others unless specified otherwise on plans.

2. Connections shall be made at approximately the locations shown on the drawings. Contractor shall be responsible for minor changes caused by actual site conditions. Connect new underground piping and valves and provide all flanges, adapters or other necessary fittings for connection.

3. Permission to shut off any existing in-use water line must be obtained 48 hours in advance, in writing from the owner. The Contractor shall receive instructions from the owner as to the exact length of time of each shut-off.

D. Sleeves:

1. Contractor is responsible for installation of sleeves under all hardscape surfaces. Sleeves are diagrammatically depicted on the drawings only, and may not depict actual field conditions or quantity of sleeves.

2. If sleeves are to be installed by others, the Contractor is responsible for coordinating installation of sleeves under paved areas with Paving Contractor.

E. Excavation and backfilling of trenches:

1. Do not trench in lime-treated soils.

2. Underground trenching for utilities shall avoid major support and absorbing tree roots of protected trees.

3. Excavate trenches, prepare subgrade, and backfill to line and grade with sufficient room for pipe fittings, testing and observation operations. Do not backfill until the pipe system has been subjected to a hydrostatic test as specified.

4. Depth of piping: as specified unless otherwise noted on plans.

Table with 4 columns: Under pedestrian paving, Pressure mainline, Control wiring, Non-pressure lateral line, Under vehicular paving, Pressure mainline, Control wiring. Values: 24" min., 24" min., 24" min., 36" min., 36" min.

Table with 2 columns: Non-pressure lateral line, Under planting areas: Pressure mainline, Control wiring, Non-pressure lateral line. Values: 36" min., 18" min., 18" min., 12" min.

5. When trenching through areas where topsoil or biofiltration soil has been spread, deposit topsoil/biofiltration soil on one side of trench and sub-soil on opposite side.

6. Repair any leaks and replace all defective pipe or fittings until lines meet test requirements. Do not cover any lines until they have been inspected and approved for tightness, quality of workmanship and materials.

7. Backfill: compact specified backfill to be equal the compaction of the existing, adjacent, undisturbed soil.

F. Sub-soil backfill shall be free of all rocks over one inch diameter, debris and litter.

G. Sand backfill shall be used at the bottom of all trenches under paving, or in rocky terrain. Sand depth to include a minimum of 2" under and 4" over piping.

1. Generally, piping under existing sidewalks and/or concrete may be accomplished by jacking or boring, but where any cutting or breaking of sidewalk and/or concrete is necessary, it shall be done and replaced by the contractor as part of the contract cost. Permission to cut or break sidewalks and/or concrete shall be obtained from the owner.

H. Installation of polyvinyl chloride pipe:

1. Because of the nature of plastic pipe and fittings, exercise caution in handling, loading and storing, to avoid damage.

2. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.

3. Any pipe that has been dented or damaged shall be discarded until such dent or damaged section is cut and rejoined with a coupling.

4. Pipe depth in trench shall be as specified above, from the finish grade to the top of the pipe. The bottom of the trench shall be free of rocks, clods, and other sharp-edged objects.

5. Pipe ends and fittings shall be wiped with MEK, or equal, before welding solvent is applied. Welded joints shall be given a minimum of 15 minutes to set before moving or handling. All field cuts shall be beveled to remove burrs and excess before fitting and gluing together.

6. Pipe shall be snaked from side-to-side of trench bottom to allow for expansion and contraction.

7. Center load pipe with small amount of backfill to prevent arching and slipping under pressure. Leave joints exposed for observation(s) during testing.

8. No water shall be permitted in the pipe until observations have been completed and a period of at least 24 hours has elapsed for solvent weld setting and curing.

9. Plastic to metal joints shall be made with plastic male adapters, metal nipple hand tightened, plus one turn with a strap wrench.

10. Plastic to plastic joints: solvent-weld, using solvent recommended by pipe manufacturer only.

11. Solvent-weld joints: assemble per manufacturer's recommendations.

12. All lateral end runs shall be 3/4" size unless otherwise specified.

I. Installation of polyethylene (PE) pipe:

1. Because of the nature of plastic pipe and fittings, exercise caution in handling, loading and storing, to avoid damage.

2. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.

3. Any pipe that has been dented or damaged shall be discarded until such dent or damaged section is cut and rejoined with a coupling.

4. Plastic to plastic joints: assemble with PVC or ABS compression fittings unless otherwise specified on plans.

5. Stake pipe to ground every 3' on center.

J. Remote control wiring:

1. Direct burial control wire sizes: as specified herein, before.

2. Provide one control wire and one common ground wire to service each valve in system. Provide 3 foot minimum expansion loop at each valve to permit removal and maintenance of valves. Do not interconnect neutral wires between controllers.

3. Install control wires at least 18" below finish grade and minimum of 4" from any pipe or fittings except at terminal points.

4. Install control wires and irrigation piping in common trenches wherever possible.

5. Control wire splices: allow only on runs of more than 300-feet and shall be made only in valve or pull boxes only, splices as follows:

- a. Strip off minimum of 2-1/2" of insulation from each wire.
b. Twist on Scotchklok electrical spring connector, minimum four complete turns.
c. Seal connector in Epoxy resin.
d. Tape completed splice with Scotch 33 electrical tape.

K. Numbering and tagging: identify direct burial control wires from automatic valves to terminal strips or controller at terminal strip by color coding and tagging wire with number of connected valve.

L. Include two (2) red (#14 AWG) spare wires from furthest valve to each controller.

M. Each individual controller clock's control wires shall be bundled and taped together with colored tape at intervals not exceeding 10'-0". Use a different-colored tape for each controller.

N. Valve mounted battery operated in-ground controller: Battery operated controllers shall be installed as shown on plans and per Manufacturer's specifications.

O. Remote control valves: install remote control valves in locations as shown on the drawings, with a clearance of 4 1/2 inches minimum over top of flow control stem. Install a union type connections and PVC ball valve. Fit with valve box and cover.

O. Valve boxes: install valve boxes as shown on detail. Install no more than one valve per box. Install valve boxes so that the top of the valve box is 3" above finished grade in areas receiving 3" layer of mulch. See planting specifications, as actual depth of mulch may vary. Stencil valve number and controller letter on underside of valve box lid. Valve boxes shall be identified on the top surface of the covers by heat branding the box lid with the appropriate abbreviations for the irrigation facilities contained in the valve boxes as shown on the plans. Valve boxes that contain remote control valves shall be identified by the appropriate letters and numbers (controller and station numbers). Identification letters or numbers shall be 2 inch high. Heat branding shall be accomplished using branding irons specifically designed for this purpose. Heat branding shall not weaken or in any way puncture the valve box cover.

P. Sensors: Soil sensors shall be installed as shown on plans and per Manufacturer's specifications.

Q. Tracer Wire:

1. Tracer tape shall be installed in trenches above main line and control wires.

2. Tracer tape shall follow the main line pipe and/or branch lines and terminate in the yard box with the control valves. Provide enough length of wire or tape to make a loop and attach a "Dymo-tape" type plastic label with the designation "Tracer wire".

Q. Flushing of system:

1. After all new main lines and lateral lines are in place and connected, all necessary work has been completed, and prior to installation of drip lines, the control valves shall be opened and a full head of water used to flush out the system.

2. Drip irrigation shall be installed only after flushing of the system has been accomplished to the complete satisfaction of the Landscape Architect.

R. Pressure test the system before covering trenches to pre-test for leaks.

S. Pre-irrigate planting areas to ensure that the soil is hydrated to field capacity before planting begins.

3.2 SYSTEM ADJUSTMENT AND TESTING

A. Adjustment of the system:

1. If it is determined that adjustment in the irrigation equipment will provide proper and more adequate coverage, the Contractor shall make such adjustments prior to planting.

B. Testing of the system:

1. Test all pressure lines under hydrostatic pressure of 150 pounds per square inch, and prove watertight for 3 hours. Note: testing of pressure mainlines shall occur prior to installation of electric control valves.

2. All piping under paved areas shall be tested under hydrostatic pressure of 150 pounds per square inch, and proved watertight, prior to paving.

C. Watering schedules:

1. Station operating times shall not exceed the soil's infiltration rate as determined by the soils report.

2. Watering schedules shall be adjusted not to exceed local evapotranspiration (ETO) rate.

3.3 OBSERVATION SCHEDULE

A. Observations herein specified shall be made by the Landscape Architect. The Contractor shall request observations in writing, 3 days in advance of the time observation is required.

B. The Contractor or his authorized representative shall be on the site at the time of each observation.

C. Observation will be required for the following parts of the work:

1. Pre-construction meeting (this includes planting review also).

2. When all irrigation installations, except the maintenance period, have been completed. Acceptance and written approval shall establish start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

3. At the end of ninety (90) days from the start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

4. At the end of one (1) year from the start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

5. Final observation at the completion of the two (2) year maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

D. Acceptances: upon completion of the final observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable, (2) of any requirements necessary for completion and acceptance.

E. The Contractor will be charged, and responsible for, any time and mileage used by the Landscape Architect as a result of prematurely scheduled site visit.

3.4 CLEAN-UP

A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete areas adjacent to plantings.

3.5 MAINTENANCE/PLANT ESTABLISHMENT

A. The maintenance period begins on the day the Landscape Architect has given notice of substantial completion and shall continue thereafter for no less than two (2) years.

1. These instructions are to be used in conjunction with the project's Storm Water Planter Maintenance Manual.

2. The Contractor shall call for inspections per the Observation section above.

3. Phased maintenance periods, if required, shall be negotiated prior to construction.

4. If phased maintenance periods are not negotiated prior to construction, the maintenance period for all areas will begin after the entire project is 100% complete per contract documents. Portions completed earlier shall be maintained up to and including the specified maintenance period without additional compensation.

B. The Contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period until the final acceptance of the work.

C. Regular irrigation maintenance operations shall begin immediately after each system is installed.

D. The contract completion date of the contract maintenance period will be extended, when in the opinion of the Landscape Architect, improper maintenance is evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work at no change in contract price until all of the work is completed and acceptable.

E. The Contractor shall be responsible for maintaining adequate protection of the areas. Damaged areas shall be repaired immediately per the Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

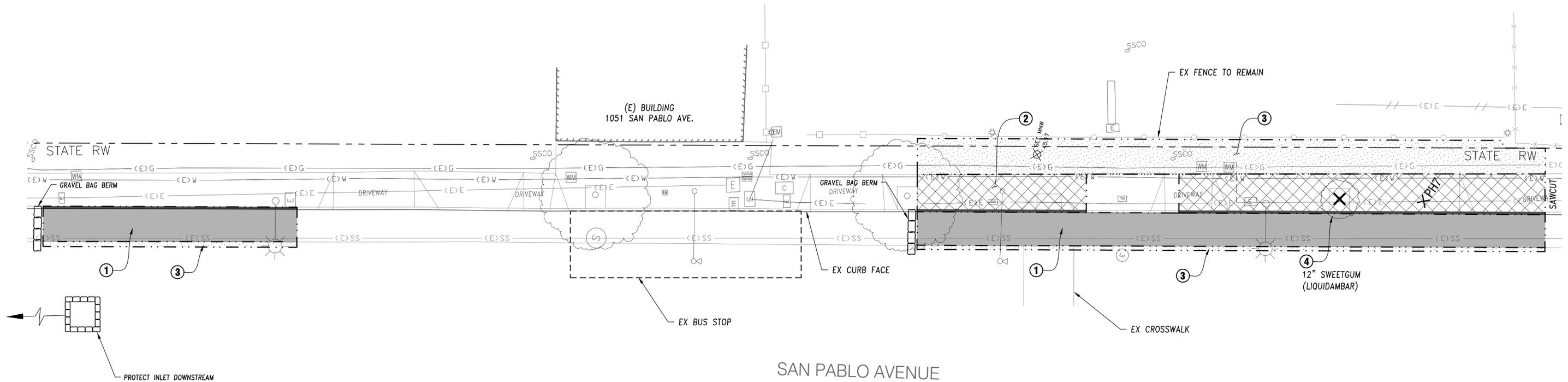
End of Instructions

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NOTE: FOR ACCURATE RIGHT OF WAY DATA,  
CONTACT RIGHT OF WAY ENGINEERING AT  
CALTRANS DISTRICT 4.



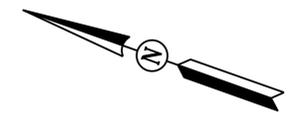
**NOTES**

1. PROTECT-IN-PLACE EXISTING UTILITIES & IMPROVEMENTS NOT SHOWN FOR REMOVAL.
2. NEATLY SAWCUT ALL CONCRETE & ASPHALT AT LIMIT OF REMOVAL. NEATLY SAWCUT SIDEWALK TO NEAREST SCOREMARK BEYOND LIMITS SHOWN.
3. SEE NOTES SHEET 2.
4. PROTECT EXISTING TREES TO REMAIN. SEE LANDSCAPE NOTES 14-17.

POTHOLE LEGEND				
PH #	UTILITY	DEPTH'	ASPHALT	CONC.
7	4" ELEC	26"	4"	-

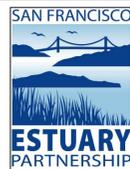
**DEMOLITION KEY**

- ① CURB & GUTTER TO BE REMOVED - 159 LF
- ② SIDEWALK TO BE REMOVED - 920 SF
- ③ AC PAVEMENT TO BE REMOVED - 1010 SF
- ④ TREE TO BE REMOVED - 1



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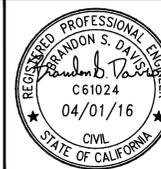
SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
△			
△			
△			
△			
△	04/01/16	FINAL SUBMITTAL	BSD

**WILSEY HAM**  
Engineering, Surveying & Planning

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San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/11/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
ALBANY, CA SITE  
DEMOLITION PLAN

ALAMEDA COUNTY

CALIFORNIA

SHEET	3	OF	11
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		



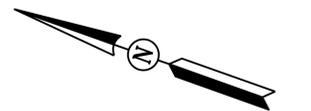
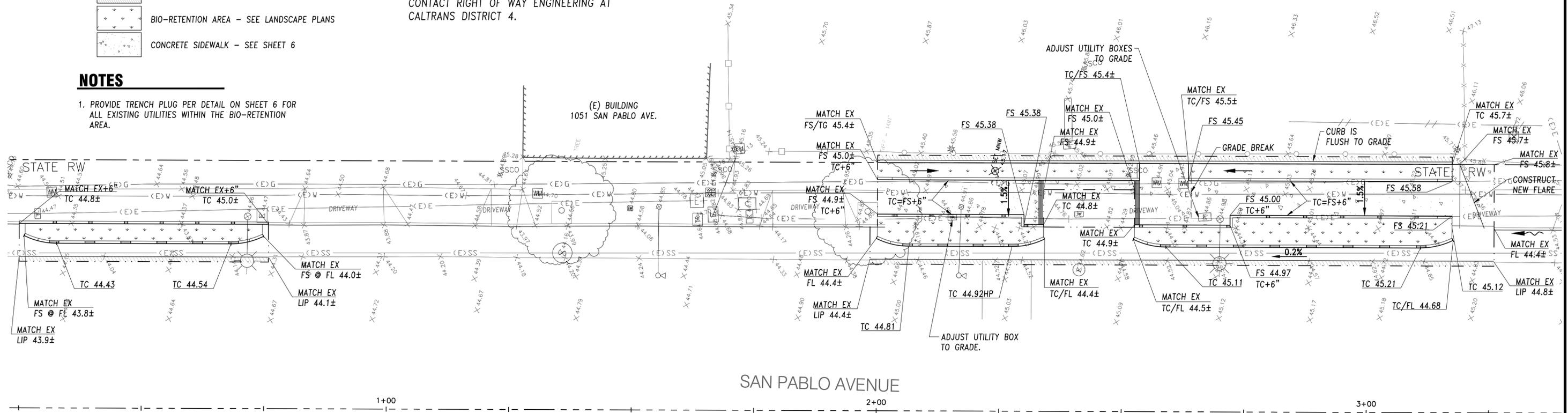
**LEGEND**

-  HMA PAVEMENT PATCH - SEE SHEET 6
-  BIO-RETENTION AREA - SEE LANDSCAPE PLANS
-  CONCRETE SIDEWALK - SEE SHEET 6

NOTE: FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT CALTRANS DISTRICT 4.

**NOTES**

1. PROVIDE TRENCH PLUG PER DETAIL ON SHEET 6 FOR ALL EXISTING UTILITIES WITHIN THE BIO-RETENTION AREA.



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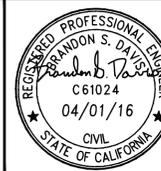
SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
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△			
△	04/01/16	FINAL SUBMITTAL	BSD

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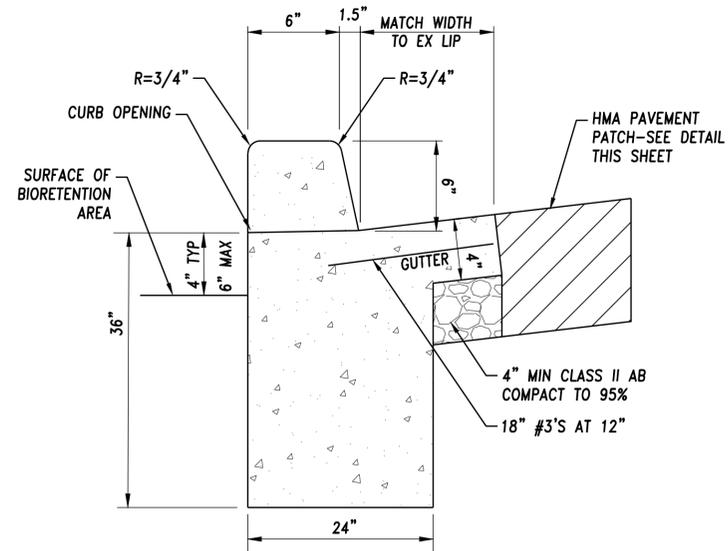
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Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/14/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
ALBANY, CA SITE  
GRADING & DRAINAGE PLAN

ALAMEDA COUNTY

CALIFORNIA

SHEET	5
OF	11
PROJ. NO.:	936-001
SCALE:	1" = 10'
DATE:	APRIL 01, 2016

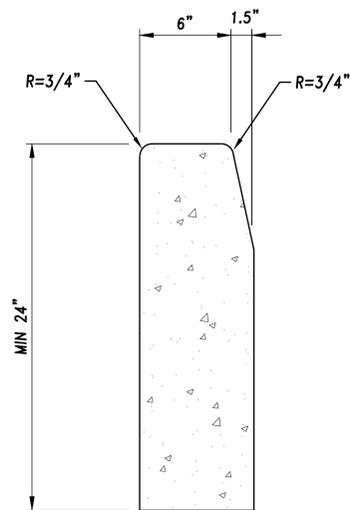


**NOTES:**

1. BROOM FINISH CONCRETE.
2. PROVIDE EXPANSION JOINTS AT 16' MAX SPACING.
3. PROVIDE 4" THICK CONCRETE SPLASH PAD AT OPENINGS.
4. PAINT CURB RED.

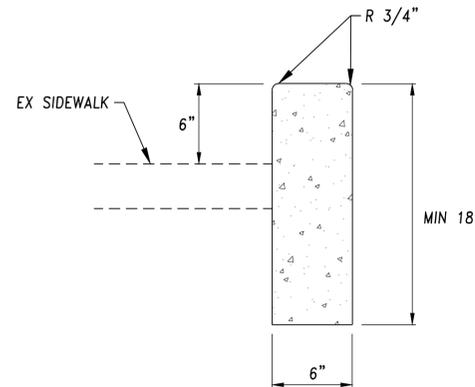
**DEEP CONCRETE CURB & GUTTER**

N.T.S.



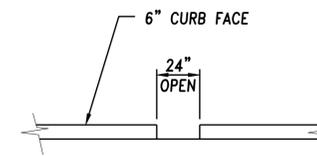
**DEEP CONCRETE CURB**

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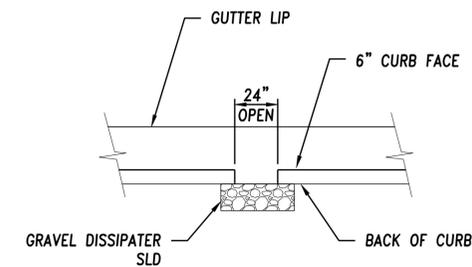


**18" STANDARD CURB**

N.T.S.



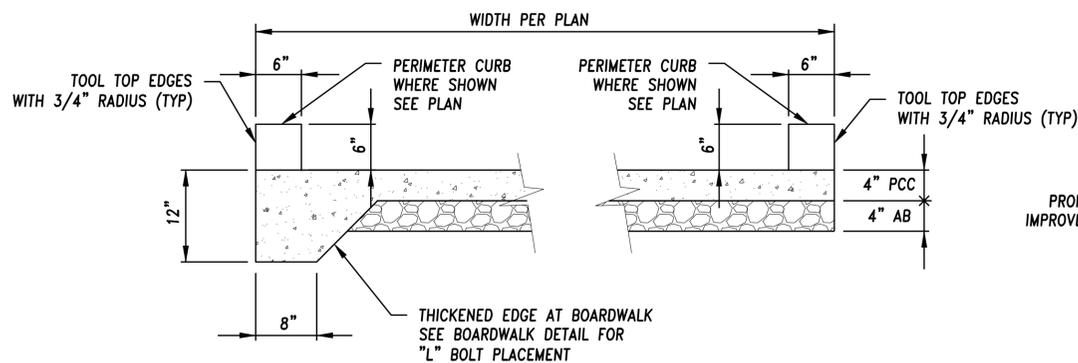
**ELEVATION VIEW**



**PLAN VIEW**

**CURB OPENING**

N.T.S.

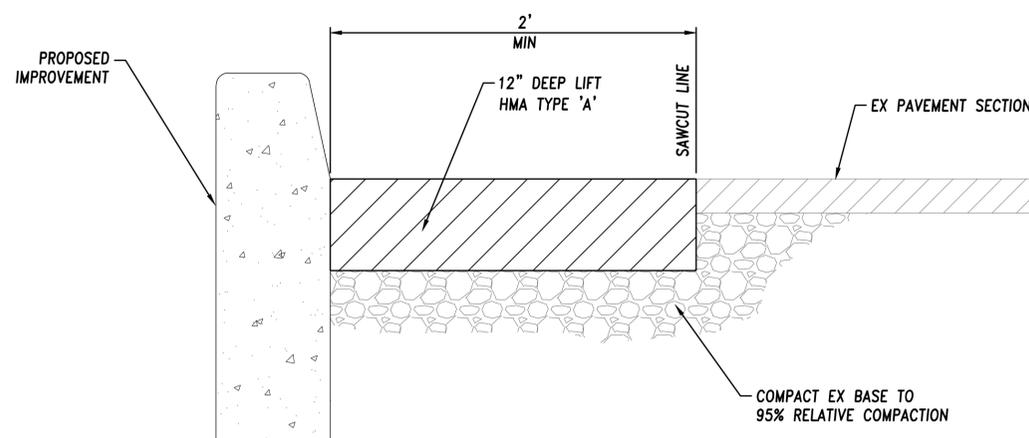


**NOTES:**

1. SAWCUT EXISTING SIDEWALK TO NEAREST SCORE LINE.
2. TOOL SCORE LINES AT EQUAL INTERVALS ROUGHLY EQUAL TO 1/2 OVERALL LENGTH.
3. PROVIDE EXPANSION JOINTS AT 16' MAX SPACING.
4. DRILL & EPOXY 12" DOWELS MINIMUM 4" INTO EXISTING CONCRETE EDGE AT 24" O.C. MAX.
5. SEE PLAN FOR OPENINGS IN PERIMETER CURB.

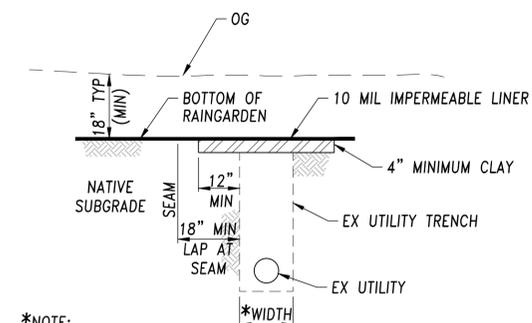
**THICKENED EDGE SIDEWALK DETAIL**

N.T.S.



**HOT MIX ASPHALT (HMA) PAVEMENT PATCH**

N.T.S.



**\*NOTE:**

EXTEND PLUG AND LINER 12" MIN AND 18" MIN RESPECTIVELY BEYOND EXISTING TRENCH WALL. WHERE TRENCH WALL IS NOT DISCERNIBLE, TRENCH WIDTH SHALL BE TAKEN AS A MINIMUM OF 24" PLUS THE OUTSIDE DIMENSION OF THE SUBJECT UTILITY FACILITY.

**TRENCH PLUG DETAIL**

N.T.S.

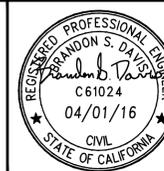
SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
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△	04/01/16	FINAL SUBMITTAL	BSD

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Engineering, Surveying & Planning

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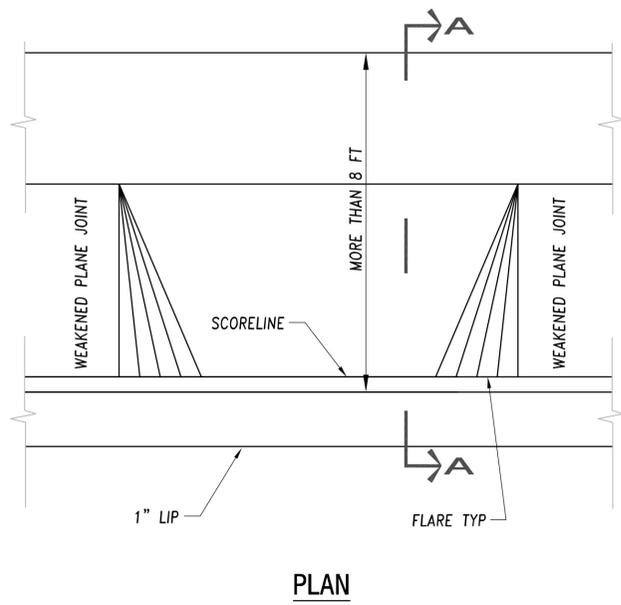
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Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/09/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
ALBANY, CA SITE  
CIVIL DETAILS

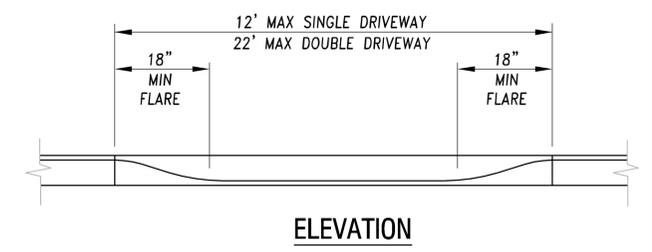
ALAMEDA COUNTY

CALIFORNIA

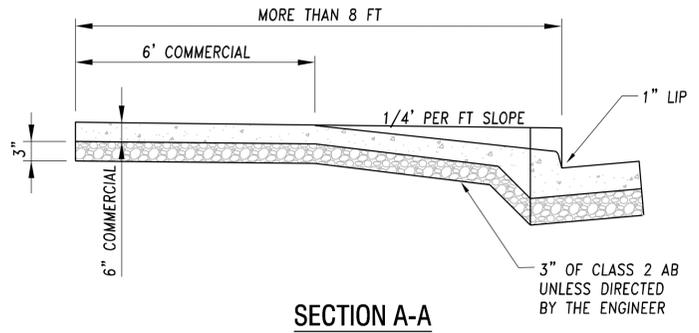
SHEET	6	OF	11
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	APRIL 01, 2016		



**PLAN**

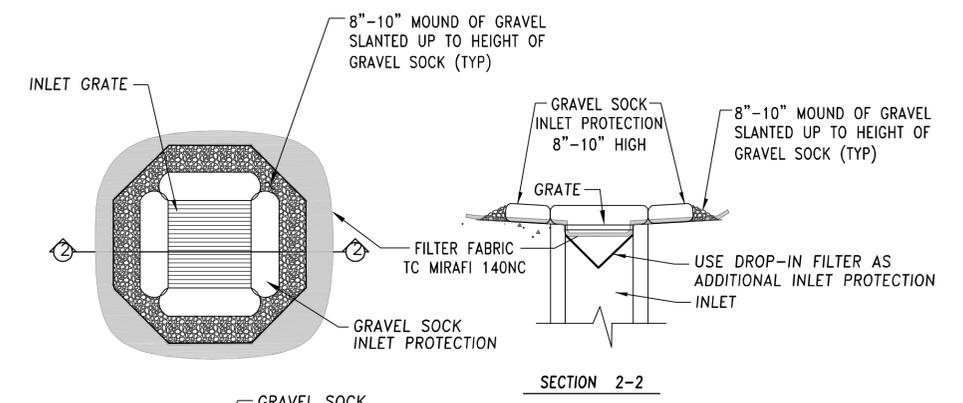


**ELEVATION**

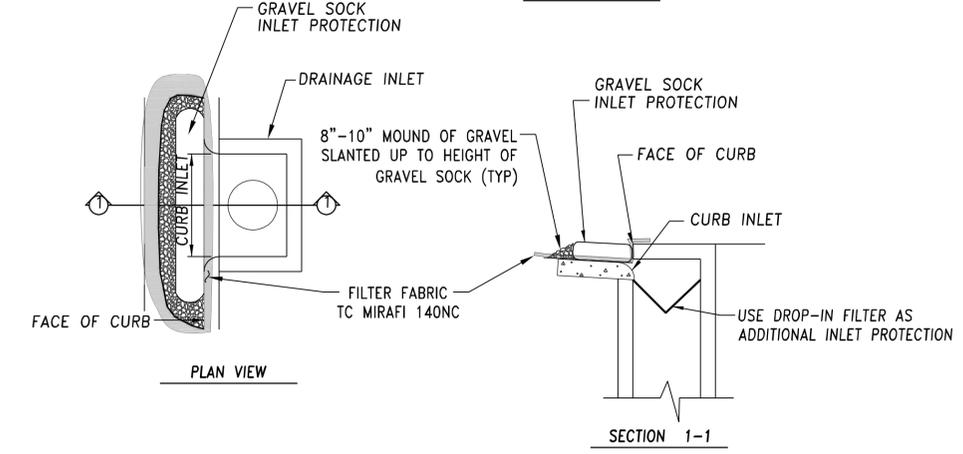


**SECTION A-A**

**STANDARD DRIVEWAY DETAIL**  
N.T.S.

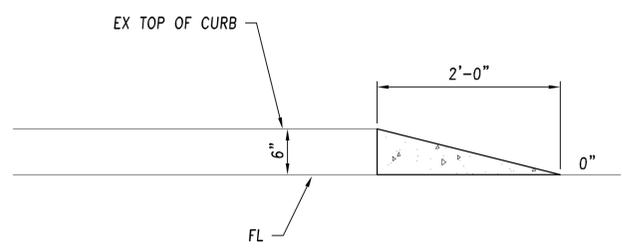


**SECTION 2-2**

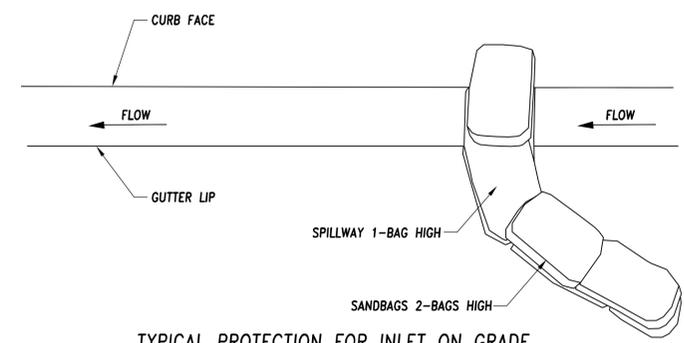


**SECTION 1-1**

**TEMPORARY INLET PROTECTION**  
N.T.S.



**TAPER DETAIL ELEVATION VIEW**  
N.T.S.



**TYPICAL PROTECTION FOR INLET ON GRADE**  
**TEMPORARY GRAVEL BAG BERM**  
N.T.S.

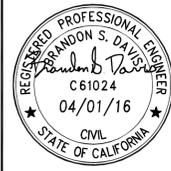
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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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Engineering, Surveying & Planning  
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wilseyham.com



Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/07/16
BY	DATE	

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
ALBANY, CA SITE  
CIVIL DETAILS

ALAMEDA COUNTY

CALIFORNIA

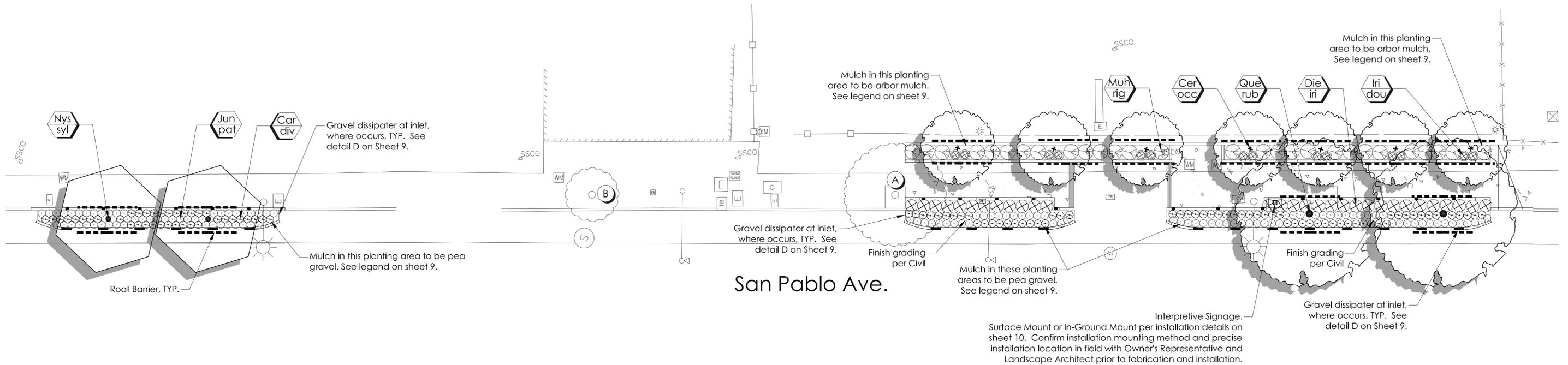
SHEET	7	OF	11
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	APRIL 01, 2016		

# WATER TRUCK IRRIGATION- MAINTENANCE PERIOD

1. This project site will not contain a permanent irrigation system. An on-site water source is not available for the irrigation of planting areas.
2. Contractor shall irrigate all planting areas within the project site via water truck, from the time of installation to final acceptance of the project at the end of the two (2) year maintenance period. Prior to November 1, 2016, recycled water provided by EBMUD must be used.
3. Contractor shall monitor the soil moisture on a weekly basis as part of the routine maintenance requirements.
4. Contractor shall water as needed to maintain optimal soil moisture to keep all plant material in optimal health and viability.
5. Coordinate watering activities and scheduling with the City's Representative.
6. Scheduling and adjustments in watering activities are the sole responsibility of the Contractor.
7. Watering activities shall not disturb plant material or displace arbor mulch layer.
8. All water used for irrigation shall be potable.
9. For bidding purposes, Contractor shall assume weekly waterings (once per week) at this site for the months of May to October and biweekly waterings (once every other week) at this site for the months of November, February, March and April. December and January are anticipated to be non-watering months.
10. Contractor shall retain receipts for all water deliveries for review by the Agency, in the event receipts are requested.

Prior to November 1, 2016, all storm water planters (including those with no irrigation system installed) must be irrigated with recycled water provided by EBMUD and delivered and applied by water truck unless otherwise notified by the Department of Water Resources that drought conditions no longer exist.

All trees are to be planted a minimum of 10' from utility poles, fire hydrants, driveways, and highway signs.



## PLANTING NOTES

1. The plant list is provided for the convenience of the Contractor. The Contractor shall verify all plant counts and if a discrepancy exists, the plan shall govern.
2. Substitution of specified plant material shall not be made unless otherwise approved by the Landscape Architect. Same genus different species substitutions are acceptable provided the variety is similar in growth habit to the specified plant and water use is the same. Example: Escallonia Terri' could sub for 'Red Elf'. Rhamphiolepis can not substitute for Escallonia as they have different water use requirements. Certificates of compliance will not be completed for projects which exceed the water use of specified plant materials until conformance with the water efficient landscape requirements is achieved.
3. Finish grade in planting areas shall be smooth and even prior to installation of mulch. All landscape areas not covered with live material shall be covered with 3" of mulch, except where noted.
4. Planting areas shall be kept clean and free from all concrete, asphaltic waste, lumber or other such materials, shall be removed by excavation of the soil and replaced with clean native top soil.
5. See details and specifications for procedures, material, and installation requirements.
6. Soils reports shall be provided for all imported soils, per specification section. Reports shall be submitted to the SFEP's Representative and Landscape Architect for review and approval.
7. Adjacent streets, sidewalks and other areas shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
8. Any damaged or destroyed landscaping shall be replaced to the satisfaction of the Owner's Representative.
9. For best results, native plant materials should not have their roots disturbed. For plastic cans, remove bottom of can, place in plant pit and cut sides to remove. Cut metal cans in three places minimum and carefully slide root ball into plant pit, for large plant material, use bottom support as necessary.
10. Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.
11. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.
12. Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape Maintenance Manual for complete information.
13. Synthetic pre-emergents are prohibited in the construction and maintenance of this project.
14. It is required that the Contractor have assigned to the project at least one employee who is a Certified Arborist or Certified Tree Worker (International Society of Arboriculture, Certified Arborist or Tree Worker shall meet with the Landscape Architect and City's Arborist on site to discuss tree preservation prior to construction and be present onsite for all work within the dripline or Tree Protection Zone of existing trees.
15. Upon award of contract, the Contractor is to schedule an on-site meeting with the Landscape Architect and City's Arborist to review protection measures for all existing trees on site that are to remain.
16. The Contractor is to minimize disturbance to existing tree roots on site. If required, cut minor roots (less than 2" in diameter) of trees indicated to remain in a clean and careful manner where such roots obstruct installation of new construction. If any roots greater than 2" are encountered stop work and contact the Landscape Architect and City's Arborist immediately.
17. All excavation and/or trenching work done within the drip line of existing trees shall be done by air tools only.
18. The contractor shall be responsible for the health and protection of all existing trees on site that are to remain. The contractor shall replace any trees that have been killed or damaged and warrant replacement as determined by the City's Arborist. Replacement trees shall be 24" box specimen trees, species shall be per the City's Arborist or Authorized Representative.
19. This is a functioning storm water planter with an engineered imported soil mix designed for specific performance criteria. Amend only planting pits and associated planting backfill per the planting instructions.
20. Soil shall not be worked when wet to avoid compaction.

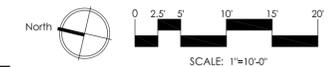
### Planting Note:

- (A) Existing Liquidambar Tree to Remain.
- (B) Existing Quercus Tree to Remain.

Contractor shall consult with the City's Arborist regarding tree protection measures upon award of contract.

### Note:

See sheet 9 for planting legend & installation details.



**QUADRIGA**  
landscape architecture and planning, inc.  
sacramento | santa rosa | san francisco  
916.441.2129 | www.quadrigo-inc.com

SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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△	4/1/16	FINAL SUBMITTAL	JS
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Engineering, Surveying & Planning

3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



BY	DATE
Project Mgr.: JS	01/30/15
Project LA: JS	01/30/15
Designer: BJ	01/30/15
Checked: WM	01/30/15
Drawn: BJ	01/30/15
Plotted: Brenna	03/25/16

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
ALBANY, CA SITE  
LANDSCAPE PLANTING PLAN

ALAMEDA COUNTY

CALIFORNIA

SHEET	8	OF	11
PROJ. NO.:	936-001	SCALE:	1"=10'-0"
DATE:	4/1/16		

# ALBANY CANDIDATE PLANT LIST

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	WATER REQ.	REFERENCE	PROJECT SPACING	MIN-MAX SPREAD	NATIVE
<b>TREES</b>									
7	Cer occ	<i>Cercis occidentalis</i> (Standard)	Western Redbud	15 gal.	INF-OCC	SUNSET	20'	20'-30'	Y
2	Que rub	<i>Quercus rubra</i>	Red Oak	15 gal.	INF-OCC	SUNSET	30'	40'-60'	N
2	Nys syl	<i>Nyssa sylvatica</i>	Tupelo	15 gal.	OCC-MOD	EBMUD	20'	20'-30'	N
<b>GRASSES &amp; PERENNIALS</b>									
14	Iri dou	<i>Iris Douglasiana</i>	Pacific Coast Iris	1 gal.	NONE-INF	EBMUD	2'	2'-3'	Y
101	Car div	<i>Carex divulsa</i>	Berkeley Sedge	1 gal.	OCC-MOD	EBMUD	18"	1'-2'	N
115	Jun pat	<i>Juncus patens</i> 'Elk Blue'	California Gray Rush	1 gal.	NONE-MOD	SUNSET	18"	18"-24"	Y
30	Die iri	<i>Dietses iridioides</i>	Fortnight Lily	1 gal.	NONE-MOD	EBMUD	30"	2'-3'	N
28	Muh rig	<i>Muhlenbergia rigens</i>	Deer Grass	1 gal.	NONE-OCC	EBMUD	3'	2'-4'	Y

## Arbor Mulch

Shredded arbor mulch from a local source. Apply 3" thick layer at all plantings areas and as shown. Exclude areas under boardwalk decking. Submit sample for approval. See notes.

## Pea Gravel Mulch

Smooth pea gravel from a local source. Size: 3/8". Color: gray. Apply 3" thick layer in areas indicated on plan. Submit sample for approval. See notes.

## Gravel Dissipator

Gravel Dissipator at inlet. See detail.

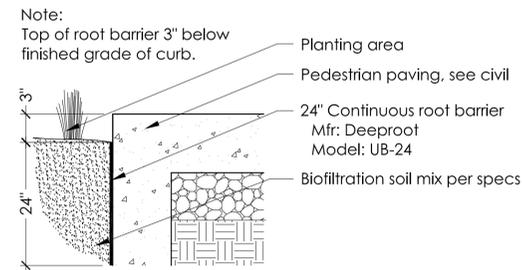
## Root Barriers

Tree Root Barrier. Center on tree and extend 6'-0" in each direction as shown. See detail.

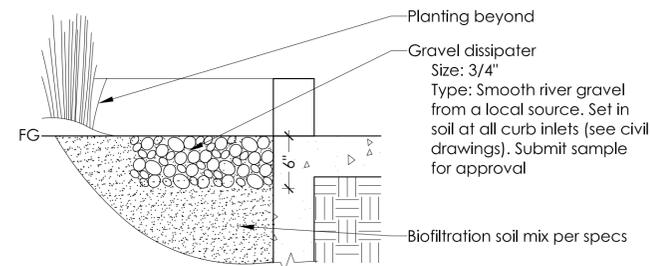
## Hydrozone

All planting areas are a mixture of medium and low water using plant material per W.U.C.O.L.S. Guidelines. Per the California Model Water Ordinance, all planting areas are considered medium water use.

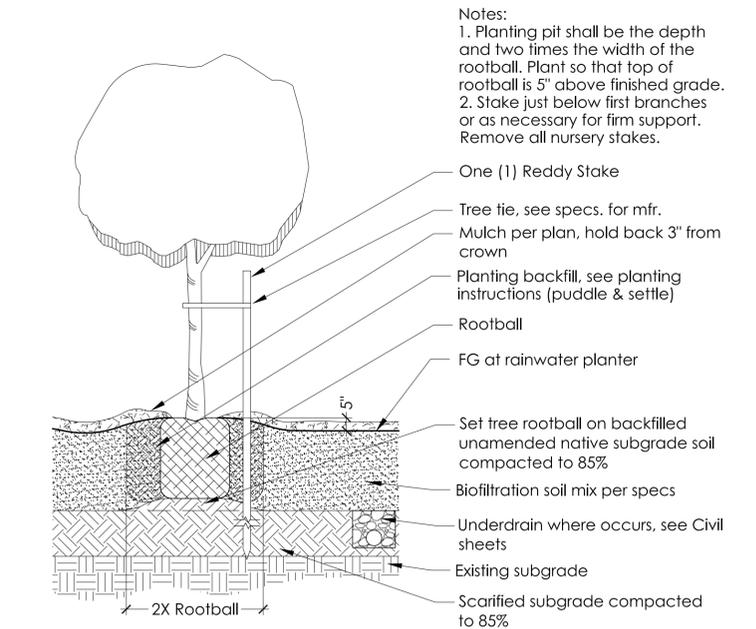
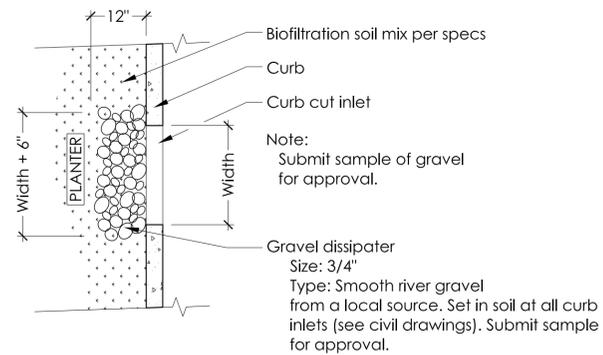
Note: Planting palette assumes Water Truck Irrigation during the two (2) year maintenance/establishment period.



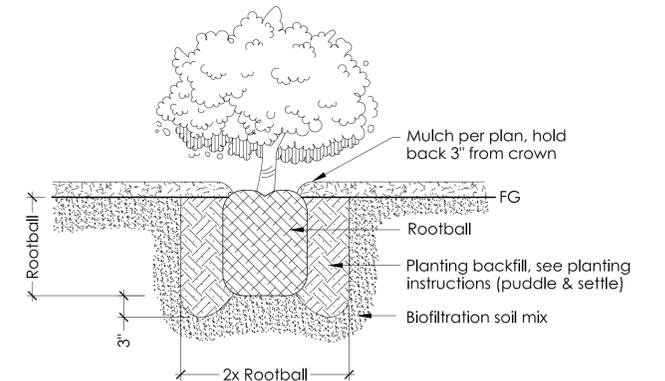
**C** ROOT BARRIER AT PAVING  
SCALE: N.T.S.



**D** GRAVEL DISSIPATOR AT INLET  
SCALE: N.T.S.



**A** STORMWATER TREE PLANTING  
SCALE: N.T.S.



**B** SHRUB AND GRASS PLANTING  
SCALE: N.T.S.

Note: Planting pit shall be the depth and two times the width of the root ball. Plant so that top of rootball is 2" above finished grade. Remove all nursery stakes.

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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
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△			
△	4/1/16	FINAL SUBMITTAL	JS
△	3/28/14	90% SUBMITTAL	JS

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Engineering, Surveying & Planning

3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com

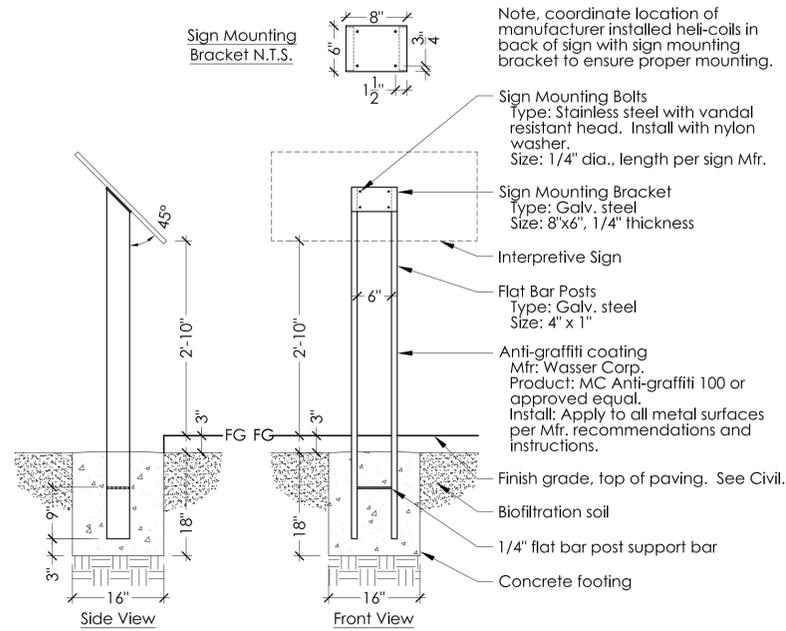


Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
ALBANY, CA SITE  
LANDSCAPE PLANTING LEGEND & DETAILS  
ALAMEDA COUNTY CALIFORNIA

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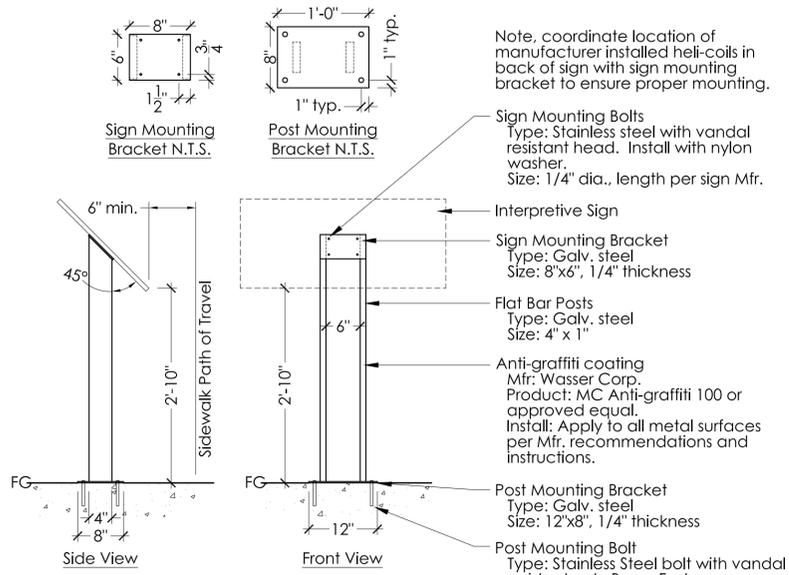
SHEET	9	OF	11
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	4/1/16		



**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

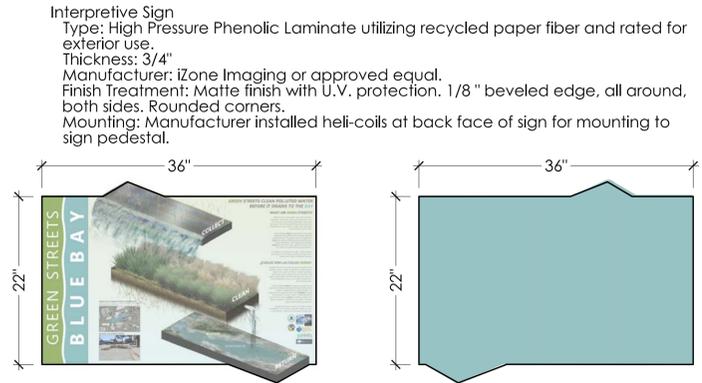
**G IN-GROUND SIGN PEDESTAL**  
SCALE: N.T.S.



