Appendix A: Permits

The Owner anticipates the following environmental permits:

1. U.S. Army Corps of Engineers (USACE) Section 404 Clean Water Act for impacts to jurisdictional wetlands and Section 10 Rivers and Harbors Act for work in, on or under waters of the United States.

2. U.S. Fish and Wildlife Service (USFWS) Section 7 Endangered Species Act consultation for endangered species (e.g., Biological Opinion).

3. National Marine Fisheries Service (NMFS) Section 7 consultation for endangered species (i.e., Letter of Concurrence or Biological Opinion) and consultation on Essential Fish Habitat under the Magnuson Stevens Act.

4. State Historic Preservation Officer (SHPO) consultation and/or Tribal Historic Preservation Officer (THPO) with Section 106 of National Historic Preservation Act (NHPA)

5. National Oceanic and Atmospheric Administration (NOAA) authorization by the superintendent of the Monterey Bay National Marine Sanctuary of federal, state, and local agencies' permits within the sanctuary in accordance with NOAA's National Marine Sanctuary Program (15 CFR Part 922)

6. California Public Utilities Commission (CPUC) Certificate of Public Convenience and Necessity

7. Central Coast Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity under Section 402 of the Clean Water Act.

8. RWQCB Porter-Cologne Water Quality Control Act Waste Discharge Requirements

9. California Department of Fish and Wildlife (CDFW) Section 1602 Lake/Streambed Alteration Agreement.

10. CDFW and USFWS limitations near active nests per the Migratory Bird Treaty Act.

11. CDFW California Endangered Species Act Section 2081 Incidental Take Permit.

12. RWQCB 401 Water Quality Certification for the discharge of dredged or fill materials

13. RWQCB Potable Water Discharges Permit

14. California Coastal Commission (CCC) California Coastal Act Coastal Development Permit (CDP)

15. California Department of Public Health (CDPH) Permit to Operate a Public Water System

16. California Department of Transportation (Caltrans) Encroachment Permits

17. California Department of Toxic Substances Control (DTSC) hazardous waste management and disposal requirements under Title 22, Division 4.5, Chapter 11, Article 3, Soluble Threshold Limit Concentrations (STLC)/Total Threshold Limits Concentrations (TTLC)

18. California State Lands Commission (CSLC) New Land Use Lease and Amended Land Use Lease

19. California Department of Health Services Office of Drinking Water: Variance for exceptions to their regulations regarding separation requirements for water and sewer lines

20. Monterey County Public Works Department Encroachment Permit and Tree Removal Permit

21. Monterey County Health Department, Environmental Health Division Well Construction Permit and Permit to Construct Desalination facility

22. Monterey County Planning and Building Inspection Department

    a. Conditional Use Permit

    b. Grading Permit

    c. Digging and Excavation Permit

    d. Erosion Control Permit

23. Monterey Peninsula Water Management District (MPWMD) Water System Expansion Permit from Ordinance 96 of the MPWMD Board of Directors

24. Monterey Bay Unified Air Pollution Control District (MBUAPCD) Authority to Construct permit and Permit to Operate

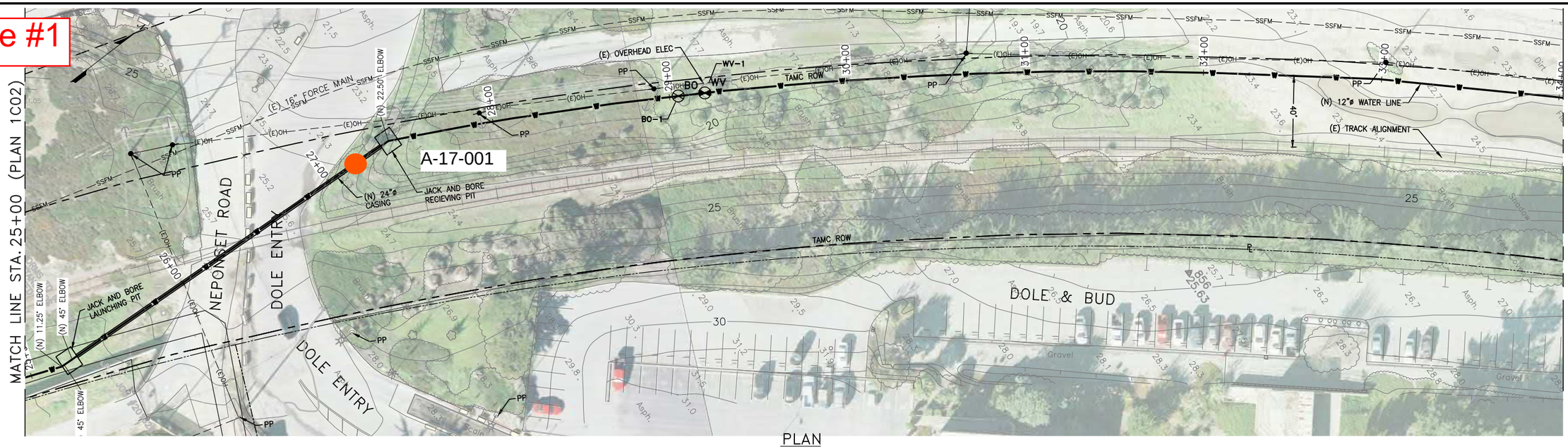
25. Transportation Agency for Monterey County (TAMC) Encroachment Permit

Transportation Agency for Monterey County (TAMC) Encroachment Permit

Attachments:

- Overview Map and Detailed Transmission Main Maps of Geotechnical Boring Sites
- Site Map along Castroville Alternative of Shallow Soil Samples
- Eagle Creek Tenant Lease Access Requirements

Site #1



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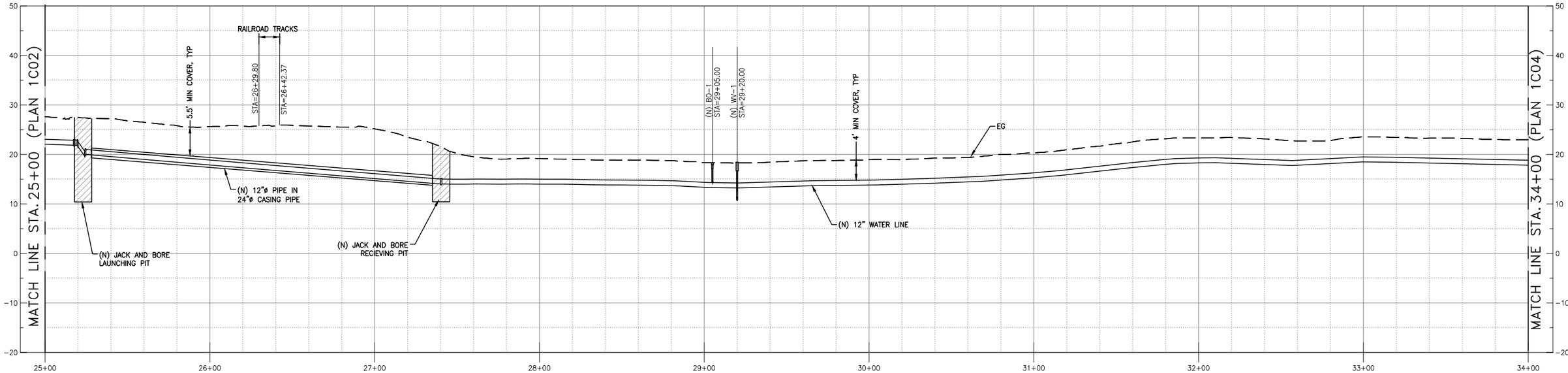

PROFILE
HORIZ 1"=30', VERT 1"=10'

NOTES:

1. CONCRETE PAVEMENT BRIDGE APPROACH STARTS IN MONTE ROAD AROUND STATION 29+00. THERE IS AN ASPHALT PAVED SHOULDER, ABOUT 4 FEET WIDE. INSTALL PIPELINE OFF CONCRETE PAVEMENT IN THIS SHOULDER.
2. THE PROFILE SHOWN IS FOR WATERLINE ALONG ALT-1 ALIGNMENT. THE ALT-2 ALIGNMENT SHOWN ON THE PLANS IS FOR REFERENCE ONLY.

A-17-001 Proposed Boring Location

90% PROGRESS SET
NOT FOR CONSTRUCTION

0 10 20 30
VERT 1" = 10'

0 30 60 90
HORIZ 1" = 30'

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPLINE
PLAN AND PROFILE STA 25+00 TO STA 34+00

CALIFORNIA
AMERICAN WATER

AECOM
300 LAKESIDE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY E. MEEKS
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE SEPTEMBER 2016 USE DIMENSIONS ONLY
PROJECT 60424498 SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

9009C03

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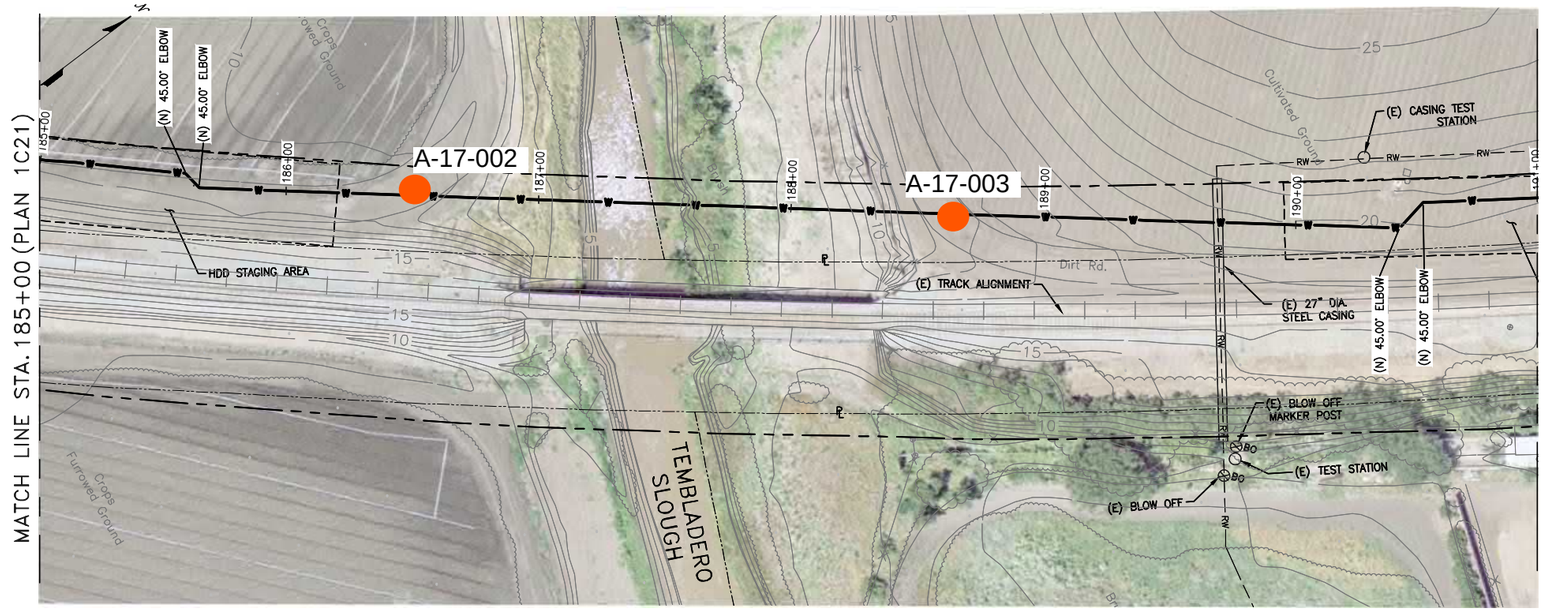
Site #2



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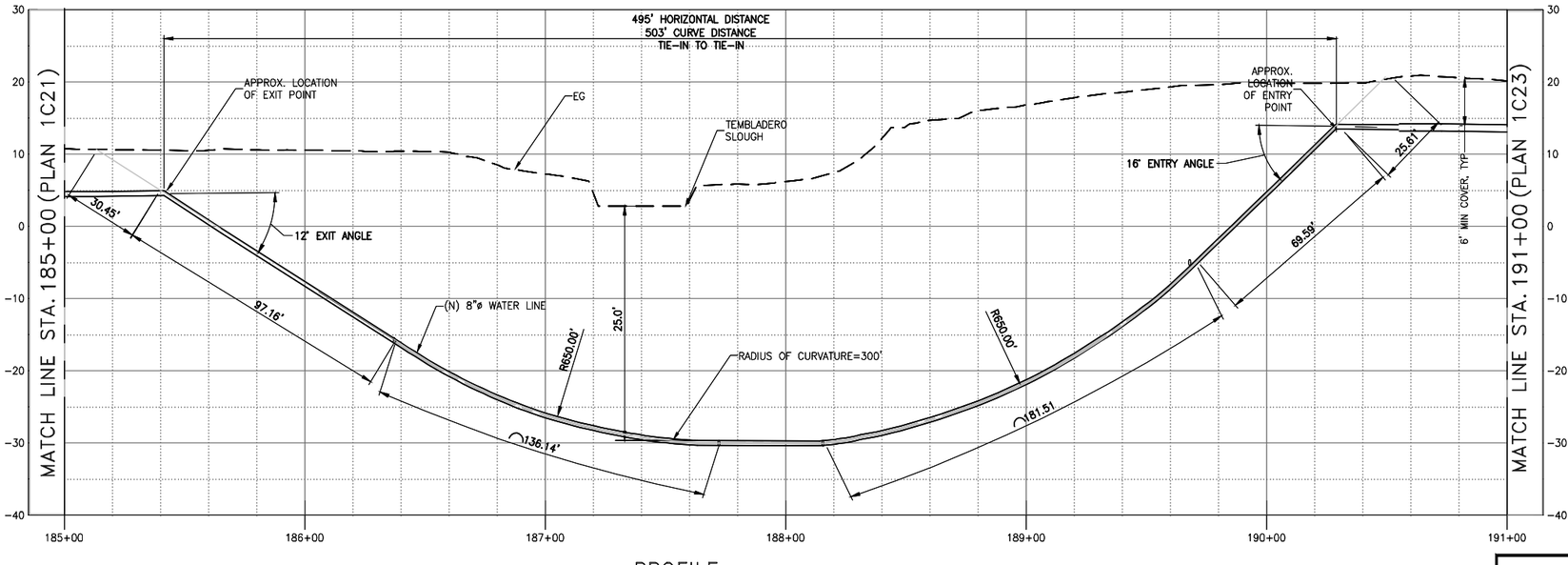

PROFILE
HORIZ 1"=30', VERT 1"=10'

NOTE:

1. INSTALL PIPE UNDER TEMBLADERO SLOUGH BY HDD. SEE RELEVANT HDD DETAILS AND SPECIFICATIONS.
2. STAGING AREAS MAY BE ADJUSTED AS NECESSARY TO FACILITATE HDD INSTALLATION. THE ENTIRE TAMC ROW IS AVAILABLE FOR STAGING EXCEPT CONTRACTOR SHALL NOT ENTER VEGETATED AREAS ADJACENT TO SLOUGH OR AREAS OUTSIDE TAMC RIGHT-OF-WAY.

60% PROGRESS SET
NOT FOR CONSTRUCTION

NOTE:
THE PROFILE SHOWN IS FOR WATERLINE ALONG ALT-1 ALIGNMENT. THE ALT-2 ALIGNMENT SHOWN ON THE PLANS IS FOR REFERENCE ONLY.

0 10 20 30
VERT 1" = 10'

0 30 60 90
HORIZ 1" = 30'

A-17-003 — Proposed Boring Location

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
CASTROVILLE PIPELINE
PLAN AND PROFILE STA 185+00 TO STA 191+00

CALIFORNIA AMERICAN WATER

AECOM
300 LAKESIDE, SUITE 400
OAKLAND, CALIFORNIA 94612

DRAWN BY E. MEEKS
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE SEPTEMBER 2016 USE DIMENSIONS ONLY
PROJECT 60424498 SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

9009C22

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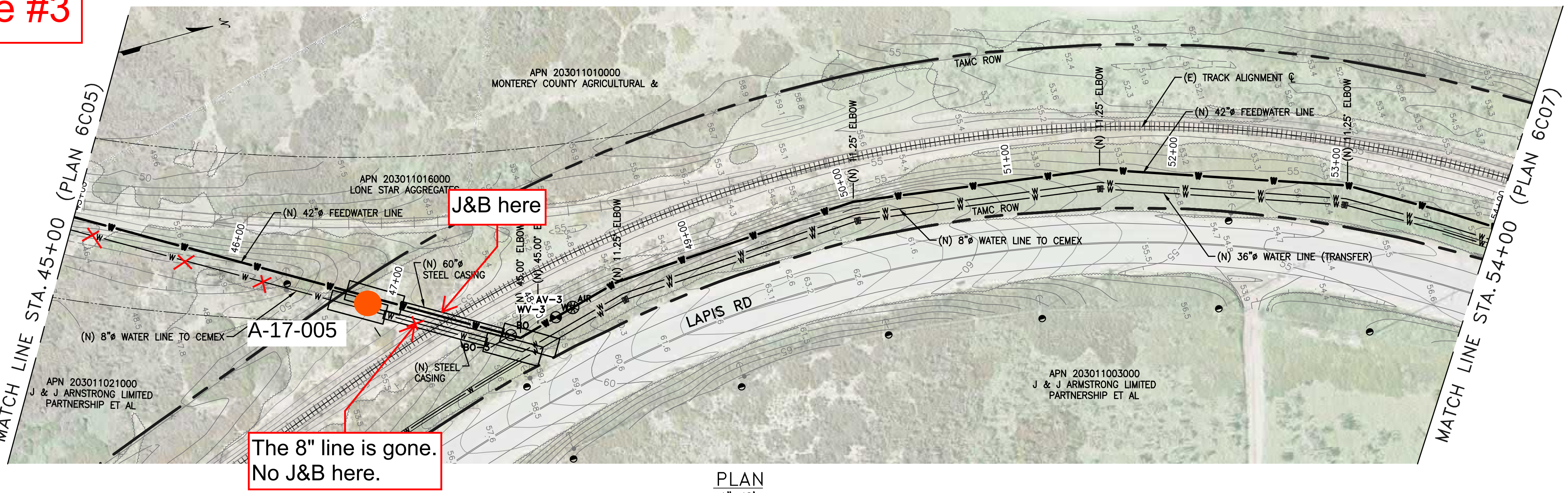
Site #3



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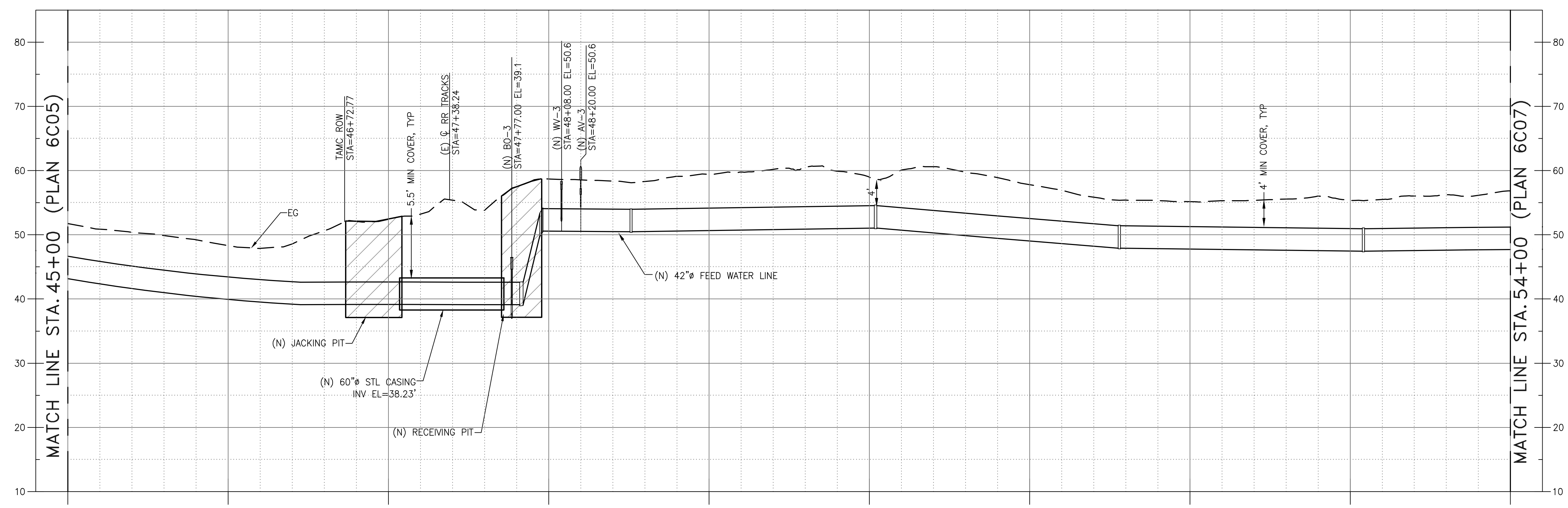


PROFILE
HORIZ 1"=40', VERT 1"=10'

● A-17-005 Proposed Boring Location

VERT 1" = 10' (0, 10, 20, 30)

HORIZ 1" = 40' (0, 40, 80, 120)

NOTES:

1. INSTALL (N) 8 INCH WATER AND (N) 36 INCH WATER MINIMUM 4 FEET EDGE-TO-EDGE FROM FROM (N) 42 INCH FEED WATER LINE. SEE DETAIL SHEET 0000C83 FOR TYPICAL SECTION THROUGH TAMC WITH 3 PIPES.
2. SEPARATE BORES ARE REQUIRED FOR 8 INCH WATER AND 42 INCH FEED WATER LINES.
3. INSTALL 3 PIPELINES IN TAMC ROW PER SHEET 0000C84.
4. SEE JACK AND BORE DETAILS SHEETS 0000C60 AND 0000C61.

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
FEED WATER PIPELINE
PLAN AND PROFILE STA 45+00 TO STA 54+00

CALIFORNIA AMERICAN WATER

AECOM
1333 BROADWAY, SUITE 800
OAKLAND, CALIFORNIA 94612

DRAWN BY C. SOMERA
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE AUGUST 2015
PROJECT 60424498

USE DIMENSIONS ONLY
SCALE AS SHOWN

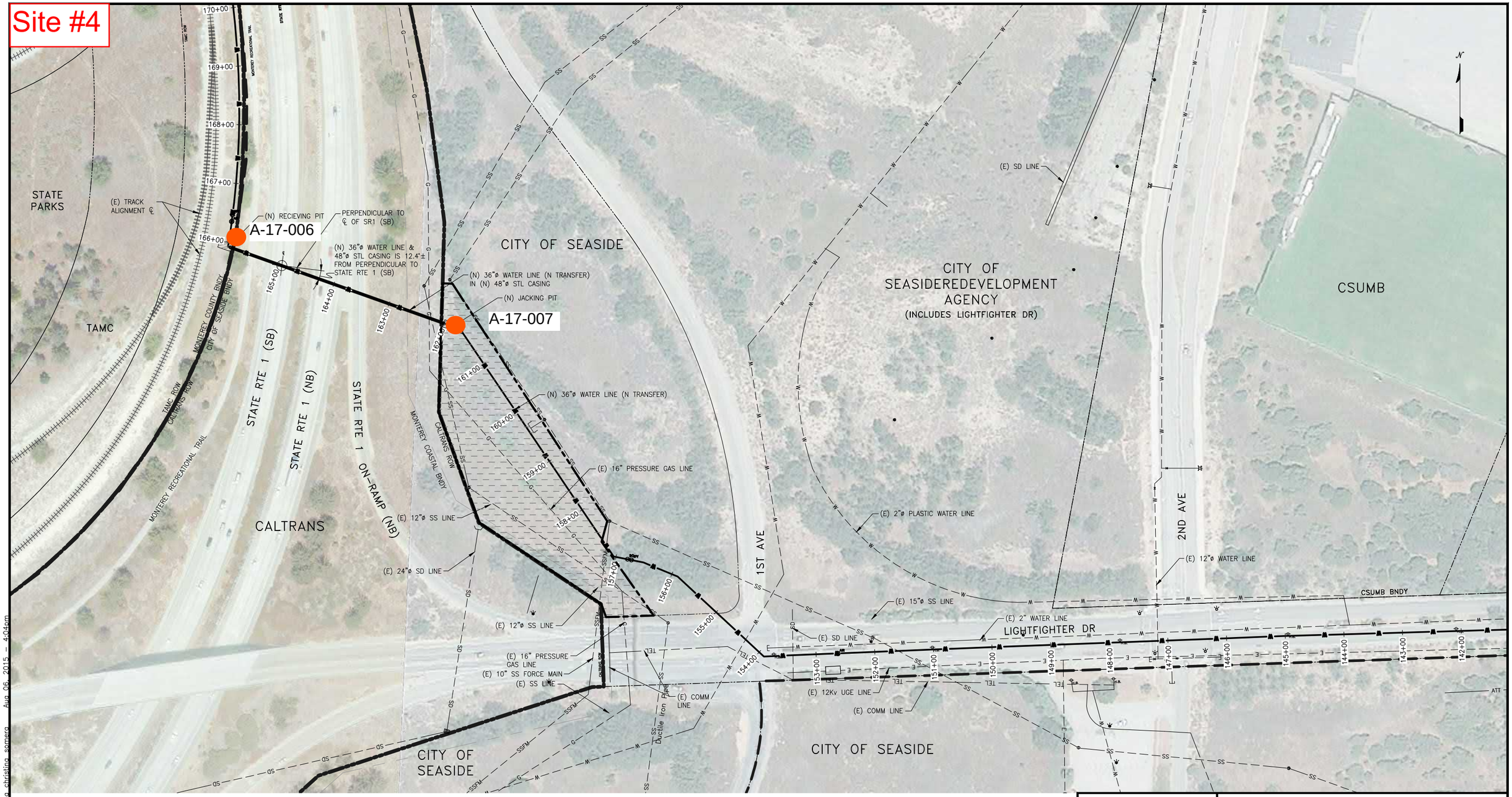
USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

6006C04

10006006C04

J:\CAL-Am-MPWSP\Sheet\10006006C04.dwg christina_somera Aug 07, 2015 - 4:27pm

Site #4



NOTES:

1.

LEGEND

STAGING AREA FOR JACK AND BORE

A-17-006 Proposed Boring Location

PLAN
1"=40'

0 10 20 30
VERT 1" = 10'

0 40 80 120
HORIZ 1" = 40'

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
TRANSFER PIPELINE
JACK AND BORE STAGING AREA

CALIFORNIA
AMERICAN WATER

URS CORPORATION
1333 BROADWAY, SUITE 800
OAKLAND, CALIFORNIA 94612

AECOM

CALIFORNIA AMERICAN WATER

DRAWN BY C. SOMERA
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE AUGUST 2015
PROJECT 60424498

USE DIMENSIONS ONLY
SCALE AS SHOWN

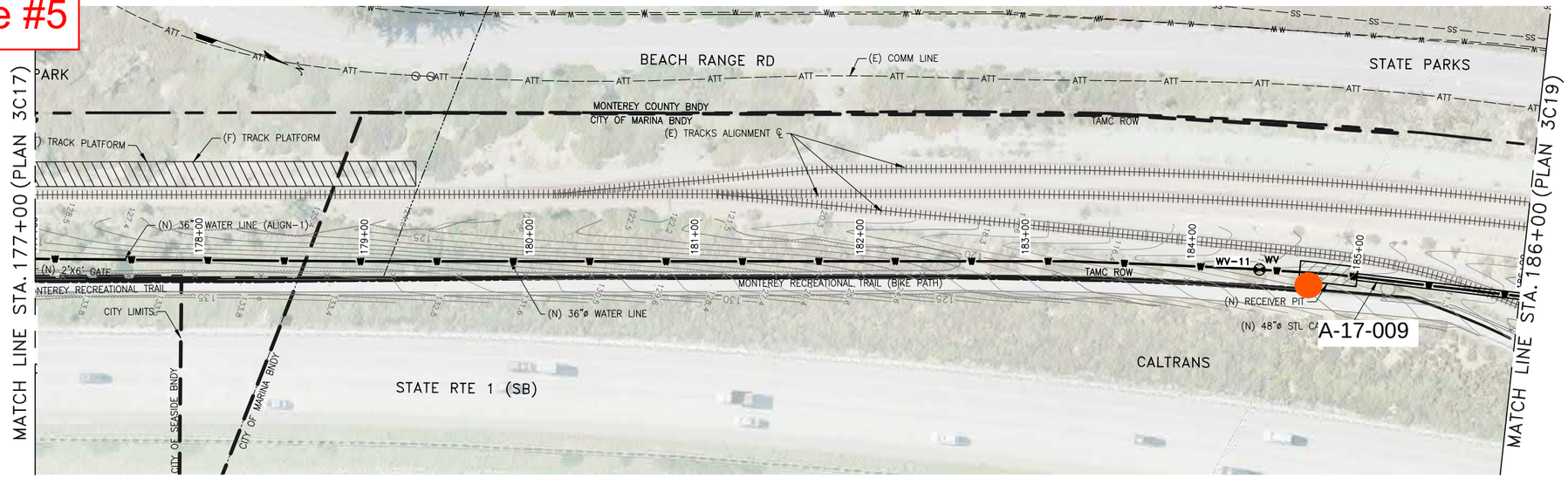
USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

3003C16-A

10003003C16-A

J:\CAL-Am-MPWSP\Sheet\10003003C16-A.dwg christina.somera Aug 06, 2015 - 4:04pm

Site #5



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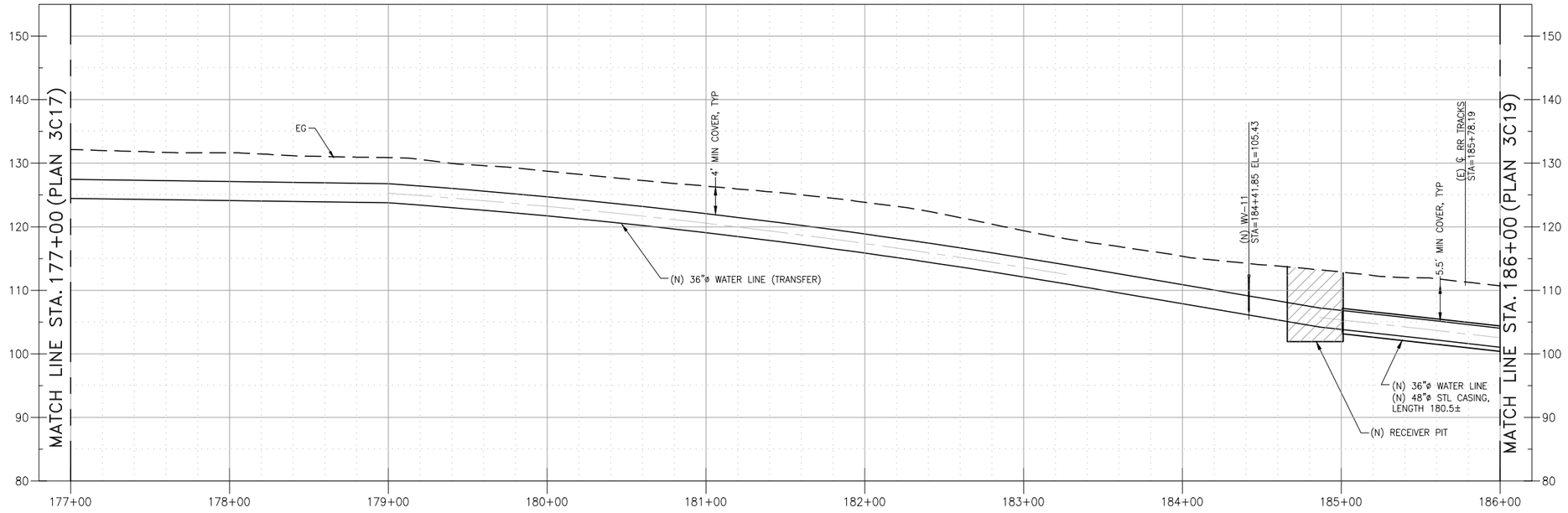


PROFILE
HORIZ 1"=40', VERT 1"=10'

NOTES:

1. STEEL CASING SHALL MEET TAMC REQUIREMENTS SUCH AS 5.5 FEET MINIMUM COVER FROM BASE OF RAIL.
2. CONTRACTOR IS PROHIBITED FROM ENTERING BIKE PATH, CALTRANS AND STATE PARK LANDS.
3. CONTRACTOR TO PROTECT AND SECURE WORK SO AS NOT TO IMPACT USERS OF BIKE PATH.
4. SEE JACK AND BORE DETAILS ON SHEETS 0000C60 AND 0000C61

A-17-009 Proposed Boring Location

0 10 20 30
VERT 1" = 10'

0 40 80 120
HORIZ 1" = 40'

REVISIONS

REGISTERED PROFESSIONAL ENGINEER A PROFESSIONAL ENGINEER No. C-50629 Exp. 9/30/15 CIVIL STATE OF CALIFORNIA

TRANSMISSION MAINS FOR MPWSP
CIVIL
TRANSFER PIPELINE
PLAN AND PROFILE STA 177+00 TO STA 186+00

CALIFORNIA
AMERICAN WATER

AECOM
1333 BROADWAY, SUITE 800
OAKLAND, CALIFORNIA 94612

DRAWN BY C. SOMERA
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE AUGUST 2015
PROJECT 60424498
USE DIMENSIONS ONLY
SCALE AS SHOWN

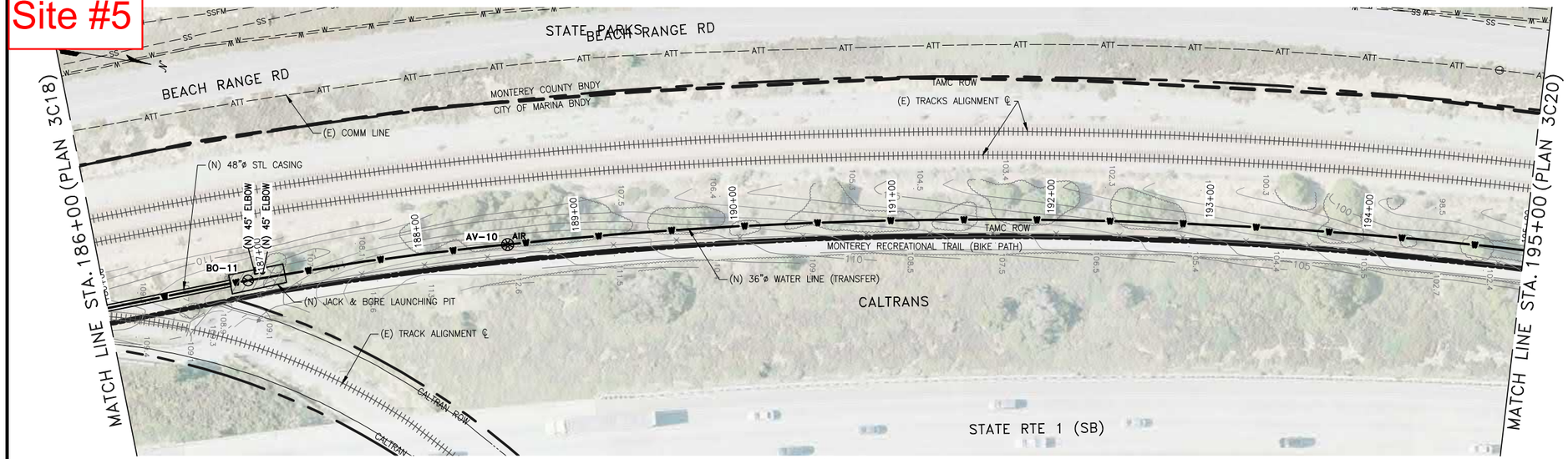
USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

3003C18

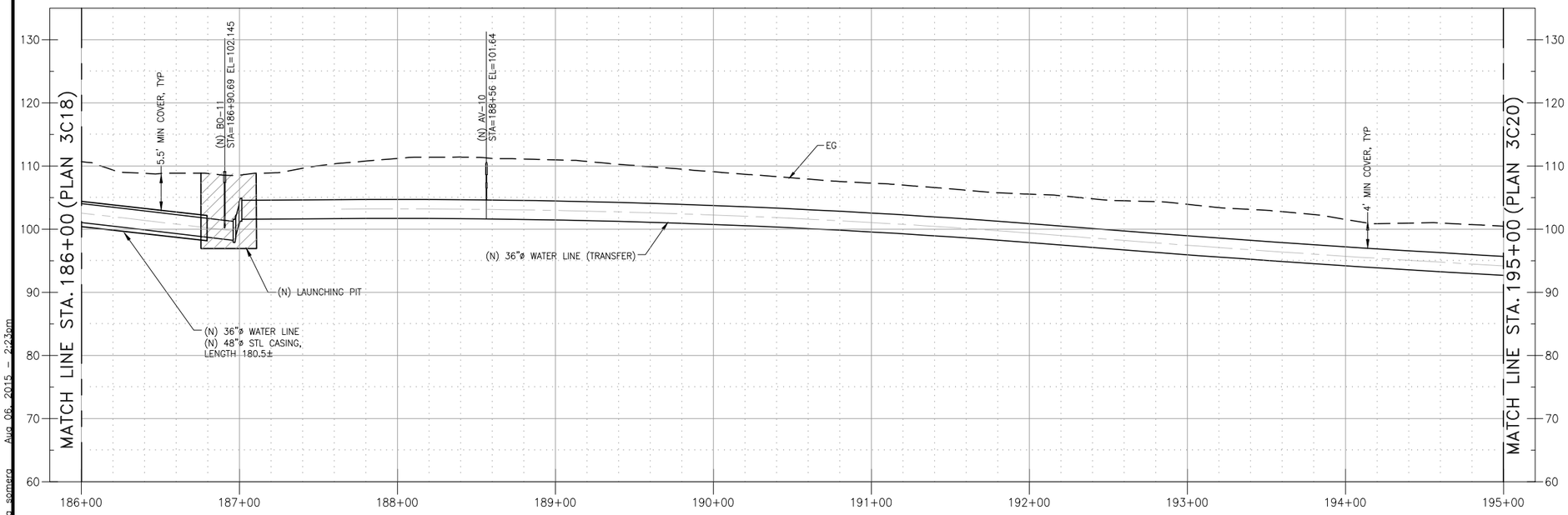
10003003C18

J:\CAL_Am_MPWSP\Sheet\10003003C18.dwg christina.somera Aug 06, 2015 - 2:21pm

Site #5



PLAN
1"=40'



PROFILE
HORIZ 1"=40', VERT 1"=10'

NOTES:

1. STEEL CASING SHALL MEET TAMC REQUIREMENTS SUCH AS 5.5 FEET MINIMUM COVER FROM BASE OF RAIL.
2. CONTRACTOR IS PROHIBITED FROM ENTERING BIKE PATH, CALTRANS AND STATE PARK LANDS.
3. CONTRACTOR TO PROTECT AND SECURE WORK SO AS NOT TO IMPACT USERS OF BIKE PATH.
4. SEE JACK AND BORE DETAILS ON SHEETS 0000C60 AND 0000C61

0 10 20 30
VERT 1" = 10'

0 40 80 120
HORIZ 1" = 40'

REGISTERED PROFESSIONAL ENGINEER
JENNIFER A. HYMAN
No. C-50926
Exp. 9/30/15
CIVIL
STATE OF CALIFORNIA

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
TRANSFER PIPELINE
PLAN AND PROFILE STA 186+00 TO STA 195+00

CALIFORNIA
AMERICAN WATER

AECOM
1333 BROADWAY, SUITE 800
OAKLAND, CALIFORNIA 94612

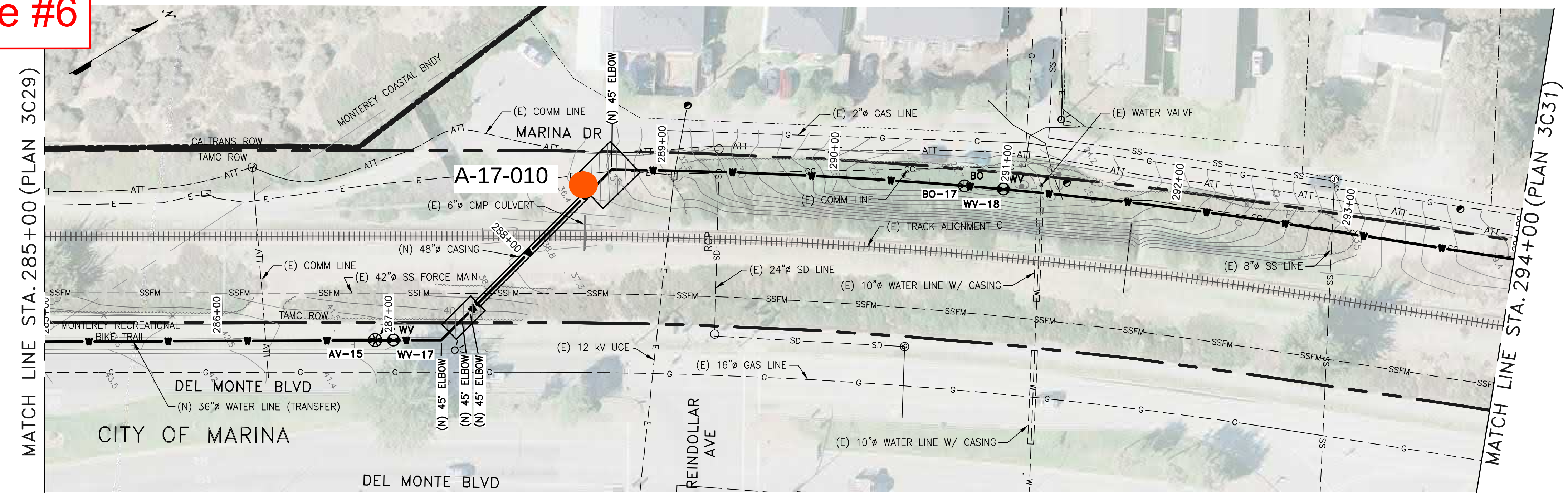
DRAWN BY C. SOMERA
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE AUGUST 2015
PROJECT 60424498
USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

3003C19

10003003C19

Site #6

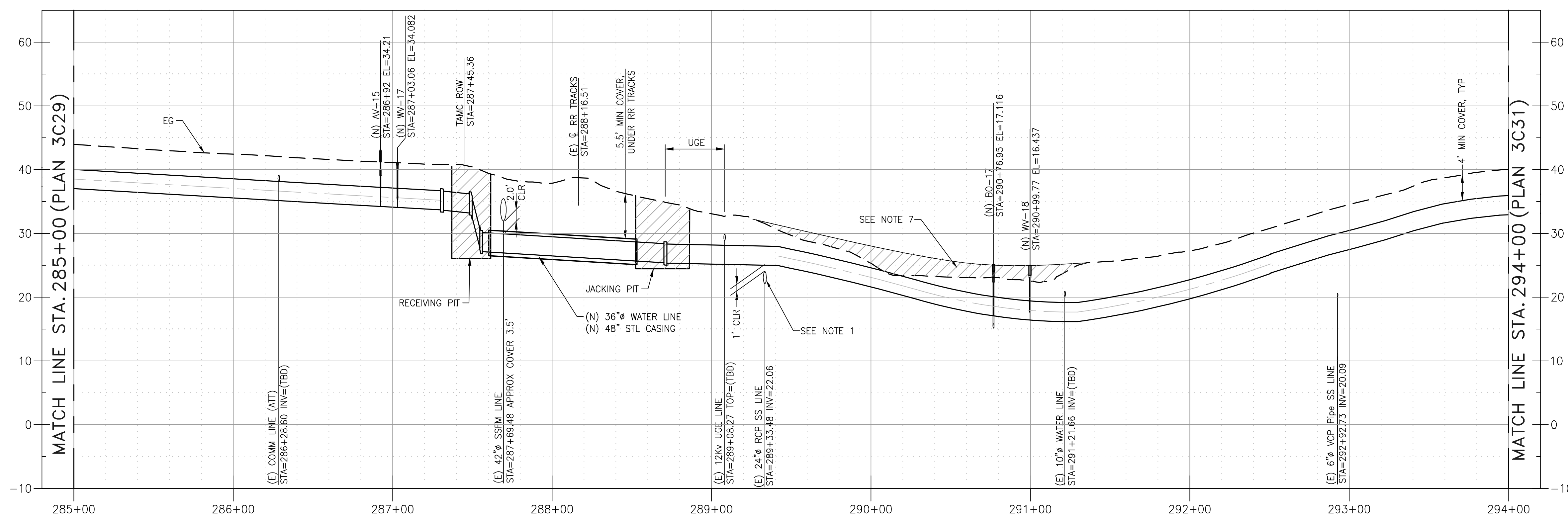


PLAN
1"=40'

NOTES:

1. INSTALL (N) WATER PIPE OVER SS LINE. INSTALL CONCRETE CAP IF COVER IS LESS THAT 3 FEET OVER (N) PIPE.
2. CONTRACTOR IS PROHIBITED FROM ENTERING CALTRANS LANDS.
3. CONTRACTOR IS PROHIBITED FROM ENTERING BIKE PATH, CALTRANS AND STATE PARK LANDS.
4. CONTRACTOR TO PROTECT AND SECURE WORK SO AS NOT TO IMPACT USERS OF BIKE PATH.
4. SEE JACK AND BORE DETAILS ON SHEETS 0000C60 AND 0000C61
5. SECURE TEMPORARY PERMIT FOR CONSTRUCTION EASEMENT WITH CITY OF MARINA FOR WORK IN PUBLIC ROW.
6. IF BIKE PATH IS BLOCKED, SUBMIT BIKE/PEDESTRIAN TRAFFIC CONTROL PLAN TO CITY FOR APPROVAL.
7. ADD UP TO 2 FEET NATIVE FILL IN THIS AREA TO FILL IN DEPRESSION.

● A-17-010 Proposed Boring Location



PROFILE
HORIZ 1"=40', VERT 1"=10'

VERT 1" = 10' (0 10 20 30)

HORIZ 1" = 40' (0 40 80 120)

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REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
TRANSFER PIPELINE
PLAN AND PROFILE STA 285+00 TO STA 294+00

CALIFORNIA AMERICAN WATER

AECOM
1333 BROADWAY, SUITE 800
OAKLAND, CALIFORNIA 94612

DRAWN BY C. SOMERA
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE AUGUST 2015
PROJECT 60424498

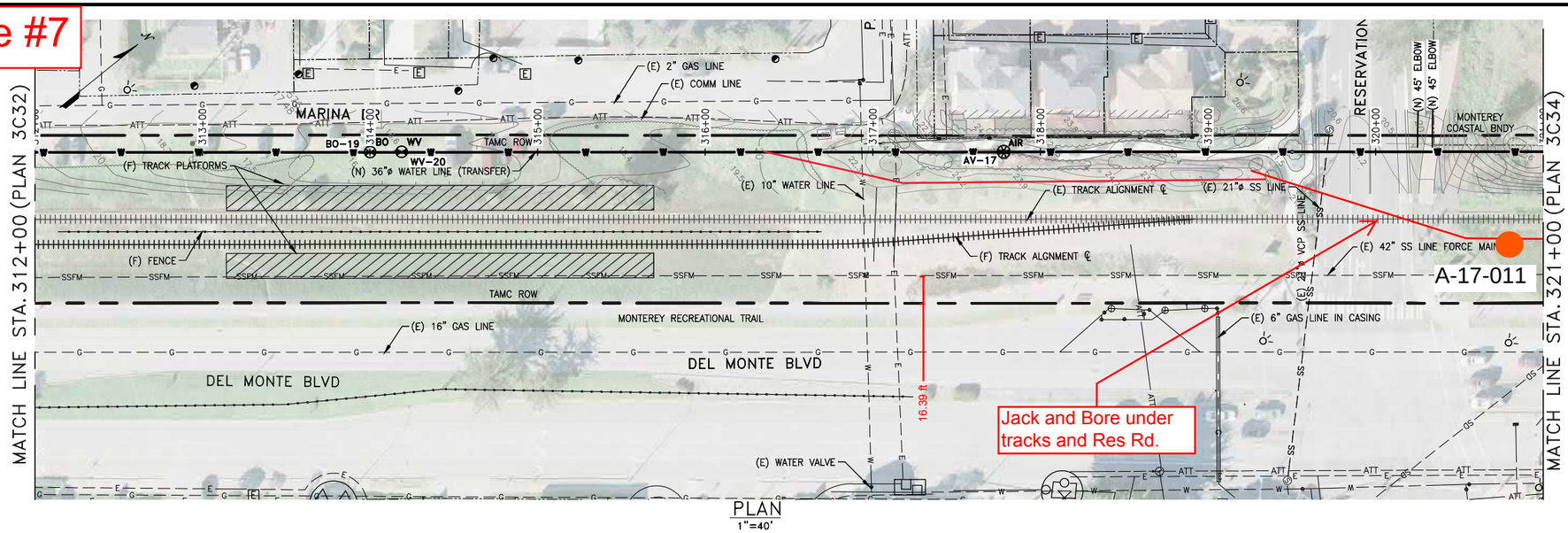
USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

3003C30

10003003C30

Site #7



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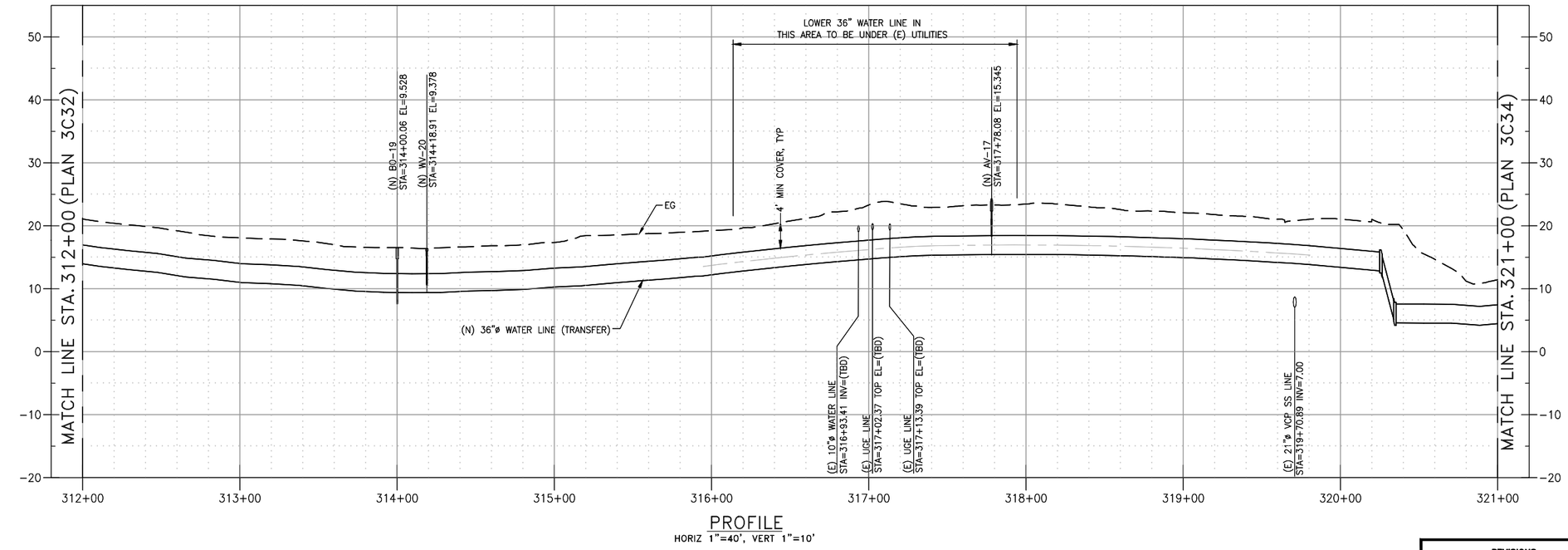

PROFILE
HORIZ 1"=40', VERT 1"=10'

NOTES:

1. COMPLY WITH SPECIAL ENVIRONMENTAL REQUIREMENTS WHEN WORKING ADJACENT TO LOCH PADDON PARK. SEE SPEC 81062.

● A-17-011 Proposed Boring Location

0 10 20 30
VERT 1" = 10'

0 40 80 120
HORIZ 1" = 40'

REGISTERED PROFESSIONAL ENGINEER
JENNIFER A. HYMAN
No. C-50926
Exp. 9/30/15
CIVIL
STATE OF CALIFORNIA

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
TRANSFER PIPELINE
PLAN AND PROFILE STA 312+00 TO STA 321+00

CALIFORNIA
AMERICAN WATER

AECOM
1333 BROADWAY, SUITE 800
OAKLAND, CALIFORNIA 94612

DRAWN BY C. SOMERA
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE AUGUST 2015
PROJECT 60424498
USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

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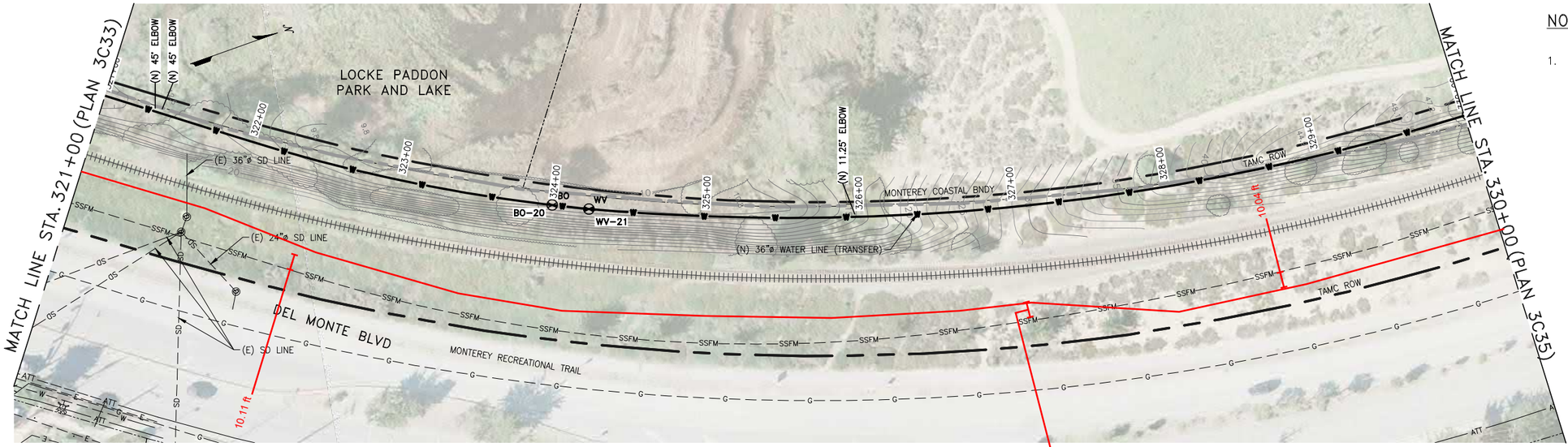

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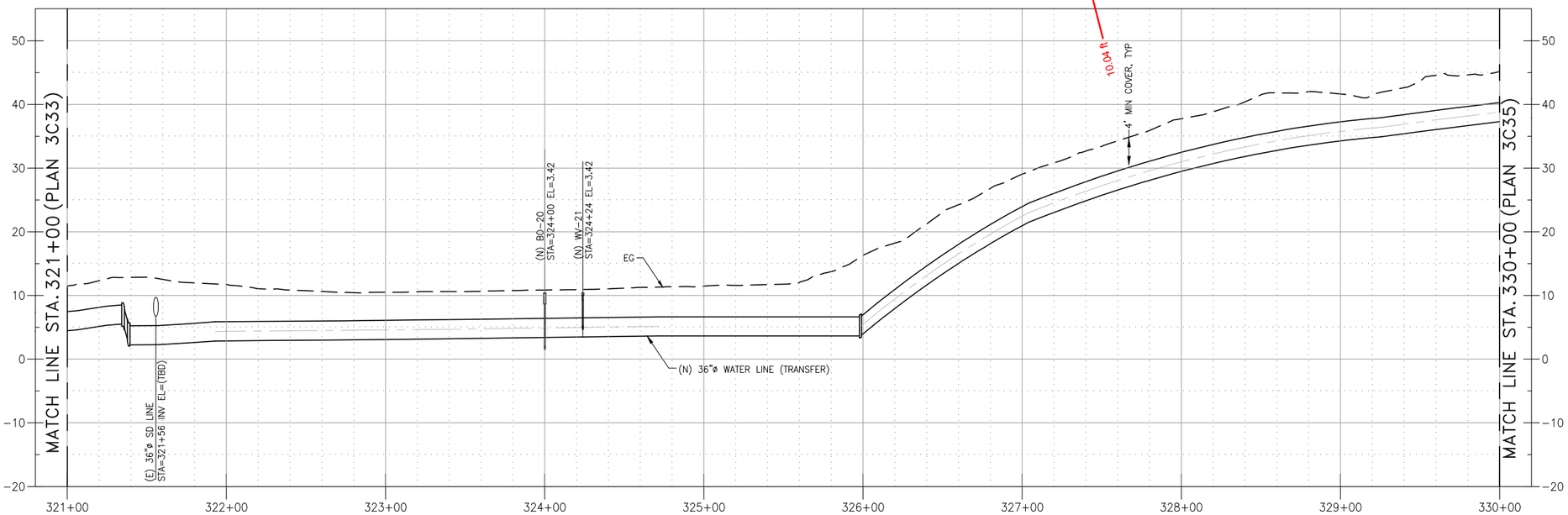


PROFILE
HORIZ 1"=40', VERT 1"=10'

0 10 20 30
VERT 1" = 10'

0 40 80 120
HORIZ 1" = 40'

NOTES:

1. COMPLY WITH SPECIAL ENVIRONMENTAL REQUIREMENTS WHEN WORKING ADJACENT TO LOCH PADDON PARK. SEE SPEC 81062.

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
JENNIFER A. HYMAN
No. C-50826
Exp. 9/30/15
CIVIL
STATE OF CALIFORNIA

TRANSMISSION MAINS FOR MPWSP
CIVIL
TRANSFER PIPELINE
PLAN AND PROFILE STA 321+00 TO STA 330+00

CALIFORNIA
AMERICAN WATER

AECOM
1333 BROADWAY, SUITE 800
OAKLAND, CALIFORNIA 94612

AECOM
CALIFORNIA AMERICAN WATER

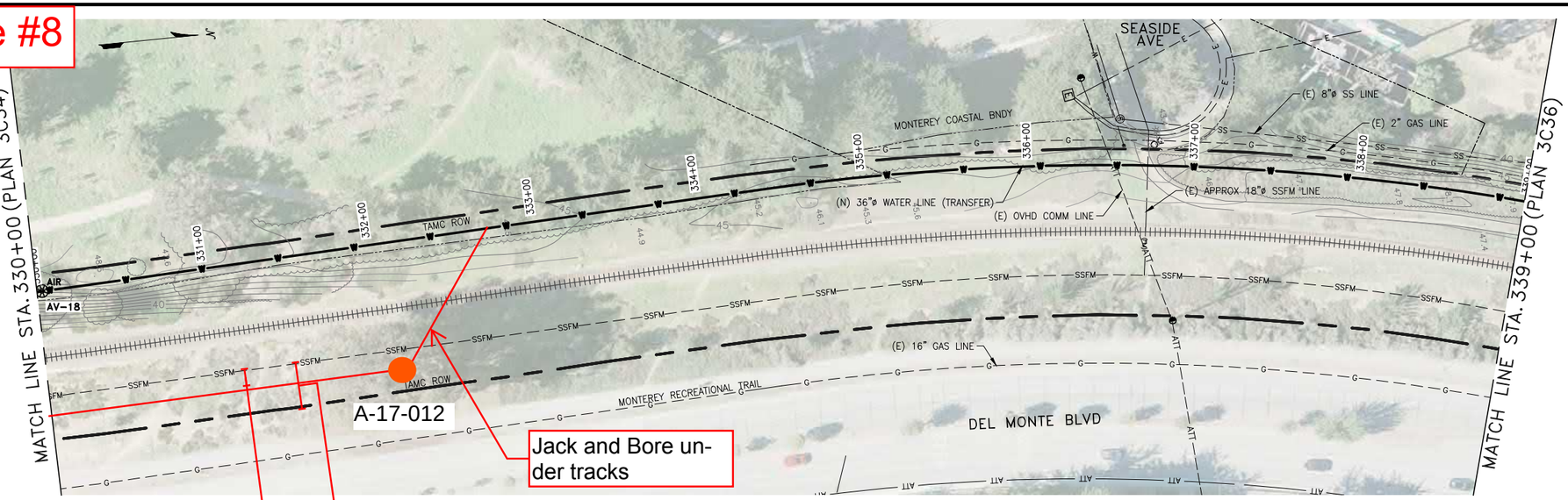
DRAWN BY C. SOMERA
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE AUGUST 2015
PROJECT 60424498
USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

3003C34

10003003C34

Site #8



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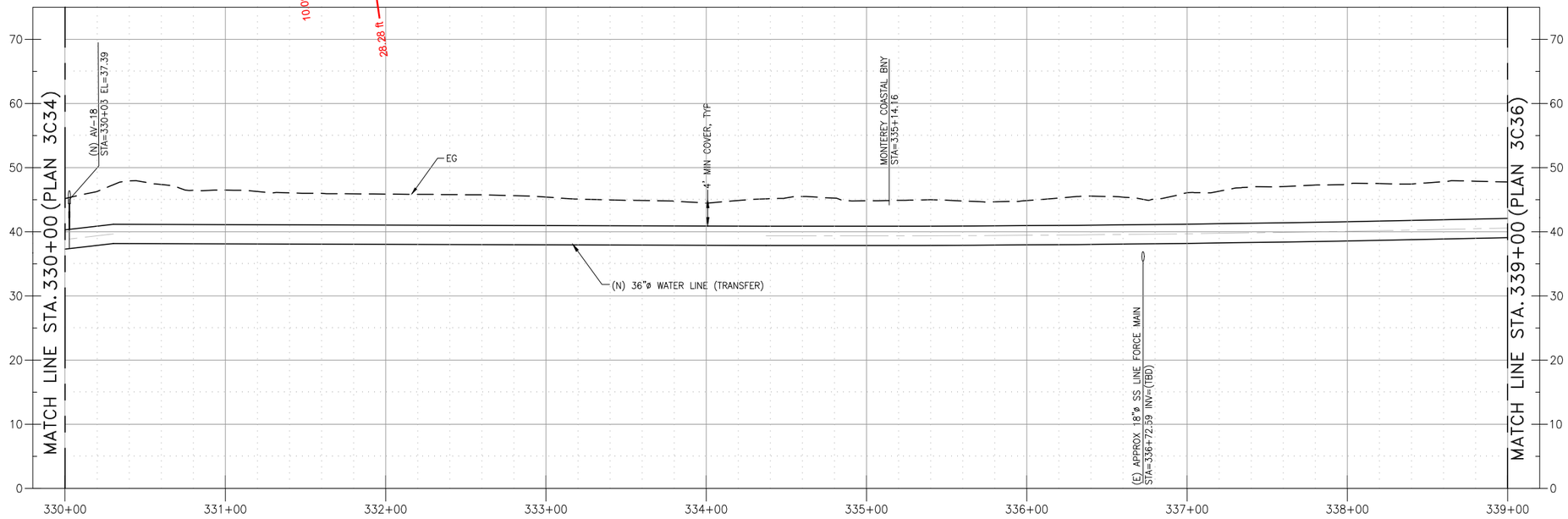

PROFILE
HORIZ 1"=40', VERT 1"=10'

NOTES:

1. A-17-012 Proposed Boring Location

0 10 20 30
VERT 1" = 10'

0 40 80 120
HORIZ 1" = 40'

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER A. HYMAN
No. C-30609
Exp. 9/30/15
CIVIL
STATE OF CALIFORNIA

TRANSMISSION MAINS FOR MPWSP
CIVIL
TRANSFER PIPELINE
PLAN AND PROFILE STA 330+00 TO STA 339+00

CALIFORNIA
AMERICAN WATER

AECOM
1333 BROADWAY, SUITE 800
OAKLAND, CALIFORNIA 94612

DRAWN BY C. SOMERA
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH
DATE AUGUST 2015
PROJECT 60424498
USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

3003C35

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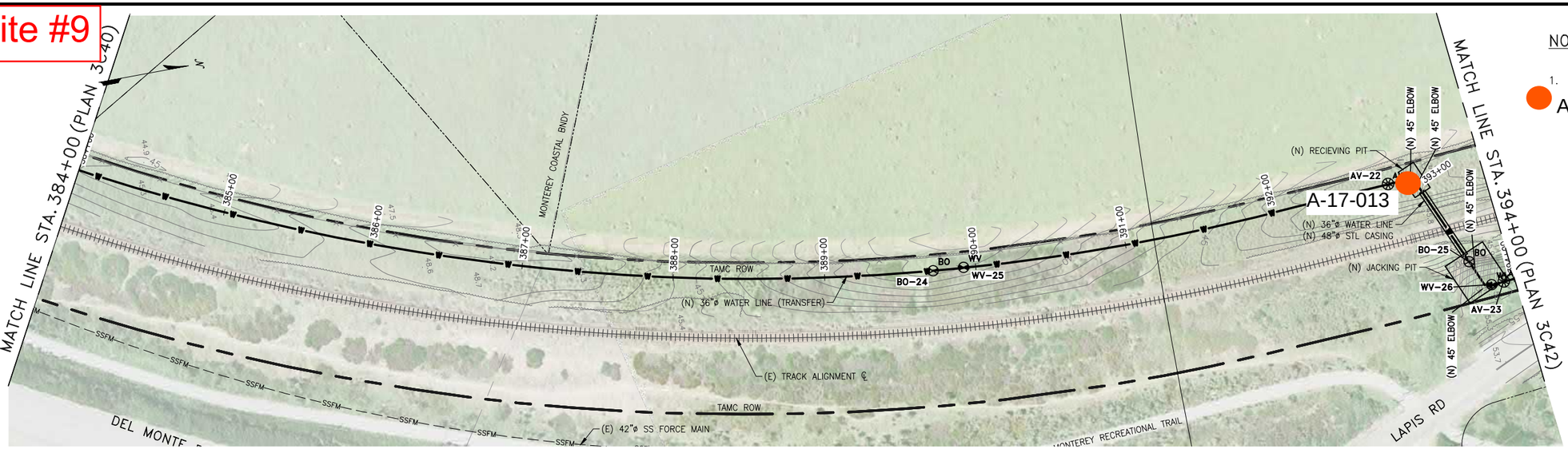
Site #9



PLAN
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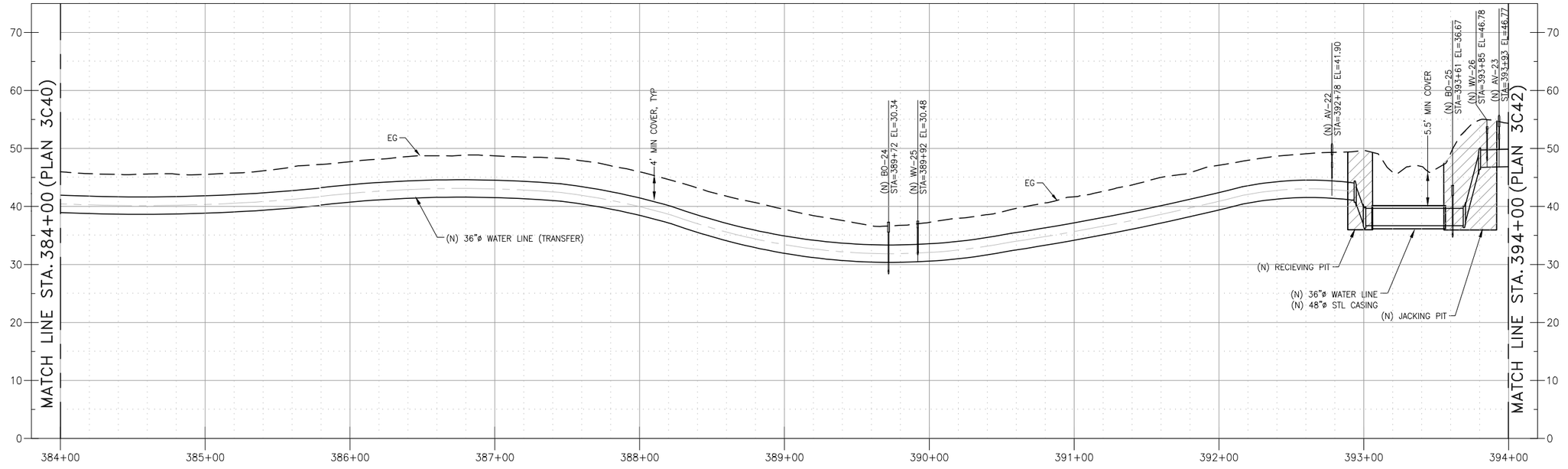

PROFILE
HORIZ 1"=40', VERT 1"=10'

NOTES:

1. A-17-013 Proposed Boring Location

0 10 20 30
VERT 1" = 10'

0 40 80 120
HORIZ 1" = 40'

REGISTERED PROFESSIONAL ENGINEER
JENNIFER A. HYMAN
No. C-30926
Exp. 9/30/15
CIVIL
STATE OF CALIFORNIA

REVISIONS

TRANSMISSION MAINS FOR MPWSP
CIVIL
TRANSFER PIPELINE
PLAN AND PROFILE STA 384+00 TO STA 394+00

CALIFORNIA
AMERICAN WATER

AECOM
1333 BROADWAY, SUITE 800
OAKLAND, CALIFORNIA 94612

DRAWN BY C. SOMERA
PROJECT ENG'R J. HYMAN
APPROVED C. SMITH

DATE JULY 2015
PROJECT 60424498

USE DIMENSIONS ONLY
SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

3003C41

10003003C41

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Pipeline Alignment
- Proposed ASR Conveyance Pipelines
- Proposed ASR Pump-to-Waste Pipeline
- Proposed ASR Recirculation Pipeline
- Brine Discharge Pipeline
- Carmel Valley Pump Station Inlet Pipeline
- Carmel Valley Pump Station Outlet Pipeline
- MRWPCA Ocean Outfall and Diffuser (Existing)
- Proposed Castroville
- Proposed Desalinated Water Pipeline
- Proposed Monterey Pipeline
- Proposed Source Water Pipeline
- Proposed Transmission Main
- Pipeline Existing
- Pipeline to CSIP Pond

Existing CAW Facilities
- Pipeline

Data Sources
1. Monterey County 2013. City Limits, County.
2. California Coastal Commission 2011. Coastal Zone.
3. Cary Stiebel, fodis.net. Fort Ord.
4. California American Water. Existing Pipeline.
5. AECOM. Project Alignments.
6. Esri. Roads.
7. California Protected Areas Database, 2013,

TAMC Easement - North Boundary

TAMC Easement - South Boundary

Unincorporated Monterey County

Intake Wells

MRWPCA Ocean Outfall and Diffuser (existing)

Desal Plant Site

MRWPCA Regional Wastewater Treatment Plant

CSIP Pond (existing)

Marina

CSUMB

ASR Wells

Seaside

Sand City

Pacific Grove

Presidio of Monterey

Monterey Pump Station

Monterey

Del Rey Oaks

Fort Ord National Monument

Carmel Valley Pump Station

Monterey Bay

156 183 1 218 68

N

0 1 2 Miles

AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA WATER SUPPLY PROJECT, MPWSP

PROJECT OVERVIEW

Project Pipeline Alignments

Date December 1, 2017 Application No. 2017-03 (AECOM)

TRANSPORTATION AGENCY FOR MONTEREY COUNTY (TAMC)

APPLICATION FOR
ENCROACHMENT PERMIT (PERMIT TO ENTER AND CONSTRUCT)

Craig Smith, AECOM
(Applicant's Name)

300 Lakeside Drive, Suite 400, Oakland, CA 94612
(Mailing Address)

TAMC Monterey Branch Line ROW
(Address of Property)

See attached: Overview map and Detailed Transmission Main Maps of geotechnical boring sites, Site map along Castroville Alternative of shallow soil samples, and Eagle Creek tenant lease access requirements
(Assessor's Parcel Number)

Applicant hereby applies for an encroachment permit for the purpose of entering and conducting multiple investigations at various times. These investigations include: utility clearance (potholing), geotechnical borings, soil sampling, and biological and other non-invasive reconnaissance surveys within portions of the TAMC Monterey Branch Line ROW shown in the attached overview figure.