**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

**F SURFACE MOUNT SIGN PEDESTAL**  
SCALE: N.T.S.



**Interpretive Sign**  
Type: High Pressure Phenolic Laminate utilizing recycled paper fiber and rated for exterior use.  
Thickness: 3/4"  
Manufacturer: iZone Imaging or approved equal.  
Finish Treatment: Matte finish with U.V. protection. 1/8" beveled edge, all around, both sides. Rounded corners.  
Mounting: Manufacturer installed heli-coils at back face of sign for mounting to sign pedestal.

**Front Sign Face**  
Full color interpretive image shown is preliminary and is for bidding purposes only. A high quality digital file of the approved signage will be provided to the Contractor upon award of contract.

**Rear Sign Face**  
Solid color rear sign face shown is preliminary and is for bidding purposes only. The CMYK color number will be provided to the Contractor upon award of contract.

**E INTERPRETIVE SIGN**  
SCALE: N.T.S.

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1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
ALBANY, CA SITE  
LANDSCAPE PLANTING DETAILS

ALAMEDA COUNTY

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SHEET	10
OF	11
PROJ. NO.:	936-001
SCALE:	AS SHOWN
DATE:	4/1/16

PLANTING INSTRUCTIONS

PART 1 - GENERAL

1.1 SUMMMARY

A. Work included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and project specifications sections, apply to these instructions.

B. Contractor shall refer to and incorporate Bay-Friendly Landscaping Guidelines and Principals into the installation of the landscape. The 7 Principals of Bay-Freindly Landscaping and Gardening are:

- |                                       |  |
|---------------------------------------|--|
| 1. Landscape Locally                  | 5. Conserve Energy                       |
| 2. Landscape for Less to the Landfill | 6. Protect Water & Air Quality           |
| 3. Nurture the Soil                   | 7. Protect and Maintain Wildlife habitat |
| 4. Conserve Water                     |  |

1.3 SUBMITTALS

A. Comply with submittal procedures per project specifications.

B. Samples: samples of quarry fines, soil amendments, gravel, cobble, fertilizers, compost and mulches shall be submitted for review and stored on site until furnishing of materials is completed. Delivery may begin upon approval of samples or as directed by the Landscape Architect.

C. Technical reports: Submit copies of technical reports. Work is to be performed by:

Soil and Plant Laboratory, Inc.  
352 Mathew Street  
Santa Clara, CA 95030  
408-727-0330

1. Agronomy reports: one (1) agronomy report shall be prepared for each site, which shall include basic and minor nutrients, as well as a textural analysis of each sample. Sample shall consist of a composite of three shovelfuls of soil.

D. Fertilizers, soil conditioners, and compost: submit product data for fertilizers, soil conditioners, and compost to be installed at time of planting. Quantities of fertilizers and soil conditioners shall be per the agronomy report. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

E. Cost adjustments: Contractor shall provide a line item cost for installation of the soil conditioners and fertilizers according to these specifications. Should the agronomy reports recommend a lesser degree of soil conditioning and fertilizing, Contractor shall adjust fees or provide a credit to the client accordingly. In the event that the required soil conditioners and fertilizers are greater than these specifications, the Contractor shall not be responsible for funding the difference.

F. Post-planting fertilizers: submit product data for fertilizers for use post-planting. Quantities of fertilizers shall be per the post-amendment agronomy report. Submit certificates, trip slips and invoices for soil preparation materials. See Section 1.5 Review of Plant Invoices and Soil Preparation Conformance Test.

Manufacturer's instructions: Contractor to submit installation instructions for planting items not herein outlined or detailed on drawings.

1.4 GENERAL REQUIREMENTS

A. The term "planting area" shall mean all areas to be planted with trees, shrubs, groundcovers, and areas covered with organic mulch.

B. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice.

C. All rock and other growth or debris accumulated during the duration of the project shall be removed from the site.

D. Prior to excavation for planting or placing of plant materials, locate all underground utility lines still in use and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and plant locations, notify the Landscape Architect who shall arrange for the relocation of one or the other. The Contractor assumes all responsibility for making any and all repairs for damages resulting from work as herein specified.

E. Grading and soil preparation work shall be performed only during the period when beneficial and optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy soil structure, spreading and grading operations shall be suspended until the moisture content is increased or reduced to acceptable levels. Soil shall not be worked when wet to avoid compaction.

F. All scaled dimensions are approximate. Before proceeding with any work carefully check and verify all dimensions and immediately inform the Landscape Architect of any discrepancy between the drawings and/or specifications and actual conditions.

G. Quantities for plant materials are shown for convenience only, and not guaranteed. Check and verify count and supply sufficient number to fulfill intent of drawings.

H. Adequately stake, barricade, and protect all irrigation equipment, manholes, utility lines, and other existing property during all phases of the soil amending and grading operations.

I. Observation of plant material:

- All plant material shall be delivered to the project site for observation by the Architect, for approval prior to installation.
- All trees shall conform to the "Guideline Specifications for Nursery Tree Quality", Urban Tree Foundation.
- The Contractor shall immediately remove any plant material not approved.
- Approved plant material shall remain on the site and shall be maintained by the Contractor as standards of comparison for material to be furnished.
- The Contractor, at his option and at his expense, can retain the services of the Landscape Architect to review trees 15 gallon and larger tagged at the nursery and/or at its place of growth, or as otherwise specified on drawings.

J. Rejection and substitution:

- All plants not conforming to the requirements herein specified shall be considered defective, and such plants, whether in place or not, shall be marked as rejected and be immediately removed from the site of the work and replaced with acceptable plant materials. The plant materials shall meet all applicable observations required by law. All plants shall be of the species, variety, size, age, flower color and condition as specified herein and/or as indicated on the drawings. Under no condition will there be any substitution of plant species, variety, or reduced sizes for those listed on the accompany drawings, except with the express written consent of the Landscape Architect.

1.5 REVIEW OF PLANT INVOICES AND SOIL PREPARATION CONFORMANCE TEST

A. Upon delivery of materials and/or completion of all soil conditioning and grading but prior to initiating planting operations, the Contractor shall provide Landscape Architect with signed copies of required certificates, trip slips and invoices for soil preparation materials. The Landscape Architect shall review such material, comparing the total quantities of each material furnished against the total area to each operation. If the minimum rates of application have not been met, the Landscape Architect will require the incorporation of additional quantities of these materials to fulfill the minimum application requirements specified.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All products shall be delivered to the site in manufacturer's unopened standard containers bearing original labels showing quantity, analysis and name of manufacturer.

B. All materials shall be stored in designated areas and in such a manner as to protect from weather or other conditions that might impair the effectiveness of the product.

1.7 OBSERVATION

A. Observations herein specified shall be made by the Landscape Architect. The Contractor shall request observations in writing, 3 days in advance of the time observation is required.

B. The Contractor or his authorized representative shall be on the site at the time of each observation.

C. Observation will be required for the following parts of the work:

- Upon the completion of grading prior to planting.
- Approval of plant materials (refer to 1.4 general requirements).
- When trees and shrubs are spotted in place for planting, but before planting holes are excavated. Approval of mulch product shall be obtained prior to spreading.
- When all planting, except the maintenance period, has been completed. Acceptance and written approval shall establish start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- At the end of ninety (90) days from the start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- At the end of one (1) year from the start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- Final observation at the completion of the two (2) year maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.

D. Acceptances: upon completion of the final observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable, (2) of any requirements necessary for completion and acceptance.

E. The Contractor will be charged, and responsible for, any time and mileage used by the Landscape Architect as a result of prematurely scheduled site visit.

1.8 MAINTENANCE/PLANT ESTABLISHMENT

A. The maintenance period begins on the day the Landscape Architect has given notice of completion and shall continue thereafter for no less than two (2) years.

- These instructions are to be used in conjunction with the project's Storm Water Planter Maintenance Manual.
- The Contractor shall call for inspections per the Observation section above.
- Phased maintenance periods, if required, shall be negotiated prior to construction.

4. If phased maintenance periods are not negotiated prior to construction, the maintenance period for all areas will begin after the entire project is 100% complete per contract documents. Portions completed earlier shall be maintained up to and including the specified maintenance period without additional compensation.

B. The Contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period until the final acceptance of the work.

C. A protective temporary fence shall be installed and remain in place until the 90-day observation. Contractor is responsible for removal of the protective temporary fence at the close of the 90-day period.

D. Regular planting maintenance operations shall begin immediately after each plant is planted. Plants shall be kept in a healthy, growing condition and in a visually pleasing appearance by watering, pruning, mowing, rolling, trimming, edging, fertilizing, restaking, pest and disease controlling, spraying, weeding, cleaning up and any other necessary operation of maintenance. Landscape areas shall be kept free of weeds, noxious grass, and all other undesired vegetative growth and debris. All plants found to be dead or in an impaired condition shall be replaced immediately. See post-planting fertilizing requirements in the Storm Water Planter Maintenance Manual.

E. The contract completion date of the contract maintenance period will be extended, when in the opinion of the Landscape Architect, improper maintenance and/or possible poor or unhealthy condition of planted material are evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work at no change in contract price until all of the work is completed and acceptable.

F. The Contractor shall be responsible for maintaining adequate protection of the planting areas. Damaged areas shall be repaired immediately per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

G. All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water

Planter Landscape Maintenance Manual.

GUARANTEES AND REPLACEMENTS

- All plants (except trees- see 1.09b) shall be guaranteed to remain healthy and vigorously growing for the duration of the two (2) year maintenance period.
- All trees that have been supplied and installed under this contract shall be guaranteed to live in a healthy condition for the duration of the two (2) year maintenance period. Trees are to be inspected for disease and certified by an authorized arboriculturist prior to planting.
- All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.
- Plants used for replacement shall be the same kind and size as specified in the plant list. They shall be furnished, planted and fertilized as originally specified.

1.10 MAINTENANCE PERIOD IRRIGATION

A. Refer to drawings sheets for Water Truck Irrigation Maintenance Period requirements.

PART 2 - PRODUCTS

2.1 SOIL AMENDMENT AND FERTILIZER

- Planting pit backfill is to be amended with quality compost at the rates indicated by a soil analysis to bring soil organic matter content to a minimum of 3.5% quality compost by dry weight.
- Compost shall be a well decomposed, stable, weed free organic matter source. The product shall be certified through the US Composting Council's (USCC) Seal of Testing Assurance (STA) Program (a compost testing and information disclosure program). It shall be derived from agricultural and/or food waste and/or yard trimmings. The product shall contain no substances toxic to plants, will possess no objectionable odors and shall not resemble the feedstock (the organic materials from which it was derived).
- Before delivery of the compost, the supplier will submit proof of STA certification and a copy of lab analysis performed by a laboratory that is enrolled in the US Composting Council's CAP and using the approved Test Methods for the Evaluation of Composting and Compost (TMECC).
- The delivery tags indicating the quantity delivered to the job site shall be submitted by contractor. Compost exhibiting a sour or putrid smell, containing recognizable grass or leaves, or heat (120F) upon delivery or rewetting will not be accepted.
- Quantities shall be furnished as needed to complete work shown on drawings.
- Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

2.2 PLANTING

A. Backfill: the following planting backfill ratios are to be used for bidding purposes only. Contractor is responsible for providing agronomy reports as described in 1.3-c, which shall outline backfill specifications. Fully amended (upper) excavation materials shall be put in one pile to go around the rootball. Any deeper un-amended materials shall be put in a separate pile. Condition this deeper soil at the following rates and use for the planting pit below the rootball:

Gypsum 16 lbs /cy.

Over-excavate the planting pits so that there shall be one foot of this material between native soil and the bottom of the rootball. No OM or fertilizer shall be used below the rootball.

B. Tree staking:

- Stakes shall be untreated lodge pole stakes, with length as required to meet staking requirements per detail. Stake quantity per detail.
- Tree ties shall be V.I.T. cinch-tie, or approved equal.

C. Weed eradication: pre-emergent and post-emergent herbicides shall not be used in the construction and maintenance of this project. All weeding shall be accomplished through mechanical methods.

2.3 PLANT MATERIAL

- All plants shall be vigorous, of normal growth free from disease, insects, insect eggs, and meet or exceed the measurements specified.
- Identify plant species or varieties correctly on legible, weatherproof labels attached securely to the plant. There shall be a minimum of one labeled plant for each 5 plants in a lot.
- Substitutions will not be permitted except if proof is submitted that any plant specified is not obtainable, in which case a proposed substitution will be considered for use of the nearest equivalent size or variety and cost. All proposed substitutions shall be approved by Landscape Architect prior to ordering.

2.4 MULCH

Contractor shall maintain a minimum of 3" of coarse organic Arbor Mulch or Pea Gravel Mulch over soil surface that is not covered by vegetation or boardwalk, per plan. Arbor mulch materials shall be recycled chipped or shredded wood chips from pruning operations, or chipped landscape prunings. All mulch shall be from a local source. Shredded redwood bark mulch ("Gorilla hair") shall not be use. Non-porous material (e.g. plastic weed barriers) shall not be placed under the mulch.

2.5 ROOT BARRIER

A. Root Barrier shall be Deeproot, 24" Universal Barrier, UB 24-2, or equal.

PART 3 - EXECUTION

3.1 SOIL CONDITIONING

A. Grub and clean planting area, removing all weeds, debris and rocks from the site.

3.2 INTEGRATED PEST MANAGEMENT (IPM)

A. Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape

Maintenance Manual for complete information.

B. Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.

3.3 FINISH GRADING

A. Finish grades shall be as indicated on the Civil Engineer's drawings.

B. Planting surfaces shall be graded with no less than 2 percent surface slope for positive drainage, or as otherwise noted according to Civil Engineer's plans.

C. Final finish grades shall insure positive drainage of the site with all surface drainage away from buildings, walls, and toward roadways, drains and catch basins.

D. Finish grades shall be measured as the final water compacted and settled surface grades, and shall be acceptable to the Landscape Architect before planting operations will be allowed to begin.

E. All undulations and irregularities in the planting surfaces resulting from tillage, rototilling and all other operations shall be leveled and floated out before planting operations are initiated.

F. The Contractor shall take every precaution to protect and avoid damage to sprinkler heads, irrigation lines, and other underground utilities during his grading and conditioning operations.

3.4 PLANTING

A. The layout of locations for plants and outlines of groundcover to be planted shall be approved on the site by the Landscape Architect, prior to their planting. All such locations shall be checked for possible interference with existing underground piping, prior to excavation of holes. If underground construction or utility lines are encountered in the excavation of planting areas, other locations for the planting may be selected by the Landscape Architect. Damage to existing utilities shall be the responsibility of the Contractor.

B. Planting trees, shrubs, and container-stock groundcovers, vines, and grasses:

1. All excavated holes shall have vertical sides with roughened surfaces and shall be of the minimum sizes indicated on detailed drawings. Holes shall be, in all cases, large enough to permit handling and planting without injury or breakage of root balls or roots.

2. Root barriers shall be installed where indicated on plans in accordance with manufacturer's recommendations.

3. Excavation shall include the stripping and staking of all acceptable soil encountered within the areas to be excavated for plant pits and planting beds. Protect all areas that are to be trucked over and upon which soil is to be temporarily stacked pending its re-use for the filling of holes, pits and beds.

4. Plants in can containers shall have the cans opened by cutting vertically on opposite sides of each can with nursery can openers, tin snips or other approved instruments for this purpose. All used cans shall be removed to the storage areas or from the site daily.

5. The plants shall be planted at approved locations with the heretofore specified conditioner and soil planting backfill.

6. The plants shall be placed in the planting pits on the backfill material which has been hand tamped and water settled to the rootball base levels prior to the placement of the plants. After setting the plants, the remaining backfill material shall be carefully tamped and settled around each rootball to fill all voids.

7. Each plant shall be placed in the center of the hole and shall be set plumb and held rigidly in position until the planting backfill has been tamped from around each root ball.

8. All plants shall be set at such a level that after settling they bear the same relationship to the surrounding finish grade as they bore to the soil line grade in the container, unless otherwise noted.

9. No plant will be accepted if the rootball is broken or cracked before, during, or after the process of installation.

10. All plants shall be thoroughly watered in to the full depth of each planting hole immediately after planting.

11. All trees, 15 gallon and larger, shall be staked. One of the stakes shall be driven into the ground of the windward side of the tree. The stakes shall be driven in plumb and secure. Special care shall be taken that the driving in of the stake does not damage the tree roots or root ball. tree ties shall be fastened to each tree and stake by looping figure 8's with the inside diameter of the tie at 2 or 3 times the diameter of the tree (also see detailed drawings).

12. The staking shall be accomplished in such a manner as to insure the proper and healthy growth and safety of the plants, property, and the public.

13. The Contractor shall be responsible for all surface and subsurface drainage required which may affect his guarantee of the plants.

C. Planting groundcovers (From Flats):

1. Groundcovers shall be planted in the areas indicated on the drawings. The groundcover plants shall be rooted cuttings grown in flats, and shall remain in those flats until transplanting.

2. All groundcover plants shall be planted with soil around roots, evenly spaced at the intervals called out on the drawings.

3. The groundcover plants shall be planted sufficiently deep to cover all roots and planting tablets shall be placed in each planting hole and shall be immediately sprinkled after planting until the entire area is soaked to the full depth of all holes.

4. The groundcover planting areas shall be hand smoothed after planting to provide an even, smooth final finish grade.

D. Mulch:

1. Apply a 3" deep layer of specified Arbor Mulch throughout all planting areas, unless otherwise noted on plans. Also refer to planting details for mulch requirements.

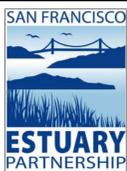
3.5 CLEANUP

A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete, and planter walls adjacent to plantings.

End of Instructions

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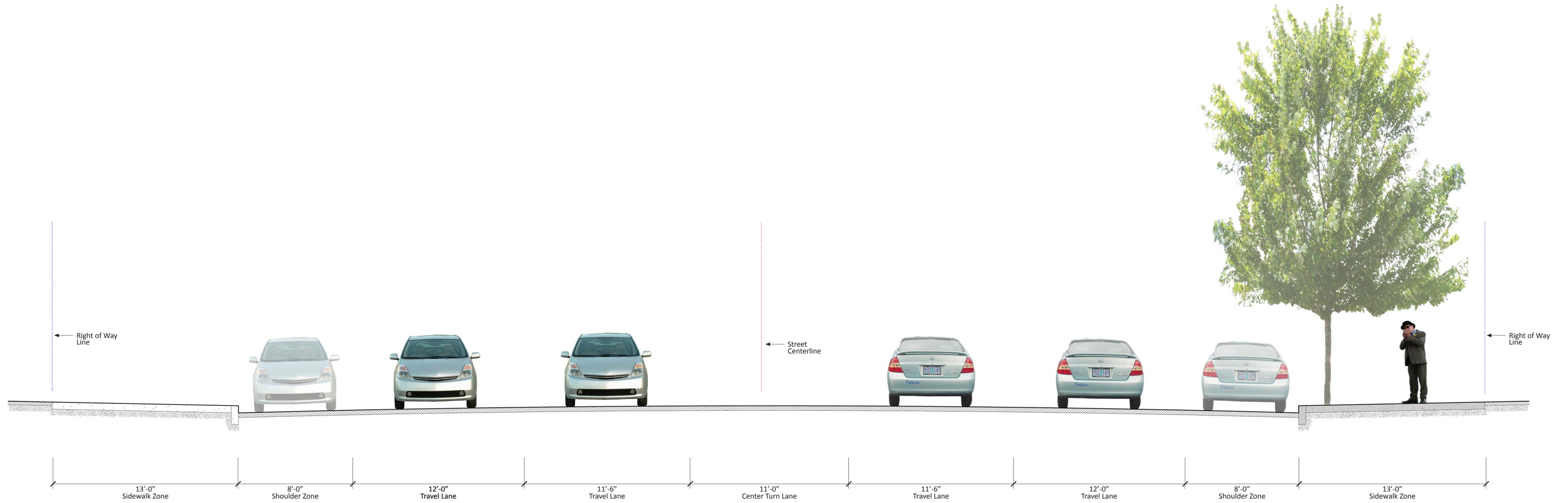
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SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
ALBANY, CA SITE

**LANDSCAPE PLANTING INSTRUCTIONS**

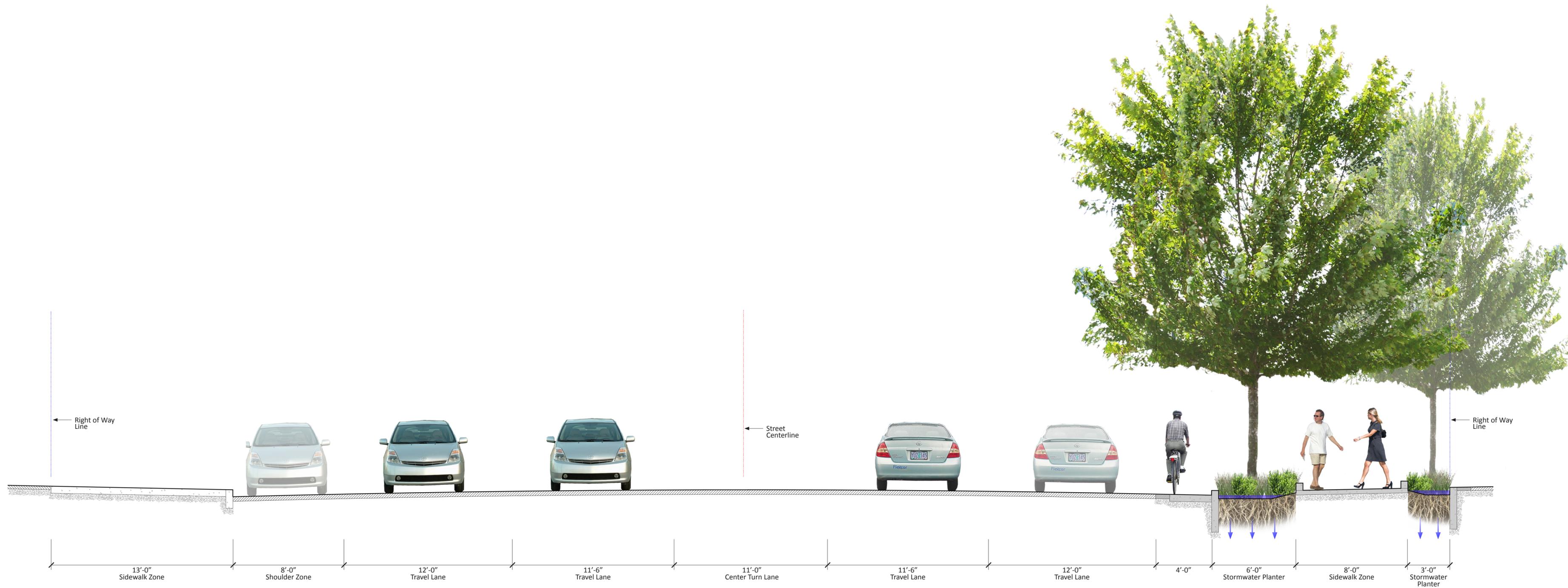
ALAMEDA COUNTY CALIFORNIA

SHEET	11
OF	11
PROJ. NO.: 936-001	SCALE: AS SHOWN
DATE: 4/1/16	



## Existing Cross Section- San Pablo Avenue Albany Location

Scale: 1/4"=1'-0"



## Proposed Cross Section- San Pablo Avenue Albany Location

Scale: 1/4"=1'-0"



## GENERAL NOTES

- CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD THE SAN FRANCISCO ESTUARY PARTNERSHIP AND DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONJUNCTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF SAN FRANCISCO ESTUARY PARTNERSHIP OR DESIGN PROFESSIONAL.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED TO PERFORM THE WORK INCLUDING, BUT NOT LIMITED TO AN ENCROACHMENT PERMIT FROM THE CITY.
- THE ENGINEER ASSUMES NO RESPONSIBILITY BEYOND THE ADEQUACY OF THE DESIGN CONTAINED HEREIN.
- SHOULD IT APPEAR THAT THE WORK TO BE DONE, OR ANY MATTER RELATIVE THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE CONSTRUCTION MANAGER FOR FURTHER EXPLANATIONS AS MAY BE NECESSARY.
- ANY DISCREPANCY IN THESE PLANS OR IN ANY FIELD CONDITIONS DISCOVERED BY THE CONTRACTOR THAT MAY DELAY OR OBSTRUCT THE PROPER COMPLETION OF THE WORK PER THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. SAID NOTIFICATION SHALL BE IN WRITING.
- CONTRACTOR SHALL VERIFY ALL MEASUREMENTS PRIOR TO PROCEEDING WITH THE WORK.
- RECORD IMPROVEMENTS AND UTILITIES SHOWN ON PLANS HAVE BEEN SUPPLEMENTED BY FIELD SURVEYS PERFORMED BY WILSEY HAM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MATCHING STREETS, SURROUNDING LANDSCAPE AND OTHER IMPROVEMENTS WITH A SMOOTH TRANSITION IN PAVING, CURBS, GUTTERS, SIDEWALKS AND GRADING, TO AVOID ANY ABRUPT OR APPARENT CHANGES IN GRADES OR CROSS SLOPE, LOW SPOTS OR HAZARDOUS CONDITIONS. PAVING CONFORMS SHALL MADE AT A SMOOTHLY TRIMMED BUTT JOINT. DO NOT OVERLAP EXISTING PAVEMENT.
- REFERENCES TO CALTRANS SPECIFICATIONS STATED HEREIN REFER TO THE MOST CURRENT VERSION OF THE CALIFORNIA STATE STANDARD SPECIFICATIONS OF THE DEPARTMENT OF TRANSPORTATION (SSDOT). ALL FLAGGING, TEMPORARY SOIL STABILIZATION, TEMPORARY SEDIMENT CONTROL, AND TEMPORARY TRACKING CONTROL COSTS ARE BORNE BY THE CONTRACTOR. COST SHARING AS DESCRIBED IN SECTIONS 12-1.03, 13-5.04, 13-6.04, AND 13-7.04 OF THE SSDOT DOES NOT APPLY
- RIGHT-OF-WAY AND PROPERTY DEFINITIONS ARE APPROXIMATE AND SHOWN FROM RECORD INFORMATION SUPPLIED BY THE PROJECT SPONSOR AND IS NOT INTENDED TO REPRESENT ACTUAL BOUNDARY DEFINITIONS. NO BOUNDARY OR RIGHT-OF-WAY SURVEYS HAVE BEEN PERFORMED.
- ALL CITY OF RICHMOND MONUMENTS LOCATED WITHIN THE PROJECT AREA MUST BE REFERENCED, PRIOR TO WORK COMMENCING, BY A LICENSED LAND SURVEYOR AS REQUIRED BY SECTION 8771 OF THE BUSINESS AND PROFESSIONS CODE. CORNER RECORDS OF THIS WORK MUST BE SUBMITTED FOR FILING TO BOTH THE COUNTY SURVEYOR OF CONTRA COSTA COUNTY, AND THE CITY SURVEYOR.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF EXISTING SURVEY MONUMENTS, BENCHMARKS, REFERENCE POINTS AND STAKES. SHOULD ANY SURVEY MONUMENTS, BENCHMARKS, REFERENCE POINTS, OR STAKES BE DAMAGED OR DESTROYED DURING PERFORMANCE OF THIS WORK, THE CONTRACTOR SHALL REPLACE SAID ITEMS PER CITY STANDARDS IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
  - NO MONUMENTS MAY BE DISTURBED OR REMOVED WITHOUT WRITTEN PERMISSION OF THE CITY SURVEYOR.
  - NO BENCHMARKS SHALL BE REMOVED DURING THIS WORK WITHOUT WRITTEN PERMISSION FROM THE CITY SURVEYOR.
- THE CONTRACTOR MUST OBTAIN AN ENCROACHMENT PERMIT FROM THE CITY OF RICHMOND PRIOR TO THE COMMENCEMENT OF ANY WORK.

## CONSTRUCTION NOTES

- THE FOLLOWING CONTROL MEASURES FOR CONSTRUCTION ACTIVITIES SHALL BE ADHERED TO, UNLESS OTHERWISE APPROVED BY THE CONSTRUCTION MANAGER. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF ANY EXCESS MATERIALS FROM THE WORK SITE.
- THE CONTRACTOR SHALL ACQUIRE ANY NECESSARY PERMITS REQUIRED TO DISCHARGE WATER FROM THE TRENCH DEWATERING SYSTEM INTO THE STORM DRAIN SYSTEM. ALL DEWATERING DISCHARGE SHALL BE TREATED BY FILTRATION, SEDIMENT TANK, AND/OR OTHER MEANS TO REMOVE SUSPENDED SOLIDS, SILT, AND WASTE MATERIAL.
- EROSION CONTROL MEASURES SHALL BE INSTALLED AS NECESSARY TO PREVENT SEDIMENT RUNOFF TO DRAINAGE FACILITIES, ADJACENT PROPERTIES AND THE SAN FRANCISCO BAY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES ON OR OFF THE PROJECT SITE AS A RESULT OF LACK OF DUST CONTROL.
- THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY AND TO MAINTAIN SMOOTH FLOW OF TRAFFIC AT ALL TIMES.
- DURING THE PROGRESS OF THE CONSTRUCTION WORK THE CONTRACTOR SHALL MAINTAIN THE PREMISES IN A NEAT AND CLEAN CONDITION, DISPOSING OF REFUSE IN A SATISFACTORY MANNER AS OFTEN AS DIRECTED OR AS MAY BE NECESSARY SO THAT THERE SHALL BE AT NO TIME ANY UNSIGHTLY ACCUMULATION OF RUBBISH AT THE JOB SITE.
- CONTRACTOR TO ADHERE TO ALL REQUIREMENTS OF THE CONTRA COSTA COUNTY HEALTH SERVICES AGENCY.
- CONTRACTOR SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE STATE CONSTRUCTION SAFETY ORDERS.
- THE CONTRACTOR SHALL IMMEDIATELY REPORT ANY SOIL OR WATER CONTAMINATION NOTICED DURING CONSTRUCTION TO THE CITY OF RICHMOND FIRE DEPARTMENT HAZARDOUS MATERIALS DIVISION, THE CONTRA COSTA COUNTY DEPARTMENT OF HEALTH, AND THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE SITE OR SURROUNDING AREA DUE TO DUST OR EROSION, RESULTING FROM WORK DONE BY THE CONTRACTOR. CONTRACTOR SHALL PROVIDE A SEVEN (7) DAY, 24-HOUR, PHONE NUMBER TO RECEIVE AND RESPOND TO DUST COMPLAINTS RESULTING FROM ALL CONSTRUCTION OPERATIONS AND SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETE.
- CONTRACTOR SHALL REPLACE OR REPAIR, AT CONTRACTOR'S EXPENSE, ALL DAMAGED, REMOVED OR OTHERWISE DISTURBED WALLS, FENCES, SERVICES, UTILITIES, IMPROVEMENTS OR FEATURES OF WHATEVER NATURE, TO THEIR ORIGINAL CONDITION, WHETHER SHOWN ON THE PLANS OR NOT; PROVIDED SUCH REPAIR OR REPLACEMENT IS CAUSED BY CONTRACT WORK OPERATIONS.

## UNDERGROUND NOTES

- LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES SHOWN ARE BASED ON AVAILABLE UTILITY COMPANY INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE ACTUAL LOCATION AND DEPTH OF UTILITIES PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (U.S.A.) AT (800)227-2600 AT LEAST 48 HOURS IN ADVANCE OF ANY EXCAVATING. PHYSICAL VERIFICATION OF UTILITY LOCATION SHALL BE PERFORMED BY POT HOLING OR HAND DIGGING AND CAREFUL SUBSURFACE PROBING IN CONFORMANCE WITH ARTICLE 6 OF THE CAL/OSHA CONSTRUCTION SAFETY ORDERS. ANY DEVIATIONS FROM LOCATIONS SHOWN ON PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION BEFORE STARTING CONSTRUCTION. NEITHER THE OWNER NOR THE ENGINEER ASSUMES RESPONSIBILITY THAT THE OBSTRUCTIONS INDICATED ON THE PLANS WILL BE THE OBSTRUCTIONS ENCOUNTERED.
- EXISTING UTILITIES ARE SHOWN PER AVAILABLE INFORMATION. THERE MAY BE ADDITIONAL EXISTING LINES NOT SHOWN ON THE PLANS. CONTRACTOR SHALL BE CAREFUL TO AVOID ANY DAMAGE TO ANY UTILITY INTENDED TO REMAIN.
- ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE CONSTRUCTION MANAGER AND THE UTILITY OWNER AT THE CONTRACTOR'S SOLE EXPENSE.

## EROSION CONTROL NOTES

- TEMPORARY EROSION CONTROL DEVICES SHOWN HEREON, WHICH INTERFERE WITH THE WORK SHALL BE RELOCATED OR MODIFIED AS THE WORK PROGRESSES TO MAINTAIN PROTECTION.
- ALL LOOSE SOIL AND DEBRIS SHALL BE REMOVED FROM THE STREET AREAS UPON STARTING OPERATIONS AND NO LESS OFTEN THAN DAILY THEREAFTER. INSPECTOR MAY REQUIRE MORE FREQUENT CLEANING AS WEATHER CONDITIONS DICTATE.
- EARTH BERMS SHALL BE CONSTRUCTED AND MAINTAINED ALONG THE TOP OF THE SLOPES UPON WHICH GRADING IS NOT IN PROGRESS.
- AFTER UTILITY TRENCHES ARE BACKFILLED AND COMPACTED, THE SURFACES OVER SUCH TRENCHES SHALL BE MOUNDED SLIGHTLY TO PREVENT CHANNELING OF WATER IN THE TRENCH AREA.
- EXCEPT AS OTHERWISE DIRECTED BY THE INSPECTOR, ALL DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE FORECAST OF RAIN PROBABILITY EXCEEDS 40% AND MAINTAINED DURING THE RAINY SEASON (OCTOBER 15 TO APRIL 15).
- THE SWPPP AND ALL BMP'S ARE CONDITIONAL, AND SUBJECT TO CHANGE DUE TO LOCAL CONDITIONS. THE ONSITE SUPERINTENDENT SHALL AMEND THE SWPPP TO MEET THESE CONDITIONS TO PREVENT EROSION, TO CONTROL SEDIMENT, AND TO PREVENT DISCHARGE OF POLLUTANTS TO THE STORM DRAINAGE SYSTEM. PLEASE SEND PROPERLY DOCUMENTED SWPPP AMENDMENTS TO THE CONSTRUCTION MANAGER WITHIN 5 WORKING DAYS.
- ALL PAVED AREAS WILL BE KEPT CLEAR OF EARTHEN MATERIAL AND DEBRIS. THE SITE WILL BE MAINTAINED SO THAT SEDIMENT-LADEN RUNOFF DOES NOT ENTER STORM DRAINS OR CREEKS.
- AS STORM DRAIN IMPROVEMENTS ARE CONSTRUCTED, ALL STRUCTURES AND INLET PIPES SHALL BE PROTECTED PER DETAILS SHOWN HEREON.
- CONTRACTOR SHALL HAVE TOOLS, EQUIPMENT, AND MATERIALS TO PROVIDE EROSION CONTROL MEASURES MADE NECESSARY BY A CONSTRUCTION OPERATION, ON THE JOB SITE BEFORE BEGINNING THAT OPERATION.
- ADJACENT PROPERTIES SHALL BE PROTECTED FROM STORM WATERS, MUD, SILT, ETC. AND INSPECTED ON A DAILY BASIS.
- DUST CONTROL SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND UNTIL FINAL COMPLETION, REFER TO THE SOIL MANAGEMENT PLAN FOR DUST CONTROL MEASURES.
- MAINTENANCE IS TO BE PERFORMED AS FOLLOWS:
  - ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED DAILY, PRIOR TO AND IMMEDIATELY AFTER EACH STORM EVENT, AND AT LEAST ONCE EVERY 24-HOURS DURING AN EXTENDED STORM EVENT. EACH INSPECTION SHALL BE DOCUMENTED, KEPT ON FILE AT THE ON-SITE CONSTRUCTION OFFICE, AND BE IMMEDIATELY AVAILABLE FOR REVIEW BY INSPECTORS.
  - FIBER ROLLS, BERMS AND SWALES ARE TO BE INSPECTED AFTER EACH STORM AND REPAIRS MADE AS NEEDED. GRAVEL BAGS PLACED AROUND THE CURB INLETS SHALL BE INSPECTED AND REPLACED IF DAMAGED.
  - SEDIMENT SHALL BE REMOVED & SEDIMENT TRAPS RESTORED TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO WITHIN A FOOT OF OUTLET ELEVATION.
  - SEDIMENT REMOVED FROM TRAPS SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. E. SEEDED AREAS SHALL BE REPAIRED, RESEDED, AND MULCHED WITHIN 48 HOURS AFTER DAMAGE.
- ALL DISTURBED AREAS NOT NEEDED FOR CONSTRUCTION OPERATIONS TO BE COVERED WITH JUTE NETTING OR HYDROMULCHED WITH TACKIFIED STRAW (2 TONS/ACRE) BY OCTOBER 15.
- CONCRETE WASH AREA SHALL BE CONSTRUCTED IN ACCORDANCE WITH CASQA CA STORMWATER BMP HANDBOOK DETAIL WM-8.
- ANY EARTHEN MATERIAL STOCKPILED SHALL BE STABILIZED. FIBER ROLLS SHALL BE PLACED AT THE BASE FULLY ENCLOSING THE PERIMETER OF THE STOCKPILE.
- ALL COMPLETED GRADED AREAS SHALL BE STABILIZED UPON COMPLETION WITH STRAW WATTLES, SILT FENCE OR PERMANENT LANDSCAPING. ALL AREAS BEING ACTIVELY GRADED WILL BE PROTECTED BY PERIMETER PROTECTION CONSISTING OF STRAW WATTLES AT A MINIMUM.
- THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO CHANGING FIELD CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADD AND MODIFY BMP'S TO PREVENT POLLUTION. VARIATIONS MAY BE MADE TO THE PLAN IN THE FIELD SUBJECT TO THE APPROVAL OF THE CONSTRUCTION MANAGER.

- CONTRACTOR TO EMPLOY BEST MANAGEMENT PRACTICES (BMP'S), IN ACCORDANCE WITH CASQA CA STORMWATER HANDBOOK LATEST RECOMMENDATIONS.
- STORE, HANDLE AND DISPOSE OF CONSTRUCTION MATERIALS AND WASTES SO AS TO PREVENT THEIR ENTRY TO THE STORM DRAIN SYSTEM. CONTRACTOR MUST NOT ALLOW CONCRETE, WASH WATERS, SLURRIES, PAINT OR OTHER MATERIALS TO ENTER CATCH BASINS OR TO ENTER SITE RUNOFF.
- USE FILTRATION OR OTHER MEASURES TO REMOVE SEDIMENTS FROM DEWATERING O EFFLUENT.
- CLEANING, OR MAINTAINING VEHICLES ON SITE SHALL NOT BE PERMITTED. CONTRACTOR SHALL NOT ALLOW DELETERIOUS MATERIALS TO ENTER CATCH BASINS OR TO ENTER SITE RUNOFF.
- USE OF PESTICIDES AND/OR FERTILIZERS SHALL BE APPLIED AND CONTROLLED TO PREVENT POLLUTION RUNOFF.
- PLACE ADDITIONAL WATTLES AS NECESSARY DEPENDING UPON SLOPE STEEPNESS.
- CONTRACTOR MAY RELOCATE STORAGE, DELIVERY, OR WASH OUT AREAS TO SUIT THEIR OPERATIONS UPON APPROVAL BY THE CONSTRUCTION MANAGER.
- THIS PLAN TO BE USED IN CONJUNCTION WITH THE WRITTEN REPORT OF STORM WATER POLLUTION PREVENTION PREPARED BY WILSEY HAM.

## WORKING HOURS AND TRAFFIC CONTROL

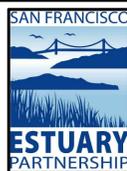
- WORKING HOURS ARE LIMITED TO BETWEEN 8am AND 6pm.
- NO WORK IS PERMITTED ON WEEKENDS OR HOLIDAYS.
- LANE CLOSURES ARE LIMITED TO BETWEEN 9am AND 3pm AND AS FURTHER RESTRICTED BY CALTRANS ENCROACHMENT PERMIT.
- ONE LANE OF TRAFFIC IN EACH DIRECTION MUST BE KEPT OPEN AT ALL TIMES.
- LANE CLOSURES SHALL CONFORM TO CALTRANS STANDARD DETAILS T11 AND T12 AS APPROPRIATE AND THE CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CAMUTCD).
- CONTRACTOR MUST SUBMIT A MUTCD COMPLIANT TRAFFIC CONTROL PLAN TO THE CITY.
- ADA COMPLIANT PEDESTRIAN ACCESS MUST BE MAINTAINED. CONTRACTOR MUST SUBMIT MUTCD COMPLIANT PLAN TO THE CITY FOR PEDESTRIAN ROUTING AND IF PROPOSED, ALTERNATE PEDESTRIAN ACCESS.
- ACCESS TO BUSINESSES MUST BE MAINTAINED. NO MORE THAN ONE DRIVEWAY SHALL BE CLOSED AT A TIME.

## MATERIALS NOTES:

- BOARDWALK DECK BOARDS & EDGE GUIDES SHALL BE: EVOLVE HIGH DENSITY PREMIUM PLASTIC LUMBER, "DARK REDWOOD" COLOR, "WOOD GRAIN" TEXTURE AS MANUFACTURED BY RENEW PLASTICS (800)666-5207 OR EQUAL.
- BOARDWALK FRAME (JOISTS, LEDGERS, ETC.) SHALL BE: FRAME AND STRUCTURAL MEMBERS SHALL BE TRIMAX STRUCTURAL LUMBER, "STEEL GREY" COLOR AS MANUFACTURED BY RENEW PLASTICS (800) 666-5207 OR EQUAL.
- SUBMIT BOARDWALK MATERIALS CUT SHEETS FOR APPROVAL PRIOR TO ORDERING BOARDWALK MATERIALS.

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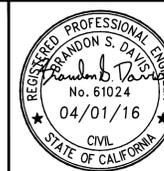
SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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NO.	DATE	ISSUE / REVISION DESCRIPTION		BY

**WILSEY HAM**  
Engineering, Surveying & Planning

3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	03/31/16
	BY	DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
RICHMOND, CA SITE  
NOTES

CONTRA COSTA COUNTY

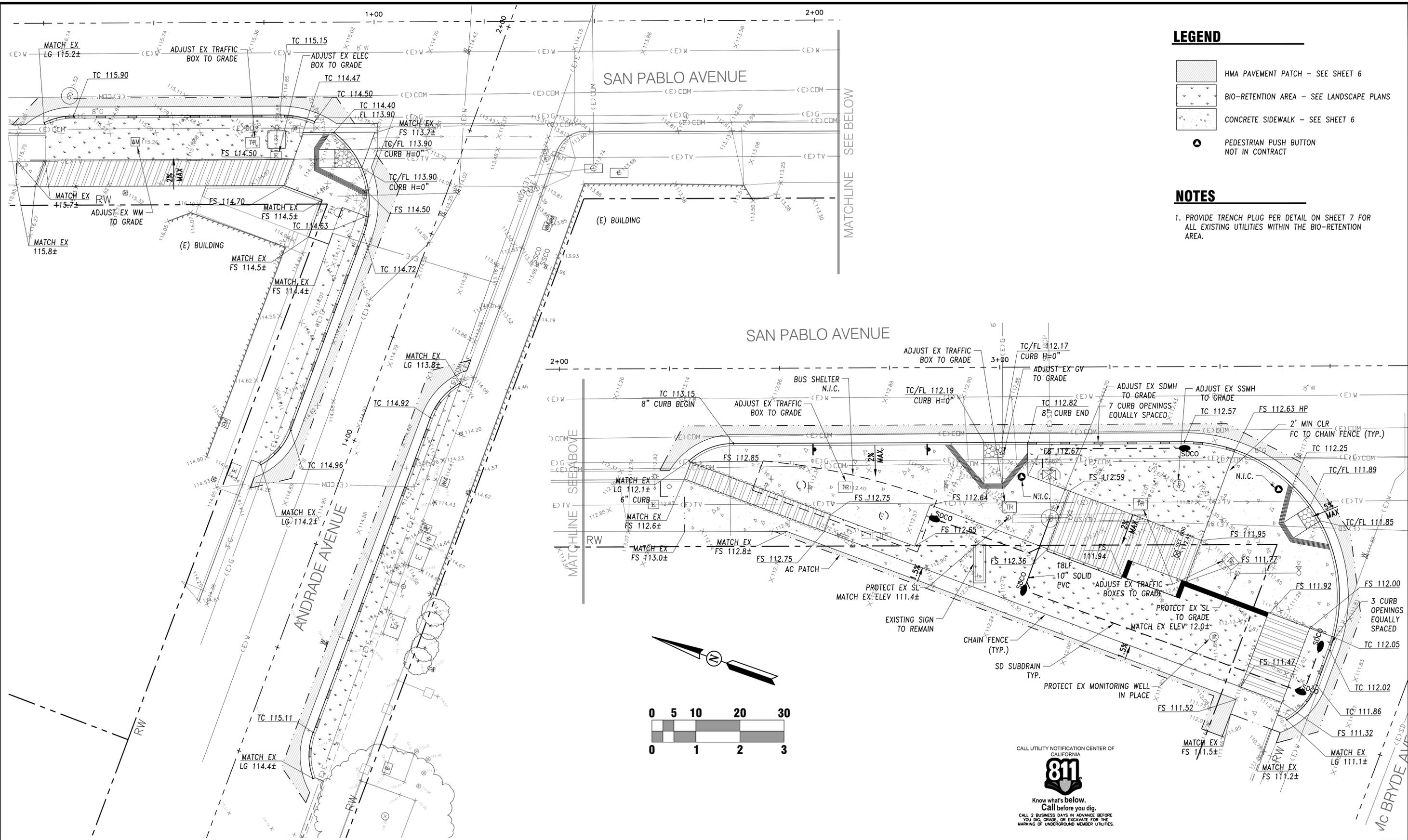
CALIFORNIA

SHEET	2	OF	11
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	APRIL 01, 2016		





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- LEGEND**
-  HMA PAVEMENT PATCH - SEE SHEET 6
  -  BIO-RETENTION AREA - SEE LANDSCAPE PLANS
  -  CONCRETE SIDEWALK - SEE SHEET 6
  -  PEDESTRIAN PUSH BUTTON NOT IN CONTRACT

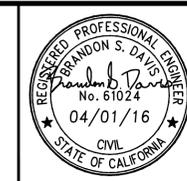
- NOTES**
- PROVIDE TRENCH PLUG PER DETAIL ON SHEET 7 FOR ALL EXISTING UTILITIES WITHIN THE BIO-RETENTION AREA.