Description of Use:

1. Soil Sampling for Analysis: Limited soil sampling is proposed at 5 locations within the TAMC ROW where agricultural practices occur (see attached figure). Hand auger borings will be advanced to a depth of 7 feet below ground surface. Samples will be collected from the surface, middle, and bottom of the boring. Waste soil from the borings and water used to wash augers on-site will be used to backfill the borings it was generated from. Surrounding soils will be used to back fill the borings to the surface, if necessary. Additional waste is not expected to be generated. Sampling within TAMC ROW will occur over an approximately 5-day period.
2. Geotechnical Boring Sampling: AECOM seeks to gather and analyze geotechnical samples taken at proposed sites for key pipeline infrastructure, such as pits used for jack-and-bore pipeline installations (see attached figure). To obtain samples, AECOM will coordinate with both Underground Service Alert (USA) and a private utility locator service to obtain the locations of existing underground utilities at boring locations. To supplement USA, we have budgeted one day for a private utility locator. An AECOM Registered Geotechnical Engineer will oversee the drilling of all borings conducted by a subcontractor. Exploration and sampling operations will be under the supervision of a Registered Geotechnical Engineer. A mud rotary drill rig will be used for obtaining samples at varying depths, from 20 ft. to 60 ft. below grade. Drilling and sampling will be performed in accordance with ASTM D 1586 "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils." Completed explorations will be backfilled consistent with requirements of the County Environmental Health Department. We assume that soil cuttings can be spread on the ground surface adjacent to the boreholes

and that no drumming of cuttings or fluids is required. Field work will take place on weekdays, between the hours of 7 a.m. and 5 p.m. within a 3-month window of time.

3. Potholing and Utility Identification: In addition to the pre-boring utility surveys mentioned above, potholing will be conducted at selected locations along the proposed water pipeline alignment to confirm the location of known or suspected buried utilities. These will be performed by Garney Construction Company in coordination with AECOM and CalAm engineers. These will occur within a 3-month period in early 2018.
4. Biological and other reconnaissance surveys: Non-invasive surveys by biologists, archaeologists or other resource professionals will be conducted at selected locations, primarily during the spring bloom season, to confirm or update prior survey and other data.

Proposed Starting Date: January 8, 2017

Estimated Date of Completion: March 31, 2018

Drawings (11"x17") submitted: Plan View X Details_____

Applicant agrees that work will comply with the General Conditions and Special Conditions of Approval included on this application.

_____ 510-874-3117
(Signature of Applicant) (Phone Number of Applicant)

*****YOUR APPROVED APPLICATION IS THE ENCROACHMENT PERMIT*****

☐ Encroachment Permit is approved.

X Encroachment Permit is approved with Special Conditions of Approval, which are a part of the Encroachment Permit.

☐ Encroachment Permit is disapproved.

☐ Encroachment Permit application is referred to the TAMC Board for their consideration and action.

_____ 12/21/17
Executive Director Date

Approved as to Form:

_____ 12-21-2017
TAMC Counsel Date

Note: Encroachment permit actions by the TAMC Executive Director may be appealed to the TAMC Board by filing an appeal with the TAMC Administrative Services Manager within fifteen (15) days of the date of notice to the applicant.

TRANSPORTATION AGENCY FOR MONTEREY COUNTY

As condition for the granting of an encroachment permit from TAMC, I hereby agree to the following conditions:

GENERAL CONDITIONS

1. **Hold Harmless:** To the fullest extent permitted by law, permittee shall defend, indemnify and hold harmless TAMC, its officers, employees or agents, against any claims or suits, from any cause whatsoever, arising from the permittee's investigations, construction, maintenance, or existence of the encroachment permitted pursuant to this permit.

2. **Maintenance:** Permittee shall at all times maintain the public property covered by this permit and any structures or landscaping placed thereon in a safe, neat and attractive manner.

3. **Revocability:** This permit shall be revocable at any time without cause unless otherwise specified. TAMC shall give written notice of such revocation and a reasonable time to remove the encroachment. Permittee agrees to remove the encroachment after said notice and to restore the public property to a safe condition. If permittee fails to do so, TAMC may do said work, either with its own employees or by private contract, and the permittee shall be liable for said costs.

4. **Transferability:** This permit is for the benefit of the adjacent property (other than temporary encroachments) and may be transferred to the successor of the permittee without consent of TAMC, provided, however, that no transfer of this permit shall become effective until the transferee executes an agreement with TAMC that he/she has read and accepts the terms and conditions of the permit. It shall be the duty of the permittee to notify his/her successor of this permit and the terms and conditions herein.

5. **Signs:** There shall be no signs or other forms of advertising within the area covered by this permit unless specifically authorized.

6. **Inspection Notice:** Prior to any construction activity the applicant shall contact the TAMC Inspector for a field inspection of the work to be done within the public right-of-way. A twenty-four (24) hour notice shall be given to the TAMC Inspector prior to any work activity.

7. **Insurance:**

(a) Without limiting Permittee's duty to indemnify, Permittee shall maintain, at no cost to TAMC, throughout the term of this Agreement, a policy or policies of insurance with the following coverage and minimum limits of liability (check if applicable):

[x] Commercial general liability insurance, including but not limited to premises, personal injury, products, and completed operations, with a combined single limit of $1,000,000 per occurrence.

[x] Professional liability insurance in the amount of not less than $1,000,000 per claim and $3,000,000 in the aggregate, to cover liability for malpractice or errors or omissions made in the course of rendering professional services. If professional liability insurance is written on a "claims made" basis rather than an "occurrence" basis, Permittee shall, upon the expiration or termination of this Agreement, obtain extended reporting coverage ("tail coverage") with the same liability limits. Any such tail coverage shall continue for at least three years following the expiration or termination of this Agreement.

[x] Comprehensive automobile liability insurance covering all motor vehicles, including owned, leased, hired and non-owned vehicles used in providing services under this Agreement, with a combined single limit of not less than $1,000,000 per occurrence.

(b) All insurance required under this Agreement shall be with a company acceptable to TAMC and authorized by law to transact insurance business in the State of California. Unless otherwise provided herein, all such insurance shall be written on an occurrence basis; or, if any policy cannot be written on an occurrence basis, such policy shall continue in effect for a period of two years following the date of Permittee's completion of performance hereunder.

(c) Each policy of insurance required under this Agreement shall provide that TAMC shall be given written notice at least thirty days in advance of any change, cancellation or non-renewal thereof. Each policy shall provide identical coverage for each subcontractor performing work under this Agreement, or be accompanied by a certificate of insurance for each subcontractor showing identical insurance coverage.

(d) Commercial general liability and automobile liability policies shall provide an endorsement naming TAMC, its officers, agents, and employees, as additional insured's and shall further provide that such insurance is primary to any insurance or self-insurance maintained by TAMC, and that no insurance of any additional insured shall be called upon to contribute to a loss covered by Permittee's insurance.

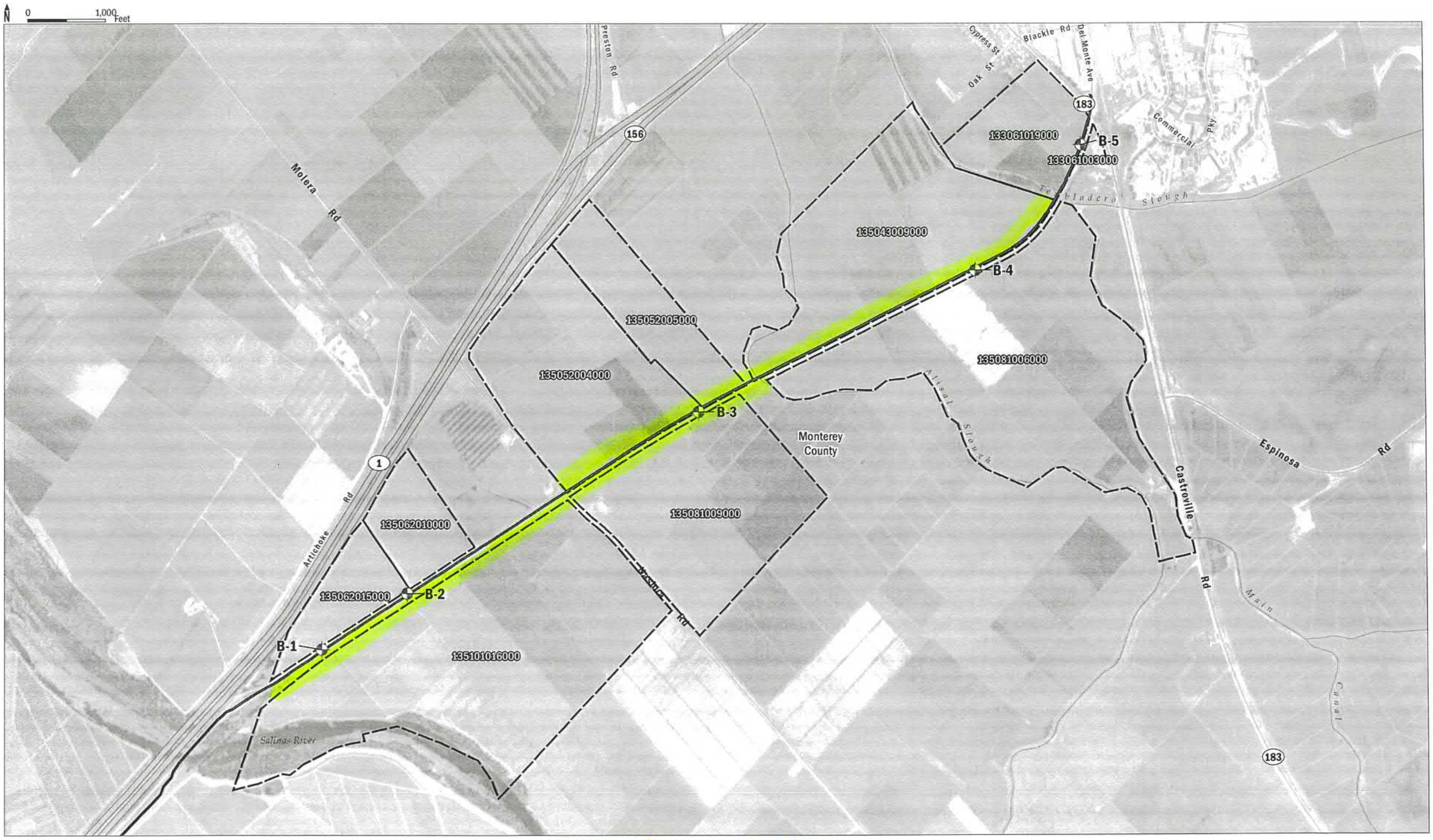
(e) Workers Compensation Insurance. If during the performance of this contract, Permittee employs one or more employees, then Permittee shall maintain a workers' compensation plan covering all of its employees as required by Labor Code Sec. 3700, either (a) through workers' compensation insurance issued by an insurance company, with coverage meeting the statutory limits and with a minimum of $100,000.00 per occurrence for employer's liability, or (b) through a plan of self-insurance certified by the State Director of Industrial Relations, with equivalent coverage. If Permittee elects to be self-insured, the certificate of insurance otherwise required by this agreement shall be replaced with consent to self-insure issued by the State Director of Industrial Relations. The provisions of this paragraph apply to any subcontractor employing one or more employees, and Permittee shall be responsible for all subcontractors' compliance herewith.

8. Engineering Provisions: Permittee shall follow the American Railway Engineering and Maintenance of Way Associations 2004 Manual for Railway Engineering engineering specification for work performed on the TAMC Railroad Right-of-Way.

Encroachment Permit 2017-03 (AECOM)
Type: Revocable

Special Conditions of Approval

1. Applicant shall obtain any applicable local land use jurisdiction permits/approvals, including any CEQA environmental review, prior to occupying the site.
2. Applicant shall notify Underground Service Alert (USA) prior to any underground excavations, potholes, or borings.
3. Applicant shall notify the County Environmental Health Department prior to any underground excavations, potholes, or borings.
4. Applicant shall notify owners of adjacent agricultural growers prior to any underground excavations, potholes, or borings included in this permit and shall minimize the impacts of these activities on the grower's operations. Any disturbances of grower agriculture shall be replaced to the satisfaction of the Agency. Additionally, advance notification to TAMC tenant "Eagle Creek Pacific LLC, 1920 Tienda Drive, Suite 204, Lodi CA 95242" for access to property included in the lease shall be coordinated directly through TAMC staff and all access shall comply to the terms of said lease.
5. Applicant shall backfill any boring locations within 24 hours. Boring and pothole locations should be clean and dry prior to backfilling. Applicant shall replace all spoils, restore sites to their original condition, and leave sites in a clean condition acceptable to the Agency. Drilling mud or remaining spoils should be cleaned up and disposed of in an environmentally suitable manner.
6. Applicant shall apply current sediment controls and Water Pollution Control - Best Management Practices to the excavation, pothole, or boring work at the site.
7. Applicant is prohibited from the storage of hazardous materials or fueling and equipment maintenance on site.
8. After the completion of the work, Applicant shall share with the Agency any requested pothole/boring information obtained at each location for its records.



TAMC LEASE

AECOM
California American Water
Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities
MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP
Imagery/Roads: ESRI, 2016

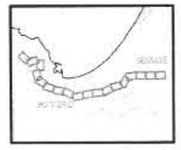


FIGURE X
Parcels Adjacent to Planned Borings along Castroville Alternative

EAGLE CREEK PACIFIC 3.17 ACRES

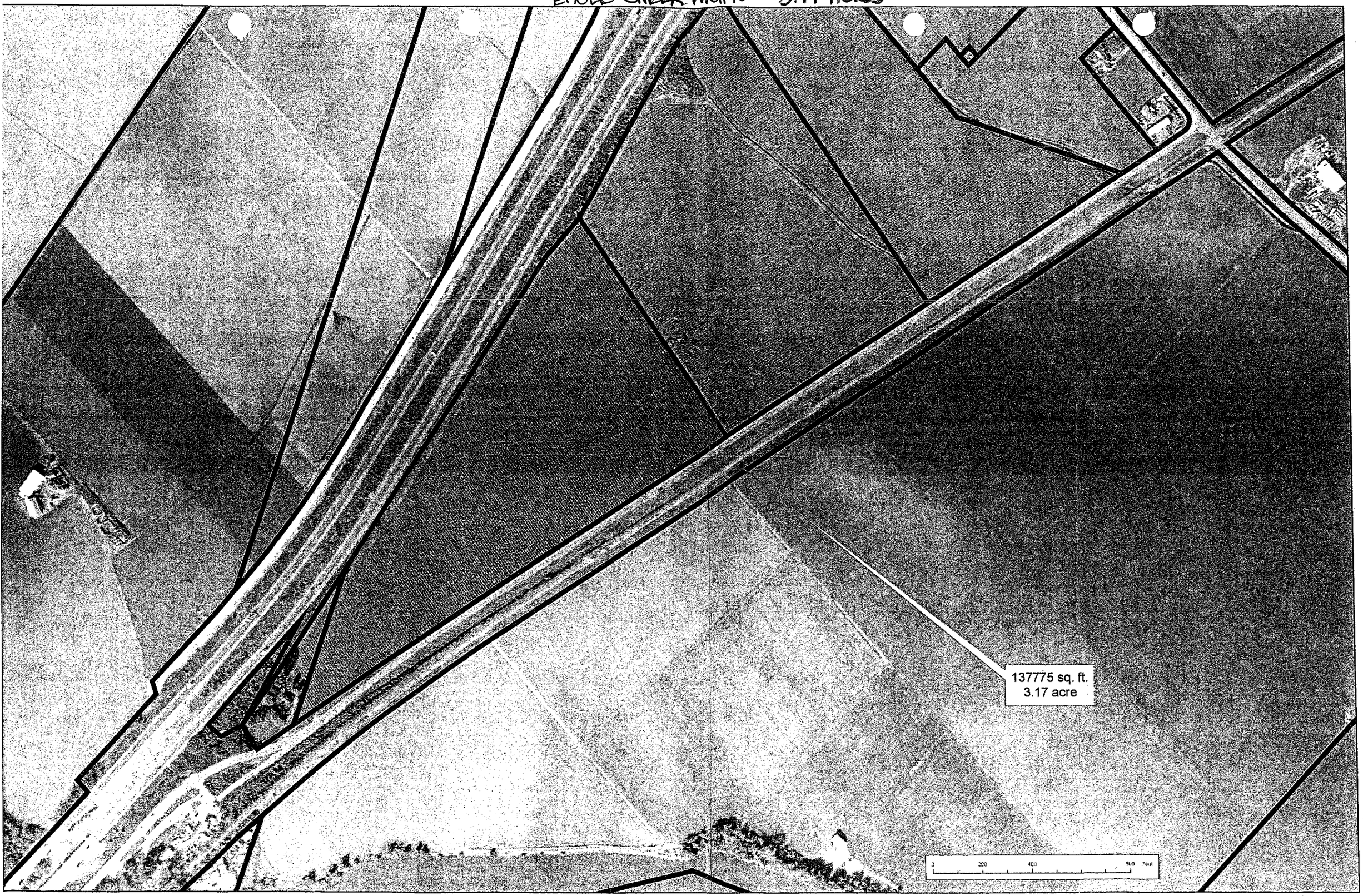


EXHIBIT A PREMISES

EAGLE CREEK PACIFIC 8.0 ACRES

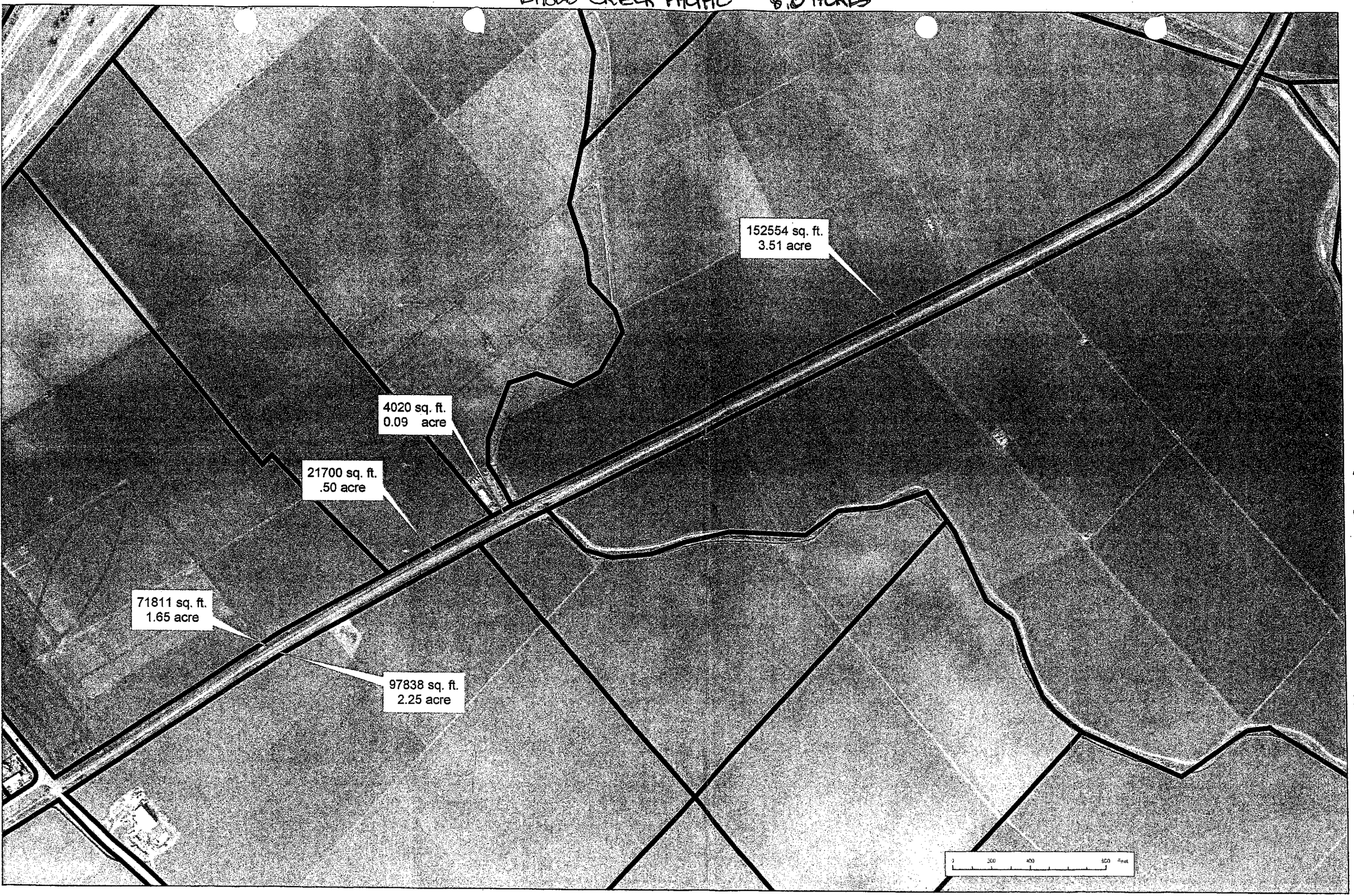


EXHIBIT A PREMISES

PARTIAL LEASE OF MONTEREY BRANCH RAIL LINE

SALINAS, CALIFORNIA

LANDLORD

TRANSPORTATION AGENCY FOR MONTEREY COUNTY

55-B PLAZA CIRCLE

SALINAS, CALIFORNIA 93901

TENANT

EAGLE CREEK PACIFIC LLC

1920 Tienda Drive, Suite 204

Lodi, CA 95242

May 1, 2017 through April 30, 2022

LEASE

THIS LEASE AGREEMENT ("Lease") is made and entered into by and between the Transportation Agency for Monterey County ("Landlord") and Eagle Creek Pacific LLC ("Tenant"). Landlord and Tenant are collectively referred to hereinafter as the "Parties."

1. **LEASED PROPERTY.** Landlord hereby leases to Tenant, and Tenant hereby leases from Landlord, on the provisions, conditions, and covenants hereinafter set forth, that certain property described as Monterey Branch Rail Line Leased Property that is adjacent to property Tenant owns as of May 1, 2017, and further identified by red in Exhibit A of this Lease.

2. **RENT.** Tenant shall pay $21,306.00 per year in rent as set forth in Exhibit B of this Lease, without deduction, set off, prior notice or demand. Tenant shall pay the rent in two payments of $10,653.00 semiannually, commencing May 1, 2017. Tenant shall pay the rent to Landlord at 55 B Plaza Circle, Salinas, CA 93901, or at such other place as may be designated in writing by Landlord to Tenant.

3. **REIMBURSEMENT.** If Tenant fails to make any payment or take any action required of Tenant in this Lease, Tenant agrees to reimburse Landlord upon demand for all expenditures made by Landlord for the account of or benefit of Tenant, together with interest thereon at the maximum rate allowed by law, from the date of such expenditure until repaid.

4. **UTILITIES.** Tenant shall pay before delinquency all charges made for gas, electricity, sewer, telephone, garbage and any other utilities supplied to the leased property. Tenant shall arrange for frequent garbage and trash pick up and disposal to avoid any unsightly accumulations and as required by state and local laws. In addition to Tenant's independent obligation to keep the property free from trash and debris, Tenant shall make arrangements to clean up the property within five (5) business days' notice from Landlord.

5. **TERM.** The term of this Lease shall be five (5) years commencing on May 1, 2017, and ending on April 30, 2022, unless terminated earlier pursuant to Section 6.

6. **OPTION TO TERMINATE.**

6.1 Tenant understands and agrees that the landlord has future plans for the property. Namely, Landlord anticipates use of the railroad Right of Way to facilitate the restoration of rail/transit service to the Monterey Peninsula, and possibly as a bicycle trail or other transportation uses. Thus, Tenant agrees to vacate the property during the term of the Lease , without liability to the Landlord, upon receipt of twelve (12) months written notice.

6.2 Landlord may also terminate this Lease for cause if there is a default by Tenant as provided in Section 21 after giving Tenant notice of default and failure by Tenant to cure the default within thirty (30) days.

6.3 In the event any unharvested crops remain on the property upon the termination of the Lease, Tenant shall have the right to harvest any crop remaining on the property upon the crops' maturity, provided Tenant pays on a month by month basis in advance the prorated rent of $1,775.50 per month for the entire leased property for the time estimated as necessary to fully harvest any remaining crops. No new crops will be planted during the notice period provided for in Section 6.1, except for those that may be harvested prior to termination without the express written consent of Landlord. Tenant will also be liable for the prorated share of any taxes that might be due during this period. When Tenant actually vacates the property, the rent will be further prorated between Landlord and Tenant to cover the actual period of

occupancy under this hold over provision, which in no event will exceed the time necessary for Tenant to harvest crops in the ground prior to the Lease termination.

7. **CONDITION OF THE LEASED PROPERTY.** Tenant accepts the leased property in its present condition, as is, and Tenant acknowledges that Landlord shall have no obligation or liability whatsoever to make any improvements, alterations or repairs or to pay or reimburse Tenant for any part of the cost thereof, except as otherwise expressly provided in this Lease. Tenant further acknowledges that Landlord makes no warranties of any kind concerning the physical condition or soil of the leased property. Tenant agrees to keep the leased property in a neat and tidy condition and to remove any trash and debris that might accumulate on the property as required by state and local laws, and as provided in Section 4.

8. **ENCUMBRANCES, AGREEMENTS, RESERVATIONS, EXCEPTIONS AND EASEMENTS.** This Lease is subject and subordinate to the following items, effective without any further act of Tenant. Tenant shall from time to time, on request from Landlord, execute and deliver any documents or instruments that may be required to effectuate any subordination:

8.1 Any encumbrances now of record or recorded after the date of this Lease affecting the property.

8.2 The rights of the Union Pacific Railroad Company of the mineral estate underlying the leased property.

8.3 The rights of any Tenant under existing or future oil, gas and mineral leases affecting any part, or all, of the leased property.

8.4 All existing reservations, exceptions, easements, servitudes, licenses and rights of way, of record or in use, or as to which notice is given by possession, use or occupancy. Landlord reserves the right to install, lay, construct, maintain, repair and operate such sanitary sewers, drains, storm water sewers, pipelines, manholes, and connections; water, oil and gas pipelines; telephone and telegraph power lines; and the appliances and appurtenances necessary or convenient in connection therewith, in, over, upon, through, across, and along the property or any part thereof, and to enter the property for any and all such purposes. Landlord also reserves the right to grant franchises, easements, rights of way, and permits in, over, upon, through, across, and along any and all portions of the property. No right reserved by Landlord in this paragraph shall be so exercised as to interfere unreasonably with Tenant's operations hereunder. Landlord agrees that rights granted to third parties by reason of this paragraph shall contain provisions that the surface of the land shall be restored as nearly as practicable to its original condition upon the completion of any construction. Landlord further agrees that should the exercise of these rights temporarily interfere with the use of any or all of the property by Tenant, the rent shall be reduced in proportion to the interference with Tenant 's use of the property.

9. **OIL, GAS AND MINERAL RIGHTS RESERVATION.** There is reserved to Landlord (and to Union Pacific Railroad Company the mineral estate underlying the leased property only) the right to conduct seismic and other geophysical surveys and exploratory operations and otherwise to prospect for, drill, extract, mine, produce, remove, inject and/or store oil, gas or other hydrocarbon substances and minerals upon, from and through the leased property or any portion thereof. Said reservation shall include the right to construct, install, operate, maintain and remove whatever facilities, machinery, equipment, tanks, structures, buildings and appurtenances as may be reasonably necessary or convenient to the use and enjoyment of the aforesaid reservation, together with the reasonable right of ingress and egress to, from and upon said property for such purposes without interruption to Tenant's operations and providing for a reasonable abatement of rent based on any reduction of farmable crop acres.

10. **PURPOSE OF LEASE.** The express purpose of this Lease is for the growing of various row crops

(hereinafter called "Crops") on the leased property. Tenant shall not grow any other crops nor use any portion of the leased property for any other purpose whatsoever without Landlord's prior written consent.

11. **USE AND CARE OF PROPERTY.** Tenant agrees to use the leased property for the purpose of farming according to the highest standards of farm husbandry practices in the vicinity and for no other purpose without first obtaining Landlord's written consent. Tenant shall care for the soil in a first-class farmer-like manner, replenishing the nutrients and minerals as required. Tenant shall keep the soil free from noxious weeds and shrubs of all types, and shall take reasonable precautions to exterminate ground squirrels and rodents.

12. **WELLS AND PUMPS.** The leased property does not have any irrigation wells or pumping plants.

13. **IMPROVEMENTS AND INSTALLATION.** Tenant shall maintain and repair any roads or other improvements subject to this Lease in good order and condition. Landlord will have no responsibility for repair, maintenance or replacement of any such improvements.

14. **ENTRY BY LANDLORD.** Landlord and its authorized employees or agents shall have the right, at all reasonable times, to enter upon the leased property or any part thereof for any lawful purpose including to conduct studies or testing related to transportation projects and uses. The Tenant shall provide to the employees and agents of the Landlord, and on the request of the Landlord, to the occupants of adjacent lands, reasonable opportunities for ingress to and egress from the said adjacent lands

15. **TRANSFERABILITY OF LEASE.** Tenant shall not be entitled to assign the leased property without the written consent of Landlord. This Lease shall become null and void without any further action required by any party upon any transfer or attempted transfer of this Lease by Tenant. Tenant shall pay all of Landlord's costs and fees (legal or otherwise) in connection with any transfer or attempted transfer of this Lease.

16. **COMPLIANCE WITH LAW.** The Tenant, at its own risk and expense, shall observe and comply with all laws of the United States and the State of California, and with all rules and regulations of any department, commission, bureau, board or officers thereof, and with all ordinances of the County of Monterey, and with all rules and regulations of any department, commission, bureau, board or officer of the County of Monterey, relating to the use and occupation of the said farming land during the term of this Lease.

17. **INSURANCE COVERANGE REQUIREMENTS.**

17.1 Insurance. Insurance Coverage Requirements, without limiting Tenant's duty to indemnify, Tenant (at his cost) shall maintain in effect throughout the term of this Lease a policy or policies of insurance with the following minimum limits of liability:

Commercial general liability insurance including but not limited to premises, personal injuries, products, operations and completed operations, to protect against loss from liability imposed by law for damages occurring on account of bodily injury, including death therefrom, suffered or alleged to be suffered by any person or persons whomsoever, resulting directly or indirectly from any act or activities of Landlord or Tenant, its subTenants or any person acting for Landlord or Tenant or under its control or direction, and also to protect against loss from liability imposed by law for damages to any property of any person caused directly or indirectly by or from acts or activities of Landlord or Tenant, or its subTenants, or any person acting for Landlord or Tenant, or under its control or direction. Such insurance shall also provide for and protect Landlord against incurring any legal cost in defending claims for alleged loss. Such public liability and property damage insurance shall be maintained in full force and effect during the entire term of this Lease in the

amount of not less than $1,000,000 combined single limit per occurrence and $2,000,000 in the aggregate. Coverage shall be at least as broad as ISO Commercial General Liability Occurrence Form CG0001.

Workers' Compensation Insurance. If Tenant employs others in the performance of this contract, Tenant shall procure and maintain during the entire term of this Lease a Workers' Compensation Insurance Policy in accordance with California Labor Code section 3700 and with a minimum of $1,000,000 per occurrence for employer's liability.

Other Insurance Requirements. All insurance required by this Lease must be written by an insurance company admitted to do business in California or an insurance company authorized to transact insurance business in California and which holds a current A.M. Best's rating of no less than A: VI. Exception may be made for the State Compensation Insurance Fund when not specifically rated.

All insurance required by this Lease shall be written on an occurrence basis, or, if the policy cannot be written on an occurrence basis, such policy shall continue in effect for a period of five years following termination of Tenant's tenancy under this Lease.

Each insurance policy required by this Lease shall be endorsed to state that Landlord shall be given notice in writing at least thirty days in advance of any change, cancellation or non-renewal thereof.

Tenant's commercial general liability, automobile liability and All Risk property policies shall provide an endorsement naming the Landlord, its officers, agents, and employees as Additional Insureds with respect to liability arising out of ownership, possession, maintenance or use of the premises covered by this Lease; and shall further provide that such insurance is primary insurance to any insurance or self-insurance maintained by the Landlord and that the insurance of the Additional Insureds. Any insurance or self-insurance maintained by Landlord, its officers, officials, employees or volunteers shall be excess of Tenant's insurance and shall not be called upon to contribute to a loss covered by Tenant's insurance.

The workers' compensation policy shall be endorsed with a waiver of subrogation in favor of the Landlord for liability arising out of ownership, possession, maintenance or use of the premises covered by this Lease.

Prior to the effective date of this Lease, Tenant shall submit certificates of insurance and amendatory endorsements affecting coverage required by this clause to Landlord evidencing that Tenant has in effect the full insurance coverage required by this Lease. Within ninety (90) days of execution of this Lease, Tenant shall provide Landlord with a full and correct copy of all policies required by this Lease. Tenant shall file a new or amended certificate of insurance promptly after any change is made in any insurance policy which would alter the information on the certificate(s) then on file. Acceptance or approval of insurance shall in no way modify or change the indemnification clause in this Lease, which shall continue in full force and effect.

Tenant agrees that if the operation under this Lease results in an increased or decreased risk in the reasonable opinion of Landlord, then the minimum limits hereinabove designated shall be changed accordingly by Tenant upon request by Landlord. Tenant agrees to increase the limits of liability when, in the opinion of the Landlord, the value of the improvements covered is increased, subject to the availability of such insurance at the increased limits. Tenant agrees, at its sole expense, to comply and secure compliance with all insurance requirements necessary for the maintenance of reasonable fire and public liability insurance covering said premises, buildings and appurtenances. Any disagreement concerning the amount and nature of the coverage required shall be determined by Landlord.

Tenant agrees that the provisions of this section as to insurance shall not be construed as limiting in any way the extent to which the Tenant may be held responsible for the payment of damages to persons or property resulting from Tenant's activities, the activities of its subTenants or the activities of any person or persons for which Tenant is otherwise responsible.

Deductibles and Self-Insured Retentions: Any deductibles or self-insured retentions must be declared to and approved by Landlord. At the option of the Landlord either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Landlord, its officers, officials, employees and volunteers; or Tenant shall provide a financial guarantee satisfactory to Landlord guaranteeing payment of losses and related investigations, claim administration and defense expenses.

18. **INDEMNIFICATION.** In consideration for use of the property, Tenant agrees to indemnify, defend, and save harmless Landlord and its directors, officers, agents, and employees, from and against any and all claims, liabilities or losses whatsoever arising out of or in any way related to Tenant's use of the property under this Lease, including but not limited to claims for property damage, personal injury, death, injuries to reputation, economic losses, and emotional distress, and any legal expenses (such as attorney's fees, court costs, investigation costs, and expert fees) incurred by the Landlord in connection with such claims. "Tenant's use" includes Tenant's action or inaction and the action or inaction of its officers, employees, and agents, including but not limited to Tenant's customers. The obligation of Tenant to indemnify does not extend to claims or losses arising out of the sole negligence or willful misconduct of the Landlord or Landlord's directors, officers, agents, or employees.

19. **SURRENDER; CLEAN-UP; REMOVAL OF PROPERTY.**

19.1 Tenant agrees, on the last day of the term or sooner termination of this Lease, to surrender the leased property and all appurtenances thereto to Landlord in the same or better condition as when received, except for reasonable use, wear, act of God and the elements, and shall leave the leased property, including the banks of the ditches and pipes and other conduits, on or in the said property, clean and free from weeds and other growths, and otherwise in good order and condition. Tenant agrees to remove all of Tenant's personal property and trade fixtures from the property upon any termination of this Lease; provided, however, any underground pipelines, drain lines, pump motors or well improvements shall belong to Landlord upon termination of the Lease.

19.2 If Tenant fails to remove its property and restore the leased property under the conditions and within the time limits set, Landlord may: (a) do such removal and restoration at risk of Tenant and all costs and expenses thereof, together with interest thereon, shall be paid to Landlord by Tenant upon demand, or (b) claim all of such property, other than movable equipment, as its own, and Tenant shall execute and deliver to Landlord, within fifteen (15) days after written demand therefore, a bill of sale conveying all of Tenant's interest therein to Landlord, or (c) claim all movable equipment as its own, if Tenant fails to remove such equipment within fifteen (15) days of the delivery to Tenant of Landlord's written demand to do so, and Tenant shall execute and deliver to Landlord, within fifteen (15) days of the delivery of Landlord's written demand therefore, a bill of sale conveying all of Tenant's interest therein to Landlord, or (d) do any or all of the above.

19.3 Upon the expiration or earlier termination of this Lease, and if so requested by Landlord, Tenant shall execute, acknowledge and deliver to Landlord, a recordable quitclaim deed in form satisfactory to Landlord, conveying to Landlord or its nominee all rights of Tenant in the leased property.

20. **WAIVER.** Any failure or neglect of the Landlord to take advantage of any cause for the termination of this Lease, or for the forfeiture of the estate hereby created, shall not be a waiver of any other cause for such termination or forfeiture then existing, or a waiver of any cause for such termination or for-

feiture subsequently arising, and the receipt by the Landlord of any of said rent shall not be deemed to be a waiver of any cause otherwise then existing for the termination of this Lease, or for the forfeiture of the estate hereby created.

21. **DEFAULT.** Tenant shall be in default for any breach of this Lease, including but not limited to (i) Tenant's failure to pay Landlord any rental installment; (ii) Tenant's failure to pay Landlord any other sum in the amounts, manner, and at the time required; (iii) Tenant's breach of any nonmonetary obligation under this Lease; (iv) Tenant's making of an assignment for the benefit of creditors; (v) appointment of a receiver for Tenant's property; or (vi) appointment of a trustee for Tenant under the Bankruptcy Act (except a debtor in possession) or any trustee, assignee or receiver for creditors. Upon the termination of this Lease for any cause, Landlord may at once enter the leased property without notice or demand to Tenant and remove all persons and all of Tenant's property therefrom.

22. **POSSESSORY INTEREST AND PROPERTY TAXES.** Pursuant to California Revenue and Taxation Code Section 107.6, notice is hereby given that Tenant is responsible for any possessory interest, utility or personal property taxes that may be imposed as a result of, or related to, this Lease.

23. **NOTICES.** Any notice, demand or request required or permitted to be given to or made upon the Tenant by the Landlord under the provisions of this Lease, or otherwise by the law may be given to or made upon the Tenant, and either personally delivered to the Tenant or mailed by certified mail with the postage and fees thereon fully prepaid, to the Tenant at

Eagle Creek Pacific LLC
1920 Tienda Drive Suite 204
Lodi, CA 95242

and such notice, demand or request, when so mailed, shall have the same force and effect as if the same had been given or made upon the Tenant personally, and shall be deemed given three days after such deposit in the United States mail. Any notice, demand or request required or permitted to be given or made upon the Landlord by the Tenant may be given to or made upon the Landlord by letter addressed to it and either personally delivered to it or mailed by Certified mail, with the postage and fees thereon fully prepaid to the Landlord at its address set forth in Section 2, with a copy to:

Transportation Agency for Monterey County
55-B Plaza Circle
Salinas, California 93901
Attn: DAVID DELFINO dave@tamcmonterey.org (831) 775-0903

and such notice, demand or request, when so mailed, shall have the same force and effect as if the same had been given to or made upon it personally, and shall be deemed given three days after such deposit in the United States mail.

24. **CONDEMNATION.**

24.1 **Take.** If the whole of the leased property shall be taken for any public or quasi-public use under any statute or by right of eminent domain, then this Lease shall automatically terminate as of the date the title shall be taken. If any part of the leased property shall be so taken as to render the leased property unusable for the purposes for which the same was leased by Tenant, then either Landlord or Tenant may terminate this Lease on thirty (30) days written notice to the other party. In the event that this Lease shall terminate or be terminated pursuant to this paragraph 24.1, any prepaid rental shall be prorated to the terminated date.

24.2 **Rental Adjustment**. If any part of the leased property shall be taken for any public or quasi public use under any statute or by right of eminent domain, and this Lease shall not terminate under the provisions of Section 6, then the rental paid by Tenant shall be equitably adjusted according to the part so taken or rendered unusable.

24.3 **Award**. Any and all awards made for the taking of all or part of the leased property shall be the property of the Landlord, provided that any award made for the taking of any item of Tenant's crops or personal property, or on account of relocation or moving expenses of Tenant, or on account of prepaid rent, shall be the property of Tenant.

25. **TENANT'S LIENS AND ENCUMBRANCES**. Tenant shall not suffer or permit any lien or encumbrance of whatever kind or nature to be placed upon, levied upon or assessed against the leased property, or the real property of which the same are a part, by reason or as a result of any act of omission or commission of the Tenant.

26. **ABANDONMENT**. Tenant shall not vacate or abandon the property at any time during the term. If Tenant does abandon, vacate or surrender the property, or is dispossessed by process of law, or otherwise, this Lease shall terminate and any personal property belonging to Tenant shall be removed by Tenant if Landlord shall so request.

27. **HOLDING OVER**. Any holding over after expiration of the term of this Lease or any extension hereof, shall with Landlord's consent be treated as a tenancy from month to month, at a monthly rental of One Hundred Twenty-Five percent (125%) times the base rent per acre per month. Landlord may, by thirty (30) days written notice, change the rental and terms of such month-to-month tenancy.

28. **MISCELLANEOUS.**

28.1 **Covenants**. All covenants of Tenant contained in this Lease are expressly made conditions precedent to Landlord's continued duty to perform hereunder.

28.2 **Time**. Time is of the essence hereof.

28.3 **Entire Agreement**. The terms of this Lease are intended by Landlord and Tenant as a final expression of their agreement with respect to such terms as are included in this Lease and may not be contradicted by evidence of any prior or contemporaneous agreement. The Parties intend that this Lease constitutes the complete and exclusive statement of its terms and that no extrinsic evidence whatsoever may be introduced in any judicial proceeding, if any, involving this Lease.

28.4 **Interpretation**. This lease shall be interpreted according to the laws of the State of California.

28.5 **Good Faith**. The covenant of good faith and fair dealing implied in all contracts is made express herein.

28.6 **Gender and Tense**. Nouns and pronouns used herein shall include the masculine, feminine and neuter genders; words used in the singular shall include the plural; and tenses shall include the past, present and future; all to be construed as the context requires.

28.7 **Binding on Successors**. The covenants and conditions herein contained shall, subject to the provisions concerning assignment, apply to and bind the heirs, successors, personal representatives and assigns of all the parties hereto.

28.8 **Captions**. The captions and any table of contents to this Lease shall have no effect concerning its interpretation.

28.9 **Estoppel Certificate**. Each party, within fifteen (15) days after notice from the other party, shall execute and deliver to the other party, in recordable form, a certificate indicating that this Lease is unmodified and in full force and effect, or in full force and effect as modified and stating the modifications. The certificate shall also state the amount of rent, the date to which the rent has been paid in advance, if applicable, and the amount of any security deposit.

IN WITNESS WHEREOF, Landlord and Tenant have executed this Lease the day and year written below.

LANDLORD:

TRANSPORTATION AGENCY FOR MONTEREY COUNTY

BY: _____ DATE: 6/1/17
Debra L. Hale, Executive Director

TENANT:

EAGLE CREEK PACIFIC LLC

BY: _____ DATE: 6/8/17
ERIK C. ROBET, VICE PRESIDENT

Approved as to form:

_____ DATE: 5/31/17
TAMC Counsel

EXHIBIT B

RENT

Tenant shall pay to Landlord rent for a period Five (5) years commencing May 1, 2017, and ending April 30, 2022 as follows:

A. Semiannual Installments:

RATE	TOTAL	DUE
$1,907.43 per acre (X) 11.17 acres	**$21,306. ($10,653.00 Semi-Annually)**	**6/1/17, 11/1/17, 5/1/18, 11/1/18, 5/1/19, 11/1/19, 5/1/20, 11/1/20 and 5/1/21, 11/1/21.**

B. Tenant agrees to pay each installment of rent to the Landlord pursuant to Section 2 of the Lease.

Department of Transportation Encroachment Permit

DEPARTMENT OF TRANSPORTATION
ENCROACHMENT PERMIT OFFICE
50 HIGUERA STREET
SAN LUIS OBISPO, CA 93401-5415
PHONE (805) 549-3152
FAX (805) 549-3062
TTY 711
http://www.dot.ca.gov/dist05

Making Conservation a California Way of Life.

05-Mon-183-8.34
0517 6SV 0559

Cal Am Water Company
c/o AECOM
Attn: Craig J Smith
300 Lakeside Drive, Suite 400
Oakland, CA 94612

Dear Craig:

Attached is your approved encroachment permit. **DO NOT BEGIN WORK UNTIL YOU HAVE FIRST READ THE PERMIT CAREFULLY AND COMPLETELY, AND CONTACTED THE STATE INSPECTOR LISTED ON YOUR PERMIT.**

Failing to comply with the above requirements will result in the rejection of your future application or denial of your request.

Notification requirements that will impact your work schedule:

1. Changes to horizontal or vertical clearances; minimum of 25-day advance notification.
2. Lane closures; completed "Weekly Traffic Update" form must be submitted by noon the Tuesday prior to date of lane closure.
3. Public Affairs; completed "Public Affairs – Permitted Activity Notification" form must be submitted by noon the Wednesday prior to begin activity date.
4. Contact the Caltrans Permit Inspector to coordinate the items above, and to schedule a pre-job meeting a minimum of two working days prior to starting work.

This permit is a legal and binding contract once work on it has begun. You are subject to the provisions contained in the permit and in the attached Encroachment Permit General Provisions. If there is any question regarding interpretation of any detail in the permit or the General Provisions, you may contact the inspector listed on your permit or our office at (805) 549-3152. Thank you in advance for your cooperation.

Sincerely,

Peter A. Hendrix
District Encroachment Permit Engineer

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

ENCROACHMENT PERMIT

TR-0120 (REV. 6/2012)

Permit No.	0517 6SV 0559
Dist/Co/Rte/PM	05-Mon-183-8.34
Date	January 12, 2018
Fee Paid	$ 2,460.00
Deposit	$
Performance Bond Amount (1)	$
Payment Bond Amount (2)	$
Bond Company	
Bond Number (1)	
Bond Number (2)	

In compliance with (Check one):

- ☒ Your application of **November 1, 2017**
- ☐ Utility Notice No. _____ of _____
- ☐ Agreement No. _____ of _____
- ☐ R/W Contract No. _____ of _____

TO: Cal Am Water Company
c/o AECOM
Attn: Craig J Smith
300 Lakeside Drive, Suite 400
Oakland, CA 94612

Phone: (510) 874-3117 , **PERMITTEE**

And subject to the following, PERMISSION IS HEREBY GRANTED to:
perform project site investigation and surveys for water line installation as shown on the attached plans and as directed by the permit provisions in State Route 183 right of way at postmile 8.34 in the County of Monterey.

Permittee shall contact the State Permit Inspector listed below, a minimum of two working days prior to commencing work to arrange a pre-job meeting in accordance with Provision 6 of the attached General Provisions. When work has been interrupted for more than five (5) working days, the Permittee shall notify the Caltrans Permit Inspector **a minimum of two working days prior to restarting work** unless a pre-arranged agreement has been made with the Department's representative.

State Permit Inspector: Ignacio Saavedra	**Phone:**(831) 601-1585
Email: ignacio.saavedra@dot.ca.gov	**Fax:**(831) 663-8966

The issuance of this permit does not entitle the Permittee to start work immediately within the Caltrans right of way. If Permittee's operations will reduce the vertical roadway clearance, horizontal roadway clearance, or detour traffic, implementation of prescribed traffic control measures may require up to a 25-day waiting period from date of traffic control notification and the submittal of the attached "Weekly Traffic Update" form.

THIS PERMIT IS NOT A PROPERTY RIGHT AND DOES NOT TRANSFER WITH THE PROPERTY TO A NEW OWNER.

The following attachments are also included as part of this permit (Check applicable):

☒ Yes	☐ No	General Provisions (TR-0045)
☐ Yes	☒ No	Utility Maintenance Provisions
☒ Yes	☐ No	Special Provisions
☐ Yes	☒ No	A Cal-OSHA permit, if required: Permit No. _____
☐ Yes	☒ No	As-Built Plans Submittal Route Slip for Locally Advertised Projects
☒ Yes	☐ No	Std. Storm Water Pollution Prevention Special Provisions

In addition to fee, the permittee will be billed actual costs for:

☒ Yes	☐ No	Review
☒ Yes	☐ No	Inspection
☒ Yes	☐ No	Field Work

(If any Caltrans effort expended)

☐ Yes ☒ No The information in the environmental documentation has been reviewed and is considered prior to approval of this permit.

This permit is void unless the work is complete before **January 12, 2019**

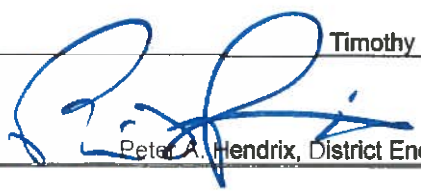
This permit is to be strictly construed and no other work other than specifically mentioned is hereby authorized.
No project work shall be commenced until all other necessary permits and environmental clearances have been obtained.

cc:
Permit File
Ignacio Saavedra-Prunedale Const. Off. (Insp)
Dennis DeGroodt-Salinas Maint.

APPROVED:

Timothy M. Gubbins, District Director

BY:



Peter A. Hendrix, District Encroachment Permit Engineer

bdp

FM 91 1436

ADDITIONAL ATTACHMENTS

Attached if checked:
- ☒ WEEKLY TRAFFIC UPDATE
- ☒ PUBLIC AFFAIRS PROJECT NOTIFICATION
- ☒ CALTRANS STANDARD PLANS T9-T14
- ☒ STEEL PLATE BRIDGING UTILITY PROVISIONS (TR-0157)
- ☒ TRAFFIC STRIPING, MARKERS, & SIGNS (MSC)
- ☒ UTILITY UNDERGROUND PROVISIONS (UG) (TR-0163)
- ☒ ENCROACHMENT PERMIT TRENCH DETAIL (TR-0153)
- ☒ Other:
  Limits of Grind and Overlay for Pavement Replacement
  Typical Temporary Sign Support Details
  Typical Portable Changeable Message Sign Placement

PLANS AND SPECIFICATIONS

If conflicts arise between Special Provisions, Plans, Caltrans Standard Plans, Standard Specifications, or other Caltrans standards, the Caltrans Inspector shall make the final determination regarding selection or interpretation of standards and/or specifications. State Standards and Specifications shall apply to all work within the State right of way unless directed otherwise by the State Inspector. Reference to the Engineer in the State Standard Specifications shall include the State Representative (Caltrans Permit Inspector or District Encroachment Permit Engineer).

Attention is directed to Section 5 of the current State Standard Specifications and the Encroachment Permit General Provisions (TR-0045) regarding control of work and permit work plan revisions. Additionally, the State Permit Inspector may require reasonable additions, modifications, or revisions to the scope of work at no cost to the State if the change is in the best interest of the State facility where the encroachment permit is being granted and Caltrans policy, Standard Specifications, or Permit Provisions are unclear.

WORK HOURS

All work on this permit shall be performed on weekdays between the hours of 9:00 AM and 3:00 PM, excluding designated legal holidays, unless stated otherwise for traffic control. The State Inspector must approve deviations from these hours in advance.

All work that will impact the normal operations of Caltrans traffic signal facilities shall be performed under traffic control and during the hours approved by the Caltrans Inspector and Caltrans District 5 Traffic Management Center.

Designated legal holidays are:
January 1st - (New Year's Day), the third Monday in January - (Martin Luther King Jr. Day)
The third Monday in February - (Washington's Birthday)
March 31st - (Cesar Chavez's Day)
The last Monday in May - (Memorial Day)
July 4th - (Independence Day)

The first Monday in September - (Labor Day)
November 11th - (Veteran's Day), 4th Thursday and Friday in November - (Thanksgiving Holiday)
December 25th - (Christmas Day)

When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, Friday November 10th shall be a designated legal holiday.

NOTIFICATIONS

Notice of Materials Used
Permittee's attention is directed to the State Standard Specification – Section 6 "Control of Materials."

TRAFFIC CONTROL AND PUBLIC SAFETY

All traffic control shall be performed under the direction of qualified and competent traffic control personnel. If it becomes apparent to the Caltrans Permit Inspector that the Permittee's contractor does not have adequately trained and competent staff to perform traffic control, the Permittee or Permittee's contractor shall hire a suitable contractor to provide traffic control.

Traffic control and construction zone signing shall be performed per an approved traffic control plan.

All traffic control personnel performing flagging operations shall be trained in accordance with Cal/OSHA Title 8, Division 1, Chapter 4, subchapter 4 Construction Safety Orders, Article 11, Section 1599 (f) and (g), and shall provide certification of training if requested by the State Permit Inspector.

The Permittee shall provide all traffic control devices and personnel. All expenses incurred from traffic control operations shall be borne by the Permittee.

All traffic control devices shall comply with the current California Manual of Uniform Traffic Control Devices.

Work shall not interfere with traffic and no equipment shall be parked on or operated from the traveled way unless approved by the Caltrans representative.

On multilane roadways, a minimum of one-paved traffic lane, not less than 12 feet wide, shall be open for use by public traffic in each direction of travel.

On 2-lane, two-way roadways a minimum of one-paved traffic lane not less than 12 feet wide shall be open for use by public traffic. When construction operations are not actively in progress, not less than 2 of these lanes shall be open to public traffic.

If approved by the State Inspector, one lane may be closed during construction and public traffic stopped for periods not to exceed 5 minutes. After each closure, all accumulated traffic shall be allowed to pass through the work before another closure is made. Lane closures shall not exceed 0.5 mile in length.

Notwithstanding lane closures noted in the traffic control plans or elsewhere in this permit, the full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, designated legal holidays, the day preceding designated legal holidays, after 3:00 PM on Fridays, and when construction operations are not actively in progress.

Minor deviations from the requirements of this section concerning hours of work may be permitted upon the written request of the Permittee if, in the opinion of the Inspector, public traffic will be better served and the work expedited. The Permittee shall not adopt these deviations until the Inspector has approved them in writing.

Except for installing, maintaining and removing traffic control devices, whenever work is performed or equipment is operated in the following work areas the Permittee shall close the adjacent traffic lane:

APPROACH SPEED OF PUBLIC TRAFFIC (Posted Speed Limit) (mph)	WORK AREA
Over 45	Within 6 feet of a traffic lane but not on a traffic lane.
35 to 45	Within 3 feet of a traffic lane but not on a traffic lane.

When traffic cones or delineators are used to delineate a temporary edge of traffic lane, the line of cones or delineators shall be considered to be the edge of traffic lane. Existing traffic lanes shall not be reduced to less than 12 feet in width without the written approval of the State Inspector.

"NO PARKING" zones shall be posted a minimum of 48 hours in advance of proposed parking lane closure.

PEDESTRIAN SAFETY (MCP) SPECIAL PROVISIONS
In addition to the attached General Provisions (Form TR-0045), the following special provisions are also applicable:

1. When the work area encroaches upon a sidewalk, walkway, or crosswalk area, special consideration must be given to pedestrian safety. Protective barricades, fencing, handrails and bridges, together with warning and guidance devices and signs must be utilized so that the passageway for pedestrians, especially blind and other physically handicapped, is safe and well defined and shown on the approved permit plan.

2. Pedestrian walkways and canopies within State Right of Way shall comply with the requirements of the applicable local agency or of the latest edition of the Uniform Building Code whichever contains the higher standards.

Permittee shall be solely responsible to provide additional traffic control devices to protect the work site and traveling public as directed by the Caltrans Permit Inspector to meet field conditions at no cost to the State.

GENERAL REQUIREMENTS

Project/Work Site
All disturbed areas shall be restored to original or better condition.

Any change in the existing drainage pattern, whether occasioned by increase or diversion, and the cost of damage, repair or restoration of the State highway right of way shall be the responsibility of the Permittee.

No earth or construction materials are to be dragged or scraped across the highway pavement. No excavated earth shall be placed or allowed to remain at a location where it can be tracked on the highway traveled way, public or private approach by the Permittee's construction equipment or by traffic entering or leaving the highway traveled way. The Permittee shall immediately remove excavated earth or mud so tracked onto the highway pavement or public or private approach.

No excavation, maintenance hole, pull box, or vault shall be left open overnight or unattended during work hours without written permission from the Caltrans representative and adequate protection for traffic and pedestrians is provided.

Personnel Protective/Safety Equipment
All personnel working within the State right of way shall wear the appropriate personnel safety/protective equipment as specified by the personnel's employer's "Injury and Illness Prevention Program" required by the California Code of Regulations 3203. If requested by the Caltrans Permit Inspector, personnel's employer shall provide a copy of said "Injury and Illness Prevention Program" and identify the locations within the document that addresses, but not limited to, personal protective equipment, head protection, and warning garments.

In the absence of an "Injury and Illness Prevention Program," all other personnel within the project work zone shall conform to the personnel protective/safety equipment requirements in the latest edition of the Caltrans Safety Manual.

Construction Debris and Waste Materials
The Permittee solely owns all construction debris and waste materials, including hazardous waste, generated by this permitted project. Said materials shall be removed from the State right of way, stored, and disposed of in accordance with applicable local, regional, State, and Federal specifications or regulations. Construction debris and waste materials shall be disposed of:

at designated off-site commercial facilities approved to accept said materials; or

at non-commercial permitted sites approved to accept said materials (Permittee must provide copies of all necessary local and State agency permits prior to disposal).

Permittee shall provide a copy of documentation as proof of the proper disposal of said materials if so requested by the State Permit Inspector.

Survey Monumentation
Permittee's attention is directed to Section 5-1.36, "Property and Facility Preservation," Caltrans Standard Specifications and "Professional Land Surveyors' Act," Section 8771 of the State of California Business and Professions Code. Permittee shall physically inspect the work site and locate survey monuments prior to work commencement. Monuments that might be disturbed shall be referenced or reset in accordance with the standards mentioned above.

If feasible, monuments should not be set within the traveled way. All monuments that must be set or perpetuated in paved surfaces shall be constructed in accordance with Caltrans Standard Specifications, Section 78-2, "Survey Monuments," and Caltrans Standard Plan A74, Type D, or equal with prior approval of the District Surveys Engineer.

Copies of Corner Record files or Record of Surveys recorded in compliance with the Business and Professions Code shall be forwarded to the Caltrans District 5 Surveys Engineer at the following address:

Department of Transportation
Survey Section
Attn: Jeremy Villegas
50 Higuera Street
San Luis Obispo, CA 93401

Material Testing
Material testing and quality control shall conform to the State Construction Manual and to the State Material Testing Manual. Testing shall be performed by a certified material-testing consultant acceptable to the State and paid for by the Permittee. Material testing and quality control tests shall be performed as required by the State's Inspector and the results thereof shall be made immediately available.

All required construction compliance tests shall be performed with the California Test Methods and shall be in accordance with the latest edition of Caltrans Independent Assurance Program Manual. A Caltrans certified laboratory shall also perform all tests and all laboratory reports shall be furnished to the Department's representative at no cost to the State.

Backfill Requirements
All backfilling and compaction shall conform to the applicable sections of the Department's Standard Specifications Section 19-5 "Compaction."

Backfilling using ponding or jetting methods are prohibited.

Caltrans Standard Specification 2-sack slurry cement should be used for backfill under all paved surfaces to expedite roadway repairs.

All backfill material shall comply with and shall be constructed per Caltrans Standard Specifications.

Backfill material shall be approved by the Caltrans Permit Inspector prior to beginning excavation.

Culverts with less than 2 feet of cover shall be backfilled as directed by the State Inspector with minor concrete conforming to the provisions in **Section 90-2** of the Caltrans Standard Specifications.

Relative Compaction (90 Percent)
Embankment compaction beyond the roadbed or outside of structure backfill shall not be less than 90 percent relative compaction unless stated otherwise in the Caltrans Standard Specifications or Caltrans Highway Design Manual.

Relative Compaction (95 Percent)
Relative compaction of not less than 95 percent shall be obtained for a minimum depth of 0.5-foot below the grading plan for the width between the outer shoulders, whether in excavation or embankment.

In addition, relative compaction of not less than 95 percent shall be obtained for a minimum depth of 2.5 feet below the finished grade for the width of the traveled way plus 3 feet on each side thereof, whether in excavation or embankment.