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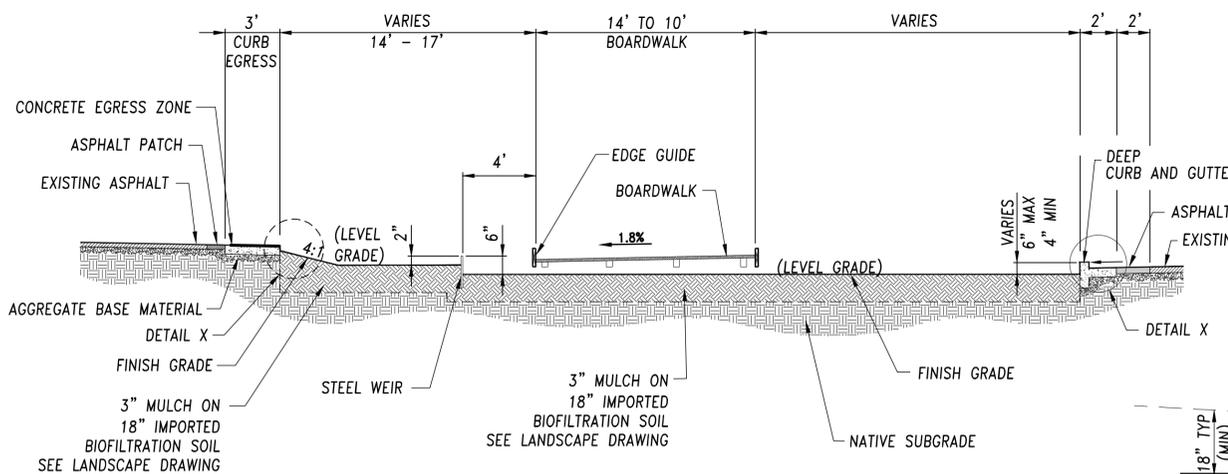


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 GREEN STORMWATER SPINE  
 RICHMOND, CA SITE  
 GRADING & DRAINAGE PLAN

CONTRA COSTA COUNTY CALIFORNIA

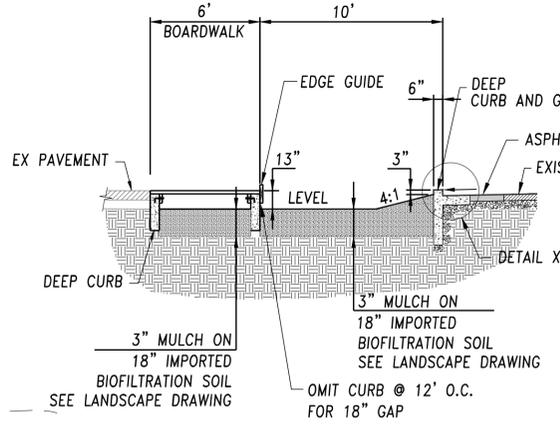
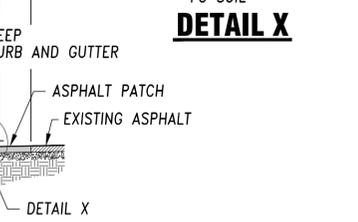
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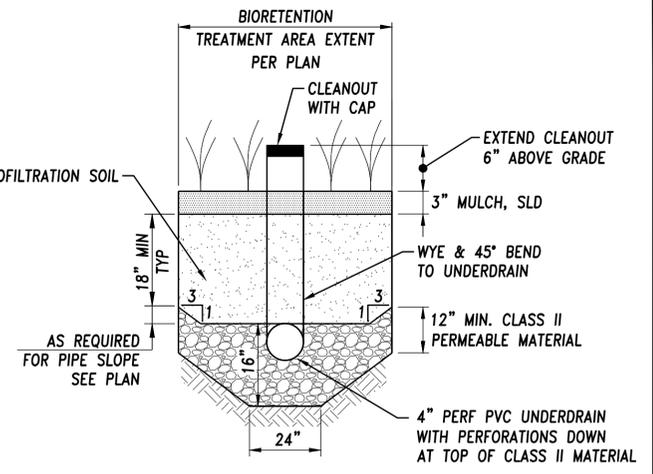


**SECTION A**  
Scale: 1" = 5' Horizontal

**DETAIL X**

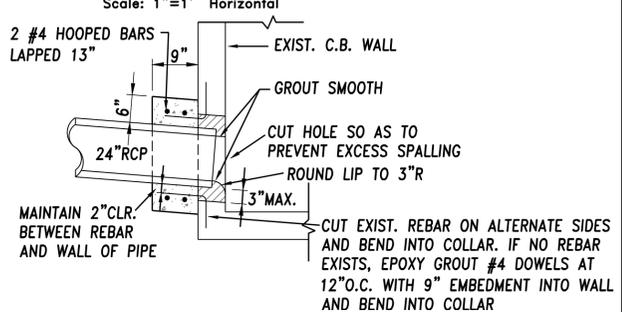


**SECTION B**  
Scale: 1" = 5' Horizontal

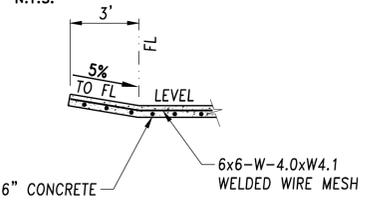


NOTES:  
1. ALL BIOFILTRATION SOIL SHALL COMPLY WITH THE SPECIFICATION IN ATTACHMENT "L" OF THE MUNICIPAL STORMWATER PERMIT.  
2. NATIVE SUBGRADE SHOULD BE RIPPED AND LOOSENED AND THEN TAMPED GENTLY AT THE DIRECTION OF THE ENGINEER.

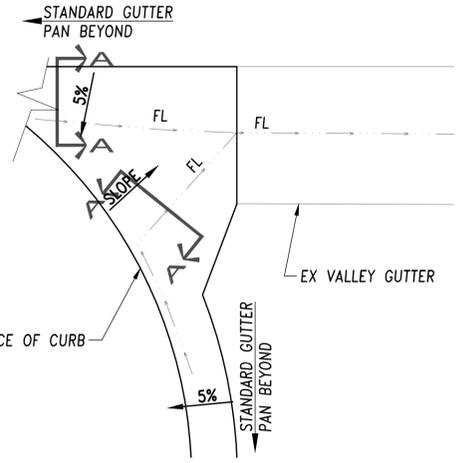
**SD SUBDRAIN DETAIL**  
Scale: 1" = 1' Horizontal



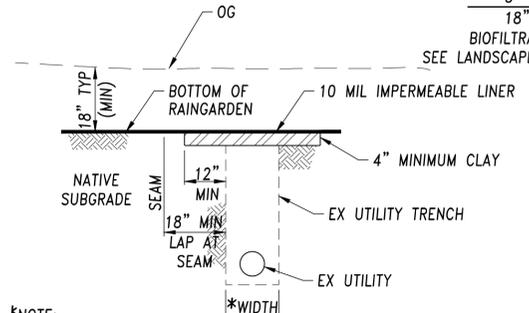
**PIPE CONNECTION DETAIL**  
N.T.S.



**SECTION A - A**

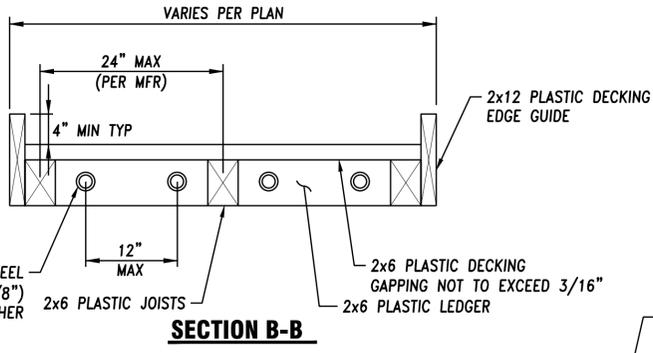


**VALLEY GUTTER INTERSECTION**  
N.T.S.

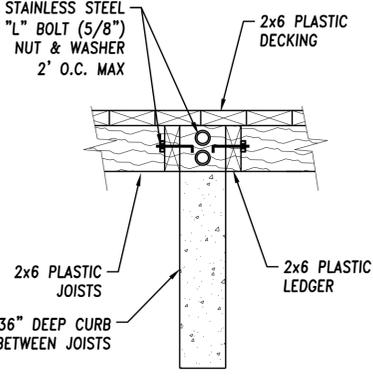


NOTE:  
EXTEND PLUG AND LINER 12" MIN AND 18" MIN RESPECTIVELY BEYOND EXISTING TRENCH WALL. WHERE TRENCH WALL IS NOT DISCERNIBLE, TRENCH WIDTH SHALL BE TAKEN AS A MINIMUM OF 24" PLUS THE OUTSIDE DIMENSION OF THE SUBJECT UTILITY FACILITY.

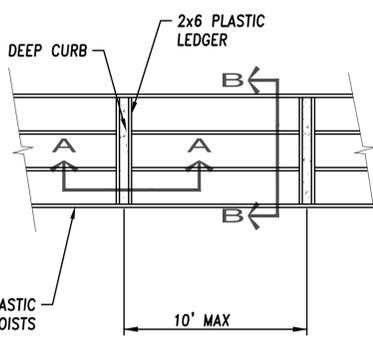
**TRENCH PLUG DETAIL**  
N.T.S.



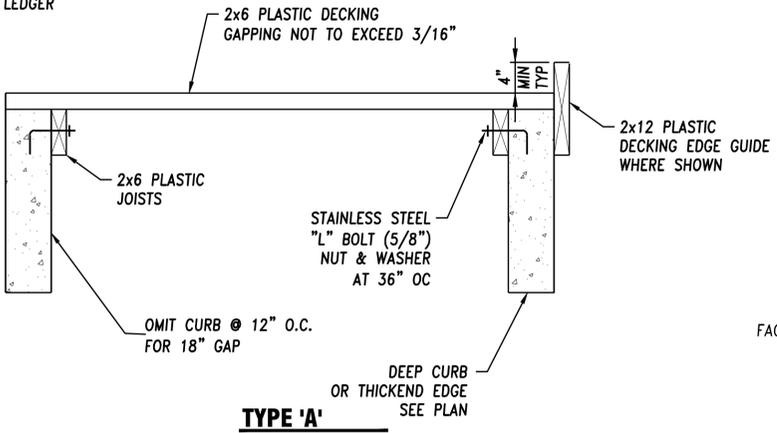
**SECTION B-B**



**SECTION A - A**

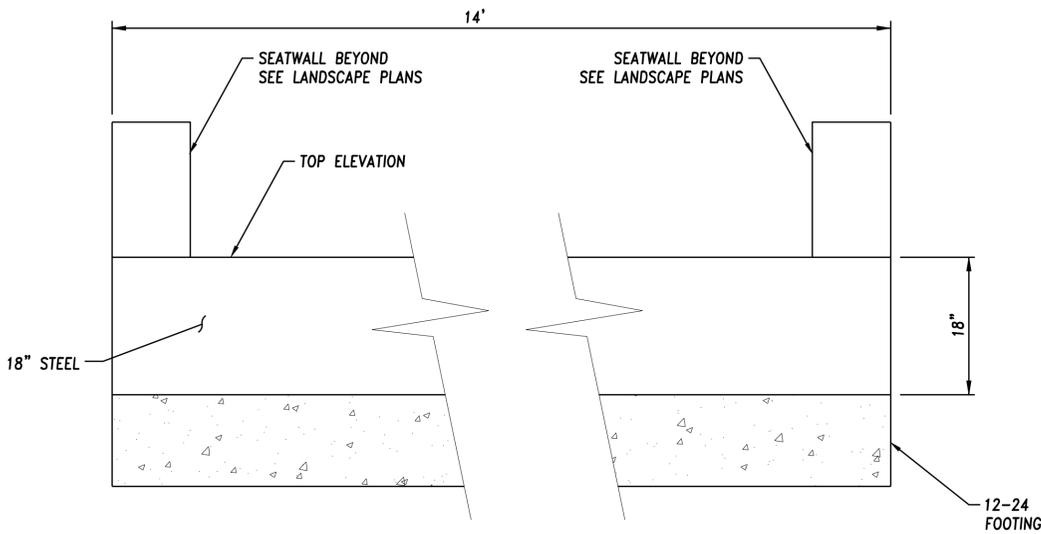


**TYPE 'B'**

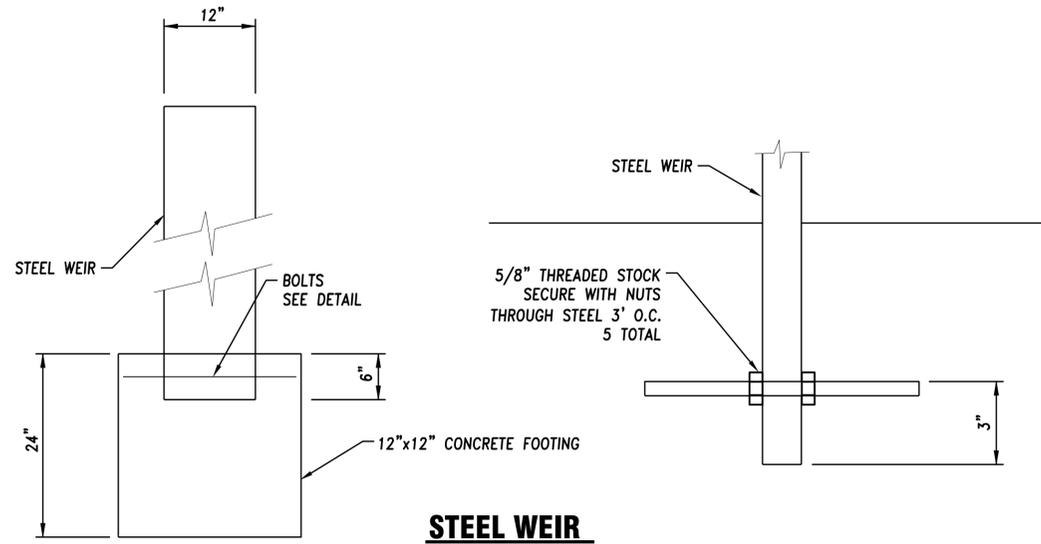


**TYPE 'A'**

**BOARDWALK DETAILS**  
N.T.S.



**STEEL WEIR**  
N.T.S.



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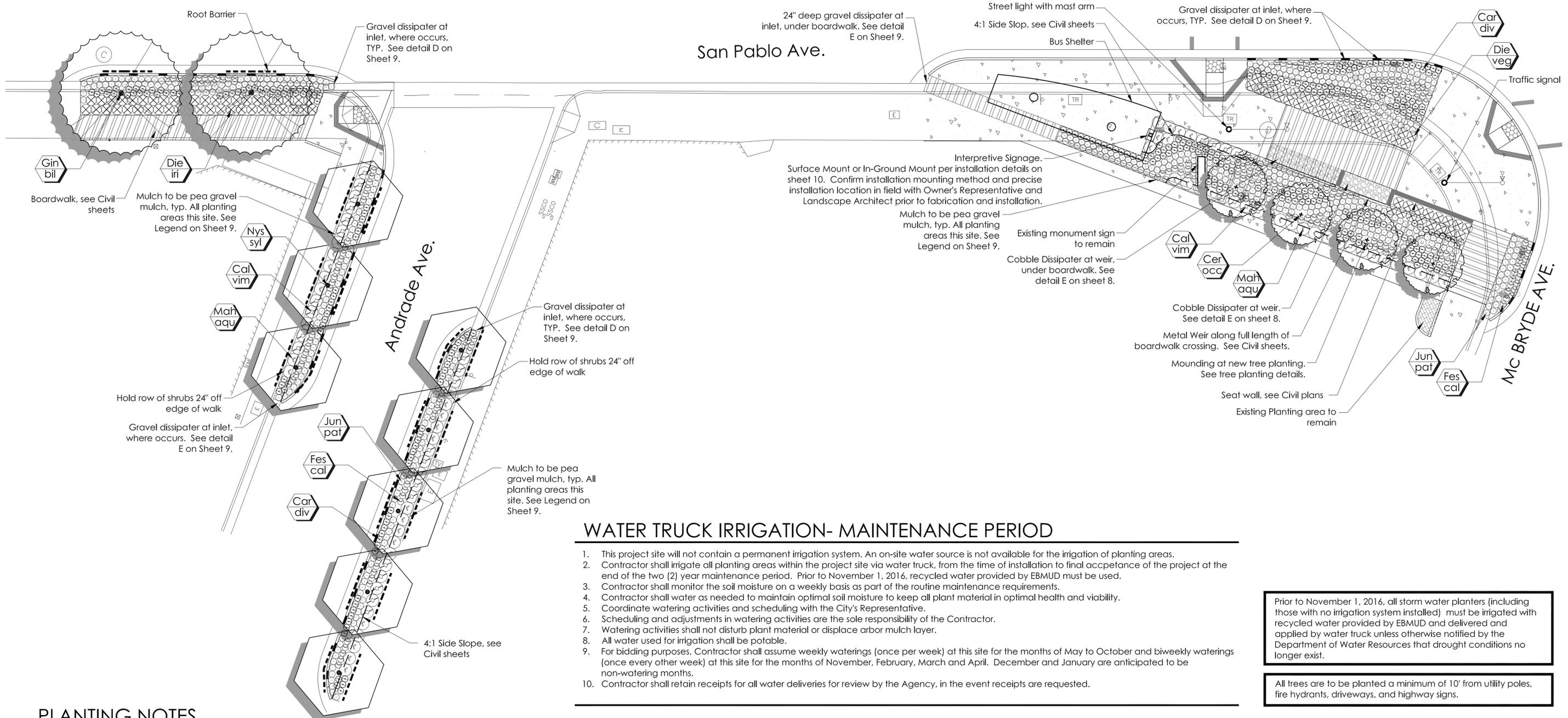
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GREEN STORMWATER SPINE  
RICHMOND, CA SITE  
CIVIL DETAILS

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CALIFORNIA

SHEET	7	OF	11
PROJ. NO.:	936-001	SCALE:	1" = 10'
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### WATER TRUCK IRRIGATION- MAINTENANCE PERIOD

1. This project site will not contain a permanent irrigation system. An on-site water source is not available for the irrigation of planting areas.
2. Contractor shall irrigate all planting areas within the project site via water truck, from the time of installation to final acceptance of the project at the end of the two (2) year maintenance period. Prior to November 1, 2016, recycled water provided by EBMUD must be used.
3. Contractor shall monitor the soil moisture on a weekly basis as part of the routine maintenance requirements.
4. Contractor shall water as needed to maintain optimal soil moisture to keep all plant material in optimal health and viability.
5. Coordinate watering activities and scheduling with the City's Representative.
6. Scheduling and adjustments in watering activities are the sole responsibility of the Contractor.
7. Watering activities shall not disturb plant material or displace arbor mulch layer.
8. All water used for irrigation shall be potable.
9. For bidding purposes, Contractor shall assume weekly waterings (once per week) at this site for the months of May to October and biweekly waterings (once every other week) at this site for the months of November, February, March and April. December and January are anticipated to be non-watering months.
10. Contractor shall retain receipts for all water deliveries for review by the Agency, in the event receipts are requested.

Prior to November 1, 2016, all storm water planters (including those with no irrigation system installed) must be irrigated with recycled water provided by EBMUD and delivered and applied by water truck unless otherwise notified by the Department of Water Resources that drought conditions no longer exist.

All trees are to be planted a minimum of 10' from utility poles, fire hydrants, driveways, and highway signs.

### PLANTING NOTES

1. The plant list is provided for the convenience of the Contractor. The Contractor shall verify all plant counts and if a discrepancy exists, the plan shall govern.
2. Substitution of specified plant material shall not be made unless otherwise approved by the Landscape Architect. Same genus different species substitutions are acceptable provided the variety is similar in growth habit to the specified plant and water use is the same. Example: Escallonia 'Terra' could sub for 'Red Elf'. Rhamphiolepis can not substitute for Escallonia as they have different water use requirements. Certificates of compliance will not be completed for projects which exceed the water use of specified plant materials until conformance with the water efficient landscape requirements is achieved.
3. Finish grade in planting areas shall be smooth and even prior to installation of mulch. All landscape areas not covered with live material shall be covered with 3" of mulch.
4. Planting areas shall be kept clean and free from all concrete, asphaltic waste, lumber or other such materials. shall be removed by excavation of the soil and replaced with clean native top soil.
5. See details and specifications for procedures, material, and installation requirements.
6. Soils reports shall be provided for all imported soils, per specification section. Reports shall be submitted to the SFEP's Representative and Landscape Architect for review and approval.
7. Adjacent streets, sidewalks and other areas shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
8. Any damaged or destroyed landscaping shall be replaced to the satisfaction of the Owner's Representative.
9. For best results, native plant materials should not have their roots disturbed. For plastic cans, remove bottom of can, place in plant pit and cut sides to remove. Cut metal cans in three places minimum and carefully slide root ball into plant pit, for large plant material, use bottom support as necessary.
10. Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.
11. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.
12. Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape Maintenance Manual for complete information.
13. Synthetic pre-emergents are prohibited in the construction and maintenance of this project.
14. Upon award of contract, the Contractor is to schedule an on-site meeting with the Landscape Architect and City's Arborist to review protection measures for all existing trees on site that are to remain.
15. The Contractor to minimize disturbance to existing tree roots on site. If required, cut minor roots (less than 2" in diameter) of trees indicated to remain in a clean and careful manner where such roots obstruct installation of new construction. If any roots greater than 2" are encountered stop work and contact the Landscape Architect immediately.
16. All excavation and or trenching work done within the drip line of existing trees shall be done by hand or air tools only.
17. It is required that the Contractor have assigned to the project at least one employee who is a Certified Arborist or Certified Tree Worker (International Society of Arboriculture, Certified Arborist or Tree Worker shall meet with the Landscape Architect and City's Arborist on site to discuss tree preservation prior to construction and be present onsite for all work within the dripline of existing trees.
18. This is a functioning storm water planter with an engineered imported soil mix designed for specific performance criteria. Amend only planting pits and associated planting backfill per the planting instructions.
19. Soil shall not be worked when wet to avoid compaction.

Note:  
See sheet 9 for planting legend & installation details.



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OAKLAND, CA 94612



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	BY	DATE
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Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
RICHMOND, CA SITE  
LANDSCAPE PLANTING PLAN

CONTRA COSTA COUNTY CALIFORNIA

SHEET	8	OF	11
PROJ. NO.:	936-001	SCALE:	1"=10'-0"
DATE:	4/1/16		

# RICHMOND CANDIDATE PLANT LIST

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	WATER REQ.	REFERENCE	PROJECT SPACING	MIN-MAX SPREAD	NATIVE
<b>TREES</b>									
8	Nys syl	Nyssa sylvatica	Tupelo	15 gal.	OCC-MOD	EBMUD	20'	20'-30'	N
2	Gin bil	Ginkgo biloba 'Autumn Gold'	Maidenhair Tree	15 gal.	MOD	EBMUD	30'	30'-40'	N
4	Cer occ	Cercis occidentalis (Standard)	Western Redbud	15 gal.	INF-OCC	SUNSET	20'	20'-30'	Y
<b>SHRUBS</b>									
38	Cal vim	Callistemon viminalis 'Little John'	Bottlebrush	5 gal.	INF-OCC	EBMUD	3'	3'-4'	N
43	Mah aqu	Mahonia aquifolium 'Orange Flame'	Oregon Grape	5 gal.	INF-MOD	SUNSET	3'	3'-4'	Y
<b>GRASSES &amp; PERENNIALS</b>									
328	Car div	Carex divulsa	Berkeley Sedge	1 gal.	OCC-MOD	EBMUD	18"	1'-2"	N
95	Die iri	Dietses iridioides	Fortnight Lily	1 gal.	NONE-MOD	EBMUD	30"	2'-3"	N
220	Fes cal	Festuca californica	California Fescue	1 gal.	OCC-MOD	EBMUD	24"	2'-2"	Y
478	Jun pat	Juncus patens 'Elk Blue'	California Gray Rush	1 gal.	NONE-MOD	SUNSET	18"	18"-24"	Y

## Pea Gravel Mulch

Smooth pea gravel from a local source. Size: 3/8". Color: gray. Apply 3" thick layer in areas indicated on plan. Submit sample for approval. See notes.

## Cobble Dissipater

6" to 8" smooth river cobble from a local source. Submit sample for approval. See detail.

## Gravel Dissipator

Gravel Dissipator at inlet. See detail.

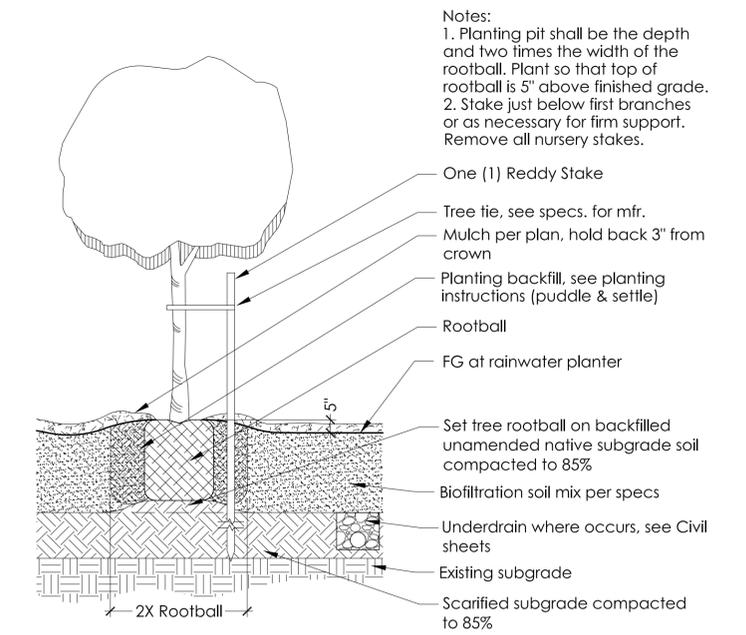
## Root Barriers

Tree Root Barrier. Center on tree and extend 6'-0" in each direction as shown. See detail.

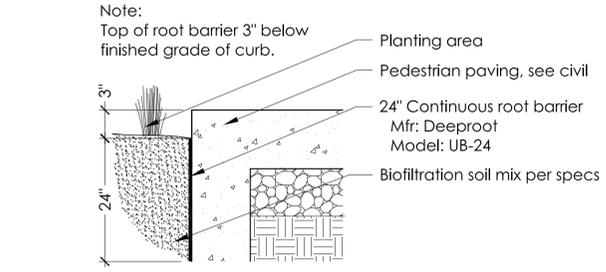
## Hydrozone

All planting areas are a mixture of medium and low water using plant material per W.U.C.O.L.S. Guidelines. Per the California Model Water Ordinance, all planting areas are considered medium water use.

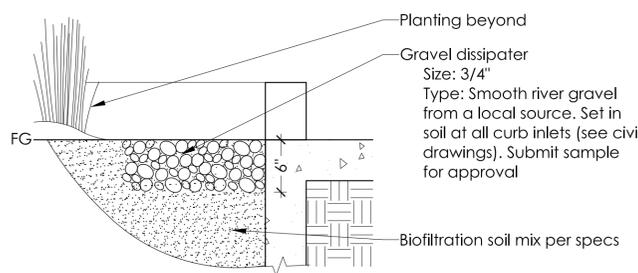
Note: Planting palette assumes Water Truck Irrigation during the two (2) year maintenance/establishment period.



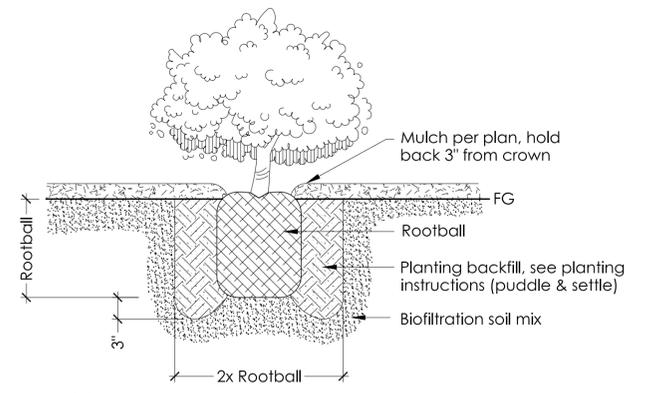
**A** STORMWATER TREE PLANTING  
SCALE: N.T.S.



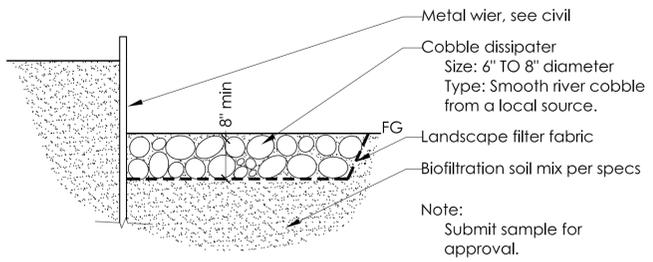
**C** ROOT BARRIER AT PAVING  
SCALE: N.T.S.



**D** GRAVEL DISSIPATOR AT INLET  
SCALE: N.T.S.



**B** SHRUB AND GRASS PLANTING  
SCALE: N.T.S.



**E** COBBLE DISSIPATER AT WIER  
SCALE: N.T.S.

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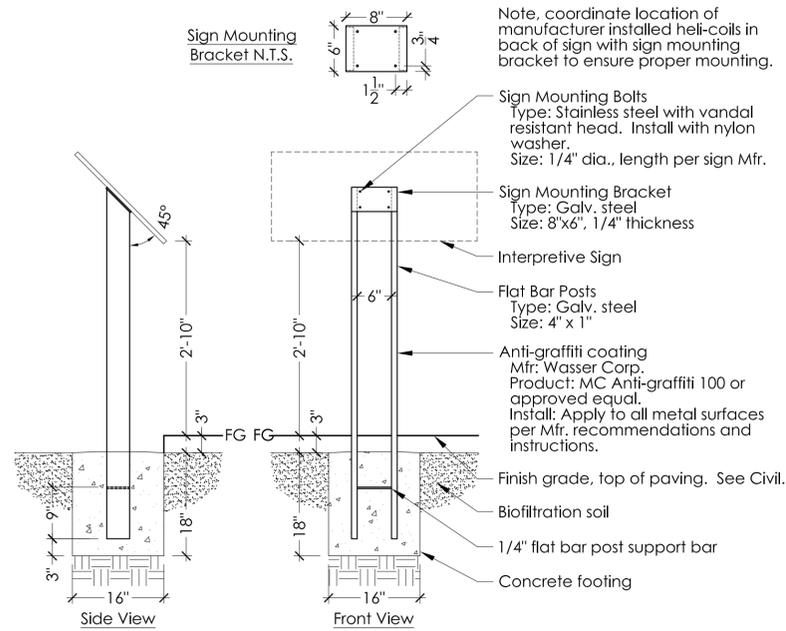


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	BY	DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
RICHMOND, CA SITE  
LANDSCAPE PLANTING LEGEND & DETAILS  
CONTRA COSTA COUNTY CALIFORNIA

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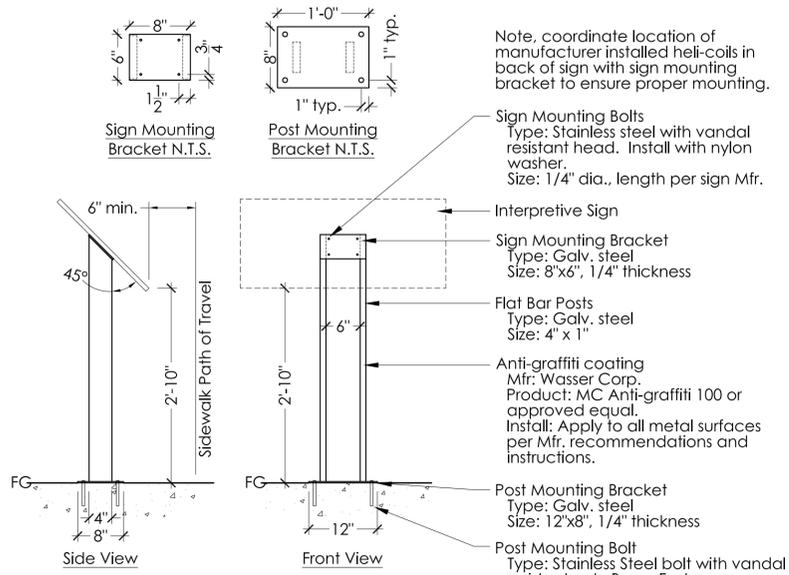
SHEET  
9 OF 11  
PROJ. NO.: 936-001  
SCALE: AS SHOWN  
DATE: 4/1/16



**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

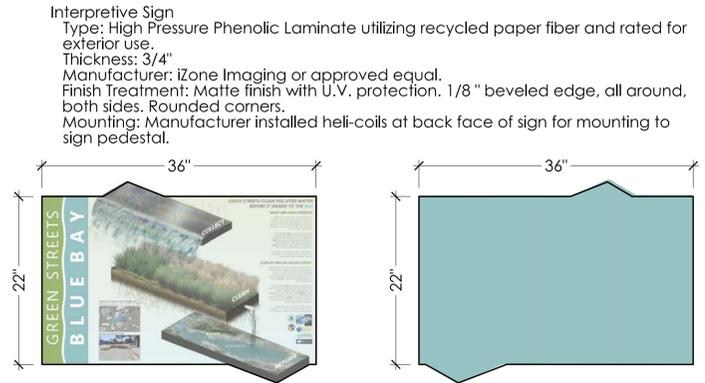
**H IN-GROUND SIGN PEDESTAL**  
SCALE: N.T.S.



**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

**G SURFACE MOUNT SIGN PEDESTAL**  
SCALE: N.T.S.



**Interpretive Sign**  
Type: High Pressure Phenolic Laminate utilizing recycled paper fiber and rated for exterior use.  
Thickness: 3/4"  
Manufacturer: iZone Imaging or approved equal.  
Finish Treatment: Matte finish with U.V. protection. 1/8" beveled edge, all around, both sides. Rounded corners.  
Mounting: Manufacturer installed heli-coils at back face of sign for mounting to sign pedestal.

**Front Sign Face**  
Full color interpretive image shown is preliminary and is for bidding purposes only. A high quality digital file of the approved signage will be provided to the Contractor upon award of contract.

**Rear Sign Face**  
Solid color rear sign face shown is preliminary and is for bidding purposes only. The CMYK color number will be provided to the Contractor upon award of contract.

**F INTERPRETIVE SIGN**  
SCALE: N.T.S.

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SAN PABLO AVENUE  
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SHEET	10	OF	11
PROJ. NO.:	936-001	SCALE:	AS SHOWN
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PLANTING INSTRUCTIONS

PART 1 - GENERAL

1.1 SUMMMARY

A. Work included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and project specifications sections, apply to these instructions.

B. Contractor shall refer to and incorporate Bay-Friendly Landscaping Guidelines and Principals into the installation of the landscape. The 7 Principals of Bay-Freindly Landscaping and Gardening are:

- |                                       |  |
|---------------------------------------|--|
| 1. Landscape Locally                  | 5. Conserve Energy                       |
| 2. Landscape for Less to the Landfill | 6. Protect Water & Air Quality           |
| 3. Nurture the Soil                   | 7. Protect and Maintain Wildlife habitat |
| 4. Conserve Water                     |  |

1.3 SUBMITTALS

A. Comply with submittal procedures per project specifications.

B. Samples: samples of quarry fines, soil amendments, gravel, cobble, fertilizers, compost and mulches shall be submitted for review and stored on site until furnishing of materials is completed. Delivery may begin upon approval of samples or as directed by the Landscape Architect.

C. Technical reports: Submit copies of technical reports. Work is to be performed by:

Soil and Plant Laboratory, Inc.  
352 Mathew Street  
Santa Clara, CA 95030  
408-727-0330

1. Agronomy reports: one (1) agronomy report shall be prepared for each site, which shall include basic and minor nutrients, as well as a textural analysis of each sample. Sample shall consist of a composite of three shovelfuls of soil.

D. Fertilizers, soil conditioners, and compost: submit product data for fertilizers, soil conditioners, and compost to be installed at time of planting. Quantities of fertilizers and soil conditioners shall be per the agronomy report. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

E. Cost adjustments: Contractor shall provide a line item cost for installation of the soil conditioners and fertilizers according to these specifications. Should the agronomy reports recommend a lesser degree of soil conditioning and fertilizing, Contractor shall adjust fees or provide a credit to the client accordingly. In the event that the required soil conditioners and fertilizers are greater than these specifications, the Contractor shall not be responsible for funding the difference.

F. Post-planting fertilizers: submit product data for fertilizers for use post-planting. Quantities of fertilizers shall be per the post-amendment agronomy report. Submit certificates, trip slips and invoices for soil preparation materials. See Section 1.5 Review of Plant Invoices and Soil Preparation Conformance Test.

Manufacturer's instructions: Contractor to submit installation instructions for planting items not herein outlined or detailed on drawings.

1.4 GENERAL REQUIREMENTS

A. The term "planting area" shall mean all areas to be planted with trees, shrubs, groundcovers, and areas covered with organic mulch.

B. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice.

C. All rock and other growth or debris accumulated during the duration of the project shall be removed from the site.

D. Prior to excavation for planting or placing of plant materials, locate all underground utility lines still in use and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and plant locations, notify the Landscape Architect who shall arrange for the relocation of one or the other. The Contractor assumes all responsibility for making any and all repairs for damages resulting from work as herein specified.

E. Grading and soil preparation work shall be performed only during the period when beneficial and optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy soil structure, spreading and grading operations shall be suspended until the moisture content is increased or reduced to acceptable levels. Soil shall not be worked when wet to avoid compaction.

F. All scaled dimensions are approximate. Before proceeding with any work carefully check and verify all dimensions and immediately inform the Landscape Architect of any discrepancy between the drawings and/or specifications and actual conditions.

G. Quantities for plant materials are shown for convenience only, and not guaranteed. Check and verify count and supply sufficient number to fulfill intent of drawings.

H. Adequately stake, barricade, and protect all irrigation equipment, manholes, utility lines, and other existing property during all phases of the soil amending and grading operations.

I. Observation of plant material:

- All plant material shall be delivered to the project site for observation by the Architect, for approval prior to installation.
- All trees shall conform to the "Guideline Specifications for Nursery Tree Quality", Urban Tree Foundation.
- The Contractor shall immediately remove any plant material not approved.
- Approved plant material shall remain on the site and shall be maintained by the Contractor as standards of comparison for material to be furnished.
- The Contractor, at his option and at his expense, can retain the services of the Landscape Architect to review trees 15 gallon and larger tagged at the nursery and/or at its place of growth, or as otherwise specified on drawings.

J. Rejection and substitution:

- All plants not conforming to the requirements herein specified shall be considered defective, and such plants, whether in place or not, shall be marked as rejected and be immediately removed from the site of the work and replaced with acceptable plant materials. The plant materials shall meet all applicable observations required by law. All plants shall be of the species, variety, size, age, flower color and condition as specified herein and/or as indicated on the drawings. Under no condition will there be any substitution of plant species, variety, or reduced sizes for those listed on the accompany drawings, except with the express written consent of the Landscape Architect.

1.5 REVIEW OF PLANT INVOICES AND SOIL PREPARATION CONFORMANCE TEST

A. Upon delivery of materials and/or completion of all soil conditioning and grading but prior to initiating planting operations, the Contractor shall provide Landscape Architect with signed copies of required certificates, trip slips and invoices for soil preparation materials. The Landscape Architect shall review such material, comparing the total quantities of each material furnished against the total area to each operation. If the minimum rates of application have not been met, the Landscape Architect will require the incorporation of additional quantities of these materials to fulfill the minimum application requirements specified.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All products shall be delivered to the site in manufacturer's unopened standard containers bearing original labels showing quantity, analysis and name of manufacturer.

B. All materials shall be stored in designated areas and in such a manner as to protect from weather or other conditions that might impair the effectiveness of the product.

1.7 OBSERVATION

A. Observations herein specified shall be made by the Landscape Architect. The Contractor shall request observations in writing, 3 days in advance of the time observation is required.

B. The Contractor or his authorized representative shall be on the site at the time of each observation.

C. Observation will be required for the following parts of the work:

- Upon the completion of grading prior to planting.
- Approval of plant materials (refer to 1.4 general requirements).
- When trees and shrubs are spotted in place for planting, but before planting holes are excavated. Approval of mulch product shall be obtained prior to spreading.
- When all planting, except the maintenance period, has been completed. Acceptance and written approval shall establish start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- At the end of ninety (90) days from the start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- At the end of one (1) year from the start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- Final observation at the completion of the two (2) year maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.

D. Acceptances: upon completion of the final observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable, (2) of any requirements necessary for completion and acceptance.

E. The Contractor will be charged, and responsible for, any time and mileage used by the Landscape Architect as a result of prematurely scheduled site visit.

1.8 MAINTENANCE/PLANT ESTABLISHMENT

A. The maintenance period begins on the day the Landscape Architect has given notice of completion and shall continue thereafter for no less than two (2) years.

- These instructions are to be used in conjunction with the project's Storm Water Planter Maintenance Manual.
- The Contractor shall call for inspections per the Observation section above.
- Phased maintenance periods, if required, shall be negotiated prior to construction.
- If phased maintenance periods are not negotiated prior to construction, the maintenance period for all areas will begin after the entire project is 100% complete per contract documents. Portions completed earlier shall be maintained up to and including the specified maintenance period without additional compensation.

B. The Contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period until the final acceptance of the work.

C. A protective temporary fence shall be installed and remain in place until the 90-day observation. Contractor is responsible for removal of the protective temporary fence at the close of the 90-day period.

D. Regular planting maintenance operations shall begin immediately after each plant is planted. Plants shall be kept in a healthy, growing condition and in a visually pleasing appearance by watering, pruning, mowing, rolling, trimming, edging, fertilizing, restaking, pest and disease controlling, spraying, weeding, cleaning up and any other necessary operation of maintenance. Landscape areas shall be kept free of weeds, noxious grass, and all other undesired vegetative growth and debris. All plants found to be dead or in an impaired condition shall be replaced immediately. See post-planting fertilizing requirements in the Storm Water Planter Maintenance Manual.

E. The contract completion date of the contract maintenance period will be extended, when in the opinion of the Landscape Architect, improper maintenance and/or possible poor or unhealthy condition of planted material are evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work at no change in contract price until all of the work is completed and acceptable.

F. The Contractor shall be responsible for maintaining adequate protection of the planting areas. Damaged areas shall be repaired immediately per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

G. All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water

Planter Landscape Maintenance Manual.

GUARANTEES AND REPLACEMENTS

- All plants (except trees- see 1.09b) shall be guaranteed to remain healthy and vigorously growing for the duration of the two (2) year maintenance period.
- All trees that have been supplied and installed under this contract shall be guaranteed to live in a healthy condition for the duration of the two (2) year maintenance period. Trees are to be inspected for disease and certified by an authorized arboriculturist prior to planting.
- All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.
- Plants used for replacement shall be the same kind and size as specified in the plant list. They shall be furnished, planted and fertilized as originally specified.

1.10 MAINTENANCE PERIOD IRRIGATION

A. Refer to drawings sheets for Water Truck Irrigation Maintenance Period requirements.

PART 2 - PRODUCTS

2.1 SOIL AMENDMENT AND FERTILIZER

- Planting pit backfill is to be amended with quality compost at the rates indicated by a soil analysis to bring soil organic matter content to a minimum of 3.5% quality compost by dry weight.
- Compost shall be a well decomposed, stable, weed free organic matter source. The product shall be certified through the US Composting Council's (USCC) Seal of Testing Assurance (STA) Program (a compost testing and information disclosure program). It shall be derived from agricultural and/or food waste and/or yard trimmings. The product shall contain no substances toxic to plants, will possess no objectionable odors and shall not resemble the feedstock (the organic materials from which it was derived).
- Before delivery of the compost, the supplier will submit proof of STA certification and a copy of lab analysis performed by a laboratory that is enrolled in the US Composting Council's CAP and using the approved Test Methods for the Evaluation of Composting and Compost (TMECC).
- The delivery tags indicating the quantity delivered to the job site shall be submitted by contractor. Compost exhibiting a sour or putrid smell, containing recognizable grass or leaves, or heat (120F) upon delivery or rewetting will not be accepted.
- Quantities shall be furnished as needed to complete work shown on drawings.
- Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

2.2 PLANTING

A. Backfill: the following planting backfill ratios are to be used for bidding purposes only. Contractor is responsible for providing agronomy reports as described in 1.3-c, which shall outline backfill specifications. Fully amended (upper) excavation materials shall be put in one pile to go around the rootball. Any deeper un-amended materials shall be put in a separate pile. Condition this deeper soil at the following rates and use for the planting pit below the rootball:

Gypsum 16 lbs /cy.

Over-excavate the planting pits so that there shall be one foot of this material between native soil and the bottom of the rootball. No OM or fertilizer shall be used below the rootball.

B. Tree staking:

- Stakes shall be untreated lodge pole stakes, with length as required to meet staking requirements per detail. Stake quantity per detail.
- Tree ties shall be V.I.T. cinch-tie, or approved equal.

C. Weed eradication: pre-emergent and post-emergent herbicides shall not be used in the construction and maintenance of this project. All weeding shall be accomplished through mechanical methods.

2.3 PLANT MATERIAL

- All plants shall be vigorous, of normal growth free from disease, insects, insect eggs, and meet or exceed the measurements specified.
- Identify plant species or varieties correctly on legible, weatherproof labels attached securely to the plant. There shall be a minimum of one labeled plant for each 5 plants in a lot.
- Substitutions will not be permitted except if proof is submitted that any plant specified is not obtainable, in which case a proposed substitution will be considered for use of the nearest equivalent size or variety and cost. All proposed substitutions shall be approved by Landscape Architect prior to ordering.

2.4 MULCH

Contractor shall maintain a minimum of 3" of coarse organic Arbor Mulch or Pea Gravel Mulch over soil surface that is not covered by vegetation or boardwalk, per plan. Arbor mulch materials shall be recycled chipped or shredded wood chips from pruning operations, or chipped landscape prunings. All mulch shall be from a local source. Shredded redwood bark mulch ("Gorilla hair") shall not be use. Non-porous material (e.g. plastic weed barriers) shall not be placed under the mulch.

2.5 ROOT BARRIER

A. Root Barrier shall be Deeproot, 24" Universal Barrier, UB 24-2, or equal.

PART 3 - EXECUTION

3.1 SOIL CONDITIONING

A. Grub and clean planting area, removing all weeds, debris and rocks from the site.

3.2 INTEGRATED PEST MANAGEMENT (IPM)

A. Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape

Maintenance Manual for complete information.

B. Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.

3.3 FINISH GRADING

A. Finish grades shall be as indicated on the Civil Engineer's drawings.

B. Planting surfaces shall be graded with no less than 2 percent surface slope for positive drainage, or as otherwise noted according to Civil Engineer's plans.

C. Final finish grades shall insure positive drainage of the site with all surface drainage away from buildings, walls, and toward roadways, drains and catch basins.

D. Finish grades shall be measured as the final water compacted and settled surface grades, and shall be acceptable to the Landscape Architect before planting operations will be allowed to begin.

E. All undulations and irregularities in the planting surfaces resulting from tillage, rototilling and all other operations shall be leveled and floated out before planting operations are initiated.

F. The Contractor shall take every precaution to protect and avoid damage to sprinkler heads, irrigation lines, and other underground utilities during his grading and conditioning operations.

3.4 PLANTING

A. The layout of locations for plants and outlines of groundcover to be planted shall be approved on the site by the Landscape Architect, prior to their planting. All such locations shall be checked for possible interference with existing underground piping, prior to excavation of holes. If underground construction or utility lines are encountered in the excavation of planting areas, other locations for the planting may be selected by the Landscape Architect. Damage to existing utilities shall be the responsibility of the Contractor.

B. Planting trees, shrubs, and container-stock groundcovers, vines, and grasses:

1. All excavated holes shall have vertical sides with roughened surfaces and shall be of the minimum sizes indicated on detailed drawings. Holes shall be, in all cases, large enough to permit handling and planting without injury or breakage of root balls or roots.

2. Root barriers shall be installed where indicated on plans in accordance with manufacturer's recommendations.

3. Excavation shall include the stripping and staking of all acceptable soil encountered within the areas to be excavated for plant pits and planting beds. Protect all areas that are to be trucked over and upon which soil is to be temporarily stacked pending its re-use for the filling of holes, pits and beds.

4. Plants in can containers shall have the cans opened by cutting vertically on opposite sides of each can with nursery can openers, tin snips or other approved instruments for this purpose. All used cans shall be removed to the storage areas or from the site daily.

5. The plants shall be planted at approved locations with the heretofore specified conditioner and soil planting backfill.

6. The plants shall be placed in the planting pits on the backfill material which has been hand tamped and water settled to the rootball base levels prior to the placement of the plants. After setting the plants, the remaining backfill material shall be carefully tamped and settled around each rootball to fill all voids.

7. Each plant shall be placed in the center of the hole and shall be set plumb and held rigidly in position until the planting backfill has been tamped from around each root ball.