For limits of 95 percent compaction of embankment adjacent to abutments and for retaining walls without pile foundations reference Caltrans Standard Specifications Section 19-5.03B.

Existing Trees and Vegetation
Unless stated elsewhere in this permit or shown on the approved permit plans, this permit does not authorize the removal, severing of roots or trimming of vegetation. If work of this nature is required, a written request and approval, by the Caltrans Permit Inspector, is required in advance of performing the work. Replacement planting may be required as a mitigation measure. Excavations should be done outside of drip line to reduce tree damage and integrity of trees. If excavations must be made within the drip line of trees (or extending tree roots) along the right of way, the trenches shall be hand dug and the utility routed beneath or around root structure. Major tree roots must not be cut or damaged. Additionally, the exposed roots shall be wrapped and kept moist until the excavation is back filled with the native material. Requests for exceptions shall be accompanied by an Arborist's recommendation.

Archaeological/Cultural Requirements
If archaeological resources or human remains are accidentally discovered during construction, work shall be halted within 150 feet of the find until a qualified professional archaeologist can evaluate it. Permittee shall notify Caltrans District Archaeologist Krisstin Sibley, (805) 549-3193, about the discovery immediately. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented.

Signs
Installation of roadside signs shall comply with all applicable portions of the current Caltrans Standard Specifications Section 56-3, Caltrans Standard Plans, California Manual on Uniform Traffic Control Devices, and Caltrans policies.

Temporary and permanent signs placed within the State right of way shall comply with minimum retroreflectivity requirements of the most current of the following: Federal Highway Administration Manual on Uniform Traffic Control Devices - Section 2A.08, Caltrans Standards, or Caltrans policy.

With the exception of white background signs, retroreflective sheeting shall conform to ASTM D4956-13 Type XI and Caltrans "Prequalified and Tested Signing and Delineation Materials."

White background sign retroreflective sheeting shall conform to ASTM D4956 Type VIII or Type IX and Caltrans "Prequalified and Tested Signing and Delineation Materials."

Roadside signs mounted on post(s) shall be placed at locations shown on the permit plans and shall be installed in compliance with the latest edition of Caltrans Standard Plan RS1 through RS4.

Temporary signs mounted on barricades and barricade/sign combinations shall be crashworthy.

The bottom of a temporary sign mounted on a barricade, or other portable support, shall be at least 1 foot above the traveled way or the existing surface at the location of placement.

Proposed sign placement shall not interfere with the visibility of any existing warning, regulatory, information or guide signs along the State Highway.

A safe pedestrian passageway width of 4 feet shall be maintained at any sign installation in areas normally traversed by pedestrians. The minimum passageway adjacent to a drop off, such as a curb face or gutter shall be at least 5 feet.

EXISTING FACILITIES

Existing improvements shall be protected or relocated as required by the work authorized by this permit. If existing improvements including pavement markings and delineation are damaged or their operation impaired by this work, they shall be replaced or restored to the satisfaction of the Caltrans representative. Such work shall be done immediately if requested by the Caltrans representative.

IT SHALL BE THE PERMITTEE'S RESPONSIBILITY TO FULLY INVESTIGATE THE PROPOSED WORK AREA FOR POSSIBLE CONFLICTS WITH EXISTING UTILITIES AND FACILITIES, INCLUDING BUT NOT LIMITED TO SEWERS, ELECTRICAL CONDUCTORS, GAS LINES, WATER PIPES AND TRAFFIC SIGNAL FACILITIES. THE PERMITTEE AGREES TO ACCEPT ALL LIABILITY FOR DAMAGES DONE TO EXISTING FACILITIES CAUSED BY THE WORK AUTHORIZED UNDER THIS PERMIT.

Caltrans Traffic Signals, Lighting, and Electrical Facilities
Caltrans does not subscribe to underground utility locating services. It is the Permittee's sole responsibility to investigate, locate, and mark existing Caltrans traffic signal equipment, loops, conduits, and street lighting facilities prior to work in or between signalized intersections and street lighting facilities.

If it is apparent that impacting traffic signal conduits during construction will be unavoidable Permittee shall install temporary overhead wiring for the signal at Permittee's own expense. Permittee shall have on

hand at all times all necessary equipment and personnel needed to provide traffic control at an intersection should the traffic signal malfunction.

If a signal detector loop, including the portion leading to the adjacent pull box is damaged by Permittee's operations the entire detector loop shall be replaced, in kind, within 24 hours of the occurrence. If an adjacent loop is damaged during the replacement, that loop shall also be replaced. The Caltrans Inspector shall be notified immediately when damage occurs. Arrangements for Caltrans Electrical operations staff shall be made to have the traffic signal controller reprogrammed.

Utility Relocations

If existing public or private utilities conflict with the construction PROJECT, PERMITTEE will make necessary arrangements with the owners of such utilities for their protection, relocation, or removal. PERMITTEE shall inspect the protection, relocation, or removal of such facilities. Total costs of such protection, relocation, or removal shall be borne by PERMITTEE in compliance with the terms of the Highway Encroachment Permits, Case Law, Public Utility Regulations, and Property Rights. PERMITTEE shall require any utility company performing relocation work in the STATE's right-of-way to obtain a State Encroachment Permit before the performance of said relocation work. Any relocated utilities shall be correctly located and identified on the as-built plans.

WATER POLLUTION CONTROL

Discharge of Storm Water and Non-Storm Water

Work within State highway right-of-way shall be conducted in compliance with all applicable requirements of the National Pollutant Discharge Elimination System (NPDES) permit issued to the Department of Transportation (Department), to govern the discharge of storm water and non-storm water from its properties. Work shall also be in compliance with all other applicable Federal, State and Local laws and regulations, and with the Department's Encroachment Permits Manual and encroachment permit. The Department's NPDES Permit requires the Permittee to comply and maintain, if applicable, the approved Storm Water Special Provisions for Minimal or No Impact (TR-0400), Water Pollution Control Program, or Storm Water Pollution Prevention Plan.

The Contractor (permittee) shall be responsible for fines assessed or levied against the Contractor or the Department as a result of the Contractor's (permittee) failure to comply with these provisions. Fines shall include civil liability fines, criminal penalties and/or damages, assessed, or levied against the Department or the Contractor, Contractor liability for failure to comply with these provisions shall also include reimbursement for payments made or costs incurred by the Department in settlement for alleged violations of the Permits, the Manuals, or applicable laws, regulations, or requirements. Costs incurred could include sums spent in lieu of fines or penalties, in mitigation or to remediate or correct violations.

In the event that an unforeseen illicit discharge is generated during construction activities and the Caltrans Permit Inspector cannot be contacted, the Permittee or Permittee's contractor shall contact the Encroachment Permit Storm Water Coordinator, Bryan Parker (805) 549-3123 immediately. The Permittee or Permittee's contractor is responsible to contain and remediate the illicit discharge as directed by the Caltrans Permit Inspector or Encroachment Permit Storm Water Coordinator at no cost to the State.

PROJECT COMPLETION

The permit fee consists of a non-refundable review and processing fee of $820 and a $1640 fee deposit required to cover estimated costs for State construction inspection, inspection administration, and, if any, State furnished equipment and field work. Permittee will be billed for all inspection activities, equipment costs and field work exceeding the fee deposit during or at the conclusion of the permitted project. Unless otherwise provided for in writing, payor(s) will be refunded proportional amounts of any unused fee deposit(s) at the completion of the permit project and permit process.

Once work authorized by this permit has started, cancelling the permit or failure to contact the Caltrans Permit Inspector may result in the forfeiture of any remaining fee deposits.

As-Built Requirement

Upon completion of the project, the Permittee shall submit "As-Built" plans to the State Inspector showing the actual location of the newly constructed facility to the nearest 0.1-foot horizontally and vertically. Plans shall be stamped "As-Built" and signed by the Permittee's representative who was responsible for overseeing the work. Work shall be considered incomplete until the receipt of the "As-Built" plans.

Civil Engineer in charge shall also complete, stamp, and sign the attached Certification of Compliance with Americas with Disabilities Act (ADA) form TR-0405. Form shall be submitted with As-Built plans or enclosed with the Notice of Completion and questionnaire in the addressed and stamped envelope.

Immediately following completion of the work permitted herein, the Permittee shall fill out and mail the Notice of Completion attached to this permit.

PLEASE USE THE ATTACHED ENVELOPE (PRE-PAID POSTAGE) TO SEND THE ATTACHED NOTICE OF COMPLETION AND QUESTIONNAIRE. THANK YOU!

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

STANDARD ENCROACHMENT PERMIT APPLICATION

TR-0100 (REV. 03/2015)

Please type or print clearly your answers. Complete ALL fields, write "N/A" if not applicable.
This application is not complete until all requirements have been approved.

Permission is requested to encroach on the State Highway right-of-way as follows:

FOR CALTRANS USE

PERMIT NO.: 0517-GSV-0559

DIST/CO/RTE/PM: 05-Mon-183-R8.34

SIMPLEX STAMP: DIST. 05 170559

DATE OF SIMPLEX STAMP: 11/14/2017

1. COUNTY	2. ROUTE	3. POSTMILE
Monterey	183	MON R8.335

4. ADDRESS OR STREET NAME	5. CITY
Merritt St./HWY 183 and Del Monte Ave.	Castroville

6. CROSS STREET (Distance and direction from project site)	7. PORTION OF RIGHT-OF-WAY
Merritt St./HWY 183 and Del Monte Ave.	R/W to R/W (width varies)

8. WORK TO BE PERFORMED BY	9. ESTIMATED START DATE	10. ESTIMATED COMPLETION DATE
☑ OWN FORCES ☑ CONTRACTOR	January 2018	January 2019

11. EXCAVATION	MAX. DEPTH	AVG. DEPTH	AVG. WIDTH	LENGTH	SURFACE TYPE
	7.5	6.5	4	150	AC, PCC, Dirt

12. ESTIMATED COST WITHIN STATE HIGHWAY RIGHT-OF-WAY

FUNDING SOURCE(S): ☐ FEDERAL ☐ STATE ☐ LOCAL ☑ PRIVATE

13. PIPES	PRODUCT TYPE	DIAMETER	VOLTAGE / PSIG	14. CALTRANS' PROJECT CODE (ID)
	Potable Water	12 inches	N/A	N/A

15. ☐ Double Permit Parent Permit Number: N/A

Applicant's Reference Number / Utility Work Order Number: N/A

16. Have your plans been reviewed by another Caltrans branch? ☑ NO ☐ YES (If "YES") Who? _____

17. Completely describe work to be done within STATE Highway right-of-way:

Attach 6 complete sets of plans (folded to 8.5" x 11") and any applicable specifications, calculations, maps, etc.

Perform project site investigation necessary for developing PS&E design plans for Castroville pipeline as part of Monterrey Peninsula Water Supply Project, including site reconnaissance, field survey, soil investigation and exploration, biological and environmental assessment, potholing, pavement evaluation, and traffic studies. Please see attached memo and figures that provide location and details.

CA Dept of Transportation
D5 Encroachment Permits
NOV 01 2017
RECEIVED

PAID
NOV 1 1 2017
$2460.00
By JP/AH/44544445

18. Is a City, County or other public agency involved in the approval of this project?

☑ YES (If "YES", check type of project AND attach environmental documentation and conditions of approval)

☐ COMMERCIAL DEVELOPMENT ☐ BUILDING ☐ GRADING ☑ OTHER encroachment permit

☐ CATEGORICALLY EXEMPT ☐ NEGATIVE DECLARATION ☑ ENVIRONMENTAL IMPACT REPORT ☐ OTHER _____

☐ NO (If "NO", please check the category below which best describes the project AND answer questions A - K on page 2)

☐ DRIVEWAY OR ROAD APPROACH, RECONSTRUCTION, MAINTENANCE OR RESURFACING
☐ PUBLIC UTILITY MODIFICATIONS, EXTENSIONS, HOOKUPS
☐ FLAGS, SIGNS, BANNERS, DECORATIONS, PARADES AND CELEBRATIONS
☐ OTHER _____
☐ FENCE
☐ MAILBOX
☐ EROSION CONTROL
☐ LANDSCAPING

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION
ENCROACHMENT PERMIT GENERAL PROVISIONS
TR-0045 (REV. 09/2017)

1. **AUTHORITY:** The California Department of Transportation ("Department") has authority to issue encroachment permits under Division 1, Chapter 3, Article 1, Sections 660 through 734 of the Streets and Highways Code.

2. **REVOCATION:** Encroachment permits are revocable on five (5) business days' notice unless otherwise stated on the permit and except as provided by law for public corporations, franchise holders, and utilities. Notwithstanding the foregoing, in an emergency situation as determined by the Department, an encroachment permit may be revoked immediately. These General Provisions and any applicable Special Provisions are subject to modification or abrogation at any time. Permittees' joint use agreements, franchise rights, reserved rights or any other agreements for operating purposes in State of California ("State") highway right-of-way are exceptions to this revocation.

3. **DENIAL FOR NONPAYMENT OF FEES:** Failure to pay encroachment permit fees when due may result in rejection of future applications and denial of encroachment permits.

4. **ASSIGNMENT:** No party other than the permittee or permittee's authorized agent is allowed to work under this encroachment permit.

5. **ACCEPTANCE OF PROVISIONS:** Permittee understands and agrees to accept and comply with these General Provisions, the Special Provisions, any and all terms contained in this encroachment permit, and all attachments to this encroachment permit, for any work to be performed under this encroachment permit.

6. **BEGINNING OF WORK:** When traffic is not impacted (see General Provision # 35), the permittee must notify the Department's representative two (2) business days before starting permitted work. Permittee must notify the Department's representative if the work is to be interrupted for a period of five (5) business days or more, unless otherwise agreed upon. All work must be performed on weekdays during regular work hours, excluding holidays, unless otherwise specified in this encroachment permit.

7. **STANDARDS OF CONSTRUCTION:** All work performed within State highway right-of-way must conform to all applicable Departmental construction standards including but not limited to: Standard Specifications, Standard Plans, Project Development Procedures Manual, Highway Design Manual and Special Provisions.

   Other than as expressly provided by these General Provisions, the Special Provisions, the Standard Specifications, Standard Plans, and other applicable Departmental standards, nothing in these General Provisions is intended to give any third party any legal or equitable right, remedy, or claim with respect to these General Provisions or any provision herein. These General Provisions are for the sole and exclusive benefit of the permittee and the Department.

   Where reference is made in such standards to "Contractor" and "Engineer," these are amended to be read as "Permittee" and "Department's representative," respectively, for purposes of this encroachment permit.

8. **PLAN CHANGES:** Deviations from plans, specifications, and/or encroachment permit provisions are not allowed without prior approval from the Department's representative.

9. **INSPECTION AND APPROVAL:** All work is subject to monitoring and inspection. Upon completion of work, permittee must request a final inspection for acceptance and approval by the Department. The local public agency permittee must not give final construction approval to its contractor until final acceptance and approval by the Department is obtained.

10. **PERMIT AT WORKSITE:** Permittee must keep the permit package or a copy thereof at the work site at all times, and must show it upon request to any Department representative or law enforcement officer. If the permit package, or a copy thereof, is not kept and made available at the work site at all times, the work must be suspended.

11. **CONFLICTING ENCROACHMENTS:** Permittee must yield start of work to ongoing, prior authorized work adjacent to or within the limits of the permittee's project site. When existing encroachments conflict with permittee's work, the permittee must bear all cost for rearrangements (e.g., relocation, alteration, removal, etc.).

12. **PERMITS FROM OTHER AGENCIES:** This encroachment permit is invalidated if the permittee has not obtained all permits necessary and required by law, including but not limited to permits from the California Public Utilities Commission (CPUC), California Occupational Safety and Health Administration (Cal-OSHA), or any other public agency having jurisdiction. Permittee warrants all such permits have been obtained before beginning work under this encroachment permit.

13. **PEDESTRIAN AND BICYCLIST SAFETY:** A safe minimum continuous passageway of four (4) feet must be maintained through the work area at existing pedestrian or bicycle facilities. At no time must pedestrians be diverted onto a portion of the street used for vehicular traffic. At locations where safe alternate passageways cannot be provided, appropriate signs and barricades must be installed

at the limits of construction and in advance of the limits of construction at the nearest crosswalk or intersection to detour pedestrians to facilities across the street. Attention is directed to Section 7-1.04, *Public Safety*, of the Department's Standard Specifications.

14. **PUBLIC TRAFFIC CONTROL:** As required by law, the permittee must provide traffic control protection, warning signs, lights, safety devices, etc., and take all other measures necessary for the traveling public's safety. While providing traffic control, the needs of all road users, including but not limited to motorists, bicyclists and pedestrians, including persons with disabilities in accordance with the Americans with Disabilities Act, must be an essential part of the work activity.

    Lane and/or shoulder closures must comply with the Department's Standard Specifications and Standard Plans for traffic control systems, and with the applicable Special Provisions. Where issues are not addressed in the Standard Specifications, Standard Plans, and/or Special Provisions, the California Manual on Uniform Traffic Control Devices (Part 6, *Temporary Traffic Control*) must be followed.

15. **MINIMUM INTERFERENCE WITH TRAFFIC:** Permittee must plan and conduct work so as to create the least possible inconvenience to the traveling public, such that traffic is not unreasonably delayed. On conventional highways, permittee must place properly attired flagger(s) to stop or warn the traveling public in compliance with the California Manual on Uniform Traffic Control Devices (Chapter 6E, *Flagger Control*).

16. **STORAGE OF EQUIPMENT AND MATERIALS:** The storage of equipment or materials is not allowed within State highway right-of-way, unless specified within the Special Provisions of this encroachment permit. If encroachment permit Special Provisions allow for the storage of equipment or materials within the State highway right-of-way, the equipment and material storage must also comply with Section 7-1.04, *Public Safety*, of the Department's Standard Specifications.

17. **CARE OF DRAINAGE:** Permittee must provide alternate drainage for any work interfering with an existing drainage facility in compliance with the Department's Standard Specifications, Standard Plans, and/or as directed by the Department's representative.

18. **RESTORATION AND REPAIRS IN STATE HIGHWAY RIGHT-OF-WAY:** Permittee is responsible for restoration and repair of State highway right-of-way resulting from permitted work (Streets and Highways Code, section 670 et seq.).

19. **STATE HIGHWAY RIGHT-OF-WAY CLEAN UP:** Upon completion of work, permittee must remove and dispose of all scraps, refuse, brush, timber, materials, etc. off the State highway right-of-way. The aesthetics of the highway must be as it was before work started or better.

20. **COST OF WORK:** Unless stated otherwise in the encroachment permit or a separate written agreement with the Department, the permittee must bear all costs incurred for work within the State highway right-of-way and waives all claims for indemnification or contribution from the State, the Department, and from the Directors, officers, and employees of the State and/or the Department.

21. **ACTUAL COST BILLING:** When specified in the permit, the Department will bill the permittee actual costs at the currently set Standard Hourly Rate for encroachment permits.

22. **AS-BUILT PLANS:** When required, permittee must submit one (1) set of folded as-built plans within thirty (30) calendar days after completion and acceptance of work in compliance with requirements listed as follows:

    a) Upon completion of the work provided herein, the permittee must submit a paper set of As-Built plans to the Department's representative.
    b) All changes in the work will be shown on the plans, as issued with the permit, including changes approved by Encroachment Permit Rider.
    c) The plans are to be prominently stamped or otherwise noted "AS-BUILT" by the permittee's representative who was responsible for overseeing the work. Any original plan that was approved with a Department stamp, or by signature of the Department's representative, must be used for producing the As-Built plans.
    d) If construction plans include signing or striping, the dates of signing or striping removal, relocation, or installation must be shown on the As-Built plans when required as a condition of the encroachment permit. When the construction plans show signing and striping for staged construction on separate sheets, the sheet for each stage must show the removal, relocation, and installation dates of the appropriate staged striping and signing.
    e) As-Built plans must contain the Encroachment Permit Number, County, Route, and Post Mile on each sheet.
    f) The As-Built Plans must not include a disclaimer statement of any kind that differs from the obligations and protections provided by sections 6735 through 6735.6 of the California Business and Professions Code. Such statements constitute non-compliance with Encroachment Permit requirements, and may result in the Department retaining Performance Bonds or deposits until proper plans are submitted. Failure to comply may also result in denial of future encroachment permits or a provision requiring a public agency to supply additional bonding.

23. **PERMITS FOR RECORD PURPOSES ONLY:** When work in the State highway right-of-way is within an area under a Joint Use Agreement (JUA) or a Consent to Common Use Agreement (CCUA), a fee exempt encroachment permit is issued to the permittee for the purpose of providing a notice and record of work. The permittee's prior rights must be preserved without the intention of creating new or different rights or obligations. "Notice and Record Purposes Only" must be stamped across the face of the encroachment permit.

24. **BONDING:** The permittee must file bond(s), in advance, in the amount(s) set by the Department and using forms acceptable to the Department. The bonds must name the Department as obligee. Failure to maintain bond(s) in full force and effect will result in the Department stopping all work under this encroachment permit and possibly revoking other encroachment permit(s). Bonds are not required of public corporations or privately owned utilities unless permittee failed to comply with the provisions and/or conditions of a prior encroachment permit. The surety company is responsible for any latent defects as provided in California Code of Civil Procedure section 337.15. A local public agency permittee also must comply with the following requirements:

    a) In recognition that project construction work done on State property will not be directly funded and paid by State, for the purpose of protecting stop notice claimants and the interests of State relative to successful project completion, the local public agency permittee agrees to require the construction contractor to furnish both a payment and performance bond in the local public agency's name with both bonds complying with the requirements set forth in Section 3-1.05 *Contract Bonds* of the Department's Standard Specifications before performing any project construction work.
    b) The local public agency permittee must defend, indemnify, and hold harmless the State and the Department, and the Directors, officers, and employees of the State and/or Department, from all project construction related claims by contractors, subcontractors, and suppliers, and from all stop notice and/or mechanic's lien claimants. The local public agency also agrees to remedy, in a timely manner and to the Department's satisfaction, any latent defects occurring as a result of the project construction work.

25. **FUTURE MOVING OF INSTALLATIONS:** Permittee understands and agrees to relocate a permitted installation upon notice by the Department. Unless under prior property right or agreement, the permittee must comply with said notice at the permittee's sole expense.

26. **ENVIRONMENTAL:**

    a) ARCHAEOLOGICAL/HISTORICAL: If any archaeological or historical resources are identified or encountered in the work vicinity, the permittee must immediately stop work, notify the Department's representative, retain a qualified archaeologist who must evaluate the site at permittee's expense, and make recommendations to the Department's representative regarding the continuance of work.

    b) HAZARDOUS MATERIALS: If any hazardous waste or materials (such as underground storage tanks, asbestos pipes, contaminated soil, etc.) are identified or encountered in the work vicinity, the permittee must immediately stop work, notify the Department's representative, retain a qualified hazardous waste/material specialist who must evaluate the site at permittee's expense, and make recommendations to the Department's representative regarding the continuance of work.

    Attention is directed to potential aerially deposited lead (ADL) presence in unpaved areas along highways. It is the permittee's responsibility to take all appropriate measures to protect workers in conformance with California Code of Regulations Title 8, Section 1532.1, "Lead," and with Cal-OSHA Construction Safety Orders, and to ensure roadway soil management is in compliance with Department of Toxic Substances Control (DTSC) requirements.

27. **PREVAILING WAGES:** Work performed by or under an encroachment permit may require permittee's contractors and subcontractors to pay appropriate prevailing wages as set by the California Department of Industrial Relations. Inquiries or requests for interpretations relative to enforcement of prevailing wage requirements must be directed to the California Department of Industrial Relations.

28. **LIABILITY, DEFENSE, AND INDEMNITY:** The permittee agrees to indemnify and save harmless the State, the Department, and all Directors, officers, employees, agents and/or contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind and description brought for or on account of property damage or injury to or death of any person, including but not limited to members of the public, the permittee, persons employed by the permittee, and persons acting on behalf of the permittee, arising out of or in connection with: (a) the issuance and/or use of this encroachment permit, and/or (b) the work or other activity conducted pursuant to this encroachment permit, and/or (c) the installation, placement, subsequent operation, and/or maintenance of said encroachment, and/or (d) the failure by the permittee or anyone acting on behalf of the permittee to perform permittee's obligations under this encroachment

permit in respect to maintenance or any other obligation, and/or (e) a defect or defects in the work, or obstructions related to the work, or from any cause whatsoever. The duty of the permittee to indemnify and save harmless includes the duties to defend as set forth in Section 2778 of the Civil Code.

It is the intent of the parties that except as prohibited by law, the permittee will defend, indemnify, and hold harmless as set forth above regardless of the existence or degree of fault or negligence, whether active or passive, primary or secondary, on the part of the State, the Department, the Directors, officers, employees, agents and/or contractors of the State and/or Department, including but not limited to the Director of Transportation and the Deputy Directors, the permittee, persons employed by the permittee, and/or persons acting on behalf of the permittee.

The permittee waives any and all rights to any type of expressed or implied indemnity against the State, the Department, the Directors, officers, employees, agents, and/or contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors.

The permittee understands and agrees to comply with the obligations of Titles II and III of the Americans with Disabilities Act in the conduct of the permitted activity, and further agrees to defend, indemnify, and save harmless the State, the Department, the Directors, officers, employees, and/or agents of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind and description arising out of or by virtue of the Americans with Disabilities Act.

Permittee understands and agrees the Directors, officers, employees, and/or agents of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, are not personally responsible for any liability arising from or by virtue of this encroachment permit.

For the purpose of this section and all paragraphs herein, "State's contractors" includes contractors and their subcontractors under contract to the State and/or the Department performing work within the same postmile limits as the work under this encroachment permit.

This section and all paragraphs herein take effect upon issuance of this encroachment permit, and apply both during and after the work or other activity contemplated under this encroachment permit, except as otherwise provided by California law.

29. **NO PRECEDENT ESTABLISHED:** This encroachment permit is issued with the understanding that it does not establish a precedent.

30. **FEDERAL CIVIL RIGHTS REQUIREMENTS FOR PUBLIC ACCOMMODATION:**

a) As part of the consideration for being issued this encroachment permit, the permittee, on behalf of permittee and on behalf of permittee's personal representatives, successors in interest, and assigns, does hereby covenant and agree that:

i. No person on the grounds of race, color, or national origin may be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

ii. That in connection with the construction of any improvements on said lands and the furnishings of services thereon, no discrimination must be practiced in the selection and retention of first-tier subcontractors in the selection of second-tier subcontractors.

iii. That such discrimination must not be practiced against the public in their access to and use of the facilities and services provided for public accommodations (such as eating, sleeping, rest, recreation), and operation on, over, or under the space of the State highway right-of-way.

iv. That the permittee must use the premises in compliance with all other requirements imposed pursuant to Title 15, Code of Federal Regulations, Commerce and Foreign Trade, Subtitle A. Office of the Secretary of Commerce, Part 8 (15 C.F.R. Part 8) and as said Regulations may be amended.

b) That in the event of breach of any of the above nondiscrimination covenants, the State and the Department have the right to terminate this encroachment permit and to re-enter and repossess said land and the facilities thereon, and hold the same as if said permit had never been made or issued.

31. **MAINTENANCE OF HIGHWAYS:** By accepting this encroachment permit, the permittee agrees to properly maintain any encroachment. This assurance requires the permittee to provide inspection and repair any damage, at permittee's expense, to State facilities resulting from the encroachment.

32. **SPECIAL EVENTS:** In accordance with subdivision (a) of Streets and Highways Code section 682.5, the Department is not responsible for the conduct or operation of the permitted activity, and the applicant agrees to defend, indemnify, and hold harmless the State, the Department, and the Directors, officers, employees, agents, and

contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind and description arising out of any activity for which this encroachment permit is issued.

The permittee understands and agrees to comply with the obligations of Titles II and III of the Americans with Disabilities Act in the conduct of the event, and further agrees to defend, indemnify, and save harmless the State and the Department, and the Directors, officers, and employees of the State and/or Department, including but not limited to the Director of the Department and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind and description arising out of or by virtue of the Americans with Disabilities Act.

33. **PRIVATE USE OF STATE HIGHWAY RIGHT-OF-WAY:** State highway right-of-way must not be used for private purposes without compensation to the State. The gifting of public property use and therefore public funds is prohibited under the California Constitution, Article 16.

34. **FIELD WORK REIMBURSEMENT:** Permittee must reimburse the Department for field work performed on permittee's behalf to correct or remedy hazards or damaged facilities, or to clear refuse, debris, etc. not attended to by the permittee.

35. **NOTIFICATION OF CLOSURES TO DEPARTMENT AND TRAFFIC MANAGEMENT CENTER (TMC):** The permittee must notify the Department's representative and the Transportation Management Center (TMC) at least seven (7) days before initiating a lane closure or conducting an activity that may cause a traffic impact. A confirmation notification should occur three (3) days before closure or other potential traffic impact. In emergency situations when the corrective work or the emergency itself may affect traffic, TMC and the Department's representative must be notified as soon as possible.

36. **SUSPENSION OF TRAFFIC CONTROL OPERATION:** The permittee, upon notification by the Department's representative, must immediately suspend all lane closure operations and any operation that impedes the flow of traffic. All costs associated with this suspension must be borne by the permittee.

37. **UNDERGROUND SERVICE ALERT (USA) NOTIFICATION:** Any excavation requires compliance with the provisions of Government Code section 4216 et. seq., including but not limited to notice to a regional notification center, such as Underground Service Alert (USA). The permittee must provide notification to the regional notification center at least forty-eight (48) hours before performing any excavation work within the State highway right-of-way.

38. **COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA):** All work within the State highway right-of-way to construct and/or maintain any public facility must be designed, maintained, and constructed strictly in accordance with all applicable Federal Access laws and regulations (including but not limited to Section 504 of the Rehabilitation Act of 1973, codified at 29 U.S.C. § 794), California Access laws and regulations relating to ADA, along with its implementing regulations, Title 28 of the Code of Federal Regulations Parts 35 and 36 (28 C.F.R., Ch. I, Part 35, § 35.101 et seq., and Part 36, § 36.101 et seq.), Title 36 of the Code of Federal Regulations Part 1191 (36 C.F.R., Ch. XI, Part 1191, § 1119.1 et seq.), Title 49 of the Code of Federal Regulations Part 37 (49 C.F.R., Ch. A, Part 37, § 37.1 et seq.), the United States Department of Justice Title II and Title III for the ADA, and California Government Code section 4450 et seq., which require public facilities be made accessible to persons with disabilities.

Notwithstanding the requirements of the previous paragraph, all construction, design, and maintenance of public facilities must also comply with the Department's Design Information Bulletin 82, "Pedestrian Accessibility Guidelines for Highway Projects."

Dist	County	Route	Post Miles Total Project	Sheet No.	Total Sheets

Davinder Singh
REGISTERED CIVIL ENGINEER

January 20, 2017
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

Davinder Singh
E30470
Exp. 6-30-17
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

TABLE 1

TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING

SPEED (S)	MINIMUM TAPER LENGTH [*] FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
					X	Y	Z [**]
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	TAPER	TANGENT	CONFLICT
mph	ft	ft	ft	ft	ft	ft	ft
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	50	100	25
60	1440	720	360	240	50	100	25
65	1560	780	390	260	50	100	25
70	1680	840	420	280	50	100	25
75	1800	900	450	300	50	100	25

[*] - For other offsets, use the following merging taper length formula for L:
For speed of 40 mph or less, $L = WS^2/60$
For speed of 45 mph or more, $L = WS$

Where: L = Taper length in feet
W = Width of offset in feet
S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

[**] - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

TABLE 2

LONGITUDINAL BUFFER SPACE AND FLAGGER STATION SPACING

SPEED [*]	Min D [**]	DOWNGRADE Min D [***]		
		-3%	-6%	-9%
mph	ft	ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	380	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891
75	820	866	927	1003

[*] - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

[**] - Longitudinal buffer space or flagger station spacing

[***] - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 3

ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS [*]		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

[*] - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM TABLES FOR LANE AND RAMP CLOSURES

NO SCALE

RSP T9 DATED JANUARY 20, 2017 SUPERSEDES STANDARD PLAN T9 DATED OCTOBER 30, 2015 - PAGE 249 OF THE STANDARD PLANS BOOK DATED 2015.

REVISED STANDARD PLAN RSP T9

2015 REVISED STANDARD PLAN RSP T9

11-1-16

TO ACCOMPANY PLANS DATED _____

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Davinder Singh
REGISTERED CIVIL ENGINEER

January 20, 2017
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

Davinder Singh C50470 Exp. 6-30-17 CIVIL — STATE OF CALIFORNIA

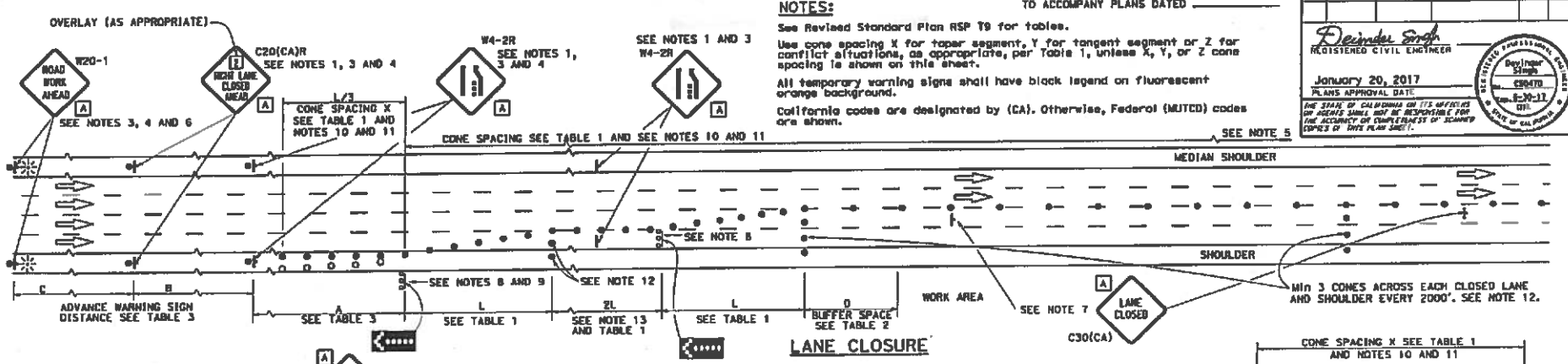
NOTES:

See Revised Standard Plan RSP T9 for tables.

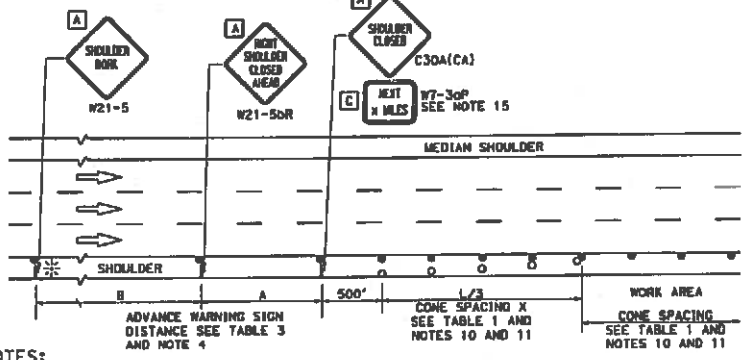
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

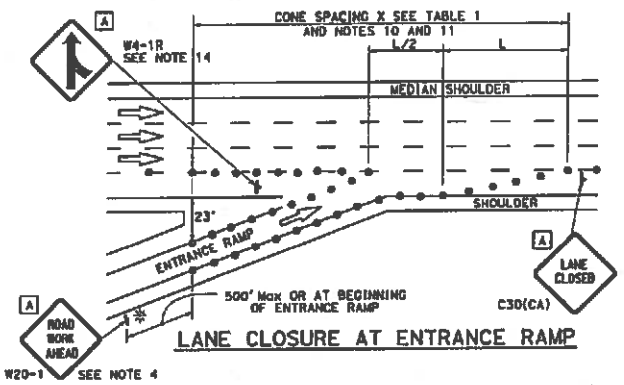
All temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

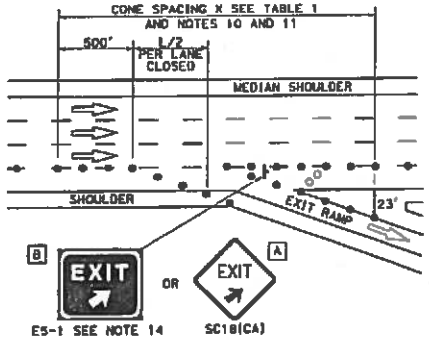


LANE CLOSURE





LANE CLOSURE AT ENTRANCE RAMP



LANE CLOSURE AT EXIT RAMP

SEE NOTE 16

NOTES:

1. Median lane closures shall conform to the details as shown except that C20(CA)L and W4-2L signs shall be used.
2. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
3. Duplicate sign installations are not required:
   a) On opposite shoulder if at least one-half of the available lanes remain open to traffic.
   b) In the median if the width of the median shoulder is less than 8' and the outside lanes are to be closed.
4. Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
5. A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.

SHOULDER CLOSURE

6. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT ____ MILES", use a C20(CA) sign for the first advance warning sign.
7. Place a C30(CA) sign every 2000' throughout length of lane closure.
8. Use one flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
9. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at top of crest vertical curve or on a horizontal curve.
10. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves).
11. Portable delineators, placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.
12. A minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure" detail. Two Type 3 barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
13. The 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
14. The E5-1 or SC18(CA) and W4-1 signs shall be used as shown.
15. A W7-3aP "NEXT ___ MILES" plaque must be used if the shoulder closure extends beyond the distance that can be perceived by road users.
16. For the warning sign requirements at the Exit Ramp, when work is proposed on the local street, see CA MUTCD Figure 6H-22 to 6H-27.

LEGEND

- ● TRAFFIC CONE
- ○ TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

A	48" x 48"
B	72" x 60"
C	36" x 30"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON FREEWAYS AND EXPRESSWAYS

NO SCALE

RSP T10 DATED JANUARY 20, 2017 SUPERSEDES STANDARD PLAN T10 DATED OCTOBER 30, 2015 - PAGE 250 OF THE STANDARD PLANS BOOK DATED 2015.

REVISED STANDARD PLAN RSP T10

2015 REVISED STANDARD PLAN RSP T10

NOTES: See Standard Plan T9 for tables.

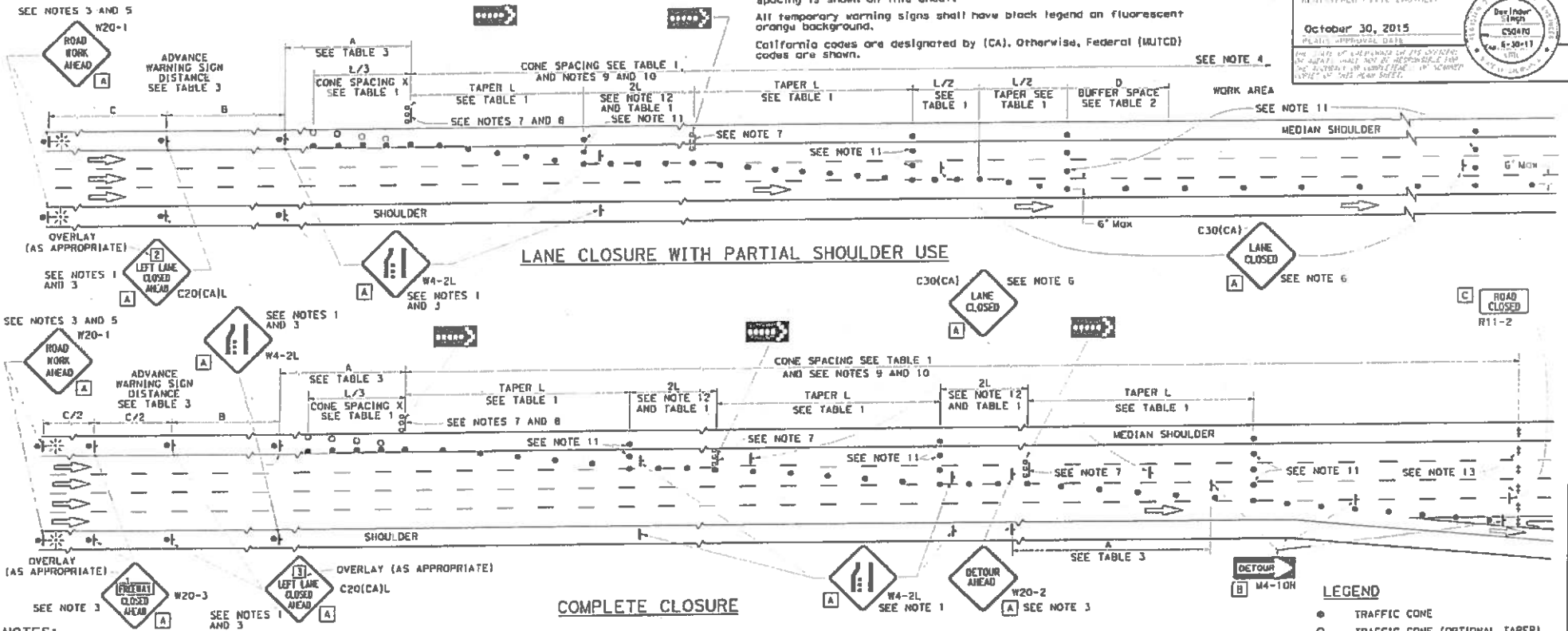
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

All temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

Deviation Singh
REGISTERED CIVIL ENGINEER
October 30, 2015
PLANS APPROVAL DATE
Deviinder Singh
C50470
Exp. 6-30-17
CIVIL
THE STATE OF CALIFORNIA AND THE DEPARTMENT OF TRANSPORTATION SHALL NOT BE RESPONSIBLE FOR ANY INCORRECT OR IMPROPER USE OF THESE PLANS.

LANE CLOSURE WITH PARTIAL SHOULDER USE



COMPLETE CLOSURE

NOTES:

1. Lane closures on the right side using partial median shoulder as a traffic lane shall conform to the details shown except that C20(CA)R and W4-2R signs shall be used.
2. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
3. Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" X 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
4. A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.
5. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT ___ MILES", use a C20(CA) sign for the first advance warning sign.
6. Place a C30(CA) sign every 2000' throughout length of lane closure.
7. Use one flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
8. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
9. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves).
10. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
11. A minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure With Partial Shoulder Use" detail. Two Type II barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
12. The 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
13. A minimum of Two Type II or III barricades shall be placed across each closed lane and shoulder at the location shown and every 2000' within the complete closure area. Within the complete closure area, the transverse alignment of the barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 48" x 18"
- C 48" x 30"

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

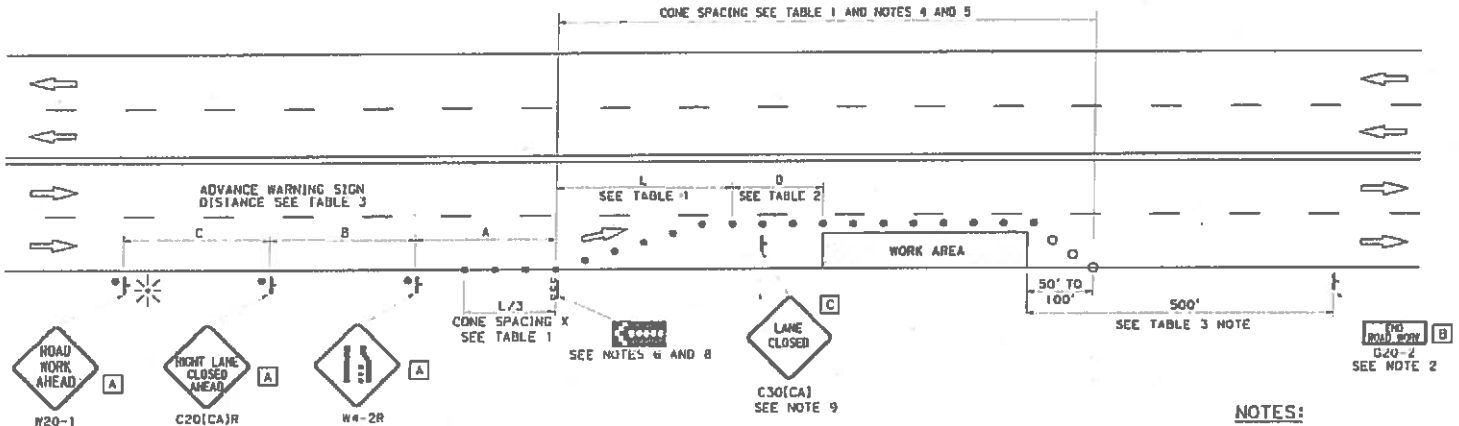
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON FREEWAYS AND EXPRESSWAYS

NO SCALE

T10A

Registered Civil Engineer
Devinder Singh
October 30, 2015
Planning Approval Date
Devinder Singh
No. C50420
Exp. 6-30-17
Civil
State of California



TYPICAL LANE CLOSURE

NOTES:

See Standard Plan T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

All temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 36" x 18"
- C 30" x 30"

NOTES:

1. Each advance warning sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
2. A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious, or ends within a larger project's limits.
3. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT _____ MILES", use a C20(CA) sign for the first advance warning sign.
4. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves).
5. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
6. Flashing arrow sign shall be either Type I or Type II.
7. For approach speeds over 50 mph, use the "Traffic Control System for Lane Closure On Freeways And Expressways" plan for lane closure details and requirements.
8. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
9. Place a C30(CA) sign every 2000' throughout length of lane closure.
10. Median lane closures shall conform to the details shown except that C20(CA)L and W4-2L signs shall be used.
11. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closure unless, otherwise directed by the Engineer.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS

NO SCALE

T11

LEGEND

- TRAFFIC CONE
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

- [A] 48" x 48"
- [B] 24" x 24"
- [C] 36" x 18"

NOTES:

See Standard Plan T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

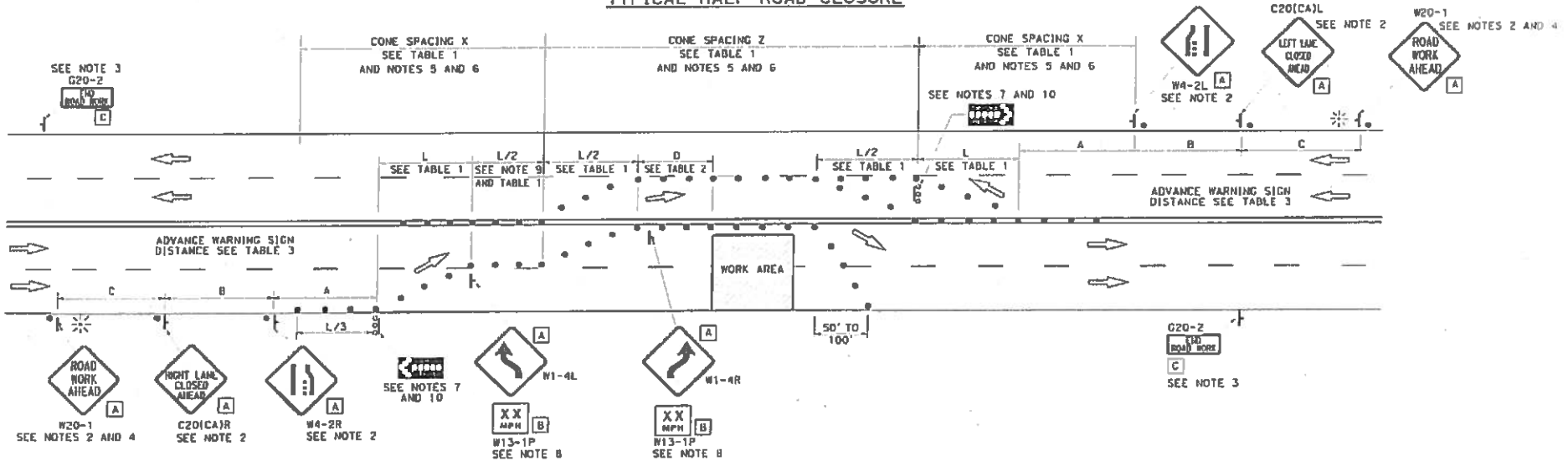
All temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

DIST	COUNTY	ROUTE	TOTAL PROJECT	SHEET NO.

Davinder Singh
REGISTERED CIVIL ENGINEER
October 30, 2015
PLANS APPROVAL DATE
Davinder Singh C50470 Exp. 6-30-17 CIVIL
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TYPICAL HALF ROAD CLOSURE



NOTES:

1. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closure unless, otherwise directed by the Engineer.
2. Each advance warning sign in each direction of travel shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
3. A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious, or ends within a larger project's limits.
4. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT _____ MILES", use a C20(CA) sign for the first advance warning sign.
5. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves).
6. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
7. Flashing arrow signs shall be either Type I or Type II.
8. Advisory speed will be determined by the Engineer. The W13-1P Plaque will not be required when advisory speed is more than the posted or maximum speed limit.
9. The tangent (L/2) shall be used.
10. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR HALF ROAD CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS AND EXPRESSWAYS

NO SCALE

T12

NOTES:

See Standard Plan T9 for tables.

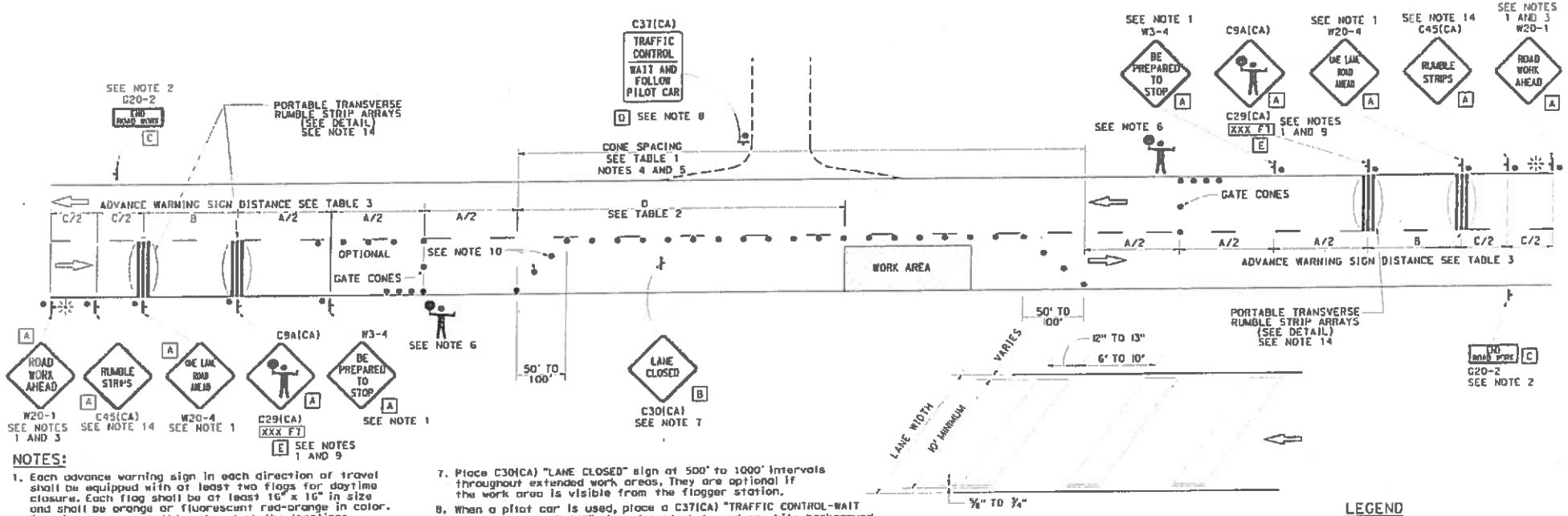
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

All temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

Devinder Singh
REGISTERED CIVIL ENGINEER
October 30, 2015
PLANS APPROVAL DATE
Devinder Singh C56478 Exp. 6-30-17

TYPICAL LANE CLOSURE WITH REVERSIBLE CONTROL



NOTES:

1. Each advance warning sign in each direction of travel shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
2. A C20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane control unless the end of work area is obvious, or ends within a larger project's limits.
3. If the W20-1 sign would follow within 2000' of a stationary W20-1 or C20-1 "ROAD WORK NEXT _____ MILES", use a W20-4 sign for the first advance warning sign.
4. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves).
5. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
6. Additional advance flaggers may be required. Flagger should stand in a conspicuous place, be visible to approaching traffic as well as approaching vehicles after the first vehicle has stopped. During the hours of darkness, the flagging station and flagger shall be illuminated and clearly visible to approaching traffic. The illumination footprint of the lighting on the ground shall be at least 20' in diameter. Place a minimum of four cones at 50' intervals in advance of flagger station as shown.
7. Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work areas. They are optional if the work area is visible from the flagger station.
8. When a pilot car is used, place a C37(CA) "TRAFFIC CONTROL-WAIT AND FOLLOW PILOT CAR" sign with black legend on white background at all intersections, driveways and alleys without a flagger within traffic control area. Signs shall be clean and visible at all times. Where traffic can not be effectively self-regulated, at least one flagger shall be used at each intersection within traffic control area.
9. An optional C29(CA) sign may be placed below the C9A(CA) sign.
10. Either traffic cones or barricades shall be placed on the taper. Barricades shall be Type I, II, or III.
11. The color of the portable transverse rumble strips shall be black or orange. Use 2 arrays, each array shall consist of 3 rumble strips.
12. Portable transverse rumble strips shall not be placed on sharp horizontal or vertical curves nor shall they be placed through pedestrian crossings.
13. If the portable transverse rumble strips become out of alignment (skewed) by more than 6 inches, measured from one end to the other, they shall be readjusted to bring the placement back to the original location.
14. Portable transverse rumble strips are not required if any one of the following conditions is satisfied:
    A. Work duration occupies a location for four hours or less
    B. Posted speed limit is below 45 MPH
    C. Work is of emergency nature
    D. Work zone is in snow or icy weather conditions

PORTABLE TRANSVERSE RUMBLE STRIP ARRAY DETAIL

SIGN PANEL SIZE (Min)

A	48" x 48"
B	30" x 30"
C	36" x 18"
D	36" x 42"
E	20" x 7"

LEGEND

- TRAFFIC CONE
- TEMPORARY TRAFFIC CONTROL SIGN
- PORTABLE FLASHING BEACON
- FLAGGER

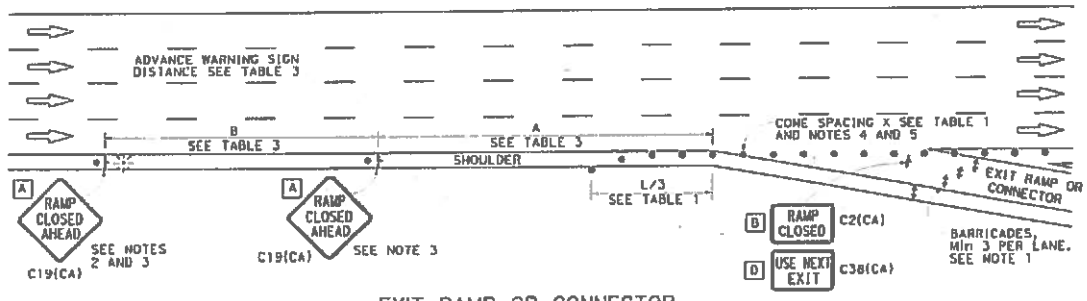
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS

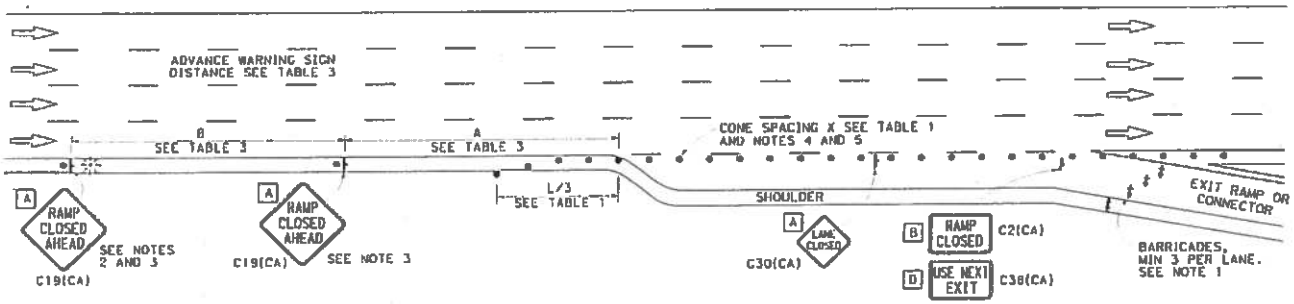
NO SCALE

T13

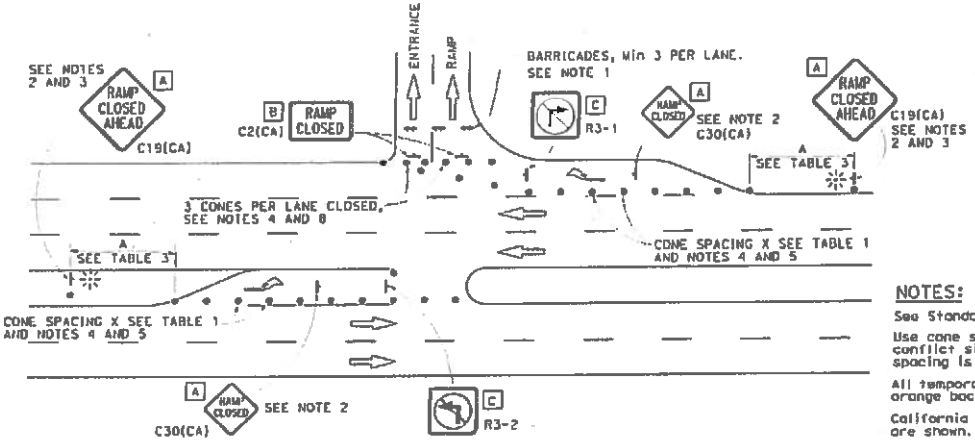
TYPICAL RAMP CLOSURES



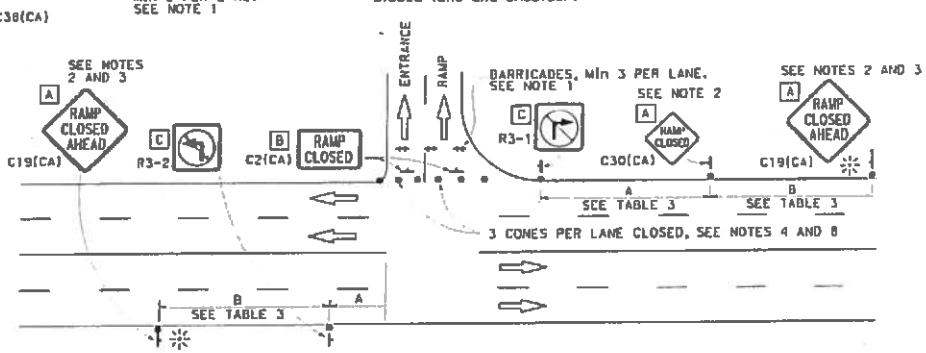
EXIT RAMP OR CONNECTOR



EXIT RAMP OR CONNECTOR WITH ADDITIONAL LANE



ENTRANCE RAMP WITH TURNING POCKETS



ENTRANCE RAMP WITHOUT TURNING POCKETS

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 48" x 30"
- C 36" x 36"
- D 48" x 36"

LEGEND

- TRAFFIC CONE
- TEMPORARY TRAFFIC CONTROL SIGN
- BARRICADES
- PORTABLE FLASHING BEACON

NOTES:

1. Barricades shall be Type I, II, or III for closures lasting one week or less and Type III for closures lasting longer than one week.
2. In addition to placing the C19(CA) "RAMP CLOSED AHEAD" and C30(CA) "RAMP CLOSED" signs, black on orange overlay plates with the word "CLOSED" may be mounted, as directed by the Engineer, on all guide signs that refer to the closed ramp. The letter size on the overlay shall be the same as the guide sign.
3. Each advance C19(CA) "RAMP CLOSED AHEAD" sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. A flashing beacon shall be placed on top of the first C19(CA) sign during hours of darkness.
4. All cones used for ramp closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
5. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime ramp closures only.
6. At least one person shall be assigned to provide full time maintenance of traffic control devices, unless otherwise directed by the Engineer.
7. The existing "EXIT" signs shall be covered during ramp closures.
8. A minimum of 3 cones shall be placed transversely across each closed lane and shoulder.

NOTES:

See Standard Plan T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

All temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

Devinder Singh
REGISTERED CIVIL ENGINEER
October 30, 2015
PLANS APPROVAL DATE
Devinder Singh
C50410
exp. 6-30-17
CIVIL

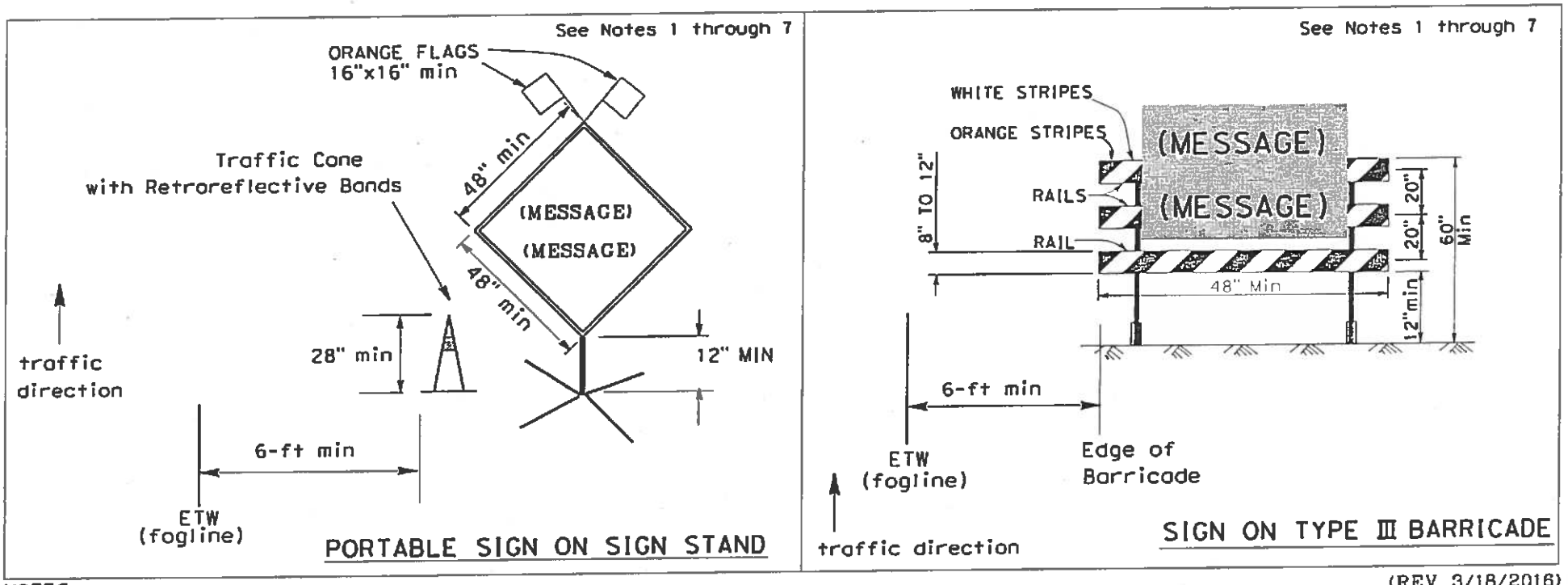
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR RAMP CLOSURE

NO SCALE

T14

TYPICAL TEMPORARY SIGN SUPPORTS DETAILS

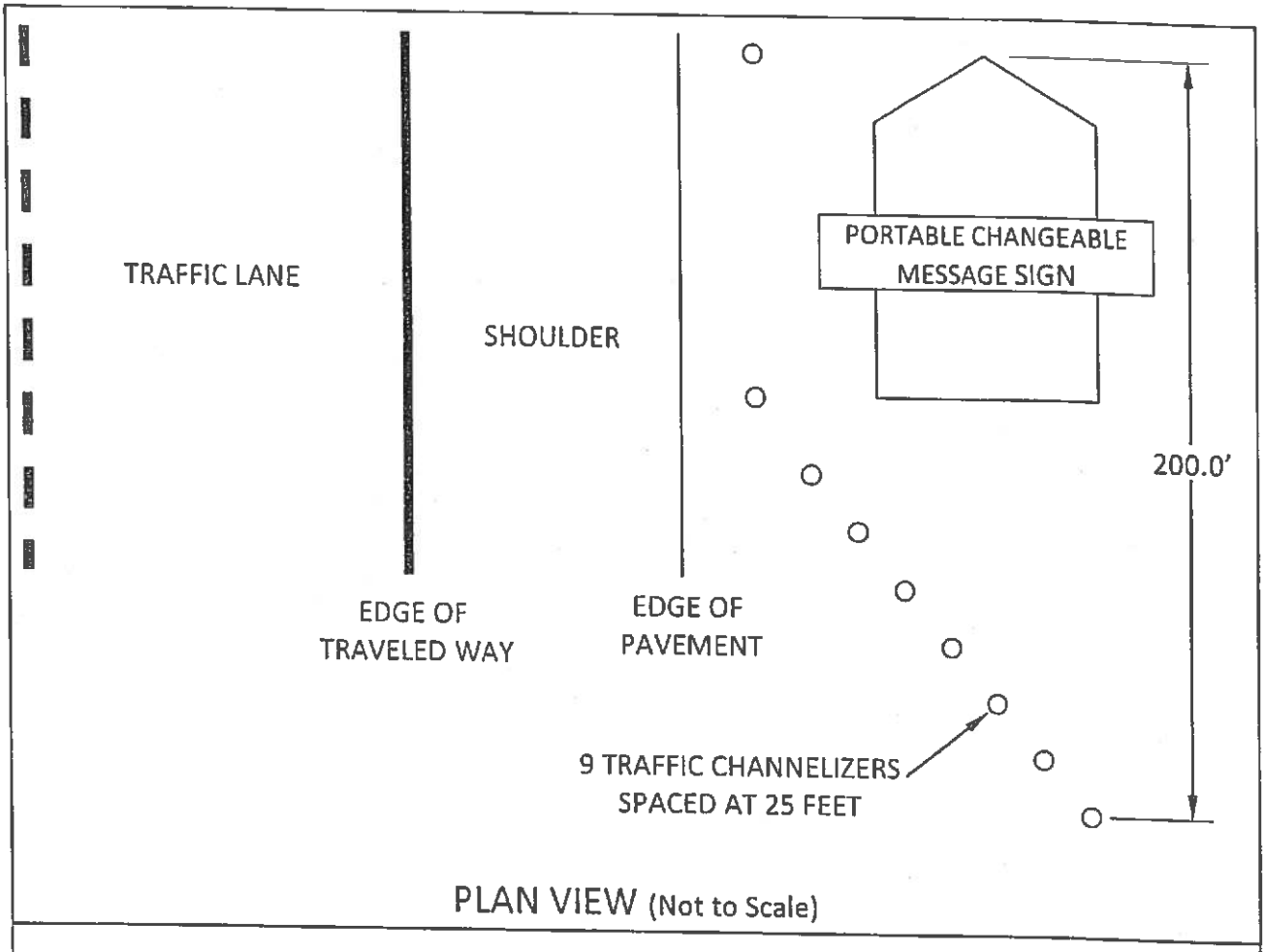


(REV. 3/18/2016)

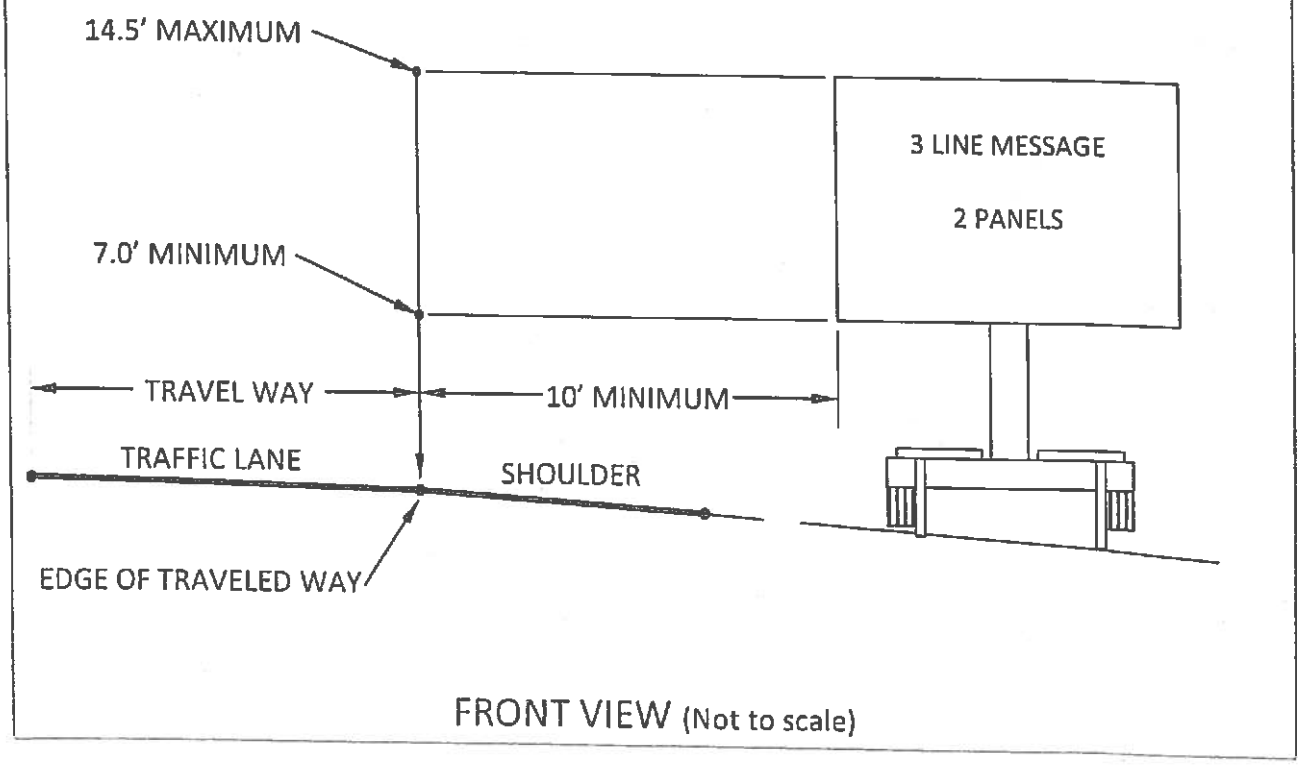
NOTES

1. Maintain a 4-foot minimum clearance on sidewalks at all times and a minimum 5-foot clearance adjacent to a drop off, such as a curb face or gutter.
2. Signs shall not interfere with the visibility of other existing signs.
3. Sign supports must be NCHRP Report 350 eligible or MASH (Manual for Assessing Safety Hardware) crashworthy.
   Information on NCHRP Report 350 eligible devices can be found at:
   http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/wzd/workzone_pdmenu.cfm
   Information on MASH can be found at:
   http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/ctrmeasures/mash/
4. Sign message, color, shape, and size must conform to the current Caltrans Standards Specifications and current CA MUTCD (California Manual on Uniform Traffic Control Devices). (i.e. Rectangular or diamond shape)
   Information on Caltrans Sign Specifications can be found at:
   http://www.dot.ca.gov/hq/traffops/engineering/control-devices/specs.htm
5. Signs mounted on Type III barricades shall not cover the bottom rail.
6. Sign stands should be weighted down per the stand manufacturer's recommendations. (i.e. sand/gravel bags)
7. Signs to be placed for more than 3 consecutive days, shall be post mounted per Caltrans Standard Plans RS1 through RS4.

TYPICAL PORTABLE CHANGEABLE MESSAGE SIGN PLACEMENT



PLAN VIEW (Not to Scale)



FRONT VIEW (Not to scale)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

ENCROACHMENT PERMIT STEEL PLATE BRIDGING UTILITY PROVISIONS

TR -0157 (Rev. 07/2009)

To accommodate excavation work, steel plate bridging may be necessary. All conditions for use of steel plate bridging should be set forth in the special provisions.

Consideration of steel plate bridging should take into account the following factors:

1. Traffic speed.
2. Traffic Volume and Composition.
3. Duration and dimensions (width & daily estimated lengths) of the proposed excavation.
4. Weather conditions.

When backfilling operations of an excavation in the traveled way, whether transverse or longitudinal, cannot be properly completed within a work day, steel plate bridging with a non-skid surface and shoring (see Trenching & Shoring) may be required to preserve unobstructed traffic flow. In such cases, the following conditions shall apply:

1. Steel plate bridging on freeways is not allowed.
2. Steel plates used for bridging must extend a minimum of 12" beyond the edges of the trench.
3. Steel plate bridging shall be installed to operate with minimum noise.
4. The trench shall be adequately shored, (as mentioned in Section 629 of the Encroachment Permits Manual) to support the bridging and traffic loads.
5. Temporary paving with cold asphalt concrete shall be used to feather the edges of the plates, if plate installation by Method (2) described below, is used.
6. Bridging shall be secured against displacement by using adjustable cleats, shims, or other devices.

As required by the district, steel plate bridging and shoring shall be installed using either Method (1) or (2):

Method 1 For speeds of 45 MPH or greater:

The pavement shall be cold planed to a depth equal to the thickness of the plate and to a width and length equal to the dimensions of the plate.

Approach plate(s) and ending plate (if longitudinal placement) shall be attached to the roadway by a minimum of 2 dowels pre-drilled into the corners of the plate and drilled 2" into the pavement. Subsequent plates are to be butted and tack welded to each other.

Method 2 For Speeds less than 45 mph:

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

The permittee is responsible for maintenance of the steel plates, shoring, asphalt concrete ramps, and ensuring that they meet minimum specifications. Unless specifically noted or granted in the special provisions, or approved by the State representative, steel plate bridging shall not exceed 4 consecutive working days in any given week. Backfilling of excavations shall be covered with a minimum 3" temporary layer of cold asphalt concrete.

The following table shows the advisory minimal thickness of steel plate bridging required for a given trench width (A-36 grade steel, designed for HS20-44 truck loading per Caltrans Bridge Design Specifications Manual).

Trench Width	Minimum Plate Thickness
10"	One-half inch - 1/2"
1'-11"	Three-quarters inch - 3/4"
2'-7"	Seven-eights inch - 7/8"
3'-5"	One inch - 1"
5'-3"	One & three-quarter inch - 1 3/4"

NOTE: For spans greater than 5'-3", a structural design shall be prepared by a California registered civil engineer.

All steel plates within the right of way whether used in or out of the traveled way shall be without deformation. Inspectors can determine the trueness of steel plates by using a straight edge and should reject any plate that is permanently deformed.

Steel plates used in the traveled portion of the highway shall have a surface that was manufactured with a nominal Coefficient Of Friction (COF) of 0.35 as determined by California Test Method 342 (See Appendix H, Encroachment Permits Manual). If a different test method is used, the permittee may utilize standard test plates with known coefficients of friction available from each Caltrans District Materials Engineer to correlate skid resistance results to California Test Method 342. Based on the test data, the permittee shall determine what amount of surface wear is acceptable, and independently ascertain when to remove, test, or resurface an individual plate.

Caltrans Inspectors should not enforce plate removal unless it is permanently deformed or delivered without the required surfacing. However, an inspector should document in a diary all contacts with the contractor.

A Rough Road sign (W8-8) with black lettering on an orange background may be used in advance of steel plate bridging. This sign is used along with any other required construction signing.

Surfacing requirements are not necessary for steel plates used in parking strips, on shoulders not used for turning movements, or on connecting driveways, etc., not open to the public.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

ENCROACHMENT PERMIT UNDERGROUND UTILITY PROVISIONS

TR - 0163 (Rev. 03/2013)

Highway and Freeway encasement requirements for Transverse crossings of Utility installations, installed by the following methods. The pavement or roadway shall not be open-cut unless specifically allowed under a "UT" permit. Utility installations shall not be installed inside of culverts or drainage structures.

The installation of Uncased High Pressure Natural Gas pipelines, on a case by case basis may be allowed, when in compliance with TR-0158 Special Provisions, "Exception to Policy" for Uncased High Pressure Natural Gas Pipelines.

Encasement Requirements based on: Installation Method, Type of Highway Facility and Material Transported in carrier.						
	Bore and Jack		Directional Drilling		Trenching	
Facility Type	Frwy/Expwy	Conventional	Frwy/Expwy	Conventional	Frwy/Expwy	Conventional
High Risk (Section 605)	Encase	Encase	Encase	Encase	Encase	Encase
Low Risk (Section 605)	Encase	Encase	Encase	Encase	Encase	Encase*
Exempt Facilities (Section 605)	Encase	Encase	Encase*	Encase*	Encase*	Encase*
Pressurized Fluids	Encase	Encase	Encase	Encase	Encase	Encase
Natural Gas Lines Minimum 7.5' Depth (Appendix H)	Encase*	Encase*	Encase*	Encase*	Encase*	Encase*
Gravity Flows	Encase	Encase	Encase	Encase	Encase*	Encase*

*NOTE: The District Permit Engineer may waive at his/her discretion the encasement requirement when warranted.

UG 1. CASINGS:

Casings should be steel conduit with a minimum inside diameter sufficiently larger than the outside diameter of the pipe or ducts to accommodate placement and removal. The casing can be either new or used steel pipe, or an approved connector system. Used pipe shall be pre-approved by the Department's engineer or representative before installation.

When the method of Horizontal Directional Drilling is used to place casing, the use of High Density Polyethylene Pipe (HDPE) as casing is acceptable. In specific instances the approval of Headquarters Office of Encroachment Permits, may be required.

Reinforced Concrete Pipe (RCP) in compliance of State Standard Specifications is an acceptable carrier for storm drain gravity flow or non-pressure flow. RCP when installed by Bore &Jack shall have rubber gaskets at the joints, and holes for grouting of voids left by jacking operations, see "E" below.

A. All pipes 6" or larger in diameter, or placement of multiple pipes or ducts, regardless of diameters, shall require encasement.

B. Minimum wall thickness for steel pipe casing for different lengths and diameters of pipes are as follows:

Minimum Wall Thickness		
Casing Pipe (Diameter)	Up to 150 ft (Length)	Over 150 ft (Length)
6" to 28"	1/4"	1/4"
30" to 38"	3/8"	1/2"
40" to 60"	1/2"	3/4"
62" to 72"	3/4"	3/4"

C. Spiral welded casing is authorized provided the casing is new and the weld is smooth.

D. The ends of the casing shall be plugged with ungrouted bricks or other suitable material approved by the Department's representative.

E. When required by the Department's representative, the permittee shall at his expense, pressure grout the area between the pavement and the casing from within the casing in order to fill any voids caused by the work covered under this permit. The increments for grout holes inside the pipe shall be 8' staggered and located 22-1/2 degrees from vertical axis of the casing. Pressure shall not exceed 5 psig for a duration sufficient to fill all voids.

F. There is a spacing requirement when placement of multiple encasements is requested. The distance between multiple encasements shall be the greater of either 24" or twice that of the diameter of the larger pipe being installed.

G. The casings placed within freeway right-of-way shall extend to the access control lines.

H. Wing cutters, if used, shall be a maximum of 1" larger than the casing. Voids caused by the use of wing cutters shall be grouted in accordance with "E" above.

I. A band welded to the leading edge of the casing should be placed square to the alignment. The band should not be placed on the bottom edge. Flaring the lead section on bores over 100' shall not be permitted.

J. All casing lengths shall equal to the auger length.

K. The casings within conventional highways shall extend 5' beyond the back of curb or edge of pavement, or to the right of way line if less. Where PCC cross-gutter exists, the casing shall extend at least 5' beyond the back of the cross-gutter, or to the right of way line if less.

Bore and receiving pits shall be:

A. Located at least 10' or more from the edge of pavement on conventional highways in rural areas.

B. Located 5' behind the concrete curb or AC dike on conventional highways in urban areas.

C. Located 5' outside the toe of slope of embankment areas.

D. Located outside freeway right of way.

E. Adequately fenced and/or have a Type-K barrier placed around them.

F. Adequately shored in accordance with Cal-OSHA requirements. Shoring for jacking and receiving pits located within 15' of traffic lanes on a State highway shall not extend more than 36" above the pavement grade unless otherwise authorized by Department's representative. Reflectors shall be affixed to the shoring on the sides facing traffic. A 6' chain link fence shall be installed around the perimeter of the pits during non-working hours.

G. All pits should have crushed-rock and sump areas to clear groundwater and water used to clean the casing. Where ground water is found and pumping is required, the pits shall be lined with filter fabric.

UG 2. DIRECTIONAL DRILLING: Bore and Receiving Pits

When directional drilling is the approved method for pipe installation, drilling plans shall contain information listed as follows:

1. Location of: entry and exit point, access pit, equipment, and pipe staging area.
2. Proposed drill path alignment (horizontal and vertical).
3. Location and clearances of all other facilities.
4. Depth of cover.
5. Soil analysis.*
6. Carrier pipe length, diameter, thickness, and material (HDPE/steel) and ream pipe diameter.
7. Detailed carrier pipe calculations confirming ability to withstand installation loads and long term operational loads including H20.
8. Proposed drilling fluid composition, viscosity, and density (based on soils analysis).
9. Drilling fluid pumping capacity, pressures, and flow rates
10. State right-of-way lines, property, and utility right of way or easement lines.
11. Elevations.
12. Type of tracking method/system and accuracy used.
13. A detailed plan for monitoring ground surface movement (settlement or heave) resulting from the drilling operation.

* May be waived by the District Permit Engineer for HDD jobs less than 6" in diameter and a traverse crossing less than 150'.

UG 3. LIMIT OF EXCAVATION:

No excavation is allowed within 10' from the edge of pavement except in curbed urban areas or as specified in the permit. Where no curb exists and excavations within 10' of the traveled way are to remain open, a temporary Type-K railing shall be placed at a 20:1 taper or as otherwise directed by the Department.

UG 4. TUNNELING:

Review, requirements of Section 623.6 of the Encroachment Permits Manual, if applicable. In addition to the requirements of "UG1" the following requirements apply:

A. For the purpose of this provision, a tunnel is defined as any pipe, 30" or larger in diameter placed.

B. When tunneling is authorized, the permittee shall provide full-time inspection of tunneling operations. The Department's representative shall monitor projects.

C. A survey grid shall be set and appropriately checked over the centerline of the pipe jacking or tunneling operation. Copies of the survey notes shall be submitted to the Department's representative.

D. Sand shields may be required as ground conditions change.

E. The method used to check the grade and alignment shall be approved by the Department's representative.

F. Pressure grouting for liner plates, rib and spiling, or rib and lagging tunnels shall be at every 8' section or at the end of work shift before the next section is excavated. All grouting shall be completed at the end of each workday.

G. A method for securing the headway at the end of each workday is required. Breastplates shall be installed during working hours for running sand or super-saturated soil.

UG 5. HIGH AND LOW RISK FACILITIES:

High and Low Risk Facilities, as defined in the Department's current Manual on High and Low Risk Underground Facilities, shall be installed with a minimum cover of 42".

UG 6. EXEMPT AND OTHER UNDERGROUND FACILITIES:

A. Exempt Facilities:

1. Gas service lines no larger than 2" in diameter or operating at 60 psig or less.
2. Underground electrical service conductors with a potential to ground of 300 volts or less.
3. Departmental owned electrical systems.

B. All facilities other than high and low risk shall have a minimum cover of 36" except for service connections, which shall have a minimum cover of 30".

UG 7. DETECTOR STRIP:

A continuous metallic detector strip shall be provided with non-metallic main installations. Service connections shall be installed at right angles to the centerline of the State highway where possible.

UG 8. BACKFILLING:

All backfilling shall conform to the applicable sections of the Department's Standard Specifications. Ponding or jetting methods of backfilling is prohibited.

Any required compaction tests shall be performed by a certified laboratory at no cost to the Department and the laboratory report furnished to the Department's representative.

UG 9. ROADWAY SURFACING AND BASE MATERIALS:

When the permit authorizes installation by the open cut method, surfacing and base materials and thickness thereof shall be as specified in the permit.

Temporary repairs to pavements shall be made and maintained upon completion of backfill until permanent repairs are made. Permanent repairs to pavements shall be made within thirty (30) days of completion of backfill unless otherwise specified by the Department. Temporary pavement patches shall be placed and maintained in a smooth riding plane free of humps and/or depressions.

UG 10. DAMAGE TO TREE ROOTS:

No tree roots over 3" will be cut within the tree drip line when trenching or other underground work is necessary adjacent to roadside trees. The roots that are 3" or more in diameter inside the tree drip line shall be tunneled under and wrapped in burlap and kept moist until the trench is refilled. Trenching machines may not be used under trees if the trunk or limbs will be damaged by their use.

If the trees involved are close together and of such size that it is impractical to protect all roots over 3" in diameter, or when roots are less than 4" in diameter, outside tree drip line, special arrangements may be made whereby pruning of the tree tops to balance the root loss can be done by the permittee under the close supervision of the District Landscape Specialist or District Tree Maintenance Supervisor. Manholes shall not be installed within 20' of any trunk.

UG 11. PIPES ALONG ROADWAY:

Pipes and conduits paralleling the pavement shall be located as shown on the plans or located outside of pavement as close as possible to the right-of-way line.

UG 12. BORROW AND WASTE:

Borrow and waste will be allowed within the work limits only as specified in the permit.

UG 13. MARKERS:

The permittee shall not place any markers that create a safety hazard for the traveling public or departmental employees.

UG 14. CATHODIC PROTECTION:

The permittee shall perform stray current interference tests on underground utilities under cathodic protection. The permittee shall notify the Department prior to the tests. The permittee shall perform any necessary corrective measures and advise the Department.

UG 15. TIE-BACKS:

A. Tie-backs shall be placed for the sole purpose of supporting shoring and/or soldier piles placed outside State highway rights-of-way to facilitate permittee's excavation.

B. Tiebacks shall be disconnected from the shoring and/or soldier piles one (1) year prior to releasing the bond.

UG 16. INSTALLATION BY OPEN CUT METHOD:

When the permit authorizes installation by the open cut method no more than one lane of the highway pavement shall be open-cut at any one time. Any exceptions shall be in writing by the Department's representative. After the pipe is placed in the open section, the trench is to be backfilled in accordance with specifications, temporary repairs made to the surfacing and that portion opened to traffic before the pavement is cut for the next section.

If, at the end of the working day, backfilling operations have not been properly completed, steel plate bridging shall be required to make the entire highway facility available to the traveling public in accordance with the Steel Plate Bridging Special Provisions (TR-0157)

UG 17. PAVEMENT REMOVAL:

PCC pavement to be removed shall be saw cut at a minimum depth of 4" to provide a neat and straight pavement break along both sides of the trench. AC pavement shall be saw cut to the full depth.

Where the edge of the trench is within 2' of existing curb and gutter or pavement edge, the asphalt concrete pavement between the trench and the curb or pavement edge shall be removed.

UG 18. MAINTAIN ACCESS:

Where facilities exist (sidewalks, bike paths), a minimum width of 4' shall be maintained at all times for safe pedestrian and bicyclist passage through the work area.

UG 19. SIDES OF OPEN-CUT TRENCHES:

Sides of open cut trenches in paved areas shall be kept as nearly vertical as possible. Trenches shall not be more the 2' wider than the outside diameter of the pipe to be laid therein, plus the necessary width to accommodate shoring.

UG 20. EXCAVATION UNDER FACILITIES:

Where it is necessary to excavate under existing curb and gutter, or underground facilities, the void shall be backfilled with two (2) sack cement-sand slurry.

UG 21. PERMANENT REPAIRS TO PCC PAVEMENT:

Repairs to PCC pavement shall be made of Portland Cement Concrete containing a minimum of 658 lbs. or 7 sack of cement per cubic yard. Replaced PCC pavement shall equal existing pavement thickness. The concrete shall be satisfactorily cured and protected from disturbance for not less than forty-eight (48) hours. Where necessary to open the area to traffic, no more than two (2%) percent by weight of calcium chloride may be added to the mix and the road opened to traffic after six (6) hours.

UG 22. REMOVAL OF PCC SIDEWALKS OR CURBS:

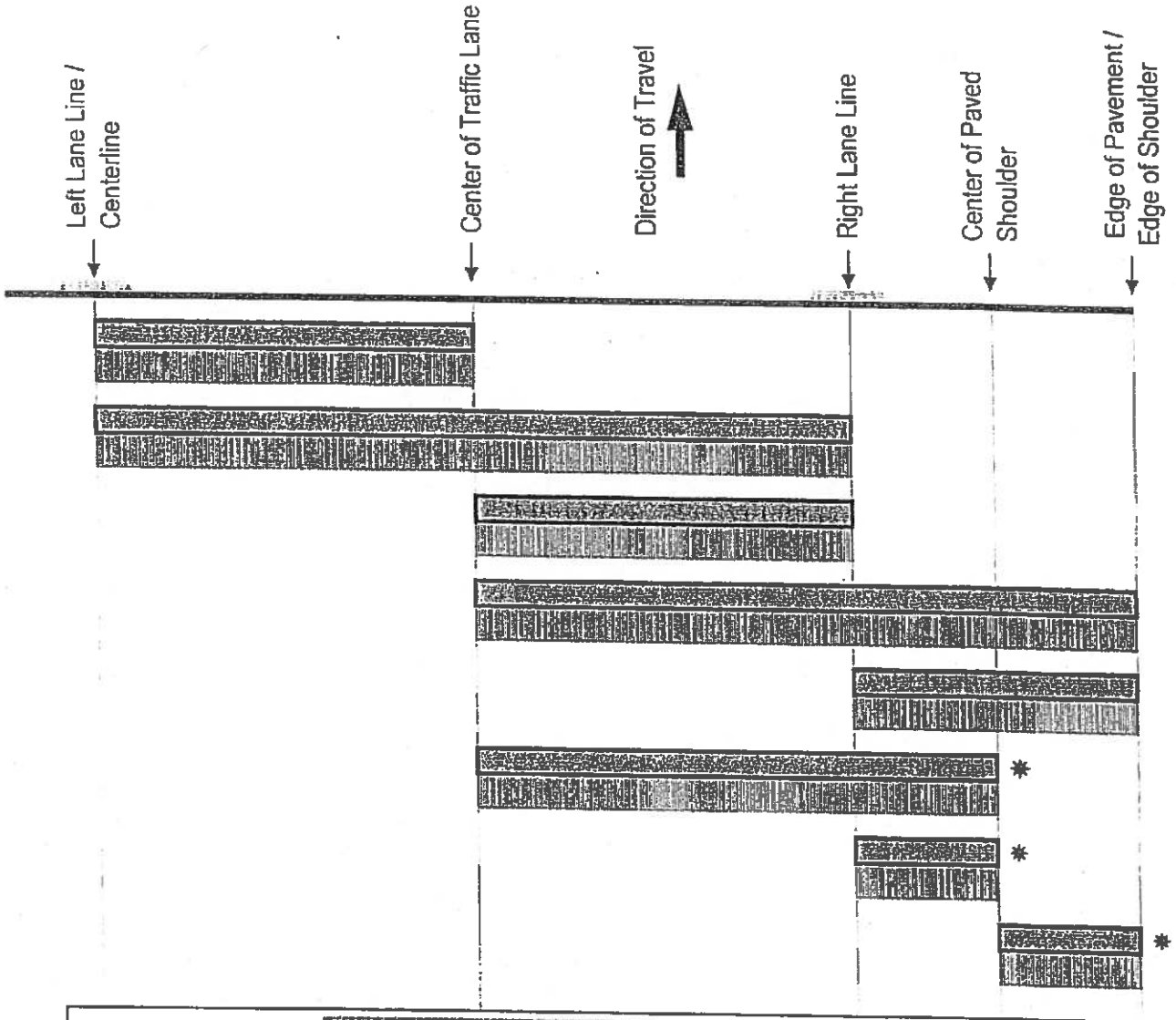
Concrete sidewalks or curbs shall be saw cut to the nearest score marks and replaced equal in dimension to that removed with score marks matching existing sidewalk or curb.

UG 23. SPOILS:

No earth or construction materials shall be dragged or scraped across the highway pavement, and no excavated earth shall be placed or allowed to remain at a location where it may be tracked on the highway traveled way, or any public or private approach by the permittee's construction equipment, or by traffic entering or leaving the highway traveled way. Any excavated earth or mud so tracked onto the highway pavement or public or private approach shall be immediately removed by the permittee.

Limits of Grind and Overlay for Pavement Replacement

To determine the required grind and overlay width to cap your trench, find the location that best fits your trench and includes the limits of your trench repair. Please consult with the Caltrans Permit Inspector for additional guidance.



Example 1: A trench with limits shown hatched above, would require a grind and overlay of the entire traffic lane width.

Example 2: A trench with limits shown hatched above, would require a grind and overlay from the center of traffic lane to the right edge of traveled way.

Required Width for Grind and Overlay

Limits of Trench Repair

* For Paved Shoulder Widths 8' or greater only

Pavement repair in open graded pavement surfaces will require in kind replacement of surface layer.

1. GENERAL: The purpose of these Special Provisions is to provide the Permittee with specifications for water pollution control to minimize, prevent, or control the discharge of material into the air, surface waters, groundwater, and storm sewers owned by the State or local agencies. These provisions are not intended to take the place of the Caltrans Water Pollution Control Program (WPCP) for projects where soil disturbance from work activities less than one acre, or work activities of one acre or more subject to the preparation of the Caltrans Storm Water Pollution Prevention Plan (SWPPP) that would require a waste discharge identification number or coverage under the California Construction General Permit *(Order No. 2009-0009-DWQ, NPDES No CAS000002)*. The Permittee shall comply with the following Special Provisions and the direction of the State Representative.

2. NPDES REQUIREMENTS: The Permittee shall be responsible for full compliance with the Caltrans Storm Water Program and the Caltrans National Pollutant Discharge Elimination System (NPDES) Permit requirements. It is the Permitte's responsibility to install, inspect, and repair or maintain facilities and devices used for water pollution control practices before performing daily work activities. Installation and maintenance responsibilities on the job site include: 1) soil stabilization materials in work areas that are inactive or prior to storm events, 2) water pollution control devices to control sediment and erosion, 3) implementation of spill and leak prevention procedures for chemical and hazardous substances stored on the job site. 4) material storage, 5) stockpile management, 6) waste management, 7) non-stormwater management, 8) water conservation, and 9) illicit connection, illegal discharge detection and reporting. The Permittee shall report to the state representative when discharges enter into receiving waters, adjacent property, drainage systems or when discharges could be a cause or a threat for water pollution. The Permittee shall also control illicit discharges or illegal dumping prior to start of daily work schedule. Copies of written notices or orders from the Regional Water Quality Control Board or other regulatory agency shall be provided to the State representative within 48 hours of reported activity. For additional information on storm water compliance, visit the State Water Resources Control Boards storm water Website at http://www.waterboards.ca.gov/water_issues/programs/stormwater

3. RESPONSIBILITY FOR DEBRIS REMOVAL: The Permittee shall be responsible for preventing sediment, trash, debris, and other construction waste from entering the street, the storm drains, local creeks, or any other bodies of water.

4. SPOILS AND RESIDUE: The Permittee shall vacuum any saw-cut concrete waste material, debris, residue, etc. No spoils, debris, residue, etc. shall be washed into a drainage system.

5. SWEEPING: Sweep paved roads at construction entrance and exit locations and surrounding paved areas daily within the job site during: 1) clearing and grubbing, 2) earthwork, 3) trenching, 4) soil disturbance, 5) pavement grinding and/or cutting, and 6) after observing tracking of material onto or off the State property. Keep dust to a minimum during sweeping activities. Use vacuum whenever dust generation is excessive or sediment pickup is ineffective. Roadways or work areas shall not be washed down with water. Street sweeping operations must conform to Section 13 Water Pollution Control of the State of California standard specifications for construction (most current version) http://www.dot.ca.gov/hq/esc/oe/specifications/SSPs/2010-SSPs/

6. VEHICLES AND EQUIPMENT: Permittee shall prevent all vehicles, equipment, etc. from leakage or mud tracking onto roadways. If leaks cannot be repaired immediately, remove the vehicle or equipment from the job site.

7. MAINTENANCE AND FUELING OF VEHICLES AND EQUIPMENT: Maintenance and fueling of equipment shall not result in any pollution at the job site. The Permittee shall immediately clean up spills/leaks, and properly dispose of contaminated soil and materials.

8. CLEANING VEHICLES AND EQUIPMENT: Limit vehicle and equipment cleaning or washing at the job site except what is necessary to control vehicle tracking or hazardous waste. The Permittee shall clean all equipment within a bermed area or over a drip pan large enough to prevent run-off. No soaps, solvents, degreasers, etc shall be used in State right of way. Any water from this operation shall be collected and disposed of at an appropriate site. Containment berms or dikes shall be used for fueling, washing, maintaining and washing vehicles or equipment in outside areas. Containment must be performed at least 100 feet from concentrated flows of storm water, drainage courses, and storm drain inlets if within a flood plain, otherwise at least 50 feet if outside the floodplain. Keep adequate quantities of absorbent spill-cleanup material and spill kits in the fueling or maintenance area and on fueling trucks.

9. DIESEL FUELS: The use of diesel fuel from petroleum or other fossil fuel as a form-oil or solvent is not allowed.

10. WEATHER CONDITIONS AT WORKSITE: Any activity that would generate fine particles or dust that could be transported off site by stormwater shall be performed during dry weather.

11. HOT MIX ASPHALT: Runoff from washing hot mix asphalt shall not enter into any drainage conveyances.

12. PROTECTION OF DRAINAGE FACILITIES: The Permittee shall protect/cover gutters, ditches, drainage courses, and inlets with gravel bags, fiber rolls, State approved fabric filters, etc., to the satisfaction of the State representative during grading, paving, saw-cutting, etc. and materials must conform to Section 13-6.02 Materials for Water Pollution Control of the State of California standard specifications for construction (most current version). No such protection measures shall cause an obstruction to the traveling public. The Permittee shall implement spill and leak prevention procedures for chemicals and hazardous substances stored on the job site in accordance to section 13-4.03B(1-3) Spill Prevention and Control, Water Pollution Control, of the State of California standard specifications for construction (2010 version).

13. PAINT: Rinsing of painting equipment and materials is not permitted in state right-of-way. When thoroughly dry, dispose of the following as solid waste: dry latex paint, paint cans, used brushes, rags, gloves, absorbent materials, and drop cloths. Oil based paint sludge and unusable thinner shall be disposed of at an approved hazardous waste site.

14. CONSTRUCTION MATERIALS: Stockpile of all construction materials, including, but not limited to; pressure treated wood, asphalt concrete, cold mix asphalt concrete, concrete, grout, cement containing premixes, and mortar, shall conform to section 13-4.03C Material Management (Storage & Stockpiles), Water Pollution Control, of the State of California standard specifications for construction (2010 version).

15. CONCRETE EQUIPMENT: Concrete equipment shall be washed in a designated washing area in a way that does not contaminate soil, receiving waters, or storm drain systems

16. EXISTING VEGETATION: Established existing vegetation is the best form of erosion control. Minimize disturbance to existing vegetation. Damaged or removed vegetation shall be replaced as directed by the State Representative.

17. SOIL DISTURBANCE: Soil disturbing activities shall be avoided during the wet weather season. If construction activities during wet weather are allowed in your permit, all necessary erosion control and soil stabilization measures shall be implemented in advance of soil disturbing activity.

18. SLOPE STABILIZATION AND SEDIMENT CONTROL: Consider a certified expert in Erosion and Sediment control in cases where slopes are disturbed during construction. The Permittee is directed to comply with Section 13.5 Temporary Soil Stabilization and Section 21 Erosion Control of the State of California (2010 version) standard specifications for construction during application of temporary soil stabilization measures to the soil surface. Fiber rolls or silt fences may be required down slope until permanent soil stabilization is established. Remove the accumulated sediment whenever the sediment accumulates to 1/3 of the linear sediment barrier height.

19. STOCKPILES: Stockpiles containing aggregate and/or soil shall be stored at least 100 feet from concentrated flows of storm water, drainage courses, and storm drain inlets if within a flood plain, otherwise at least 50 feet if outside the floodplain, and shall be covered and protected with a temporary perimeter sediment barrier. Cold mix stockpiles shall be stored on an impermeable surface and covered with 9mil plastic to prevent contact with water.

20. DISCOVERY OF CONTAMINATION: The State Representative shall be notified in case any unusual discoloration, odor, or texture of ground water, is found in excavated material or if abandoned, underground tanks, pipes, or buried debris are encountered.

21. SANITARY AND SEPTIC WASTE: Do not bury or discharge wastewater from a sanitary or septic system within the highway. Properly connected sewer facilities are free from leaks. With State Representative approval place portable sanitary facility at least 50 feet away from storm drains, receiving waters, and flow lines. Permittee must comply with local health agency provisions when using an on-site disposal system.

22. LIQUID WASTE: Prevent job site liquid waste from entering storm drain systems and receiving waters. Drilling slurries, grease or oil-free waste water or rinse water, dredging, wash water or rinse water running off a surface or other nonstorm water liquids not covered under separate waste water permits shall be held in structurally sound, leak-proof containers, such as portable bins or portable tanks. Store containers at least 50 feet away from moving vehicles and equipment. Liquid waste may require testing to determine hazardous material content prior to disposal

23. WATER CONTROL AND CONSERVATION: Manage water use in a way that will prevent erosion and the discharge of pollutants into storm drain systems and receiving waters. Direct runoff water, including water from water line repair from the job site to areas where it can infiltrate into the ground. Direct water from off-site sources around the job site or from contact with jobsite water.

24. PILE DRIVING: Keep spill kits and cleanup materials at pile driving locations. Park pile driving equipment over drip pans, absorbent pads, or plastic sheeting with absorbent material, and away from storm water run-on when not in use.

25. DEWATERING: Dewatering consists of discharging accumulated storm water, groundwater, or surface water from excavations or temporary containment facilities. All dewatering operations shall comply with the latest Caltrans guidelines. Contact State representative for approval of dewatering discharge by infiltration or evaporation, otherwise, any effluent discharged into a permitted storm water system requires approval from the Regional Water Quality Control Board. Prior to the start of dewatering, the Permittee shall provide the State Representative with a dewatering and discharge work plan that complies with section 13-4.01B Submittals, Water Pollution Control, of the State of California standard specifications for construction (2010 version). A copy of the Waste Discharge Permit and a copy of a valid WDID number issued by the Regional Board shall be provided to the State representative.

DISTRICT 5 NOTIFICATION REQUIREMENTS

The following provisions shall apply to all permit work requiring temporary lane closures or traffic detours:

Temporary Lane Closures

Notification of temporary lane closures or traffic detours shall be given to the State Inspector for his approval using copies of the attached form entitled, **WEEKLY TRAFFIC UPDATE**. Notification shall be submitted to the State Inspector by 12:00 PM (noon) Tuesday, prior to the week of the proposed closure or detour. Notifications submitted after the aforementioned deadline cannot be approved for the upcoming week. **All traffic control requiring the temporary closure of lanes or detour of traffic shall be approved in advance by the State Inspector.**

Ramp Closures

14 to 7 days prior to an approved ramp closure, advance notice shall be posted at the ramp entrance using the appropriate SC6 sign. In addition, an SC8 or portable changeable message sign shall be posted for the preceding ramp the day of the closure unless otherwise approved by the Caltrans Permit Inspector.

Special Notifications

If permitted activities such as road closures or traffic detours may result in significant traffic congestion, Permittee shall be responsible for coordinating advance notification to local newspapers, television and radio stations, and emergency response providers with both the State Inspector and the Caltrans Public Information Officer, telephone (805) 549-3237. Public notice may include press releases and/or traffic signing.

Permittee shall complete and submit the attached form entitled **PUBLIC AFFAIRS – PERMITTED ACTIVITY NOTIFICATION** to the Caltrans Public Affairs Office prior to 12:00 PM (noon) the Wednesday prior to the approved closure or event. Additional information or clarification may be required in the form of a written description of the activities in a format that is suitable for a press release. The form may be delivered by fax to (805) 549-3638 or emailed to the PIO contact on the form.

Caltrans Required Lane Closure Reporting

In order to provide timely and accurate notifications to the Caltrans District 5 Traffic Management Center, Permittee or Permittee's contractor must notify the State Inspector immediately **prior** to a lane/ramp closure, **after** closure when all traffic controls have been removed with lane/ramp opened to traffic, and **prior** to an approved scheduled closure that has been cancelled.

Horizontal and Vertical Requirements for Extra-Legal Load Vehicles

Permittee shall provide written notification to the Caltrans Permit Inspector or Caltrans Representative, of proposed horizontal or vertical lane restrictions which will affect extra-legal loads up to 16' wide and 18' high, or ramp closures/reopenings that may affect extra-legal loads traveling through the project area. Said notification shall be delivered to the inspector no fewer than 25 days prior to proposed change. Permittee shall immediately notify the Caltrans Permit Inspector or Caltrans Representative as soon as the restriction is no longer present.

Attention: Ignacio Saavedra

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

PERMITS

WEEKLY TRAFFIC UPDATE

For the Week of: _____

Please send this form to your designated **PERMIT INSPECTOR** each week if you will be performing work that will impact traffic (lane closures, ramp closures, traffic control, etc.)

Weekly Traffic Updates must be received by Tuesday 12:00 PM (noon) the week prior to the requested date(s) of the planned traffic control. Failure to meet the deadline may result in the denial of the requested traffic control.
The State Permit Inspector may also require changes to the requested traffic control prior to its approval.

We appreciate your cooperation. These updates need to be done in a timely manner in order to provide information to the traveling public we serve. THANKS!!!!

DATE	TIME (begin / end)	Location – Cross Streets, County Route, and Post Mile (from / to)	Impact on Traffic (Description)	Reason

Send or fax to: **Your PERMIT INSPECTOR - Ignacio Saavedra, Fax #: (831) 663-8966, Email: ignacio.saavedra@dot.ca.gov**

Your Name: _____ Phone: _____ FAX: _____

Company/Dept.: _____ Email: _____

PERMIT #: **0517 6SV 0559**

PUBLIC AFFAIRS - PERMITTED ACTIVITY NOTIFICATION

This Project Notification should be faxed or e-mailed to Public Affairs as early as possible and preferably by noon the Wednesday prior to beginning of permitted activity. Please fill out this form as thoroughly as possible and use additional paper if needed. Include all information that the traveling public may need to be made aware of.

TO: PUBLIC AFFAIRS FAX: (805) 549-3326

ATTN: ☐ Susana Cruz (Monterey, San Benito, and Santa Cruz Counties)
PHONE: (805) 549-3138 E-Mail: susana_cruz@dot.ca.gov

☐ Jim Shivers (San Luis Obispo and Santa Barbara Counties)
PHONE: (805) 549-3237 E-Mail: jim_shivers@dot.ca.gov

PERMIT NUMBER: **0517 6SV 0559**

COUNTY, ROUTE & POSTMILE: **05-Mon-183-8.34**

LIMITS OF PERMITTED ACTIVITY (location in miles, distance from nearest landmarks or cities, etc.):

PROJECT DESCRIPTION AND PURPOSE FOR PROJECT:

perform project site investigation and surveys for water line installation

ACTIVITY COORDINATOR:

PHONE: FAX: E-MAIL:

BEGIN ACTIVITY DATE: END ACTIVITY DATE:

ANTICIPATED TRAFFIC CONTROL:

ANTICIPATED TRAFFIC DELAYS:

COMMENTS: (What else does the public need to know? Diagrams, maps also helpful.)

*Please inform Public Affairs of any changes to the above information by submitting an updated form.

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
CUSTOMER SERVICE QUESTIONNAIRE
TR-0164 (REV 02/01)

PERMIT NUMBER: *0517 6SV 0559*

Dear Customer,

Our goal is to provide the best service possible to our customers. Please take a few minutes to complete this questionnaire. Your comments will enable us to see how we are doing overall and any areas which may need improvement.

PLEASE TELL US HOW WE'RE DOING ☑

INSIDE THE OFFICE	EXCELLENT	VERY GOOD	GOOD	POOR
Staff courteous and helpful				
Staff quick and efficient				
Explanations and instructions clear				
TELEPHONE ANSWERING				
Timely response				
Receiving information or answers				
INSPECTION				
Inspector courteous and helpful				
Pre-construction meeting set and held in a timely manner				
Inspector at job site frequently				
Inspector able to answer questions and deal with problems				
OVERALL PERFORMANCE				
What would you say is our overall performance?				

Is there a staff person you would like to commend?

STAFF'S NAME

COMMENTS

NAME (Optional)	BUSINESS PHONE NUMBER	DATE
	( )	

STATE OF CALIFORNIA*DEPARTMENT OF TRANSPORTATION
NOTICE OF COMPLETION
TR-0128 (REV. 6/2001) CT #7541-5529-1

PERMIT # 0517 6SV 0559
DIST/CO/RTE/PM 05-Mon-183-8.34
Permit Inspector: Ignacio Saavedra

Dear Sir or Madam:

All work authorized by the above numbered permit was completed on:

_____
DATE

_____
SIGNATURE OF PERMITTEE
Cal Am Water Company

FM 92 1546 M

neopost FIRST-CLASS MAIL

US POSTAGE $000.46[0]

ZIP 93401
041M12251118

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
Encroachment Permit Office
50 HIGUERA STREET
SAN LUIS OBISPO, CA 93401

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

CUSTOMER SERVICE QUESTIONNAIRE

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PERMIT NUMBER

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Explanations and instructions clear				
TELEPHONE ANSWERING				
Timely response				
Receiving information or answers				
INSPECTION				
Inspector courteous and helpfull				
Pre-construction meeting set and held in a timely manner				
Inspector at job site frequently				
Inspector able to answer questions and deal with problems				
OVERALL PERFORMANCE				
What would you say is our overall performance?				

Is there a staff person you would like to commend?	STAFF'S NAME:

COMMENTS

NAME (Optional)	BUSINESS PHONE NUMBER ( )	DATE

Appendix B: Survey and Benchmark Information

Monterey Peninsula Water Supply Pipeline Project

Control Report

The coordinates for this project are derived from GPS observations over a two month period from November to December of 2014. Equipment utilized was a Leica GS-14 GPS rover and a Leica 1200 GPS rover. The measurements were obtained using the Leica Real Time Network, SmartNet, as the base station. Data was downloaded and post processed for the SmartNet Monterey base station and three local CORS stations for two separate days. These observations were post processed to obtain coordinates for the Monterey base station.

In addition, the coordinates were processed from the published datum for the control station (NAD 83(2011) Epoch 2010.00) to a more current datum (NAD 83(2011) Epoch 2014.25) using the Horizontal Time-Dependent Positioning (HTDP) tool provided by NGS on their web site.

Each control point is measured at least four times at two different times of day to capture different satellite configurations. The data was analyzed to be sure that the mean values obtained using Leica SmartWorx software for all coordinates were within less than +/-0.035' horizontally and +/-0.05' vertically.

BASIS OF BEARINGS STATEMENT

Bearings are based on the meridian of the California State Plane Coordinate System, Zone 4, NAD 83 (2011), Epoch 2014.25.

They are derived from National Geodetic Survey Continuously Operating Reference Stations (NGS CORS) data processed using Horizontal Time-Dependent Positioning (HTDP) from NAD 83(2011) Epoch 2010.00 to NAD 83(2011) Epoch 2014.25.

CORS Stations utilized were Elkhorn Slough (DI7526 Designation - ELKHRNSLGHCN2005 CORS ARP), Santa Lucia (DH3876 Designation - SANTALUCIACN2004 CORS ARP) and Hopkins (DN7560 Designation - HOPKINSSTNCN2006 CORS ARP).

Distances used herein are grid. To obtain ground distances multiply by 1.0005754314.

Elevations are based on North American Vertical Datum 1988 (NAVD88) at National Geodetic Survey (NGS) benchmark PID GU4116 designated 941 3450 M TIDAL with an elevation of 11.70 feet.

This data was prepared by me or under my direction.

Lynn A. Kovach

PLS 5321

Polaris Consulting GPS Department

Monterey Peninsula Water Supply Project

Point Id	Northing	Easting	Orth. height	Code	CQ	Std. deviation N	Std. deviation E	Std. deviation H
500	2183241.386	5744332.296	12.41	CP	0.036	0.015	0.007	0.032
501	2182719.909	5744259.074	7.68	CP	0.023	0.006	0.001	0.022
502	2182648.718	5745552.716	15.24	CP S&W	0.023	0.019	0.003	0.014
503	2183018.415	5745823.976	24.01	CP	0.024	0.009	0.004	0.023
504	2182897.824	5746640.856	20.66	CP S&W	0.018	0.009	0.010	0.011
505	2181824.776	5746702.211	22.20	CP	0.022	0.008	0.006	0.020
506	2180971.085	5747297.504	11.23	CP S&W	0.051	0.012	0.023	0.043
507	2179819.222	5746910.894	15.48	CP	0.019	0.010	0.007	0.015
508	2179214.294	5748124.379	15.24	CP S&W	0.064	0.005	0.010	0.063
509	2178601.676	5747785.186	12.63	CP S&W	0.028	0.013	0.006	0.025
510	2177927.930	5746880.456	12.37	CP	0.028	0.004	0.019	0.020
511	2177237.118	5746167.193	9.74	CP	0.020	0.005	0.007	0.018
512	2176483.278	5745359.004	11.04	CP	0.022	0.012	0.014	0.012
513	2175793.740	5744617.724	6.62	CP	0.021	0.006	0.002	0.020
514	2175168.555	5745714.939	8.63	CP	0.019	0.007	0.002	0.017
515	2174295.322	5745177.824	12.04	CP	0.022	0.005	0.005	0.021
516	2173817.994	5745115.507	12.28	CP S&W	0.018	0.007	0.004	0.017
517	2173461.617	5745091.679	12.60	CP	0.034	0.004	0.006	0.033
518	2172923.348	5745053.620	14.60	CP PKS	0.018	0.007	0.006	0.016
519	2171671.049	5744934.103	11.02	CP	0.018	0.002	0.003	0.018
520	2171438.792	5746602.307	11.76	CP	0.041	0.005	0.006	0.040
521	2169836.219	5746043.375	12.85	CP	0.031	0.004	0.006	0.030
522	2169519.030	5747182.445	14.43	CP S&W	0.038	0.011	0.009	0.036
523	2168935.595	5748059.669	14.10	CP	0.009	0.004	0.005	0.007
524	2167593.594	5747930.064	10.43	CP	0.010	0.003	0.004	0.008
525	2167185.403	5749027.674	14.95	CP	0.015	0.005	0.005	0.013
526	2166858.842	5750347.024	14.31	CP	0.019	0.010	0.014	0.009
527	2165256.371	5749798.260	13.16	CP	0.011	0.003	0.004	0.010
528	2164907.081	5751006.778	18.03	CP	0.056	0.016	0.004	0.053
529	2164281.851	5751589.521	18.73	CP S&W	0.025	0.005	0.008	0.023
530	2164216.523	5750656.526	16.93	CP	0.037	0.017	0.020	0.026

Point Id	Northing	Easting	Orth. height	Code	CQ	Std. deviation N	Std. deviation E	Std. deviation H
531	2164206.284	5749367.930	12.95	CP	0.008	0.004	0.005	0.004
532	2163085.036	5749038.821	19.68	CP	0.024	0.008	0.003	0.022
533	2162920.376	5747817.619	12.13	CP REBAR	0.026	0.005	0.004	0.025
534	2161957.990	5747292.650	17.14	CP S&W	0.028	0.013	0.006	0.024
535	2160892.404	5746895.150	22.46	CP	0.016	0.004	0.002	0.016
536	2160854.722	5745619.723	18.38	CP REBAR	0.012	0.010	0.002	0.007
537	2159752.432	5744020.184	27.20	CP	0.017	0.012	0.008	0.010
538	2159090.336	5745848.111	35.74	CP	0.020	0.010	0.003	0.016
539	2158440.939	5744496.474	33.77	CP	0.020	0.002	0.002	0.019
540	2158946.102	5745275.965	25.15	CP	0.021	0.008	0.005	0.019
541	2158354.555	5746158.004	58.63	CP	0.021	0.018	0.007	0.008
542	2158593.785	5747253.742	13.13	CP	0.011	0.005	0.006	0.007
543	2156962.138	5747332.799	62.70	CP	0.012	0.008	0.006	0.007
544	2156923.339	5748547.729	71.13	CP	0.024	0.013	0.006	0.019
545	2156430.587	5749205.607	60.89	CP	0.035	0.010	0.011	0.032
546	2155925.279	5748938.260	99.00	CP REBAR	0.024	0.010	0.004	0.022
547	2154624.288	5750275.587	89.37	CP PKS	0.026	0.018	0.008	0.017
548	2157199.414	5744716.908	52.21	CP	0.017	0.003	0.010	0.014
551	2153316.305	5749571.301	109.19	CP S&W	0.029	0.014	0.008	0.024
552	2153961.391	5748842.370	102.21	CP	0.023	0.013	0.013	0.014
553	2153497.804	5747967.163	108.83	CP REBAR	0.018	0.003	0.003	0.017
554	2152238.680	5748642.448	99.16	CP REBAR	0.033	0.029	0.011	0.012
555	2151563.540	5749577.707	132.50	CP	0.036	0.032	0.005	0.016
556	2151259.087	5750740.663	117.37	CP	0.029	0.025	0.005	0.013
557	2150947.207	5749577.986	171.88	CP PKS	0.019	0.014	0.010	0.007
558	2156567.492	5743687.202	33.93	CP REBAR	0.034	0.010	0.004	0.033
559	2155318.672	5743759.974	72.41	CP REBAR	0.027	0.004	0.007	0.026
560	2155118.619	5742331.640	38.99	CP REBAR	0.025	0.019	0.005	0.015
561	2154396.366	5743432.064	57.76	CP	0.047	0.020	0.024	0.036
562	2154230.919	5741909.504	42.10	CP	0.042	0.016	0.008	0.038
563	2154056.670	5741315.123	40.24	CP	0.069	0.029	0.013	0.062

Point Id	Northing	Easting	Orth. height	Code	CQ	Std. deviation N	Std. deviation E	Std. deviation H
564	2153347.760	5742152.997	58.87	CP	0.028	0.016	0.015	0.016
565	2153523.015	5744419.960	52.16	CP	0.075	0.016	0.004	0.073
566	2152516.784	5744076.712	52.66	CP	0.032	0.014	0.006	0.029
567	2151821.482	5744544.832	51.16	CP	0.018	0.007	0.006	0.016
568	2150652.900	5743971.720	52.41	CP	0.047	0.021	0.019	0.037
569	2150816.902	5743804.251	55.01	CP	0.034	0.019	0.012	0.026
570	2150176.218	5743439.023	52.99	CP	0.026	0.009	0.005	0.024
571	2149045.063	5743494.112	58.72	CP	0.031	0.009	0.015	0.026
572	2148563.415	5742169.179	52.48	CP	0.035	0.012	0.004	0.032
573	2147520.692	5742121.264	53.84	CP	0.021	0.012	0.004	0.017
574	2147040.450	5741061.977	39.71	CP	0.047	0.025	0.004	0.040
575	2145314.169	5741720.671	26.70	CP	0.031	0.010	0.018	0.024
576	2145018.993	5740382.834	17.48	CP	0.016	0.010	0.007	0.010
577	2143655.268	5740638.548	44.63	CP	0.030	0.014	0.010	0.024
578	2143658.640	5738740.183	35.00	CP S&W	0.019	0.007	0.005	0.017
579	2141939.027	5739696.303	66.72	CP	0.057	0.016	0.010	0.054
580	2141676.393	5738000.065	67.45	CP	0.016	0.004	0.008	0.013
581	2140188.573	5738685.608	62.53	CP	0.012	0.001	0.009	0.009
582	2140007.484	5737045.145	68.01	CP	0.016	0.007	0.011	0.009
583	2138645.815	5737388.709	92.96	CP S&W	0.034	0.015	0.014	0.026
584	2138222.844	5736099.369	55.16	CP	0.011	0.002	0.004	0.010
585	2137048.174	5736196.708	81.33	CP REBAR	0.083	0.008	0.011	0.082
586	2136542.458	5734961.074	62.32	CP	0.026	0.011	0.005	0.023
587	2135420.225	5735418.472	95.30	CP	0.014	0.013	0.004	0.004
588	2135210.774	5735851.159	104.77	CP S&W	0.019	0.004	0.004	0.019
589	2134544.174	5736061.081	105.87	CP	0.023	0.004	0.010	0.021
590	2133533.516	5735382.574	123.33	CP	0.019	0.007	0.017	0.007
591	2132567.993	5736215.855	139.69	CP	0.026	0.018	0.005	0.018
592	2131949.477	5735691.860	140.99	CP	0.019	0.006	0.013	0.012
593	2131727.649	5736601.557	160.99	CP	0.038	0.024	0.006	0.029
594	2130420.432	5735938.929	165.65	CP	0.013	0.005	0.004	0.011

Point Id	Northing	Easting	Orth. height	Code	CQ	Std. deviation N	Std. deviation E	Std. deviation H
595	2130762.050	5737388.445	193.99	CP S&W	0.019	0.014	0.004	0.012
596	2131673.132	5738536.133	191.70	CP	0.022	0.004	0.013	0.017
597	2131435.762	5739420.880	209.26	CP	0.016	0.009	0.012	0.005
598	2130289.530	5738414.082	220.95	CP S&W	0.033	0.017	0.008	0.028
599	2129756.564	5739173.993	275.42	CP	0.064	0.010	0.010	0.063
600	2128993.666	5739037.861	271.63	CP S&W	0.013	0.009	0.001	0.010
601	2128595.920	5737585.947	244.23	CP S&W	0.021	0.019	0.005	0.008
602	2127231.908	5738261.317	302.05	CP	0.025	0.010	0.007	0.022
603	2126749.265	5736900.950	317.20	CP S&W	0.021	0.012	0.014	0.010
604	2125534.345	5737462.096	348.62	CP	0.010	0.007	0.004	0.006
605	2124701.071	5736269.767	347.44	CP S&W	0.019	0.002	0.013	0.014
606	2123690.111	5736239.780	353.26	CP	0.025	0.012	0.008	0.020
607	2122972.604	5735383.257	337.42	CP S&W	0.012	0.004	0.011	0.003
608	2121599.097	5735627.273	390.17	CP	0.019	0.007	0.005	0.018
609	2121039.968	5735536.891	388.80	CP	0.028	0.007	0.007	0.026
610	2121188.809	5734208.884	296.92	CP S&W	0.005	0.003	0.001	0.004
611	2115134.261	5731225.313	272.87	CP S&W	0.007	0.005	0.002	0.004
612	2114611.982	5731138.529	214.55	CP S&W	0.023	0.007	0.002	0.022
613	2115070.360	5730645.665	250.40	CP S&W	0.009	0.003	0.001	0.009
614	2114674.372	5730107.699	180.80	CP S&W	0.021	0.004	0.005	0.020
615	2115037.016	5729533.974	156.35	CP S&W	0.015	0.001	0.007	0.013
616	2114729.180	5728966.749	157.44	CP S&W	0.008	0.005	0.004	0.004
617	2115278.893	5728408.474	146.23	CP S&W	0.016	0.009	0.013	0.004
618	2114797.239	5727679.941	90.04	CP S&W	0.016	0.012	0.001	0.011
619	2115032.905	5727032.203	68.98	CP S&W	0.013	0.005	0.006	0.011
620	2114667.288	5726542.321	67.59	CP S&W	0.008	0.005	0.005	0.004
621	2115233.696	5725960.919	56.28	CP S&W	0.009	0.007	0.004	0.003
622	2114931.391	5725637.908	59.41	CP S&W	0.005	0.001	0.003	0.004
623	2114799.388	5725176.553	53.39	CP	0.009	0.007	0.003	0.005
624	2114427.320	5725816.877	63.72	CP S&W	0.007	0.001	0.003	0.006
625	2113866.641	5725429.733	70.12	CP	0.011	0.002	0.002	0.011

Point Id	Northing	Easting	Orth. height	Code	CQ	Std. deviation N	Std. deviation E	Std. deviation H
627	2113259.840	5725543.831	85.31	CP S&W	0.005	0.003	0.002	0.004
628	2113970.413	5724750.243	49.56	CP S&W	0.016	0.014	0.004	0.006
629	2113570.700	5724463.804	47.93	CP S&W	0.022	0.005	0.014	0.017
630	2112975.111	5723937.415	65.86	CP S&W	0.022	0.006	0.014	0.016
631	2113234.826	5723067.228	63.77	CP S&W	0.015	0.010	0.009	0.007
632	2112477.725	5722810.208	72.42	CP S&W	0.008	0.006	0.005	0.003
633	2113030.049	5722065.917	63.60	CP S&W	0.019	0.004	0.009	0.017
634	2112271.549	5721562.145	72.27	CP S&W	0.012	0.002	0.001	0.012
635	2112677.958	5720891.693	48.21	CP S&W	0.010	0.007	0.002	0.007
636	2112047.770	5720268.021	73.45	CP S&W	0.012	0.002	0.004	0.011
637	2111927.135	5719905.044	66.46	CP S&W	0.010	0.001	0.003	0.009
638	2111903.040	5719172.300	42.17	CP S&W	0.008	0.004	0.004	0.005
639	2111828.370	5718744.679	67.55	CP S&W	0.043	0.007	0.009	0.042
640	2111862.295	5718199.758	63.31	CP S&W	0.026	0.009	0.001	0.024
641	2111520.713	5717160.404	41.38	CP S&W	0.019	0.009	0.006	0.016
642	2111816.443	5716674.986	50.06	CP S&W	0.019	0.005	0.006	0.018
643	2110988.612	5716320.357	24.02	CP S&W	0.009	0.002	0.003	0.009
644	2111304.648	5716088.259	23.29	CP S&W	0.019	0.008	0.007	0.016
645	2111743.517	5715568.507	21.26	CP S&W	0.018	0.012	0.009	0.010
646	2112338.542	5715869.539	31.42	CP S&W	0.032	0.013	0.003	0.030
647	2111762.722	5715105.561	41.50	CP S&W	0.028	0.008	0.018	0.019
648	2112203.494	5714976.345	31.62	CP S&W	0.016	0.015	0.001	0.007
649	2112154.246	5713851.575	36.44	CP S&W	0.017	0.012	0.007	0.010
650	2113079.737	5713447.971	27.26	CP S&W	0.027	0.012	0.011	0.022
651	2112560.371	5712626.861	43.46	CP S&W	0.013	0.008	0.004	0.010
652	2113126.282	5712289.481	33.07	N&S	0.013	0.007	0.004	0.010
653	2112592.478	5711455.084	65.12	CP S&W	0.028	0.007	0.014	0.023
654	2113522.746	5711156.239	67.62	CP S&W	0.018	0.005	0.007	0.015
655	2113205.906	5710459.942	93.88	CP	0.014	0.005	0.012	0.006
656	2113954.769	5710018.994	163.36	CP S&W	0.019	0.009	0.013	0.011
657	2114436.679	5709515.052	193.66	CP	0.026	0.005	0.016	0.019

Point Id	Northing	Easting	Orth. height	Code	CQ	Std. deviation N	Std. deviation E	Std. deviation H
658	2113817.512	5709073.240	206.49	CP	0.013	0.003	0.008	0.009
659	2114613.053	5708936.336	227.85	CP	0.010	0.004	0.006	0.006
660	2115059.522	5708788.241	268.49	CP	0.015	0.011	0.003	0.008
661	2115417.057	5709672.872	190.30	CP S&W	0.028	0.013	0.021	0.014
662	2116196.582	5709157.476	236.50	CP	0.026	0.003	0.014	0.022
663	2116522.099	5709963.621	179.02	CP	0.033	0.015	0.015	0.026
664	2117469.942	5709229.889	236.20	CP	0.020	0.008	0.008	0.016
665	2117787.452	5710105.343	157.98	CP S&W	0.015	0.009	0.011	0.007
666	2117924.949	5709685.641	172.93	CP S&W	0.016	0.010	0.002	0.013
667	2118282.619	5709795.287	168.06	CP S&W	0.017	0.005	0.011	0.011
668	2118784.221	5709468.360	163.94	CP S&W	0.021	0.010	0.010	0.015
669	2118560.917	5708928.570	211.31	CP S&W	0.025	0.008	0.018	0.015
670	2117880.055	5708715.873	255.18	CP S&W	0.020	0.005	0.015	0.011
671	2117481.842	5708172.090	297.72	CP	0.023	0.011	0.015	0.013
672	2117994.544	5708050.556	273.90	CP S&W	0.019	0.008	0.008	0.015
673	2117988.116	5707449.704	303.13	CP S&W	0.022	0.005	0.009	0.020
674	2118539.173	5707691.830	259.77	CP S&W	0.014	0.009	0.008	0.005
675	2118512.007	5706818.777	278.85	CP S&W	0.026	0.004	0.019	0.018
676	2119571.241	5706910.877	212.79	CP S&W	0.044	0.023	0.008	0.037
677	2119737.080	5706508.741	206.68	CP	0.020	0.008	0.015	0.012
678	2119381.849	5706105.653	217.66	CP S&W	0.016	0.006	0.008	0.012
679	2111358.908	5720320.530	92.91	CP S&W	0.030	0.010	0.007	0.028
690	2120622.880	5734613.697	333.07	CP	0.017	0.007	0.002	0.015
691	2120396.261	5734789.277	345.15	CP	0.014	0.006	0.004	0.012
692	2111888.108	5721099.946	84.04	CP	0.023	0.011	0.003	0.020
693	2112520.754	5723922.821	70.82	CP	0.016	0.004	0.002	0.015
695	2114282.360	5727440.165	94.59	CP	0.013	0.005	0.003	0.012
696	2115056.157	5732434.369	295.45	CP	0.010	0.007	0.003	0.007
697	2113839.949	5732008.435	226.89	CP	0.019	0.010	0.004	0.015
698	2114022.747	5729424.230	167.70	CP	0.012	0.004	0.007	0.009
699	2114060.546	5731447.773	195.63	CP	0.019	0.017	0.004	0.008

Polaris Consulting GPS Department

Monterey Peninsula Water Supply Project

Point Id	Northing	Easting	Orth. height	Code	CQ	Std. deviation N	Std. deviation E	Std. deviation H
700	2173608.922	5744163.108	10.43	CP	0.005	0.003	0.002	0.003
RTCM-3213	2106277.851	5733723.146	170.92	BASE	0.000			

Notes:

Bearings are based on the meridian of the California State Plane Coordinate System, Zone 4, NAD 83 (2011), Epoch 2014.25.
Coordinates are grid. To obtain ground distances multiply by 1.0005754314.
Elevations are based on North American Vertical Datum 1988 (NAVD88) at National Geodetic Survey (NGS) benchmark PID GU4116 designated 941 3450 M TIDAL with an elevation of 11.70 feet.

Map of Control Points Close to the Castroville Pipeline

0 0.125 0.25 0.5 0.75 1

Miles

3/30/2018

Appendix C: CAW Standard Drawings

CALIFORNIA AMERICAN WATER

TABLE OF CONTENTS:

REV. 1/2015

California-American Water Company **General Water Facilities Notes**

Applicable to Construction of Water Main and Appurtenances For Monterey, Montara, Felton and East Palo Alto Service Territories

1. **DEFINITIONS**: In the following notes, UTILITY shall mean California-American Water Company, 511 Forest Lodge Road, Suite 100, Pacific Grove, CA 93950 and INSTALLER shall mean any developer, contractor property owner, firm or person who has been duly authorized by California-American Water Company to perform work on the water systems and facilities owned and/or operated by California-American Water Company.

2. **UTILITY CONTACT PERSON**: For matters related to Work to be performed by INSTALLER, please contact UTILITY'S Engineer: California-American Water Company, 511 Forest Lodge Road, Suite 100, Pacific Grove, CA 93950, email: john.kilpatrick@amwater.com.

3. **INSTALLER REPRESENTATIVE**. INSTALLER shall assign and provide UTILITY with the name and contact information of a representative (Job Forman) at the job site where the work will be performed on UTILITY facilities. INSTALLER'S Representative is required to attend any pre-construction walk-through meetings. INSTALLER Representative is required to be on the jobsite during all phases of work, including inspections, and INSTALLER shall not replace the Representative without prior approval from UTILITY

4. **STATE AND COUNTY ROAD ENCROACHMENT PERMITS**. Any work within a state highway right-of-way shall comply with the requirements of the State Department of Transportation (CalTrans), including encroachment permits. Work within a County right-of-way shall comply with County requirements, including encroachment permits. It shall be INSTALLER'S responsibility to be thoroughly familiar with the State and/or County Standards of work required and include the full cost of compliance including traffic control, permits, trench fees, etc., in the respective bid items.