8. All plants shall be set at such a level that after settling they bear the same relationship to the surrounding finish grade as they bore to the soil line grade in the container, unless otherwise noted.

9. No plant will be accepted if the rootball is broken or cracked before, during, or after the process of installation.

10. All plants shall be thoroughly watered in to the full depth of each planting hole immediately after planting.

11. All trees, 15 gallon and larger, shall be staked. One of the stakes shall be driven into the ground of the windward side of the tree. The stakes shall be driven in plumb and secure. Special care shall be taken that the driving in of the stake does not damage the tree roots or root ball. tree ties shall be fastened to each tree and stake by looping figure 8's with the inside diameter of the tie at 2 or 3 times the diameter of the tree (also see detailed drawings).

12. The staking shall be accomplished in such a manner as to insure the proper and healthy growth and safety of the plants, property, and the public.

13. The Contractor shall be responsible for all surface and subsurface drainage required which may affect his guarantee of the plants.

C. Planting groundcovers (From Flats):

1. Groundcovers shall be planted in the areas indicated on the drawings. The groundcover plants shall be rooted cuttings grown in flats, and shall remain in those flats until transplanting.

2. All groundcover plants shall be planted with soil around roots, evenly spaced at the intervals called out on the drawings.

3. The groundcover plants shall be planted sufficiently deep to cover all roots and planting tablets shall be placed in each planting hole and shall be immediately sprinkled after planting until the entire area is soaked to the full depth of all holes.

4. The groundcover planting areas shall be hand smoothed after planting to provide an even, smooth final finish grade.

D. Mulch:

1. Apply a 3" deep layer of specified Arbor Mulch throughout all planting areas, unless otherwise noted on plans. Also refer to planting details for mulch requirements.

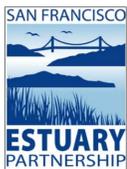
3.5 CLEANUP

A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete, and planter walls adjacent to plantings.

End of Instructions

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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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△	4/1/16	FINAL SUBMITTAL	JS	
△	3/28/14	90% SUBMITTAL	JS	
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**WILSEY HAM**  
Engineering, Surveying & Planning

3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
	BY	DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
RICHMOND, CA SITE  
LANDSCAPE PLANTING INSTRUCTIONS

CONTRA COSTA COUNTY

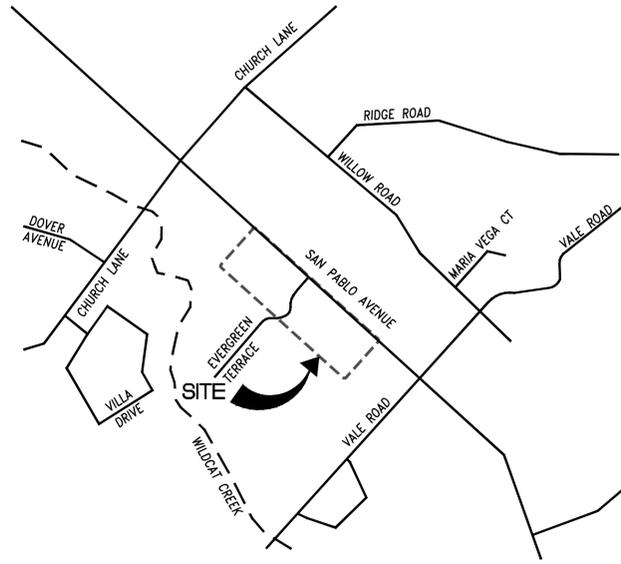
CALIFORNIA

SHEET	11	OF	11
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	4/1/16		

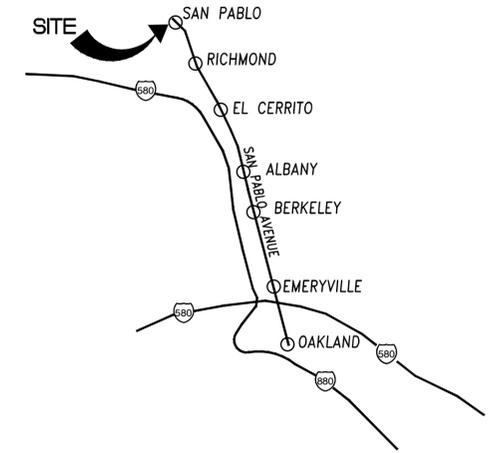
# CITY OF SAN PABLO

## SAN PABLO AVENUE GREEN STORMWATER SPINE

APRIL 2016



**VICINITY MAP**  
NOT TO SCALE



**LOCATION MAP**  
NOT TO SCALE

**BENCHMARK/DATUM**

BENCHMARK NGS-HT0966, ELEVATION 43.14 NAVD 88 DESCRIBED BY COAST AND GEODETIC SURVEY 1969 AT ALBANY, AT THE NORTHEAST CORNER OF THE JUNCTION OF SAN PABLO AND MARIN AVENUES, IN THE TOP OF THE NORTHWEST CORNER OF A CONCRETE CATCH BASIN WHICH IS ALONG THE NORTH CURB OF MARIN AVENUE, 15.5 FEET EAST OF THE EAST CURB OF SAN PABLO AVENUE, 1.0 FEET NORTH OF THE NORTHWEST CORNER OF A STEEL GRATE OF THE CATCH BASIN, 1.5 FEET SOUTHWEST OF A STREET SIGN POST, AND ABOUT 1/2 FOOT HIGHER THAN THE AVENUES.

**RECORD DRAWINGS**

CONTRACTOR SHALL KEEP ACCURATE RECORD DRAWINGS WHICH SHOW THE FINAL LOCATION, ELEVATION, AND DESCRIPTION OF ALL WORK. CONTRACTOR SHALL ALSO NOTE THE LOCATION AND ELEVATION OF ANY EXISTING IMPROVEMENTS ENCOUNTERED. RECORDS SHALL BE "REDLINED" ON A SET OF CONSTRUCTION PLAN DRAWINGS AND GIVEN TO THE OWNER UPON COMPLETION OF WORK.

**UNAUTHORIZED CHANGES**

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY WILSEY HAM.

**REVISIONS**

ALL REVISIONS TO THESE PLANS MUST BE REVIEWED AND APPROVED IN WRITING BY WILSEY HAM AND THE CITY ENGINEER PRIOR TO CONSTRUCTION OF AFFECTED ITEMS.

**ACCURACY**

AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD, ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF WILSEY HAM PRIOR TO START OF CONSTRUCTION OF THE PARTICULAR ITEM OF WORK.

**ACCURACY OF UTILITIES**

EXISTING UTILITY INFORMATION WAS PROVIDED TO WILSEY HAM AND MAY NOT HAVE BEEN VERIFIED IN THE FIELD. CONTRACTOR

**CONSTRUCTION STAKING**

CONSTRUCTION LAYOUT MUST BE PROVIDED BY CONTRACTOR. WILSEY HAM CAN PROVIDE CONSTRUCTION STAKING SERVICES FOR THIS PROJECT. CONTACT KEN MOORE AT 650-349-2151 FOR MORE INFORMATION ON THESE SERVICES AND A FEE PROPOSAL.

**SHEET DESCRIPTION**

- 1 TITLE SHEET
- 2 NOTES
- 3 DEMOLITION PLAN
- 4 STREET IMPROVEMENT PLAN
- 5 GRADING & DRAINAGE PLAN
- 6 CIVIL DETAILS
- 7 LANDSCAPE PLANTING PLAN
- 8 LANDSCAPE PLANTING LEGEND & DETAILS
- 9 LANDSCAPE PLANTING DETAILS
- 10 LANDSCAPE PLANTING INSTRUCTIONS
- 11 LANDSCAPE IRRIGATION PLAN
- 12 LANDSCAPE IRRIGATION LEGEND
- 13 LANDSCAPE IRRIGATION DETAILS
- 14 LANDSCAPE IRRIGATION DETAILS
- 15 LANDSCAPE IRRIGATION INSTRUCTIONS

TO BE SUPPLEMENTED BY CALTRANS STANDARD PLANS DATED 2010

**LEGEND**

PROPOSED	EXISTING	
		CURB
		PARKING STRIPE
		BUILDING LINE
		SAWCUT LINE
		ASPHALT PATCH
		BIO-RETENTION AREA
		CONCRETE SIDEWALK
		COMMUNICATIONS LINE
		ELECTRIC LINE
		GAS LINE
		STORM DRAIN LINE
		SANITARY SEWER LINE
		CABLE TV LINE
		WATER LINE
		STORM DRAIN DROP INLET
		FENCE

**LEGEND**

PROPOSED	EXISTING	
		STORM DRAIN CATCH BASIN
		COMMUNICATION BOX
		ELECTRIC BOX
		ELECTRIC MANHOLE
		ELECTRIC METER
		LIGHT POLE
		WATER METER
		SANITARY SEWER CLEANOUT
		SANITARY SEWER MANHOLE
		BENCHMARK
		INLET PROTECTION
		DRAINAGE DIRECTION
		CABLE TV BOX
		STORM DRAIN CLEANOUT
		ELECTRIC TRANSFORMER

**ABBREVIATIONS**

AC	ASPHALT CONCRETE
BW	BACK OF WALK
COM	COMMUNICATIONS
CT	CALTRANS
D	DELTA ANGLE
ELEC	ELECTRIC
EX, (E)	EXISTING
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FS	FINISHED SURFACE
GB	GRADE BREAK
IRR	IRRIGATION
L	LENGTH
LIP	LIP OF GUTTER
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
(N)	NEW
R	RADIUS
RIM	RIM ELEVATION
SDAD	STORM DRAIN AREA DRAIN
SLD	SEE LANDSCAPE DRAWINGS
SL	STREET LIGHT
STD	STANDARD
TC	TOP OF CURB
TEL	TELEPHONE
TYP	TYPICAL

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1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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**WILSEY HAM**  
Engineering, Surveying & Planning  
3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/01/16
BY		DATE

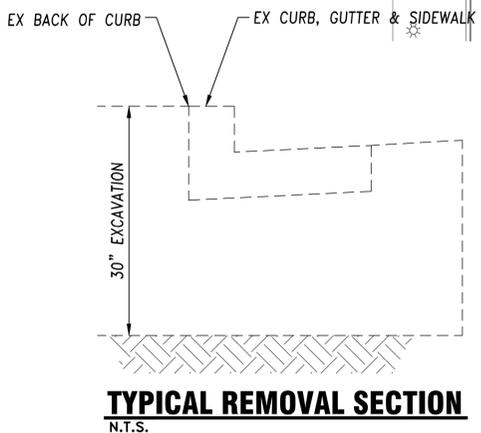
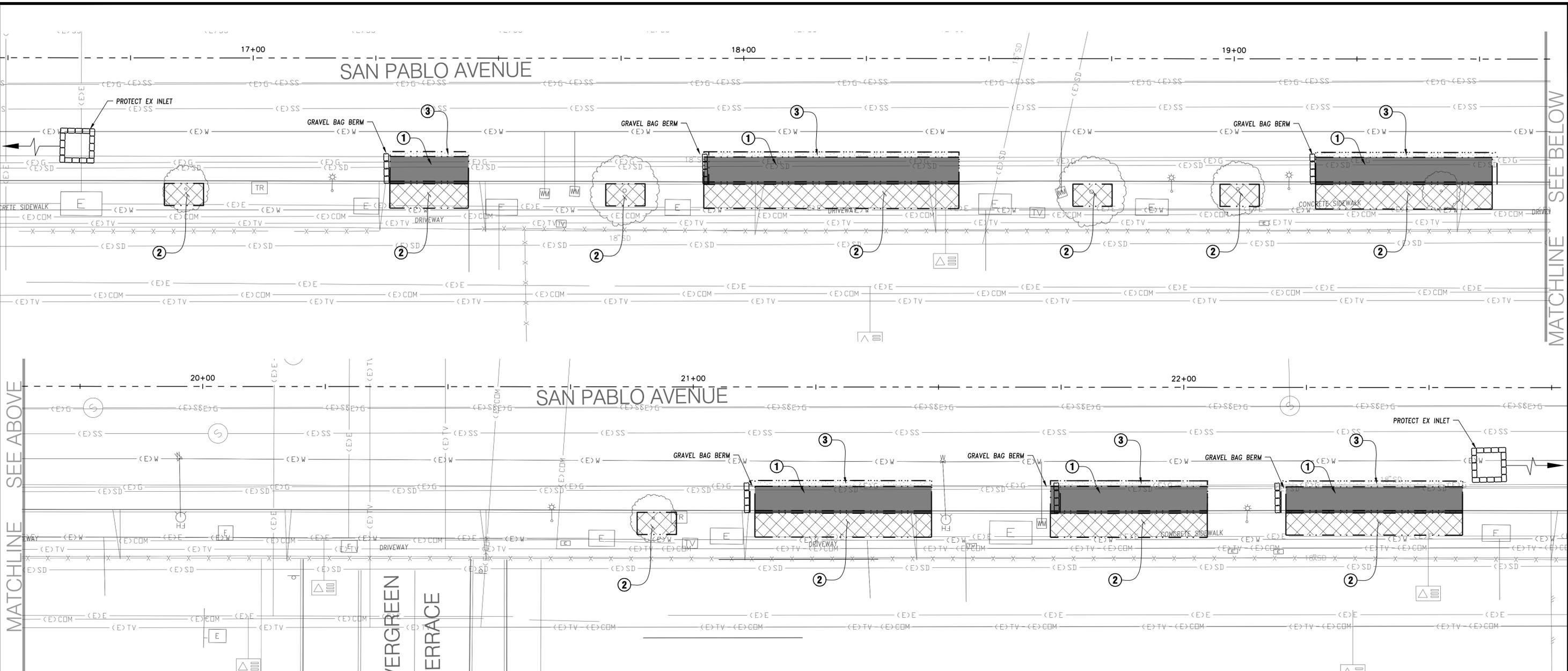
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
SAN PABLO, CA SITE  
TITLE SHEET

CONTRA COSTA COUNTY CALIFORNIA

SHEET	1	OF	15
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	APRIL 01, 2016		

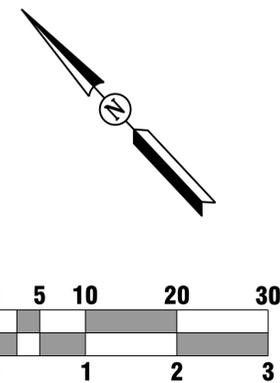


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- NOTE:** \*
- 50% OF CONSTRUCTION/DEMO DEBRIS SHALL BE REUSED OR RECYCLED. CONTRACTOR MUST COMPLETE CITY C & D MANAGEMENT FORM.
  - SEE SHEET 4 FOR LAYOUT DIMENSIONS.
  - MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
  - MAINTAIN SAFE PEDESTRIAN ROUTE DURING CONSTRUCTION.
  - PROTECT TREES TO REMAIN. SEE LANDSCAPE NOTES 14-17.

- DEMOLITION KEY**
- ① CURB & GUTTER TO BE REMOVED - 208 LF
  - ② SIDEWALK TO BE REMOVED - 1,116 SF
  - ③ PAVEMENT TO BE REMOVED - 228 SF



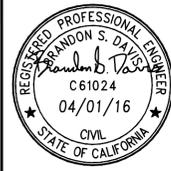
CALL UTILITY NOTIFICATION CENTER OF CALIFORNIA  
**811**  
 Know what's below.  
 Call before you dig.  
 CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

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 San Mateo, CA 94403  
 650.349.2151  
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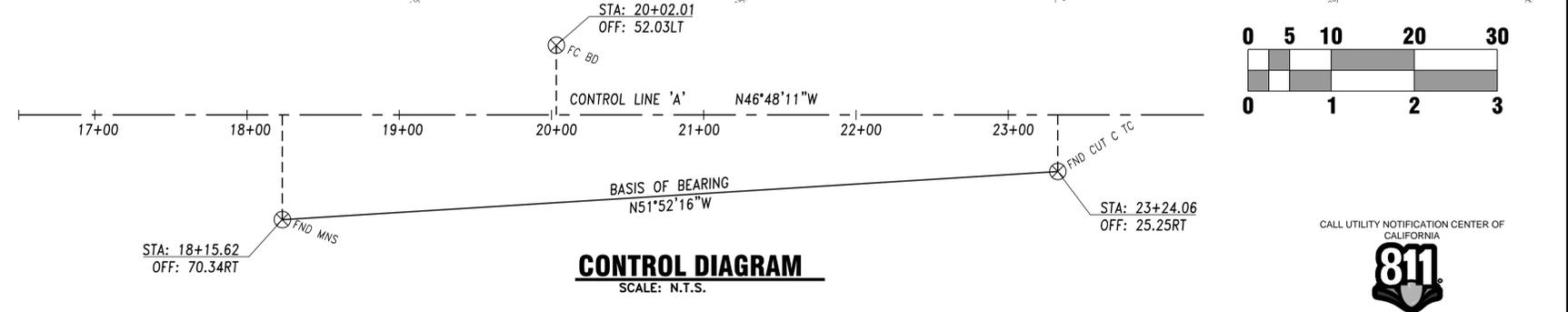
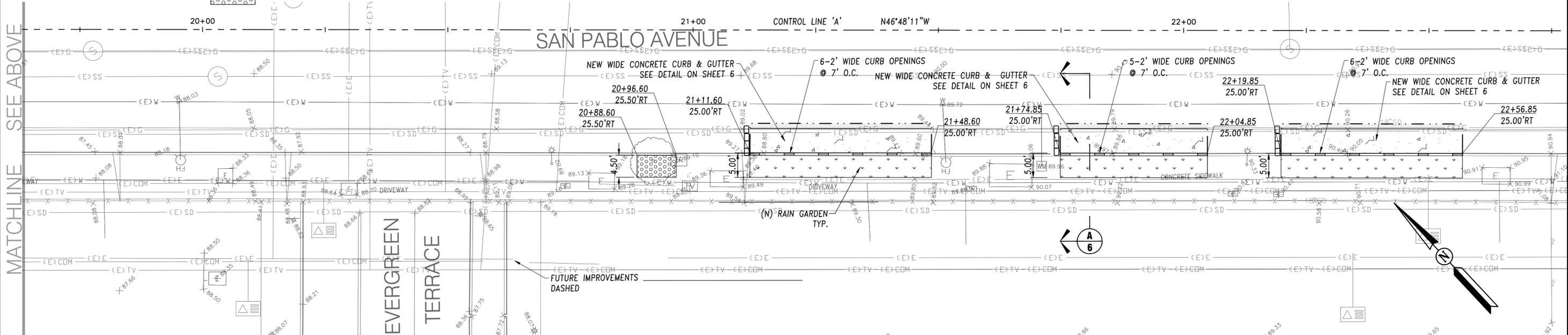
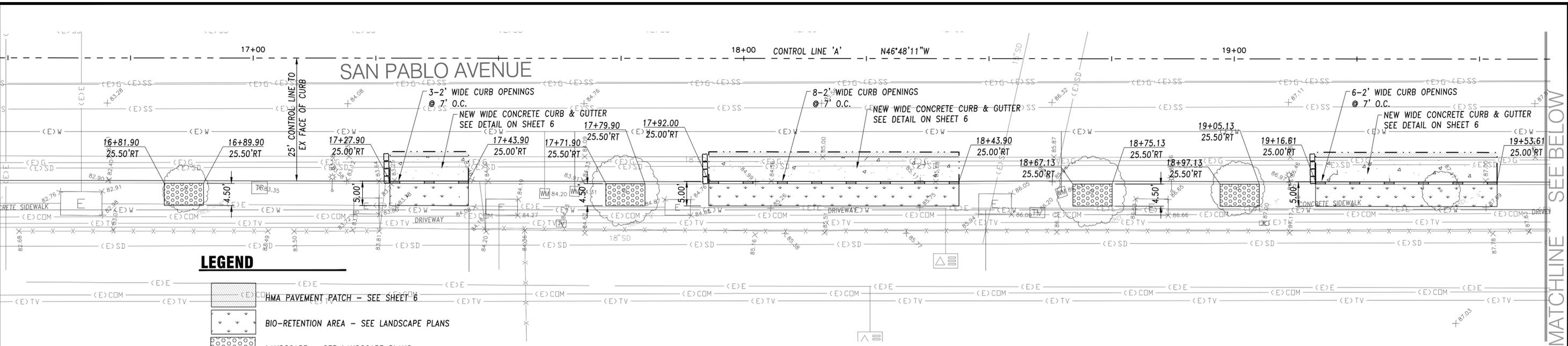


BY	DATE
Project Mgr.: B. Davis	04/01/16
Project Eng.: E. Cohen	04/01/16
Designer: E. Cohen	04/01/16
Checked: B. Davis	04/01/16
Drawn: P. Businger	04/01/16
Plotted: P. Businger	04/01/16

SAN PABLO AVENUE  
 GREEN STORMWATER SPINE  
 SAN PABLO, CA SITE  
 DEMOLITION PLAN

CONTRA COSTA COUNTY CALIFORNIA

SHEET	3	OF	15
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		



CALL UTILITY NOTIFICATION CENTER OF CALIFORNIA  
**811**  
 Know what's below.  
 Call before you dig.  
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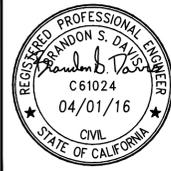
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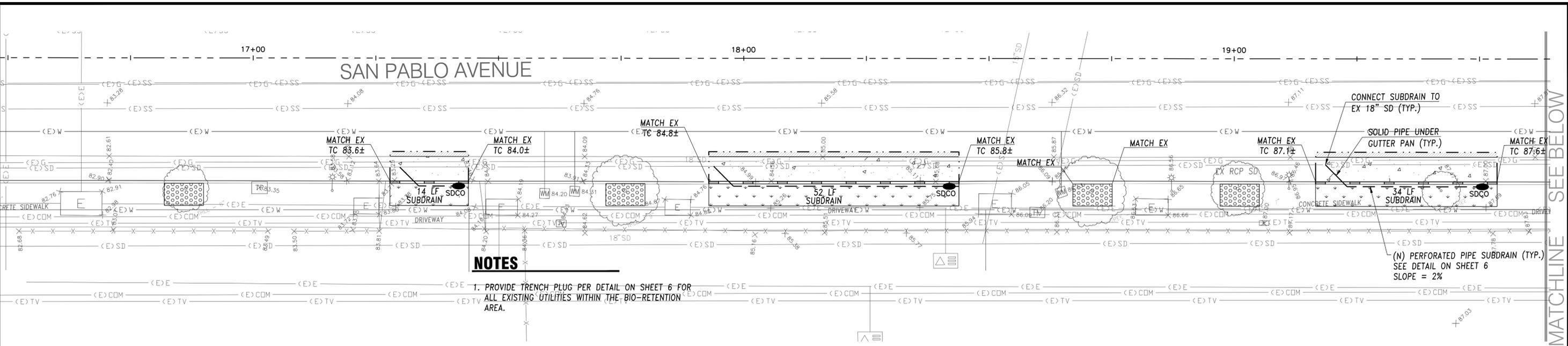


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Project Mgr.: B. Davis	04/01/16
Project Eng.: E. Cohen	04/01/16
Designer: E. Cohen	04/01/16
Checked: B. Davis	04/01/16
Drawn: P. Businger	04/01/16
Plotted: P. Businger	04/01/16

SAN PABLO AVENUE  
 GREEN STORMWATER SPINE  
 SAN PABLO, CA SITE  
 STREET IMPROVEMENTS

CONTRA COSTA COUNTY CALIFORNIA

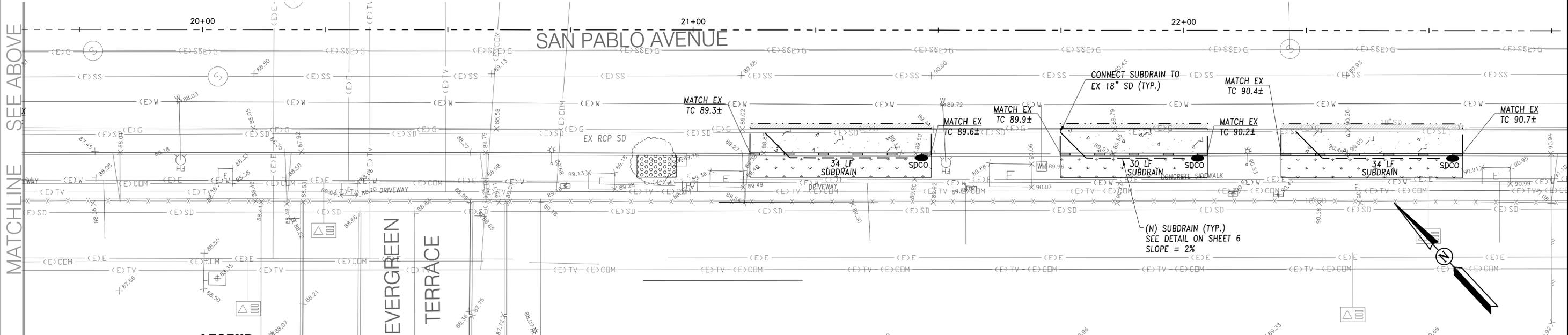
SHEET 4 OF 15  
 PROJ. NO.: 936-001  
 SCALE: 1" = 10'  
 DATE: APRIL 01, 2016



**NOTES**

1. PROVIDE TRENCH PLUG PER DETAIL ON SHEET 6 FOR ALL EXISTING UTILITIES WITHIN THE BIO-RETENTION AREA.

CONNECT SUBDRAIN TO EX 18" SD (TYP.)  
 SOLID PIPE UNDER GUTTER PAN (TYP.)  
 (N) PERFORATED PIPE SUBDRAIN (TYP.) SEE DETAIL ON SHEET 6 SLOPE = 2%



**LEGEND**

-  HMA PAVEMENT PATCH - SEE SHEET 6
-  BIO-RETENTION AREA - SEE LANDSCAPE PLANS
-  CONCRETE SIDEWALK
-  LANDSCAPE - SEE LANDSCAPE PLANS



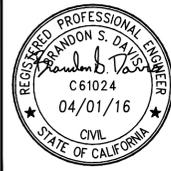
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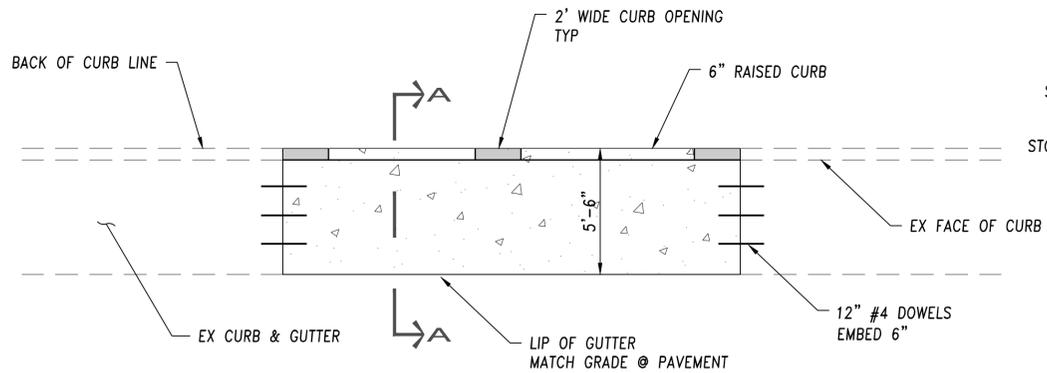


Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
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Plotted:	P. Businger	04/01/16
BY		DATE

SAN PABLO AVENUE  
 GREEN STORMWATER SPINE  
 SAN PABLO, CA SITE  
 GRADING & DRAINAGE PLAN

CONTRA COSTA COUNTY CALIFORNIA

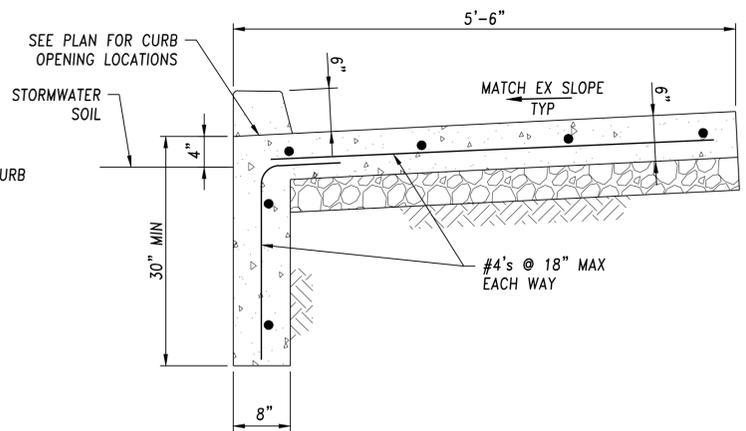
SHEET	5	OF	15
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		



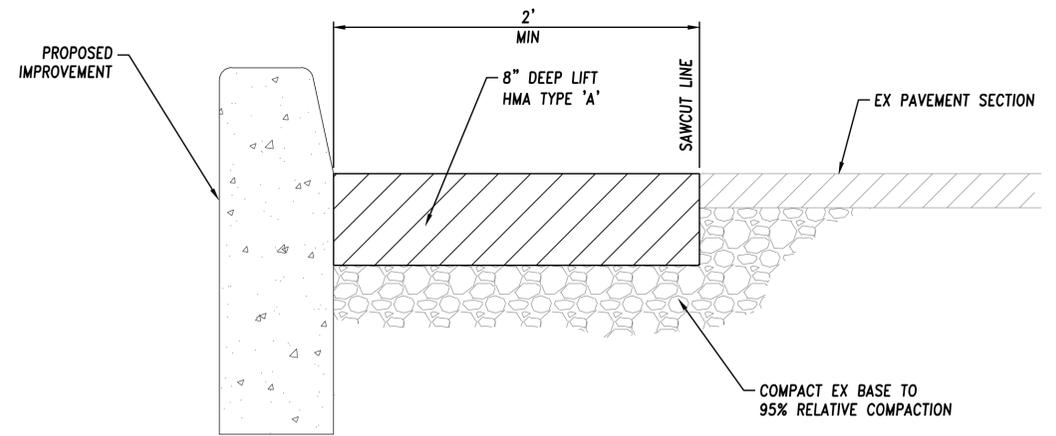
PLAN VIEW

**WIDE CONCRETE CURB & GUTTER**

N.T.S.

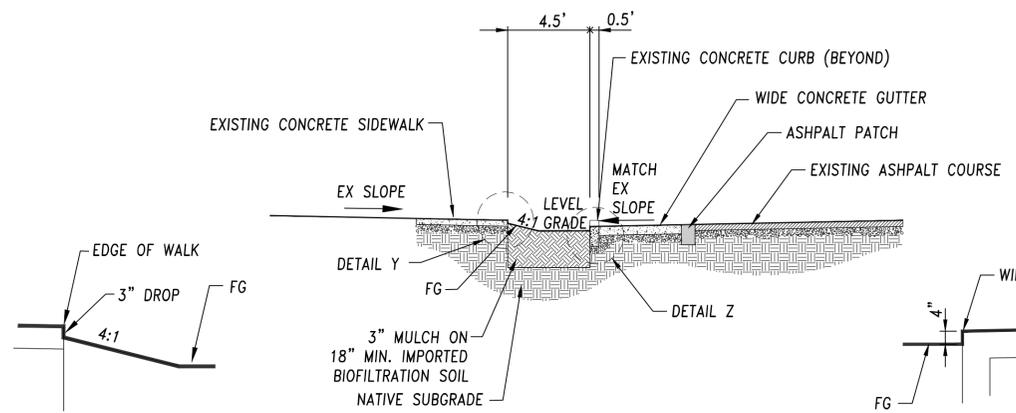


SECTION A - A



**HOT MIX ASPHALT (HMA) PAVEMENT PATCH**

N.T.S.



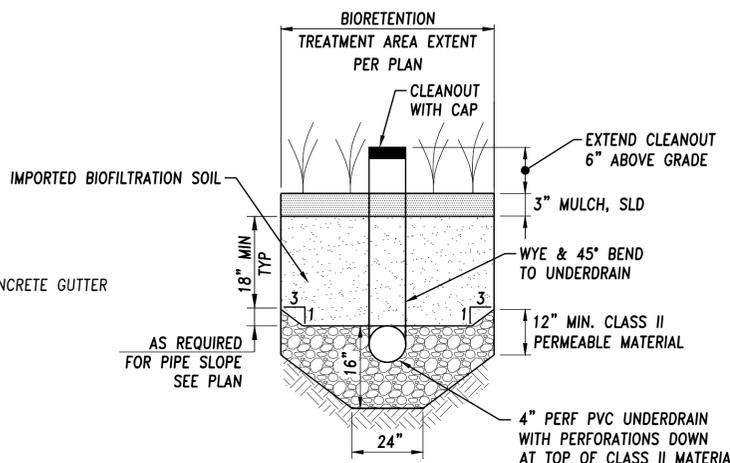
DETAIL Y

**A**  
4

**SECTION**

Scale: 1" = 5' Horizontal

DETAIL Z

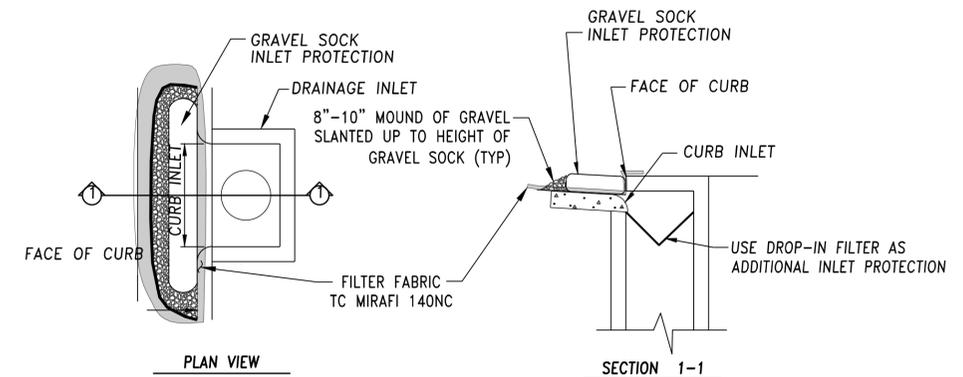
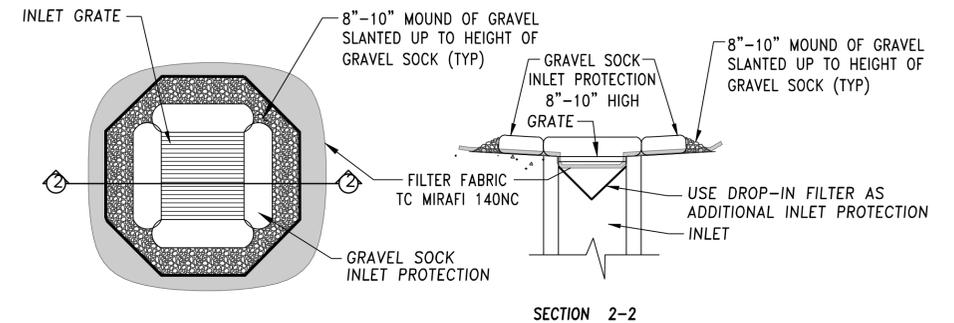


NOTES:

1. ALL BIOFILTRATION SOIL SHALL COMPLY WITH THE SPECIFICATION IN ATTACHMENT "L" OF THE MUNICIPAL STORMWATER PERMIT.
2. NATIVE SUBGRADE SHOULD BE RIPPED AND LOOSENEED AND THEN TAMPED GENTLY AT THE DIRECTION OF THE ENGINEER.

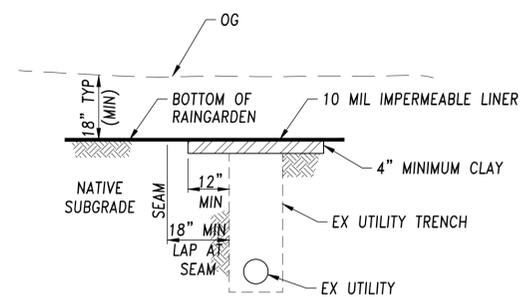
**SD SUBDRAIN DETAIL**

Scale: 1" = 1' Horizontal



**TEMPORARY INLET PROTECTION**

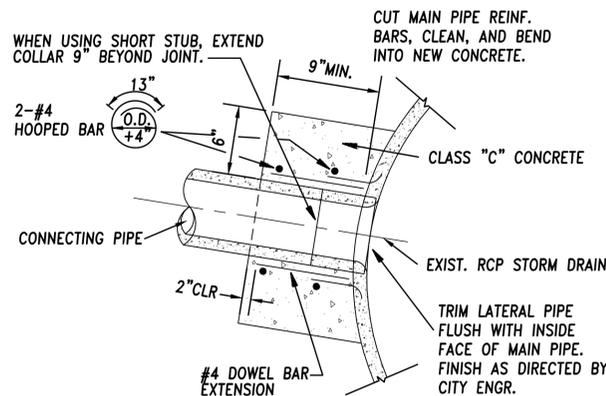
N.T.S.



\*NOTE:  
EXTEND PLUG AND LINER 12" MIN AND 18" MIN RESPECTIVELY BEYOND EXISTING TRENCH WALL. WHERE TRENCH WALL IS NOT DISCERNIBLE, TRENCH WIDTH SHALL BE TAKEN AS A MINIMUM OF 24" PLUS THE OUTSIDE DIMENSION OF THE SUBJECT UTILITY FACILITY.

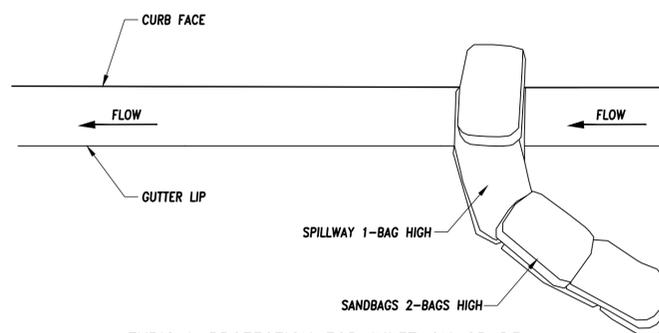
**TRENCH PLUG DETAIL**

N.T.S.



**PIPE CONNECTION DETAIL**

N.T.S.



**TEMPORARY GRAVEL BAG BERM**

N.T.S.

**TEMPORARY INLET PROTECTION**

N.T.S.

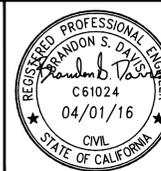
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SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
SAN PABLO, CA SITE  
CIVIL DETAILS

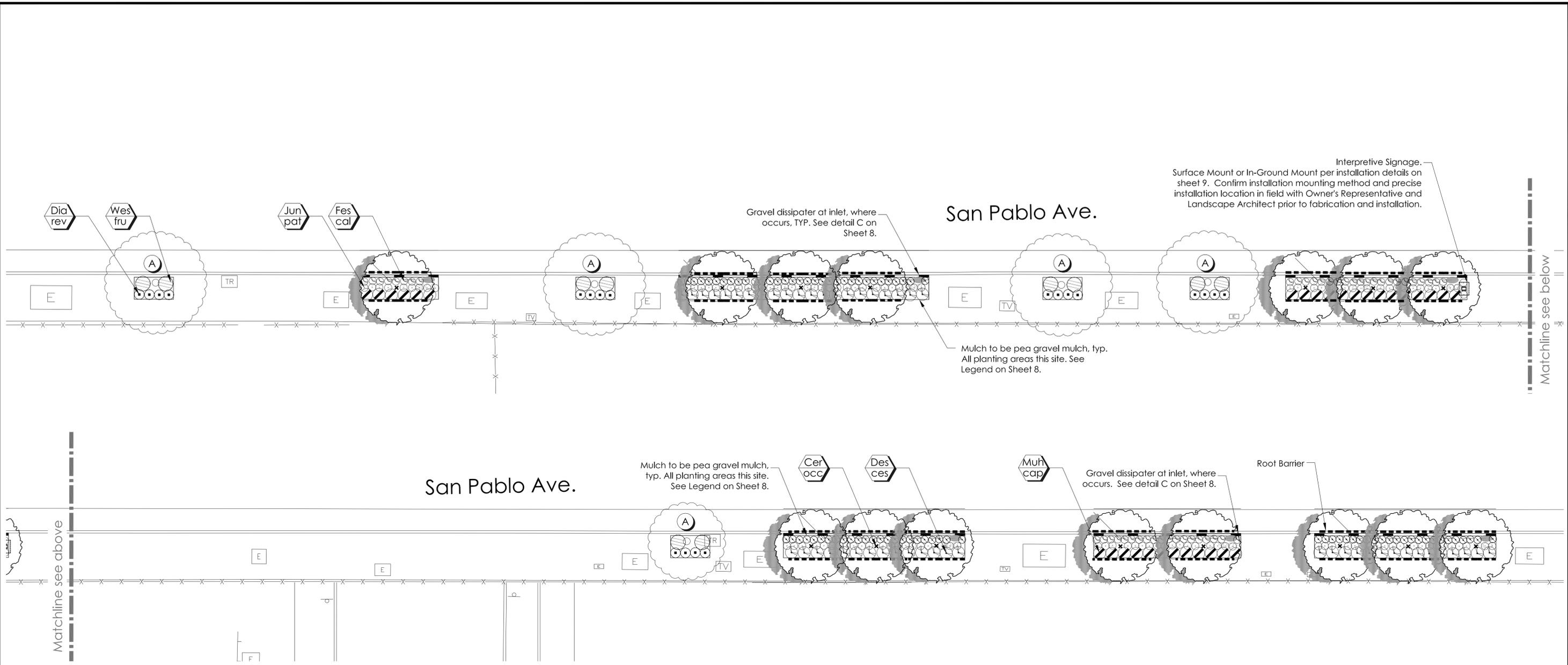
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DATE:	APRIL 01, 2016		

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### PLANTING NOTES

- The plant list is provided for the convenience of the Contractor. The Contractor shall verify all plant counts and if a discrepancy exists, the plan shall govern.
- Substitution of specified plant material shall not be made unless otherwise approved by the Landscape Architect. Same genus different species substitutions are acceptable provided the variety is similar in growth habit to the specified plant and water use is the same. Example: Escallonia 'Terra' could sub for 'Red Elf'. Rhampholepis can not substitute for Escallonia as they have different water use requirements. Certificates of compliance will not be completed for projects which exceed the water use of specified plant materials until conformance with the water efficient landscape requirements is achieved.
- Finish grade in planting areas shall be smooth and even prior to installation of mulch. All landscape areas not covered with live material shall be covered with 3" of mulch, except where noted.
- Planting areas shall be kept clean and free from all concrete, asphaltic waste, lumber or other such materials, shall be removed by excavation of the soil and replaced with clean native top soil.
- See details and specifications for procedures, material, and installation requirements.
- Soils reports shall be provided for all imported soils, per specification section. Reports shall be submitted to the SFEP's Representative and Landscape Architect for review and approval.
- Adjacent streets, sidewalks and other areas shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
- Any damaged or destroyed landscaping shall be replaced to the satisfaction of the Owner's Representative.
- For best results, native plant materials should not have their roots disturbed. For plastic cans, remove bottom of can, place in plant pit and cut sides to remove. Cut metal cans in three places minimum and carefully slide root ball into plant pit, for large plant material, use bottom support as necessary.
- Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.
- Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.
- Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape Maintenance Manual for complete information.
- Synthetic pre-emergents are prohibited in the construction and maintenance of this project.
- If it is required that the Contractor have assigned to the project at least one employee who is a Certified Arborist or Certified Tree Worker (International Society of Arboriculture, Certified Arborist or Tree Worker shall meet with the Landscape Architect and City's Arborist on site to discuss tree preservation prior to construction and be present onsite for all work within the dripline or Tree Protection Zone of existing trees.
- Upon award of contract, the Contractor is to schedule an on-site meeting with the Landscape Architect and City's Arborist to review protection measures for all existing trees on site that are to remain.
- The Contractor is to minimize disturbance to existing tree roots on site. If required, cut minor roots (less than 2" in diameter) of trees indicated to remain in a clean and careful manner where such roots obstruct installation of new construction. If any roots greater than 2" are encountered stop work and contact the Landscape Architect and City's Arborist immediately.
- All excavation and/or trenching work done within the drip line of existing trees shall be done by air tools only.
- The contractor shall be responsible for the health and protection of all existing trees on site that are to remain. The contractor shall replace any trees that have been killed or damaged and warrant replacement as determined by the City's Arborist. Replacement trees shall be 24" box specimen trees, species shall be per the City's Arborist or Authorized Representative.
- This is a functioning storm water planter with an engineered imported soil mix designed for specific performance criteria. Amend only planting pits and associated planting backfill per the planting instructions.
- Soil shall not be worked when wet to avoid compaction.

All trees are to be planted a minimum of 10' from utility poles, fire hydrants, driveways, and highway signs.

**Planting Note:**  
 (A) Existing Pyrus Trees to Remain.  
 Contractor shall consult with the City's Arborist regarding tree protection measures upon award of contract.

**Note:**  
 See sheet 8 for planting legend & installation details.



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SAN FRANCISCO ESTUARY PARTNERSHIP  
 1212 CLAY STREET, SUITE 1400  
 OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
△			
△			
△			
△	4/1/16	FINAL SUBMITTAL	JS
△	3/28/14	90% SUBMITTAL	JS

**WILSEY HAM**  
 Engineering, Surveying & Planning  
 3130 La Selva Street, Suite 100  
 San Mateo, CA 94403  
 650.349.2151  
 wilseyham.com



	BY	DATE
Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16

SAN PABLO AVENUE  
 GREEN STORMWATER SPINE  
 SAN PABLO CA SITE  
 LANDSCAPE PLANTING PLAN

CONTRA COSTA COUNTY CALIFORNIA

SHEET	7	OF	15
PROJ. NO.:	936-001	SCALE:	1"=10'-0"
DATE:	4/1/16		

# SAN PABLO CANDIDATE PLANT LIST

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	WATER REQ.	REFERENCE	PROJECT SPACING	MIN-MAX SPREAD	NATIVE
<b>TREES</b>									
15	Cer occ	Cercis occidentalis (Standard)	Western Redbud	15 gal.	INF-OCC	SUNSET	20'	20'-30'	Y
<b>GRASSES &amp; PERENNIALS</b>									
81	Car div	Carex divulsa	Berkeley Sedge	1 gal.	OCC-MOD	EBMUD	18"	1'-2'	N
50	Des ces	Deschampsia cespitosa	Tufted Hairgrass	1 gal.	MOD	EBMUD	30"	2'-3'	Y
20	Dia rev	Dianella revoluta 'Little Rev'	Flax Lily	1 gal.	MOD	SUNSET	30"	2'-3'	N
48	Fes cal	Festuca californica	California Fescue	1 gal.	OCC-MOD	EBMUD	24"	2'-2'	Y
120	Jun pat	Juncus patens 'Elk Blue'	California Gray Rush	1 gal.	NONE-MOD	SUNSET	18"	18"-24"	Y
10	Wes fru	Westringia fruticosa 'Morning Light'	Coast Rosemary	5 gal.	OCC-INF	EBMUD	3"	3'-6"	N
32	Muh cap	Muhlenbergia capilaris	Muhly Grass	1 gal.	NONE-OCC	EBMUD	3"	2'-4'	N

## Pea Gravel Mulch

Smooth pea gravel from a local source. Size: 3/8". Color: gray. Apply 3" thick layer in areas indicated on plan. Submit sample for approval. See notes.

## Gravel Dissipator

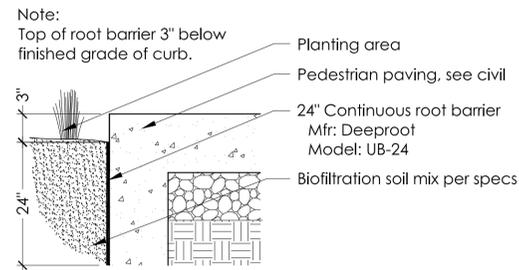
Gravel Dissipator at inlet. See detail.

## Root Barriers

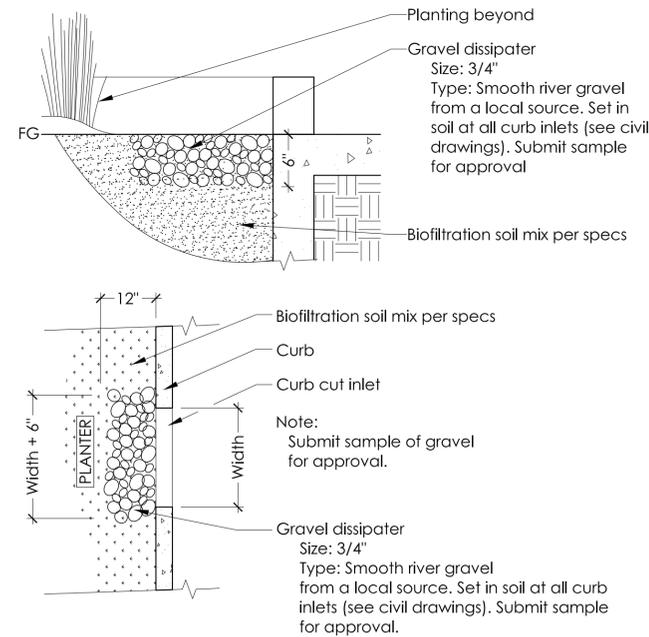
Tree Root Barrier. Center on tree and extend 6'-0" in each direction as shown. See detail.