5. **OTHER PERMITS**. INSTALLER or his representative shall be required to verify the required permits for the work to be performed and obtain and comply with all necessary permits for construction of the water system, including encroachment permits and any required permits for water service lines from water meters to buildings. INSTALLER is responsible for notification to jurisdictional agencies before commencement of work.

6. **IDENTIFICATION OF BURIED UTILITIES**. Before any Work on underground facilities, INSTALLER shall contact Underground Service Alert (USA) for identifying any buried utilities near the Work area. USA (Phone 1-800-642-2444) must given a 48 hours advance notice. UTILITY is only responsible for marking those water facilities owned by UTILITY and shall not be responsible for marking new facilities until UTILITY accepts ownership. Any calls to the UTILITY regarding such facilities will be forwarded to the INSTALLER. Any damages to water facilities to be owned by UTILITY must be reported to UTILITY immediately and UTILITY must be allowed to inspect and approve repairs or replacements.

7. **WATER SHUTDOWN NOTICES**. INSTALLER shall notify UTILITY or associated companies 48 hours before commencing construction and for notification of water system shut off requests. INSTALLER must ensure that shut down time will not exceed four (4) hours without prior UTILITY approval.

8. **INSPECTION NOTICES**. When applicable, INSTALLER shall give UTILITY and County Inspector 48 hours notice (minimum) before scheduling any meeting or starting construction, and 24 hours notice (minimum) for inspection.

9. **VERIFICATION OF DATA AND INFORMATION PROVIDED BY UTILITY**. Notice is hereby given to the INSTALLER that UTILITY has made all reasonable efforts to identify the types, locations, sizes and depths of existing or planned underground or aboveground utilities, structures, roads, pipelines, hard rock, strata, topography, etc. Such items, when depicted on the plans, have been obtained from sources of varying reliability. Therefore, UTILITY and associated companies cannot assume responsibility for the completeness or accuracy of said information. INSTALLER shall be responsible for verifying the location of all existing facilities by pot-holing all water line connection points to confirm size, depth and material type of existing facilities. In case of conflict/s, INSTALLER shall bring the matter to the attention of UTILITY for resolution before continuing work.

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GENERAL WATER FACILITIES NOTES

STANDARD DRAWING No. A

10. SURVEYING AND LOCATING. INSTALLER is responsible for all required surveying and staking, showing the location and grades for installing the water system. INSTALLER is responsible for protecting and maintaining all survey monuments and staking whether existing or discovered during construction.

11. JOBSITE SAFETY. INSTALLER is solely responsible for any currently applicable safety law of any jurisdictional agency. INSTALLER is also responsible for project site safety and for public safety including traffic control, 24-hours per day for all days from the notice to proceed through the notice of completion.

12. MATERIAL OF CONSTRUCTION. INSTALLER shall provide and install all materials and insulation of the water distribution system in accordance with the standards and specifications of UTILITY and associated companies, which are incorporated herein by reference, unless otherwise noted on these plans. UTILITY has the final decision on all materials, including backfill, pipe, fittings, and valves, that will be used for placement of all water facilities including any new water main.

13. WORK COORDINATION. INSTALLER is responsible for coordinating their work with all other contractors to avoid any conflicts.

14. PIPE AND FITTINGS. Minimum water main size shall be 8" diameter. Unless surrounding ground conditions dictate otherwise, all header pipes from main to service meter shall be 2" PVC, Schedule 80, and from meter to service shall be 1" or 2" Type K copper. Unless otherwise approved by UTILITY, all standard water mains larger than 12-inches shall be Class 250, Mortar Lined, Bit Coated and Polywrapped Ductile Iron. Piping 12-inch diameter and smaller shall be AWWA C-900 DR14 PC 305, unless otherwise noted (Class 305 pipe is required when water main is near sewers). All fittings shall be ductile iron with cement lined inside and bituminous coated outside. All buried steel lugs, rods, brackets and flanged joint bolts and nuts shall be given one (1) coat of Koppers #50 coal tar coating and all fittings wrapped in polyethylene encasement prior to backfilling. INSTALLER shall provide pipe and fitting materials submittal to UTILITY for approval before beginning work.

15. FLANGED FITTINGS. All flanged fittings shall be bolted together with zinc coated steel nuts and bolts, grade 5 or better.

16. MECHANICAL JOINTS. Use EBAA Mechanical Joint Mega-Lugs on all mechanical joint fittings.

17. SEPARATION DISTANCE FORM SEWER LINES AND SOURCES OF CONTAMINATION. Water mains shall be laid in separate trenches as far as possible from nearby sewer and storm drain lines. If less than ten-feet horizontal separation between the water lines and sewer or storm drain lines, C-900 Class 200 PVC pipe or Class 50 Ductile Iron Pipe shall be used (Class or pressure rating to be determined or approved by UTILITY). Placement of water lines near other sources of contamination or hydrocarbon related facilities should require special approval from UTILITY. INSTALLER to immediately inform the UTILITY Engineer when insufficient separation conditions occur (less than 10-feet horizontal or 1-foot vertical).

18. UNDERGROUND PIPE IDENTIFIER. All installation of mains and services shall have green-coated #10 GA. standard copper wire for locating.

19. HOT TAPS. All tapping sleeves to be mechanical joint type or all stainless steel circumference seal type with stainless steel flange, bolts and nuts.

20. EXPIRATION OF UTILITY APPROVALS. UTILITY'S approval signatures on the construction plans are good for one year from date of signature. Plans will be subject to review thereafter.

21. VALVES. Unless otherwise noted or directed by UTILITY, INSTALLER shall install gate valves (AWWA C-509) for water mains 12-inches or smaller, and install butterfly valves (AWWA C-504) for mains larger than 12-inches. All valves shall be flanged to fittings (Cross, tee, etc) except where mains are 4-feet behind sidewalk with tees under corner radius in which case the valve shall be placed in line beyond the radius and restrained. Gate valves shall be resilient wedge, epoxy coated with SS bolts. Valves stem shall be provided for valves with a cover of 4-ft or greater. Underground valves shall have 8" diameter (minimum) valve box riser, grade valve box and metal lid marked "water", as shown on UTILITY standard drawings.

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GENERAL WATER FACILITIES NOTES

STANDARD DRAWING No. B

22. FIRE HYDRANTS. All public fire hydrants shall be 6" wet barrel, AWWA approved C503, and as specified on drawings or approved equal. Make and model standard for the Monterey service territory is James Jones. All public fire hydrants shall be painted according to the jurisdiction fire department (UTILITY'S standard color is white). Fire hydrant make and model for private properties shall be as specified by the Local Fire Department and shall painted red. All fire hydrants shall be coated with approved epoxy paint. Fire Hydrant Base Flange to be a minimum of 4-inches above finish grade. Check valves will be required on hydrant risers as determined by UTILITY.

23. BACKFLOW PREVENTION DEVICE. Backflow Prevention Devices if required, shall be installed and tested by a UTILITY approved contractor and certified backflow tester before water service activation. The type of backflow prevention device shall be specified by UTILITY and installed above ground by INSTALLER per UTILITY standards and specifications. No single check detector checks valves will be allowed. No tees or cross connections will be allowed between any water meter and any backflow prevention device. The backflow prevention device shall be installed as close as possible to the water meter or point of serviced connection (typically within 18 inches).

24. CONCRETE THRUST BLOCKS. Thrust block shall be installed where pipe deflections exceed 4 degrees per coupling/fittings, as specified by pipe manufacturer. Use EBAA mechanical joint mega-lugs on all mechanical joint fittings. Use EBAA series 1600 pipe restraints in lieu of concrete thrust blocks. UTILITY Engineer to advise INSTALLER of required length of pipe to be restrained. Concrete thrust blocks to be used if restraints cannot be utilized.

25. TRENCH DEPTH AND COVER. Trench depth shall be sufficient to allow top of water main to have a minimum of 36-inches of cover, unless otherwise directed by UTILITY Engineer.

26. INSPECTION BEFORE BACKFILLING. All water facilities to be owned and maintained by UTILITY, including mains; fittings, valves and services shall be inspected and approved by UTILITY before backfilling.

27. BACKFILL AND COMPACTION. All trenches in existing or proposed streets and paved areas such as parking lots, driveways, etc., shall be backfilled and compacted in accordance with the standards and specifications by UTILITY, unless otherwise noted, and shall also comply with minimum requirements of the County for which the work is being done, including any encroachment permit conditions. Trench compaction shall be by mechanical compaction to a minimum of 95 percent, unless noted otherwise on the plans.

28. BACKFILL SOIL COMPACTION TESTING. INSTALLER is responsible for securing, compensating and monitoring of; a State certified independent soils testing serviced to provide compaction testing of all backfill work. Compaction tests documenting compliance with minimum compaction requirements will be taken at 50 foot intervals or per the minimum County requirements, whichever is greater. All testing reports shall be submitted to UTILITY for review and approval as soon as available. Testing results from a certified County or City representative is permitted where jurisdictional requirements provide such compaction testing.

29. LANDSCAPING RESTRICTIONS. Planting of tress and shrubs in the affected areas and/or easements where a water main and/or services are proposed or existing should be avoided. Under no circumstances should a tree or shrub be planted in the water trench line. All shrubs and/or trees that are allowed to be planted within the planned unit development should be center tapping root ornamental style.

30. DISINFECTIONS AND FLUSHING. INSTALLER shall perform disinfections and flushing of new water system/s in accordance with UTILITY standards. With regards to the disposal of the flush water, INSTALLER shall be required to comply with UTILITY, County and State NPDES discharge permit requirements and shall provide necessary documentation ensuring compliance where applicable.

31. INSPECTION BEFORE ACTIVATION. All water facilities to be owned and maintained by UTILITY, including mains; fittings, valves and services shall be inspected and approved by UTILITY before activation. INSTALLER shall provide hydrostatic test to be witnessed by UTILITY representative per UTILITY Standards. UTILITY shall collect samples for bacteriological testing. New saddles and services shall be installed prior to bacteriological and pressure testing of main.

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GENERAL WATER FACILITIES NOTES

STANDARD DRAWING No. C

32. AS-BUILT DRAWINGS. INSTALLER shall submit As-Built (Record) drawings of the water system, or modification installed by the INSTALLER. The As-Built drawings must be submitted to, and approved by, UTILITY within 30 days of completion of construction, retentions shall be held until as-built approval by UTILITY.

33. WARRANTY. Warranty of new facilities to be conveyed to UTILITY shall be for a minimum period of one year from date of commencement (or final acceptance).

34. **RETURNING PROPERTY TO ORIGINAL CONDITION.** INSTALLER is advised to photograph or videotape job site area to document existing conditions before beginning work to minimize undue claims. INSTALLER is responsible to return all property to original or better condition, including traffic markings. All claims shall be borne and resolved by INSTALLER or UTILITY shall address said claim and may deduct any costs from final payment/retention. A copy of the claim documents shall be submitted to UTILITY Engineer within 48 hours after receiving such any claims.

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GENERAL WATER FACILITIES NOTES

STANDARD DRAWING No. D

REQUIRED SEPARATION BETWEEN WATER MAINS AND SANITARY SEWERS

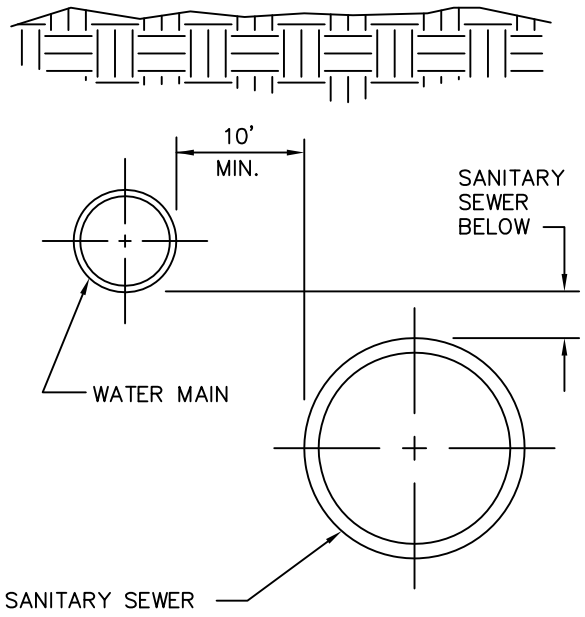
BASIC SEPARATION REQUIREMENTS:

WATER MAINS AND SEWERS SHOULD BE SEPARATED AS FAR AS IS REASONABLE IN BOTH THE HORIZONTAL AND VERTICAL DIRECTIONS WITH SEWERS ALWAYS LOWER THEN WATER MAINS.

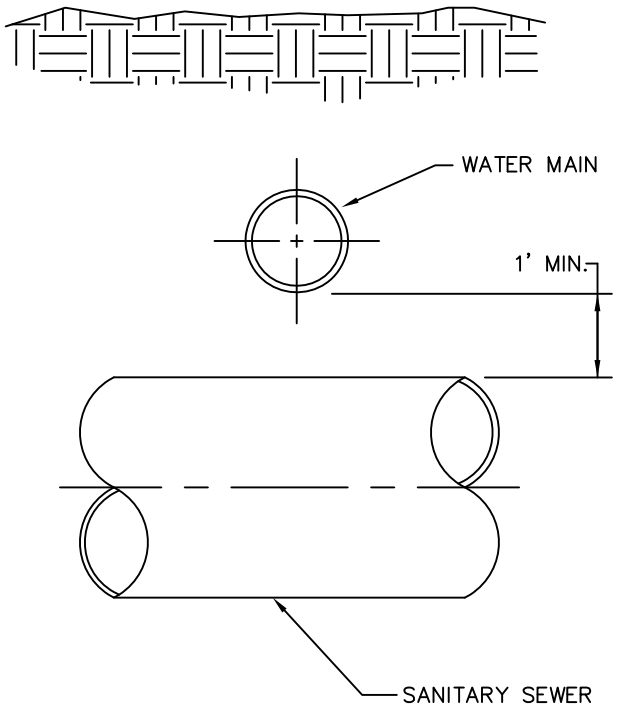
PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE WATER MAINS AND SEWERS SHALL BE AT LEAST 10 FEET

PERPENDICULAR CONSTRUCTION (CROSSING): PRESSURE WATER MAINS SHALL BE AT LEAST 1 FOOT ABOVE SANITARY SEWERS WHERE THESE LINES MUST CROSS.

PARALLEL CONSTRUCTION



PERPENDICULAR CONSTRUCTION



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REQUIRED SEPARATION BETWEEN WATER MAINS AND SANITARY SEWERS

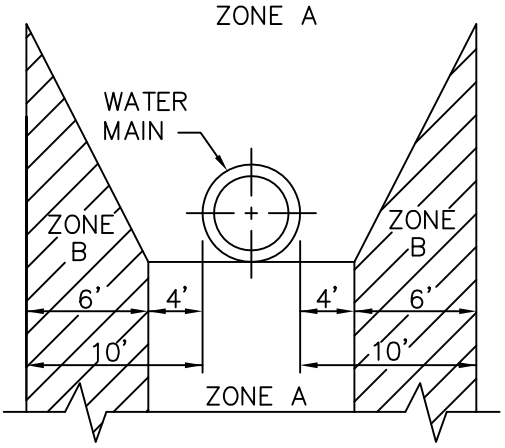
STANDARD DRAWING No. 1

FILENAME: CADDISK1\SD1

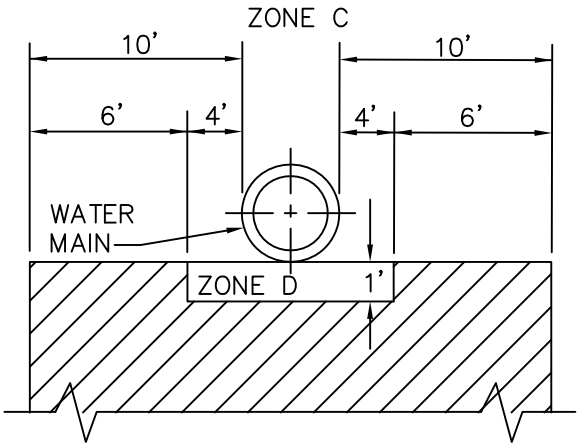
SPECIAL CONSTRUCTION REQUIREMENTS

WHERE REQUIRED WATER MAIN SEPARATION FROM SANITARY SEWER CANNOT BE MAINTAINED

PARALLEL CONSTRUCTION



PERPENDICULAR CONSTRUCTION



IF AN EXISTING SEWER IS LOCATED WITHIN ZONES A, B, C, OR D OF A PROPOSED WATER MAIN, THE FOLLOWING SPECIAL REQUIREMENTS APPLY:

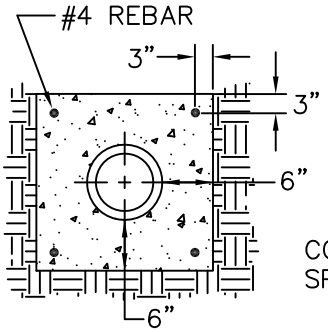
ZONE

A — NO WATER MAINS SHALL BE CONSTRUCTED WITHOUT SPECIAL PERMISSION FROM THE HEALTH DEPARTMENT.

B — IF THE SEWER DOES NOT MEET ZONE B REQUIREMENTS, THE WATER MAIN SHALL BE OF CLASS 200 PIPE OR EQUIVALENT.

C — NO WATER MAINS SHALL BE CONSTRUCTED WITHOUT SPECIAL PERMISSION FROM THE HEALTH DEPARTMENT. IF PERMISSION IS GRANTED, THE SEWER PIPE SHALL BE ENCASED WITH REINFORCED CONCRETE AND THE WATER MAIN SHALL BE OF CLASS 200 PIPE OR EQUIVALENT.

D — THE SEWER SHALL BE ENCASED WITH REINFORCED CONCRETE.



CONCRETE SHALL BE CLASS B (CALIF. DEPT. OF TRANSPORTATION STD. SPECIFICATIONS, SECTION 90, CURRENT ISSUE) OR EQUIVALENT.

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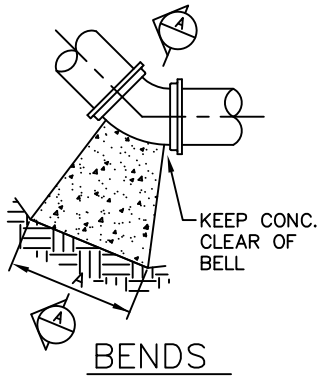
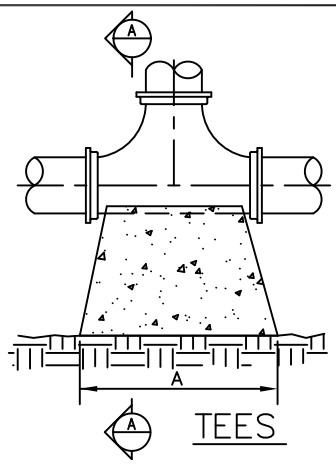
SPECIAL CONSTRUCTION REQUIREMENTS FOR WATER MAINS

STANDARD DRAWING No. 2

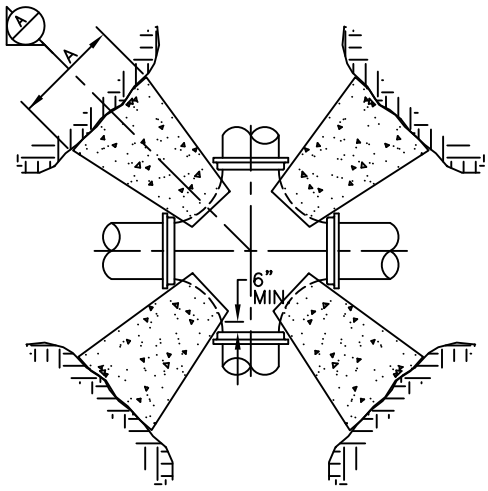
FILENAME: CADDISK1\SD2



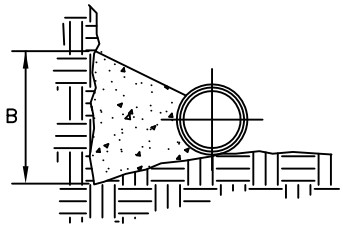
BENDS



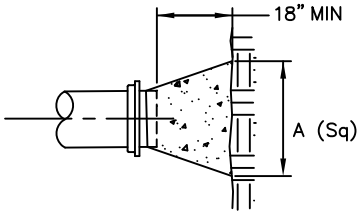
TEES



CROSSES



SECTION
BENDS, TEES, & CROSSES (A)



PLUGS

(SEE NOTE No. 24)

REQUIRED BEARING AREA ON UNDISTURBED SOIL AND TYPICAL DIMENSIONS

SIZE	CROSSES/90° BENDS			45° BENDS			22-1/2° BENDS			TEES & PLUGS		
	AREA SQ. FT.	"A"	"B"	AREA SQ. FT.	"A"	"B"	AREA SQ. FT.	"A"	"B"	AREA SQ. FT.	"A"	"B"
4"	1.8	22"	12"	1.0	12"	12"	0.5	10"	7"	1.3	16"	12"
6"	4.0	36"	16"	2.2	20"	16"	1.1	16"	10"	2.8	29"	14"
8"	7.1	42"	24"	3.8	23"	24"	2.0	21"	14"	5.0	45"	16"
10"	11.1	53"	30"	6.1	30"	30"	3.1	22"	20"	7.9	48"	24"
12"	16.0	58"	40"	8.7	36"	36"	4.4	32"	20"	11.3	54"	30"
14"	21.6	74"	42"	11.9	43"	40"	6.0	36"	24"	15.4	62"	36"
16"	28.4	85"	48"	15.5	53"	42"	7.8	37"	30"	20.1	69"	42"

NOTES

1. BASED ON 150 PSI STATIC PRESSURE PLUS 100 PSI WATER HAMMER AND 2500 PSF SOIL BEARING
2. FOR UNSTABLE SOIL CONDITIONS, CHECK WITH ENGINEER FOR THRUST BLOCK DIMENSIONS
3. FOR MAIN SIZES GREATER THAN 16" SEE ENGINEER FOR THRUST BLOCK DIMENSIONS

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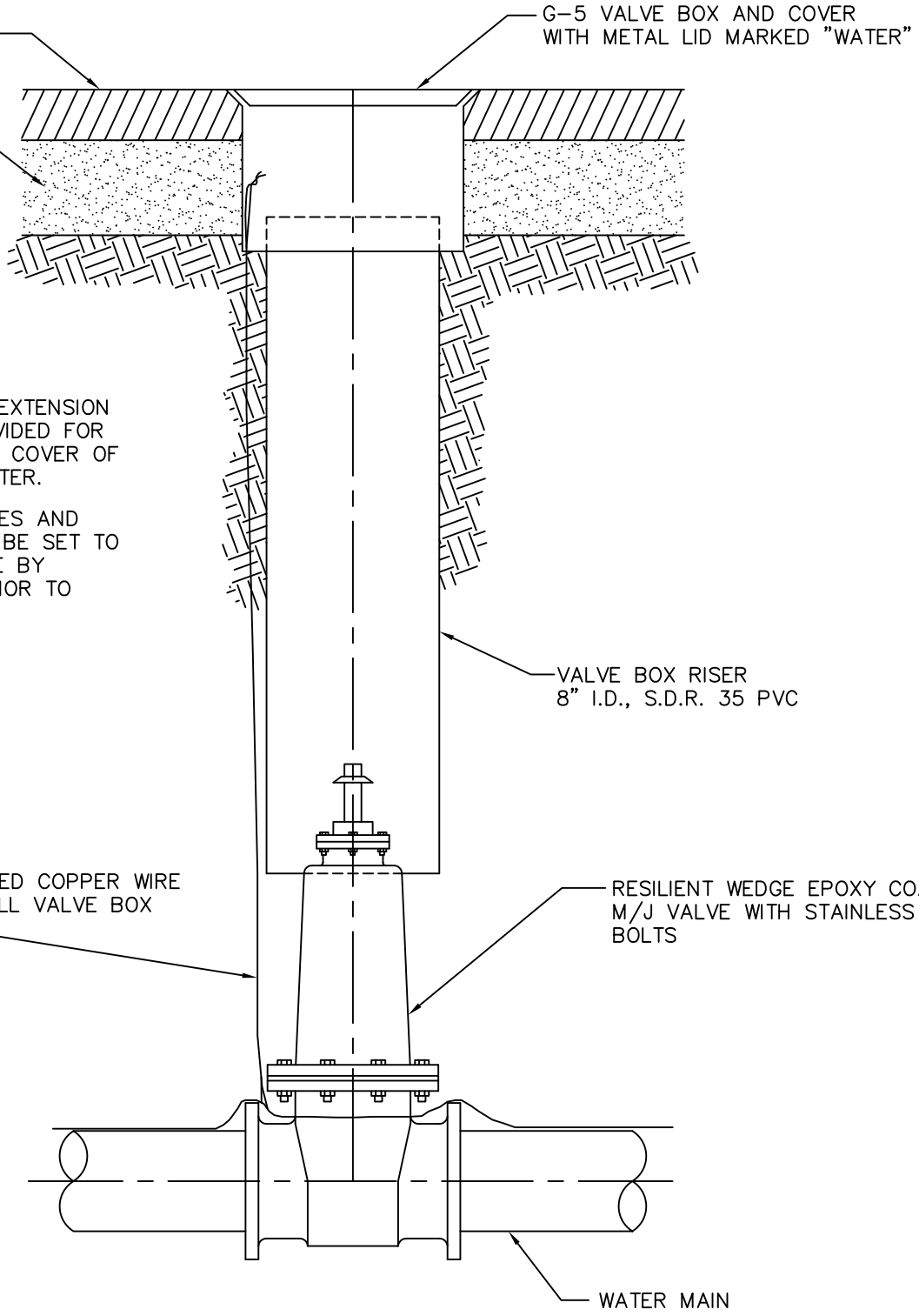
THRUST BLOCK DETAILS

STANDARD DRAWING No. 3

FILENAME: CADDISK2\SD3



NOTES

1. A VALVE STEM EXTENSION SHALL BE PROVIDED FOR VALVES WITH A COVER OF 4 FT. OR GREATER.
2. ALL VALVE BOXES AND COVERS SHALL BE SET TO FINISHED GRADE BY CONTRACTOR PRIOR TO FINAL PAVING.

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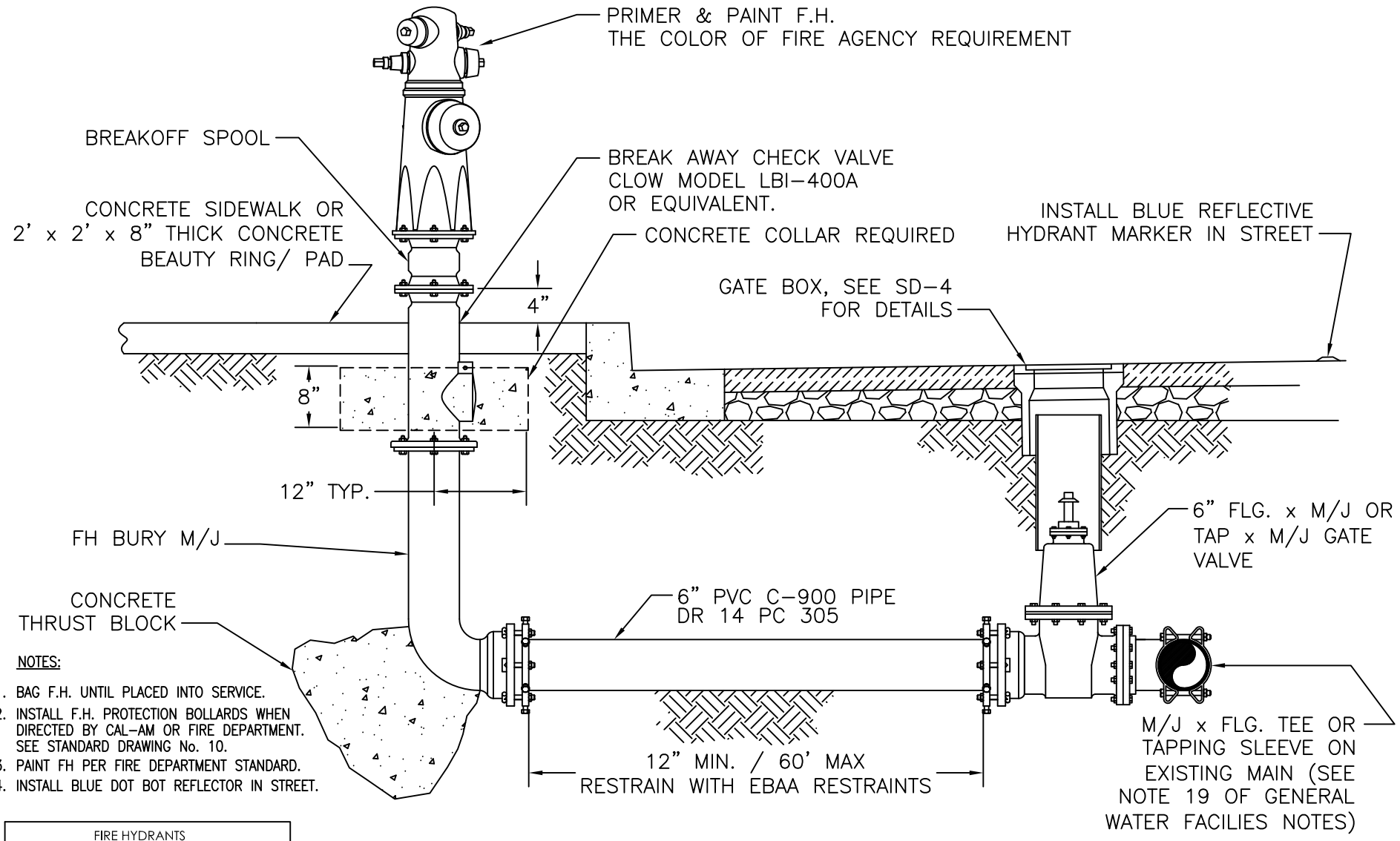
GATE VALVE AND BOX DETAIL

STANDARD DRAWING No. 4

FILENAME: CADDISK2\SD4



NOTES:

1. BAG F.H. UNTIL PLACED INTO SERVICE.
2. INSTALL F.H. PROTECTION BOLLARDS WHEN DIRECTED BY CAL-AM OR FIRE DEPARTMENT. SEE STANDARD DRAWING No. 10.
3. PAINT FH PER FIRE DEPARTMENT STANDARD.
4. INSTALL BLUE DOT BOT REFLECTOR IN STREET.

FIRE HYDRANTS		
DISTRICT	MFG'R	MODEL#
MONTEREY	JAMES JONES	3775
MONTEREY	JAMES JONES	3765
* CHECK WITH LOCAL FIRE DEPARTMENT BEFORE ORDERING		

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Central Division
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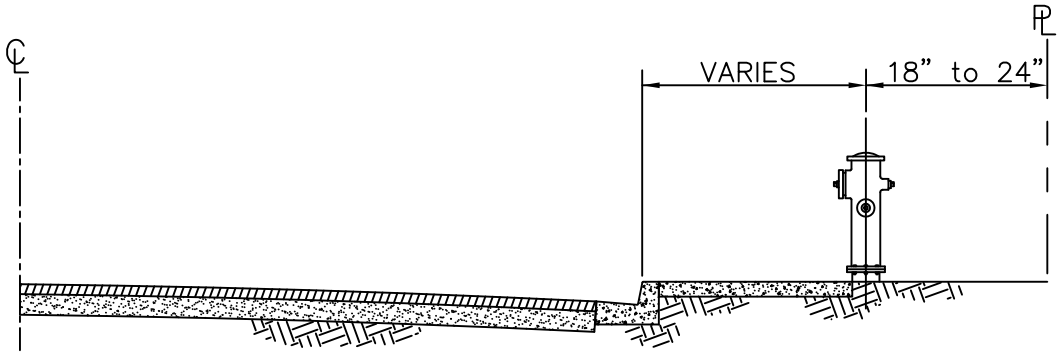
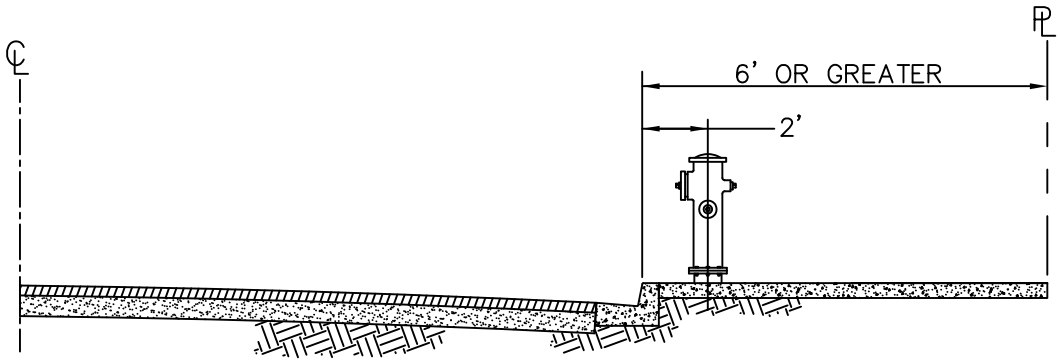
Sheet Title:

6" FIRE HYDRANT INSTALLATION DETAIL

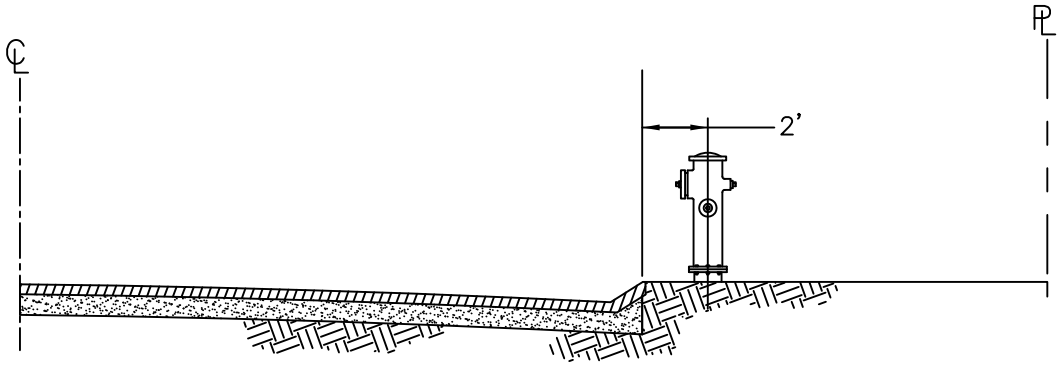
STANDARD DRAWING No. 5



CASE 1 WHEN SIDEWALKS ARE ADJACENT TO CURB, HYDRANTS SHALL BE CENTERED AT BACK OF SIDEWALK.



CASE 2 WHEN SIDEWALKS ARE CONSTRUCTED WITH WIDTHS GREATER THAN 6' FROM CURB FACE TO OUTSIDE EDGE OF SIDEWALK HYDRANTS SHALL BE PLACED 24" FROM THE CURB FACE.



CASE 3 WHEN INVERTED SHOULDER SECTION IS PERMITTED AND CURB, GUTTER AND SIDEWALKS ARE WAIVED, THE HYDRANT SHALL BE CENTERED 24" BEHIND THE EDGE OF PAVEMENT.

NOTES
1) REQUIREMENT OF LOCAL AUTHORITY HAVING JURISDICTION SHALL PREVAIL. IN THEIR ABSENCE, THE INSTALLATIONS SHOWN MAY BE USED.
2) EXACT HYDRANT LOCATION TO BE FIELD DETERMINED BY LOCAL AUTHORITY HAVING JURISDICTION.

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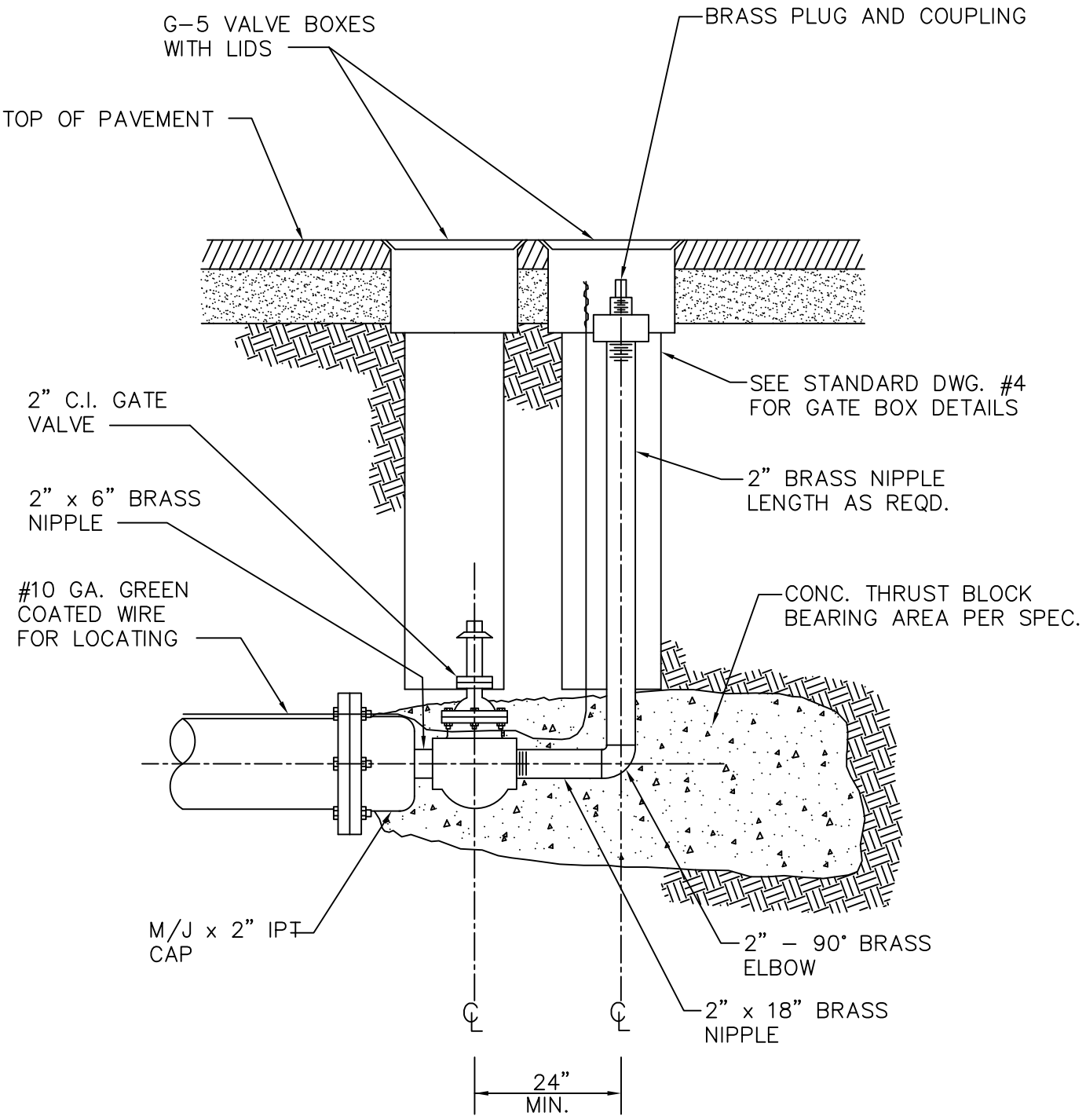
Sheet Title:

LOCATION OF FIRE HYDRANTS

STANDARD DRAWING No. 6

FILENAME: CADDISK3\SD6



NOTE:

1. ALL VALVES ARE TO BE RESILIENT WEDGE EPOXY COATED WITH STAINLESS STEEL BOLTS.

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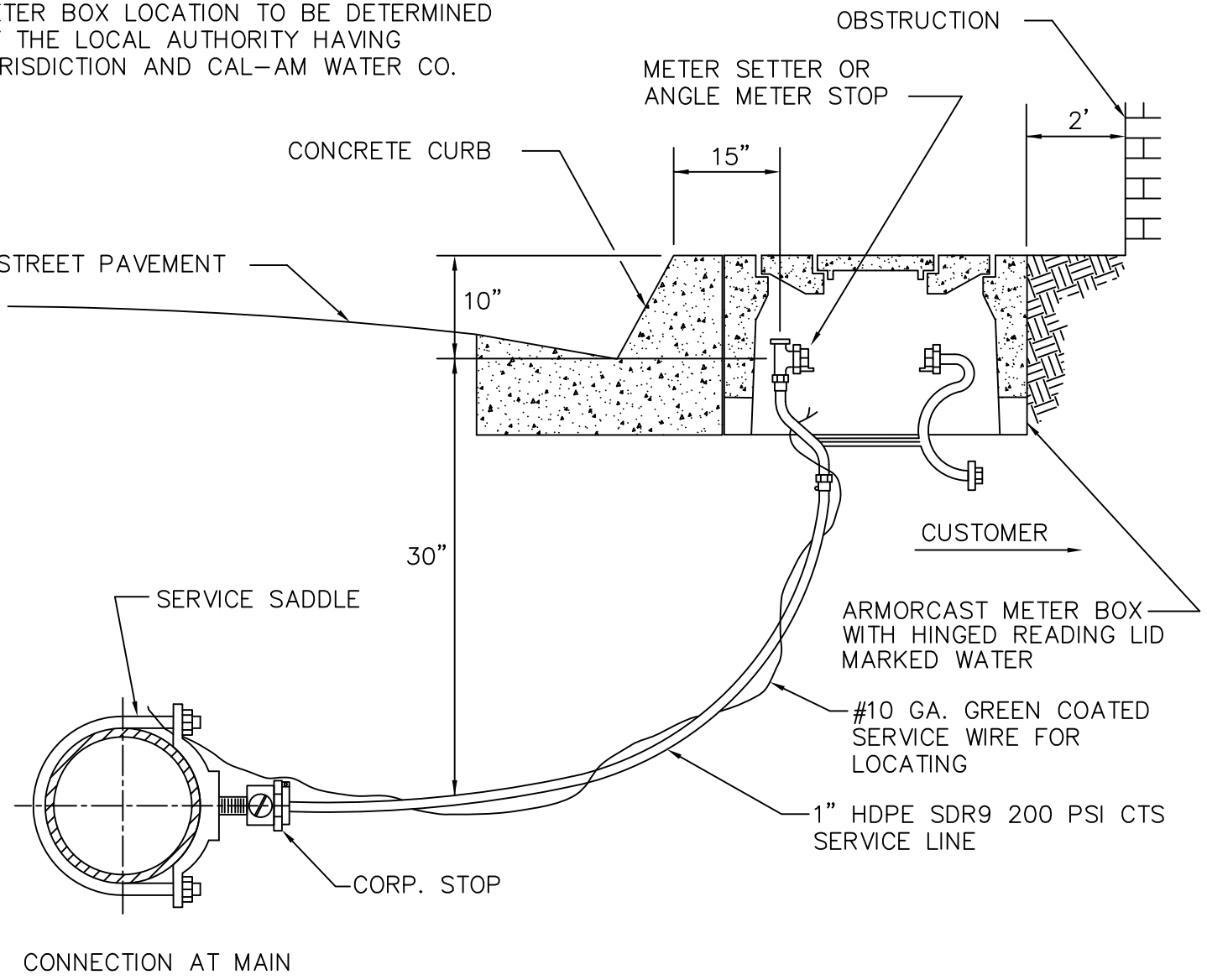
Sheet Title:

2" BLOW–OFF DETAIL

STANDARD DRAWING No. 7

FILENAME: CADDISK3\SD7

METER BOX LOCATION TO BE DETERMINED BY THE LOCAL AUTHORITY HAVING JURISDICTION AND CAL–AM WATER CO.



CONNECTION AT MAIN

EQUIPMENT SCHEDULE (OR APPROVED EQUAL)

METER SIZE	SADDLE	CORP. STOP	ANGLE METER STOP	METER BOX ARMORCAST PRODUCTS CO.
3/4" x 5/8"	FORD S–90	1" FORD F 1000	FORD 3/4" X 1" AMS KV43–342W	A6001946APCX12R (13"x 24")
1"	FORD S–90	1" FORD F 1000	FORD 1" AMS KV43–444W	A6001946APCX12R (13"x 24")

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Sheet Title:

1" SERVICE INSTALLATION DETAIL

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08/27/2012	04/17/2013	10/09/2014		JC	GH

STANDARD DRAWING No. 8

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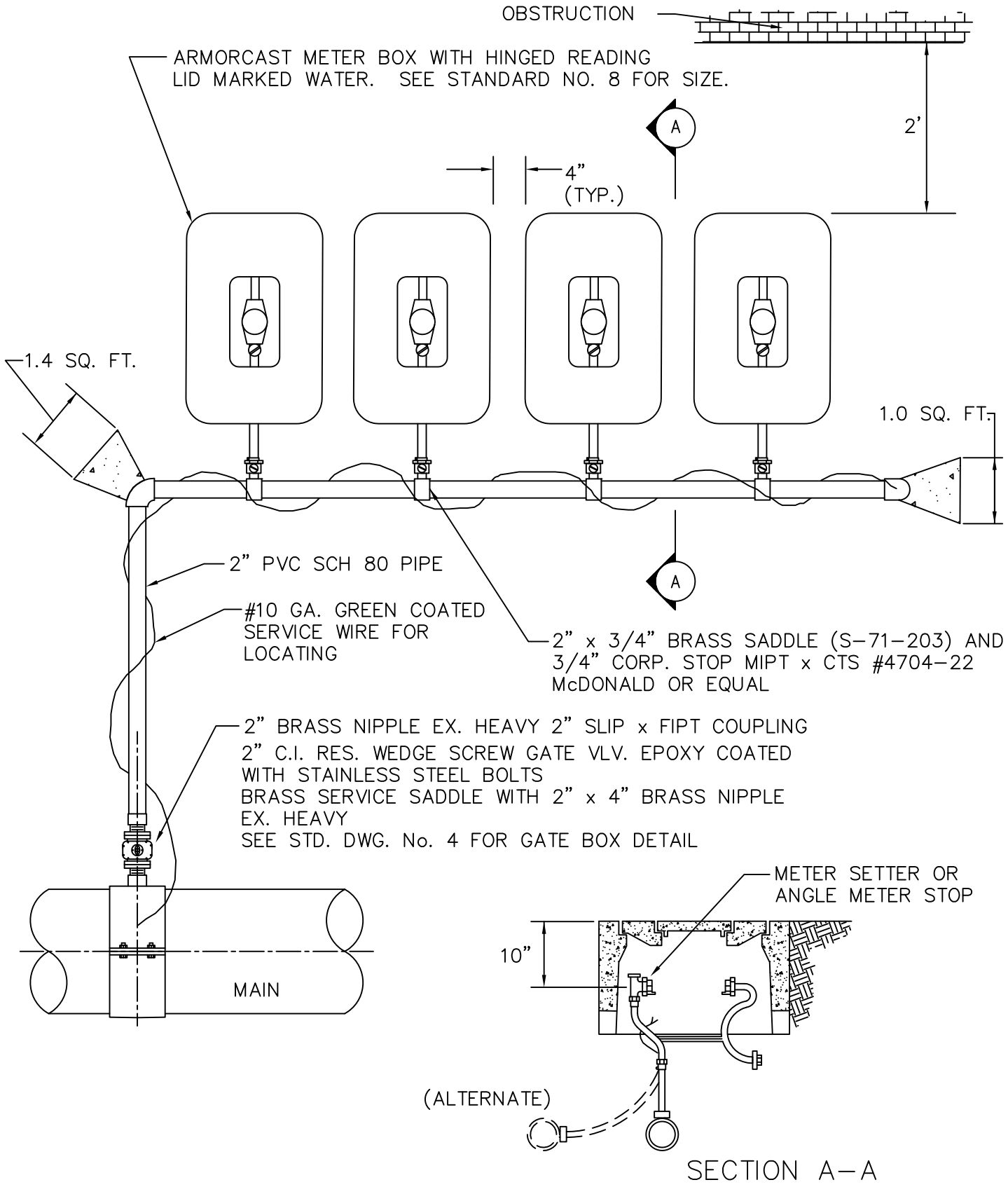

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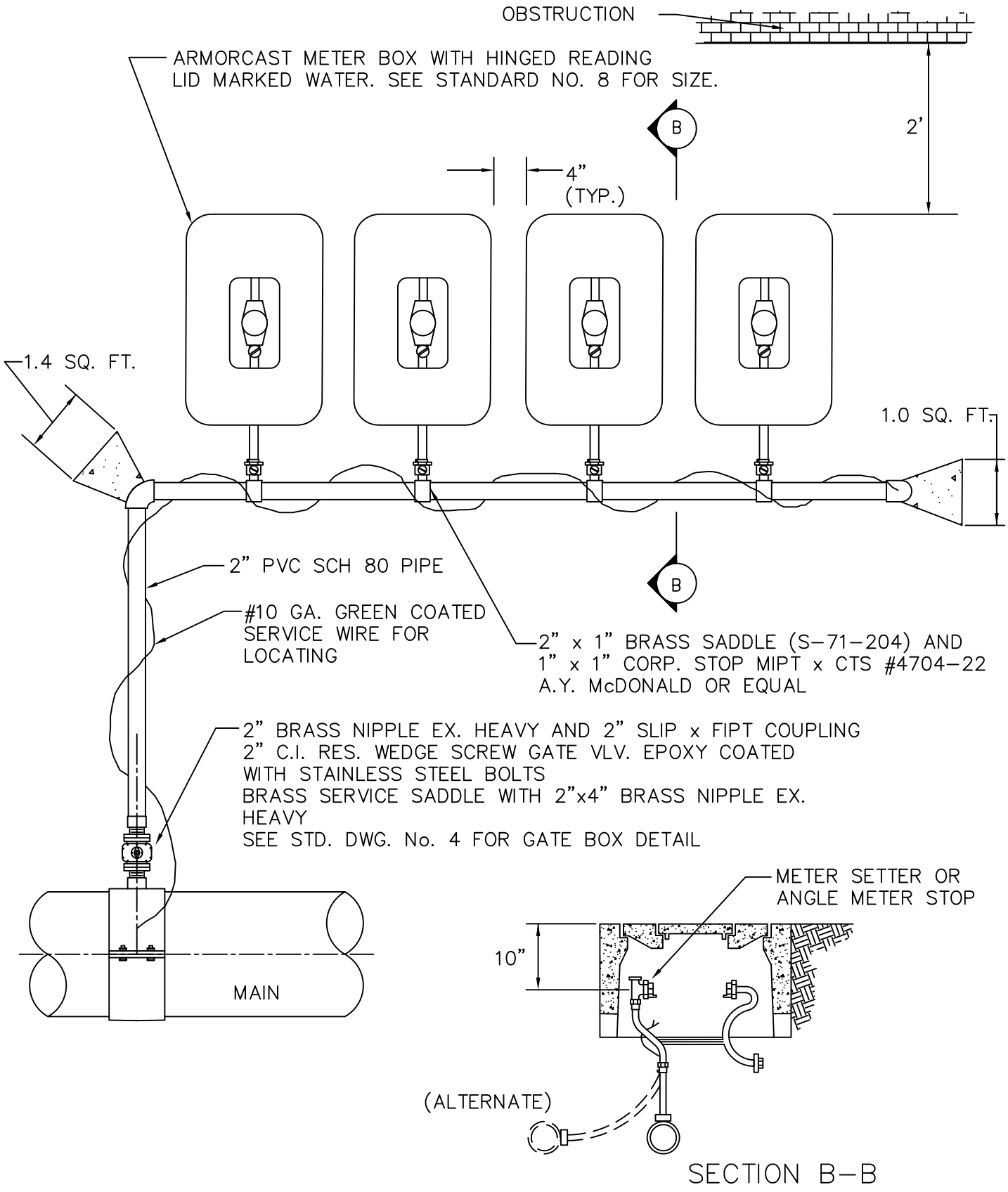
REVISIONS:				Drawn:	Approved by:
4/17/2013					

Sheet Title:

4 – 3/4" SERVICES ON COMMON HEADER DETAIL

STANDARD DRAWING No. 8A

FILENAME: CADDISK3\SD8A



SECTION B-B

CALIFORNIA AMERICAN WATER
Central Division
511 Forest Lodge Rd., Ste. 100, Pacific Grove, Ca., 93950

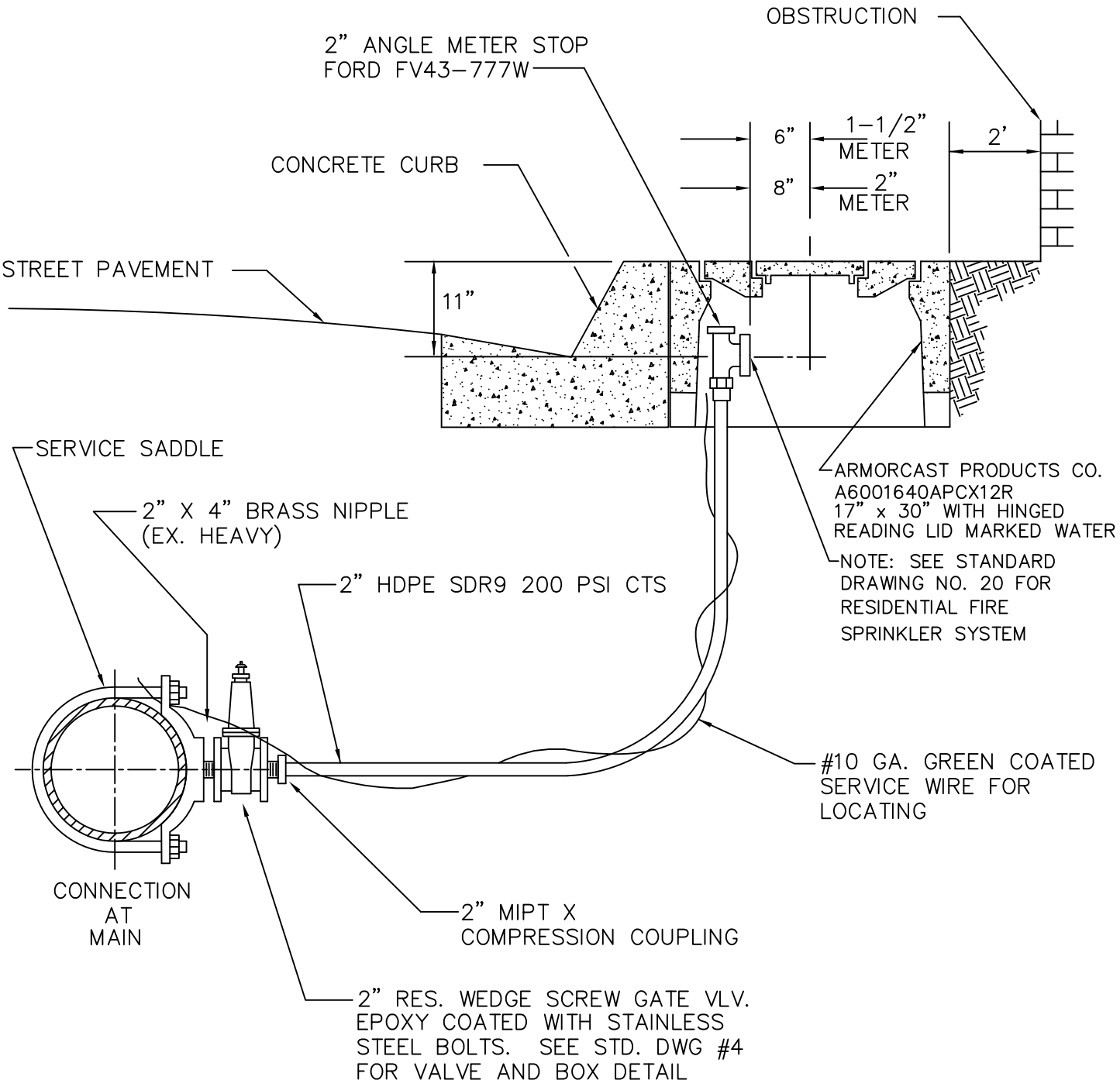
REVISIONS:				Drawn:	Approved by:
4/17/2013					

Sheet Title:

4 – 1" SERVICES ON COMMON HEADER DETAIL

STANDARD DRAWING No. 8B

FILENAME: CADDISK4\SD8B



NOTES:

1) MINIMUM 30" COVER REQUIRED
2) 2" SERVICE LINE MAY BE SUBJECT TO CHANGE BY CAL-AM WATER DUE TO THE SURROUNDING GROUND CONDITIONS.
3) METER BOX LOCATION TO BE DETERMINED BY THE LOCAL AUTHORITY HAVING JURISDICTION AND CAL-AM WATER CO.

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Sheet Title:

2" SERVICE INSTALLATION DETAIL

STANDARD DRAWING No. 9

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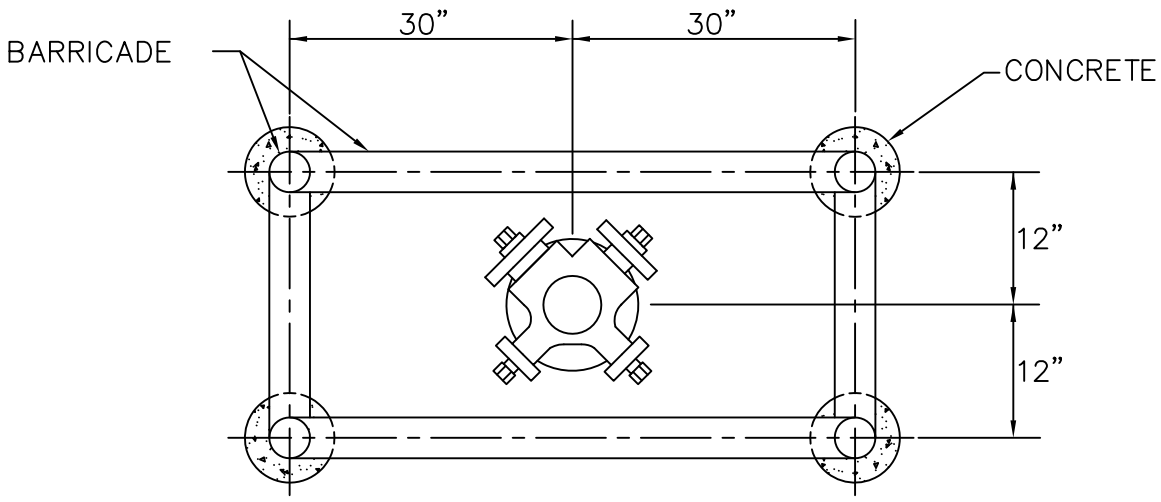
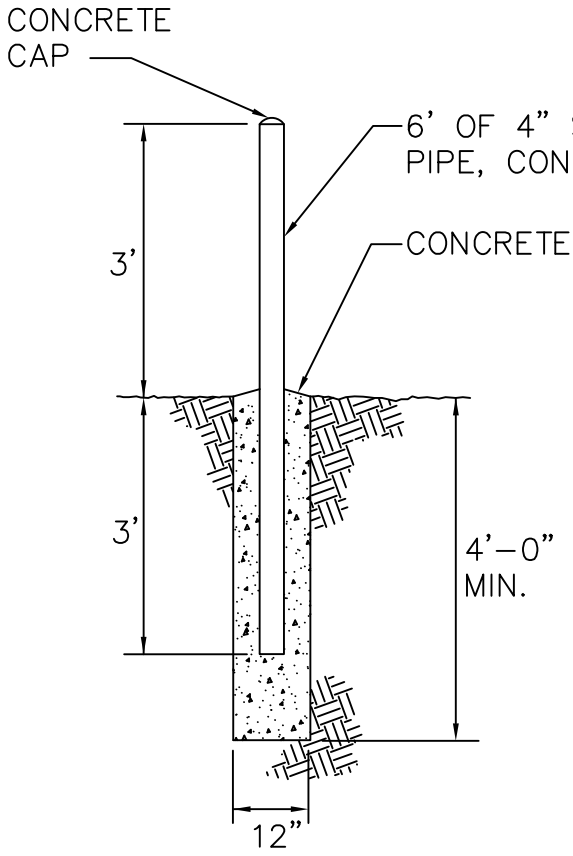
STREET
(NO CONCRETE CURB)



PLAN
FIRE HYDRANT BARRICADES



BARRICADE DETAIL

NOTES:

1. SEE PLANS FOR No. OF BARRICADES TO BE USED.
2. THE EXACT LOCATION OF BARRICADES MAY BE CHANGED BY THE ENGR.
3. THE STEEL PIPE ABOVE GROUND SHALL BE PAINTED WITH PRIMER COAT
4. TWO FINISH COATS OF "SCHOOL BUS YELLOW" SHALL BE USED FOR BARRICADES.
5. BARRICADES FOR FLUSHOUTS, AIR RELEASE VALVES, & VAULT VENTS SHALL BE GIVEN TWO FINISH COATS OF METALLIC GREEN PAINT.

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REVISIONS:

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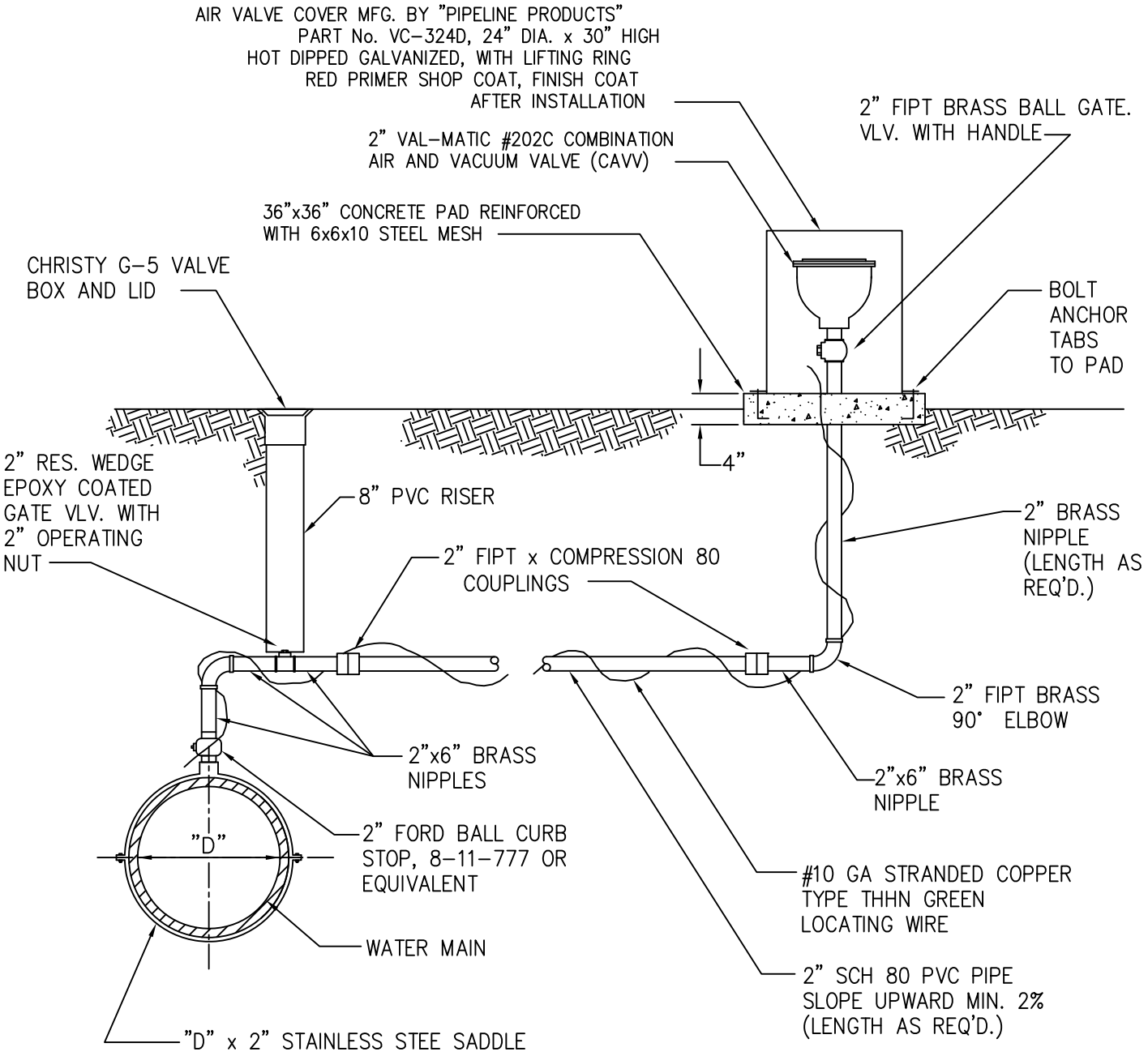
Sheet Title:

BARRICADE OR
BOLLARD DETAIL

STANDARD DRAWING No. 10

FILENAME: CADDISK2\SD10



FILENAME: CADDISK1\SD11

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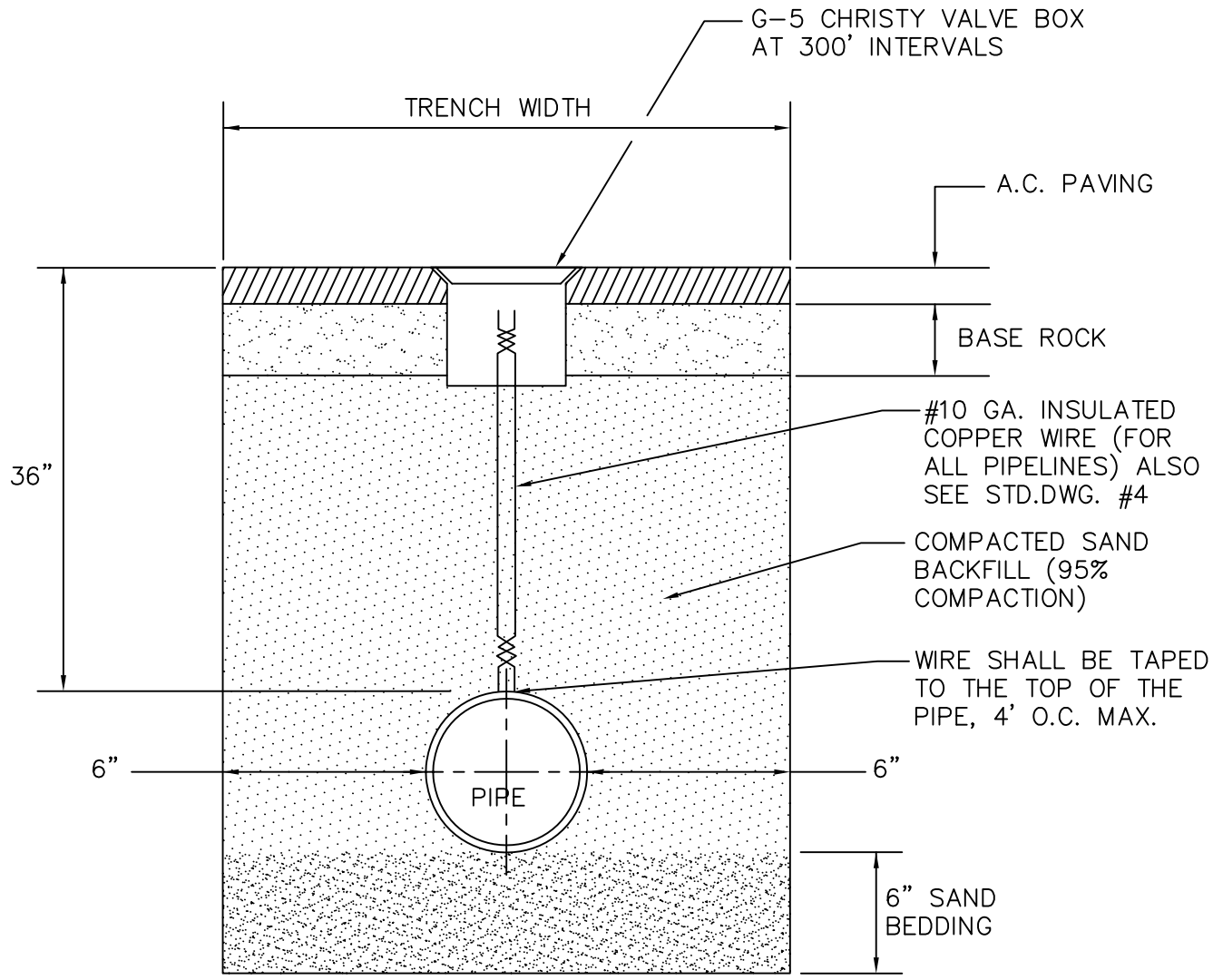
8/3/12					

Sheet Title:

2" COMBINATION AIR AND VACUUM VALVE (CAVV) DETAIL

STANDARD DRAWING No. 11

REQUIRED TRENCH WIDTH FOR WATER MAINS



NOTE:

MINIMUM TRENCH WIDTH TO BE 12" LARGER THAN O.D. OF PIPE UP TO 16" O.D. PIPE. ALL OTHER SIZES ABOVE 16" O.D. SHALL BE 18" LARGER THAN THE O.D. OF PIPE.

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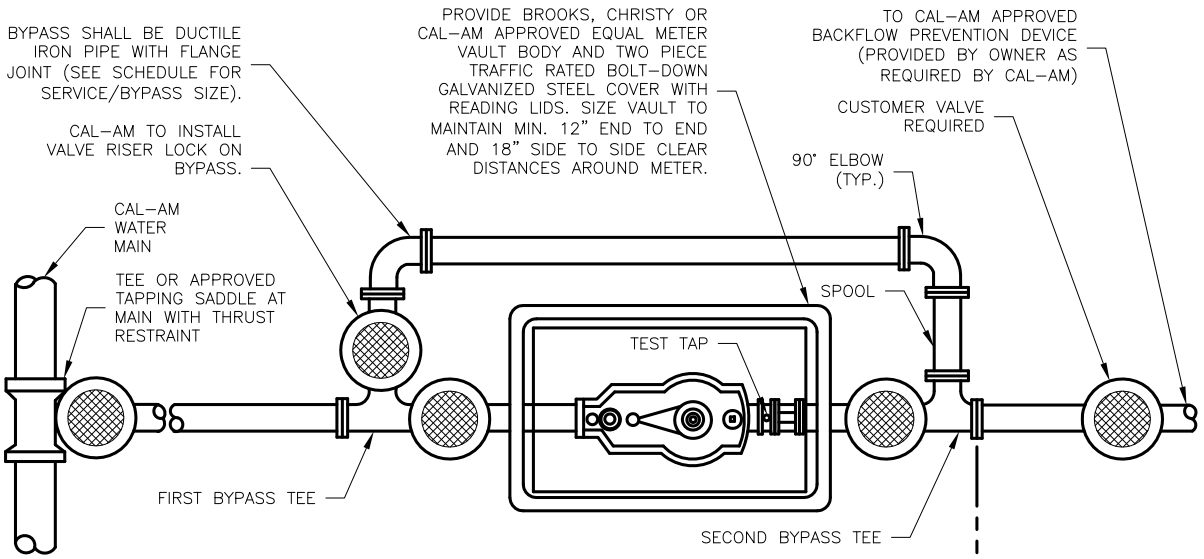
Sheet Title:

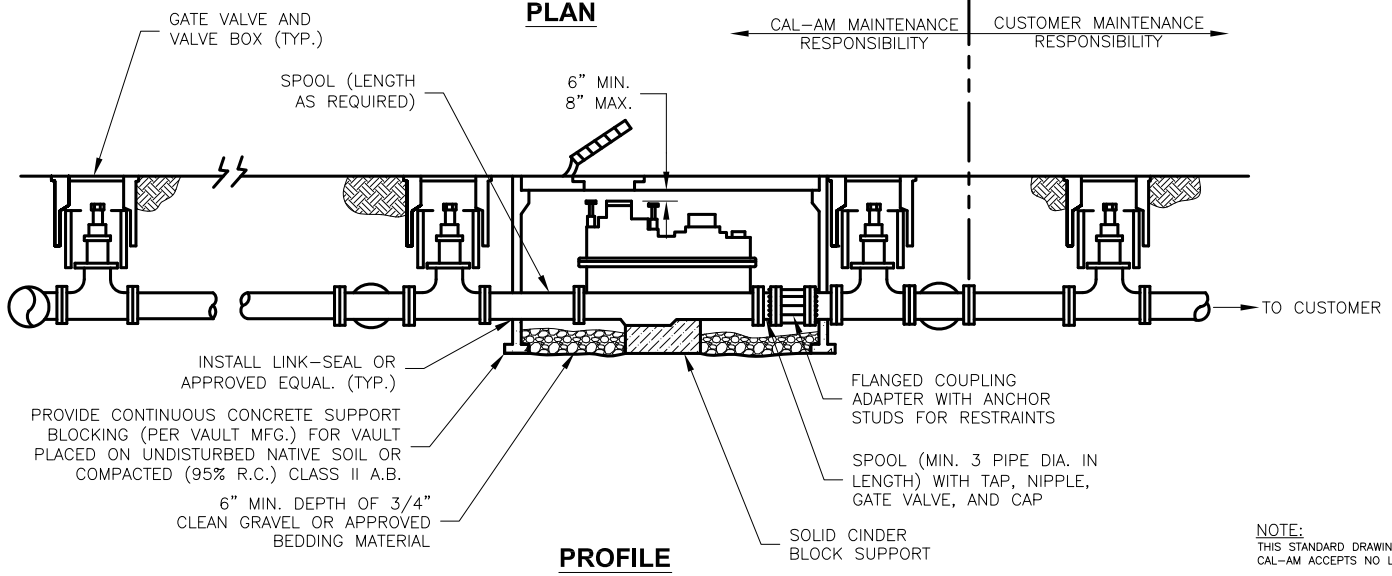
REQUIRED TRENCH WIDTH FOR WATER MAINS

STANDARD DRAWING No. 12

FILENAME: CADDISK2\SD12



PLAN



PROFILE

GENERAL NOTES

1. ALL METER AND VAULT SPECS SHALL BE CAL–AM VERIFIED PRIOR TO INSTALLATION.
2. ALL PIPE USED SHALL BE DUCTILE IRON PIPE WITH FLANGE FITTINGS UNLESS OTHERWISE APPROVED BY CAL–AM.
3. ALL PIPE SIZE TO CORRESPOND TO METER SIZE UNLESS OTHERWISE APPROVED BY CAL–AM.
4. PROBE HOLE TO BE 1–3/4" DIAMETER FOR "TOUCH READ" PAD. HOLE CENTER TO BE 1" MIN. FROM RIBS AND 2–1/2" MIN. FROM EDGE OF COVER.
5. VALVE BOXES TO BE CHRISTY G5 TRAFFIC SERIES OR APPROVED EQUAL
6. METER TO BE PROVIDED BY CAL–AM UNLESS OTHERWISE NOTED.
7. CONTRACTOR TO PROVIDE SPACER IF METER IS NOT AVAILABLE AT THE TIME OF CONSTRUCTION.

BYPASS SIZE SCHEDULE (INCHES)

SERVICE SIZE	BYPASS	METER TEST PORT
12	10	4
10	8	4
8	6	2
6	4	2
4	4	2

NOTE:
THIS STANDARD DRAWING HAS BEEN REVISED AND APPROVED FOR CAL–AM INSTALLATIONS ONLY. CAL–AM ACCEPTS NO LIABILITY FOR USE OF THIS STANDARD BY OTHERS.

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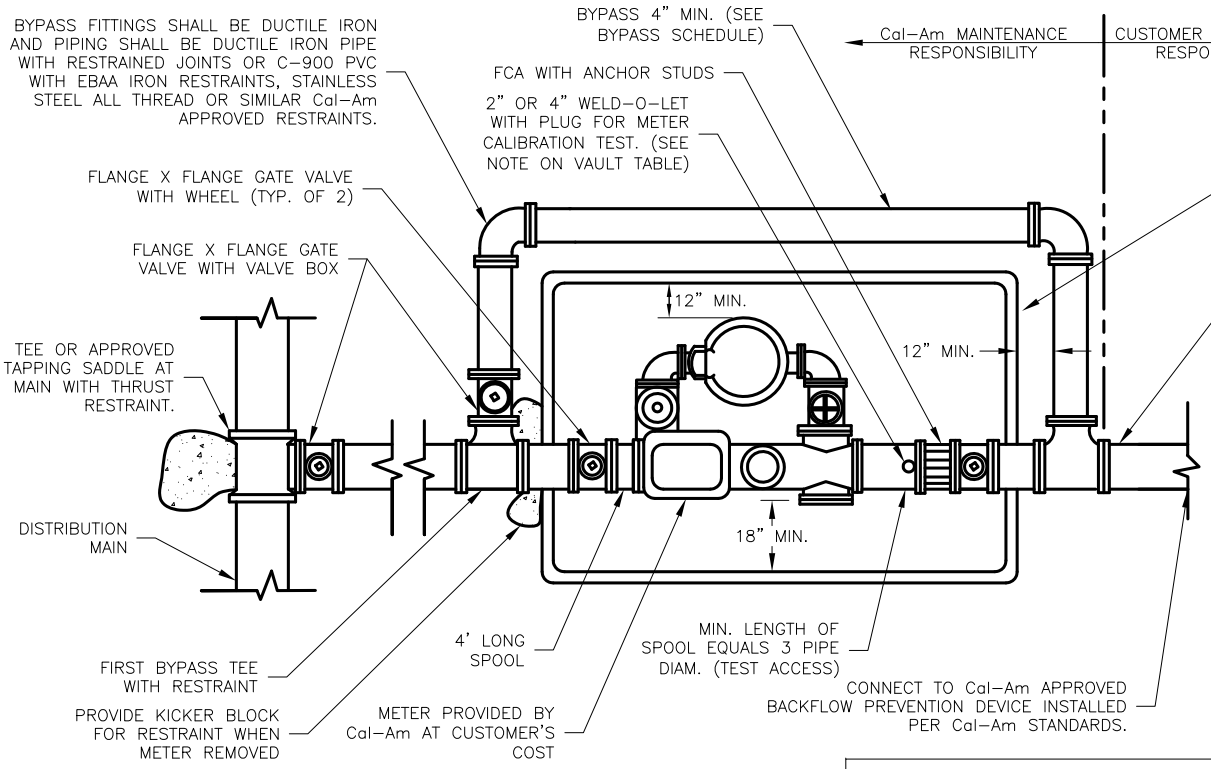
File Name:

Sheet Title:

4",6",8",10"&12" TURBINE/ COMPOUND METER INSTALLATION

STANDARD DRAWING No. 13



PLAN VIEW

(SEE SD-14A FOR PROFILE)

METER AND VAULT SIZE SCHEDULE			
METER SIZE (INCHES)	METER LENGTH (INCHES)	MIN. VAULT SIZE (INCHES)	METER TEST POINT
4" COMPACT	33" L X 35" W	88" L X 65" W	2"
4" REGULAR	52" L X 23" W	107" L X 53" W	2"
6" COMPACT	45" L X 41" W	100" L X 71" W	2"
6" REGULAR	68" L X 28" W	123" L X 58" W	2"
8" COMPACT	53" L X 46" W	108" L X 76" W	2"
8" REGULAR	77" L X 30" W	132" L X 60" W	2"
10" COMPACT	68" L X 50" W	123" L X 80" W	4"
10" REGULAR	90" L X 33" W	145" L X 63" W	4"

NOTE: INSTALL FIRE HOSE NIPPLE AND CAP AT METER TEST PORT.

CONSTRUCTION NOTES:

1. BOX AND METER SHALL BE BEDDED IN MIN. 18" DEEP BASE OF COMPACTED (95% R.C.) CLASS II A.B. PLACED ON UNDISTURBED NATIVE SOIL OR APPROVED COMPACTED (95% R.C.) FILL.
2. EACH DIAL ON METER SHALL HAVE 7-1/2" ROUND READING LID WITH LOCKING HASP. PROVIDE TOUCH READ IN ALL DISTRICTS.
3. METAL LIDS SHALL BE BOLT DOWN TYPE.
4. CONTRACTOR TO PROVIDE METER SPACER IF METER IS NOT AVAILABLE AT THE TIME OF CONSTRUCTION.
5. Cal-Am SHALL PROVIDE APPROVED METER AT CUSTOMER COST.
6. PROVIDE RESTRAINED JOINTS BETWEEN GATE VALVE AT MAIN AND FIRST BYPASS TEE.
7. ALL PIPING SHALL BE DUCTILE IRON WITH FLANGED FITTINGS UNLESS OTHERWISE SPECIFIED OR APPROVED BY Cal-Am ENGINEERING FOR A SPECIFIC PROJECT.

NOTE:
THIS STANDARD DRAWING HAS BEEN REVISED AND APPROVED FOR Cal-Am INSTALLATIONS ONLY. Cal-Am ACCEPTS NO LIABILITY FOR USE OF THIS STANDARD BY OTHERS.

BYPASS SIZE SCHEDULE	
SERVICE SIZE (INCHES)	BYPASS (INCHES)
12	10
10	8
8	6
6	4
4	4

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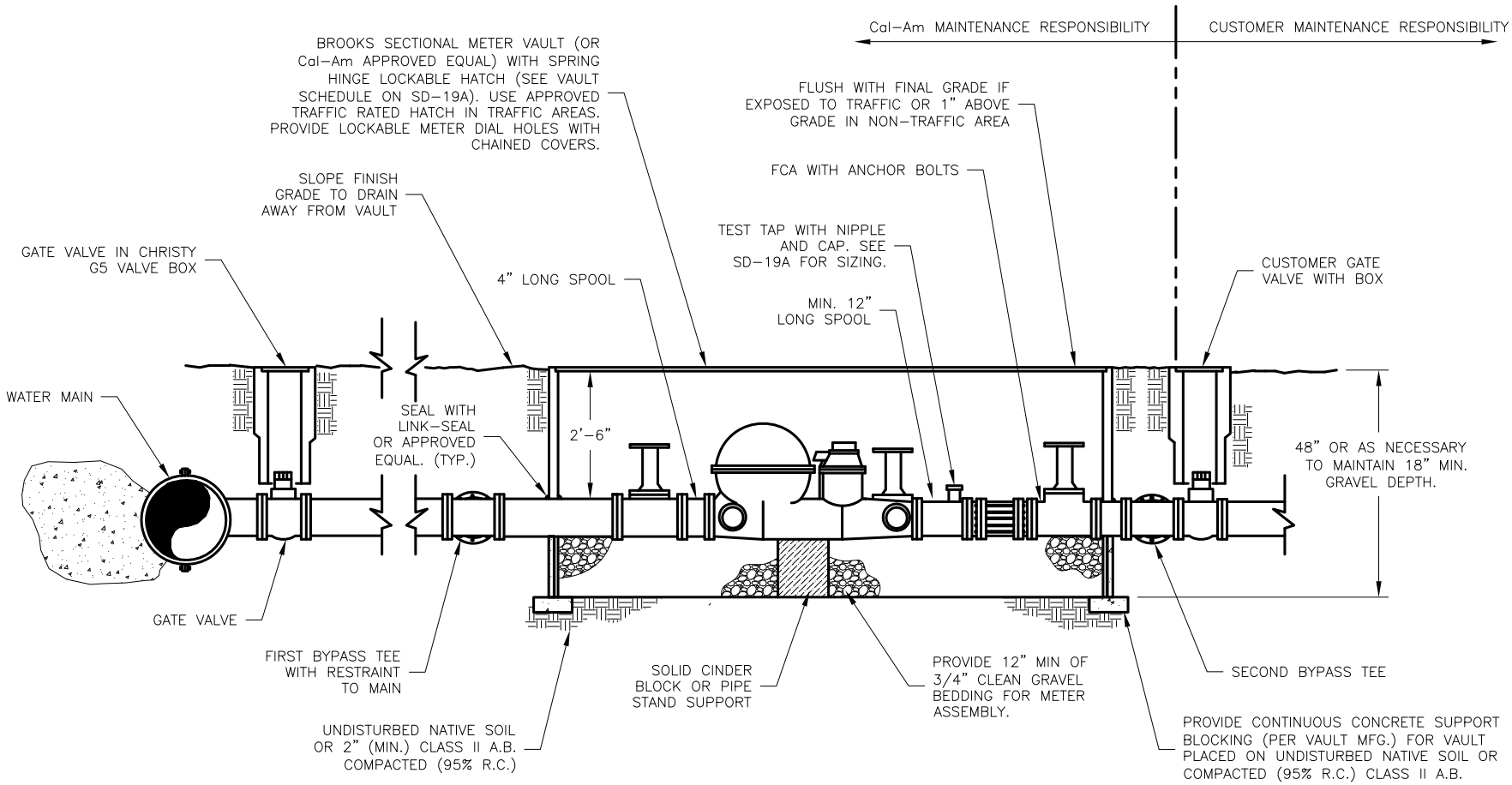
File Name:

Sheet Title:

4", 6", 8", 10" & 12" DOMESTIC/FIRE FLOW METER INSTALLATION (PLAN VIEW)

STANDARD DRAWING No. 14



PROFILE VIEW

(SEE SD-14 FOR PLAN VIEW)

NOTE:
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NOTE:
SEE CONSTRUCTION NOTES ON 19A

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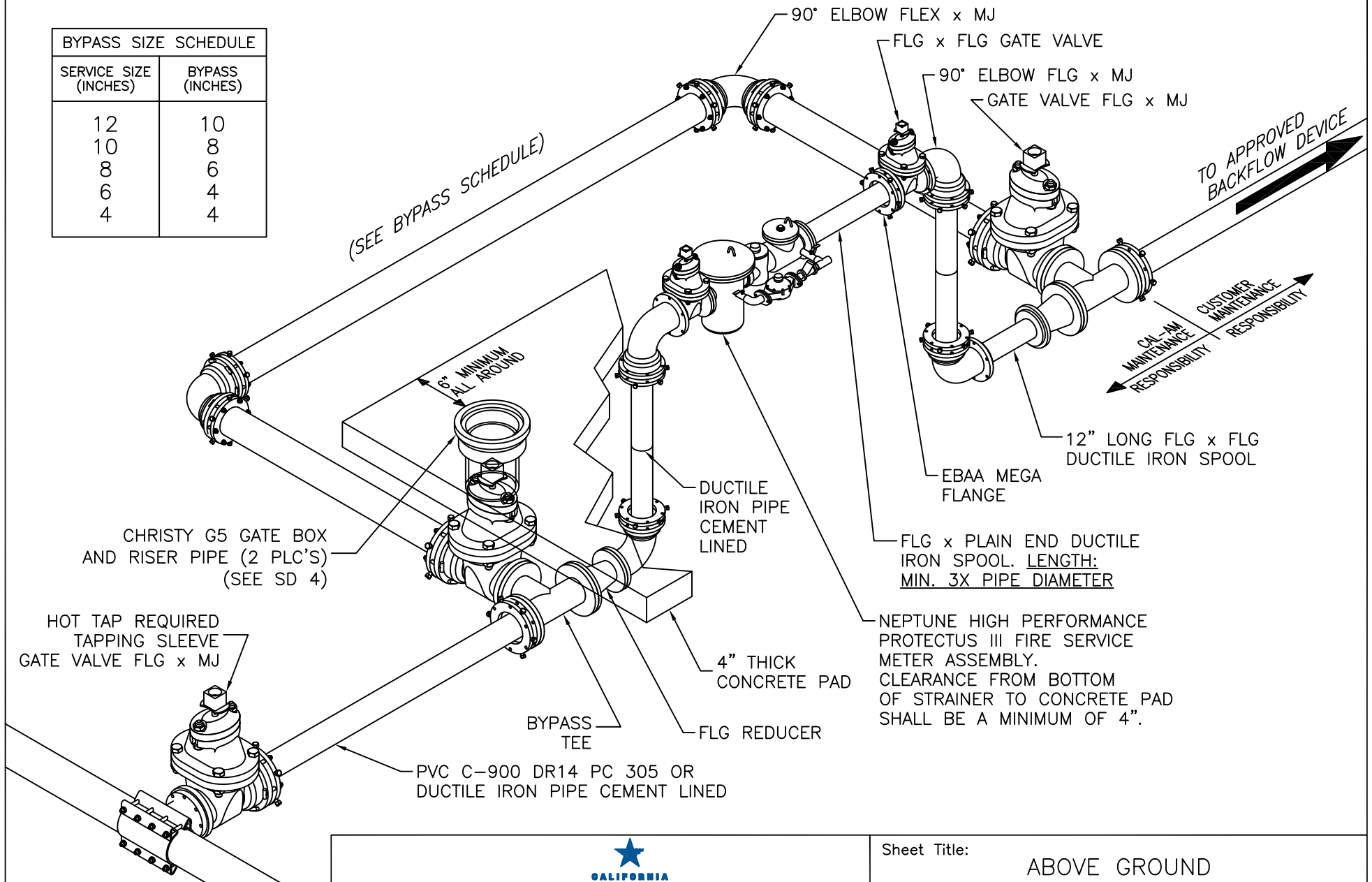
File Name:

Sheet Title:

4", 6", 8", 10" & 12" DOMESTIC/FIRE FLOW METER INSTALLATION (PROFILE VIEW)

STANDARD DRAWING No. 14A

BYPASS SIZE SCHEDULE	
SERVICE SIZE (INCHES)	BYPASS (INCHES)
12	10
10	8
8	6
6	4
4	4



NOTES:
1 THIS STANDARD DRAWING HAS BEEN REVISED AND APPROVED FOR CAL-AM INSTALLATIONS ONLY. CAL-AM ACCEPTS NO LIABILITY FOR USE OF THIS STANDARD BY OTHERS.

2 ALL PIPING AND FITTINGS TO RESTRAINED WITH EBAA RESTRAINTS.

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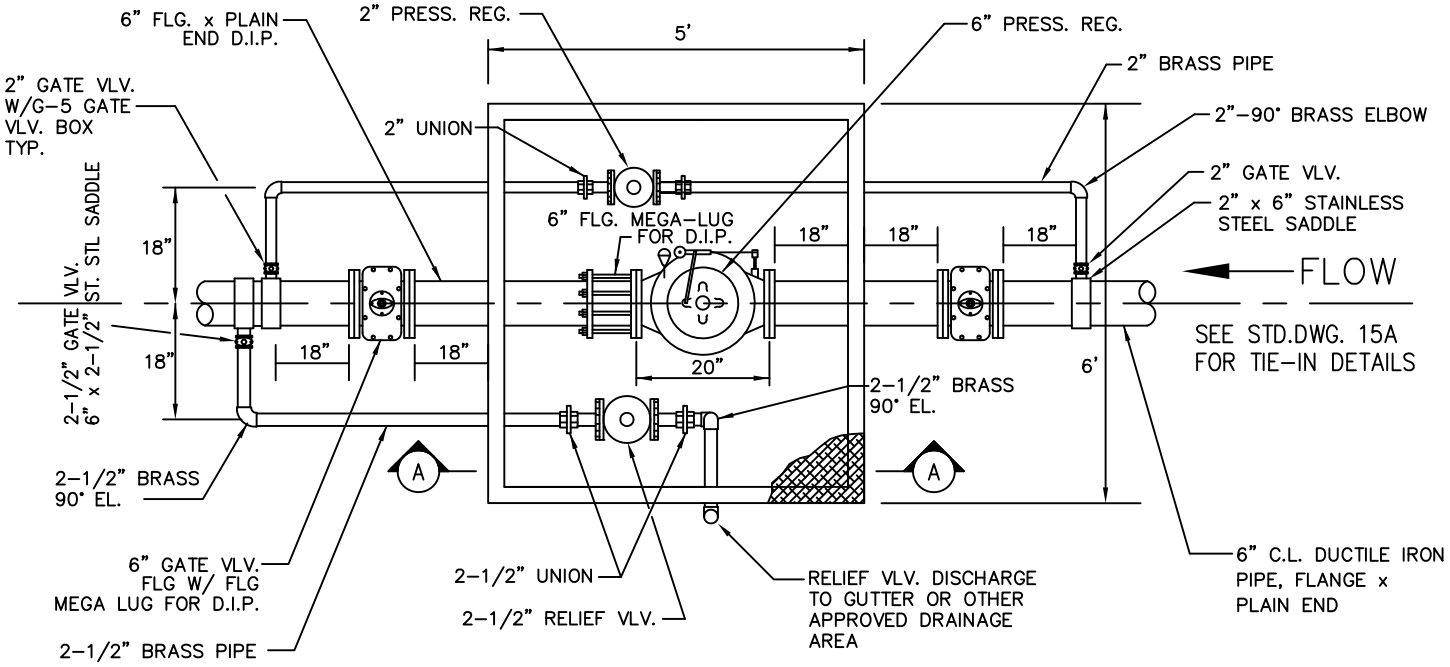
REVISIONS:				Drawn:	Approved by:
12/06/2013				RMC	GLH

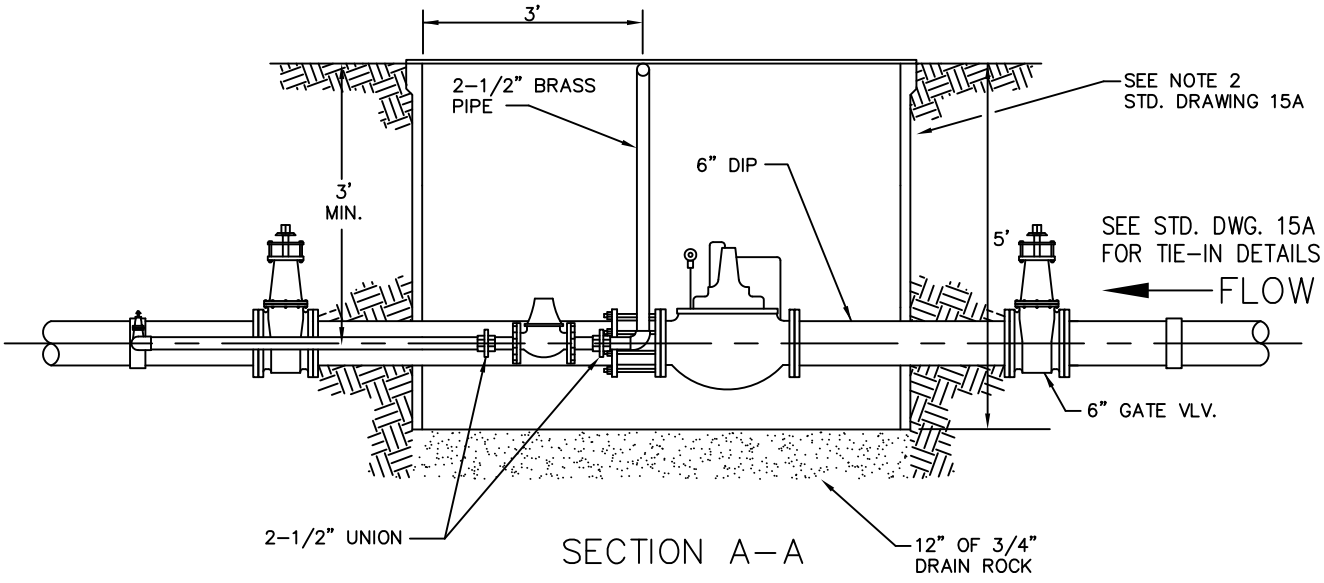
File Name:

Sheet Title:

ABOVE GROUND 4", 6", 8", 10" & 12" DOMESTIC/FIRE FLOW METER INSTALLATION (ISOMETRIC VIEW)

STANDARD DRAWING No. 14B





SECTION A-A

NOTES:

1) ALL GATE VALVES SHALL BE RESILIENT WEDGE EPOXY COATED WITH STAINLESS STEEL BOLTS OR EQUIVALENT.
2) ALL PIPES ARE TO BE PAINTED WITH "KROMIX" METAL PRIMER PRIME COAT AND BLUE CHIP FINISH COAT SUPPLIED BY LOCAL PAINT COMPANY.
3) INSTALL GATE BOX ON VALVES OUTSIDE OF VAULT (SEE STD. DWG. #4 FOR DETAILS)

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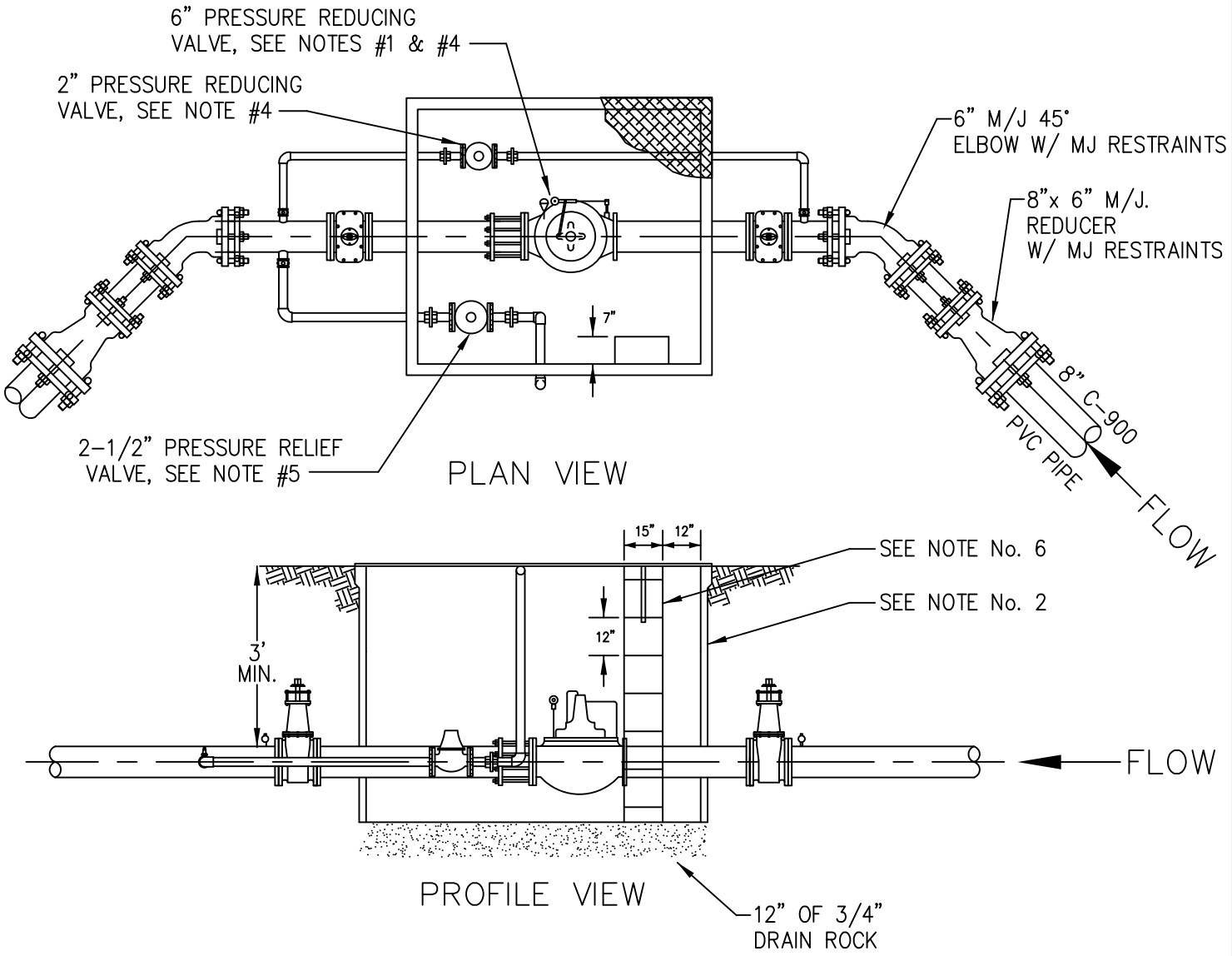
Sheet Title:

6" PRESSURE REGULATOR DETAIL

STANDARD DRAWING No. 15

FILENAME: CADDISK4\SD15



NOTES:

1) SEE STANDARD DRAWING No. 15 FOR DETAILS AND DIMENSIONS PERTAINING TO THE PRESSURE REGULATOR AND VAULT.

2) 5' LONG x 6' WIDE x 5' HIGH CONCRETE VAULT.

3) ACCESS DOOR – H20 TRAFFIC RATED ALUMINUM DOUBLE OPENING DOORS. HINGES, COMPRESSION SPRING ASSISTS AND ALL ACCESSORIES SHALL BE T-316 STAINLESS STEEL. ACCESS DOORS SHALL BE THE SAME WIDTH & LENGTH OF THE VAULT.

4) 2" & 6" PRESSURE REDUCING VALVES TO BE CLAYTON 90-01 SERIES CLASS 150, 30 – 300 PSI CONTROLS, EPOXY COATED BODY W/ STAINLESS STEEL TRIM & CONTROLS & LIQUID FILLED PRESSURE GAUGES.

5) 2-1/2" PRESSURE RELIEF VALVE TO BE CLAYTON 50-01 SERIES CLASS 150, 20 – 200 PSI CONTROLS, EPOXY COATED BODY W/ STAINLESS STEEL TRIM & CONTROLS & LIQUID FILLED PRESSURE GAUGE.

6) STAINLESS STEEL LADDER WITH STAINLESS STEEL MOUNTING HARDWARE & BILCO LadderUP SAFETY POST MODEL LU-3. MIN 1" DIAMETER RUNGS CROSS HATCHED.

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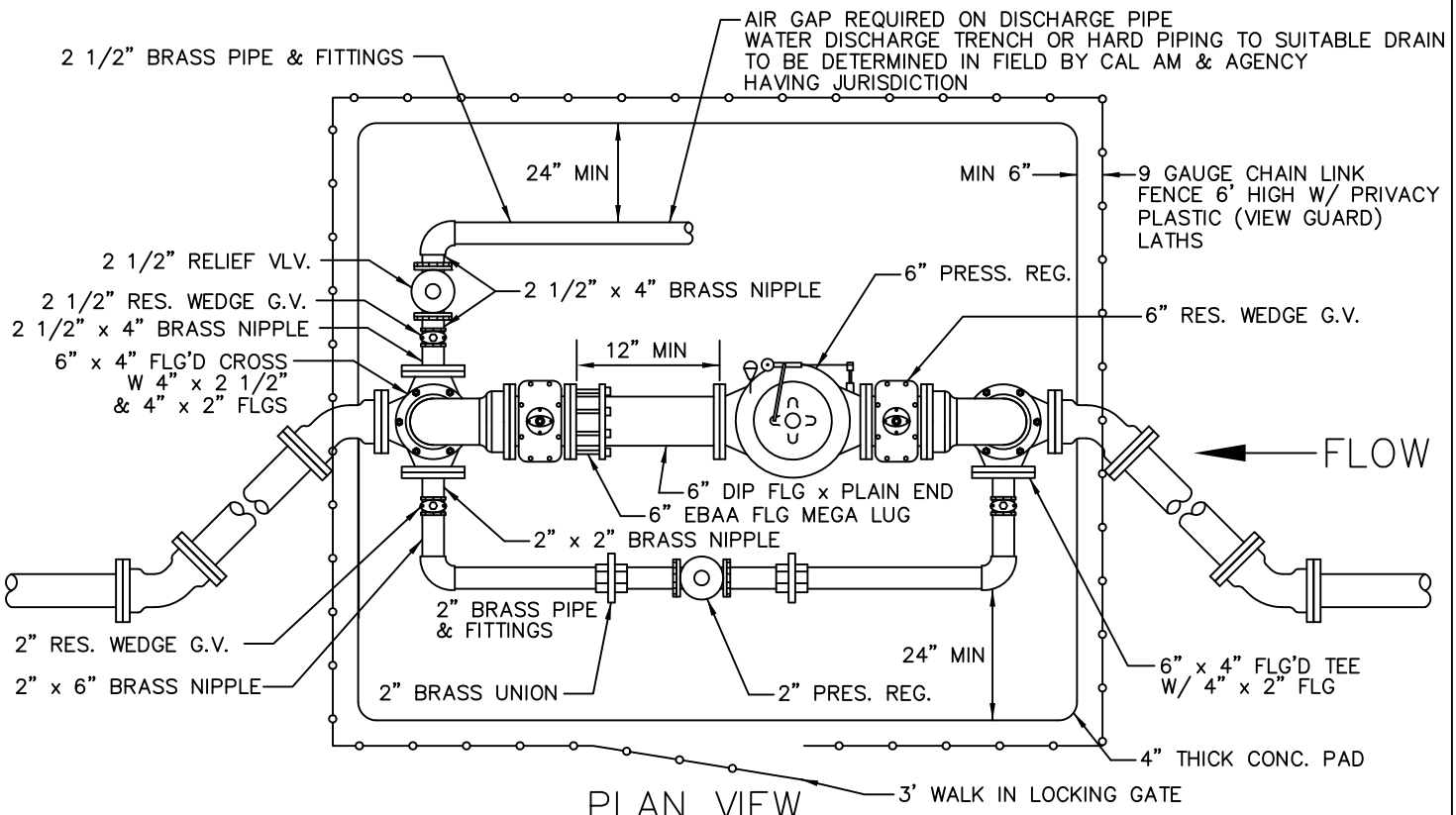
Sheet Title:

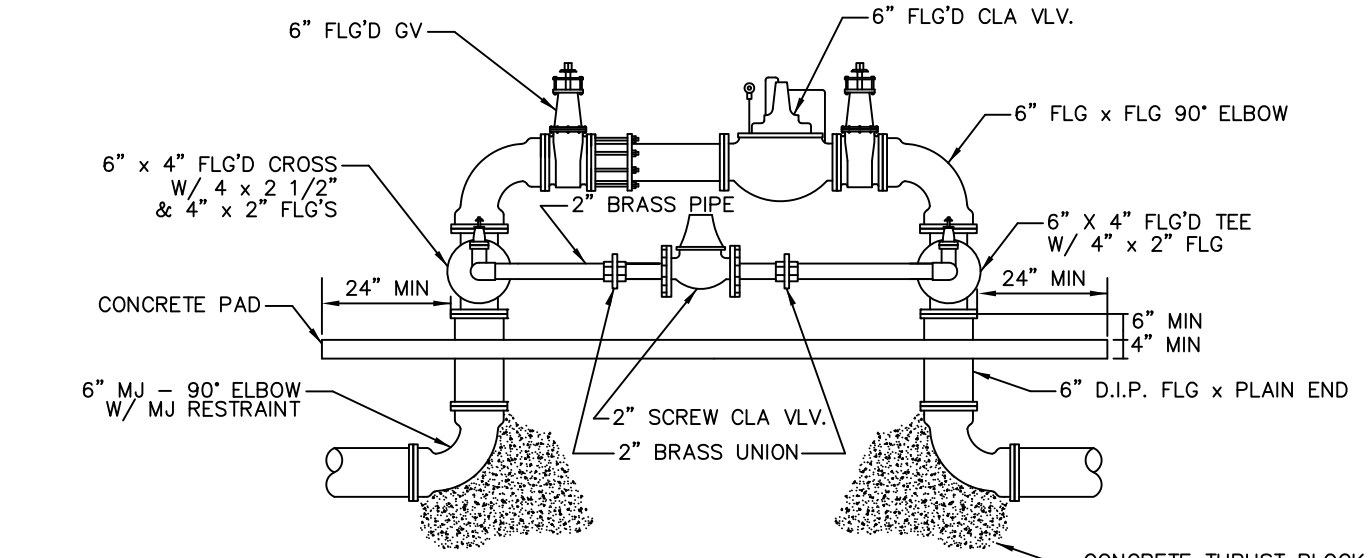
6" PRESSURE REGULATOR TIE-IN DETAIL

STANDARD DRAWING No. 15A

FILENAME: CADDISK4\SD15A



PLAN VIEW



PROFILE VIEW

NOTES:

1) 2" & 6" PRESSURE REDUCING VALVES TO BE CLAYTON 90–01 SERIES CLASS 150, 30 – 300 PSI CONTROLS, EPOXY COATED BODY W/ STAINLESS STEEL TRIM & CONTROLS & LIQUID FILLED PRESSURE GAUGES.

2) 2–1/2" PRESSURE RELIEF VALVE TO BE CLAYTON 50–01 SERIES CLASS 150, 20 – 200 PSI CONTROLS, EPOXY COATED BODY W/ STAINLESS STEEL TRIM & CONTROLS & LIQUID FILLED PRESSURE GAUGE.

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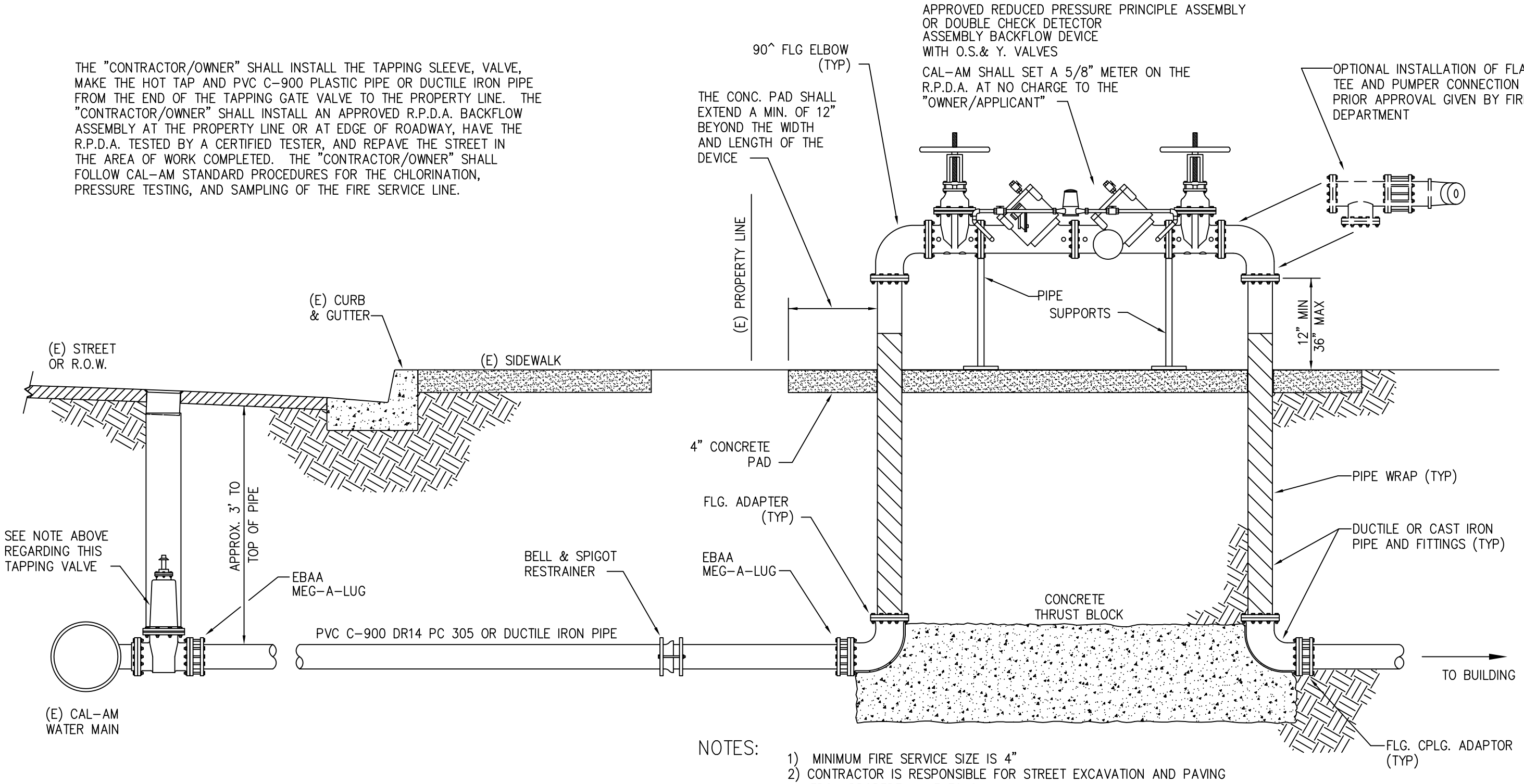
Sheet Title:

ABOVE GROUND 6" PRESSURE REGULATOR DETAIL

STANDARD DRAWING No. 15B

FILENAME: SD15b

THE "CONTRACTOR/OWNER" SHALL INSTALL THE TAPPING SLEEVE, VALVE, MAKE THE HOT TAP AND PVC C-900 PLASTIC PIPE OR DUCTILE IRON PIPE FROM THE END OF THE TAPPING GATE VALVE TO THE PROPERTY LINE. THE "CONTRACTOR/OWNER" SHALL INSTALL AN APPROVED R.P.D.A. BACKFLOW ASSEMBLY AT THE PROPERTY LINE OR AT EDGE OF ROADWAY, HAVE THE R.P.D.A. TESTED BY A CERTIFIED TESTER, AND REPAVE THE STREET IN THE AREA OF WORK COMPLETED. THE "CONTRACTOR/OWNER" SHALL FOLLOW CAL-AM STANDARD PROCEDURES FOR THE CHLORINATION, PRESSURE TESTING, AND SAMPLING OF THE FIRE SERVICE LINE.



NOTE: THE TAPPING SLEEVE, VALVE AND PIPING TO EDGE OF PAVEMENT SHALL BE OWNED AND MAINTAINED BY CAL-AM. THE LINE FROM THE TAPPING SLEEVE TO THE EDGE OF PAVEMENT WILL BE INSTALLED BY THE CONTRACTOR BUT OWNED AND MAINTAINED BY CAL-AM. THE REMAINING FIRE SERVICE SYSTEM SHALL BE INSTALLED, OWNED AND MAINTAINED BY THE "OWNER/APPLICANT."

NOTES:

1) MINIMUM FIRE SERVICE SIZE IS 4"
2) CONTRACTOR IS RESPONSIBLE FOR STREET EXCAVATION AND PAVING FROM PROPERTY LINE TO CAL-AM MAIN
3) CONTRACTOR TO PROVIDE AND INSTALL ALL SPECIFIED MATERIAL AND TAP EXIST. MAIN USING A TAPPING SLEEVE AND TAPPING VALVE, CAL-AM TO APPROVE TAPPING CONTRACTOR
4) CONTRACTOR WILL INCLUDE PROPER RESTRAINTS
5) SAWCUTTING, BACKFILLING AND COMPACTION TESTS WILL BE DONE IN ACCORDANCE WITH APPLICABLE CITY STANDARDS
6) EBAA MEG-A-LUGS TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS

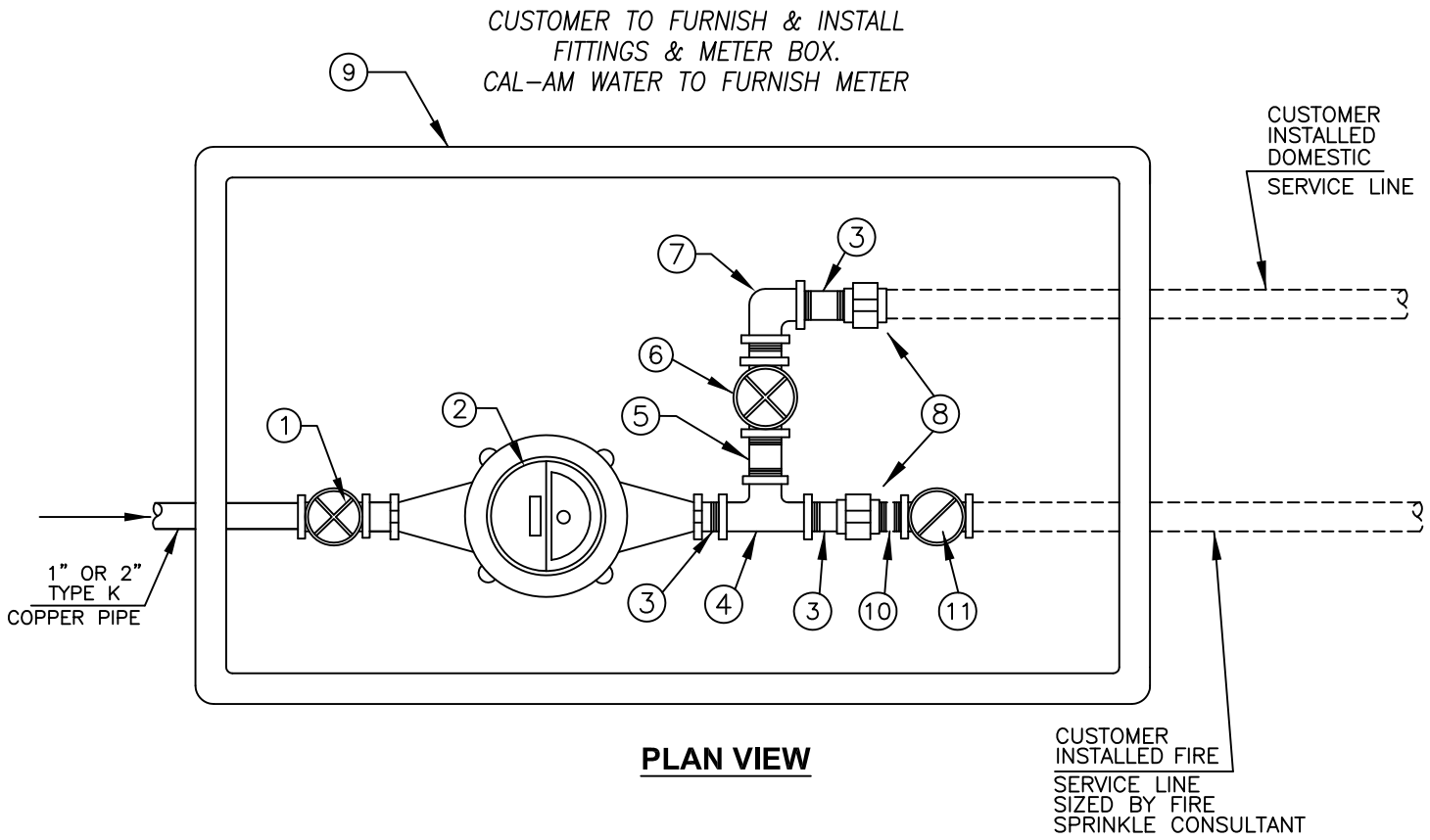
FILENAME:

CALIFORNIA AMERICAN WATER
Central Division
511 Forest Lodge Rd., Ste. 100, Pacific Grove, Ca., 93950

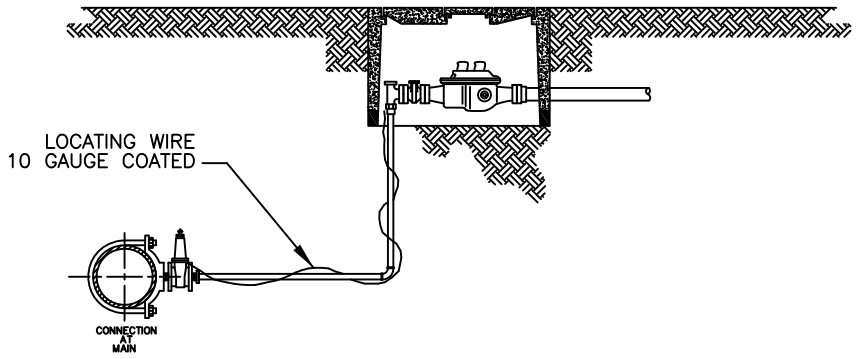
Sheet Title: STANDARD DRAWING No. 17

Job Name: PRIVATE FIRE SERVICE PROTECTION SERVICE D.C.D.A. AND R.P.D.A. INSTALLATION

Date:	Job No:	Sketch No:
JAN '01		SD17
Design:	Drawn:	Sheet of
	STP	



PLAN VIEW



PROFILE VIEW

1. ANGLE CURB STOP WITH LOCKING WING
2. 1" WATER METER
3. 1" BRASS METER COUPLING
4. 1" x 1" BRASS TEE
5. 1" x 2" LONG BRASS NIPPLE
6. 1" STRAIGHT BRASS CURB STOP WITH LOCKING WING
7. 1" BRASS STREET ELBOW
8. 1" BRASS METER ADAPTOR
9. METER BOX – ARMORCAST PRODUCTS CO. A6001640APCX12R – 17" X 30" X 12" W/HINGED READ LID MARKED WATER
10. CLOSE BRASS NIPPLE
11. BRASS SINGLE CHECK VALVE

CALIFORNIA AMERICAN WATER
Central Division
511 Forest Lodge Rd., Ste. 100, Pacific Grove, Ca., 93950

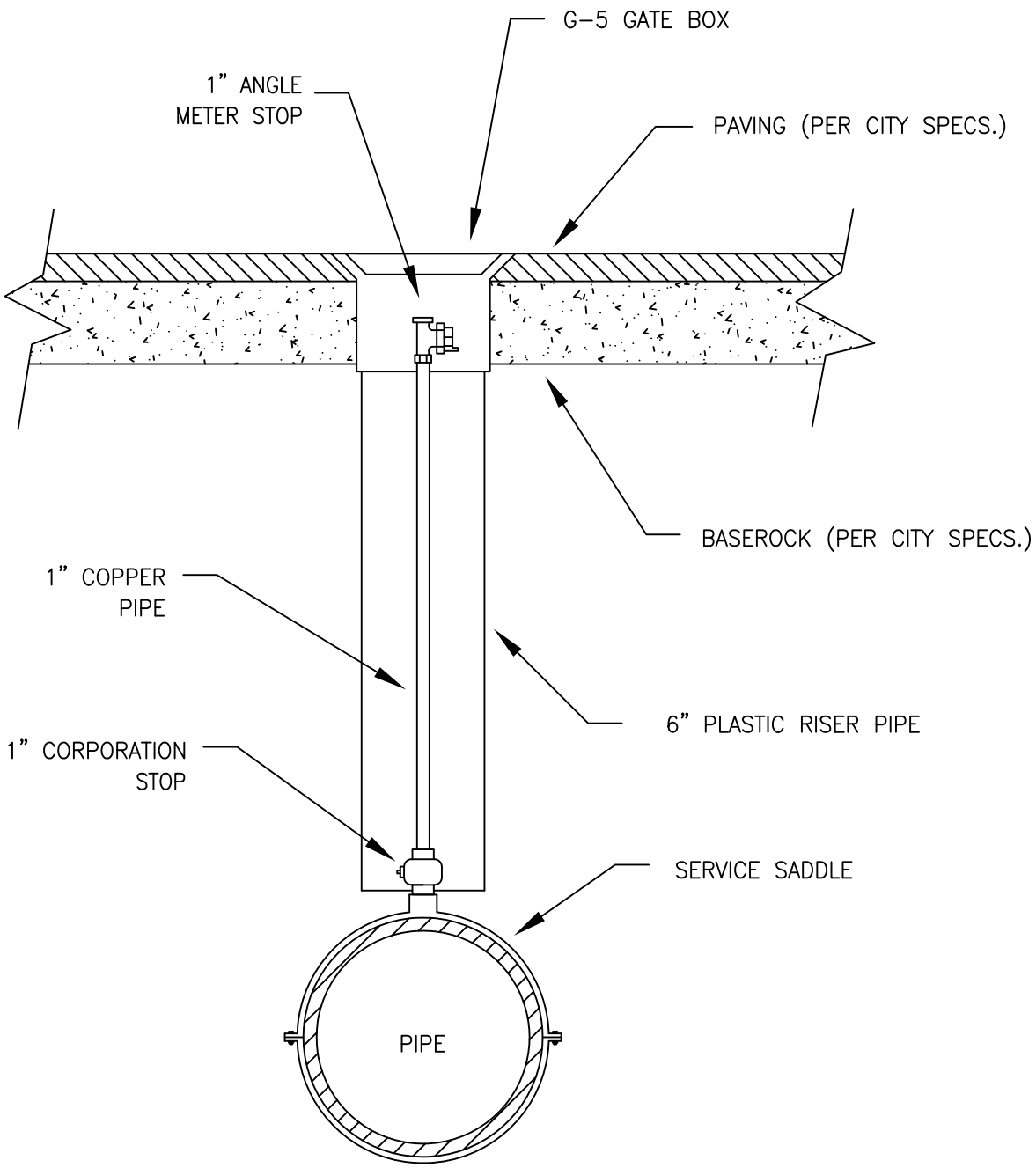
REVISIONS:		Drawn:	Approved on:
4/26/11	10/31/11	JC	11/29/2010
5/31/12			

Sheet Title:

1" COMBINATION DOMESTIC & FIRE SERVICE DETAIL

STANDARD DRAWING No. 20

FILENAME: G:\CAD\Maps and Standard Drawings\StandardsDrawings\StandardDrawingsCAD\sd20A



PROFILE VIEW
No Scale

CALIFORNIA AMERICAN WATER
Central Division
511 Forest Lodge Rd., Ste. 100, Pacific Grove, Ca., 93950

REVISIONS:		Drawn:	Approved on:
		JC	08/30/2011

Sheet Title:

1" MANUAL AIR RELEASE VALVE DETAIL

STANDARD DRAWING No. 21

FILENAME: G:\CAD\Maps and Standard Drawings\StandardsDrawings\StandardDrawingsCAD\sd21

Appendix D: AREMA Pipeline Specifications for TAMC ROW

Pipeline Specifications

1. Longitudinal Occupancy

This section applies to all public and private utilities, including water, gas, oil, petroleum products, steam, chemicals, sewage, drainage, irrigation and similar lines that are located, adjusted or relocated within the property under the jurisdiction of The Railroad. Such utilities may involve underground, surface or overhead facilities.

Any utility line greater than five hundred (500) feet in length will be considered a parallel line and is to be located on uniform alignment, within ten (10) feet or less of the property line so as to provide a safe environment and to preserve space for future railroad improvements or other utility installations. The Railroad's Engineer must approve any installation over one mile. Utilities will be located so as to provide a safe environment and shall conform to the current "American Waterworks Association Specifications," Federal Pipeline Safety Regulations," and "The American Railway Engineering and Maintenance Association Specifications." Where laws or orders of public authority prescribe a higher degree of protection, then the higher degree of protection prescribed shall supersede the provisions set forth here.

1. Underground utility installations should be located on top of the back slope at the outer limits of the railroad property.
2. Pipelines laid longitudinally in railway right-of-way shall be located as far as practicable from any tracks or other important structures.
3. Pipelines carrying flammable products or products under pressure located within 25 feet of the centerline of any track or where there is danger of damage from leakage to any bridge, building or other important structure, shall be encased or of special design as approved by the Engineer of the railway company.
4. Pipelines laid longitudinally on the railway right-of-way, 50 feet or less from the centerline of track shall be buried not less than 4'6" from the ground surface to the top of pipe.
5. If distance is more than 50 feet from centerline of track, minimum cover shall be 3 feet.
6. If the pipeline is located forty (40) feet or less from centerline of track, the pipeline shall be encased in a steel pipe subject to approval from The Railroad. No pipe may be placed closer than twenty-five (25) feet from centerline of track. Pipe must be buried with a minimum cover of three (3) feet.
7. If less than minimum depth is necessary because of existing utilities, water table, ordinance or similar reasons, the line shall be rerouted.
8. Locations where it will be difficult to attain minimum depth due to wet or rocky terrain shall be avoided. Any location change from plan must be approved by The Railroad.
9. The use of plastic carrier pipe for sewer, water, natural gas and other liquids is acceptable under specific circumstances. The use of plastic pipe is satisfactory if the pipe is designed to meet AREMA and all applicable federal and state codes, and if the carrier pipe is properly encased with a steel casing pipe for the entire length on The Railroad right of way.
10. Manholes shall be limited to those necessary for installation and maintenance of underground lines. Manholes vary as to size and shape depending on the type of utility they serve. To conserve space, their dimensions should be minimally acceptable by good engineering and safety standards. In general, the only equipment to be installed in manholes located on railroad property is that which is essential to the normal flow of the utility, such as circuit reclosers, cable splices, relays, valves and regulators. Other equipment should be located outside the limits of the railroad property. Manholes shall not protrude above the surrounding ground nor be located in the shoulder, shoulder slope, ditch, backslope, or within twenty-five (25) feet of the centerline of track without approval of The Railroad.
11. Pipelines shall not be installed on wood trestles but consideration will be given to permitting attachment to steel spans where unreasonable expense would be required to provide separate crossing over waterway, public way or railroad as approved by the Engineer.
12. The Utility Owner will not be permitted to route facilities through drainage structures or cattle passes. Utilities are not to be attached to other railroad structures without the written approval of The Engineer.
13. If additional tracks are constructed in the future and the Railway company determines that the roadbed requires widening, then the casing shall be extended correspondingly by the Licensee at the Licensee's cost.

2. Underground Crossings

This section of the policy applies to all public and private utilities, including water, gas, oil, petroleum products, steam, chemicals, sewage, drainage, irrigation and similar lines that are located, adjusted or relocated within the property under the jurisdiction of The Railroad. Installations crossing the property of the railroad, to the extent feasible and practical, are to be perpendicular to the railroad alignment and preferably at not less than forty-five (45) degrees to the centerline of the track.

a. Utilities shall not be placed within culverts or under railroad bridges, buildings or other important structures. Utilities will be located so as to provide a safe environment and shall conform to the current “American Waterworks Association Specifications,” Federal Pipeline Safety Regulations,” and “The American Railway Engineering and Maintenance Association Specifications.” Where laws or orders of public authority prescribe a higher degree of protection, then the higher degree of protection prescribed shall supersede the provisions of this document.
b. All underground utility crossings of railroad trackage shall be designed to carry Cooper’s E-80 Railroad live loading with diesel impact (AREMA Cooper’s loading Section 8-2-8). This 80,000-lb. axle load may be distributed laterally a distance of three (3) feet, plus a distance equal to the depth from structure grade line to base of rail, on each side of centerline of single tracks, or centerline of outer track where multiple tracks are to be crossed. In no case shall railroad loading design extend less than ten (10) feet laterally from centerline of track. Longitudinally, the load may be distributed between the five foot axle spacing of the Cooper configuration. Railroad loading criteria will also apply where future tracks on The Railroad are contemplated; to the extent this information is available.
a. All utility crossings under ditches and railroad trackage should have a minimum depth of cover of three (3) feet below the flow line of the ditch or ground surface and five and one half (5-1/2) feet from base of rail. In fill sections, the natural ground line at the toe of slope will be considered as ditch grade. The depth of cover shall not be less than that meeting applicable industry standards.
b. For all boring and jacking installations under main and passing tracks, greater than 26 inches in diameter, and at a depth of between 5.5 and 10.0 feet below top of tie, a geotechnical study will need to be performed to determine the presence of granular material and/or high water table elevation, at the sole expense of the Permittee. The study will include recommendations and a plan for a procedure to prevent failure and a collapse of the bore. Generally, core samples are to be taken near the ends of tie at the proposed location, at least as deep as the bottom of the proposed horizontal bore. Test results must be reviewed and approved by The Railroad, or its agent, prior to boring activities commencing.
c. The Railroad reserves the rights, based on test results, to require the Permittee to select an alternate location, or to require additional engineering specifications be implemented, at the sole expense of the Permittee, in order to utilize existing location.
d. The use of plastic carrier pipe for sewer, water, natural gas and other liquids is acceptable under specific circumstances. The use of plastic pipe is satisfactory if the pipe is designed to meet all applicable federal and state codes, and if the carrier pipe is properly encased within a steel casing pipe per AREMA standards. This casing must extend the full width of the right of way. Casing may be omitted only for gaseous products if the carrier pipe is steel and is placed ten (10) feet minimum below the base of rail per AREMA standards.
e. If the minimum depth is not attainable because of existing utilities, water table, ordinances, or similar reasons, the line shall be rerouted.
f. Locations that are considered unsuitable or undesirable are to be avoided. These include deep cuts and in wet or rocky terrain or where it will be difficult to obtain minimum depth.
g. Underground installations may be made by open-trenching from the property line to the toe of the fill slope in fill sections and to the toe of the shoulder slope in cut sections but to no closer than thirty (30) feet of the centerline of track. The remainder will be tunneled, augured, jacked or directional-bored through the roadbed. Refer to the following sections for required encasement of utilities and boring requirements.
h. Manholes should be located outside railroad property, when possible. No manhole will be located in the shoulder, shoulder slope, ditch or backslope, or within twenty-five (25) feet of the centerline of track, and shall not protrude above the surrounding ground without approval of The Railroad.
i. Utilities will not be attached to or routed through drainage structures or cattle passes.
j. Utilities are not to be attached to other railroad structures without written approval of The Railroad Structures Department.
k. Jacking pits shall be located a minimum of thirty (30) feet from the centerline of track.