## Hydrozone

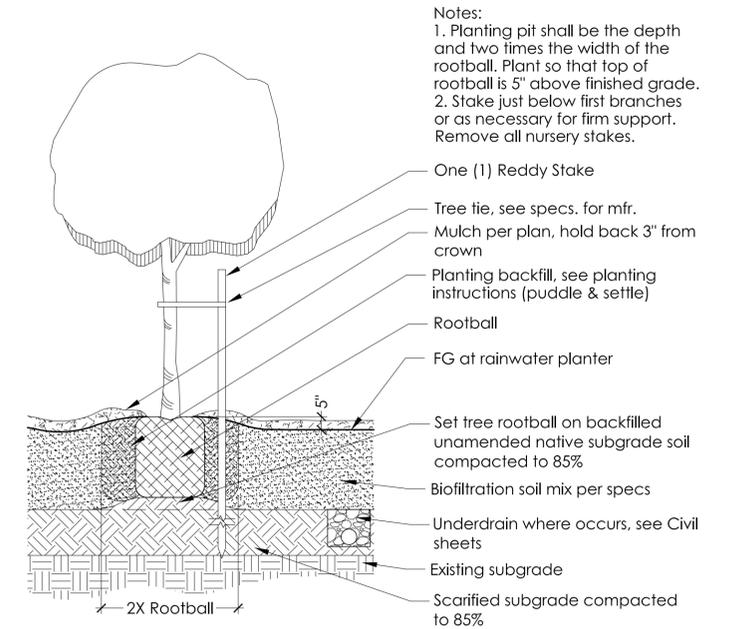
All planting areas are a mixture of medium and low water using plant material per W.U.C.O.L.S. Guidelines. Per the California Model Water Ordinance, all planting areas are considered medium water use.



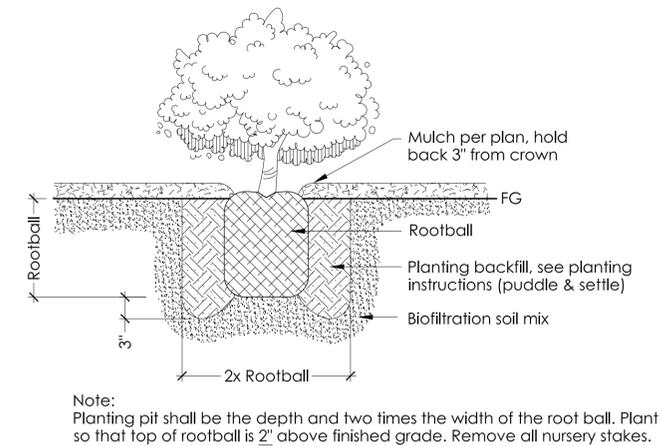
**C** ROOT BARRIER AT PAVING  
SCALE: N.T.S.



**D** GRAVEL DISSIPATOR AT INLET  
SCALE: N.T.S.



**A** STORMWATER TREE PLANTING  
SCALE: N.T.S.



**B** SHRUB AND GRASS PLANTING  
SCALE: N.T.S.

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1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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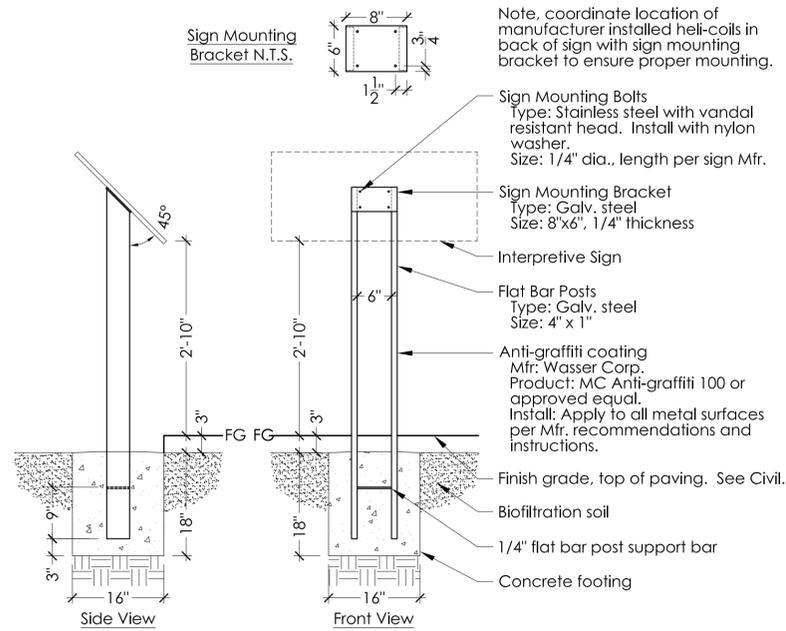


Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
BY	DATE	

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
SAN PABLO, CA SITE  
LANDSCAPE PLANTING LEGEND & DETAILS  
CONTRA COSTA COUNTY CALIFORNIA

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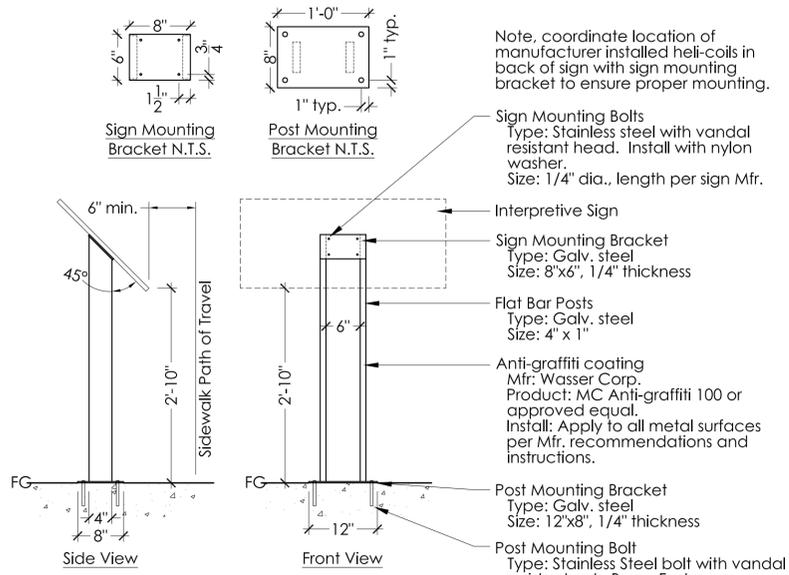
SHEET	8	OF	15
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	4/1/16		



**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

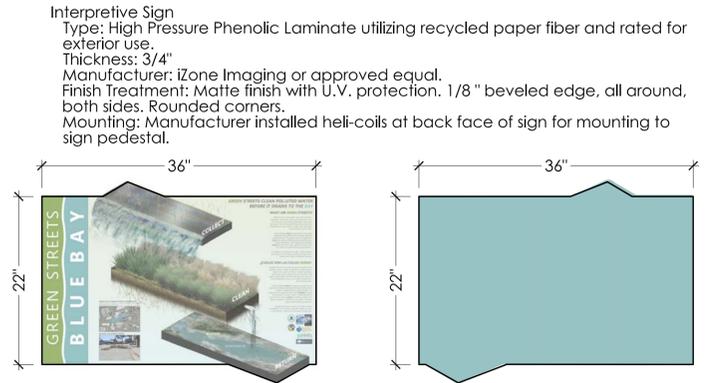
**G IN-GROUND SIGN PEDESTAL**  
SCALE: N.T.S.



**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

**F SURFACE MOUNT SIGN PEDESTAL**  
SCALE: N.T.S.



**Interpretive Sign**  
Type: High Pressure Phenolic Laminate utilizing recycled paper fiber and rated for exterior use.  
Thickness: 3/4"  
Manufacturer: iZone Imaging or approved equal.  
Finish Treatment: Matte finish with U.V. protection. 1/8" beveled edge, all around, both sides. Rounded corners.  
Mounting: Manufacturer installed heli-coils at back face of sign for mounting to sign pedestal.

**Front Sign Face**  
Full color interpretive image shown is preliminary and is for bidding purposes only. A high quality digital file of the approved signage will be provided to the Contractor upon award of contract.

**Rear Sign Face**  
Solid color rear sign face shown is preliminary and is for bidding purposes only. The CMYK color number will be provided to the Contractor upon award of contract.

**E INTERPRETIVE SIGN**  
SCALE: N.T.S.

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SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
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LANDSCAPE PLANTING DETAILS

CONTRA COSTA COUNTY CALIFORNIA

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SHEET	9	OF	15
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	4/1/16		

PLANTING INSTRUCTIONS

**PART 1 - GENERAL**

1.1 SUMMMARY

A. Work included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and project specifications sections, apply to these instructions.

B. Contractor shall refer to and incorporate Bay-Friendly Landscape Guidelines and Principals into the installation of the landscape. The 7 Principals of Bay-Freindly Landscaping and Gardening are:

- |                                       |  |
|---------------------------------------|--|
| 1. Landscape Locally                  | 5. Conserve Energy                       |
| 2. Landscape for Less to the Landfill | 6. Protect Water & Air Quality           |
| 3. Nurture the Soil                   | 7. Protect and Maintain Wildlife habitat |
| 4. Conserve Water                     |  |

1.3 SUBMITTALS

A. Comply with submittal procedures per project specifications.

B. Samples: samples of quarry fines, soil amendments, gravel, cobble, fertilizers, compost and mulches shall be submitted for review and stored on site until furnishing of materials is completed. Delivery may begin upon approval of samples or as directed by the Landscape Architect.

C. Technical reports: Submit copies of technical reports. Work is to be performed by:

Soil and Plant Laboratory, Inc.  
352 Mathew Street  
Santa Clara, CA 95030  
408-727-0330

1. Agronomy reports: one (1) agronomy report shall be prepared for each site, which shall include basic and minor nutrients, as well as a textural analysis of each sample. Sample shall consist of a composite of three shovelfuls of soil.

D. Fertilizers, soil conditioners, and compost: submit product data for fertilizers, soil conditioners, and compost to be installed at time of planting. Quantities of fertilizers and soil conditioners shall be per the agronomy report. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

E. Cost adjustments: Contractor shall provide a line item cost for installation of the soil conditioners and fertilizers according to these specifications. Should the agronomy reports recommend a lesser degree of soil conditioning and fertilizing, Contractor shall adjust fees or provide a credit to the client accordingly. In the event that the required soil conditioners and fertilizers are greater than these specifications, the Contractor shall not be responsible for funding the difference.

F. Post-planting fertilizers: submit product data for fertilizers for use post-planting. Quantities of fertilizers shall be per the post-amendment agronomy report. Submit certificates, trip slips and invoices for soil preparation materials. See Section 1.5 Review of Plant Invoices and Soil Preparation Conformance Test.

Manufacturer's instructions: Contractor to submit installation instructions for planting items not herein outlined or detailed on drawings.

1.4 GENERAL REQUIREMENTS

A. The term "planting area" shall mean all areas to be planted with trees, shrubs, groundcovers, and areas covered with organic mulch.

B. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice.

C. All rock and other growth or debris accumulated during the duration of the project shall be removed from the site.

D. Prior to excavation for planting or placing of plant materials, locate all underground utility lines still in use and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and plant locations, notify the Landscape Architect who shall arrange for the relocation of one or the other. The Contractor assumes all responsibility for making any and all repairs for damages resulting from work as herein specified.

E. Grading and soil preparation work shall be performed only during the period when beneficial and optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy soil structure, spreading and grading operations shall be suspended until the moisture content is increased or reduced to acceptable levels. Soil shall not be worked when wet to avoid compaction.

F. All scaled dimensions are approximate. Before proceeding with any work carefully check and verify all dimensions and immediately inform the Landscape Architect of any discrepancy between the drawings and/or specifications and actual conditions.

G. Quantities for plant materials are shown for convenience only, and not guaranteed. Check and verify count and supply sufficient number to fulfill intent of drawings.

H. Adequately stake, barricade, and protect all irrigation equipment, manholes, utility lines, and other existing property during all phases of the soil amending and grading operations.

I. Observation of plant material:

- All plant material shall be delivered to the project site for observation by the Architect, for approval prior to installation.
- All trees shall conform to the "Guideline Specifications for Nursery Tree Quality", Urban Tree Foundation.
- The Contractor shall immediately remove any plant material not approved.
- Approved plant material shall remain on the site and shall be maintained by the Contractor as standards of comparison for material to be furnished.
- The Contractor, at his option and at his expense, can retain the services of the Landscape Architect to review trees 15 gallon and larger tagged at the nursery and/or at its place of growth, or as otherwise specified on drawings.

J. Rejection and substitution:

1. All plants not conforming to the requirements herein specified shall be considered defective, and such plants, whether in place or not, shall be marked as rejected and be immediately removed from the site of the work and replaced with acceptable plant materials. The plant materials shall meet all applicable observations required by law. All plants shall be of the species, variety, size, age, flower color and condition as specified herein and/or as indicated on the drawings. Under no condition will there be any substitution of plant species, variety, or reduced sizes for those listed on the accompany drawings, except with the express written consent of the Landscape Architect.

1.5 REVIEW OF PLANT INVOICES AND SOIL PREPARATION CONFORMANCE TEST

A. Upon delivery of materials and/or completion of all soil conditioning and grading but prior to initiating planting operations, the Contractor shall provide Landscape Architect with signed copies of required certificates, trip slips and invoices for soil preparation materials. The Landscape Architect shall review such material, comparing the total quantities of each material furnished against the total area to each operation. If the minimum rates of application have not been met, the Landscape Architect will require the incorporation of additional quantities of these materials to fulfill the minimum application requirements specified.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All products shall be delivered to the site in manufacturer's unopened standard containers bearing original labels showing quantity, analysis and name of manufacturer.

B. All materials shall be stored in designated areas and in such a manner as to protect from weather or other conditions that might impair the effectiveness of the product.

1.7 OBSERVATION

A. Observations herein specified shall be made by the Landscape Architect. The Contractor shall request observations in writing, 3 days in advance of the time observation is required.

B. The Contractor or his authorized representative shall be on the site at the time of each observation.

C. Observation will be required for the following parts of the work:

- Upon the completion of grading prior to planting.
- Approval of plant materials (refer to 1.4 general requirements).
- When trees and shrubs are spotted in place for planting, but before planting holes are excavated. Approval of mulch product shall be obtained prior to spreading.
- When all planting, except the maintenance period, has been completed. Acceptance and written approval shall establish start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- At the end of ninety (90) days from the start of the maintenance period. The Agency's Representative and City's Representative and/or City's Arborist shall be requested to be present for this observation.
- At the end of one (1) year from the start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- Final observation at the completion of the two (2) year maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.

D. Acceptances: upon completion of the final observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable, (2) of any requirements necessary for completion and acceptance.

E. The Contractor will be charged, and responsible for, any time and mileage used by the Landscape Architect as a result of prematurely scheduled site visit.

1.8 MAINTENANCE/PLANT ESTABLISHMENT

A. The maintenance period begins on the day the Landscape Architect has given notice of completion and shall continue thereafter for no less than two (2) years.

- These instructions are to be used in conjunction with the project's Storm Water Planter Maintenance Manual.
- The Contractor shall call for inspections per the Observation section above.
- Phased maintenance periods, if required, shall be negotiated prior to construction.
- If phased maintenance periods are not negotiated prior to construction, the maintenance period for all areas will begin after the entire project is 100% complete per contract documents. Portions completed earlier shall be maintained up to and including the specified maintenance period without additional compensation.

B. The Contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period until the final acceptance of the work.

C. A protective temporary fence shall be installed and remain in place until the 90-day review inspection. Contractor is responsible for removal of the protective temporary fence at the close of the 90-day period.

D. Regular planting maintenance operations shall begin immediately after each plant is planted. Plants shall be kept in a healthy, growing condition and in a visually pleasing appearance by watering, pruning, mowing, rolling, trimming, edging, fertilizing, restaking, pest and disease controlling, spraying, weeding, cleaning up and any other necessary operation of maintenance. Landscape areas shall be kept free of weeds, noxious grass, and all other undesired vegetative growth and debris. All plants found to be dead or in an impaired condition shall be replaced immediately. See post-planting fertilizing requirements in the Storm Water Planter Maintenance Manual.

E. The contract completion date of the contract maintenance period will be extended, when in the opinion of the Landscape Architect, improper maintenance and/or possible poor or unhealthy condition of planted material are evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work at no change in contract price until all of the work is completed and acceptable.

F. The Contractor shall be responsible for maintaining adequate protection of the planting areas. Damaged areas shall be repaired immediately per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

G. All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

1.9 GUARANTEES AND REPLACEMENTS

A. All plants (except trees- see 1.09b) shall be guaranteed to remain healthy and vigorously growing for the duration of the two (2) year maintenance period.

B. All trees that have been supplied and installed under this contract shall be guaranteed to live in a healthy condition for the duration of the two (2) year maintenance period. Trees are to be inspected for disease and certified by an authorized arboriculturist prior to planting.

C. All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

D. Plants used for replacement shall be the same kind and size as specified in the plant list. They shall be furnished, planted and fertilized as originally specified.

**PART 2 - PRODUCTS**

2.1 SOIL AMENDMENT AND FERTILIZER

A. Planting pit backfill is to be amended with quality compost at the rates indicated by a soil analysis to bring soil organic matter content to a minimum of 3.5% quality compost by dry weight.

B. Compost shall be a well decomposed, stable, weed free organic matter source. The product shall be certified through the US Composting Council's (USCC) Seal of Testing Assurance (STA) Program (a compost testing and information disclosure program). It shall be derived from agricultural and/or food waste and/or yard trimmings. The product shall contain no substances toxic to plants, will possess no objectionable odors and shall not resemble the feedstock (the organic materials from which it was derived).

C. Before delivery of the compost, the supplier will submit proof of STA certification and a copy of lab analysis performed by a laboratory that is enrolled in the US Composting Council's CAP and using the approved Test Methods for the Evaluation of Composting and Compost (TMECC).

D. The delivery tags indicating the quantity delivered to the job site shall be submitted by contractor. Compost exhibiting a sour or putrid smell, containing recognizable grass or leaves, or heat (120F) upon delivery or rewetting will not be accepted.

E. Quantities shall be furnished as needed to complete work shown on drawings.

F. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

2.2 PLANTING

A. Backfill: Amend only planting pit backfill. The following planting backfill ratios are to be used for bidding purposes only. Contractor is responsible for providing agronomy reports as described in 1.3-c, which shall outline backfill specifications. Fully amended (upper) excavation materials shall be put in one pile to go around the rootball. Any deeper un-amended materials shall be put in a separate pile. Condition this deeper soil at the following rates and use for the planting pit below the rootball:

Gypsum 16 lbs /cy.

B. Over-excavate the planting pits so that there shall be one foot of this material between native soil and the bottom of the rootball. No OM or fertilizer shall be used below the rootball.

C. Tree staking:

- Stakes shall be Reddy Stakes, with length as required to meet staking requirements per detail. Stake quantity per detail.
- Tree ties shall be V.I.T. cinch-tie, or approved equal.

D. Weed eradication: pre-emergent and post-emergent herbicides shall not be used in the construction and maintenance of this project. All weeding shall be accomplished through mechanical methods.

2.3 PLANT MATERIAL

A. All plants shall be vigorous, of normal growth free from disease, insects, insect eggs, and meet or exceed the measurements specified.

B. Identify plant species or varieties correctly on legible, weatherproof labels attached securely to the plant. There shall be a minimum of one labeled plant for each 5 plants in a lot.

C. Substitutions will not be permitted except if proof is submitted that any plant specified is not obtainable, in which case a proposed substitution will be considered for use of the nearest equivalent size or variety and cost. All proposed substitutions shall be approved by Landscape Architect prior to ordering.

2.4 MULCH

Contractor shall maintain a minimum of 3" of coarse organic Arbor Mulch or Pea Gravel Mulch over soil surface that is not covered by vegetation or boardwalk, per plan. Arbor mulch materials shall be recycled chipped or shredded wood chips from pruning operations, or chipped landscape prunings. All mulch shall be from a local source. Shredded redwood bark mulch ("Gorilla hair") shall not be used. Non-porous material (e.g. plastic weed barriers) shall not be placed under the mulch.

2.5 ROOT BARRIER

A. Root Barrier shall be Deeproot, 24" Universal Barrier, UB 24-2, or equal.

**PART 3 - EXECUTION**

3.1 SOIL CONDITIONING

A. Grub and clean planting area, removing all weeds, debris and rocks from the site.

3.2 INTEGRATED PEST MANAGEMENT (IPM)

A. Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape Maintenance Manual for complete information.

B. Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.

3.3 FINISH GRADING

A. Finish grades shall be as indicated on the Civil Engineer's drawings.

B. Planting surfaces shall be graded with no less than 2 percent surface slope for positive drainage, or as otherwise noted according to Civil Engineer's plans.

C. Final finish grades shall insure positive drainage of the site with all surface drainage away from buildings, walls, and toward roadways, drains and catch basins.

D. Finish grades shall be measured as the final water compacted and settled surface grades, and shall be acceptable to the Landscape Architect before planting operations will be allowed to begin.

E. All undulations and irregularities in the planting surfaces resulting from tillage, rototilling and all other operations shall be leveled and floated out before planting operations are initiated.

F. The Contractor shall take every precaution to protect and avoid damage to sprinkler heads, irrigation lines, and other underground utilities during his grading and conditioning operations.

3.4 PLANTING

A. The layout of locations for plants and outlines of groundcover to be planted shall be approved on the site by the Landscape Architect, prior to their planting. All such locations shall be checked for possible interference with existing underground piping, prior to excavation of holes. If underground construction or utility lines are encountered in the excavation of planting areas, other locations for the planting may be selected by the Landscape Architect. Damage to existing utilities shall be the responsibility of the Contractor.

B. Planting trees, shrubs, and container-stock groundcovers, vines, and grasses:

1. All excavated holes shall have vertical sides with roughened surfaces and shall be of the minimum sizes indicated on detailed drawings. Holes shall be, in all cases, large enough to permit handling and planting without injury or breakage of root balls or roots.

2. Root barriers shall be installed where indicated on plans in accordance with manufacturer's recommendations.

3. Excavation shall include the stripping and staking of all acceptable soil encountered within the areas to be excavated for plant pits and planting beds. Protect all areas that are to be trucked over and upon which soil is to be temporarily stacked pending its re-use for the filling of holes, pits and beds.

4. Plants in can containers shall have the cans opened by cutting vertically on opposite sides of each can with nursery can openers, tin snips or other approved instruments for this purpose. All used cans shall be removed to the storage areas or from the site daily.

5. The plants shall be planted at approved locations with the heretofore specified conditioner and soil planting backfill.

6. The plants shall be placed in the planting pits on the backfill material which has been hand tamped and water settled to the rootball base levels prior to the placement of the plants. After setting the plants, the remaining backfill material shall be carefully tamped and settled around each rootball to fill all voids.

7. Each plant shall be placed in the center of the hole and shall be set plumb and held rigidly in position until the planting backfill has been tamped from around each root ball.

8. All plants shall be set at such a level that after settling they bear the same relationship to the surrounding finish grade as they bore to the soil line grade in the container, unless otherwise noted.

9. No plant will be accepted if the rootball is broken or cracked before, during, or after the process of installation.

10.All plants shall be thoroughly watered in to the full depth of each planting hole immediately after planting.

11.All trees, 15 gallon and larger, shall be staked. One of the stakes shall be driven into the ground of the windward side of the tree. The stakes shall be driven in plumb and secure. Special care shall be taken that the driving in of the stake does not damage the tree roots or root ball. tree ties shall be fastened to each tree and stake by looping figure 8's with the inside diameter of the tie at 2 or 3 times the diameter of the tree (also see detailed drawings).

12.The staking shall be accomplished in such a manner as to insure the proper and healthy growth and safety of the plants, property, and the public.

13.The Contractor shall be responsible for all surface and subsurface drainage required which may affect his guarantee of the plants.

C. Planting groundcovers (From Flats):

1. Groundcovers shall be planted in the areas indicated on the drawings. The groundcover plants shall be rooted cuttings grown in flats, and shall remain in those flats until transplanting.

2. All groundcover plants shall be planted with soil around roots, evenly spaced at the intervals called out on the drawings.

3. The groundcover plants shall be planted sufficiently deep to cover all roots and planting tablets shall be placed in each planting hole and shall be immediately sprinkled after planting until the entire area is soaked to the full depth of all holes.

4. The groundcover planting areas shall be hand smoothed after planting to provide an even, smooth final finish grade.

D. Mulch:

1. Apply a 3" deep layer of specified Arbor Mulch throughout all planting areas, unless otherwise noted on plans. Also refer to planting details for mulch requirements.

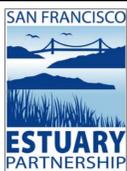
3.5 CLEANUP

A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete, and planter walls adjacent to plantings.

End of Instructions

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Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
	BY	DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
SAN PABLO, CA SITE  
**LANDSCAPE PLANTING INSTRUCTIONS**

CONTRA COSTA COUNTY CALIFORNIA

SHEET  
10 OF 15  
PROJ. NO.: 936-001  
SCALE: AS SHOWN  
DATE: 4/1/16

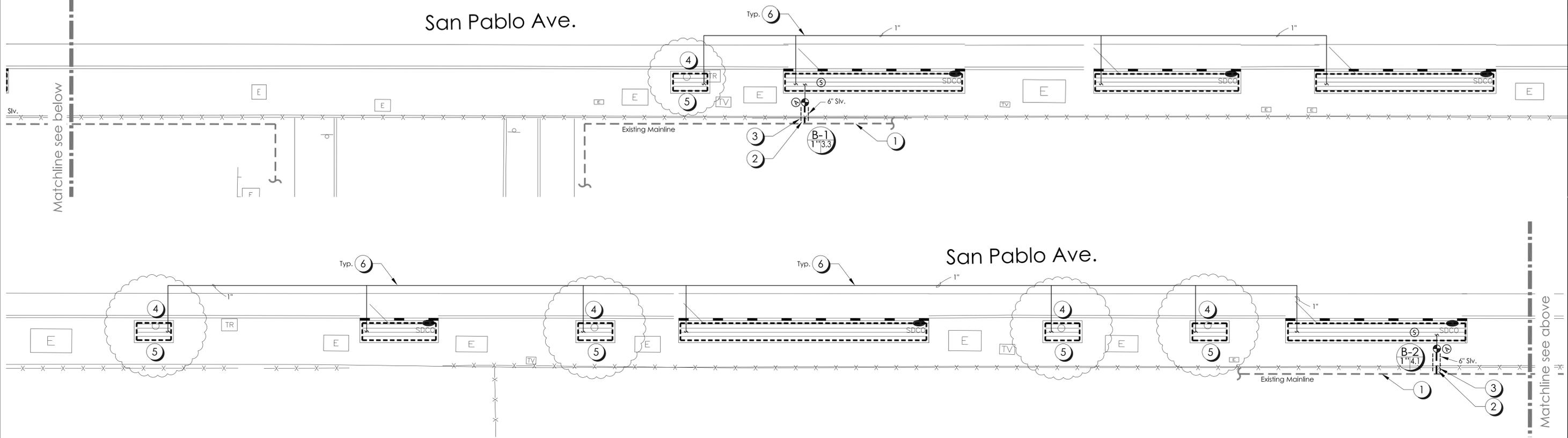
Potable water irrigation systems are to be installed and fully tested, but not operated prior to November 1, 2016 unless otherwise notified by the Department of Water Resources that drought conditions no longer exist. Prior to November 1, 2016, all storm water planters (including those with no irrigation system installed) must be irrigated with recycled water provided by EBMUD and delivered and applied by water truck.

**Note:**  
The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarity only and shall be installed in planting areas whenever possible. No elbows or 45° ells may be placed under paving, these are to be located in planting areas only, except where explicitly indicated. Mainline and valves shall be installed in shrub/ground cover areas only. Where valves inadvertently fall within paved areas, Contractor must install in concrete valve boxes. Avoid conflicts with utilities, new planting, new site or architectural elements.

**Note:**  
Contractor to confirm location, size, condition and function of the existing mainline and control wire at points of connection identified in these plans upon award of contract. Additionally, the Contractor is to take a water pressure reading at the point of connection at that time. Contractor to immediately notify Owner's Representative and Landscape Architect if any discrepancies are found between plans and existing irrigation conditions.

**Note:**  
See sheet 12 for Irrigation Legend

**System Operating Flow & Pressure**  
Maximum Flow: 8 gpm  
Static Design Pressure: 20 psi  
Normal Operating Pressure: 15-20 psi



**IRRIGATION CALLOUTS**

- Existing irrigation mainline as installed by the adjacent on-site construction project scope of work. Contractor to coordinate work with on-site project Contractor.
- Capture two (2) pairs of existing irrigation control wire stub outs from adjacent on-site irrigation controller in general vicinity shown as provided by the adjacent on-site construction project scope of work. Splice and extend control wires to RCV valve box, cap w/ waterproof wire connector per Irrigation Instructions, for future use. Contractor to coordinate work with on-site project Contractor.
- Connect to existing 1-1/2" mainline stub out in general vicinity shown as provided by the adjacent on-site construction project scope of work. Confirm irrigation mainline stub has been installed as indicated in these plans upon award of contract. Contractor to coordinate work with on-site project Contractor.
- Existing tree to remain. Contractor shall consult with the City's Arborist regarding tree protection measures upon award of contract.
- Install drip irrigation around existing trees on grade. Secure with ground stabiles at 3' O.C.
- Non-pressure irrigation lateral lines are to be located 12" off of gutter lip. Piping will contain tees and ells, do not sleeve. Coordinate with Civil sheets.

**IRRIGATION NOTES**

- The landscape Contractor shall inspect the site and verify conditions and dimensions prior to construction.
- Install irrigation system in accordance with all local codes and ordinances.
- See details, instructions and specifications for procedures, material and installation requirements.
- Prior to cutting into soil, locate all cables, conduits, sewers, and other utilities or architectural features that are commonly encountered underground and take proper precautions not to damage or disturb such improvements. Any damage made during the installation of the irrigation system of the aforementioned items shall be repaired and/or replaced to the satisfaction of the owner at the Contractor's own expense.
- The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarification only and shall be installed in planting areas. Main and valves shall be installed in shrub/ground cover areas only. Avoid conflicts with utilities, new planting, new site or architectural elements.
- All valves shall be placed in Carson 1419b-12b, or equal, green valve box. All valve boxes shall be located in groundcover areas and shall be bolted.
- All lateral end runs shall be 3/4" size unless otherwise noted.
- Contractor shall coordinate sleeving for irrigation piping with paving contractor prior to paving installation. It is the contractor's responsibility for providing appropriate sleeving under

- hardscape. At each mainline sleeve, provide a separate, appropriate-size sleeve for control/common wiring. Where sleeve only is installed, install a pull rope that extends past the end of the sleeve. The Contractor is to supply extra sleeving as indicated on plans.
- The irrigation systems are designed to operate at a minimum pressure of 20 psi at point of connection to water supply at existing irrigation mainline. Landscape Contractor shall test pressure at point of connection upon award of contract. Notify landscape architect if pressure is below 15 psi or over 35 psi to determine needed pressure regulation devices. (ie: boost pump or regulating valve).
- It is required that the Contractor have assigned to the project at least one employee who is a Certified Arborist or Certified Tree Worker (International Society of Arboriculture).
- Upon award of contract, the Contractor is to schedule an on-site meeting with the Landscape Architect and City's Arborist to review protection measures for all existing trees on site that are to remain.
- The Contractor shall minimize disturbance to existing tree roots on site. If required, cut minor roots (less than 2" in diameter) of trees indicated to remain in a clean and careful manner where such roots obstruct installation of new construction. If any roots greater than 2" are encountered, stop work and contact the Landscape Architect immediately.
- All excavation and/or trenching work done within the drip line or tree protection zone of existing trees shall be done by air tools only.

**STATEMENT OF COMPLIANCE**

I have complied with the criteria of the landscape water conservation ordinance and applied them for the efficient use of water for the landscape design plan.  
 PREPARER NAME: William Mastick  
 PREPARER SIGNATURE: [Signature]  
 PROFESSIONAL LICENSE: PLA CA #2451



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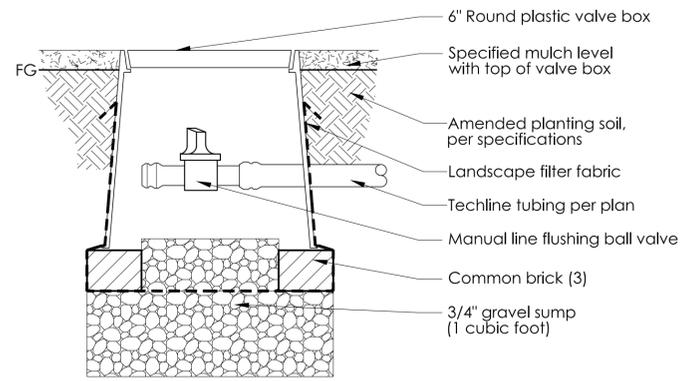
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Project Mgr.: JS	01/30/15
Project LA: JS	01/30/15
Designer: BJ	01/30/15
Checked: WM	01/30/15
Drawn: BJ	01/30/15
Plotted: Brenna	03/25/16

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
SAN PABLO CA SITE  
LANDSCAPE IRRIGATION PLAN

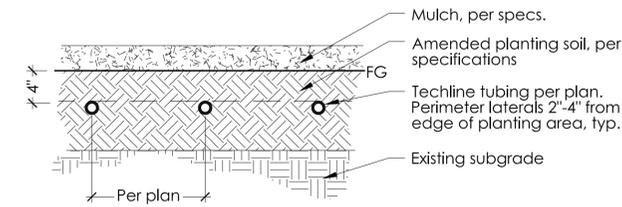
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PROJ. NO.: 936-001  
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DATE: 4/1/16



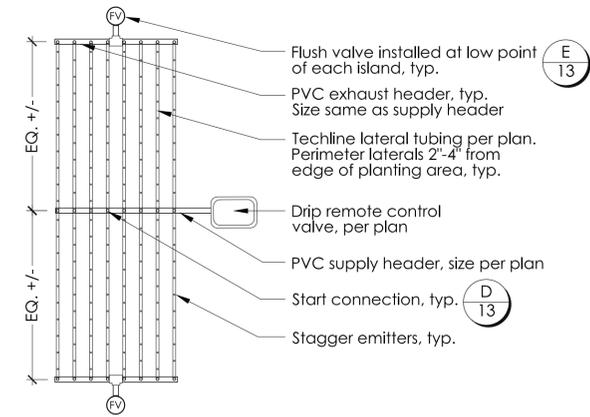


**E** MANUAL FLUSH VALVE  
SCALE: N.T.S.



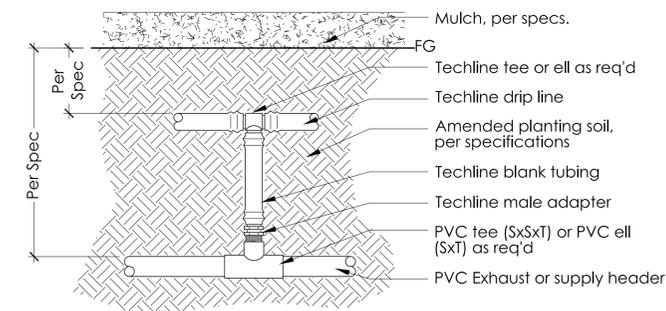
Note:  
Install Techline tubing 4" below finish grade, staple in place, per layout detail, then backfill with biofiltration, per planting specifications.

**C** TECHLINE SUBGRADE INSTALLATION  
SCALE: N.T.S.

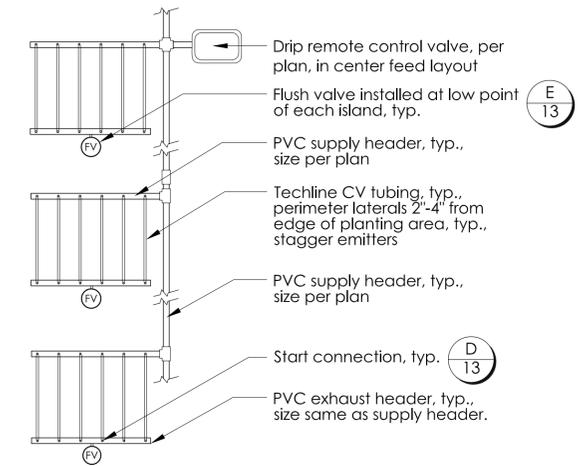


Notes:  
1. Affix all lines to ground using soil staples every 3' from drip valve.  
2. Techline CV emitters are pressure compensating and have check valves.  
3. See legend for emitter and row spacing.  
4. Install check valves on supply and exhaust headers where elevation meets/exceeds 4-1/2' & as needed to prevent low-head drainage.

**A** TECHLINE LINEAR LAYOUT  
SCALE: N.T.S.



**D** START CONNECTION  
SCALE: N.T.S.



Notes:  
1. Affix all lines to ground using soil staples approximately every 3' from drip valve.  
2. Do not exceed manufacturer's recommended maximum length of a single lateral, see chart.  
3. See legend for emitter and row spacing.  
4. Install check valves on supply headers where elevation meets/exceeds 4-1/2' and as needed to prevent low-head drainage.

**B** TECHLINE ISLAND LAYOUT  
SCALE: N.T.S.

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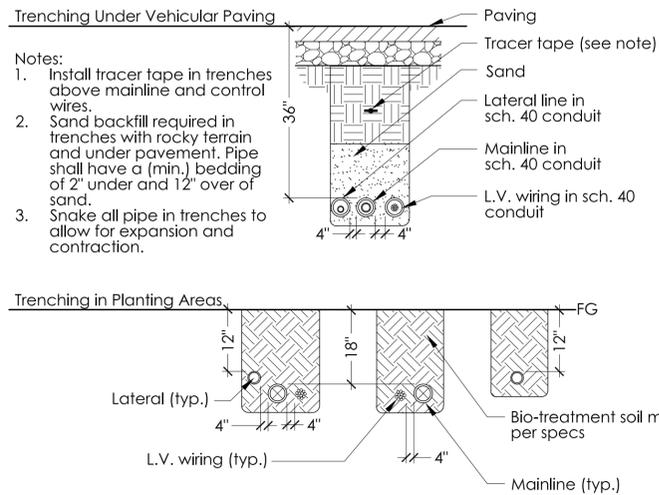
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Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	03/25/16
	BY	DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
SAN PABLO, CA SITE  
LANDSCAPE IRRIGATION DETAILS

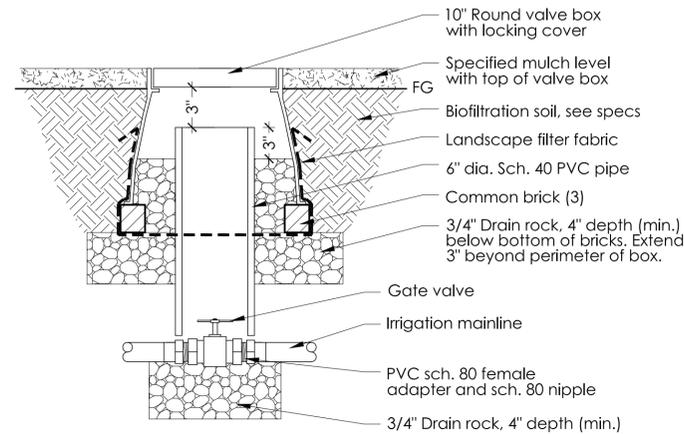
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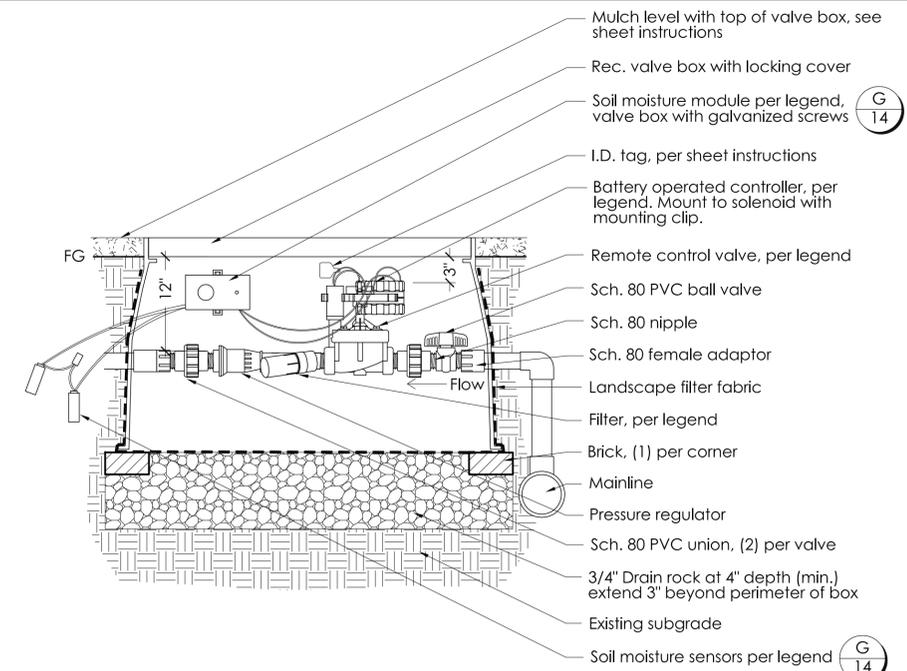
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**J PIPE AND TRENCHING**  
SCALE: N.T.S.

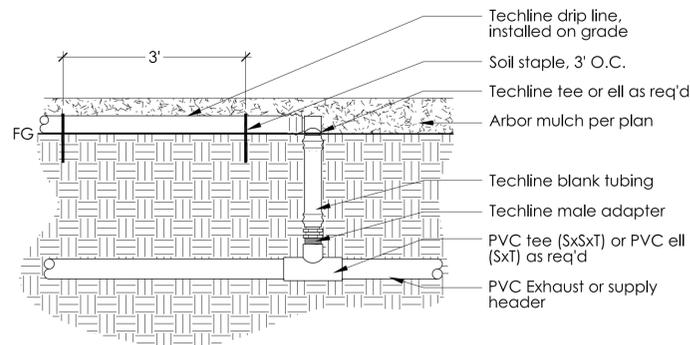


**H GATE VALVE**  
SCALE: N.T.S.

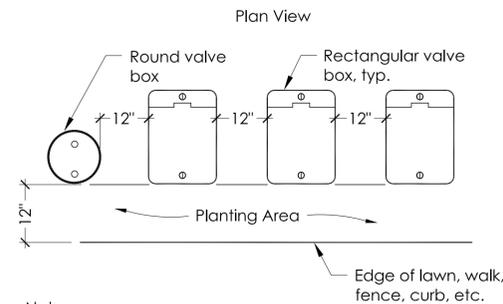


- Notes:
1. Filter position as shown preferred to minimize debris in housing when servicing. Filter may be mounted horizontally or upside-down if needed due to space constraints.
  2. Supply PVC sch. 80 nipples and adapters as required.
  3. Supply jumbo valve box and/or housing extensions as required to fit equipment.
  4. Each RCV to receive a permanent metal tag with controller and station number.
  5. Provide an 18" control wire expansion coil and waterproof connectors as required.

**F REMOTE CONTROL VALVE w/ BATTERY OPERATED CONTROLLER**  
SCALE: N.T.S.

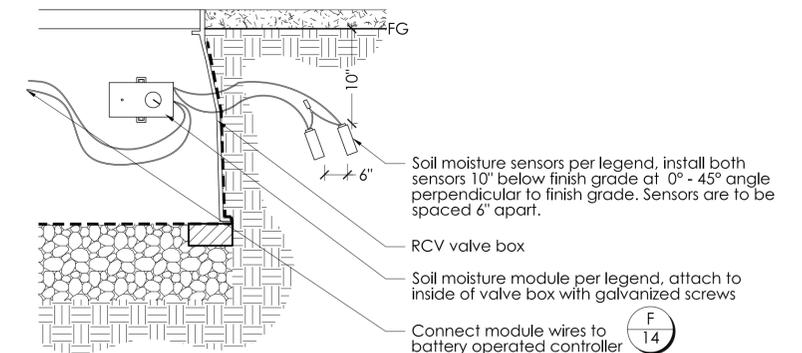


**K ON-GRADE DRIP LINE**  
SCALE: 1"=1'-0"



- Notes:
1. Center boxes over valves.
  2. Set boxes in ground cover/shrub area where possible.
  3. Set boxes parallel to each other and perpendicular to edge of hardscape.
  4. Valve boxes shall be green in color.

**I VALVE BOX DETAIL**  
SCALE: N.T.S.



- Notes:
1. Install sensors and wiring per manufacturers instructions.
  2. Splices for sensor shall be located in RCV valve box.
  3. Soak sensors prior to installation. Sensors are to be wet at time of installation.
  4. Sensors must be located in and irrigated by the last valve to run in each valve group.
  5. Sensors shall not be buried more than 14" below finish grade.

**G MOISTURE SENSOR INSTALLATION**  
SCALE: N.T.S.

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IRRIGATION INSTRUCTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Work included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and project specifications sections, apply to these instructions.

1.3 SCOPE OF WORK

A. The Contractor shall furnish all service, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings as specified and shall perform other incidental work necessary to meet the intent of this specification and the approved plans including the following:

- 1. Submittals of materials lists, as-builts, controller charts, manuals and guarantee.
2. Furnishing, delivery, storage, handling, assembly and installation of materials described in these instructions and as indicated on the drawings.
3. System adjustment and testing.
4. Notification of the Landscape Architect in advance of scheduled observations.
5. Cross connection inspections and testing as required by state or local agencies for non-potable, or potable water.
6. Construction-site clean up.
7. Maintenance period.
8. One-year guarantee.
9. Protection of work and materials.

B. All work called for in the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specification.

C. The Contractor shall coordinate his work with other trades involved; i.e. Grading, plumbing and electrical contractors.

D. Physical layout:

1. Due to the scale of drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such fittings, etc. As may be required to meet such conditions.

2. The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarification only and shall be installed in planting areas to the greatest extent possible. Avoid conflict with utilities, new planting, new site or architectural elements, and existing trees.

3. Paving, walls, landscape headers and mowing strips shall be in place before installation of sprinkler system.

4. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that unknown obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect. In the event this notification is not performed, the irrigation contractor shall assume full responsibility for any revision necessary and shall perform such revisions at his own expense.

E. Contractor shall acquaint himself with all site conditions prior to submitting bid proposal.

1.4 SUBMITTALS REQUIRED

A. Comply with submittal procedures, unless otherwise indicated.

B. Material list:

1. The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and specifications. No substitution will be allowed without prior written approval by the Landscape Architect.

2. Complete material list shall be submitted prior to performing any work. Material list shall include the manufacturer, model number and description of all materials and equipment to be used.

3. Equipment or materials installed or furnished without prior approval of the Landscape Architect may be rejected and the Contractor required to remove such materials from the site at his own expense.

4. Approval of any item, alternate or substitute indicates only that the product or products apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.

5. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

C. Record and as-built drawings:

1. The Contractor shall provide and keep up to date a complete "as built" record set of plans which shall be corrected daily and show every change from the original drawings and specifications and the exact "as built" locations, sizes, and kinds of equipment. This set of drawings shall be kept on the site and shall be used only as a record set.

2. These drawings shall also serve as work progress sheets, and the Contractor shall make neat and legible annotations therein daily as the work proceeds, showing the work as actually installed. These drawings shall be available at all times for review.

3. Contractor shall provide Landscape Architect and owner with a record set of drawings before final acceptance of work.

4. Contractor shall dimension from two (2) permanent points of reference, building corners, sidewalk, or road intersections, etc., the location of the following items:

- a. Connection to existing water lines
b. Connection to existing electrical power
c. Ball valves
d. Routing of sprinkler pressure lines (dimension max 100' along routing)
e. Remote control valves
f. Routing of control wiring
g. Quick coupling valves
h. Other related equipment as directed by Landscape Architect significant changes in routing of lateral lines from those indicated on the plans.

6. On or before the date of the final observation, the Contractor shall deliver the corrected and completed "as-built" plans to the Landscape Architect. Delivery of the "as-built" plans will not relieve the Contractor of the responsibility of furnishing required information that may be omitted from the plans.

D. Controller charts:

1. As-built drawings shall be approved by the Landscape Architect before controller charts are prepared.

2. Provide one controller chart for each controller supplied.

3. The chart shall show the area controlled by the automatic controller and shall be the maximum size which the controller door will allow.

4. The chart is to be a reduced drawing of the actual as-built system. However, in the event the controlled sequence is not legible when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced.

5. The chart shall be a photocopy print and a different color shall be used to indicate the area of coverage for each station.

6. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 10 mils. Thick.