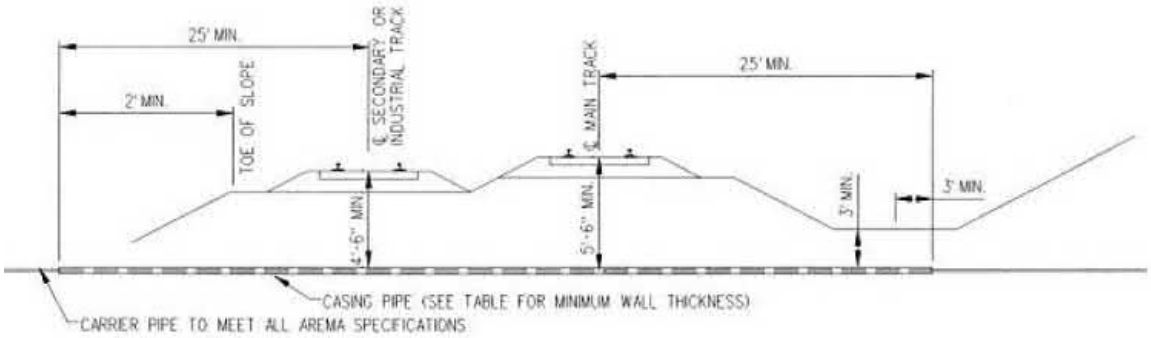
2.1 Pipeline Requirements

a. Pipeline designs are to specify the type and class of material, maximum working pressures and test and design pressure. Pipelines which are not constructed, operated and maintained under regulations established under US Department of Transportation
b. Hazardous Materials Regulations Board, shall upon revisions in the class of material or an increase in the maximum operating pressure, must obtain The Railroad's Engineer approval.
c. Pipelines carrying oil, liquefied petroleum gas, natural or manufactured gas and other flammable products shall conform to the requirements of the current AREMA,
d. ANSI/ASME B 31.4 Code for pressure piping - Liquid Petroleum Transportation Piping
e. Systems; ANSI B 31.8 Code for pressure piping - Gas Transmission and Distribution
f. Piping Systems; other applicable ANSI codes and 49 C.F.R. Part 192 or Part 195 -
g. Transportation of Hazardous Liquids by Pipeline, except that the maximum allowable stress of design of steel pipe shall not exceed the following percentages of the specified minimum yield strength (multiplied by longitudinal joint factor) of the pipe as defined in the ANSI codes.
h. Pipelines under railroad tracks and across railroad property shall be encased in a larger pipe or conduit called "casings." Generally, casings shall extend from right-of-way line to right-of-way line, unless otherwise approved.
i. Pipelines and casing pipes shall be suitably insulated from underground conduits carrying electric wires on railroad property.
j. Reinforced concrete pipe will need to be encased for a distance as wide as the embankment at the utility crossing. This is to protect against track failure due to joint separation.

2.2 PIPELINES CARRYING NON-FLAMMABLE SUBSTANCES

This includes steam, water or any non-flammable substance, which from its nature or pressure might cause damage if escaping on or in the vicinity or railway property. Sewers and drains do not require casing pipe unless conditions exist which will endanger security of track, but must be of sufficient strength to withstand E-80 railway loading.

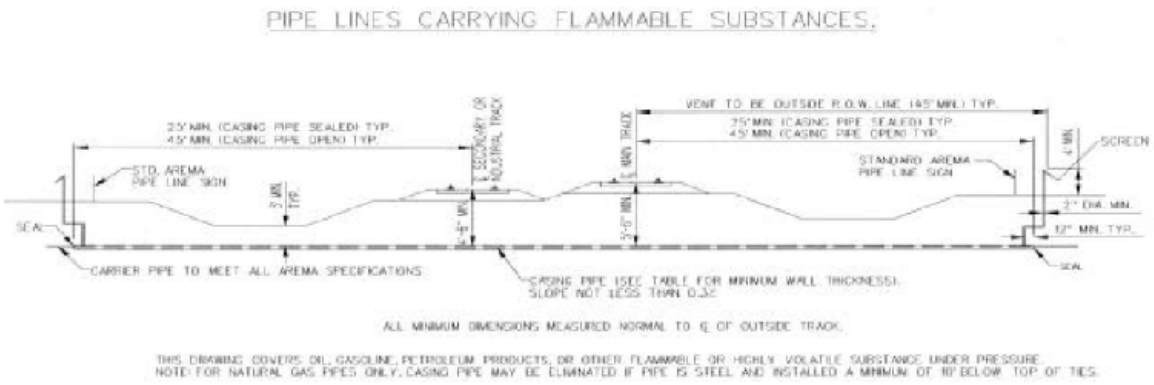
PIPE LINES CARRYING NON-FLAMMABLE SUBSTANCES.



ALL MINIMUM DIMENSIONS MEASURED NORMAL TO ℄ OF OUTSIDE TRACK.

THIS DRAWING COVERS STEAM, WATER OR ANY NONFLAMMABLE SUBSTANCE WHICH FROM ITS NATURE OF PRESSURE MIGHT CAUSE DAMAGE IF ESCAPING ON OR IN THE VICINITY OF RAILWAY PROPERTY. SEWERS AND DRAINS DO NOT REQUIRE CASING PIPE UNLESS CONDITIONS EXIST WHICH WILL ENDANGER SECURITY OF TRACK, BUT MUST BE OF SUFFICIENT STRENGTH TO WITHSTAND E-80 LOADING.

2.3 PIPELINES CARRYING FLAMMABLE SUBSTANCES



This includes oil, gas, gasoline, petroleum products or other flammable or highly volatile substance under pressure.

At all other locations on the right -of-way the minimum ground cover for uncased steel natural gas pipes must be ten (10) feet.

2.4 Encasement of Utilities

i. Casings are oversized load-bearing conduits or ducts through which a utility is inserted:
   i. To protect the railroad from damages and to provide for repair, removal and replacement of the utility without interference to railway traffic.
   ii. To protect the carrier pipe from external loads or shock, either during or after construction.
   iii. To convey leaking fluids or gases away from the area directly beneath the railroad trackage to a point of venting at the railroad property line.

ii. Casings may be omitted for gaseous products only under the following circumstances:
   i. Carrier pipe must be steel and the wall thickness must conform to E-80 loading for casing pipe shown in the tables as included in the AREMA manual Chapter 1, Part 5 for Pipeline Crossings. The length of thicker-walled pipe shall extend from railroad right-of-way line to right-of-way line. This will generally result in thicker-walled pipe on railroad right-of-way.
   ii. All steel pipe shall be coated and cathodically protected.
   iii. The depth from base of rail to top of pipe shall not be less than ten (10) feet below base of rail. The depth from ditches or other low points on railroad right-of-way shall not be less than six (6) feet from ground line to top of pipe.

b. In circumstances where it is not feasible to install encasement from right-of-way line to right-of-way line, casing pipe under railroad tracks and across railroad property shall extend to the greater of the following distances, measured at right angles to the centerline of track:
   i. Two (2) feet beyond toe of slope.
   ii. Three (3) feet beyond ditch line.
   iii. Twenty-five (25) feet from centerline of outside track when casing is sealed at both ends.
   iv. Forty-five (45) feet from centerline of outside track when casing is open at both ends.
   v. If additional track is planned for future construction, casing must extend far enough to meet above distances given the additional track requirement.

c. Pipelines and casing pipe shall be suitably insulated from underground conduits carrying electric wires on railroad property.

d. Casing pipe and joints shall be made of metal, and of leakproof construction. Casings shall be capable of withstanding the railroad loadings and other loads superimposed upon them.

e. Wall thickness designations for steel casing pipe for E-80 loading (including impact) are:

CASING PIPE FOR E-80 LOADING

STEEL PIPE

(REFERENCE SOURCE: AREMA, CHAPER 1, PART 5).
WALL THICKNESS FOR STEEL CASING PIPE
(MINIMUM YIELD STRENGTH 35,000 psi)

DIAMETER OF PIPE (INCHES)	PIPE COATED OR CATHODICALLY PROTECTED NOMINAL THICKNESS (INCHES)	PIPE NOT COATED OR CATHODICALLY PROTECTED NOMINAL THICKNESS (INCHES)
12 3/4 AND UNDER	0.188	0.188
14	0.188	0.250
16	0.219	0.281
18	0.250	0.312
20 AND 22	0.281	0.344
24	0.312	0.375
26	0.344	0.406
28	0.375	0.438
30	0.406	0.469
32	0.438	0.500
34 AND 36	0.469	0.531
38	0.500	0.562
40	0.531	0.594
42	0.562	0.625
44 AND 46	0.594	0.656
48	0.625	0.688
50	0.656	0.719
52	0.688	0.750
54	0.719	0.781
56 AND 58	0.750	0.812
60	0.781	0.844
62	0.812	0.875
64	0.844	0.906
66 AND 68	0.875	0.938
70	0.906	0.969
72	0.938	1.000

REINFORCED CONCRETE PIPE

PIPE SHALL CONFORM TO A.S.T.M. DESIGNATION C-76, CLASS IV, WALL "B" (MIN.). ROUND PIPE SHALL HAVE CIRCULAR, NOT ELLIPTICAL REINFORCEMENT.

CORRUGATED METAL PIPE

PIPE SHALL BE GALVANIZED, BONDED AND ASPHALT COATED.

GAGE OF METAL BEFORE GALVANIZING U.S. STD. GAGE	DIAMETER OF PIPE (INCHES)
14	18 AND UNDER
12	24,30, AND 36
10	42 AND 46

i. Steel pipe shall have minimum yield strength of 35,000 pounds per square inch.
ii. All metallic casing pipes are to be designed for effective corrosion control, long service life and relatively free from routine servicing and maintenance. Corrosion control measures must include cathodic protection.
iii. Cast iron may be used for casing. It shall conform to ANSI A21. The pipe shall be connected with mechanical-type joints. Plain-end pipe shall be connected with compression-type couplings. The strength of the cast iron pipe to sustain external loads shall be computed in accordance with the most current ANSI A21.1 “Manual for the Computation of Strength and Thickness of Cast Iron Pipe.”

f. The inside diameter of the casing pipe shall be such that the carrier pipe can be removed without disturbing the casing. All joints or couplings, supports, insulators or centering devices for the carrier pipe shall be considered in the selection of the casing diameter.

g. For flexible casing pipe, a minimum vertical deflection clearance of the casing pipe shall be three percent (3%) of its diameter plus one-half (1/2) inch so that no loads from the roadbed, track, railroad traffic or casing pipe are transmitted to the carrier pipe. When insulators are used on the carrier pipe, the relationship of the casing size to the size of the carrier pipe is:

Diameter of Carrier Pipe	Inside Diameter. of Casing Pipe Equals Outside Diameter. of Carrier Pipe Plus
0”- 8"	2”
10” - 16"	3-1/4”
Over 16"	4-1/2”

h. The ends of casing pipe shall be securely and permanently sealed to outside of carrier pipe with approved joint material against encroachment of outside elements.

2.5 Casing and Pipeline Installation

a. Casing and pipeline installations should be accomplished by directional boring, jack-and-bore, tunneling or other approved methods. Tunneling construction under tracks will be permitted only under direct supervision of a The Railroad Engineer. Tunneling procedures and equipment, as well as structural design, must have The Railroad Structures Department approval prior to starting any work on The Railroad property. Generally, tunneling shall not be considered where less than six (6) feet of cover exists, or where excessively sandy, loose or rocky soils are anticipated. Rail elevations over the work must be monitored at intervals prescribed by The Railroad to detect any track movement. Movements of over one-quarter (1/4) inch vertically shall be immediately reported to The Railroad Representative. Due to the danger to rail traffic that is caused by only small amounts of track movement, The Railroad forces may have to be called to surface the track several times. The following requirements shall apply to these construction methods:
    1) The use of water under pressure jetting or puddling will not be permitted to facilitate boring, pushing or jacking operations. Some boring may require water to lubricate cutter and pipe, and under such conditions, is considered dry boring.
    2) Where unstable soil conditions exist, boring or tunneling operations shall be conducted in such a manner as not to be detrimental to the railroad being crossed.
    3) If excessive voids or too large a bored hole is produced during casing or pipeline installations, or if it is necessary to abandon a bored or tunneled hole, prompt remedial action should be taken by the Utility Owner.
    4) All voids or abandoned holes caused by boring or jacking are to be filled by pressure grouting. The grout material should be sand cement slurry with a minimum of two (2) sacks of cement per cubic yard and a minimum of water to assure satisfactory placement.
    5) The hole diameter resulting from bored or tunneled installations shall not exceed the outside diameter of the utility pipe, cable or casing (including coating) by more than one and one-half (1-1/2) inches for pipes with an inside diameter of twelve (12) inches or less, or two (2) inches on pipes with an inside diameter greater than twelve (12) inches.
    6) Pits for boring, tunneling or jacking will not be permitted within thirty (30) feet of the centerline of track; or closer to the track than the toe of fill slopes in fill sections, or toe of shoulder slopes in ditch sections when pipes are allowed on the railroad property.
    7) Jacking or boring of corrugated metal pipe, cast iron pipe or pipe with flanges, bells or couplings will not be permitted.
    8) Boring excavation must not exceed the outside diameter of the pipe.
    9) Directional boring will be allowed at the discretion of the Railroad.
    10) All casing pipes shall be sloped not less that 0.3%.

2.6 Vents

In casing pipe installations, vents are appurtenances by which fluids or gases between carrier and casing may be inspected, sampled, exhausted or evacuated.

i. Vents shall be located at the high end of short casings and at both ends of casing longer than one hundred fifty (150) feet.
ii. Vent standpipes shall be located and constructed so as not to interfere with maintenance of the railroad or to be concealed by vegetation. Where possible, they shall be marked and located at the property line. The markers shall give the name and address of the owner, and a phone number to contact in case of emergency.
iii. Casing pipe, when sealed, shall be properly vented. Vent pipes shall be of sufficient diameter, but in no case less than two (2) inches in diameter and shall be attached near each end of casing, projecting through ground surface at property lines.
iv. Vent pipes shall extend not less than four (4) feet above ground surface. Top of vent pipes shall be fitted with a down-turned elbow, properly screened; or a relief valve.
v. For pipelines carrying flammable materials, vent pipes on casings shall be at least 16 feet (vertically) from aerial electric wires. Casings shall be suitably insulated from underground conduits carrying electric wires on Railroad right-of-way.
vi. The vent pipes shall be connected to the top surface of casing pipe at both ends of the casing pipe.

2.7 Shut-Off Valves

i. The Utility Owner shall install accessible emergency shut-off valves within effective distances on each side of the railroad. Where pipelines are provided with automatic control stations, no additional valves will be required.
ii. Locating a shut-off valve on railroad property should be avoided. If approval is acquired, a guardrail must protect the shut-off valve.
iii. When a guardrail is required, its height shall be four (4) feet above the ground line. All four corner posts shall be driven to a minimum depth of four (4) feet below ground line. There shall be a minimum clearance of two (2) feet from the valve to the guardrail. The steel pipes for the four corner posts and guardrail shall have a minimum diameter of four (4) inches. All joints will be welded with a one-quarter (1/4) inch fillet weld all around.

2.8 Water Lines

a. Where casing pipe is used, venting is not required; however, sealing will be required if the ends of the casing are not above high water.
b. Where non-metallic pipe is permitted and installed, steel casings are required from right of way line to right of way line.
c. Manholes should be located outside the railroad property. Manholes shall not be located within twenty-five (25) feet of railroad trackage, in the shoulder, shoulder slope, ditch or backslope; and shall not protrude above the surrounding ground without the approval of The Railroad's Engineer.
d. The Utility Owner shall place a readily identifiable and suitable marker at each railroad property line where it is crossed by a water line.

2.9 Sewer Lines

a. New and relocated sewer lines shall be constructed with satisfactory joints, materials and designs which will provide protection and resistance to damage from sulfide gases and other corrosive elements to which they may be exposed.
b. Where casing pipe is used, venting and sealing of casing will be required.
c. Where non-metallic pipe is permitted and installed, a durable metal wire shall be concurrently installed; or other means shall be provided for detection purposes.
d. Manholes should be located outside the railroad property. Manholes shall not be located within twenty-five (25) feet of railroad trackage, in the shoulder, shoulder slope, ditch or backslope; and shall not protrude above the surrounding ground without the approval of The Railroad's Engineer.

Plans and specifications for proposed installation shall be submitted to the Engineer and meet the approval of the railroad company before construction is begun. Plans shall be drawn to scale showing the relation of the proposed pipeline, angle of crossing, location of valves, railway survey station, right-of-way line and general layout of tracks and railway facilities. Plan should also show a cross-section (or sections) from field survey, showing pipe in relation to actual profile of ground and tracks, complete description of materials to be used, and location of jacking and receiving pits. If open cutting or tunneling is necessary, details of sheeting and method of supporting tracks or driving tunnel should be shown. The execution of the work on the railway right-of-way, including the supporting of tracks, shall be subject to the inspection and direction of the Engineer's office.

3. Additional Resources for Underground Crossings

http://www.undergroundfocus.com/onecalldir.php Provides links and information on state calls for cable locates
http://www.ntdpc.com/ National Telecommunications Damage Prevention Council
http://www.commongroundalliance.com Common Ground Alliance

4. References

American National Standards Institute (ANSI) Codes, 1430 Broadway, NY, NY 10018.
American Railway Engineering and Maintenance of Way Association (AREMA) Specifications.
American Society for Testing and Materials (ASTM) Specifications.
American Water Works Association Standards and Specifications, AWWA, 2 Park Avenue, NY, NY 10016.
Manual on Uniform Traffic Control Devices - with revisions, US Department of Transportation, Federal Highway Administration.
National Electrical Safety Code, US Department of Commerce, National Bureau of Standards.
Pipeline Safety Regulations - Code of Federal Regulations, Tile 49 - Transportation, Parts 191-192-Natural Gas; Part 195-Liquid Petroleum Gas.
Rules and Regulations for Public Water Systems - latest edition, State Health Departments.
Rules and Regulations promulgated by the Hazardous Materials Regulation Board of the US Department of Transportation.
Statutory Provisions, 23 U.S.C. 109 and 111.

5. Definitions of terms

The terminology used in this Policy strives for conventional meaning and to insure uniform interpretation. To this end, the following definitions apply:
ACCESS CONTROL: Restriction of access to and from abutting lands to railroad property.
AREMA: American Railroad Engineering and Maintenance of Way Association.
ANSI: American National Standard Institute.
ASTM: American Society for Testing and Materials.
BACKFILL: Replacement of soil around and over an underground utility facility.
BORING: Piercing a hole under the surface of the ground without disturbing the earth surrounding the hole. Boring may be accomplished by any approved manner. Water jetting or puddling will not be permitted. Holes may be mechanically bored and cased using a cutting head and continuous auger mounted inside of the casing. Small diameter holes may be augured and the casing or utility facility pushed in later.
The Railroad: Burlington Northern and Santa Fe Railway Company.
BURY: Placement of the utility facility below grade of roadway, ditch or natural ground to a specified depth.
CARRIER: Pipe directly enclosing a transmitted fluid (liquid or gas).
CASING: A larger pipe enclosing a carrier.
CFR: Code of Federal Regulations.
COATING: Material applied to or wrapped around a pipe.
COMMUNICATION LINE: Fiber optic, telephone cable and similar lines, not exceeding four hundred (400) volts to ground or seven hundred fifty (750) volts between any two (2) points of the circuit, the transmittal power of which does not exceed one hundred fifty (150) watts.
CONDUIT OR DUCT: An enclosed tubular runway for protecting wires or cables.
COVER: The depth of material placed over a utility. Depth of cover is measured from top of utility casing or carrier pipe (if no casing is required) to the natural ground line or construction line above the utility.
DIRECT BURIAL: Installing a utility underground without encasement, by plowing or trenching. No rail plows will be permitted.
ELECTRIC SUPPLY: Electric light, power supply, and trolley lines, irrespective of voltage used for transmitting a supply of electrical energy.
ENCASEMENT: Structural element surrounding a pipe or cable.
FLEXIBLE PIPE: A plastic, fiberglass, or metallic pipe having a large ration of diameter to wall thickness that can be deformed without undue stress. Copper or aluminum pipe shall be considered as flexible pipe.
GROUNDED: Connected to the earth or to some extended conducting bodies which intentionally or accidentally is connected with the earth.

GROUT: A cement mortar or slurry of fine sand or clay as conditions govern.
JACK-AND-BORE: The installation method whereby the leading edge of the jacked pipe is well ahead of the cutting face of the auger bit. The auger is removing waste from inside the pipe as it is being jacked. This method greatly reduces the likelihood of subsidence of granular material during installation.
JACKING: The installation of small pipes by the use of hydraulic jacks or rams to push the pipe under the traveled surface of a road, railroad roadbed, or other facility.
LICENSE:
UTILITY LICENSE AGREEMENTS are executed for all utility facilities located on railroad property.
MANHOLE: An opening to an underground utility system which workmen or other may enter for the purpose of maintaining, inspecting, or making installations.
NATURAL GAS PIPELINES:
DISTRIBUTION SYSTEM - A pipeline other than a gathering or transmission line.
SERVICE LINE - A distribution line that transports gas from a common source of supply to a customer meter.
TRANSMISSION SYSTEM - A pipeline other than a gathering line that transports gas from a gathering line or storage facility to a distribution center or storage facility. It operates at a hoop stress of twenty percent (20%) or more of the Specified Minimum Yield Strength.
NORMAL: Crossing at a right angle.
PERMITS: PERMIT TO BE ON The Railroad PROPERTY FOR UTILITY SURVEY is to be executed prior to all survey work on railroad property.
PIPE: A tubular product made as a production item for sale as such. Cylinders formed from plate in the course of fabrication of auxiliary equipment are not pipes as defined here.
PRESSURE: Relative internal pressure in PSI (pounds per square inch) gauge.
PRIVATE LINES: Any privately owned facilities which convey or transmit the commodities outlined under the definition for Utilities but are devoted exclusively to private use.
PUBLIC LINES: Those facilities which convey or transmit the commodities outlined under the definition for Utilities and directly or indirectly serve the public or any part thereof.
RIGHT OF WAY: A general term denoting land, property of interest therein, usually in a strip, acquired for or devoted to railroad transportation purposes.
SEAL: A material placed between the carrier pipe and casing to prevent the intrusion of water, where ends of casing are below the ground surface.
SHOULDER: That portion of the roadbed outside the ballast.
TRENCHED: Installed in a narrow excavation.
TUNNELING: Excavating the earth ahead of a large diameter pipe by one or more of the following processes: 1) The earth ahead of the pipe will be excavated by men using hand tools while the pipe is pushed through the holes by means of jacks, rams or other mechanical devices, 2) The excavation is carried on simultaneously with the installation of tunnel liner plates, and/or 3) The tunnel liner plates are installed immediately behind the excavation as it progresses and are assembled completely away from the inside.
UTILITY OWNER: All privately, publicly or cooperatively owned lines, facilities and systems for producing, transmitting or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water and other similar commodities, including fire and police signal systems and street lighting systems which directly or indirectly serve the public.

6. Applications

Please use the Pipeline application form found on the website to submit your application.

1. Applications should be submitted to (preferably by e-mail .DWG or .PDF when printable on paper sizes 11X17 or smaller):

elaberge@gwrr.com
Planning & Processes
Huron Central Railway - Quebec Gatineau Railway - St-Lawrence & Atlantic Railway
6,700 Parc Avenue, Office 110
Montreal (Quebec) H2V 4H9

2. Upon receipt of the application, a reply will be sent acknowledging receipt and advising of the Permit & Contract file reference number that has been assigned with attached draft agreements applicable. For this purpose, please provide a reply E-Mail address.
3. Office Hours: 9:00 A.M. to 5:00 P.M. Monday through Friday, ET
4. Phone Number: (514)-948-6998.
5. Agreements will be required for all encroachments on railroad property.
6. Generally, agreement-processing time will be 6 to 8 weeks. Please allow sufficient lead-time for document handling prior to desired construction date. Before construction begins, agreements must be executed by Utility Owner and returned. Verbal authorizations will not be granted or permitted. A minimum of five (5) days advance notice after execution of an agreement will be required prior to initiation of construction.
7. License fees must be submitted at the time the agreement is executed and returned.
8. Applications are to be made on the standard application form including an Exhibit “A.”

Appendix E: Traffic Control Plans

GENERAL NOTES:

1. ALL TRAFFIC CONTROL PLANS WORK MUST CONFORM TO THE 2014 CALIFORNIA MUTCD AND STATE SIGN SPECIFICATIONS SHEETS.
2. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLANS UNLESS OTHERWISE NOTED.
3. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
4. THESE TRAFFIC CONTROL PLANS ARE SCHEMATIC AND FOR INFORMATION ONLY. ALL DIMENSION AND TRAFFIC SIGNAGE LOCATIONS ARE APPROXIMATE. THE CONTRACTOR MUST VERIFY FIELD CONDITION BEFORE BEGINNING OF WORK.
5. THE CONTRACTOR MUST VERIFY THE LOCATIONS OF ALL EXISTING LOOP DETECTORS AND/OR WIRELESS VEHICLE DETECTORS. THE CONTRACTOR MUST PROTECT ALL IN-PLACE OR REINSTALL IN-KIND IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
6. THE CONTRACTOR MUST REPAIR ANY DAMAGE TO EXISTING COMMUNICATION AND SIGNAL FACILITIES LOCATED IN THE PROJECT AREA. FIBER OPTIC SHALL BE REPLACED FOR THE ENTIRE LENGTH BETWEEN EXISTING END TO END SPLICE. SIGNAL INTERCONNECT CABLE SHALL BE REPLACED BETWEEN CONTROLLER CABINETS. NO EQUIPMENT SHALL BE STROED ON SIDEWALK AT ANYTIME.
7. THE CONTRACTOR MUST NOTIFY AND OBTAIN AN APPROVAL FROM THE PUBLIC BUS SERVICE FOR ANY PROPOSED BUS STOP RELOCATION BEFORE THE BEGINING OF WORK.
8. THE CONTRACTOR MUST VERIFY ANY IMPACT TO SHOOL DISTRICT BUS ROUTES AND STOPS. THE CONTRACTOR MUST NOTIFY AND OBTAIN AN APPROVAL FROM THE SCHOOL BUS SERVICE FOR ANY PROPOSED BUS STOP RELOCATION BEFORE THE BEGINING OF WORK.
9. ALL EXISTING SIGNS IN CONFLICT WITH TRAFFIC CONTROL PLANS MUST BE COVERED OR REMOVED UNDER THE DIRECTION OF THE ENGINEER.
10. PRIOR TO OPENING ROADWAY TO PUBLIC TRAFFIC, ALL EXISTING OR TEMPRAORY PAVEMENT DELINEATION IN CONFLICT WITH TRAFFIC CONTROL PLANS MUST BE REMOVED UNDER THE DIRECTION OF THE ENGINEER.
11. WHEN IMPACTING PEDESTRIAN FACILITIES, TEMPORARY PEDESTRIAN ACCESS ROUTES MUST BE PROVIDED. THE CONTRACTOR SHALL MAKE ANY REQUIRED PROVISIONS FOR PEDESTRIAN SAFETY DURING CONSTRUCTION.
12. THE CONTRACTOR MUST NOTIFY AND COORDINATE WITH THE PROPERTY OWNER OF ANY AFFECTED OR CLOSED DRIVEWAY DUE TO CONSTRUCTION ACTIVITIES.
13. FOR ALL TEMPORARY CONDTIONS, THE MINIMUM PAVED TRAVEL LANE WIDTH MUST BE 11 FT ON SR 183/MERRITT ST.
14. ALL BLACK ON ORANGE CONSTRUCTION SIGNS SHALL BE FABRICATED USING TYPES IV FLUORESCENT ORANGE REFLECTIVE SHEETING MATERIAL FOR THE SIGN BACKGROUND. D3-1 MUST HAVE ORANGE BACKGROUND.
15. DURING NON-WORKING HOURS NO EQUIPMENT OR MATERIAL SHALL BE PARKED OR STORED CLOSER THAN 30 FEET TO THE EDGE OF ANY ROADWAY CARRYING TRAFFIC. WHEN THIS IS NOT PRACTICAL, IT SHALL BE PLACED IN AN AREA DESIGNATED BY THE ENGINEER AND DELINEATED BY REFLECTORIZED DRUMS. THIS INCLUDES BUT NOT LIMIT TO STORAGE OF TRAFFIC CONTROL DEVICES SUCH AS TRAILER MOUNTED OR OTHER TEMPORARY SIGNS, BARRICADES, DRUMS, ETC.
16. ALL CONTRACTOR'S EMPLOYEES' PERSONAL VEHICLES, AND CONTRACTOR'S EQUIPMENT NOT IN OPERATION, SHALL BE PARKED A MINIMUM OF THIRTY (30) FEET FROM THE TRAVELED WAY DURING WORKING HOURS, AS NOT TO CREATE A HAZARD.
17. WHERE THE LOCATION OF A REQUIRED SIGN FALLS IN A DRIVEWAY, SIDEWALK, BRIDGE, ETC. OR WHERE THE VISIBILITY OF A SIGN IS LIMITED TO THE TRAVELING PUBLIC, THE LOCATION SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER.
18. THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE DRIVEWAY TO BUSINESSES AND RESIDENCES DURING ALL PHASES OF CONSTRUCTION.
19. FLAGGERS MUST BE ATTIRED, EQUIPPED WITH STAFF MOUNTED STOP/SLOW PADDLES IN SIGHT OF EACH OTHER, OR HAVE DIRECT COMMUNICATION AT ALL TIMES. FLAGGER STATION LOCATION MAY BE VARIED FROM THOSE SHOWN BASED ON ROADWAY ALIGNMENT AND CONDITIONS AT THE TIME OF THE LANE CLOSURE.
20. FLAGGERS ARE TO BE USED WHEN DIRECTED BY THE ENGINEER. SIGNS SHALL BE PLACED AT THE APPROPRIATE TIME, AND SHALL BE COVERED OR REMOVED WHEN FLAGGERS ARE NOT ON DUTY AND DURING NON-WORKING HOURS.
21. CHANNELIZING DRUMS SHOULD BE PLACED ON 10 FOOT INTERVALS.
22. NO EQUIPMENT OR VEHICLES WILL BE STAGED IN BUFFER ZONES OR TRANSITION AREAS AT ANY TIME.
23. NOTIFY LOCAL LAW ENFORCEMENT, FIRE, AMBULANCE, AND TRANSPORTATION COMPANIES WITHIN 24 HOURS BEFORE CONSTRUCTION BEGINS.
24. CHANNELIZING DEVICES MUST BE RETRO REFLECTIVE OR ILLUMINATED DURING LOW VISIBILITY SITUATIONS. (1,000' MINIMUM VISIBILITY.)
25. CONTINUOUS MONITORING AND MAINTENANCE OF THE TRAFFIC CONTROL ZONE MUST BE IMPLEMENTED FOR THE PURPOSE OF MAINTAINING EMERGENCY ACCESS, PEDESTRIANS, BICYCLES, AND THE DISABLED.
26. LANE CLOSURE HOURS ON SR 183 WILL BE BETWEEN THE HOURS OF 9 PM - 6 AM MONDAY-THURSDAY AND 12 AM - 6 AM FRIDAY.
27. CONTRACTOR MUST RESTORE THE ROAD AND SITE ENVIRONMENT TO ORIGINAL CONDITION AFTER THE END OF CONSTRUCTION WORK. CONTRACTOR MUST CLEAR ALL CONSTRUCTION DEBRIS.

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

AREA CLOSED TO TRAFFIC / WORK AREA

TRAFFIC CONTROL SIGN

TYPE III BARRICADE =

FLASHING ARROW BOARD TYPE C =
(4' X 8' UNLESS OTHERWISE NOTED).

CHANGEABLE MESSAGE SIGN

TEMPORARY CRASH CUSHION

CHANNELIZING DEVICE

TEMPORARY BARRIER WITH DELINEATORS

DETOUR ROUTING TO DEL MONTE AVENUE

DIRECTIONAL ARROW

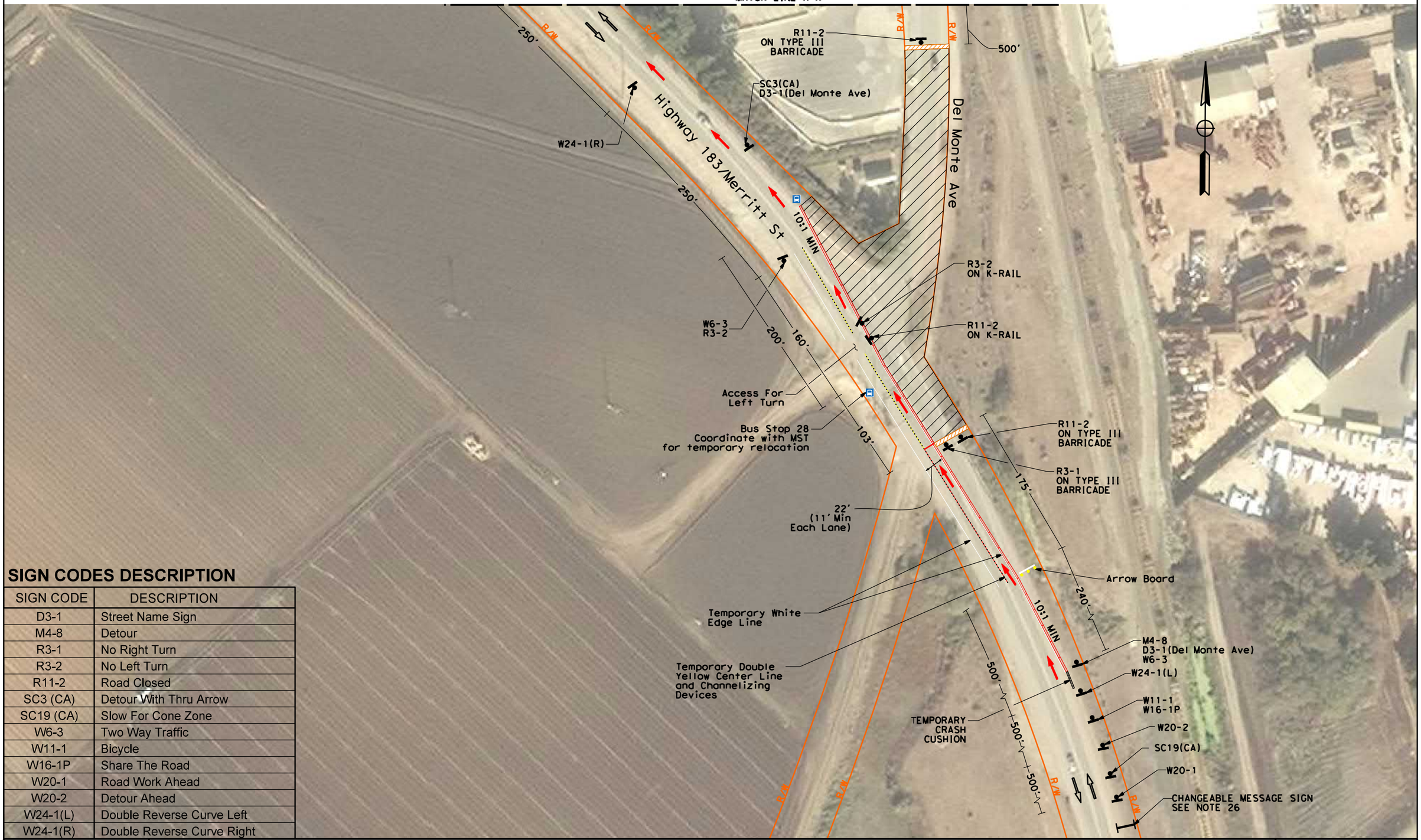
AECOM

TRAFFIC CONTROL PLAN
GENERAL NOTES AND LEGEND
Highway 183

Sheet 1/5

December 2017

MATCH LINE A-A



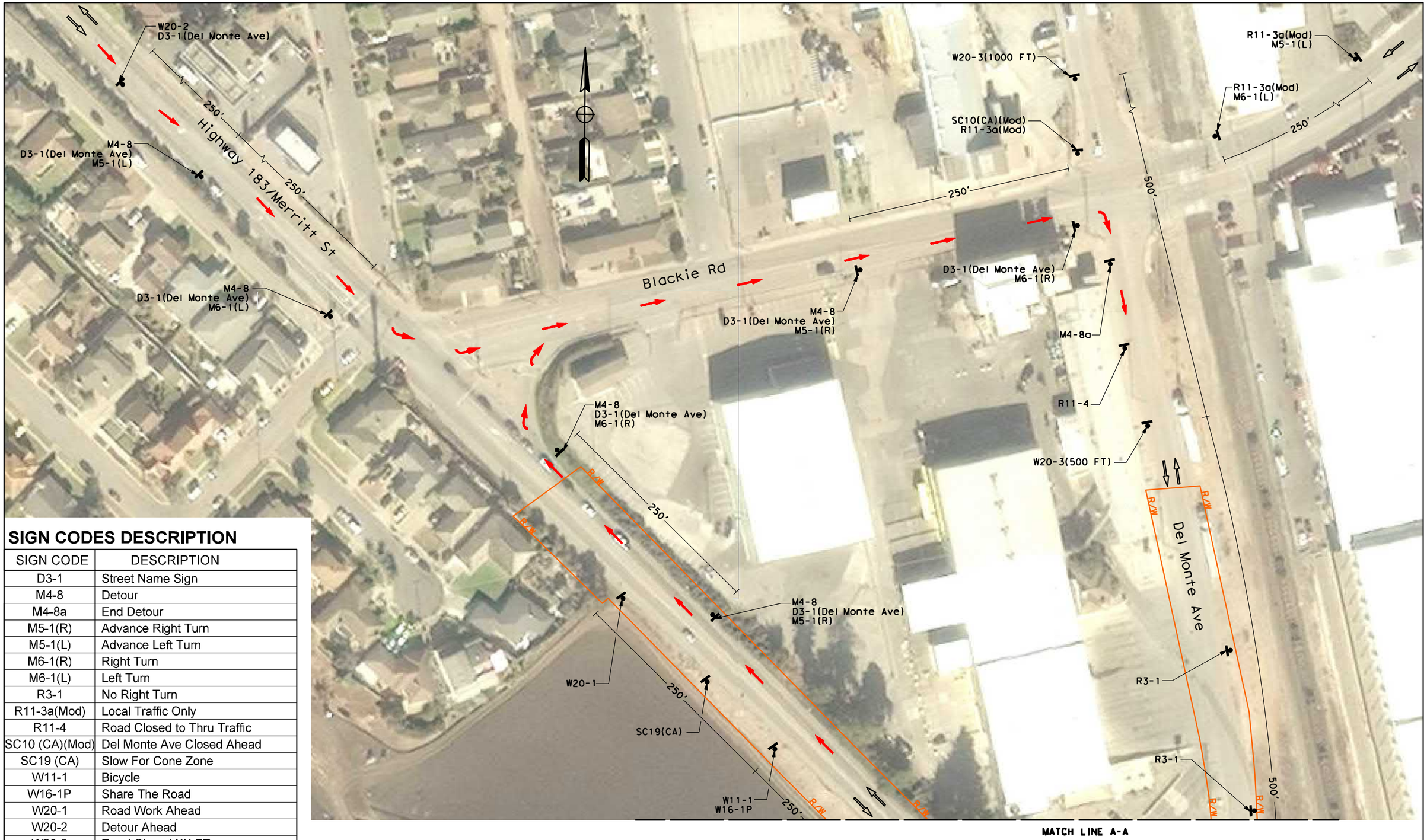
SIGN CODES DESCRIPTION

SIGN CODE	DESCRIPTION
D3-1	Street Name Sign
M4-8	Detour
R3-1	No Right Turn
R3-2	No Left Turn
R11-2	Road Closed
SC3 (CA)	Detour With Thru Arrow
SC19 (CA)	Slow For Cone Zone
W6-3	Two Way Traffic
W11-1	Bicycle
W16-1P	Share The Road
W20-1	Road Work Ahead
W20-2	Detour Ahead
W24-1(L)	Double Reverse Curve Left
W24-1(R)	Double Reverse Curve Right

AECOM

Highway 183 TCP
Del Monte Avenue Closure

NO SCALE
Stage 1
Sheet 2/5
December 2017



SIGN CODES DESCRIPTION

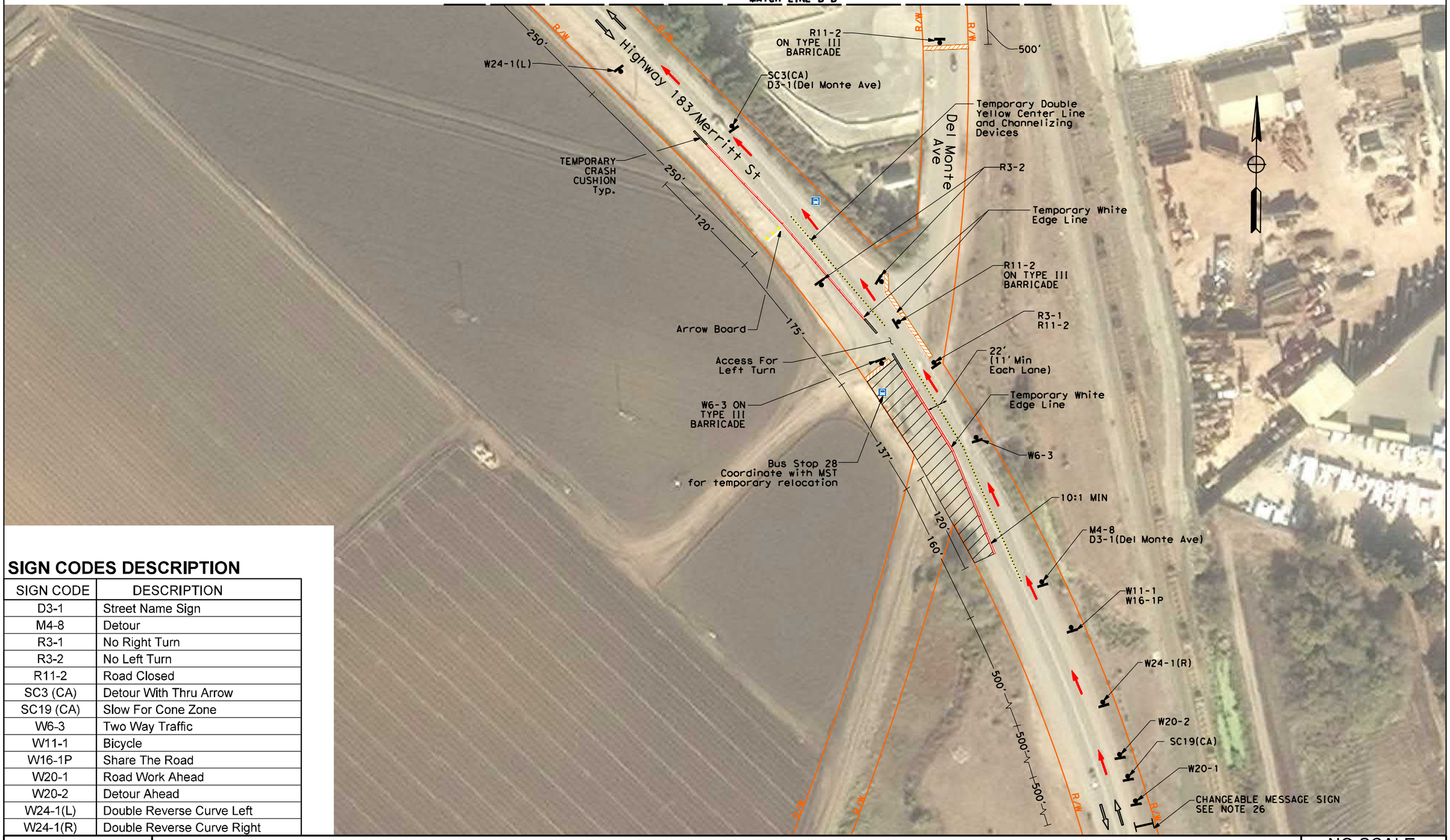
SIGN CODE	DESCRIPTION
D3-1	Street Name Sign
M4-8	Detour
M4-8a	End Detour
M5-1(R)	Advance Right Turn
M5-1(L)	Advance Left Turn
M6-1(R)	Right Turn
M6-1(L)	Left Turn
R3-1	No Right Turn
R11-3a(Mod)	Local Traffic Only
R11-4	Road Closed to Thru Traffic
SC10 (CA)(Mod)	Del Monte Ave Closed Ahead
SC19 (CA)	Slow For Cone Zone
W11-1	Bicycle
W16-1P	Share The Road
W20-1	Road Work Ahead
W20-2	Detour Ahead
W20-3	Road Closed XX FT

AECOM

Highway 183 TCP
Del Monte Avenue Closure

NO SCALE
Stage 1
Sheet 3/5
December 2017

MATCH LINE B-B



SIGN CODES DESCRIPTION

SIGN CODE	DESCRIPTION
D3-1	Street Name Sign
M4-8	Detour
R3-1	No Right Turn
R3-2	No Left Turn
R11-2	Road Closed
SC3 (CA)	Detour With Thru Arrow
SC19 (CA)	Slow For Cone Zone
W6-3	Two Way Traffic
W11-1	Bicycle
W16-1P	Share The Road
W20-1	Road Work Ahead
W20-2	Detour Ahead
W24-1(L)	Double Reverse Curve Left
W24-1(R)	Double Reverse Curve Right

AECOM

Highway 183 TCP
Del Monte Avenue Closure

NO SCALE
Stage 2
Sheet 4/5
December 2017

W20-2
D3-1(Del Monte Ave)

250'

250'

Highway 183/Merritt St

M4-8
D3-1(Del Monte Ave)
M5-1(L)

M4-8
D3-1(Del Monte Ave)
M6-1(L)

Blackie Rd

M4-8
D3-1(Del Monte Ave)
M5-1(R)

W20-3(1000 FT)

SC10(CA)(Mod)
R11-3a(Mod)

250'

500'

D3-1(Del Monte Ave)
M6-1(R)

M4-8a

R11-4

W20-3(500 FT)

R11-3a(Mod)
M5-1(L)

R11-3a(Mod)
M6-1(L)

250'

M4-8
D3-1(Del Monte Ave)
M6-1(R)

R/W

250'

W20-1

M4-8
D3-1(Del Monte Ave)
M5-1(R)

250'

SC19(CA)

W11-1
W16-1P

250'

R/W

R/W

Del Monte Ave

R3-1

R3-1

500'

MATCH LINE B-B

SIGN CODES DESCRIPTION

SIGN CODE	DESCRIPTION
D3-1	Street Name Sign
M4-8	Detour
M4-8a	End Detour
M5-1(R)	Advance Right Turn
M5-1(L)	Advance Left Turn
M6-1(R)	Right Turn
M6-1(L)	Left Turn
R3-1	No Right Turn
R11-3a(Mod)	Local Traffic Only
R11-4	Road Closed to Thru Traffic
SC10 (CA)(Mod)	Del Monte Ave Closed Ahead
SC19 (CA)	Slow For Cone Zone
W11-1	Bicycle
W16-1P	Share The Road
W20-1	Road Work Ahead
W20-2	Detour Ahead
W20-3	Road Closed XX FT

AECOM

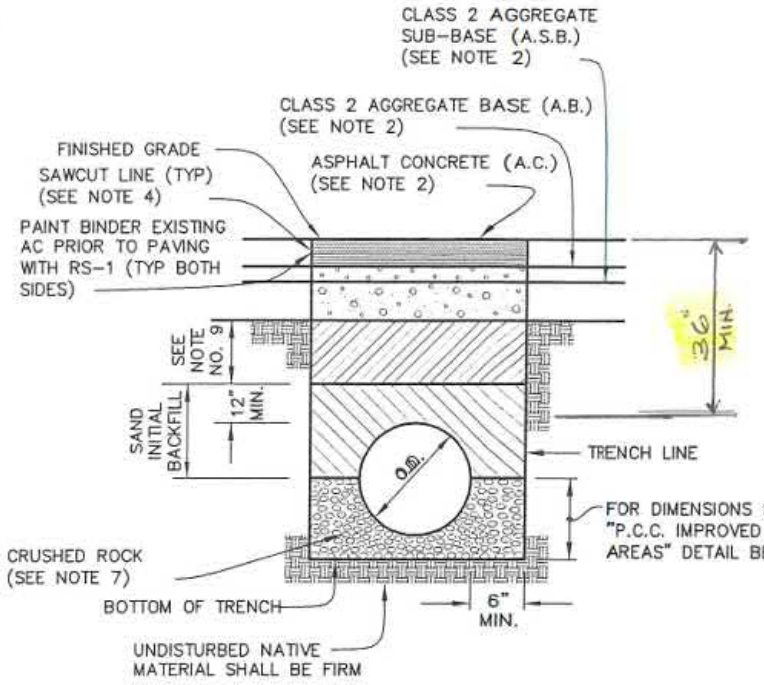
Highway 183 TCP
Del Monte Avenue Closure

NO SCALE
Stage 2
Sheet 5/5
December 2017

Appendix F: Standard Trench Specifications for Jurisdictions

County of Monterey

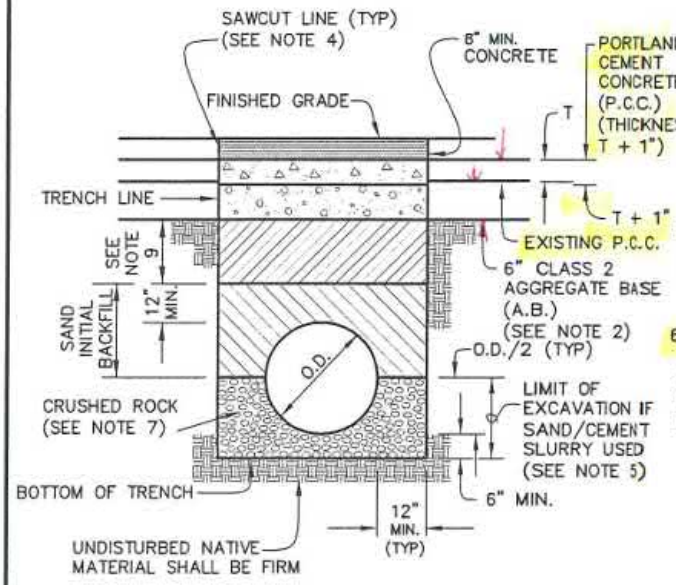
COUNTY OF MONTEREY / CITY OF SALINAS



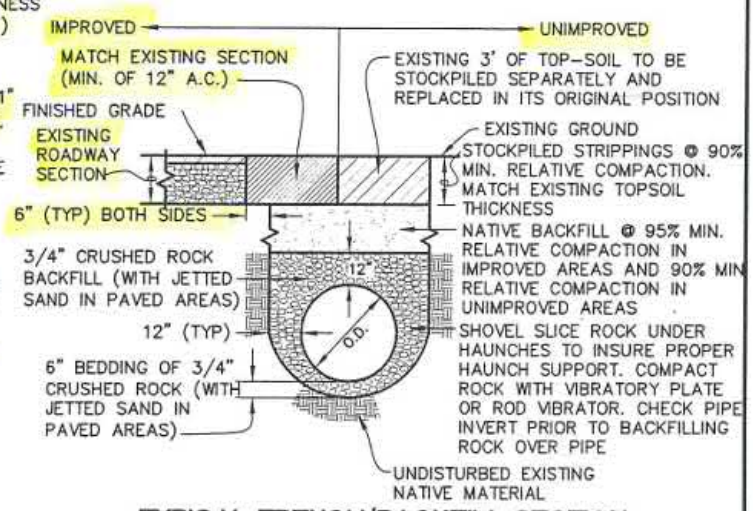
A.C. IMPROVED AREAS

GENERAL NOTES

1. DRAWING NOT TO SCALE
2. ON IMPROVED STREETS THE THICKNESS OF THE A.C., A.B., AND A.S.B. SHALL BE EQUIVALENT TO THE EXISTING ON A.C. PAVEMENT, A MINIMUM OF 6" A.C. (TYPE B) OVER 8" A.B. IS REQUIRED.
3. FOR BACKFILL MATERIALS AND COMPACTION METHODS SEE SECTION 19-3 OF THE STANDARD SPECIFICATIONS. INTERMEDIATE BACKFILL SHALL BE COMPACTED TO 95% RELATIVE COMPACTION IN UNIMPROVED AREAS.
4. ALL STREET CUTS SHALL BE NEATLY SAWCUT ON TRUE LINE TO 1 1/2" MINIMUM DEPTH.
5. TWO SACK CEMENT SLURRY BACKFILL SHALL BE USED AS INTERMEDIATE BACKFILL IF TRENCH IS LESS THAN 18" WIDE OR IN PATCH AREAS LESS THAN 100 SQ FT.
6. STRUCTURAL SECTION REQUIREMENTS SHALL NOT APPLY TO UNIMPROVED AREAS.
7. CRUSHED ROCKS MAY BE REPLACED WITH INTERMEDIATE BACKFILL MATERIAL FOR ALL PIPE INSTALLATIONS OTHER THAN STORM DRAIN LINES PROVIDED NOTE NO. 4 DOES NOT APPLY.
8. CRUSHED ROCK OR SLURRY CEMENT BACKFILL SHALL NOT BE REQUIRED IF MONOLITHIC CONCRETE PIPE IS INSTALLED.
9. COMPACTED INTERMEDIATE BACKFILL (SEE NOTES NO. 2 AND NO. 4).
10. TRENCH WIDTH SHOWN ON PLANS FOR PAVEMENT RESTORATION MAY VARY FROM ACTUAL WIDTH REQUIRED TO PERFORM NECESSARY WORK DEPENDING UPON METHOD FOR TRENCH SHORING/PROTECTION USED BY CONTRACTOR.
11. ALL PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS OBLITERATED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR.
12. TRENCH DIMENSION FOR ROUNDED BOTTOM CAN BE ADJUSTED SUBJECT TO ENGINEER'S APPROVAL.



P.C.C. IMPROVED AREAS

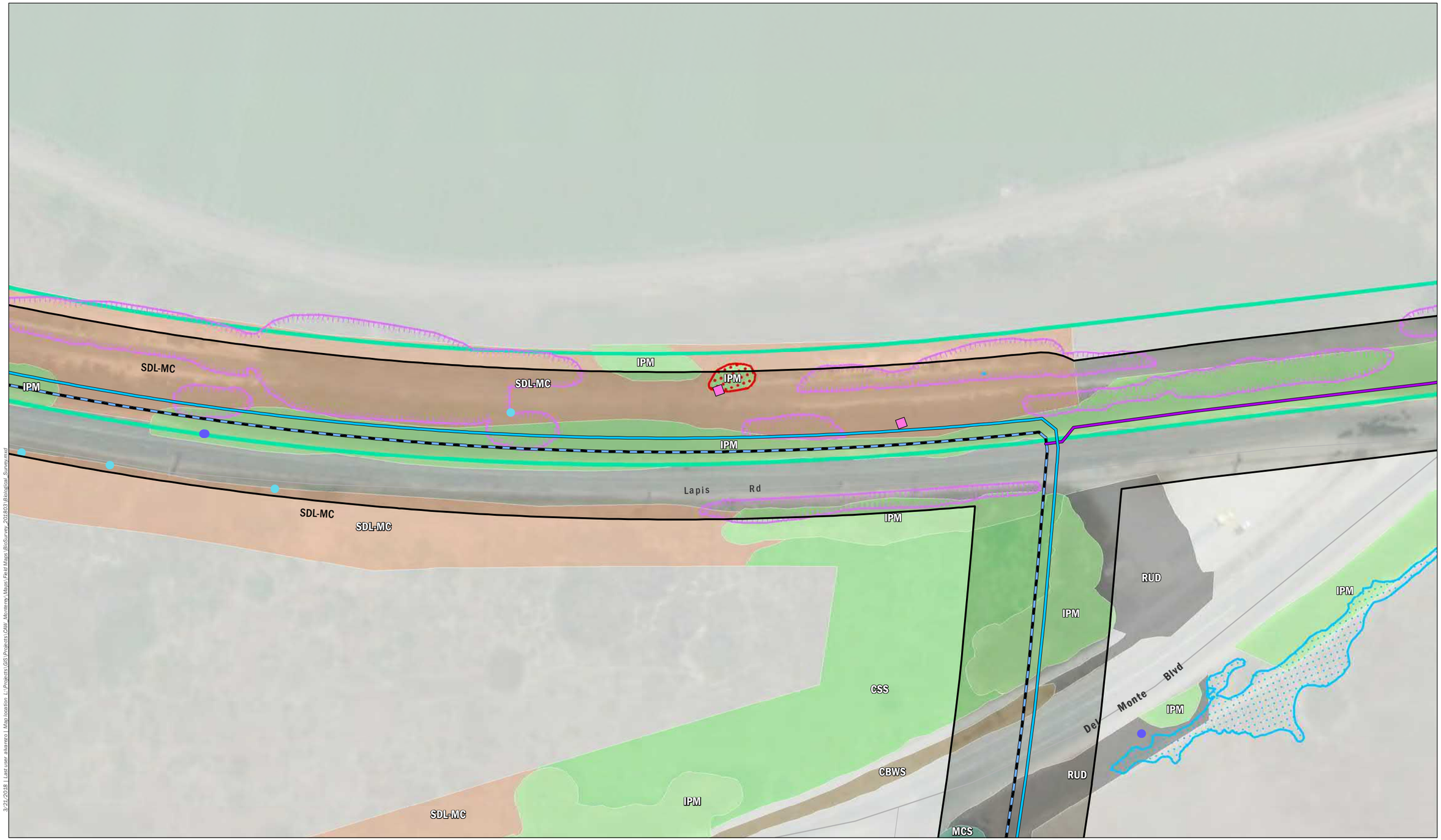


TYPICAL TRENCH/BACKFILL SECTION FOR P.V.C. AND H.D.P.E. PIPE

COUNTY OF MONTEREY RESOURCE MANAGEMENT AGENCY DEPARTMENT OF PUBLIC WORKS			STANDARD PLAN
APPROVED: STAFF	APPROVED:	TITLE	
CADD BY: STAFF	Director of Public Works	**TRENCH BACKFILL AND SURFACE RESTORATION**	42
Project Manager: Arturo A. Adlawan	REGISTERED PROFESSIONAL ENGINEER Exp. CIVIL STATE OF CALIFORNIA		

Appendix G: Easement
(Pending)

Appendix H: Maps of Preliminary Biological Surveys Performed by AECOM



3/21/2018 | Last user: alvarezc | Map location: L:\Projects\GIS Projects\CAW - Monterey Maps\Field Maps (BioSurvey_20180313 Biological_Surveys.mxd

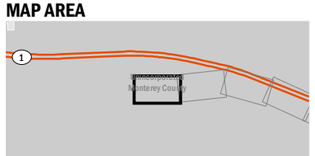
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



Pipeline Alignment
- Proposed Castroville
- Proposed Desalinated Water Pipeline
- Proposed Source Water Pipeline
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Botany Field Observation
- Chorizanthe pungens var. pungens (FT, List 1B.2)
- Corethrogyne leucophylla (List 3.2)

Wildlife Field Observation
- Smith's Blue Butterfly (FE) Host Plant
- Smith's Blue Butterfly (FE) host plant – Eriogonum latifolium

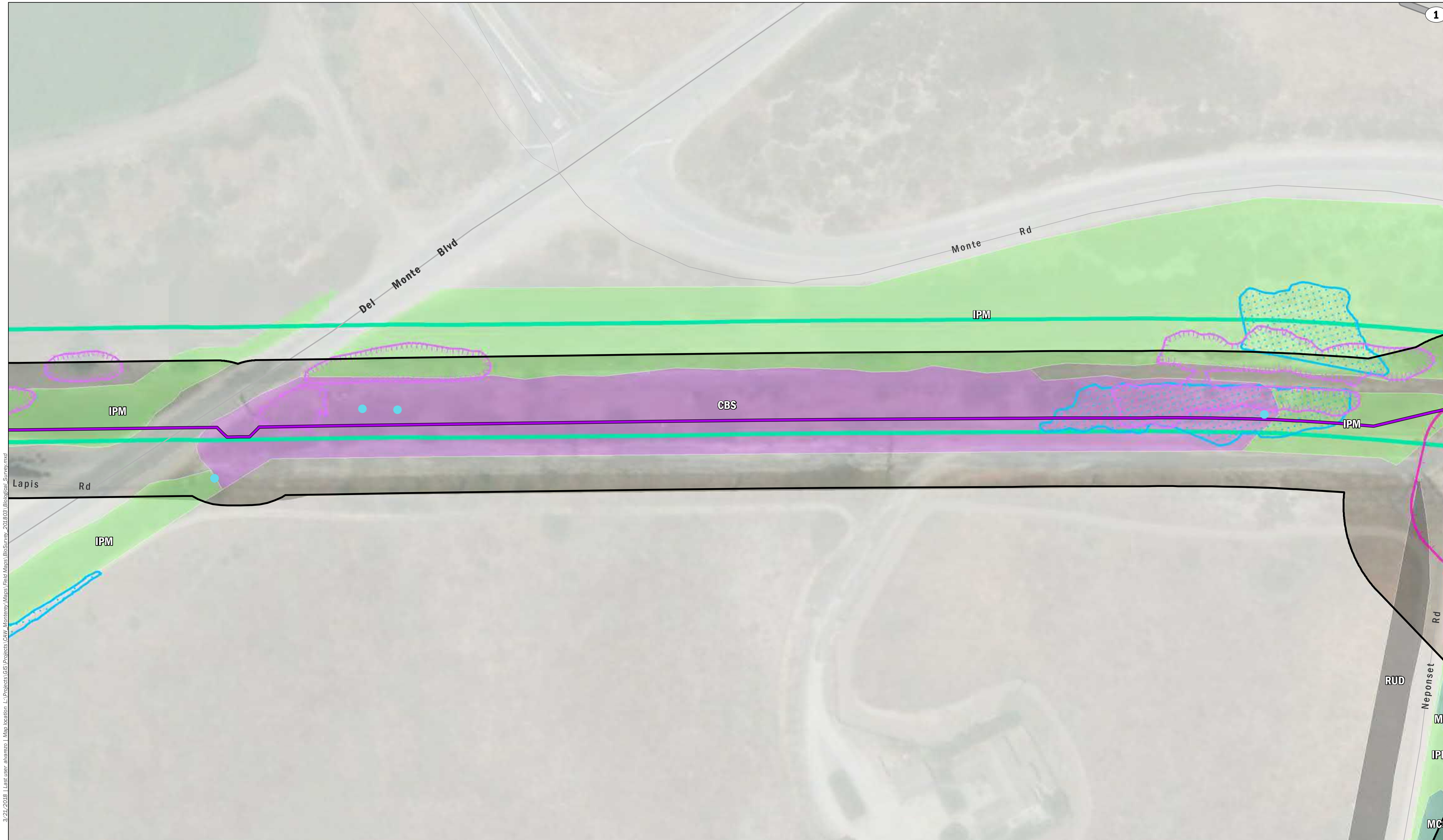
Rare plant group
- Chorizanthe pungens var. pungens (FT, List 1B.2)
- Corethrogyne leucophylla (List 3.2)

Habitat Type
- California buckwheat scrub (CBWS)
- California sagebrush scrub (CSS)
- Ice Plant mats (IPM)
- Monterey cypress stands (MCS)
- Ruderal (RUD)
- Silver dune lupine-mock heather scrub (SDL-MC)

0 200 ft

1:1,000

SHEET 1 of 16



AECOM

California American Water
Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities
MONTEREY PENINSULA WATER SUPPLY PROJECT, MPWSP

MAP AREA

Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Botany Field Observation
- Corethrogyne leucophylla (List 3.2)

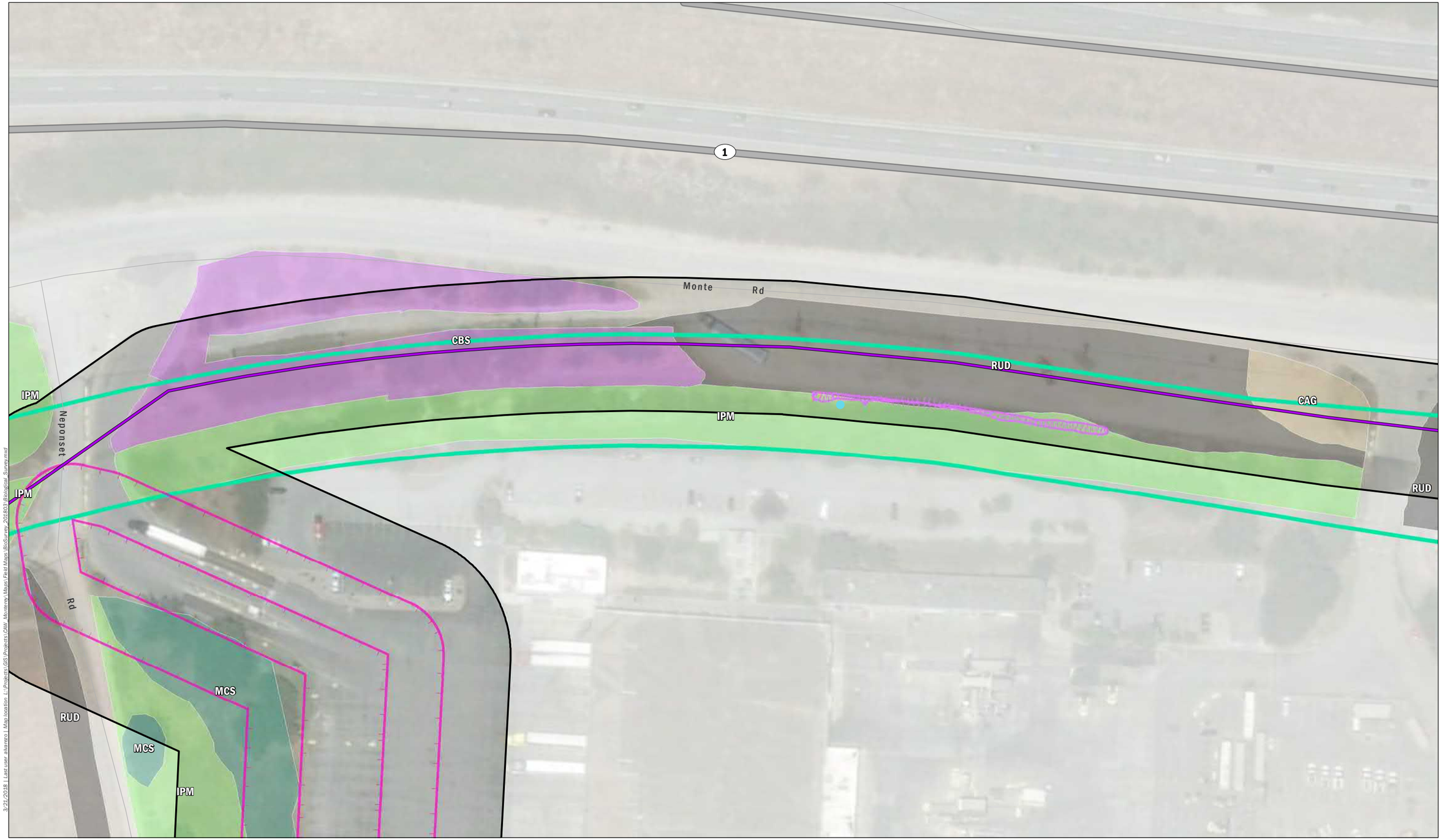
Rare plant group
- Chorizanthe pungens var. pungens (FT, List 1B.2)
- Corethrogyne leucophylla (List 3.2)