7. These charts shall be completed and approved prior to final observation of the irrigation system.

E. Operation and maintenance manuals:

1. Prepare and deliver to the owner within ten calendar days prior to completion of construction, two hard cover binders with three rings containing the following information:

- a. Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturer's representatives.
b. Catalog and parts sheets on every material and equipment installed under this contract.
c. Guarantee statement.
d. Complete operating and maintenance instructions on all major equipment.
e. In addition to the above mentioned maintenance manuals, provide the owner's maintenance personnel with instructions for major equipment and show evidence in writing to the owner at the conclusion of the project that this service has been rendered.

F. Equipment to be furnished:

1. Supply as part of this contract the following tools: Two (2) sets of special tools required for removing, disassembling and adjusting each type of valve supplied on this project as applicable.

Two (2) keys for each automatic controller. One (1) quick coupler key and matching hose swivel for every five (5) of each type of quick coupling valve installed.

Two (2) sets of special tools required for adjusting each type of sprinkler supplied on this project. The above mentioned equipment shall be turned over to the owner at the conclusion of the project. Before final observation can occur, evidence that the owner has received material must be shown to the Landscape Architect.

G. Guarantee: the irrigation system guarantee shall be made in accordance with the form below.

1. A copy of the guarantee form shall be included in the operations and maintenance manual. The guarantee form shall be re-typed onto the Contractor's letterhead as follows:

GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM

We hereby guarantee that the sprinkler irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted. We agree to repair or replace any defects in material or workmanship, including settling of backfilled areas below grade which may develop during the period of one year from date of acceptance and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the owner. We shall make such repairs or replacements within 72 hours after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt. A of written notice from the owner, we authorize the owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

Project: \_\_\_\_\_
Location: \_\_\_\_\_
Signed: \_\_\_\_\_ Contractor
Address: \_\_\_\_\_
Phone: \_\_\_\_\_
Date of acceptance: \_\_\_\_\_

1.5 PROTECTION OF WORK AND MATERIALS

A. Packing and shipping: deliver products in original unopened packaging with legible manufacturer's identification.

B. Storage and protection: comply with manufacturer's recommendations.

- 1. Store in a cool, dry place out of direct sunlight.
2. Protect from damage by the elements and construction procedures.
3. Store at temperature above 40 degrees f.

C. Contractor shall protect his work and the work of others for the duration of this contract.

D. Contractor shall protect pipes and fittings from direct sunlight and avoid undue bending and any concentrated external loading. Beds on which pipe is stored shall be full length of pipe. Pipe or fittings that have been damaged shall not be used.

E. Extreme care shall be exercised in excavating and working in the area due to existing utilities. Contractor shall be responsible for damages caused by his operations.

F. Contractor shall take necessary precautions to protect site conditions and plant material that is to remain. Should damage be incurred, contractor shall repair damage and restore to original condition or furnish and install equal replacements.

G. All existing irrigation systems that are to remain shall be kept in operation at all times. If the existing system is damaged by contractor, he shall be responsible for immediate repair of such damage. After each repair, all heads of the repaired system shall be removed so that the lines can be cleared of all dirt and foreign matter.

PART 2 - PRODUCTS

2.1 MATERIALS

A. When using materials with non-potable water, use an appropriate model designated and manufactured for this purpose.

B. Piping: pipe sizes shown are nominal inside diameter unless otherwise noted.

- 1. PVC plastic pressure lines: for piping upstream of remote control valves and quick couplers: all 2" pipe and larger shall be class 315: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, conforming to commercial standards CS256-63 and ASTM D2241. All 1-1/2" pipe and smaller shall be Schedule 40: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, conforming to

commercial standards CS256-63 and ASTM D1785. All pipe carrying non-potable water shall be pantone 512 purple in color and imprinted with the admonition, "caution - recycled water - do not drink" every three feet on opposite sides.

2. PVC plastic non-pressure lines: for piping downstream of remote control valves: all pipe shall be Schedule 40: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, (SDR21), conforming to commercial standards CS256-63 and ASTM d2241. All pipe carrying non-potable water shall be pantone 512 purple in color and imprinted with the admonition, "caution - recycled water - do not drink" every three feet on opposite sides.

3. For sub-surface drip irrigation: For sub-surface drip piping downstream of remote control valves, all pipe shall be per plan and sub-surface dripline product Manufacturer's specifications, including for supply and exhaust headers.

C. Fittings and connections:

1. Polyvinyl chloride pipe fittings and connections: Type 1, Grade 1, Schedule 40, high impact molded fittings, manufactured from virgin compounds as specified for piping, tapered socket or molded thread type, suitable for either solvent weld or screwed connections. Machine threaded fittings and plastic saddle and flange fittings are not acceptable. Furnish fittings permanently marked with following information: nominal pipe size, type and schedule of material, and national sanitation foundation (NSF) seal of approval. PVC fitting shall conform to ASTM D2464 and D2466.

2. ABS and PVC pipe fittings and connections (for drip irrigation): for above-ground drip piping downstream of remote control valves: all fittings shall be UV-rated unless otherwise shown on plans.

D. Automatic control wire: electric wiring runs from the automatic controller to the electric control valves shall be solid single conductor, copper wire. Neutral (common) wires shall be a minimum size of #12 and colored white. Control wires shall be a minimum size of #14 in colors other than white. All wire shall have a PVC UF jacket with a minimum of .045" thick insulation. Wire shall be UL listed and approved for direct burial.

E. Valve-mounted battery operated in-ground controllers: as shown on plans.

F. Control valves: remote control valves shall be as shown on plans.

G. Valve box: for remote control valves and ball valves, use rectangular box with locking cover by NDS Pro Series or approved equal. Valve box shall be of a size that accommodates all equipment as illustrated on the plans.

H. Gate valves: gate valves shall be as shown on plans.

I. Pressure reducing valves: pressure reducing valves shall be as shown on plans.

J. Tracer wire: tracer wire shall be installed above mainline and shall be metal detectable and Tapex or equal. Include "Dymo-tape" type plastic label with the designation "Tracer wire".

K. Drip emission devices: drip emitters, inline emitter tubing shall be as shown on plans.

L. Sensors:

1. Soil sensors shall be as shown on plans and installed per manufacturer's specifications.

M. Wire connectors: wire connectors shall be Scotchklok or equal.

N. Filter fabric: filter fabric under valve boxes shall be landscape quality, non-woven geotextile fabric with 3 oz/sy minimum weight.

O. PVC Ball Valves: as shown on plans and shall be installed before each electric control valve and shall be as shown on plans.

P. PVC Unions: as shown on plans and shall be installed before and after each electric control valve and shall be as shown on plans.

1. PART 3 - EXECUTION

3.1 INSTALLATION OF IRRIGATION SYSTEM

A. Code requirements:

1. Code requirements shall be those of state and municipal codes and regulations locally governing this work, providing that any requirements of the drawings and specifications, not conflicting therewith but exceeding the code requirements, shall govern, unless written permission to the contrary is granted by the Landscape Architect.

2. Install irrigation system in accordance with all local and state codes and ordinances.

B. Prior to construction:

1. The Contractor shall inspect the site and verify conditions and dimensions, as scaled dimensions are approximate.

2. The Contractor shall locate all cables, conduits, sleeves and other utilities or architectural features that are commonly encountered underground and take proper precautions not to damage or disturb such improvements. Any damage made during the installation of the irrigation system of the aforementioned items shall be prepared and/or replaced to the satisfaction of the owner at the contractor's own expense. Contact USA at 1-800-227-2600.

C. Point of connection

1. Contractor is responsible for making final connection between water source and irrigation system. Water source shall be provided by others unless specified otherwise on plans.

2. Connections shall be made at approximately the locations shown on the drawings. Contractor shall be responsible for minor changes caused by actual site conditions. Connect new underground piping and valves and provide all flanges, adapters or other necessary fittings for connection.

3. Permission to shut off any existing in-use water line must be obtained 48 hours in advance, in writing from the owner. The Contractor shall receive instructions from the owner as to the exact length of time of each shut-off.

D. Sleeves:

1. Contractor is responsible for installation of sleeves under all hardscape surfaces. Sleeves are diagrammatically depicted on the drawings only, and may not depict actual field conditions or quantity of sleeves.

2. If sleeves are to be installed by others, the Contractor is responsible for coordinating installation of sleeves under paved areas with Paving Contractor.

E. Excavation and backfilling of trenches:

1. Do not trench in lime-treated soils.

2. Underground trenching for utilities shall avoid major support and absorbing tree roots of protected trees.

3. Excavate trenches, prepare subgrade, and backfill to line and grade with sufficient room for pipe fittings, testing and observation operations. Do not backfill until the pipe system has been subjected to a hydrostatic test as specified.

4. Depth of piping: as specified unless otherwise noted on plans.

Under pedestrian paving:

- Pressure mainline 24" min.
Control wiring 24" min.
Non-pressure lateral line 24" min.

Under vehicular paving:

- Pressure mainline 36" min.
Control wiring 36" min.

Non-pressure lateral line 36" min.

Under planting areas:

- Pressure mainline 18" min.
Control wiring 18" min.
Non-pressure lateral line 12" min.

5. When trenching through areas where topsoil or biofiltration soil has been spread, deposit topsoil/biofiltration soil on one side of trench and sub-soil on opposite side.

6. Repair any leaks and replace all defective pipe or fittings until lines meet test requirements. Do not cover any lines until they have been inspected and approved for tightness, quality of workmanship and materials.

7. Backfill: compact specified backfill to be equal the compaction of the existing, adjacent, undisturbed soil.

F. Sub-soil backfill shall be free of all rocks over one inch diameter, debris and litter.

G. Sand backfill shall be used at the bottom of all trenches under paving, or in rocky terrain. Sand depth to include a minimum of 2" under and 4" over piping.

1. Generally, piping under existing sidewalks and/or concrete may be accomplished by jacking or boring, but where any cutting or breaking of sidewalk and/or concrete is necessary, it shall be done and replaced by the contractor as part of the contract cost. Permission to cut or break sidewalks and/or concrete shall be obtained from the owner.

H. Installation of polyvinyl chloride pipe:

1. Because of the nature of plastic pipe and fittings, exercise caution in handling, loading and storing, to avoid damage.

2. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.

3. Any pipe that has been dented or damaged shall be discarded until such dent or damaged section is cut and rejoined with a coupling.

4. Pipe depth in trench shall be as specified above, from the finish grade to the top of the pipe. The bottom of the trench shall be free of rocks, clods, and other sharp-edged objects.

5. Pipe ends and fittings shall be wiped with MEK, or equal, before welding solvent is applied. Welded joints shall be given a minimum of 15 minutes to set before moving or handling. All field cuts shall be beveled to remove burrs and excess before fitting and gluing together.

6. Pipe shall be snaked from side-to-side of trench bottom to allow for expansion and contraction.

7. Center load pipe with small amount of backfill to prevent arching and slipping under pressure. Leave joints exposed for observation(s) during testing.

8. No water shall be permitted in the pipe until observations have been completed and a period of at least 24 hours has elapsed for solvent weld setting and curing.

9. Plastic to metal joints shall be made with plastic male adapters, metal nipple hand tightened, plus one turn with a strap wrench.

10. Plastic to plastic joints: solvent-weld, using solvent recommended by pipe manufacturer only.

11. Solvent-weld joints: assemble per manufacturer's recommendations.

12. All lateral end runs shall be 3/4" size unless otherwise specified.

I. Installation of polyethylene (PE) pipe:

1. Because of the nature of plastic pipe and fittings, exercise caution in handling, loading and storing, to avoid damage.

2. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.

3. Any pipe that has been dented or damaged shall be discarded until such dent or damaged section is cut and rejoined with a coupling.

4. Plastic to plastic joints: assemble with PVC or ABS compression fittings unless otherwise specified on plans.

5. Stake pipe to ground every 3' on center.

J. Remote control wiring:

1. Direct burial control wire sizes: as specified herein, before.

2. Provide one control wire and one common ground wire to service each valve in system. Provide 3 foot minimum expansion loop at each valve to permit removal and maintenance of valves. Do not interconnect neutral wires between controllers.

3. Install control wires at least 18" below finish grade and minimum of 4" from any pipe or fittings except at terminal points.

4. Install control wires and irrigation piping in common trenches wherever possible.

5. Control wire splices: allow only on runs of more than 300-feet and shall be made only in valve or pull boxes only, splices as follows:

- a. Strip off minimum of 2-1/2" of insulation from each wire.
b. Twist on Scotchklok electrical spring connector, minimum four complete turns.
c. Seal connector in Epoxy resin.
d. Tape completed splice with Scotch 33 electrical tape.

K. Numbering and tagging: identify direct burial control wires from automatic valves to terminal strips or controller at terminal strip by color coding and tagging wire with number of connected valve.

L. Include two (2) red (#14 AWG) spare wires from furthest valve to each controller.

M. Each individual controller clock's control wires shall be bundled and taped together with colored tape at intervals not exceeding 10'-0". Use a different-colored tape for each controller.

N. Valve mounted battery operated in-ground controller: Battery operated controllers shall be installed as shown on plans and per Manufacturer's specifications.

O. Remote control valves: install remote control valves in locations as shown on the drawings, with a clearance of 4 1/2 inches minimum over top of flow control stem. Install a union type connections and PVC ball valve. Fit with valve box and cover.

O. Valve boxes: install valve boxes as shown on detail. Install no more than one valve per box. Install valve boxes so that the top of the valve box is 3" above finished grade in areas receiving 3" layer of mulch. See planting specifications, as actual depth of mulch may vary. Stencil valve number and controller letter on underside of valve box lid. Valve boxes shall be identified on the top surface of the covers by heat branding the box lid with the appropriate abbreviations for the irrigation facilities contained in the valve boxes as shown on the plans. Valve boxes that contain remote control valves shall be identified by the appropriate letters and numbers (controller and station numbers). Identification letters or numbers shall be 2 inch high. Heat branding shall be accomplished using branding irons specifically designed for this purpose. Heat branding shall not weaken or in any way puncture the valve box cover.

P. Sensors: Soil sensors shall be installed as shown on plans and per Manufacturer's specifications.

Q. Tracer Wire:

1. Tracer tape shall be installed in trenches above main line and control wires.

2. Tracer tape shall follow the main line pipe and/or branch lines and terminate in the yard box with the control valves. Provide enough length of wire or tape to make a loop and attach a "Dymo-tape" type plastic label with the designation "Tracer wire".

Q. Flushing of system:

1. After all new main lines and lateral lines are in place and connected, all necessary work has been completed, and prior to installation of drip lines, the control valves shall be opened and a full head of water used to flush out the system.

2. Drip irrigation shall be installed only after flushing of the system has been accomplished to the complete satisfaction of the Landscape Architect.

R. Pressure test the system before covering trenches to pre-test for leaks.

S. Pre-irrigate planting areas to ensure that the soil is hydrated to field capacity before planting begins.

3.2 SYSTEM ADJUSTMENT AND TESTING

A. Adjustment of the system:

1. If it is determined that adjustment in the irrigation equipment will provide proper and more adequate coverage, the Contractor shall make such adjustments prior to planting.

B. Testing of the system:

1. Test all pressure lines under hydrostatic pressure of 150 pounds per square inch, and prove watertight for 3 hours. Note: testing of pressure mainlines shall occur prior to installation of electric control valves.

2. All piping under paved areas shall be tested under hydrostatic pressure of 150 pounds per square inch, and proved watertight, prior to paving.

C. Watering schedules:

1. Station operating times shall not exceed the soil's infiltration rate as determined by the soils report.

2. Watering schedules shall be adjusted not to exceed local evapotranspiration (ETO) rate.

3.3 OBSERVATION SCHEDULE

A. Observations herein specified shall be made by the Landscape Architect. The Contractor shall request observations in writing, 3 days in advance of the time observation is required.

B. The Contractor or his authorized representative shall be on the site at the time of each observation.

C. Observation will be required for the following parts of the work:

1. Pre-construction meeting (this includes planting review also).

2. When all irrigation installations, except the maintenance period, have been completed. Acceptance and written approval shall establish start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

3. At the end of ninety (90) days from the start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

4. At the end of one (1) year from the start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

5. Final observation at the completion of the two (2) year maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

D. Acceptances: upon completion of the final observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable, (2) of any requirements necessary for completion and acceptance.

E. The Contractor will be charged, and responsible for, any time and mileage used by the Landscape Architect as a result of prematurely scheduled site visit.

3.4 CLEAN-UP

A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete areas adjacent to plantings.

3.5 MAINTENANCE/PLANT ESTABLISHMENT

A. The maintenance period begins on the day the Landscape Architect has given notice of substantial completion and shall continue thereafter for no less than two (2) years.

1. These instructions are to be used in conjunction with the project's Storm Water Planter Maintenance Manual.

2. The Contractor shall call for inspections per the Observation section above.

3. Phased maintenance periods, if required, shall be negotiated prior to construction.

4. If phased maintenance periods are not negotiated prior to construction, the maintenance period for all areas will begin after the entire project is 100% complete per contract documents. Portions completed earlier shall be maintained up to and including the specified maintenance period without additional compensation.

B. The Contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period until the final acceptance of the work.

C. Regular irrigation maintenance operations shall begin immediately after each system is installed.

D. The contract completion date of the contract maintenance period will be extended, when in the opinion of the Landscape Architect, improper maintenance is evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work at no change in contract price until all of the work is completed and acceptable.

# CITY OF EL CERRITO

## SAN PABLO AVENUE GREEN STORMWATER SPINE

APRIL 2016



**VICINITY MAP**  
NOT TO SCALE

### BENCHMARK/DATUM

SET CUT CROSS IN BACK OF WALK 6'± SOUTH OF SOUTHERLY CURB AT SOUTHEAST CURB RETURN ON MOESER LANE AT THE INTERSECTION WITH SAN PABLO AVENUE.

ELEVATION 51.69, DATUM NAVD 88

### RECORD DRAWINGS

CONTRACTOR SHALL KEEP ACCURATE RECORD DRAWINGS WHICH SHOW THE FINAL LOCATION, ELEVATION, AND DESCRIPTION OF ALL WORK. CONTRACTOR SHALL ALSO NOTE THE LOCATION AND ELEVATION OF ANY EXISTING IMPROVEMENTS ENCOUNTERED. RECORDS SHALL BE "REDLINED" ON A SET OF CONSTRUCTION PLAN DRAWINGS AND GIVEN TO THE OWNER UPON COMPLETION OF WORK.

### UNAUTHORIZED CHANGES

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY WILSEY HAM.

### REVISIONS

ALL REVISIONS TO THESE PLANS MUST BE REVIEWED AND APPROVED IN WRITING BY WILSEY HAM AND THE CITY ENGINEER PRIOR TO CONSTRUCTION OF AFFECTED ITEMS.

### ACCURACY

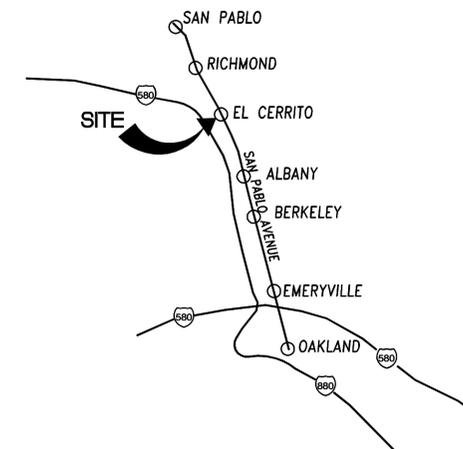
AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD, ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF WILSEY HAM PRIOR TO START OF CONSTRUCTION OF THE PARTICULAR ITEM OF WORK.

### ACCURACY OF UTILITIES

EXISTING UTILITY INFORMATION WAS PROVIDED TO WILSEY HAM AND MAY NOT HAVE BEEN VERIFIED IN THE FIELD. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS AND REPORT ANY CONFLICTS TO WILSEY HAM BEFORE CONSTRUCTION BEGINS.

### CONSTRUCTION STAKING

CONSTRUCTION LAYOUT MUST BE PROVIDED BY CONTRACTOR. WILSEY HAM CAN PROVIDE CONSTRUCTION STAKING SERVICES FOR THIS PROJECT. CONTACT KEN MOORE AT 650-349-2151 FOR MORE INFORMATION ON THESE SERVICES AND A FEE PROPOSAL.



**LOCATION MAP**  
NOT TO SCALE

### SHEET DESCRIPTION

- 1 TITLE SHEET
- 2 NOTES
- 3 DEMOLITION PLAN
- 4 STREET IMPROVEMENT PLAN
- 5 GRADING & DRAINAGE PLAN
- 6 CIVIL DETAILS
- 7 CROSS SECTIONS
- 8 STRIPING & SIGNAGE
- 9 LANDSCAPE PLANTING PLAN
- 10 LANDSCAPE PLANTING LEGEND & DETAILS
- 11 LANDSCAPE PLANTING LEGEND & DETAILS
- 12 LANDSCAPE PLANTING INSTRUCTIONS
- 13 LANDSCAPE IRRIGATION PLAN
- 14 LANDSCAPE IRRIGATION LEGEND
- 15 LANDSCAPE IRRIGATION DETAILS
- 16 LANDSCAPE IRRIGATION DETAILS
- 17 LANDSCAPE IRRIGATION INSTRUCTIONS

TO BE SUPPLEMENTED BY CALTRANS STANDARD PLANS DATED 2010

### LEGEND

PROPOSED	EXISTING	
		CURB
		PARKING STRIPE
		BUILDING LINE
		SAWCUT LINE
		ASPHALT PATCH
		BIO-RETENTION AREA
		CONCRETE SIDEWALK
		COMMUNICATIONS LINE
		ELECTRIC LINE
		GAS LINE
		STORM DRAIN LINE
		SANITARY SEWER LINE
		CABLE TV LINE
		WATER LINE
		STORM DRAIN DROP INLET

### LEGEND

PROPOSED	EXISTING	
		STORM DRAIN CATCH BASIN
		COMMUNICATION BOX
		ELECTRIC BOX
		ELECTRIC MANHOLE
		ELECTRIC METER
		LIGHT POLE
		WATER METER
		SANITARY SEWER CLEANOUT
		SANITARY SEWER MANHOLE
		BENCHMARK
		INLET PROTECTION
		DRAINAGE DIRECTION

### ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
BW	BACK OF WALK
COM	COMMUNICATIONS
CT	CALTRANS
Δ	DELTA ANGLE
ELEC	ELECTRIC
EX, (E)	EXISTING
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FS	FINISHED SURFACE
GB	GRADE BREAK
IRR	IRRIGATION
L	LENGTH
LIP, LG	LIP OF GUTTER
MAX	MAXIMUM
MH	MANHOLE
(N)	NEW
N	NORTH
PCC	PORTLAND CONCRETE CEMENT
R	RADIUS
RIM	RIM ELEVATION
SDAD	STORM DRAIN AREA DRAIN
SL	STREET LIGHT
SLD	SEE LANDSCAPE DRAWINGS
STD	STANDARD
TC	TOP OF CURB
TEL	TELEPHONE
TYP	TYPICAL
W	WEST

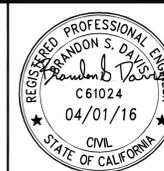
H:\936-SF Estuary Partnership\936-001 San Pablo Ave GSSS\Engineering\Construction Drawings\TITLE SHEET\_EL\_CERRITO-UG.dwg@ 04.16.16 PM

SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
△			
△			
△			
△			
△	04/01/16	FINAL SUBMITTAL	BSD

**WILSEY HAM**  
Engineering, Surveying & Planning  
3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/07/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO-UG, CA SITE  
TITLE SHEET

CONTRA COSTA COUNTY

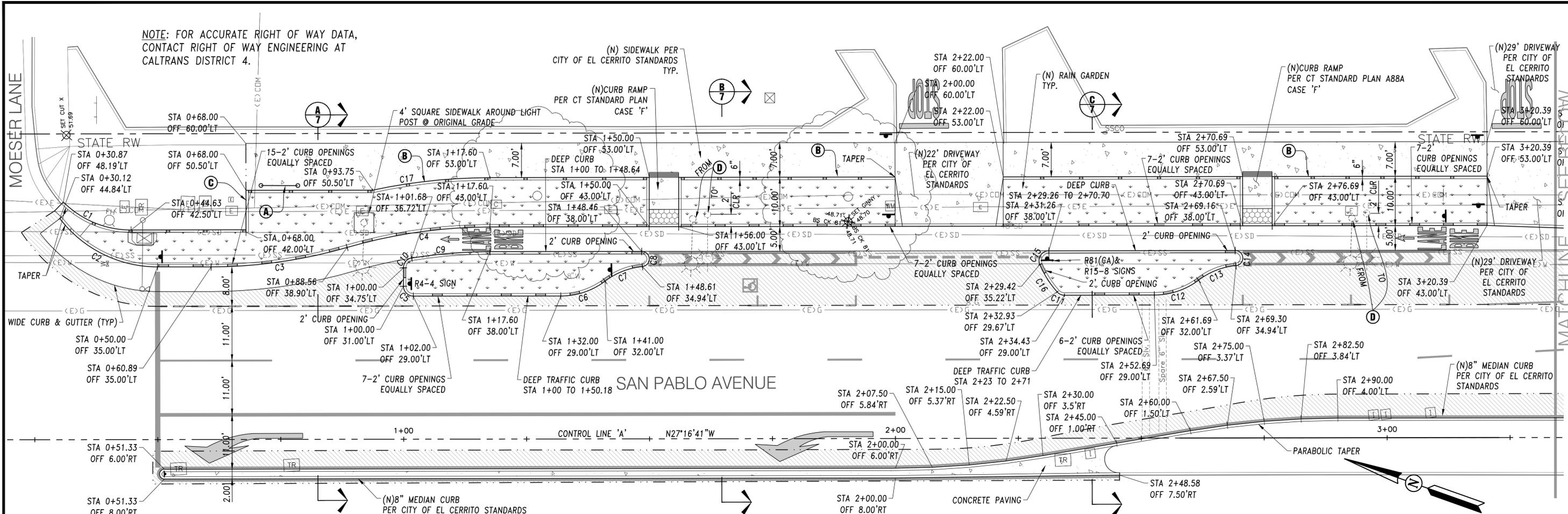
CALIFORNIA

SHEET	1	OF	17
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	APRIL 01, 2016		

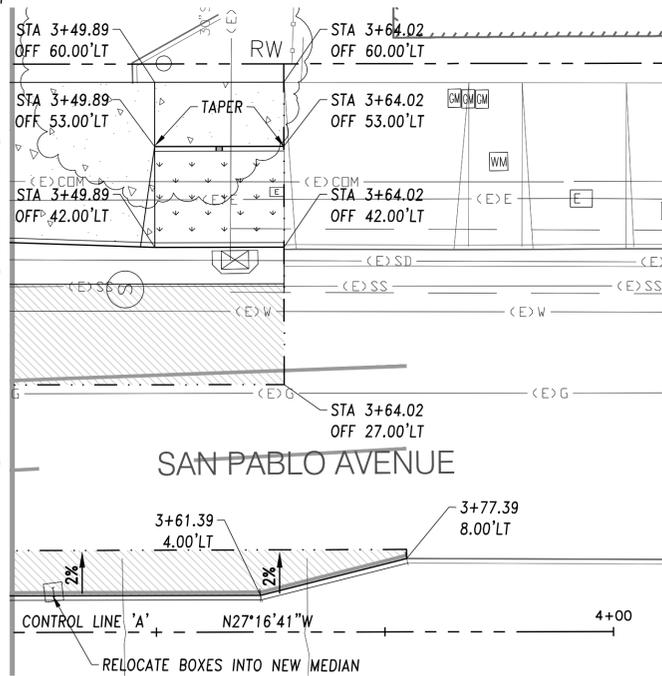




NOTE: FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT CALTRANS DISTRICT 4.



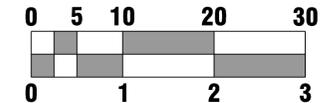
MATCHLINE SEE ABOVE



**KEY NOTES**

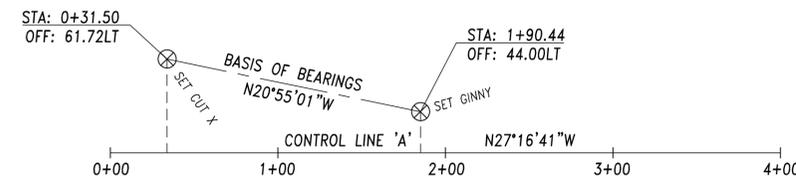
- (A) REINSTALL SALVAGED BIKE RACK
- (B) PERIMETER CURB WITH 8" OPENINGS @ 8" O.C. MAX. AT EDGE OF SIDEWALK. STATION 0+68 TO 1+50, 1+56 TO 2+00, 2+22 TO 2+70.69 & 3+49.89 TO 3+64.02 TAPER BLUNT ENDS PER DETAIL ON SHEET 6.
- (C) DEEP CURB WITH 8" OPENINGS @ 8" O.C. MAX STATION 0+30.5 TO 0+68 50.5 LT.
- (D) RELOCATE (E)LIGHT ONTO NEW FOUNDATION. PROVIDE MIN. 2' CLEARANCE FROM CURB FACE TO POLE. CONTRACTOR TO PROVIDE FOOTING & ELECTRICAL DESIGN FOR NEW FOOTING LOCATION, SEALED & SIGNED BY A REGISTERED PROFESSIONAL ENGINEER, FOR APPROVAL, PRIOR TO DISCONNECTION OF EXISTING LIGHT OR CONSTRUCTION OF NEW FOOTING. DESIGN SHALL COMPLY WITH CONTRA COSTA COUNTY AND CALTRANS STANDARDS.

CURVE TABLE			
CURVE	LENGTH	RADIUS	DELTA
C1	15.28	19.50	44°54'40"
C2	22.98	25.00	52°40'32"
C3	28.03	100.00	16°03'34"
C4	29.43	105.00	16°03'35"
C5	3.14	2.00	90°00'00"
C6	9.65	15.00	36°52'13"
C7	8.26	15.00	31°32'34"
C8	4.68	1.54	174°40'20"
C9	15.99	100.00	9°09'44"
C10	2.82	2.00	80°50'17"
C11	1.68	2.00	48°11'23"
C12	9.65	15.00	36°52'13"
C13	8.26	15.00	31°32'34"
C14	4.68	1.54	174°40'20"
C15	3.94	2.00	112°53'07"
C16	6.61	20.00	18°55'30"
C17	24.02	115.00	11°58'08"



**LEGEND**

- HMA PAVEMENT PATCH - SEE SHEET 6
- LANDSCAPE AREA - SEE LANDSCAPE PLAN
- CONCRETE SIDEWALK - PER CITY OF EL CERRITO STANDARDS



**CONTROL DIAGRAM**  
SCALE: N.T.S.

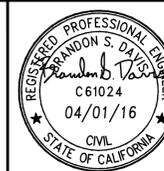
SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
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**WILSEY HAM**  
Engineering, Surveying & Planning

3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



BY	DATE
Project Mgr.: B. Davis	04/01/16
Project Eng.: E. Cohen	04/01/16
Designer: E. Cohen	04/01/16
Checked: B. Davis	04/01/16
Drawn: P. Businger	04/01/16
Plotted: pbusinger	04/21/16

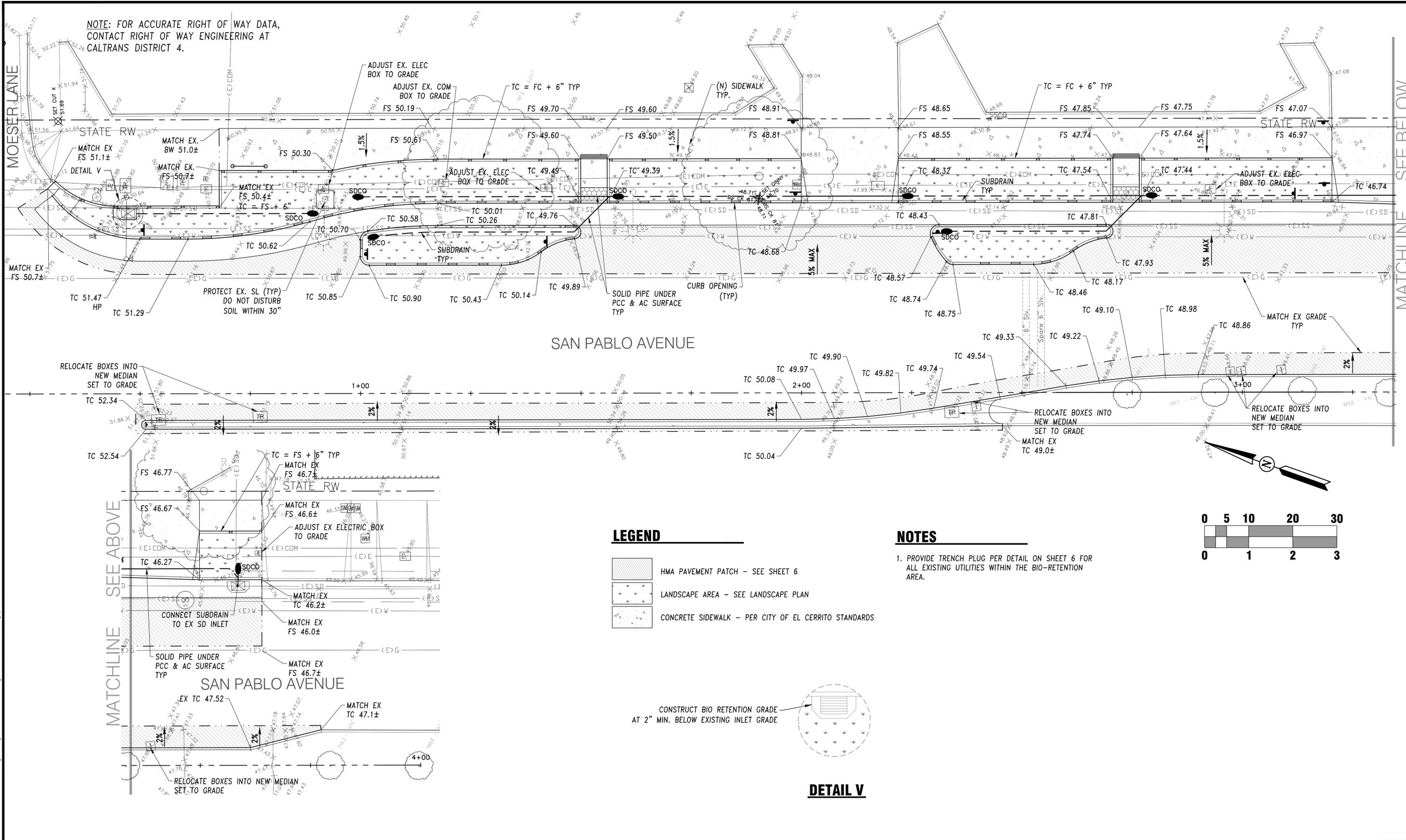
SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO-UG, CA SITE  
STREET IMPROVEMENT PLAN

CONTRA COSTA COUNTY

CALIFORNIA

SHEET	4	OF	17
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		

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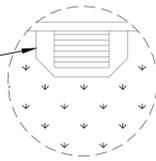
**LEGEND**

- HMA PAVEMENT PATCH - SEE SHEET 6
- LANDSCAPE AREA - SEE LANDSCAPE PLAN
- CONCRETE SIDEWALK - PER CITY OF EL CERRITO STANDARDS

**NOTES**

1. PROVIDE TRENCH PLUG PER DETAIL ON SHEET 6 FOR ALL EXISTING UTILITIES WITHIN THE BIO-RETENTION AREA.

CONSTRUCT BIO RETENTION GRADE AT 2" MIN. BELOW EXISTING INLET GRADE



**DETAIL V**

SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
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△	04/01/16	FINAL SUBMITTAL	BSD

**WILSEY HAM**  
Engineering, Surveying & Planning

3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com

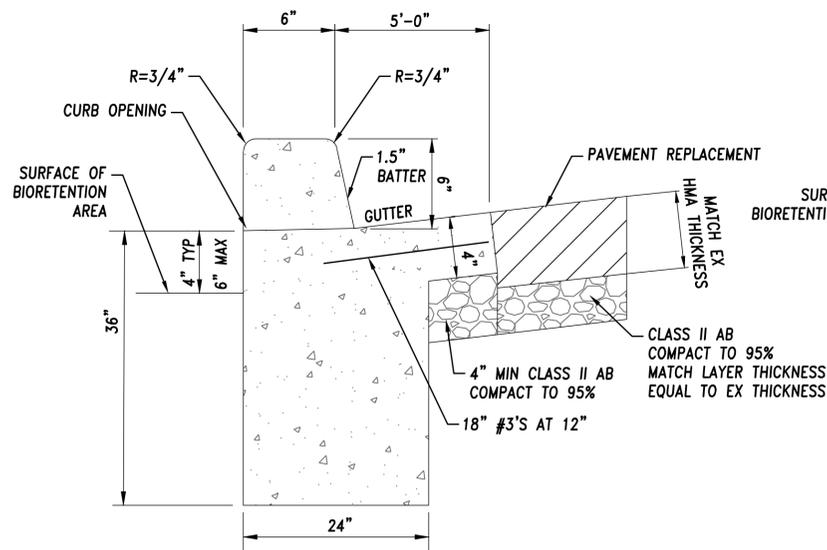


BY	DATE
Project Mgr.: B. Davis	04/01/16
Project Eng.: E. Cohen	04/01/16
Designer: E. Cohen	04/01/16
Checked: B. Davis	04/01/16
Drawn: P. Businger	04/01/16
Plotted: pbusinger	05/02/16

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO-UG, CA SITE  
GRADING & DRAINAGE PLAN

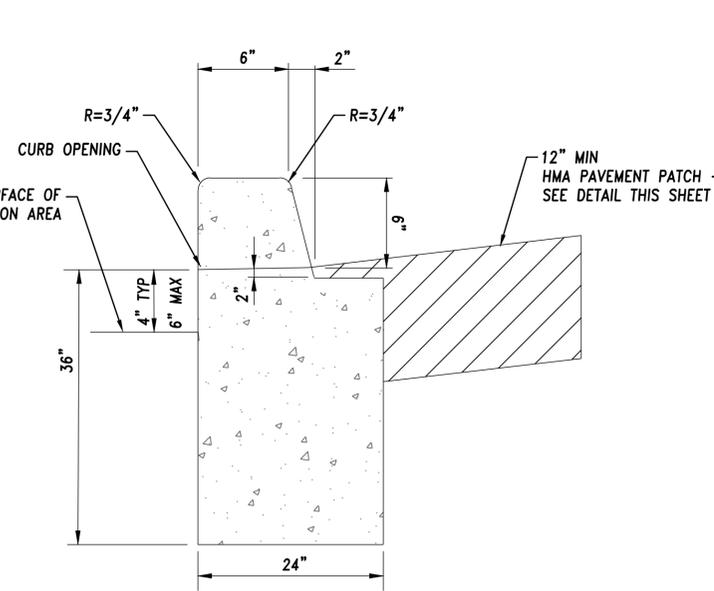
CONTRA COSTA COUNTY CALIFORNIA

SHEET	5	OF	17
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		



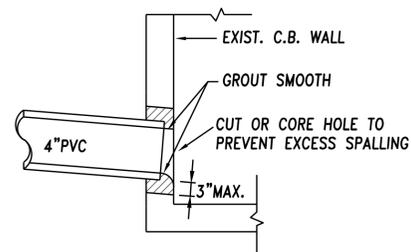
- NOTES:
1. BROOM FINISH CONCRETE.
  2. PROVIDE EXPANSION JOINTS AT 16' MAX SPACING.
  3. PROVIDE 4" THICK CONCRETE SPLASH PAD AT OPENINGS.

**WIDE CURB & GUTTER DETAIL**  
N.T.S.

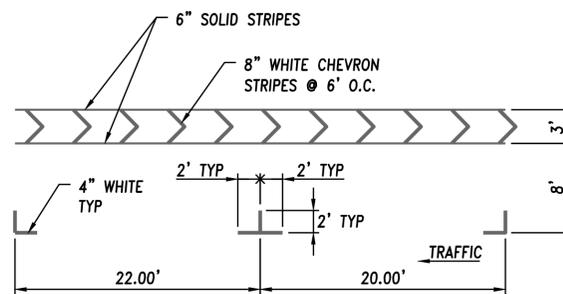


- NOTES:
1. BROOM FINISH CONCRETE.
  2. PROVIDE EXPANSION JOINTS AT 16' MAX SPACING.
  3. PROVIDE 4" THICK CONCRETE SPLASH PAD AT OPENINGS.
  4. PAINT CURB RED.

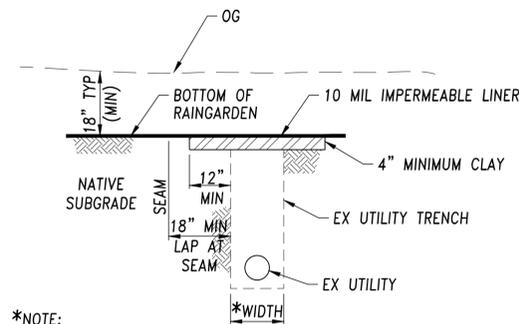
**DEEP TRAFFIC CURB DETAIL**  
N.T.S.



**PIPE CONNECTION**  
**TIE-IN AT INLET**  
N.T.S.

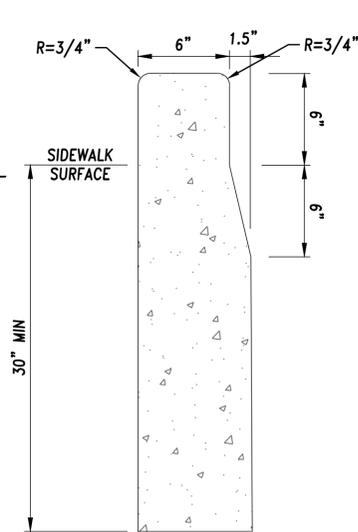


**PARKING STALL DETAIL**  
N.T.S.



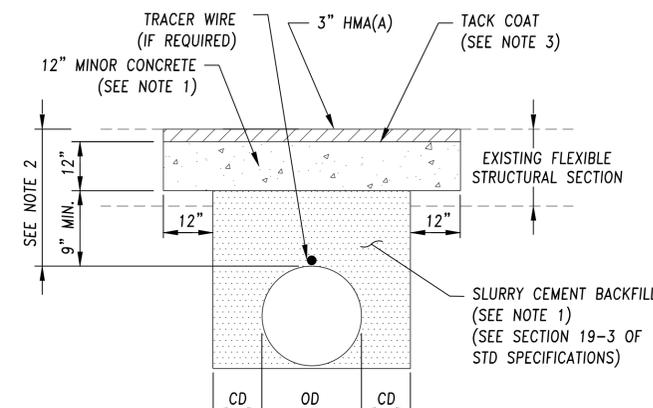
\*NOTE:  
EXTEND PLUG AND LINER 12" MIN AND 18" MIN RESPECTIVELY BEYOND EXISTING TRENCH WALL. WHERE TRENCH WALL IS NOT DISCERNIBLE, TRENCH WIDTH SHALL BE TAKEN AS A MINIMUM OF 24" PLUS THE OUTSIDE DIMENSION OF THE SUBJECT UTILITY FACILITY.

**TRENCH PLUG DETAIL**  
N.T.S.



- NOTES:
1. PROVIDE EXPANSION JOINTS AT 16' MAX SPACING.
  2. PROVIDE 8" OPENINGS @ 8' O.C. MAX

**DEEP CURB DETAIL**  
N.T.S.



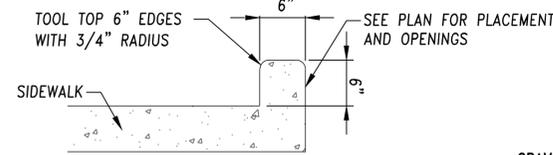
ABBREVIATIONS:  
CD = CLEAR DISTANCE  
HMA(A) = HOT MIX ASPHALT TYPE A  
OD = OUTSIDE DIAMETER OF UTILITY OR CULVERT

LEGEND:  
MINOR CONCRETE  
HOT MIX ASPHALT  
SLURRY CEMENT BACKFILL

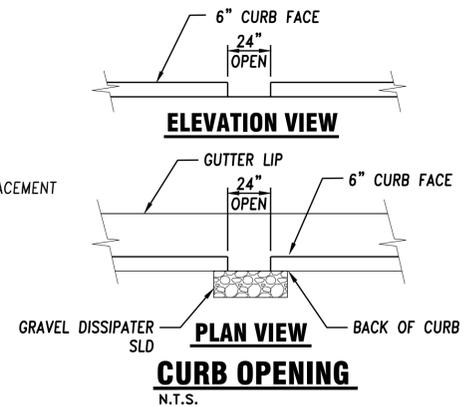
FOR BEDDING REQUIREMENTS, SEE APPLICABLE STD PLANS

- NOTES:
1. CONCRETE CAP MAY BE RAPID STRENGTH CONCRETE (RSC); IF RSC IS USED, REPLACE THE SLURRY CEMENT.
  2. FOR NEW INSTALLATIONS, MINIMUM DEPTH OF COVER REQUIREMENTS ARE TO FOLLOW GUIDELINES IN THE ENCROACHMENT PERMITS MANUAL OR HIGHWAY DESIGN MANUAL. WHEN COVER OVER A REPLACEMENT PIPE/ENCASEMENT PIPE IS LESS THAN 24", A SPECIAL DESIGN IS NECESSARY (FOR IN-HOUSE PROJECTS, REFER TO HQ DRAINAGE DETAIL LIBRARY)
  3. TACK COAT (ASPHALTIC EMULSION) SHALL BE APPLIED PRIOR TO PLACING HMA(A).
  4. ALL TRENCH WORK SUBJECT TO STATE REGULATIONS AND INSPECTION.
  5. ALL MATERIALS, WORKMANSHIP, TESTING, AND INSPECTIONS SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATIONS AND PROJECT-SPECIFIC SPECIAL PROVISIONS.

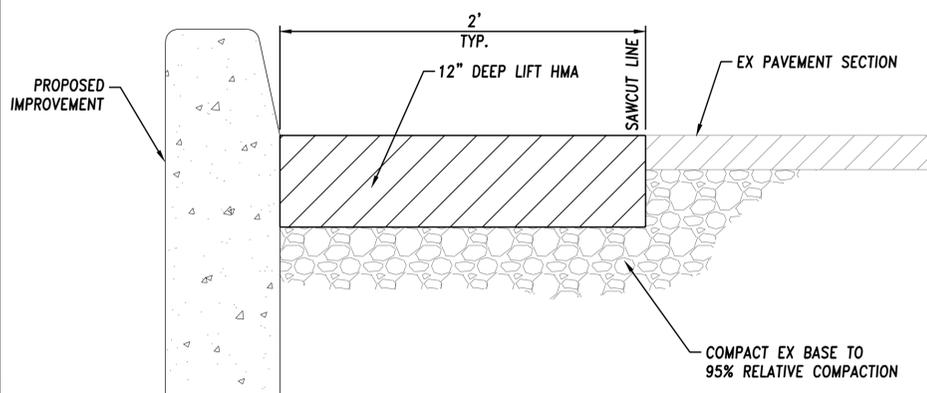
**TRENCH DETAIL**  
N.T.S.



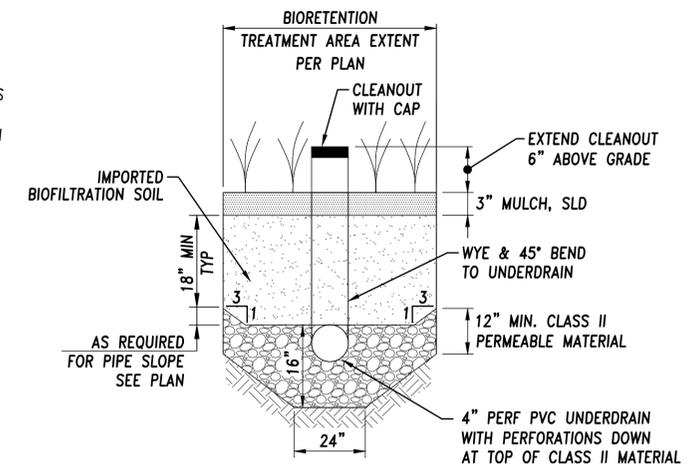
**PERIMETER CURB**  
N.T.S.



**TAPERED CURB**  
N.T.S.



**HOT MIX ASPHALT (HMA) PAVEMENT PATCH**  
N.T.S.



- NOTES:
1. ALL BIOFILTRATION SOIL SHALL COMPLY WITH THE SPECIFICATION IN ATTACHMENT "L" OF THE MUNICIPAL STORMWATER PERMIT.
  2. NATIVE SUBGRADE SHOULD BE RIPPED AND LOOSENED AND THEN TAMPED GENTLY AT THE DIRECTION OF THE ENGINEER.

**SD SUBDRAIN DETAIL**  
Scale: 1"=1' Horizontal

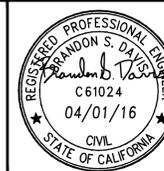
SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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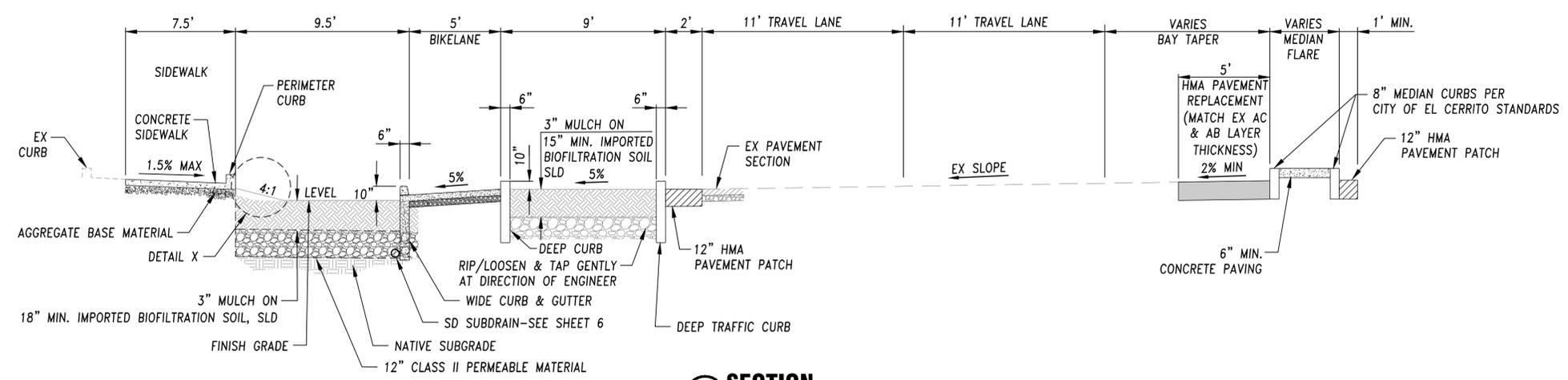
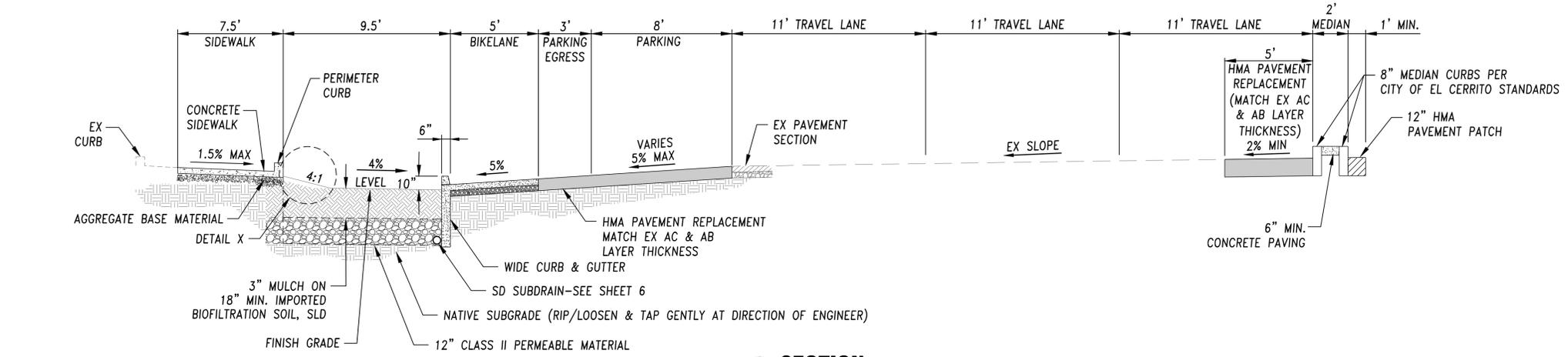
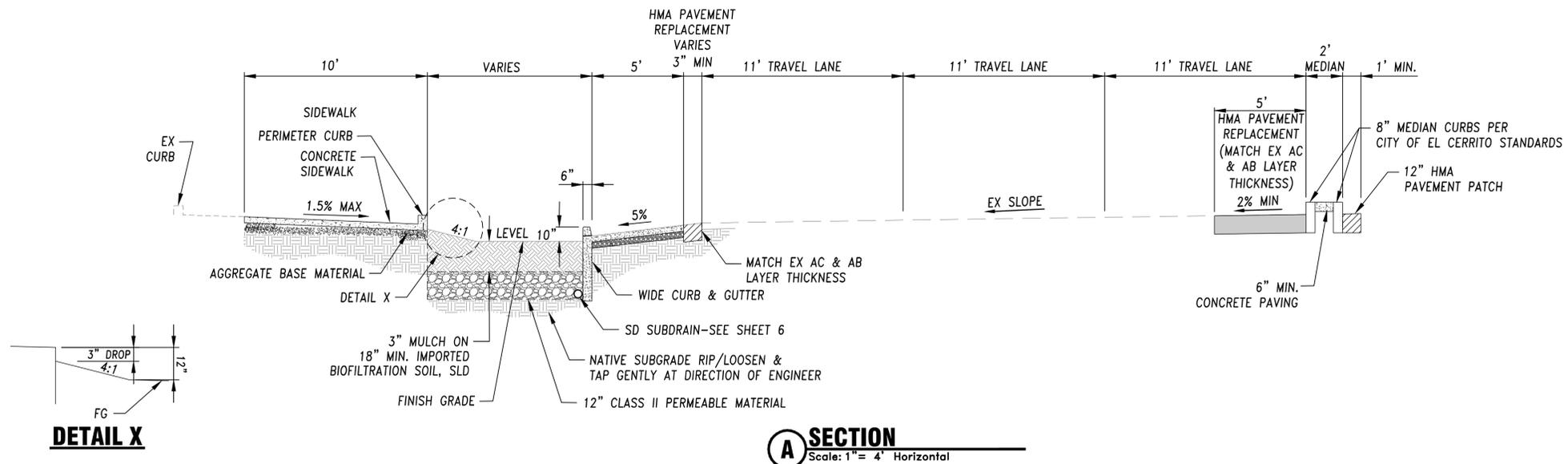
Project Mgr.	Design	Checked	Drawn	Plotted	BY	DATE
B. Davis	E. Cohen	B. Davis	P. Businger			
04/01/16	04/01/16	04/01/16	04/01/16	05/02/16		

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO-UG, CA SITE  
CIVIL DETAILS

CONTRA COSTA COUNTY

CALIFORNIA

SHEET	6	OF	17
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		



**DETAIL X**

**A SECTION**  
Scale: 1" = 4' Horizontal

**B SECTION**  
Scale: 1" = 4' Horizontal

**C SECTION**  
Scale: 1" = 4' Horizontal

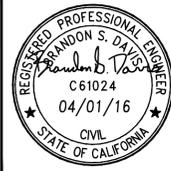
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1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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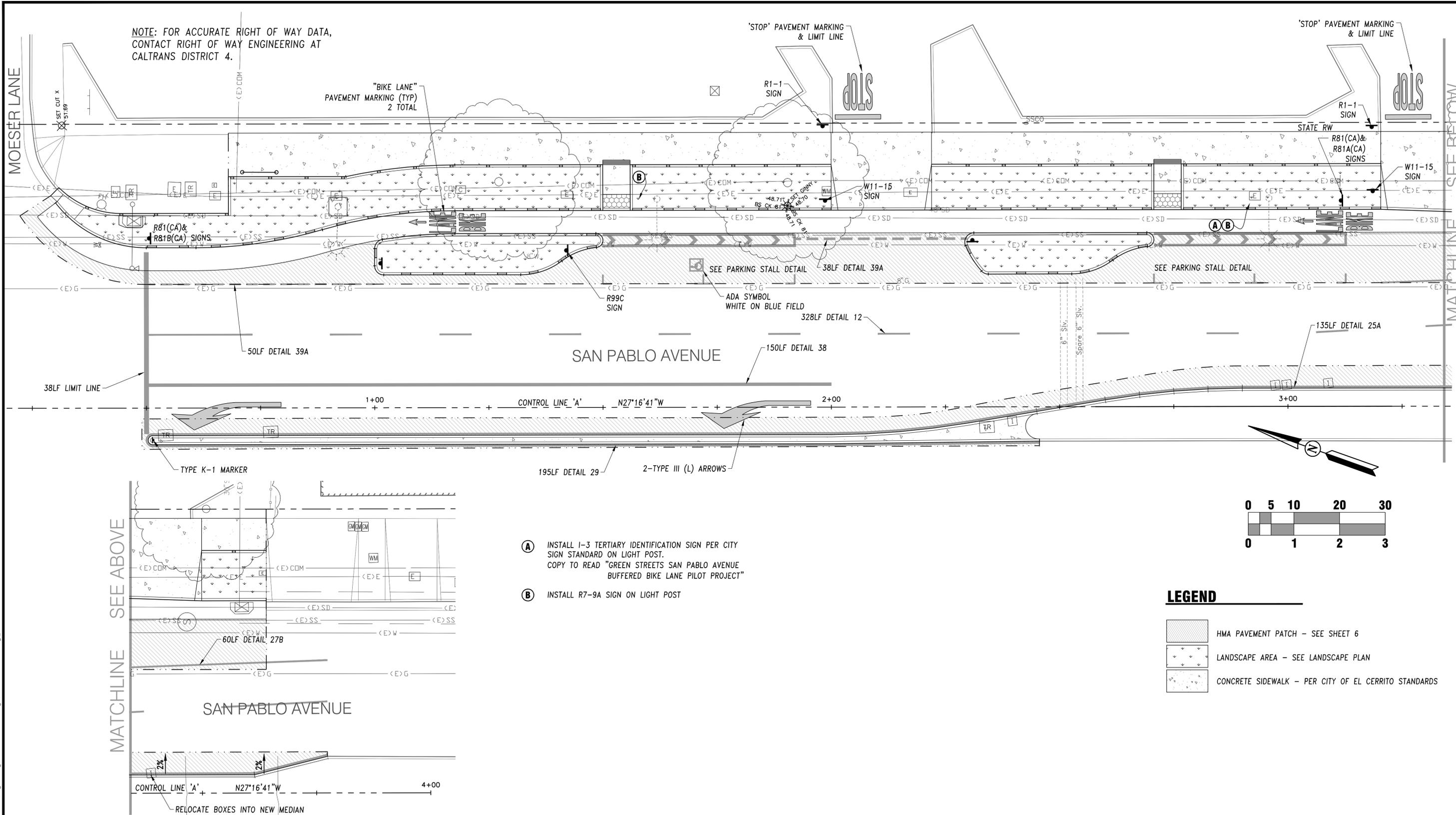
Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	pbusinger	05/02/16
BY	DATE	

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO-UG, CA SITE  
CROSS SECTIONS

CONTRA COSTA COUNTY CALIFORNIA

SHEET	7	OF	17
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		

NOTE: FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT CALTRANS DISTRICT 4.



MATCHLINE SEE ABOVE

MATCHLINE SEE BELOW

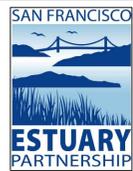
- (A)** INSTALL 1-3 TERTIARY IDENTIFICATION SIGN PER CITY SIGN STANDARD ON LIGHT POST. COPY TO READ "GREEN STREETS SAN PABLO AVENUE BUFFERED BIKE LANE PILOT PROJECT"
- (B)** INSTALL R7-9A SIGN ON LIGHT POST

**LEGEND**

- HMA PAVEMENT PATCH - SEE SHEET 6
- LANDSCAPE AREA - SEE LANDSCAPE PLAN
- CONCRETE SIDEWALK - PER CITY OF EL CERRITO STANDARDS

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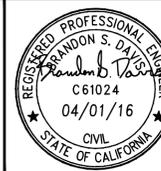
SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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△	04/01/16	FINAL SUBMITTAL	BSD

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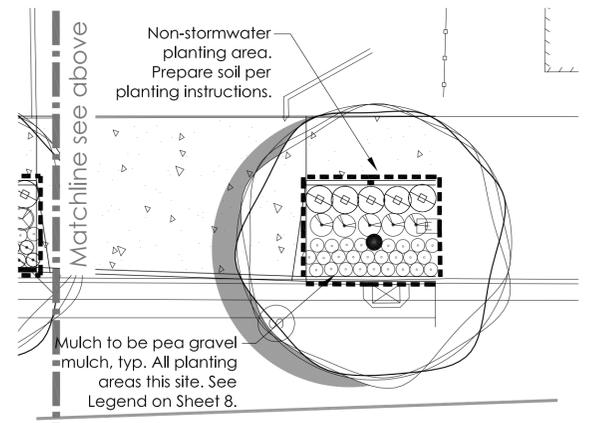
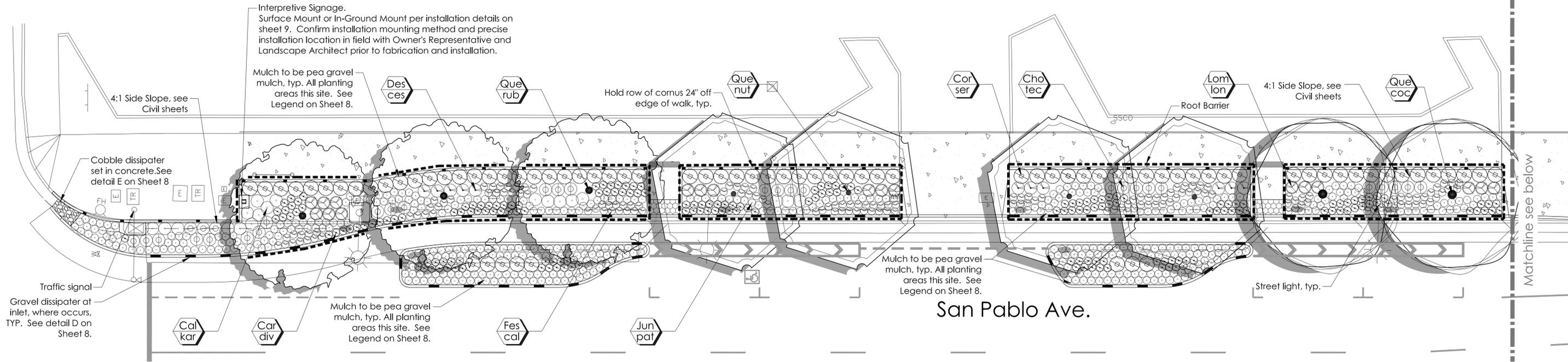
Project Mgr.:	B. Davis	04/01/16
Project Eng.:	E. Cohen	04/01/16
Designer:	E. Cohen	04/01/16
Checked:	B. Davis	04/01/16
Drawn:	P. Businger	04/01/16
Plotted:	P. Businger	04/15/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO-UG, CA SITE  
STRIPING & SIGNAGE PLAN

CONTRA COSTA COUNTY

CALIFORNIA

SHEET	8	OF	17
PROJ. NO.:	936-001	SCALE:	1" = 10'
DATE:	APRIL 01, 2016		

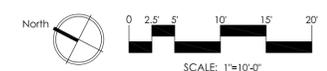


All trees are to be planted a minimum of 10' from utility poles, fire hydrants, driveways, and highway signs.

### PLANTING NOTES

- The plant list is provided for the convenience of the Contractor. The Contractor shall verify all plant counts and if a discrepancy exists, the plan shall govern.
- Substitution of specified plant material shall not be made unless otherwise approved by the Landscape Architect. Same genus different species substitutions are acceptable provided the variety is similar in growth habit to the specified plant and water use is the same. Example: Escallonia 'Terra' could sub for 'Red Elf'. Rhamphiolepis can not substitute for Escallonia as they have different water use requirements. Certificates of compliance will not be completed for projects which exceed the water use of specified plant materials until conformance with the water efficient landscape requirements is achieved.
- Finish grade in planting areas shall be smooth and even prior to installation of mulch. All landscape areas not covered with live material shall be covered with 3" of mulch.
- Planting areas shall be kept clean and free from all concrete, asphaltic waste, lumber or other such materials. shall be removed by excavation of the soil and replaced with clean native top soil.
- See details and specifications for procedures, material, and installation requirements.
- Soils reports shall be provided for all imported soils, per specification section. Reports shall be submitted to the SFEP's Representative and Landscape Architect for review and approval.
- Adjacent streets, sidewalks and other areas shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
- Any damaged or destroyed landscaping shall be replaced to the satisfaction of the Owner's Representative.
- For best results, native plant materials should not have their roots disturbed. For plastic cans, remove bottom of can, place in plant pit and cut sides to remove. Cut metal cans in three places minimum and carefully slide root ball into plant pit, for large plant material, use bottom support as necessary.
- Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.
- Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.
- Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water Planter Landscape Maintenance Manual for complete information.
- Synthetic pre-emergents are prohibited in the construction and maintenance of this project.
- This is a functioning storm water planter with an engineered imported soil mix designed for specific performance criteria. Amend only planting pits and associated planting backfill per the planting instructions.
- Soil shall not be worked when wet to avoid compaction.

**Note:**  
See sheet 8 for planting legend & installation details.



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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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△	4/1/16	FINAL SUBMITTAL	JS
△	3/28/14	90% SUBMITTAL	JS

**WILSEY HAM**  
Engineering, Surveying & Planning  
3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



	BY	DATE
Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	04/06/16

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO, CA URBAN GREEN SITE  
LANDSCAPE PLANTING PLAN

CONTRA COSTA COUNTY CALIFORNIA

SHEET  
9 OF 17  
PROJ. NO.: 936-001  
SCALE: 1"=10'-0"  
DATE: 4/1/16

# EL CERRITO, URBAN GREEN SITE CANDIDATE PLANT LIST

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	WATER REQ.	REFERENCE	PROJECT SPACING	MIN-MAX SPREAD	NATIVE
<b>TREES</b>									
4	Que nut	Quercus nuttallii	Nuttall Oak	15 gal.	INF-OCC	SUNSET	30'	30'-35'	N
3	Que coc	Quercus coccinea	Scarlet Oak	15 gal.	INF-OCC	SUNSET	30'	30'-35'	N
3	Que rub	Quercus rubra	Red Oak	15 gal.	INF-OCC	SUNSET	30'	40'-60'	N
<b>SHRUBS</b>									
84	Cor ser	Cornus sericea 'Kelsey'	Dwarf Red Twig Dogwood	5 gal.	INF-OCC	SUNSET	3'	3'-4'	Y
<b>GRASSES &amp; PERENNIALS</b>									
19	Cal kar	Calamagrostis 'Karl Foerster'	Reed Grass	1 gal.	OCC-MOD	EBMUD	30"	2'-3'	Y
181	Car div	Carex divulsa	Berkeley Sedge	1 gal.	OCC-MOD	EBMUD	18"	1'-2'	N
16	Des ces	Deschampsia cespitosa	Tufted Hairgrass	1 gal.	MOD	EBMUD	30"	2'-3'	Y
31	Cho tec	Chondropetalum tectorum	Cape Rush	1 gal.	INF-OCC	MONROVIA	30"	2'-3'	N
149	Fes cal	Festuca californica	California Fescue	1 gal.	OCC-MOD	EBMUD	24"	2'-2'	Y
476	Jun pat	Juncus patens 'Elk Blue'	California Gray Rush	1 gal.	NONE-MOD	SUNSET	18"	18"-24"	Y
18	Lom lon	Lomandra longifolia 'Breeze'	Dwarf Mat Rush	1 gal.	INF-OCC	MONROVIA	3'	2'-4'	N

## Pea Gravel Mulch

Smooth pea gravel from a local source. Size: 3/8". Color: gray. Apply 3" thick layer in areas indicated on plan. Submit sample for approval. See notes.

## Gravel Dissipator

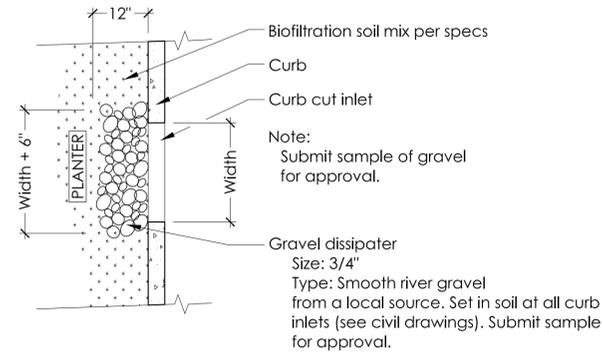
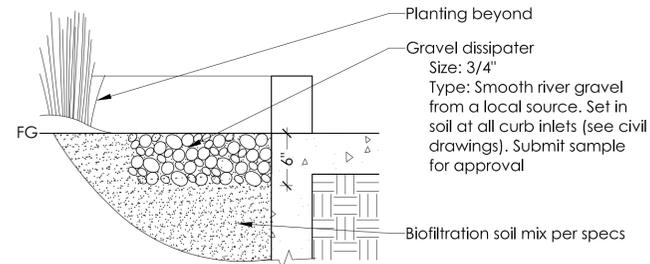
Gravel Dissipator at inlet. See detail.

## Root Barriers

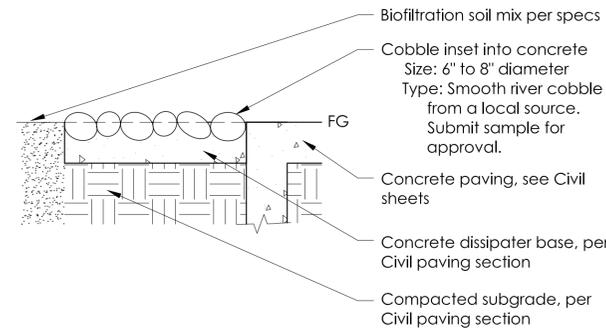
Tree Root Barrier. Center on tree and extend 12'-0" in each direction as shown. See detail.

## Hydrozone

All planting areas are a mixture of medium and low water using plant material per W.U.C.O.L.S. Guidelines. Per the California Model Water Ordinance, all planting areas are considered medium water use.

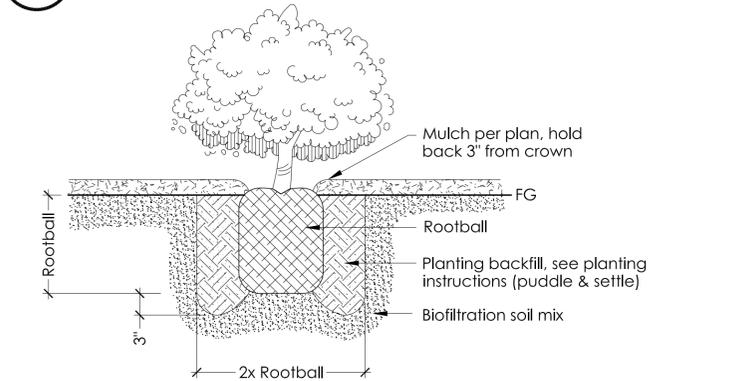


**D** GRAVEL DISSIPATER AT INLET  
SCALE: N.T.S.



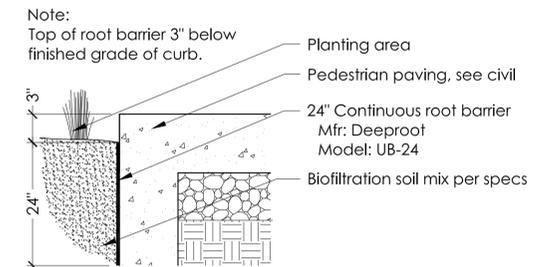
**E** COBBLE DISSIPATER SET IN CONC.  
SCALE: N.T.S.

**A** STORMWATER TREE PLANTING  
SCALE: N.T.S.



Note: Planting pit shall be the depth and two times the width of the root ball. Plant so that top of rootball is 2" above finished grade. Remove all nursery stakes.

**B** SHRUB AND GRASS PLANTING  
SCALE: N.T.S.



**C** ROOT BARRIER AT PAVING  
SCALE: N.T.S.

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1212 CLAY STREET, SUITE 1400  
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△	3/28/14	90% SUBMITTAL	JS

**WILSEY HAM**  
Engineering, Surveying & Planning

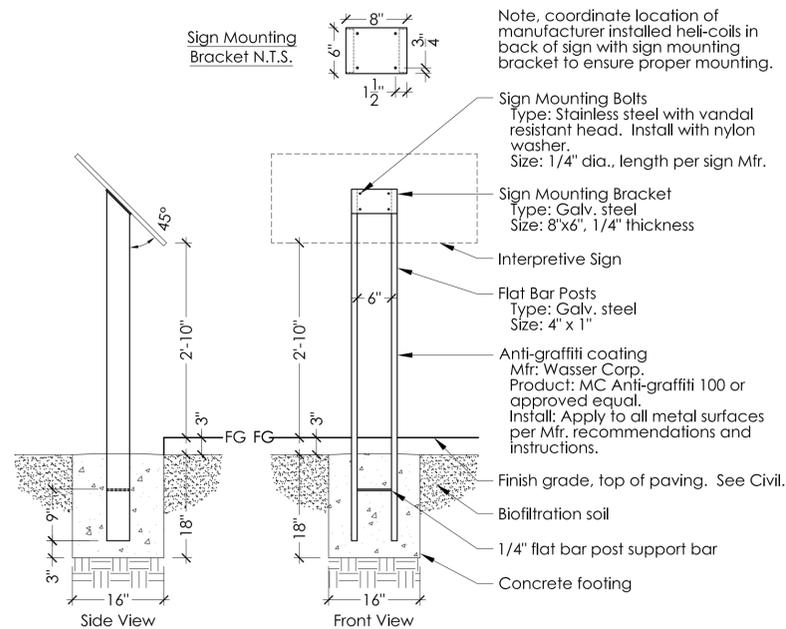
3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	04/06/16
	BY	DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO, CA URBAN GREEN SITE  
LANDSCAPE PLANTING LEGEND & DETAILS  
CONTRA COSTA COUNTY CALIFORNIA

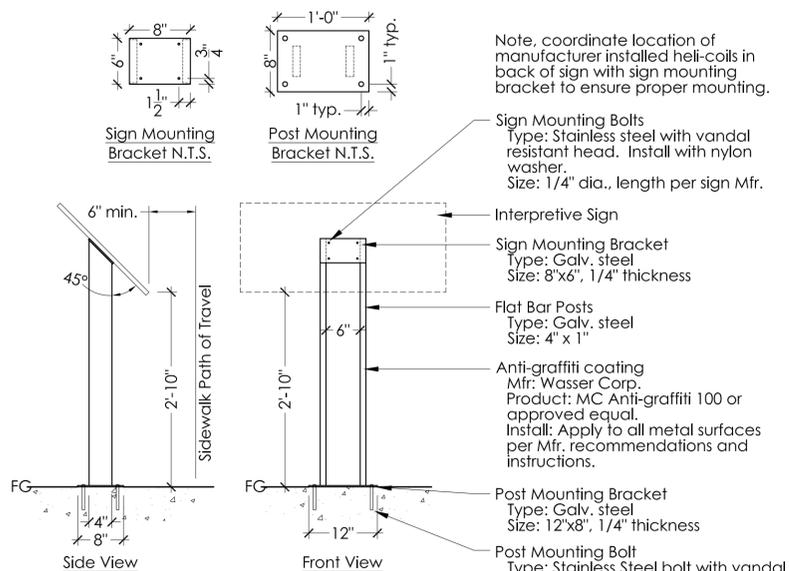
SHEET  
10 OF 17  
PROJ. NO.: 936-001  
SCALE: AS SHOWN  
DATE: 4/1/16



**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

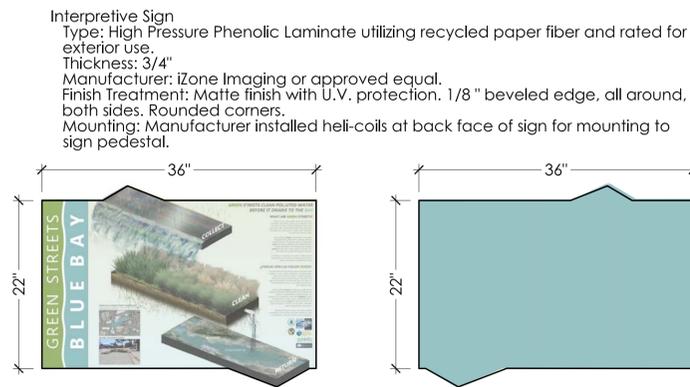
**H IN-GROUND SIGN PEDESTAL**  
SCALE: N.T.S.



**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

**G SURFACE MOUNT SIGN PEDESTAL**  
SCALE: N.T.S.



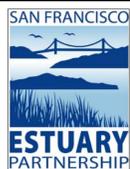
**Notes:**

1. All fasteners are to be galv. steel unless noted.
2. Submit shop drawings and anti-graffiti coating cut sheet to Landscape Architect for approval prior to fabrication.
3. Provide (1) set of vandal resistant sockets/adapters for each sign.
4. Sign pedestal design is for bidding purposes only. Final sign pedestal design will be provided to Contractor upon award of contract.

**F INTERPRETIVE SIGN**  
SCALE: N.T.S.

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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



NO.	DATE	ISSUE / REVISION DESCRIPTION	BY
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△	4/1/16	FINAL SUBMITTAL	JS
△	3/28/14	90% SUBMITTAL	JS

**WILSEY HAM**  
Engineering, Surveying & Planning  
3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
650.349.2151  
wilseyham.com



Project Mgr.:	JS	01/30/15
Project LA:	JS	01/30/15
Designer:	BJ	01/30/15
Checked:	WM	01/30/15
Drawn:	BJ	01/30/15
Plotted:	Brenna	04/06/16
BY		DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO, CA URBAN GREEN SITE  
LANDSCAPE PLANTING DETAILS

CONTRA COSTA COUNTY

CALIFORNIA

SHEET	11	OF	17
PROJ. NO.:	936-001	SCALE:	AS SHOWN
DATE:	4/1/16		

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PLANTING INSTRUCTIONS

**PART 1 - GENERAL**

1.1 SUMMMARY

A. Work included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of contract, including general and supplementary conditions and project specifications sections, apply to these instructions.
- B. Contractor shall refer to and incorporate Bay-Friendly Landscape Guidelines and Principals into the installation of the landscape. The 7 Principals of Bay-Friendly Landscaping and Gardening are:
  - 1. Landscape Locally
  - 2. Landscape for Less to the Landfill
  - 3. Nurture the Soil
  - 4. Conserve Water
  - 5. Conserve Energy
  - 6. Protect Water & Air Quality
  - 7. Protect and Maintain Wildlife habitat

1.3 SUBMITTALS

- A. Comply with submittal procedures per project specifications.
- B. Samples: samples of quarry fines, soil amendments, gravel, cobble, fertilizers, compost and mulches shall be submitted for review and stored on site until furnishing of materials is completed. Delivery may begin upon approval of samples or as directed by the Landscape Architect.
- C. Technical reports: Submit copies of technical reports. Work is to be performed by:
  - Soil and Plant Laboratory, Inc.
  - 352 Mathew Street
  - Santa Clara, CA 95030
  - 408-727-0330

- 1. Agronomy reports: two (2) agronomy reports shall be prepared for each site (one per stormwater planter area and one per non-stormwater planter area), which shall include basic and minor nutrients, as well as a textural analysis of each sample. Samples shall each consist of a composite of three shovelfuls of soil.
- D. Fertilizers, soil conditioners, and compost: submit product data for fertilizers, soil conditioners, and compost to be installed at time of planting. Quantities of fertilizers and soil conditioners shall be per the agronomy report. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.
- E. Cost adjustments: Contractor shall provide a line item cost for installation of the soil conditioners and fertilizers according to these specifications. Should the agronomy reports recommend a lesser degree of soil conditioning and fertilizing, Contractor shall adjust fees or provide a credit to the client accordingly. In the event that the required soil conditioners and fertilizers are greater than these specifications, the Contractor shall not be responsible for funding the difference.
- F. Post-planting fertilizers: submit product data for fertilizers for use post-planting. Quantities of fertilizers shall be per the post-amendment agronomy report. Submit certificates, trip slips and invoices for soil preparation materials. See Section 1.5 Review of Plant Invoices and Soil Preparation Conformance Test.

Manufacturer's instructions: Contractor to submit installation instructions for planting items not herein outlined or detailed on drawings.

1.4 GENERAL REQUIREMENTS

- A. The term "planting area" shall mean all areas to be planted with trees, shrubs, groundcovers, and areas covered with organic mulch.
- B. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice.
- C. All rock and other growth or debris accumulated during the duration of the project shall be removed from the site.
- D. Prior to excavation for planting or placing of plant materials, locate all underground utility lines still in use and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and plant locations, notify the Landscape Architect who shall arrange for the relocation of one or the other. The Contractor assumes all responsibility for making any and all repairs for damages resulting from work as herein specified.
- E. Grading and soil preparation work shall be performed only during the period when beneficial and optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy soil structure, spreading and grading operations shall be suspended until the moisture content is increased or reduced to acceptable levels. Soil shall not be worked when wet to avoid compaction.
- F. All scaled dimensions are approximate. Before proceeding with any work carefully check and verify all dimensions and immediately inform the Landscape Architect of any discrepancy between the drawings and/or specifications and actual conditions.
- G. Quantities for plant materials are shown for convenience only, and not guaranteed. Check and verify count and supply sufficient number to fulfill intent of drawings.
- H. Adequately stake, barricade, and protect all irrigation equipment, manholes, utility lines, and other existing property during all phases of the soil amending and grading operations.
- I. Observation of plant material:
  - 1. All plant material shall be delivered to the project site for observation by the Architect, for approval prior to installation.
  - 2. All trees shall conform to the "Guideline Specifications for Nursery Tree Quality", Urban Tree Foundation.
  - 3. The Contractor shall immediately remove any plant material not approved.
  - 4. Approved plant material shall remain on the site and shall be maintained by the Contractor as standards of comparison for material to be furnished.
  - 5. The Contractor, at his option and at his expense, can retain the services of the Landscape Architect to review trees 15 gallon and larger tagged at the nursery and/or at its place of growth, or as otherwise specified on drawings.
- J. Rejection and substitution:

- 1. All plants not conforming to the requirements herein specified shall be considered defective, and such plants, whether in place or not, shall be marked as rejected and be immediately removed from the site of the work and replaced with acceptable plant materials. The plant materials shall meet all applicable observations required by law. All plants shall be of the species, variety, size, age, flower color and condition as specified herein and/or as indicated on the drawings. Under no condition will there be any substitution of plant species, variety, or reduced sizes for those listed on the accompany drawings, except with the express written consent of the Landscape Architect.

1.5 REVIEW OF PLANT INVOICES AND SOIL PREPARATION CONFORMANCE TEST

A. Upon delivery of materials and/or completion of all soil conditioning and grading but prior to initiating planting operations, the Contractor shall provide Landscape Architect with signed copies of required certificates, trip slips and invoices for soil preparation materials. The Landscape Architect shall review such material, comparing the total quantities of each material furnished against the total area to each operation. If the minimum rates of application have not been met, the Landscape Architect will require the incorporation of additional quantities of these materials to fulfill the minimum application requirements specified.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All products shall be delivered to the site in manufacturer's unopened standard containers bearing original labels showing quantity, analysis and name of manufacturer.
- B. All materials shall be stored in designated areas and in such a manner as to protect from weather or other conditions that might impair the effectiveness of the product.

1.7 OBSERVATION

- A. Observations herein specified shall be made by the Landscape Architect. The Contractor shall request observations in writing, 3 days in advance of the time observation is required.
- B. The Contractor or his authorized representative shall be on the site at the time of each observation.
- C. Observation will be required for the following parts of the work:
  - 1. Upon the completion of grading prior to planting.
  - 2. Approval of plant materials (refer to 1.4 general requirements).
  - 3. When trees and shrubs are spotted in place for planting, but before planting holes are excavated. Approval of mulch product shall be obtained prior to spreading.
  - 4. When all planting, except the maintenance period, has been completed. Acceptance and written approval shall establish start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
  - 5. At the end of ninety (90) days from the start of the maintenance period. The Agency's Representative and City's Representative and/or City's Arborist shall be requested to be present for this observation.
  - 6. At the end of one (1) year from the start of the maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
  - 7. Final observation at the completion of the two (2) year maintenance period. The Agency's Representative and City's Representative and/or Arborist shall be requested to be present for this observation.
- D. Acceptances: upon completion of the final observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable, (2) of any requirements necessary for completion and acceptance.
- E. The Contractor will be charged, and responsible for, any time and mileage used by the Landscape Architect as a result of prematurely scheduled site visit.

1.8 MAINTENANCE/PLANT ESTABLISHMENT

- A. The maintenance period begins on the day the Landscape Architect has given notice of completion and shall continue thereafter for no less than two (2) years.
    - 1. These instructions are to be used in conjunction with the project's Storm Water Planter Maintenance Manual.
    - 2. The Contractor shall call for inspections per the Observation section above.
    - 3. Phased maintenance periods, if required, shall be negotiated prior to construction.
    - 4. If phased maintenance periods are not negotiated prior to construction, the maintenance period for all areas will begin after the entire project is 100% complete per contract documents. Portions completed earlier shall be maintained up to and including the specified maintenance period without additional compensation.
  - B. The Contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period until the final acceptance of the work.
  - C. A protective temporary fence shall be installed and remain in place until the 90-day review inspection. Contractor is responsible for removal of the protective temporary fence at the close of the 90-day period.
  - D. Regular planting maintenance operations shall begin immediately after each plant is planted. Plants shall be kept in a healthy, growing condition and in a visually pleasing appearance by watering, pruning, mowing, rolling, trimming, edging, fertilizing, restaking, pest and disease controlling, spraying, weeding, cleaning up and any other necessary operation of maintenance. Landscape areas shall be kept free of weeds, noxious grass, and all other undesired vegetative growth and debris. All plants found to be dead or in an impaired condition shall be replaced immediately. See post-planting fertilizing requirements in the Storm Water Planter Maintenance Manual.
  - E. The contract completion date of the contract maintenance period will be extended, when in the opinion of the Landscape Architect, improper maintenance and/or possible poor or unhealthy condition of planted material are evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work at no change in contract price until all of the work is completed and acceptable.
  - F. The Contractor shall be responsible for maintaining adequate protection of the planting areas. Damaged areas shall be repaired immediately per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.
  - G. All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.
- 1.9 GUARANTEES AND REPLACEMENTS

- A. All plants (except trees- see 1.09b) shall be guaranteed to remain healthy and vigorously growing for the duration of the two (2) year maintenance period.
- B. All trees that have been supplied and installed under this contract shall be guaranteed to live in a healthy condition for the duration of the two (2) year maintenance period. Trees are to be inspected for disease and certified by an authorized arboriculturist prior to planting.
- C. All plants found to be dead, and all plants not in a vigorous condition noted within the maintenance period, shall be replaced within fourteen (14) days per Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.
- D. Plants used for replacement shall be the same kind and size as specified in the plant list. They shall be furnished, planted and fertilized as originally specified.

**PART 2 - PRODUCTS**

2.1 SOIL AMENDMENT AND FERTILIZER

- A. Planting in Biofiltration Soil Mix - Planting pit backfill is to be amended with quality compost at the rates indicated by a soil analysis to bring soil organic matter content to a minimum of 3.5% quality compost by dry weight.
- B. Planting in Non-Stormwater Planting Areas
  - 1. Loosen soil by ripping and cross-ripping soil in planting areas to 8 inches depth, or as recommended in agronomy Reports.
  - 2. Install amendments per agronomy Reports. The soil amendment materials shall be evenly spread over all planting areas and shall be thoroughly scarified to an average depth of 8 inches by rototilling a minimum of two alternating passes. Cultivation shall be by rototilling or ripping equipment.
  - 3. The thoroughness and completeness of the rototilling and incorporation of the soil conditioners/amendments shall be acceptable to the Landscape Architect.
- C. Compost shall be a well decomposed, stable, weed free organic matter source. The product shall be certified through the US Composting Council's (USCC) Seal of Testing Assurance (STA) Program (a compost testing and information disclosure program). It shall be derived from agricultural and/or food waste and/or yard trimmings. The product shall contain no substances toxic to plants, will possess no objectionable odors and shall not resemble the feedstock (the organic materials from which it was derived).
- D. Before delivery of the compost, the supplier will submit proof of STA certification and a copy of lab analysis performed by a laboratory that is enrolled in the US Composting Council's CAP and using the approved Test Methods for the Evaluation of Composting and Compost (TMECC).
- E. The delivery tags indicating the quantity delivered to the job site shall be submitted by contractor. Compost exhibiting a sour or putrid smell, containing recognizable grass or leaves, or heat (120F) upon delivery or rewetting will not be accepted.
- F. Quantities shall be furnished as needed to complete work shown on drawings.
- G. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are prohibited in the construction and maintenance of this project.

2.2 PLANTING

- A. Backfill: Amend only planting pit backfill. The following planting backfill ratios are to be used for bidding purposes only. Contractor is responsible for providing agronomy reports as described in 1.3-c, which shall outline backfill specifications. Fully amended (upper) excavation materials shall be put in one pile to go around the rootball. Any deeper un-amended materials shall be put in a separate pile. Condition this deeper soil at the following rates and use for the planting pit below the rootball:
  - Gypsum 16 lbs /cy.
- B. Over-excavate the planting pits so that there shall be one foot of this material between native soil and the bottom of the rootball. No OM or fertilizer shall be used below the rootball.
- C. Tree staking:
  - 1. Stakes shall be Reddy Stakes, with length as required to meet staking requirements per detail. Stake quantity per detail.
  - 2. Tree ties shall be V.I.T. cinch-tie, or approved equal.
- D. Weed eradication: pre-emergent and post-emergent herbicides shall not be used in the construction and maintenance of this project. All weeding shall be accomplished through mechanical methods.

2.3 PLANT MATERIAL

- A. All plants shall be vigorous, of normal growth free from disease, insects, insect eggs, and meet or exceed the measurements specified.
- B. Identify plant species or varieties correctly on legible, weatherproof labels attached securely to the plant. There shall be a minimum of one labeled plant for each 5 plants in a lot.
- C. Substitutions will not be permitted except if proof is submitted that any plant specified is not obtainable, in which case a proposed substitution will be considered for use of the nearest equivalent size or variety and cost. All proposed substitutions shall be approved by Landscape Architect prior to ordering.

2.4 MULCH

Contractor shall maintain a minimum of 3" of coarse organic Arbor Mulch or Pea Gravel Mulch over soil surface that is not covered by vegetation or boardwalk, per plan. Arbor mulch materials shall be recycled chipped or shredded wood chips from pruning operations, or chipped landscape prunings. All mulch shall be from a local source. Shredded redwood bark mulch ("Gorilla hair") shall not be use. Non-porous material (e.g. plastic weed barriers) shall not be placed under the mulch.

2.5 ROOT BARRIER

- A. Root Barrier shall be Deepproof, 24" Universal Barrier, UB 24-2, or equal.

**PART 3 - EXECUTION**

3.1 SOIL CONDITIONING

- A. Grub and clean planting area, removing all weeds, debris and rocks from the site.

3.2 INTEGRATED PEST MANAGEMENT (IPM)

A. Contractor shall utilize Integrated Pest Management (IPM) practices during the installation and maintenance of the project to control pests and disease in the landscape. Refer to the Storm Water

Planter Landscape Maintenance Manual for complete information.

- B. Herbicides and pesticides that are prohibited by the Organic Materials Research Institute (OMRI) shall not be used in the construction and maintenance of this project.

3.3 FINISH GRADING

- A. Finish grades shall be as indicated on the Civil Engineer's drawings.
- B. Planting surfaces shall be graded with no less than 2 percent surface slope for positive drainage, or as otherwise noted according to Civil Engineer's plans.
- C. Final finish grades shall insure positive drainage of the site with all surface drainage away from buildings, walls, and toward roadways, drains and catch basins.
- D. Finish grades shall be measured as the final water compacted and settled surface grades, and shall be acceptable to the Landscape Architect before planting operations will be allowed to begin.
- E. All undulations and irregularities in the planting surfaces resulting from tillage, rototilling and all other operations shall be leveled and floated out before planting operations are initiated.
- F. The Contractor shall take every precaution to protect and avoid damage to sprinkler heads, irrigation lines, and other underground utilities during his grading and conditioning operations.

3.4 PLANTING

- A. The layout of locations for plants and outlines of groundcover to be planted shall be approved on the site by the Landscape Architect, prior to their planting. All such locations shall be checked for possible interference with existing underground piping, prior to excavation of holes. If underground construction or utility lines are encountered in the excavation of planting areas, other locations for the planting may be selected by the Landscape Architect. Damage to existing utilities shall be the responsibility of the Contractor.
- B. Planting trees, shrubs, and container-stock groundcovers, vines, and grasses:
  - 1. All excavated holes shall have vertical sides with roughened surfaces and shall be of the minimum sizes indicated on detailed drawings. Holes shall be, in all cases, large enough to permit handling and planting without injury or breakage of root balls or roots.
  - 2. Root barriers shall be installed where indicated on plans in accordance with manufacturer's recommendations.
  - 3. Excavation shall include the stripping and staking of all acceptable soil encountered within the areas to be excavated for plant pits and planting beds. Protect all areas that are to be trucked over and upon which soil is to be temporarily stacked pending its re-use for the filling of holes, pits and beds.
  - 4. Plants in can containers shall have the cans opened by cutting vertically on opposite sides of each can with nursery can openers, tin snips or other approved instruments for this purpose. All used cans shall be removed to the storage areas or from the site daily.
  - 5. The plants shall be planted at approved locations with the heretofore specified conditioner and soil planting backfill.
  - 6. The plants shall be placed in the planting pits on the backfill material which has been hand tamped and water settled to the rootball base levels prior to the placement of the plants. After setting the plants, the remaining backfill material shall be carefully tamped and settled around each rootball to fill all voids.
  - 7. Each plant shall be placed in the center of the hole and shall be set plumb and held rigidly in position until the planting backfill has been tamped from around each root ball.
  - 8. All plants shall be set at such a level that after settling they bear the same relationship to the surrounding finish grade as they bore to the soil line grade in the container, unless otherwise noted.
  - 9. No plant will be accepted if the rootball is broken or cracked before, during, or after the process of installation.
  - 10. All plants shall be thoroughly watered in to the full depth of each planting hole immediately after planting.
  - 11. All trees, 15 gallon and larger, shall be staked. One of the stakes shall be driven into the ground of the windward side of the tree. The stakes shall be driven in plumb and secure. Special care shall be taken that the driving in of the stake does not damage the tree roots or root ball. Tree ties shall be fastened to each tree and stake by looping figure 8's with the inside diameter of the tie at 2 or 3 times the diameter of the tree (also see detailed drawings).
  - 12. The staking shall be accomplished in such a manner as to insure the proper and healthy growth and safety of the plants, property, and the public.
  - 13. The Contractor shall be responsible for all surface and subsurface drainage required which may affect his guarantee of the plants.

C. Planting groundcovers (From Flats):

- 1. Groundcovers shall be planted in the areas indicated on the drawings. The groundcover plants shall be rooted cuttings grown in flats, and shall remain in those flats until transplanting.
- 2. All groundcover plants shall be planted with soil around roots, evenly spaced at the intervals called out on the drawings.
- 3. The groundcover plants shall be planted sufficiently deep to cover all roots and planting tablets shall be placed in each planting hole and shall be immediately sprinkled after planting until the entire area is soaked to the full depth of all holes.
- 4. The groundcover planting areas shall be hand smoothed after planting to provide an even, smooth final finish grade.

D. Mulch:

- 1. Apply a 3" deep layer of specified Arbor Mulch throughout all planting areas, unless otherwise noted on plans. Also refer to planting details for mulch requirements.

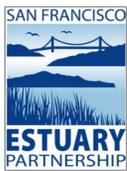
3.5 CLEANUP

- A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete, and planter walls adjacent to plantings.

End of Instructions

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SAN FRANCISCO ESTUARY PARTNERSHIP  
1212 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612



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**WILSEY HAM**  
Engineering, Surveying & Planning

3130 La Selva Street, Suite 100  
San Mateo, CA 94403  
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wilseyham.com

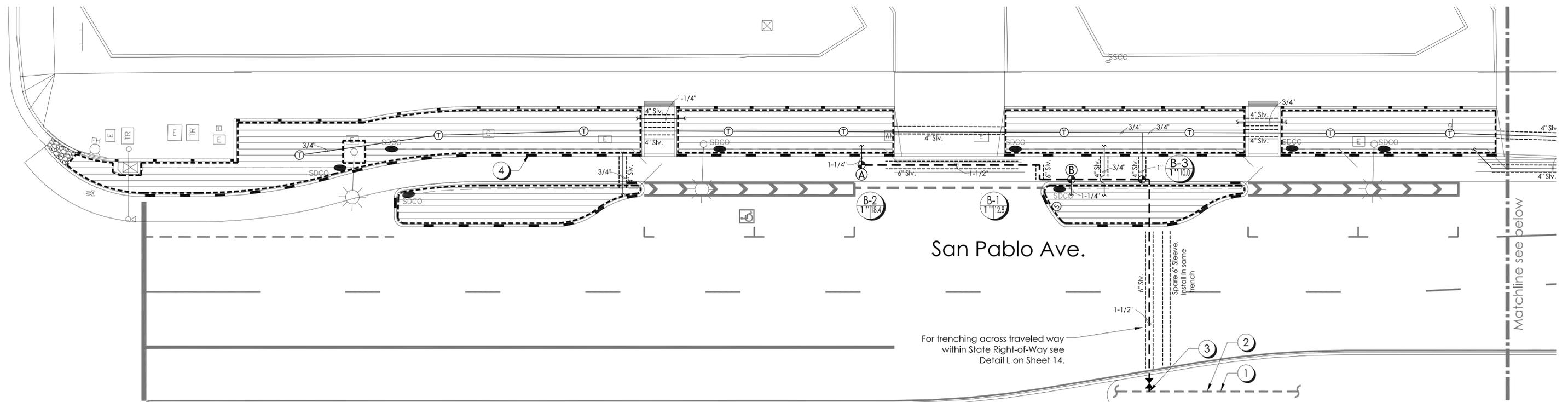


Project Mgr.:	JS	01/30/15
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Designer:	BJ	01/30/15
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Plotted:	Brenna	04/06/16
	BY	DATE

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO, CA URBAN GREEN SITE  
LANDSCAPE PLANTING INSTRUCTIONS

CONTRA COSTA COUNTY CALIFORNIA

SHEET
12 OF 17
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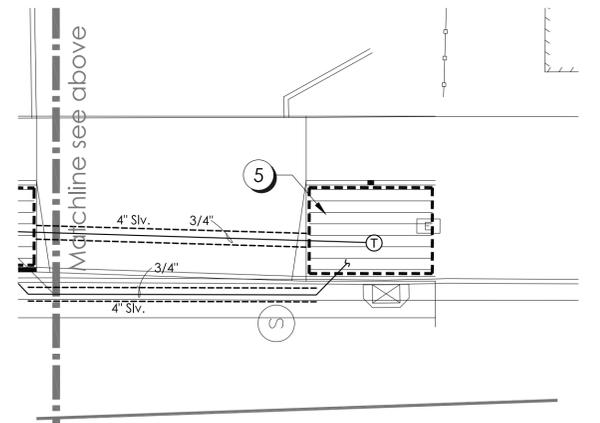


**Note:**  
The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarity only and shall be installed in planting areas whenever possible. No elbows or 45° ells may be placed under paving, these are to be located in planting areas only. Mainline and valves shall be installed in shrub/ground cover areas only. Where valves inadvertently fall within paved areas, Contractor must install in concrete valve boxes. Avoid conflicts with utilities, new planting, new site or architectural elements.

**Note:**  
Contractor to confirm location, size, condition and function of the existing mainline and control wire at points of connection identified in these plans upon award of contract. Additionally, the Contractor is to take a water pressure reading at the point of connection at that time. Contractor to immediately notify Owner's Representative and Landscape Architect if any discrepancies are found between plans and existing irrigation conditions.

**Note:**  
See sheet 12 for Irrigation Legend.

**System Operating Flow & Pressure**  
Maximum Flow: 15 gpm  
Static Design Pressure: 20 psi  
Normal Operating Pressure: 15-20 psi



### IRRIGATION CALLOUTS

- Existing mainline in landscape median. Contractor to Confirm mainline is a minimum 1-1/2" in diameter.
- Install (2) spare control wires and (1) common wire from the existing irrigation controller operating the median irrigation system to each irrigation remote control valve box as shown, for future use. Cap wires in valve box with a waterproof wire connector per instruction. Coordinate wire installation to existing irrigation controller with the City's Representative.
- Point of Connection at existing irrigation mainline in median planting area. Install gate valve in planting area at connection to existing mainline. Contractor shall repair or replace existing planting damaged or destroyed to existing condition. Contractor to coordinate exact point of connection to existing mainline with the Landscape Architect and City's Representative in the field.
- Sub drain, see Civil sheets.
- Non-stormwater planting area.

### IRRIGATION NOTES

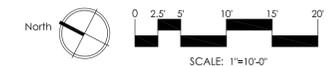
- The landscape Contractor shall inspect the site and verify conditions and dimensions prior to construction.
- Install irrigation system in accordance with all local codes and ordinances.
- See details, instructions and specifications for procedures, material and installation requirements.
- Prior to cutting into soil, locate all cables, conduits, sewers, and other utilities or architectural features that are commonly encountered underground and take proper precautions not to damage or disturb such improvements. Any damage made during the installation of the irrigation system of the aforementioned items shall be repaired and/or replaced to the satisfaction of the owner at the Contractor's own expense.
- The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarification only and shall be installed in planting areas. Main and valves shall be installed in shrub/ground cover areas only. Avoid conflicts with utilities, new planting, new site or architectural elements.
- All valves shall be placed in Carson 1419b-12b, or equal, green valve box. All valve boxes shall be located in groundcover areas and shall be bolted.
- All lateral end runs shall be 3/4" size unless otherwise noted.
- Contractor shall coordinate sleeving for irrigation piping with paving contractor prior to paving installation. It is the contractor's responsibility for providing appropriate sleeving under hardscape. At each mainline sleeve, provide a separate, appropriate-size sleeve for control/common wiring. Where sleeve only is installed, install a pull rope that extends past the end of the sleeve. The Contractor is to supply extra sleeving as indicated on plans.
- The irrigation systems are designed to operate at a minimum pressure of 20 psi at point of connection to water supply at existing irrigation mainline. Landscape Contractor shall test pressure at point of connection upon award of contract. Notify landscape architect if pressure is below 15 psi or over 35 psi to determine needed pressure regulation devices. (ie: boost pump or regulating valve).

### STATEMENT OF COMPLIANCE

I have complied with the criteria of the landscape water conservation ordinance and applied them for the efficient use of water for the landscape design plan.

PREPARER NAME: William Mastick  
PREPARER SIGNATURE: [Signature]  
PROFESSIONAL LICENSE: PLA CA #2451

Potable water irrigation systems are to be installed and fully tested, but not operated prior to November 1, 2016 unless otherwise notified by the Department of Water Resources that drought conditions no longer exist. Prior to November 1, 2016, all storm water planters (including those with no irrigation system installed) must be irrigated with recycled water provided by EBMUD and delivered and applied by water truck.



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Designer: BJ	01/30/15
Checked: WM	01/30/15
Drawn: BJ	01/30/15
Plotted: Brenna	04/06/16

SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO, CA URBAN GREEN SITE  
LANDSCAPE IRRIGATION PLAN

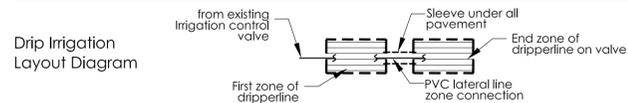
CONTRA COSTA COUNTY

CALIFORNIA

SHEET	13	OF	17
PROJ. NO.:	936-001	SCALE:	1"=10'-0"
DATE:	4/1/16		

## IRRIGATION LEGEND

Symbol	Description	GPH	PSI	Rad.
<b>Heads</b>				
	Sub-Surface Drip Netafim Techline CV 17mm dripline. Spaced 12" O.C. with 12" emitter spacing. See details and manufacturer's specifications for installation. Part No. TLCV9-1210	0.9	20	N/A



## Equipment

- Gate Valve Nibco T-619, line sized
- Remote Control Valve Hunter ICZ-101 Drip Control Zone Kit w/ 1" HY100 filter system and 40 PSI pressure regulator.
- Tree Bubblers Hunter 18" Root Zone Watering System w/ 0.5 GPM flow rate, RZWS-18-50.
- Single Station Battery Operated Automatic Controller Hunter Node-100 battery operated water-proof controller. Mount in valve box per installation detail.
- Two Station Battery Operated Automatic Controller Hunter Node-200 battery operated water-proof controller. Mount in RCV valve box per installation detail. Two station model to control (2) valves indicated on plan.
- Soil Moisture Sensor Irrrometer Watermark Electronic Module-Battery Version (WEM-B). Install per Manufacturers instructions.
- Manual Flush Valve Netafim Manual flush valve Model TL5OV, install one per in-line drip circuit at low point, per manufacturer's installation details and specifications.

## Pipe & Sleeving

- Pressure mainline - PVC Schedule 40, size per plan, sleeve under all paving.
- Non-pressure lateral line - PVC Schedule 40, size per plan, sleeve under all paving.
- Sleeving - PVC Schedule 40, mainline sleeving shall be 6" minimum diameter, lateral line sleeving shall be 4" minimum diameter.

## LATERAL SIZING GUIDE

CIRCUIT GPM	PIPE SIZE	PIPE CLASS
0-8 GPM	3/4"	SCH. 40 PVC
9-12 GPM	1"	SCH. 40 PVC
13-22 GPM	1-1/4"	SCH. 40 PVC
23-30 GPM	1-1/2"	SCH. 40 PVC
31-50 GPM	2"	SCH. 40 PVC
51-70 GPM	2-1/2"	SCH. 40 PVC
71-110 GPM	3"	SCH. 40 PVC

## DRIP SUPPLY/EXHAUST HEADER SIZING GUIDE

ZONE FLOW	HEADER SIZE	HEADER TYPE
0-5 GPM	1/2"	POLY TUBING
5-8 GPM	3/4"	SCH. 40 PVC
8-13 GPM	1"	SCH. 40 PVC
13-22 GPM	1-1/4"	SCH. 40 PVC
22-31 GPM	1-1/2"	SCH. 40 PVC

## CONTROL WIRE SIZING GUIDE

Control/ Common Wire	No. 14	No. 12	No. 10	No. 8
No. 14	1700'	2000'	2400'	2700'
No. 12		2700'	3300'	3800'
No. 10			4800'	5200'
No. 8				6700'

## PROJECT IRRIGATION NARRATIVE

The project consists of 2,893 square feet of total landscape area. The project contains 2,893 square feet of mixed medium water use planting areas as defined by W.U.C.O.L.S. guidelines. The irrigation system utilizes subsurface drip. The irrigation water source for the project is public potable water.

## IRRIGATION SCHEDULE

Station	GPM	Soil Type	Plant Type	Area SF	Irrigation Type	Kc	IE	PR	No. of Cycles	MINUTES PER CYCLE AT 100% ET												Total In/Yr
										JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
B-1	12.8	1.0	MM	1182	Drip	0.4	0.9	1.04	1	1.2	2.2	3.9	6.0	7.8	9.0	9.5	8.3	6.4	4.3	2.0	1.2	18.58
B-2	18.4	1.0	MM	1711	Drip	0.4	0.9	1.04	1	1.2	2.2	3.9	6.0	7.9	9.0	9.5	8.4	6.5	4.3	2.1	1.2	18.58
B-3	10.0	1.0	T	180	Bubbler	0.5	0.9	5.35	1	0.3	0.5	0.9	1.5	1.9	2.2	2.3	2.0	1.6	1.0	0.5	0.3	23.22

## HYDROZONE TABLE

Station (Valve No.)	Area (Square Feet)	Plant Factor	Irrigation Efficiency	Percent of Landscape Area
<b>Hydrozone - Medium Water Use Plants, Drip Irrigation</b>				
B-1	1,182	0.4	0.9	40.86%
B-2	1,711	0.4	0.9	59.14%
B-3	180	0.5	0.9	6.22%
<b>Totals:</b>	<b>2,893</b>			<b>100.00%</b>

## MAWA CALCULATION

Maximum Applied Water Allowance

$$MAWA = \frac{(E_{To})}{41.8} \times (0.7) \times (S.F.) \times (0.62) = 52,482 \text{ Gallons/Year}$$

MAWA = 52,482 Gallons/Year

Estimated Total Water Use

$$ETWU = \frac{(E_{To})}{IE} \times (PF) \times (S.F.) \times (0.62) = 35,395 \text{ Gallons/Year}$$

$$\text{Hydrozone} = \frac{(41.8)}{0.9} \times (0.4) \times (2,893) \times (0.62) = 35,395$$

Total: 35,395

ETWU = 35,395 Gallons/Year

The ETWU (35,395) is less than the MAWA (52,482), therefore this design complies with the California Code of Regulations Title 23, Waters- Model Water Efficient Landscape Ordinance.

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Designer:	BJ	01/30/15
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Plotted:	Brenna	04/06/16
	BY	DATE

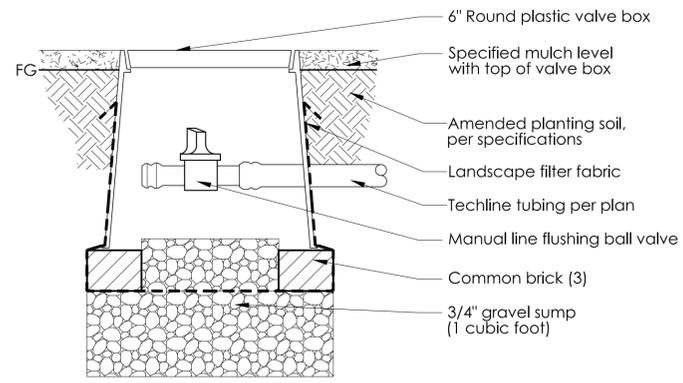
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GREEN STORMWATER SPINE  
EL CERRITO, CA URBAN GREEN SITE  
LANDSCAPE IRRIGATION LEGEND

CONTRA COSTA COUNTY

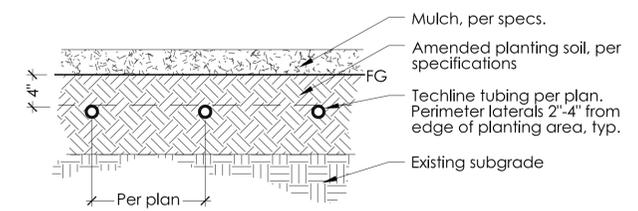
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SHEET	14	OF	17
PROJ. NO.:	936-001	SCALE:	AS SHOWN
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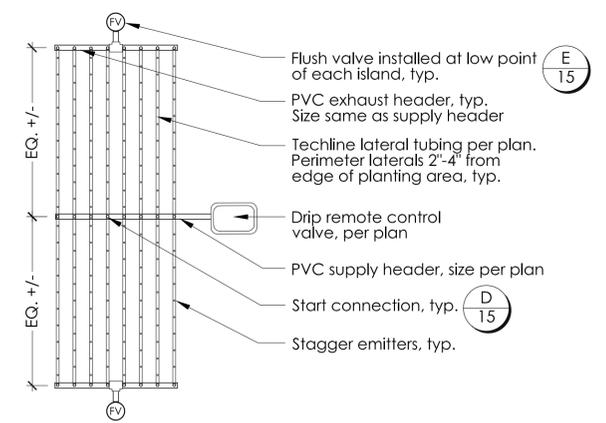
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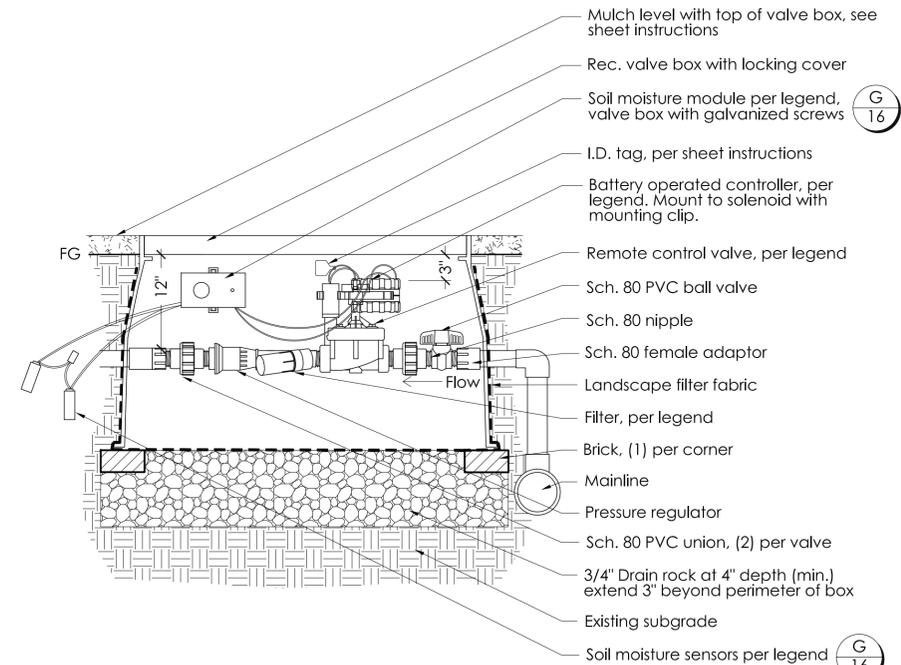
**E** **MANUAL FLUSH VALVE**  
SCALE: N.T.S.



**C** **TECHLINE SUBGRADE INSTALLATION**  
SCALE: N.T.S.

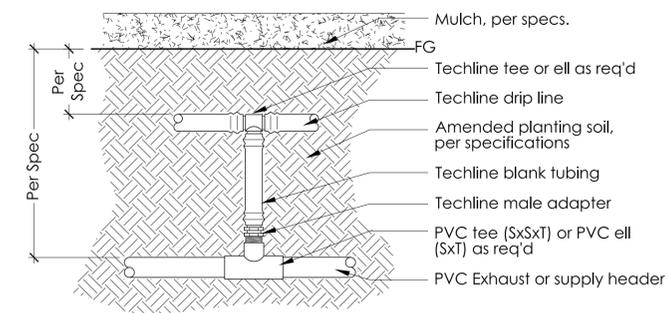


**A** **TECHLINE LINEAR LAYOUT**  
SCALE: N.T.S.

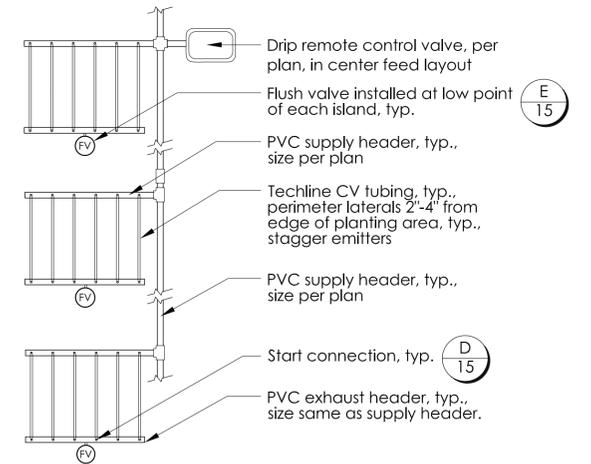


- Notes:
1. Filter position as shown preferred to minimize debris in housing when servicing. Filter may be mounted horizontally or upside-down if needed due to space constraints.
  2. Supply PVC sch. 80 nipples and adapters as required.
  3. Supply jumbo valve box and/or housing extensions as required to fit equipment.
  4. Each RCV to receive a permanent metal tag with controller and station number.
  5. Provide an 18' control wire expansion coil and waterproof connectors as required.

**F** **REMOTE CONTROL VALVE w/  
BATTERY OPERATED CONTROLLER**  
SCALE: N.T.S.



**D** **START CONNECTION**  
SCALE: N.T.S.



- Notes:
1. Affix all lines to ground using soil staples approximately every 3' from drip valve.
  2. Do not exceed manufacturer's recommended maximum length of a single lateral, see chart.
  3. See legend for emitter and row spacing.
  4. Install check valves on supply headers where elevation meets/exceeds 4-1/2' and as needed to prevent low-head drainage.

**B** **TECHLINE ISLAND LAYOUT**  
SCALE: N.T.S.

- Notes:
1. Affix all lines to ground using soil staples every 3' from drip valve.
  2. Techline CV emitters are pressure compensating and have check valves.
  3. See legend for emitter and row spacing.
  4. Install check valves on supply and exhaust headers where elevation meets/exceeds 4-1/2' & as needed to prevent low-head drainage.

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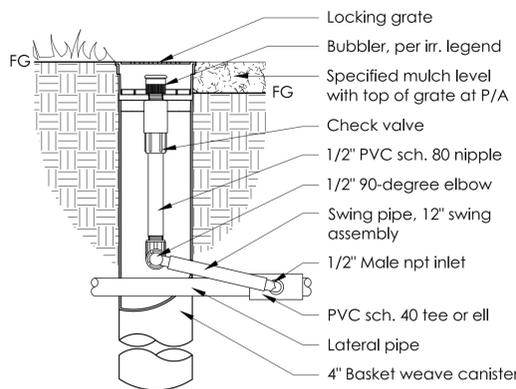
	BY	DATE
Project Mgr.:	JS	01/30/15
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SAN PABLO AVENUE  
GREEN STORMWATER SPINE  
EL CERRITO, CA URBAN GREEN SITE  
LANDSCAPE IRRIGATION DETAILS

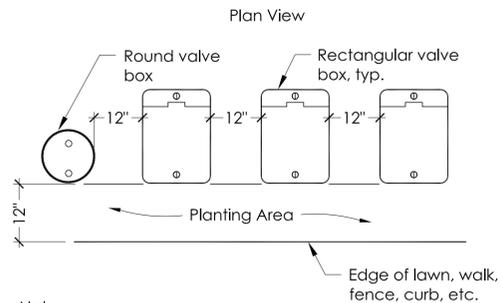
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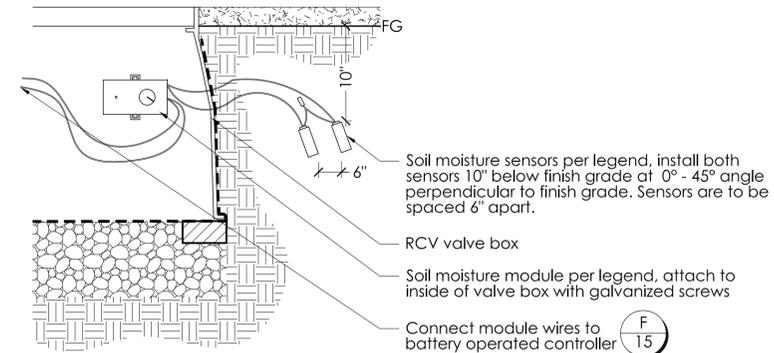


**K DEEP WATERING TREE BUBBLER**  
SCALE: N.T.S.



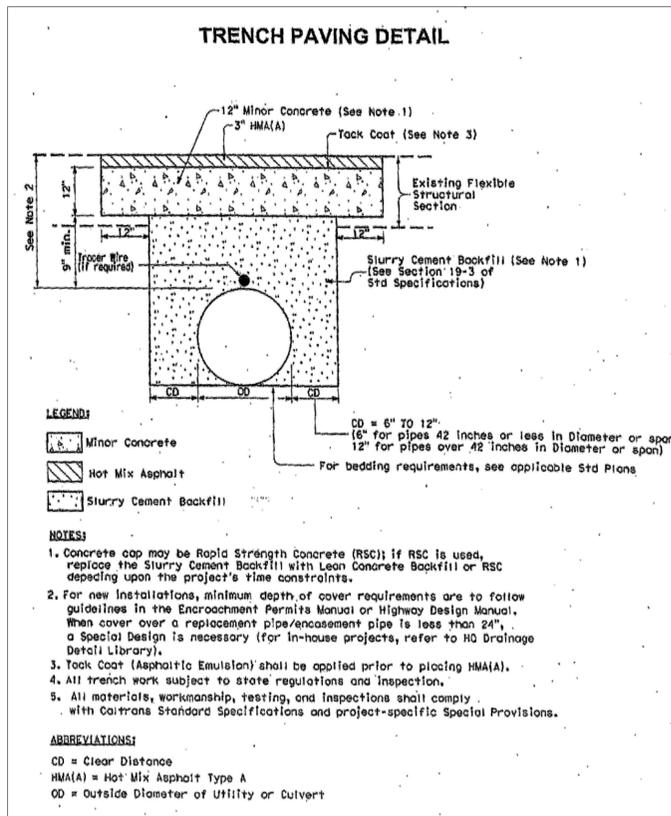
- Notes:
- Center boxes over valves.
  - Set boxes in ground cover/shrub area where possible.
  - Set boxes parallel to each other and perpendicular to edge of hardscape.
  - Valve boxes shall be green in color.

**I VALVE BOX DETAIL**  
SCALE: N.T.S.



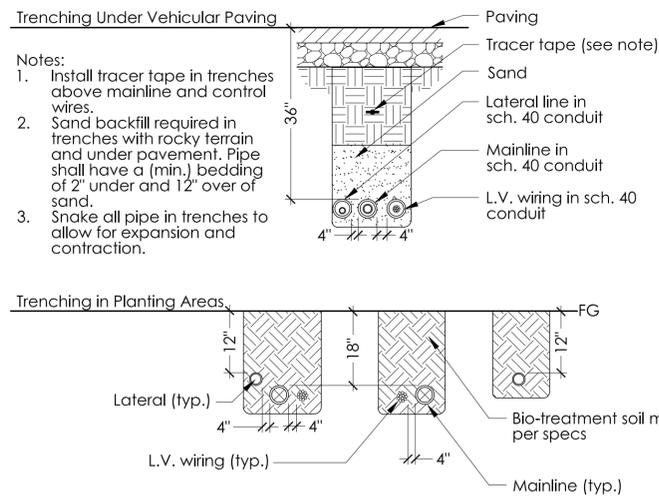
- Notes:
- Install sensors and wiring per manufacturers instructions.
  - Splices for sensor shall be located in RCV valve box.
  - Soak sensors prior to installation. Sensors are to be wet at time of installation.
  - Sensors must be located in and irrigated by the last valve to run in each valve group.
  - Sensors shall not be buried more than 14\"/>

**G MOISTURE SENSOR INSTALLATION**  
SCALE: N.T.S.

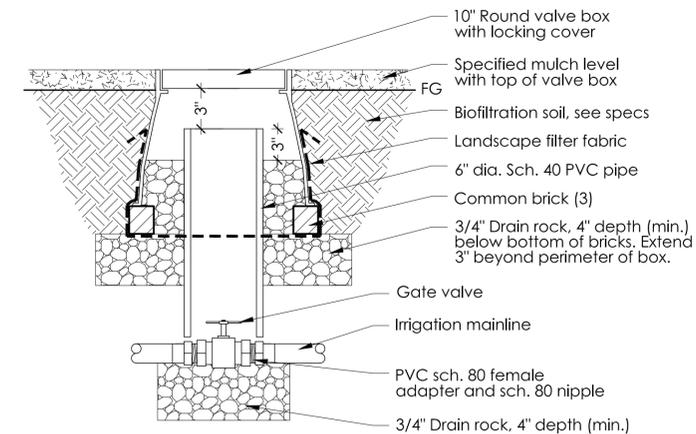


- LEGEND:**
- Minor Concrete
  - Hot Mix Asphalt
  - Slurry Cement Backfill
- NOTES:**
- Concrete cap may be Rapid Strength Concrete (RSC); if RSC is used, replace the Slurry Cement Backfill with Lean Concrete Backfill or RSC depending upon the project's time constraints.
  - For new installations, minimum depth of cover requirements are to follow guidelines in the Encroachment Permits Manual or Highway Design Manual. When cover over a replacement pipe/encasement pipe is less than 24\", a Special Design is necessary (for in-house projects, refer to HD Drainage Detail Library).
  - Tack Coat (Asphaltic Emulsion) shall be applied prior to placing HMA(A).
  - All trench work subject to state regulations and inspection.
  - All materials, workmanship, testing, and inspections shall comply with Caltrans Standard Specifications and project-specific Special Provisions.
- ABBREVIATIONS:**
- CD = Clear Distance
  - HMA(A) = Hot Mix Asphalt Type A
  - OD = Outside Diameter of Utility or Culvert

**L CALTRANS TRENCHING DETAIL**  
SCALE: N.T.S.



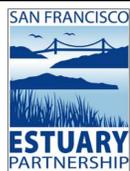
**J PIPE AND TRENCHING**  
SCALE: N.T.S.



**H GATE VALVE**  
SCALE: N.T.S.

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IRRIGATION INSTRUCTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Work included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and project specifications sections, apply to these instructions.

1.3 SCOPE OF WORK

A. The Contractor shall furnish all service, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings as specified and shall perform other incidental work necessary to meet the intent of this specification and the approved plans including the following:

- 1. Submittals of materials lists, as-builts, controller charts, manuals and guarantee.
2. Furnishing, delivery, storage, handling, assembly and installation of materials described in these instructions and as indicated on the drawings.
3. System adjustment and testing.
4. Notification of the Landscape Architect in advance of scheduled observations.
5. Cross connection inspections and testing as required by state or local agencies for non-potable, or potable water.
6. Construction-site clean up.
7. Maintenance period.
8. One-year guarantee.
9. Protection of work and materials.

B. All work called for in the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specification.

C. The Contractor shall coordinate his work with other trades involved; i.e. Grading, plumbing and electrical contractors.

D. Physical layout:

1. Due to the scale of drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such fittings, etc. As may be required to meet such conditions.

2. The irrigation design is diagrammatic. All piping, valves, etc., shown within paved areas are for design clarification only and shall be installed in planting areas to the greatest extent possible. Avoid conflict with utilities, new planting, new site or architectural elements, and existing trees.

3. Paving, walls, landscape headers and mowing strips shall be in place before installation of sprinkler system.

4. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that unknown obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect. In the event this notification is not performed, the irrigation contractor shall assume full responsibility for any revision necessary and shall perform such revisions at his own expense.

E. Contractor shall acquaint himself with all site conditions prior to submitting bid proposal.

1.4 SUBMITTALS REQUIRED

A. Comply with submittal procedures, unless otherwise indicated.

B. Material list:

1. The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and specifications. No substitution will be allowed without prior written approval by the Landscape Architect.

2. Complete material list shall be submitted prior to performing any work. Material list shall include the manufacturer, model number and description of all materials and equipment to be used.

3. Equipment or materials installed or furnished without prior approval of the Landscape Architect may be rejected and the Contractor required to remove such materials from the site at his own expense.

4. Approval of any item, alternate or substitute indicates only that the product or products apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.

5. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

C. Record and as-built drawings:

1. The Contractor shall provide and keep up to date a complete "as built" record set of plans which shall be corrected daily and show every change from the original drawings and specifications and the exact "as built" locations, sizes, and kinds of equipment. This set of drawings shall be kept on the site and shall be used only as a record set.

2. These drawings shall also serve as work progress sheets, and the Contractor shall make neat and legible annotations therein daily as the work proceeds, showing the work as actually installed. These drawings shall be available at all times for review.

3. Contractor shall provide Landscape Architect and owner with a record set of drawings before final acceptance of work.

4. Contractor shall dimension from two (2) permanent points of reference, building corners, sidewalk, or road intersections, etc., the location of the following items:

- a. Connection to existing water lines
b. Connection to existing electrical power
c. Ball valves
d. Routing of sprinkler pressure lines (dimension max 100' along routing)
e. Remote control valves
f. Routing of control wiring
g. Quick coupling valves
h. Other related equipment as directed by Landscape Architect significant changes in routing of lateral lines from those indicated on the plans.

6. On or before the date of the final observation, the Contractor shall deliver the corrected and completed "as-built" plans to the Landscape Architect. Delivery of the "as-built" plans will not relieve the Contractor of the responsibility of furnishing required information that may be omitted from the plans.

D. Controller charts:

1. As-built drawings shall be approved by the Landscape Architect before controller charts are prepared.

2. Provide one controller chart for each controller supplied.

3. The chart shall show the area controlled by the automatic controller and shall be the maximum size which the controller door will allow.

4. The chart is to be a reduced drawing of the actual as-built system. However, in the event the controlled sequence is not legible when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced.

5. The chart shall be a photocopy print and a different color shall be used to indicate the area of coverage for each station.

6. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 10 mils. Thick.

7. These charts shall be completed and approved prior to final observation of the irrigation system.

E. Operation and maintenance manuals:

1. Prepare and deliver to the owner within ten calendar days prior to completion of construction, two hard cover binders with three rings containing the following information:

- a. Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturer's representatives.
b. Catalog and parts sheets on every material and equipment installed under this contract.
c. Guarantee statement.
d. Complete operating and maintenance instructions on all major equipment.
e. In addition to the above mentioned maintenance manuals, provide the owner's maintenance personnel with instructions for major equipment and show evidence in writing to the owner at the conclusion of the project that this service has been rendered.

F. Equipment to be furnished:

- 1. Supply as part of this contract the following tools:
Two (2) sets of special tools required for removing, disassembling and adjusting each type of valve supplied on this project as applicable.
Two (2) keys for each automatic controller.
One (1) quick coupler key and matching hose swivel for every five (5) of each type of quick coupling valve installed.
Two (2) sets of special tools required for adjusting each type of sprinkler supplied on this project.
2. The above mentioned equipment shall be turned over to the owner at the conclusion of the project. Before final observation can occur, evidence that the owner has received material must be shown to the Landscape Architect.
G. Guarantee: the irrigation system guarantee shall be made in accordance with the form below.
1. A copy of the guarantee form shall be included in the operations and maintenance manual. The guarantee form shall be re-typed onto the Contractor's letterhead as follows:

GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM

We hereby guarantee that the sprinkler irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted. We agree to repair or replace any defects in material or workmanship, including settling of backfilled areas below grade which may develop during the period of one year from date of acceptance and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the owner. We shall make such repairs or replacements within 72 hours after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt. A of written notice from the owner, we authorize the owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

Project: \_\_\_\_\_

Location: \_\_\_\_\_

Signed: \_\_\_\_\_

Contractor

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

Phone: \_\_\_\_\_

Date of acceptance: \_\_\_\_\_

1.5 PROTECTION OF WORK AND MATERIALS

A. Packing and shipping: deliver products in original unopened packaging with legible manufacturer's identification.

B. Storage and protection: comply with manufacturer's recommendations.

- 1. Store in a cool, dry place out of direct sunlight.
2. Protect from damage by the elements and construction procedures.
3. Store at temperature above 40 degrees f.

C. Contractor shall protect his work and the work of others for the duration of this contract.

D. Contractor shall protect pipes and fittings from direct sunlight and avoid undue bending and any concentrated external loading. Beds on which pipe is stored shall be full length of pipe. Pipe or fittings that have been damaged shall not be used.

E. Extreme care shall be exercised in excavating and working in the area due to existing utilities. Contractor shall be responsible for damages caused by his operations.

F. Contractor shall take necessary precautions to protect site conditions and plant material that is to remain. Should damage be incurred, contractor shall repair damage and restore to original condition or furnish and install equal replacements.

G. All existing irrigation systems that are to remain shall be kept in operation at all times. If the existing system is damaged by contractor, he shall be responsible for immediate repair of such damage. After each repair, all heads of the repaired system shall be removed so that the lines can be cleared of all dirt and foreign matter.

PART 2 - PRODUCTS

2.1 MATERIALS

A. When using materials with non-potable water, use an appropriate model designated and manufactured for this purpose.

B. Piping: pipe sizes shown are nominal inside diameter unless otherwise noted.

- 1. PVC plastic pressure lines: for piping upstream of remote control valves and quick couplers: all 2" pipe and larger shall be class 315: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, conforming to commercial standards CS256-63 and ASTM D2241. All 1-1/2" pipe and smaller shall be Schedule 40: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, conforming to

commercial standards CS256-63 and ASTM D1785. All pipe carrying non-potable water shall be pantone 512 purple in color and imprinted with the admonition, "caution - recycled water - do not drink" every three feet on opposite sides.

2. PVC plastic non-pressure lines: for piping downstream of remote control valves: all pipe shall be Schedule 40: Type 1, Grade 1 (impact modified), designated as 12454, PVC 1120, (SDR21), conforming to commercial standards CS256-63 and ASTM d2241. All pipe carrying non-potable water shall be pantone 512 purple in color and imprinted with the admonition, "caution - recycled water - do not drink" every three feet on opposite sides.

3. For sub-surface drip irrigation: For sub-surface drip piping downstream of remote control valves, all pipe shall be per plan and sub-surface dripline product Manufacturer's specifications, including for supply and exhaust headers.

C. Fittings and connections:

1. Polyvinyl chloride pipe fittings and connections: Type 1, Grade 1, Schedule 40, high impact molded fittings, manufactured from virgin compounds as specified for piping, tapered socket or molded thread type, suitable for either solvent weld or screwed connections. Machine threaded fittings and plastic saddle and flange fittings are not acceptable. Furnish fittings permanently marked with following information: nominal pipe size, type and schedule of material, and national sanitation foundation (NSF) seal of approval. PVC fitting shall conform to ASTM D2464 and D2466.

2. ABS and PVC pipe fittings and connections (for drip irrigation): for above-ground drip piping downstream of remote control valves: all fittings shall be UV-rated unless otherwise shown on plans.

D. Automatic control wire: electric wiring runs from the automatic controller to the electric control valves shall be solid single conductor, copper wire. Neutral (common) wires shall be a minimum size of #12 and colored white. Control wires shall be a minimum size of #14 in colors other than white. All wire shall have a PVC UF jacket with a minimum of .045" thick insulation. Wire shall be UL listed and approved for direct burial.

E. Valve-mounted battery operated in-ground controllers: as shown on plans.

F. Control valves: remote control valves shall be as shown on plans.

G. Valve box: for remote control valves and ball valves, use rectangular box with locking cover by NDS Pro Series or approved equal. Valve box shall be of a size that accommodates all equipment as illustrated on the plans.

H. Gate valves: gate valves shall be as shown on plans.

I. Pressure reducing valves: pressure reducing valves shall be as shown on plans.

J. Tracer wire: tracer wire shall be installed above mainline and shall be metal detectable and Tapex or equal. Include "Dymo-tape" type plastic label with the designation "Tracer wire".

K. Drip emission devices: drip emitters, inline emitter tubing shall be as shown on plans.

L. Sensors:

1. Soil sensors shall be as shown on plans and installed per manufacturer's specifications.

M. Wire connectors: wire connectors shall be Scotchklok or equal.

N. Filter fabric: filter fabric under valve boxes shall be landscape quality, non-woven geotextile fabric with 3 oz/sy minimum weight.

O. PVC Ball Valves: as shown on plans and shall be installed before each electric control valve and shall be as shown on plans.

P. PVC Unions: as shown on plans and shall be installed before and after each electric control valve and shall be as shown on plans.

1. PART 3 - EXECUTION

3.1 INSTALLATION OF IRRIGATION SYSTEM

A. Code requirements:

1. Code requirements shall be those of state and municipal codes and regulations locally governing this work, providing that any requirements of the drawings and specifications, not conflicting therewith but exceeding the code requirements, shall govern, unless written permission to the contrary is granted by the Landscape Architect.
2. Install irrigation system in accordance with all local and state codes and ordinances.

B. Prior to construction:

- 1. The Contractor shall inspect the site and verify conditions and dimensions, as scaled dimensions are approximate.
2. The Contractor shall locate all cables, conduits, sleeves and other utilities or architectural features that are commonly encountered underground and take proper precautions not to damage or disturb such improvements. Any damage made during the installation of the irrigation system of the aforementioned items shall be prepared and/or replaced to the satisfaction of the owner at the contractor's own expense. Contact USA at 1-800-227-2600.
3. Point of connection
1. Contractor is responsible for making final connection between water source and irrigation system. Water source shall be provided by others unless specified otherwise on plans.
2. Connections shall be made at approximately the locations shown on the drawings. Contractor shall be responsible for minor changes caused by actual site conditions. Connect new underground piping and valves and provide all flanges, adapters or other necessary fittings for connection.
3. Permission to shut off any existing in-use water line must be obtained 48 hours in advance, in writing from the owner. The Contractor shall receive instructions from the owner as to the exact length of time of each shut-off.
D. Sleeves:
1. Contractor is responsible for installation of sleeves under all hardscape surfaces. Sleeves are diagrammatically depicted on the drawings only, and may not depict actual field conditions or quantity of sleeves.
2. If sleeves are to be installed by others, the Contractor is responsible for coordinating installation of sleeves under paved areas with Paving Contractor.
E. Excavation and backfilling of trenches:
1. Do not trench in lime-treated soils.
2. Underground trenching for utilities shall avoid major support and absorbing tree roots of protected trees.
3. Excavate trenches, prepare subgrade, and backfill to line and grade with sufficient room for pipe fittings, testing and observation operations. Do not backfill until the pipe system has been subjected to a hydrostatic test as specified.
4. Depth of piping: as specified unless otherwise noted on plans.

Under pedestrian paving:
Pressure mainline 24" min.
Control wiring 24" min.
Non-pressure lateral line 24" min.

Under vehicular paving:
Pressure mainline 36" min.
Control wiring 36" min.

Non-pressure lateral line 36" min.

Under planting areas:

Pressure mainline 18" min.
Control wiring 18" min.
Non-pressure lateral line 12" min.

5. When trenching through areas where topsoil or biofiltration soil has been spread, deposit topsoil/biofiltration soil on one side of trench and sub-soil on opposite side.

6. Repair any leaks and replace all defective pipe or fittings until lines meet test requirements. Do not cover any lines until they have been inspected and approved for tightness, quality of workmanship and materials.

7. Backfill: compact specified backfill to be equal the compaction of the existing, adjacent, undisturbed soil.

F. Sub-soil backfill shall be free of all rocks over one inch diameter, debris and litter.

G. Sand backfill shall be used at the bottom of all trenches under paving, or in rocky terrain. Sand depth to include a minimum of 2" under and 4" over piping.

1. Generally, piping under existing sidewalks and/or concrete may be accomplished by jacking or boring, but where any cutting or breaking of sidewalk and/or concrete is necessary, it shall be done and replaced by the contractor as part of the contract cost. Permission to cut or break sidewalks and/or concrete shall be obtained from the owner.

H. Installation of polyvinyl chloride pipe:

1. Because of the nature of plastic pipe and fittings, exercise caution in handling, loading and storing, to avoid damage.

2. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.

3. Any pipe that has been dented or damaged shall be discarded until such dent or damaged section is cut and rejoined with a coupling.

4. Pipe depth in trench shall be as specified above, from the finish grade to the top of the pipe. The bottom of the trench shall be free of rocks, clods, and other sharp-edged objects.

5. Pipe ends and fittings shall be wiped with MEK, or equal, before welding solvent is applied. Welded joints shall be given a minimum of 15 minutes to set before moving or handling. All field cuts shall be beveled to remove burrs and excess before fitting and gluing together.

6. Pipe shall be snaked from side-to-side of trench bottom to allow for expansion and contraction.

7. Center load pipe with small amount of backfill to prevent arching and slipping under pressure. Leave joints exposed for observation(s) during testing.

8. No water shall be permitted in the pipe until observations have been completed and a period of at least 24 hours has elapsed for solvent weld setting and curing.

9. Plastic to metal joints shall be made with plastic male adapters, metal nipple hand tightened, plus one turn with a strap wrench.

10. Plastic to plastic joints: solvent-weld, using solvent recommended by pipe manufacturer only.

11. Solvent-weld joints: assemble per manufacturer's recommendations.

12. All lateral end runs shall be 3/4" size unless otherwise specified.

I. Installation of polyethylene (PE) pipe:

1. Because of the nature of plastic pipe and fittings, exercise caution in handling, loading and storing, to avoid damage.

2. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.

3. Any pipe that has been dented or damaged shall be discarded until such dent or damaged section is cut and rejoined with a coupling.

4. Plastic to plastic joints: assemble with PVC or ABS compression fittings unless otherwise specified on plans.

5. Stake pipe to ground every 3' on center.

J. Remote control wiring:

1. Direct burial control wire sizes: as specified herein, before.

2. Provide one control wire and one common ground wire to service each valve in system. Provide 3 foot minimum expansion loop at each valve to permit removal and maintenance of valves. Do not interconnect neutral wires between controllers.

3. Install control wires at least 18" below finish grade and minimum of 4" from any pipe or fittings except at terminal points.

4. Install control wires and irrigation piping in common trenches wherever possible.

5. Control wire splices: allow only on runs of more than 300-feet and shall be made only in valve or pull boxes only, splices as follows:

- a. Strip off minimum of 2-1/2" of insulation from each wire.
b. Twist on Scotchklok electrical spring connector, minimum four complete turns.
c. Seal connector in Epoxy resin.
d. Tape completed splice with Scotch 33 electrical tape.

K. Numbering and tagging: identify direct burial control wires from automatic valves to terminal strips or controller at terminal strip by color coding and tagging wire with number of connected valve.

L. Include two (2) red (#14 AWG) spare wires from furthest valve to each controller.

M. Each individual controller clock's control wires shall be bundled and taped together with colored tape at intervals not exceeding 10'-0". Use a different-colored tape for each controller.

N. Valve mounted battery operated in-ground controller: Battery operated controllers shall be installed as shown on plans and per Manufacturer's specifications.

O. Remote control valves: install remote control valves in locations as shown on the drawings, with a clearance of 4 1/2 inches minimum over top of flow control stem. Install a union type connections and PVC ball valve. Fit with valve box and cover.

O. Valve boxes: install valve boxes as shown on detail. Install no more than one valve per box. Install valve boxes so that the top of the valve box is 3" above finished grade in areas receiving 3" layer of mulch. See planting specifications, as actual depth of mulch may vary. Stencil valve number and controller letter on underside of valve box lid. Valve boxes shall be identified on the top surface of the covers by heat branding the box lid with the appropriate abbreviations for the irrigation facilities contained in the valve boxes as shown on the plans. Valve boxes that contain remote control valves shall be identified by the appropriate letters and numbers (controller and station numbers). Identification letters or numbers shall be 2 inch high. Heat branding shall be accomplished using branding irons specifically designed for this purpose. Heat branding shall not weaken or in any way puncture the valve box cover.

P. Sensors: Soil sensors shall be installed as shown on plans and per Manufacturer's specifications.

Q. Tracer Wire:

1. Tracer tape shall be installed in trenches above main line and control wires.

2. Tracer tape shall follow the main line pipe and/or branch lines and terminate in the yard box with the control valves. Provide enough length of wire or tape to make a loop and attach a "Dymo-tape" type plastic label with the designation "Tracer wire".

Q. Flushing of system:

1. After all new main lines and lateral lines are in place and connected, all necessary work has been completed, and prior to installation of drip lines, the control valves shall be opened and a full head of water used to flush out the system.

2. Drip irrigation shall be installed only after flushing of the system has been accomplished to the complete satisfaction of the Landscape Architect.

R. Pressure test the system before covering trenches to pre-test for leaks.

S. Pre-irrigate planting areas to ensure that the soil is hydrated to field capacity before planting begins.

3.2 SYSTEM ADJUSTMENT AND TESTING

A. Adjustment of the system:

1. If it is determined that adjustment in the irrigation equipment will provide proper and more adequate coverage, the Contractor shall make such adjustments prior to planting.

B. Testing of the system:

1. Test all pressure lines under hydrostatic pressure of 150 pounds per square inch, and prove watertight for 3 hours. Note: testing of pressure mainlines shall occur prior to installation of electric control valves.

2. All piping under paved areas shall be tested under hydrostatic pressure of 150 pounds per square inch, and proved watertight, prior to paving.

C. Watering schedules:

1. Station operating times shall not exceed the soil's infiltration rate as determined by the soils report.

2. Watering schedules shall be adjusted not to exceed local evapotranspiration (ETO) rate.

3.3 OBSERVATION SCHEDULE

A. Observations herein specified shall be made by the Landscape Architect. The Contractor shall request observations in writing, 3 days in advance of the time observation is required.

B. The Contractor or his authorized representative shall be on the site at the time of each observation.

C. Observation will be required for the following parts of the work:

1. Pre-construction meeting (this includes planting review also).

2. When all irrigation installations, except the maintenance period, have been completed. Acceptance and written approval shall establish start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

3. At the end of ninety (90) days from the start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

4. At the end of one (1) year from the start of the maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

5. Final observation at the completion of the two (2) year maintenance period. The Agency's Representative and City's Representative shall be requested to be present for this observation.

D. Acceptances: upon completion of the final observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable, (2) of any requirements necessary for completion and acceptance.

E. The Contractor will be charged, and responsible for, any time and mileage used by the Landscape Architect as a result of prematurely scheduled site visit.

3.4 CLEAN-UP

A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete areas adjacent to plantings.

3.5 MAINTENANCE/PLANT ESTABLISHMENT

A. The maintenance period begins on the day the Landscape Architect has given notice of substantial completion and shall continue thereafter for no less than two (2) years.

1. These instructions are to be used in conjunction with the project's Storm Water Planter Maintenance Manual.

2. The Contractor shall call for inspections per the Observation section above.

3. Phased maintenance periods, if required, shall be negotiated prior to construction.

4. If phased maintenance periods are not negotiated prior to construction, the maintenance period for all areas will begin after the entire project is 100% complete per contract documents. Portions completed earlier shall be maintained up to and including the specified maintenance period without additional compensation.

B. The Contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period until the final acceptance of the work.

C. Regular irrigation maintenance operations shall begin immediately after each system is installed.

D. The contract completion date of the contract maintenance period will be extended, when in the opinion of the Landscape Architect, improper maintenance is evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work at no change in contract price until all of the work is completed and acceptable.

E. The Contractor shall be responsible for maintaining adequate protection of the areas. Damaged areas shall be repaired immediately per the Definitions and Limits of Work as described in the Storm Water Planter Landscape Maintenance Manual.

End of Instructions

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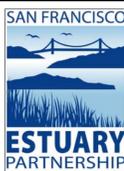


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