Habitat Type
- Coyote Brush Scrub (CBS)
- Ice Plant mats (IPM)
- Monterey cypress stands (MCS)
- Ruderal (RUD)

0 — 200 ft

1:1,000

SHEET 2 of 16



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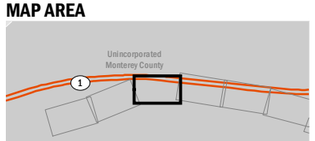
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Botany Field Observation
- Corethrogyne leucophylla (List 3.2)

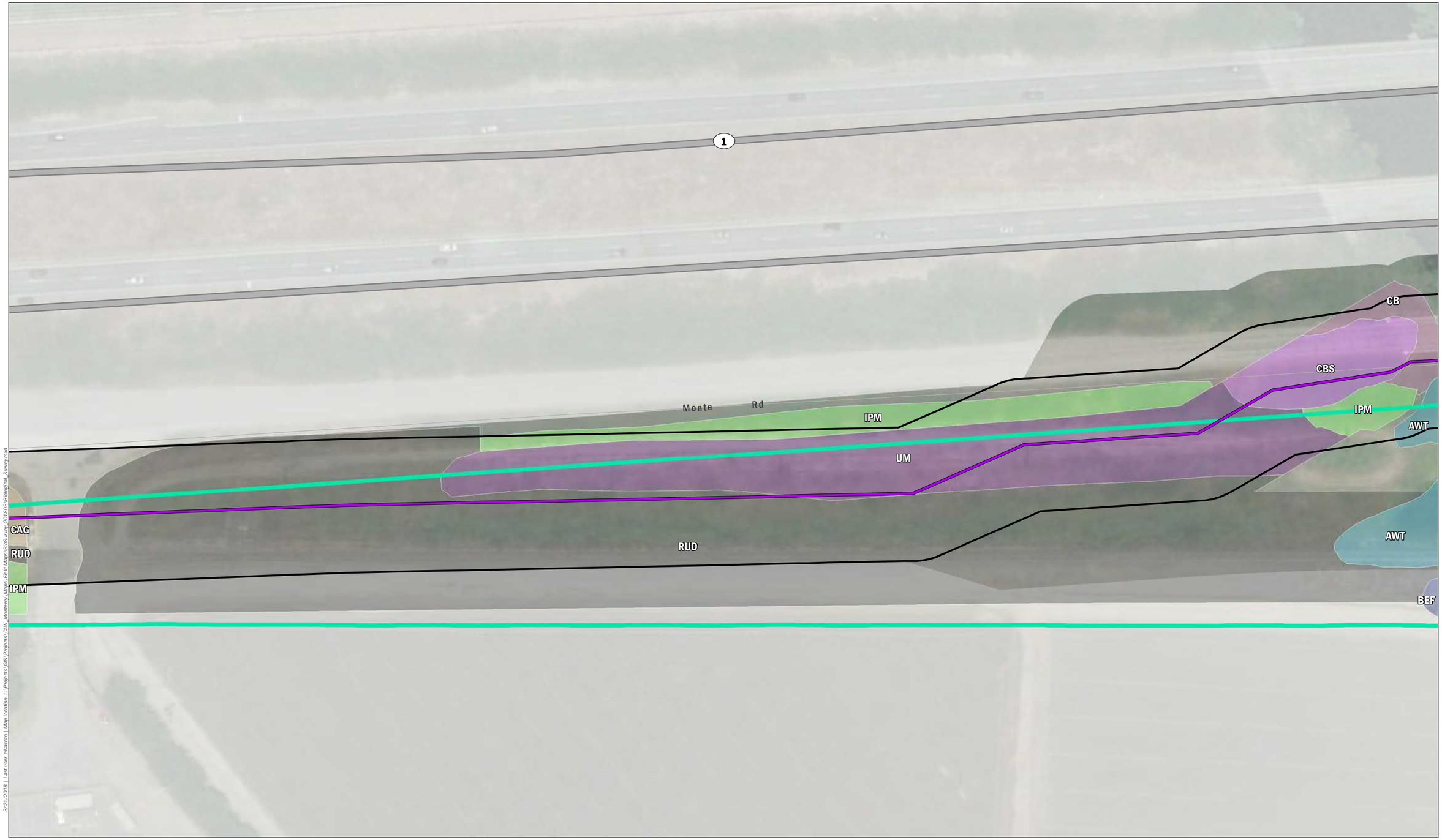
Rare plant group
- Corethrogyne leucophylla (List 3.2)

Habitat Type
- California annual grassland (CAG)
- Coyote Brush Scrub (CBS)
- Ice Plant mats (IPM)
- Monterey cypress stands (MCS)
- Ruderal (RUD)

0 200 ft

1:1,000

SHEET 3 of 16



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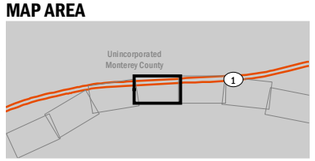
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



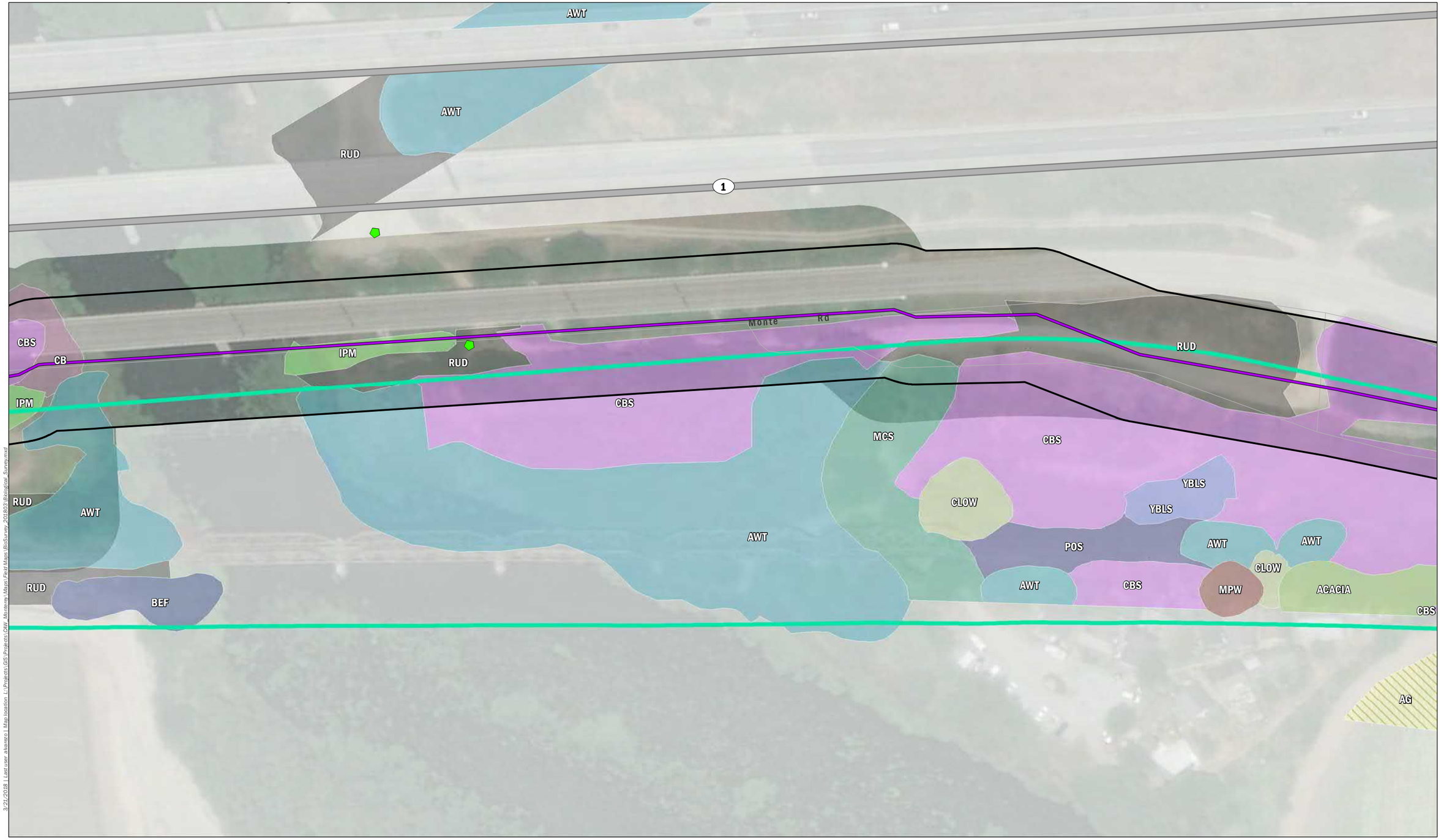
Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Habitat Type
- Arroyo willow thickets (AWT)
- Box-elder forest (BEF)
- California annual grassland (CAG)
- Coastal brambles (CB)
- Coyote Brush Scrub (CBS)
- Ice Plant mats (IPM)
- Ruderal (RUD)
- Upland mustards (UM)

0 200 ft

1:1,000

SHEET 4 of 16



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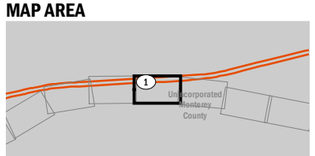
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Wetland Field Observation
- Wetland point

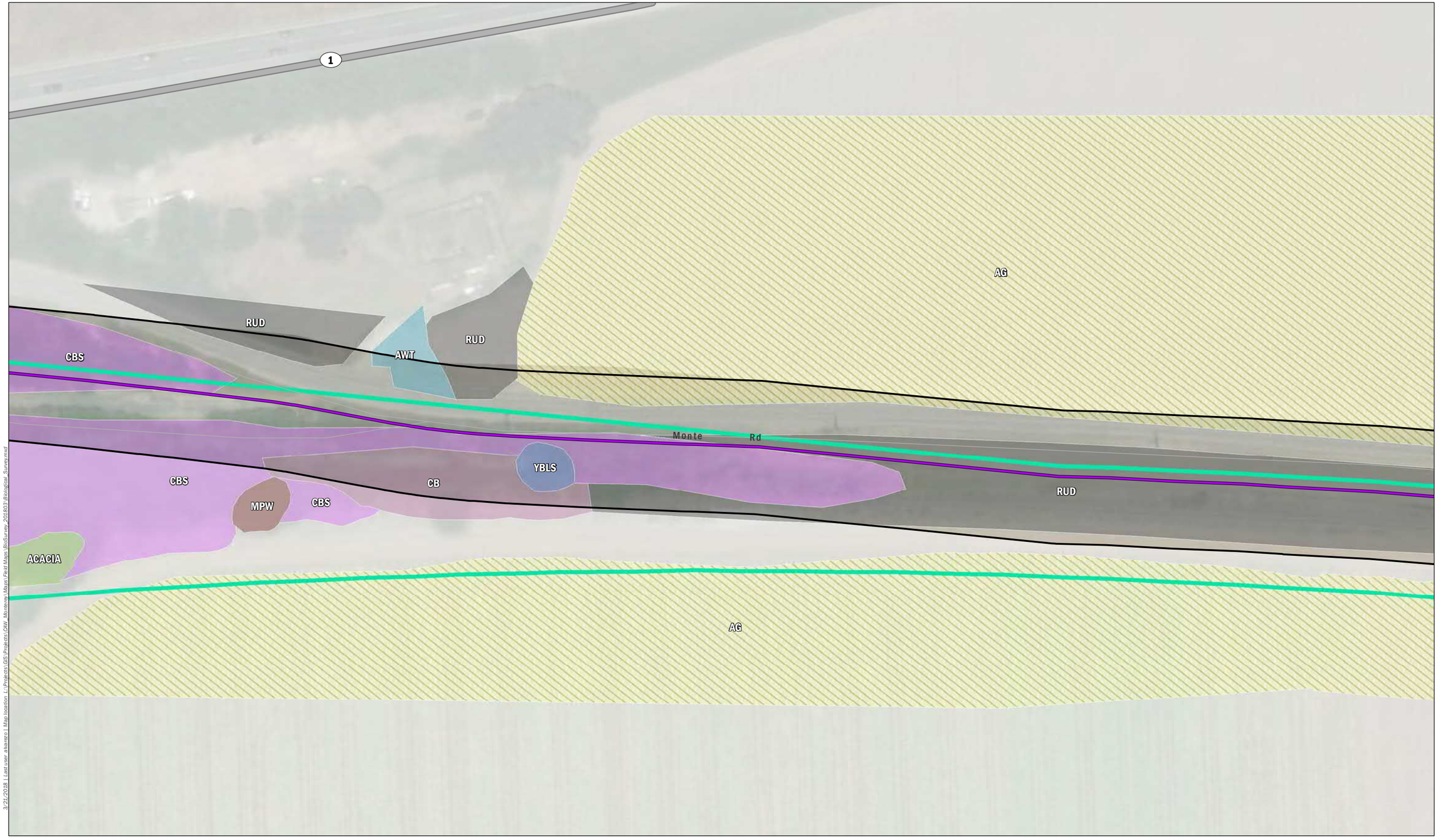
Wildlife Field Observation
- Bank swallow (foraging)

Habitat Type
- Acacia shrubland (ACACIA)
- Agricultural (AG)
- Arroyo willow thickets (AWT)
- Box-elder forest (BEF)
- Coast Live Oak woodland (CLOW)
- Coastal brambles (CB)
- Coyote Brush Scrub (CBS)
- Ice Plant mats (IPM)
- Monterey cypress stands (MCS)
- Monterey pine woodland (MPW)
- Poison Oak Scrub (POS)
- Ruderal (RUD)
- Yellow bush lupine scrub (YBLS)

0 200 ft

1:1,000

SHEET 5 of 16



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AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA WATER SUPPLY PROJECT, MPWSP

MAP AREA

Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

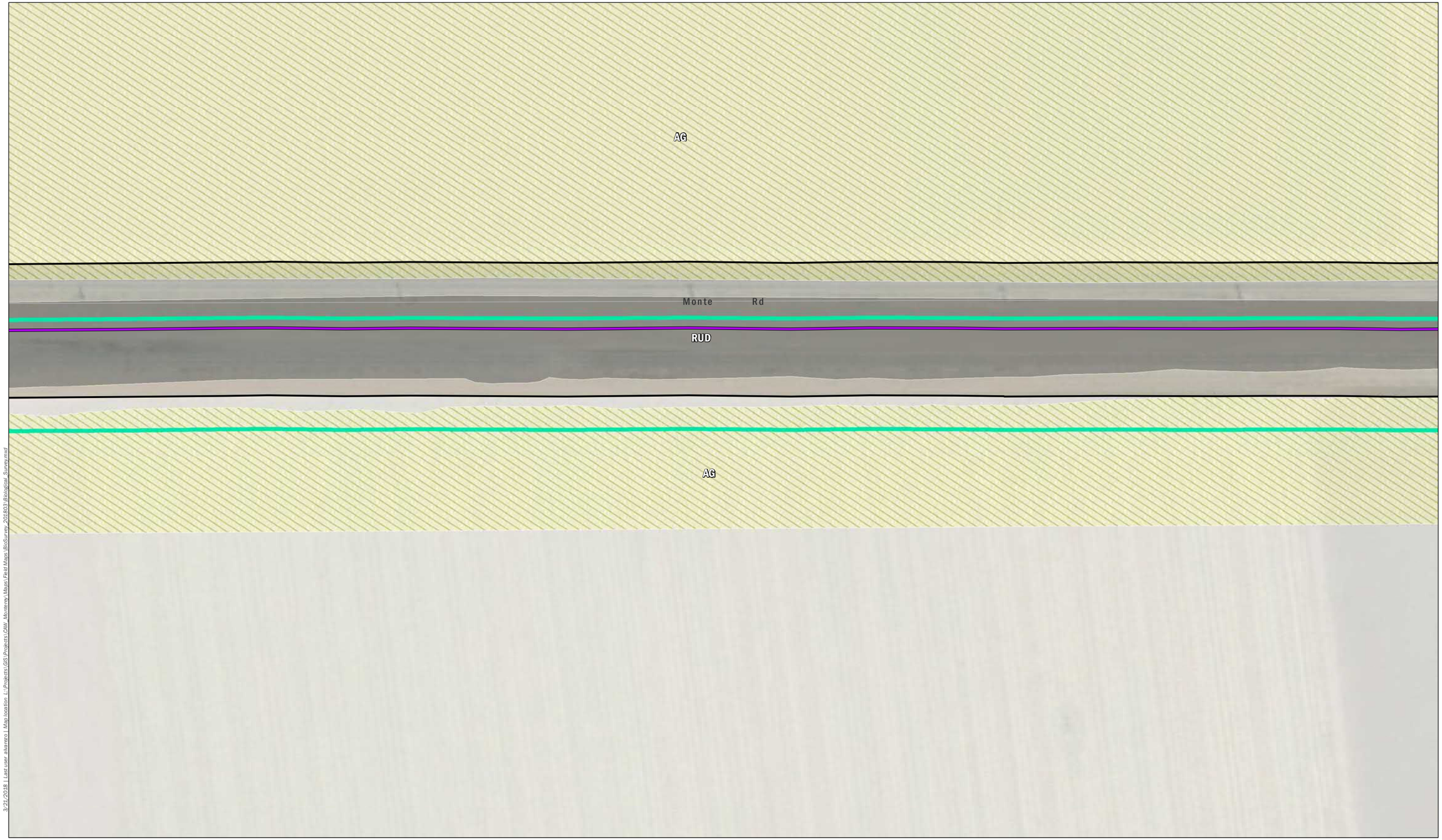
Habitat Type
- Acacia shrubland (ACACIA)
- Agricultural (AG)
- Arroyo willow thickets (AWT)
- Coastal brambles (CB)
- Coyote Brush Scrub (CBS)
- Monterey pine woodland (MPW)
- Ruderal (RUD)
- Yellow bush lupine scrub (YBLS)

0 200 ft

1:1,000

N

SHEET 6 of 16



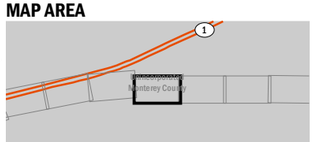
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



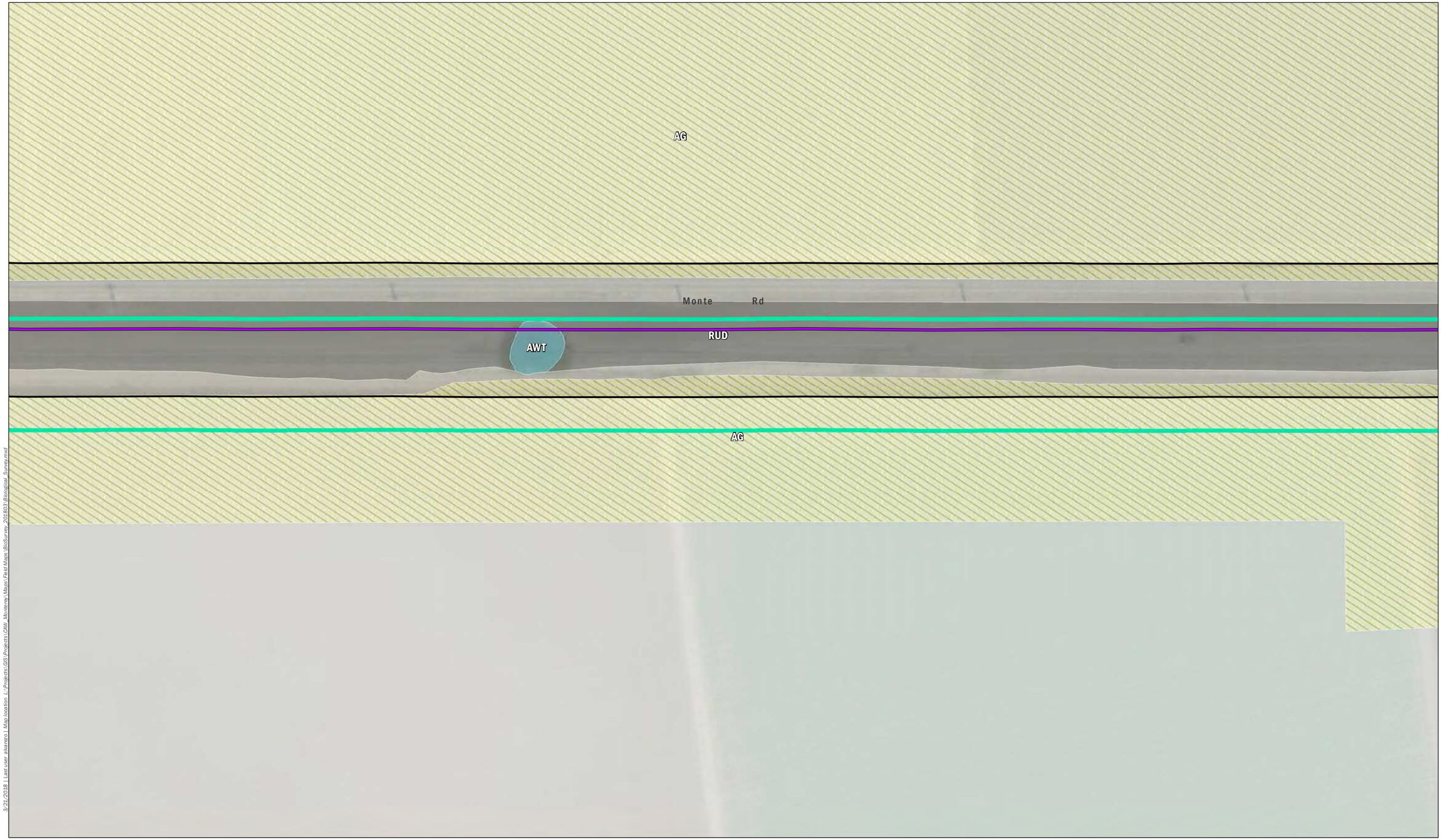
Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Habitat Type
- Agricultural (AG)
- Ruderal (RUD)

0 200 ft

1:1,000

SHEET 7 of 16



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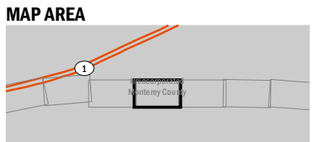
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



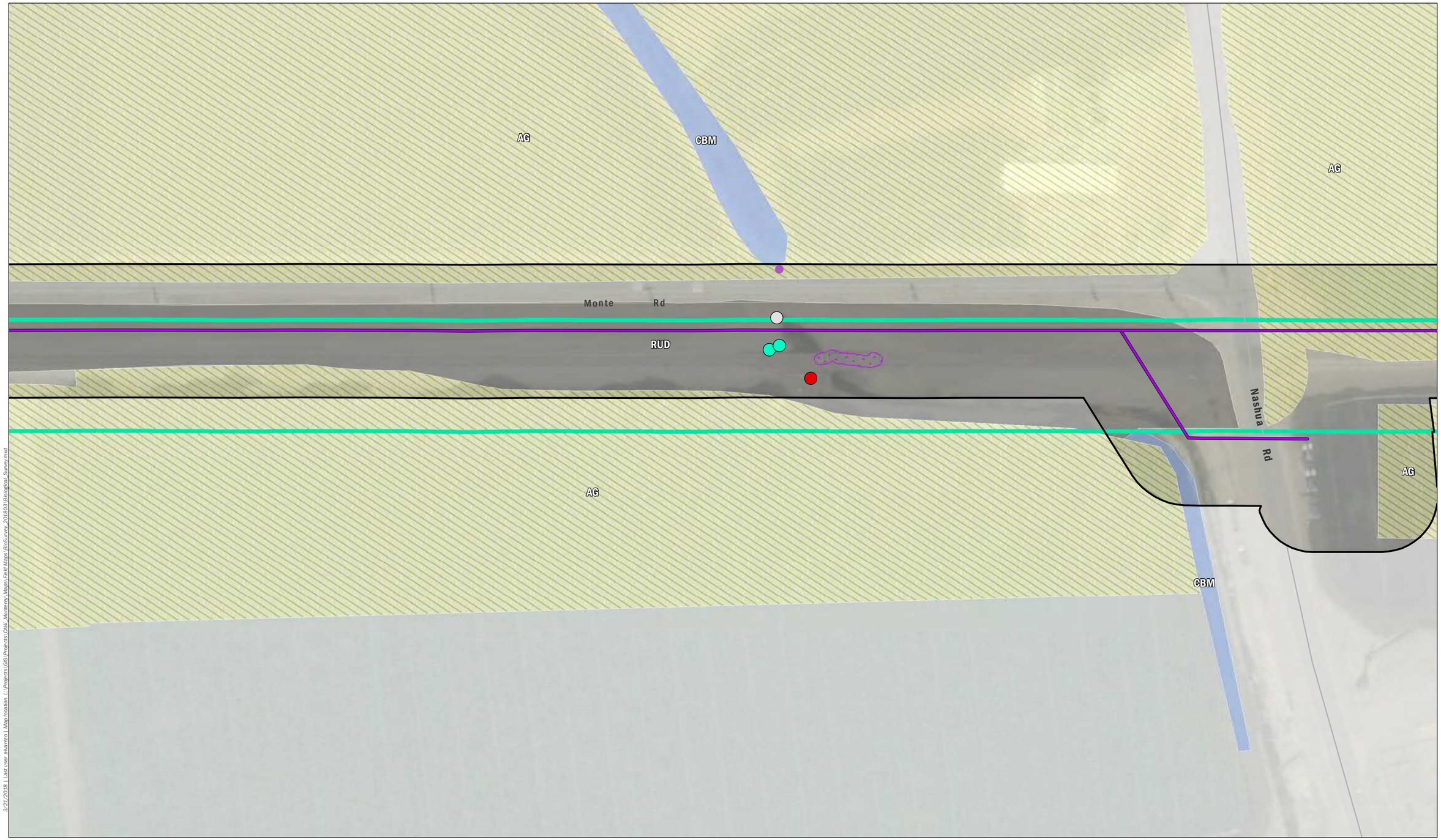
Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Habitat Type
- Agricultural (AG)
- Arroyo willow thickets (AWT)
- Ruderal (RUD)

0 200 ft

1:1,000

SHEET 8 of 16



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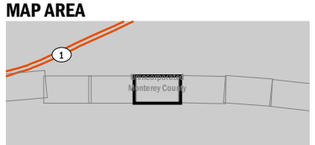
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Wetland Field Observation
- Culvert
- Wetland point

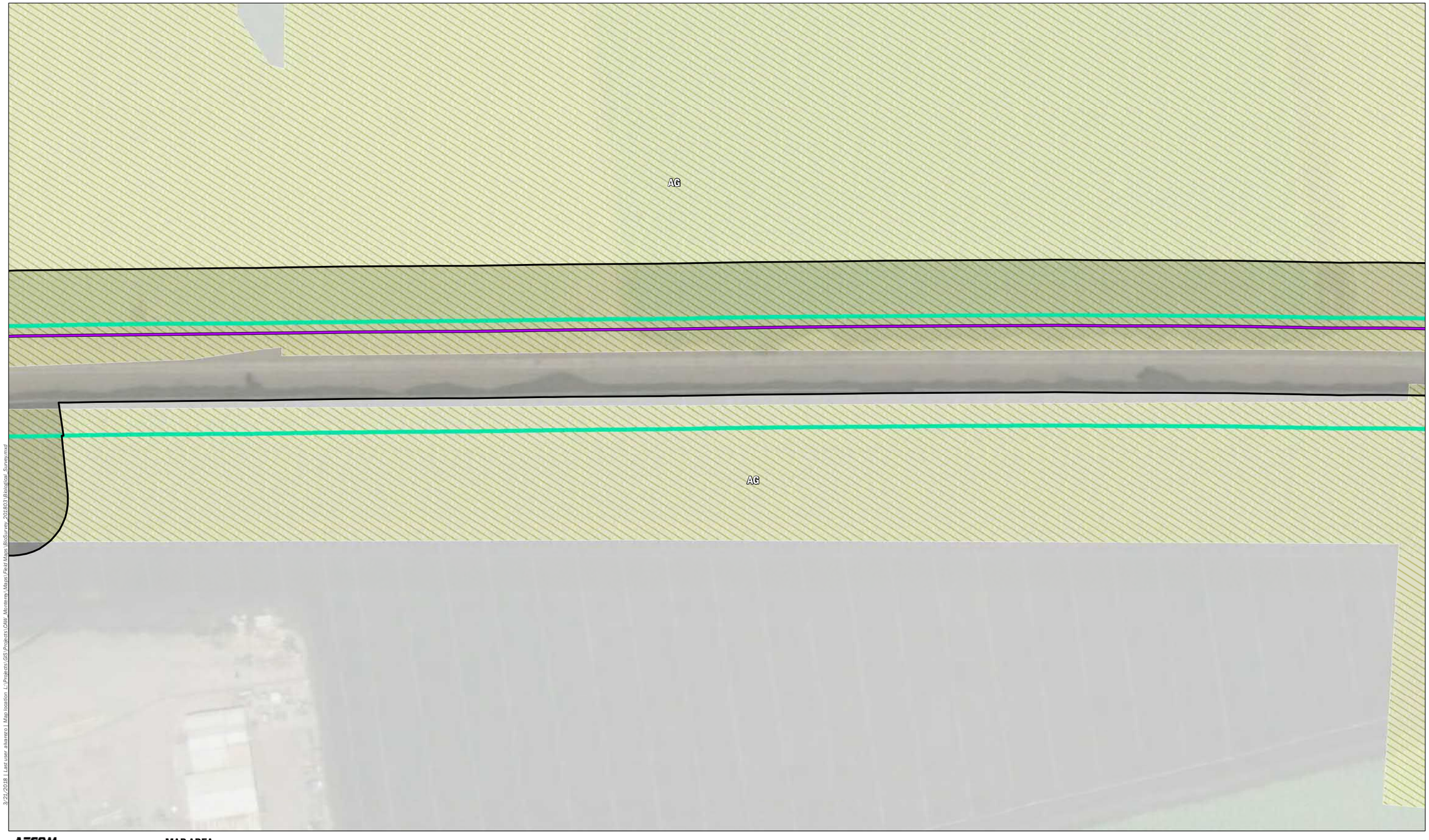
Wildlife Field Observation
- Bank swallow
- red-winged blackbird nest
- bank swallow (ST) (nesting under railway trestle)

Habitat Type
- Agricultural (AG)
- California bulrush marsh (CBM)
- Ruderal (RUD)

0 200 ft

1:1,000

SHEET 9 of 16



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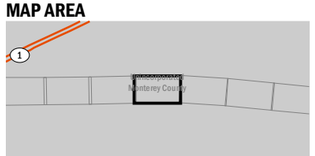
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



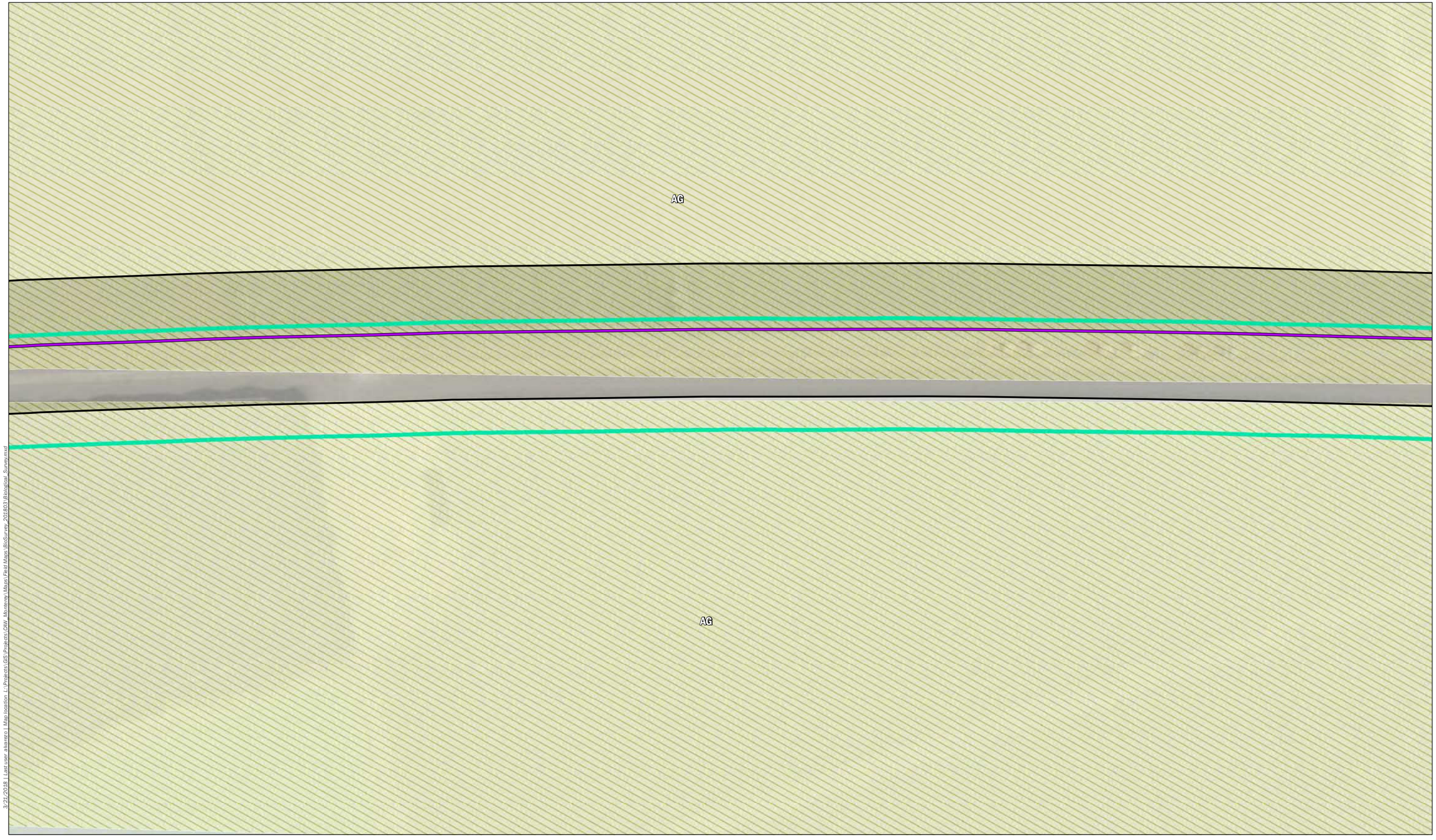
Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Habitat Type
- Agricultural (AG)

0 200 ft

1:1,000

SHEET 10 of 16



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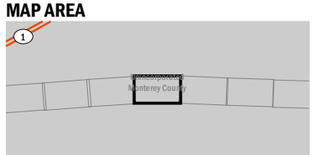
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



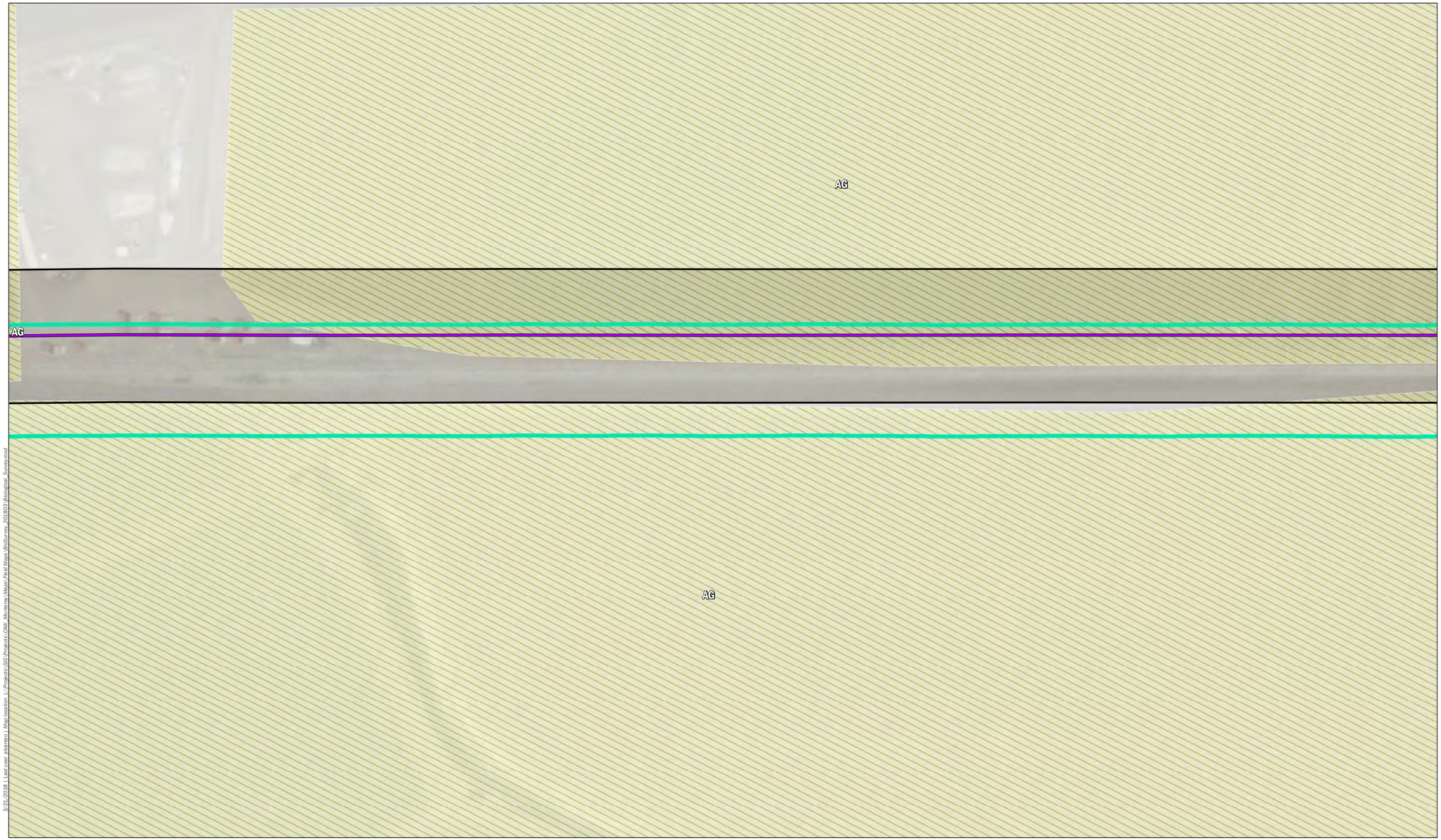
Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Habitat Type
- Agricultural (AG)

0 200 ft

1:1,000

SHEET 11 of 16



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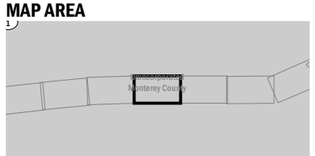
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



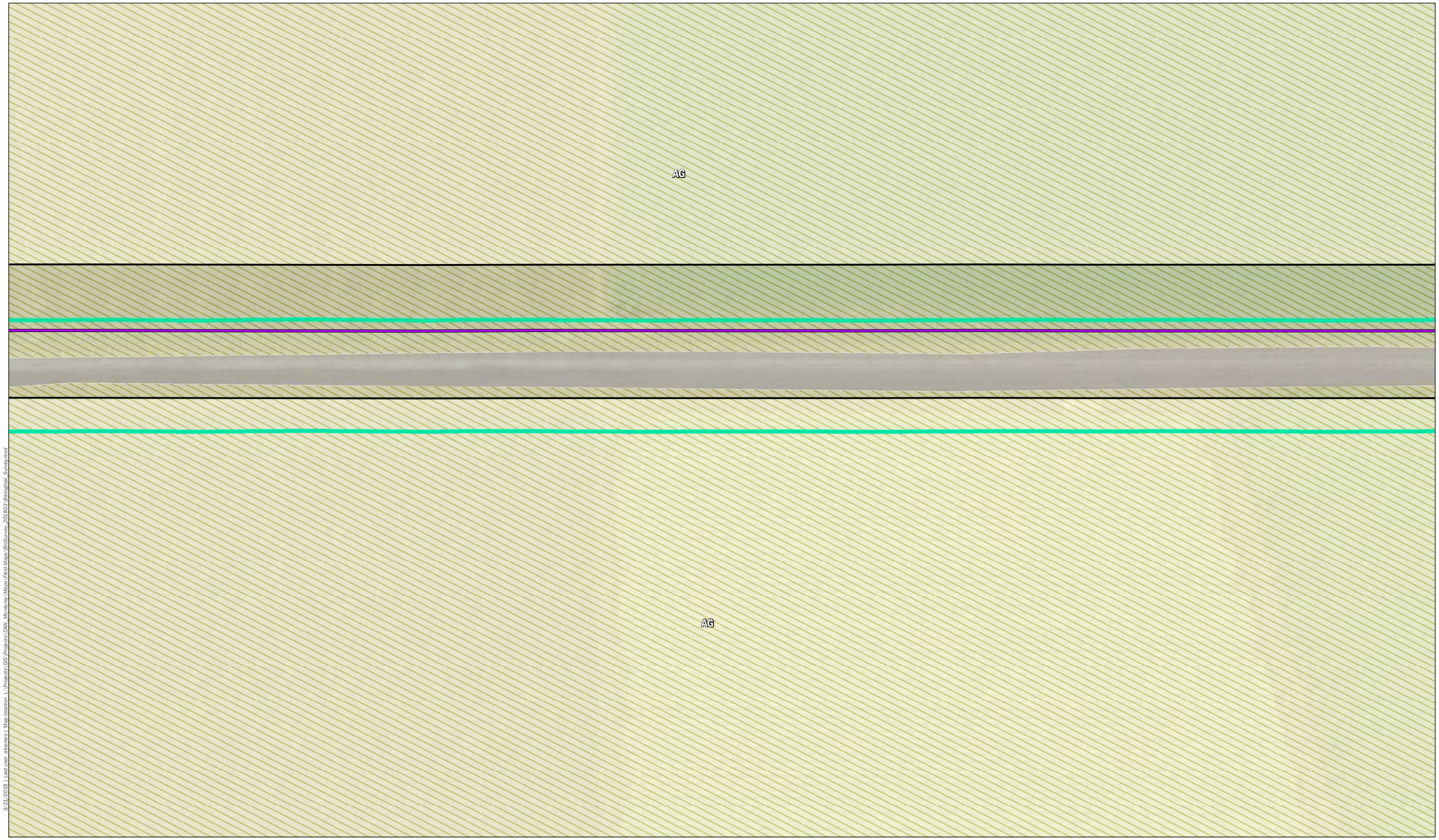
Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Habitat Type
- Agricultural (AG)

0 200 ft

1:1,000

SHEET 12 of 16



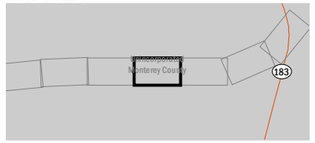
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

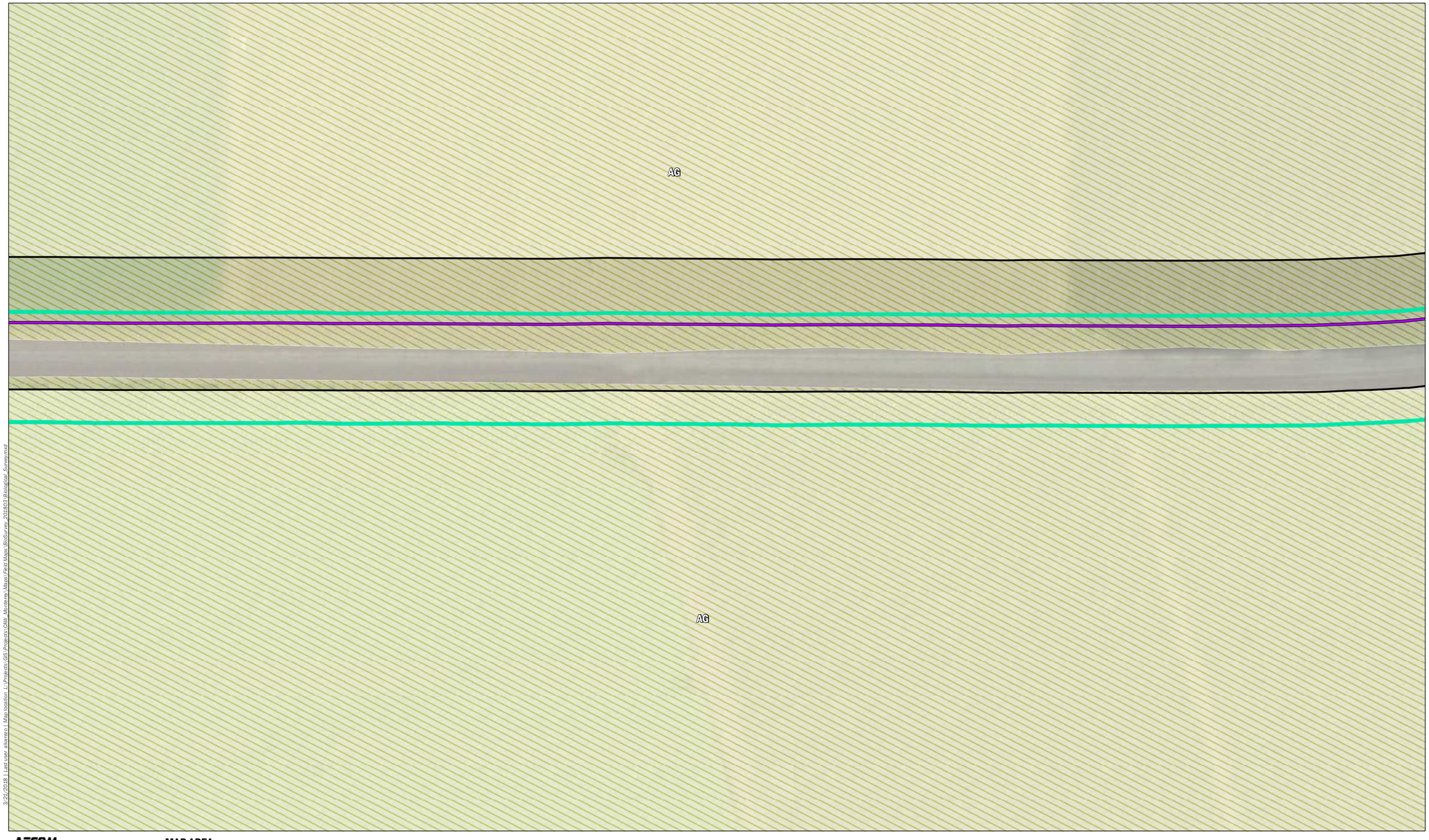
Habitat Type
- Agricultural (AG)

0 200 ft

1:1,000

N

SHEET 13



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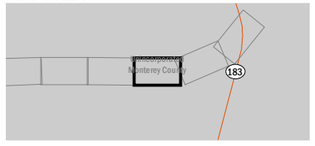
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA



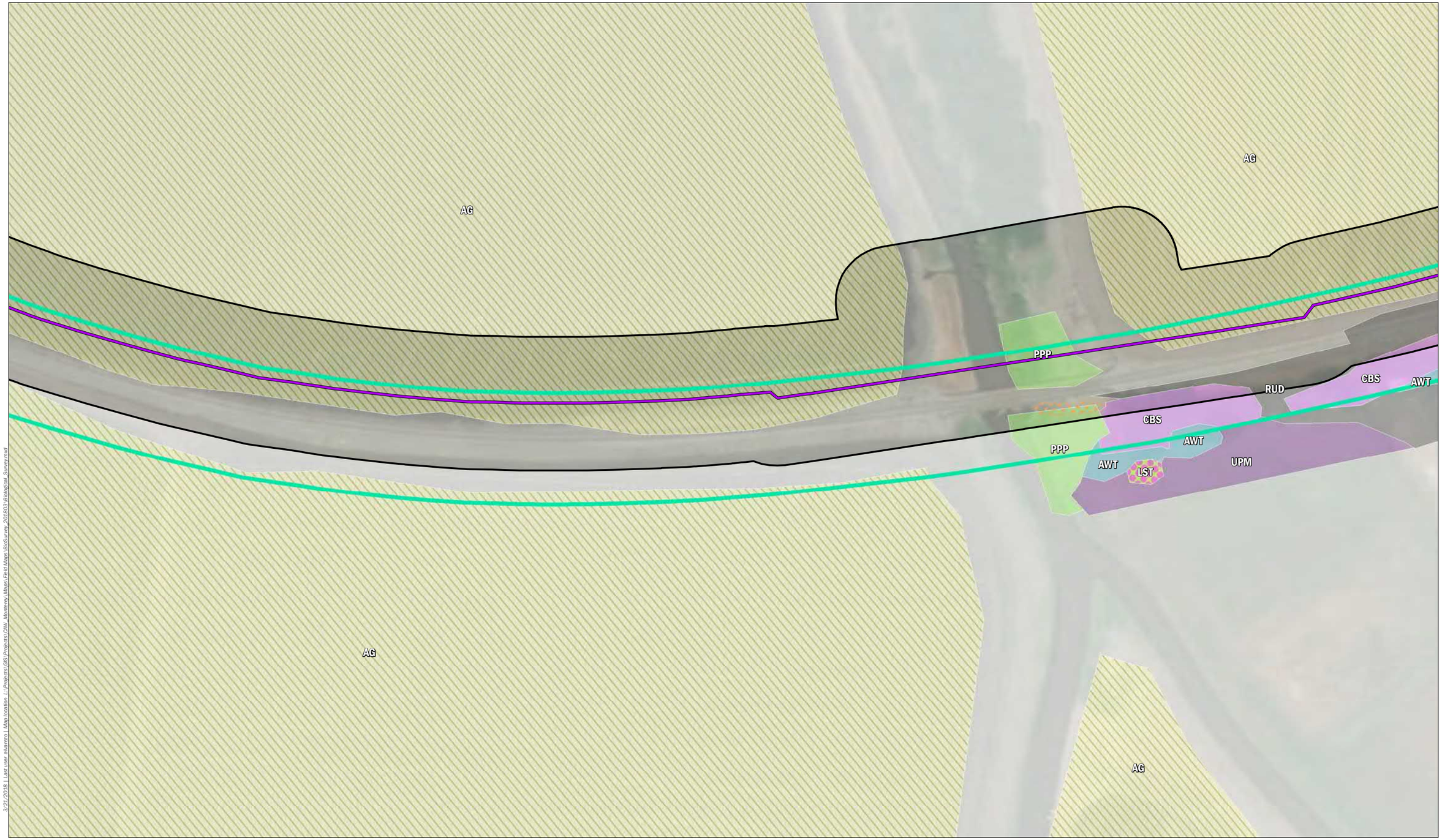
Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Habitat Type
- Agricultural (AG)

0 200 ft

1:1,000

SHEET 14 of 16



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AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP

MAP AREA

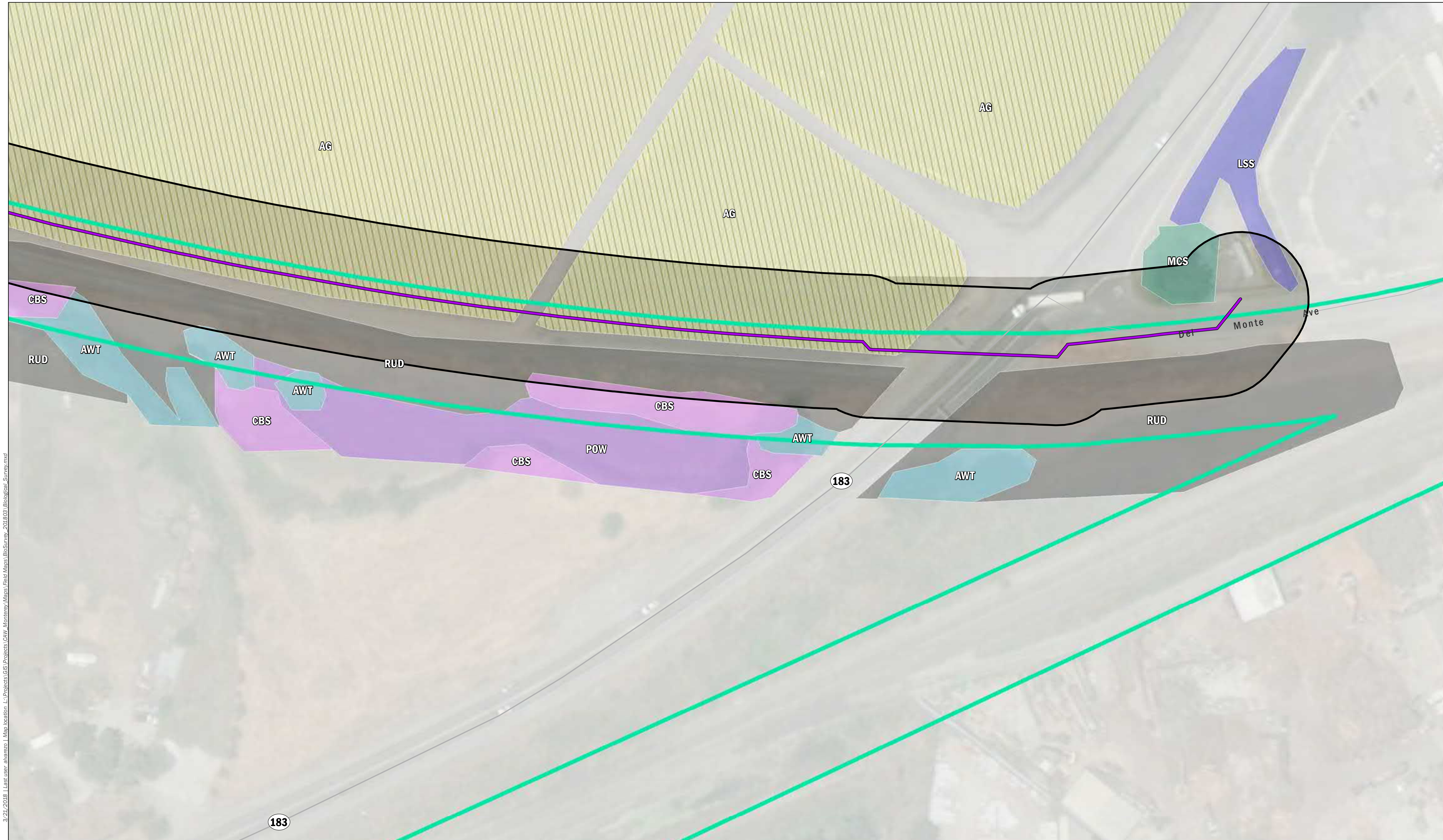
Pipeline Alignment
- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline
- swallow (unknwon, nesting under trestle)

Habitat Type
- Agricultural (AG)
- Arroyo willow thickets (AWT)
- Coyote Brush Scrub (CBS)
- Landscaped trees (LST)
- Perennial pepperweed patches (PPWP)
- Ruderal (RUD)
- Upland mustards (UM)

0 200 ft

1:1,000

SHEET 15 of 16



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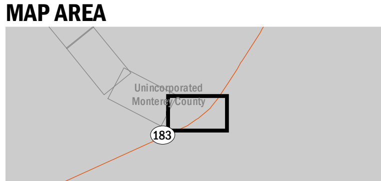
AECOM

California American Water

Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities

MONTEREY PENINSULA WATER SUPPLY PROJECT, MPWSP

MAP AREA



Pipeline Alignment

- Proposed Castroville
- TAMC ROW
- Survey Area, 50' buffer of pipeline

Habitat Type

- Agricultural (AG)
- Arroyo willow thickets (AWT)
- Coyote Brush Scrub (CBS)
- Landscaped Shrubbery (LSS)
- Monterey cypress stands (MCS)
- Prickly ox-tongue wetland (POW)
- Ruderal (RUD)

0 200 ft

1:1,000

SHEET 16 of 16

Appendix I: Aerially Deposited Lead Memorandum for Caltrans Compliance

AECOM

Memorandum

Date: November 16, 2017

To: Carla Moreno, Encroachment Permit Engineer, Caltrans

From: Jenn Hyman, PE, Project Engineer, AECOM

Subject: ***Aerially Deposited Lead Compliance for CAW Monterey Peninsula Water Supply Project***

1.0 REGULATIONS

AECOM previously submitted a preliminary permit package on behalf of California American Water (CAW) on March 13, 2014 for the water conveyance pipeline crossings of Caltrans rights-of-way (ROW) in the Monterey Peninsula Water Supply Project. In their response dated July 24, 2014, Caltrans requested an Aerially Deposited Lead (ADL) Compliance Plan be submitted for all permits on the project. AECOM (as URS) submitted an ADL Compliance Plan dated December 4, 2014. Caltrans' policy regarding ADL impacted soil has since been updated based on an Agreement between Caltrans and the Department of Toxic Substances Control (DTSC) effective July 1, 2016. This memorandum presents an updated ADL Compliance plan that provides for the reuse of some lead-contaminated soils only on Caltrans right-of-way (ROW), based on the new Agreement. The Agreement can be found at the Caltrans web site referenced at the end of this memo. The following Caltrans specifications and fact sheet were downloaded from the Caltrans web site and are attached (Caltrans, 2017).

- Spec Section 7-1.02K(6) – Occupational Safety and Health Standards
- Spec Section 14-11.08 – Material Containing Hazardous Waste Concentrations of Aerially Deposited Lead
- Spec Section 14-11.09 – Minimal Disturbance of Material Containing Hazardous Waste Concentrations of Aerially Deposited Lead
- DTSC – Fact Sheet, Community Update: Statewide Agreement for Caltrans for Reuse of Aerially Deposited Lead-contaminated Soils, March 2016

These three Caltrans ADL specifications and the Fact Sheet will be included in our project specifications and the Contractor will be required to comply with them in all Caltrans ROW where soils are excavated, as shown on the Monterey Peninsula Water Supply Program design drawings. The Contractor will submit the plans required in these specifications to Caltrans for approval prior to starting work.

2.0 BACKGROUND

Some of the pipelines and related equipment in this project will be installed in Caltrans' ROW. Lead (deposited when lead was allowed in gasoline) has been detected in soil in Caltrans ROW at levels that could be considered a health risk near roadways. The lead is generally detected within 30 feet of the edge of the pavement and within the top 6 inches of soil, but is sometimes present 2-3 feet deep.

The Agreement allows for some reuse of lead-contaminated soils in the Caltrans ROW, based on analytical test results, and with certain restrictions outlined in the above specifications.

3.0 SOIL TESTING

Soil sampling in the Caltrans ROW will be performed either in situ along the pipeline route by AECOM personnel and/or the pipeline construction Contractor prior to construction or by the Contractor from stockpiles prior to off hauling.

The hazardous waste regulations are for off-site disposal. Soil containing hazardous levels of lead may be used on the Caltrans ROW, in compliance with the Caltrans/DTSC Agreement discussed below.

Soil with 1,000 mg/kg total lead concentration is a California hazardous waste for total lead, if disposed off-site.

As described in the specifications and summarized at the bottom of this memo, total lead will be analyzed by Environmental Protection Agency (EPA) Test Method 6010 or EPA Test Method 7000 series. Extractable/soluble lead testing will be conducted based on the total lead concentrations, i.e., samples with total lead concentration of 50 mg/kg or greater, will also be analyzed by the California Waste Extraction Test (CA-WET). Soil samples with CA-WET extract results of 5.0 mg/L lead or greater are California hazardous waste for soluble lead, if disposed of off-site. Samples extracted with the CA-WET will also be extracted with a modified CA-WET using deionized water as the extractant (DI-WET). DI-WET results are used in the soil evaluation for reuse under the Caltrans/DTSC Agreement.

Additional extractable/soluble lead testing will be conducted with the federal Toxicity Characteristic Leaching Procedure (TCLP) based on the total lead concentrations, i.e., total lead equal to or greater than 100 mg/kg. TCLP extracts will be analyzed for lead. Soil samples with TCLP extracts results of 5.0 mg/L lead or greater, are federal Resource Conservation and Recovery Act (RCRA) hazardous waste for soluble lead if disposed of off-site.

All lead concentration values will be statistically evaluated and reported with a 95 percent upper confidence limit (UCL). AECOM recommends a minimum of 9 samples per category, for UCL calculations.

4.0 CONSTRUCTION ACTIVITIES

General construction activities will consist of installing potable or raw water pipelines below grade at the Caltrans ROW crossings locations. For a more detailed description of activities, please refer to the individual permit application submittals for each site. Construction methods are primarily open trenching. Some sites utilize trenchless methods (jack and bore or horizontal directional drilling). The pipeline will be installed with a minimum of 4 feet of cover.

Excavated soil that is permitted to be reused and is geotechnically suitable may be utilized as trench backfill in off-road areas such as the Transportation Agency of Monterey County (TAMC) ROW and road shoulders. Topsoil in particular may be reserved for reuse as top cover in vegetated areas to preserve the seeds of native plants. Soil in the Caltrans ROW will only be reused for backfill if it meets the criteria specified in the Caltrans/DTSC Agreement. Some of the excavated material on the project will be hauled off for off-site disposal, and where necessary, the cleanest soil will be prioritized for off-site disposal. Hazardous soils disposed offsite will be characterized, profiled, manifested, transported, and handled under all applicable laws, rules and regulations. Non-hazardous soils may be disposed of in a Class II landfill as cover or may be used off-site as clean fill if it meets the DTSC/RWQCB's reuse criteria.

Dust control procedures will be used to control dust in the Caltrans ROW. Dust monitoring will be used to demonstrate that the dust control measures are effective.

5.0 REFERENCES

California Department of Transportation. (2017, November 1). *Aerially Deposited Lead*. Retrieved November 1, 2017, from http://www.dot.ca.gov/hq/env/haz/hw_adl.htm

New Caltrans/DTSC Agreement Summary:

Type Com: Average ADL concentrations less than 5.0 mg/L soluble lead and more than 80 mg/kg total lead but not exceeding 320 mg/kg total lead. This soil may be used on ROW without restriction or used off-site on commercial/industrial properties.

Type R-1: Regulated material that may be reused on the job site if placed at least 5 feet above the maximum historical elevation of the water table, covered with at least 1 foot of Type Com or non-regulated material or pavement, and in compliance with the ADL Agreement. Type R-1 material has average ADL concentrations:

1. Equal to or greater than 5 mg/l soluble lead based on the California Waste Extraction Test or
2. Greater than 320 mg/kg total lead but not exceeding 1,600 mg/kg total lead and
3. Less than or equal to 1.5 mg/L extractable lead based on a modified waste extraction test using deionized water as the extractant.

Type R-2 = Regulated material that may be reused on the job site if placed at least 5 feet above the maximum historical elevation of the water table, covered with pavement, and in compliance with the ADL Agreement. Type R-2 material has average ADL concentrations:

1. Equal to or greater than 5 mg/I soluble lead based on the California Waste Extraction Test or;
2. Greater than 1,600 mg/kg total lead but not exceeding 3,200 mg/kg total lead and;
3. Less than or equal to 150 mg/L extractable lead based on a modified waste extraction test using deionized water as the extractant.

7-1.02K(6) Occupational Safety and Health Standards

7-1.02K(6)(a) General

Comply with applicable occupational safety and health standards, rules, regulations, and orders. The Occupational Safety and Health Standards Board is the only agency authorized in the State to adopt and enforce occupational safety and health standards (Labor Code § 142 et seq.).

You are the controlling employer and must ensure hazardous conditions are corrected (Labor Code § 6400).

The Engineer may notify Cal/OSHA if you fail to establish or maintain a safe and healthful workplace.

Submit copies of your Injury and Illness Prevention Program and permits required by Cal/OSHA. The program must address the use of personal and company-issued electronic devices during work. Do not allow the use of entertainment and personal communication devices in the work zone. Workers may use a communication device for business purposes in the work area, at a location where their safety and the safety of other workers and the traveling public is not compromised.

7-1.02K(6)(b) Excavation Safety

Comply with Labor Code § 6705 while excavating. For an excavation 5 feet or more in depth, submit shop drawings for a protective system.

The drawings must show the design and details for providing worker protection from caving ground during excavation.

Shop drawings of protective systems for which the Construction Safety Orders require design by a registered professional engineer must be sealed and signed by an engineer who is registered as a civil engineer in the State.

The submittal must allow review time and include the contents shown in the following table except the review time is 65 days for an excavation on or affecting railroad property:

Drawing Review Time and Contents

Topic	Plan not requiring a signature	Plan requiring a signature
Review time	5 business days before excavating	20 days before excavating
Contents	Drawings Calculations Material information Proprietary system information	Drawings Calculations Material information Proprietary system information Soil classification Soil properties Soil design calculations

7-1.02K(6)(c) Tunnel Safety

Cal/OSHA classifies tunnels into one of the following classifications:

1. Nongassy
2. Potentially gassy
3. Gassy
4. Extrahazardous

If a tunnel location is described in the Contract, the classification is included in the *Information Handout* and you must:

1. Designate an on-site Safety Representative under 8 CA Code of Regs § 8406
2. Submit the name of your on-site Safety Representative at least 7 days before starting work at each tunnel
3. Prominently post a notice at the job site of:
   3.1. Tunnel classifications
   3.2. Any special orders, rules, special conditions, or regulations related to tunnel work
4. Ensure your workers are informed of these classifications

Notify the Engineer at least 20 days before a worker enters a tunnel not described in the Contract. The Department obtains the classification of the tunnel. The Engineer may suspend the work because of a change directly resulting from the Contractor's planned activities that causes activities to fall under the Tunnel Safety Orders of 8 CA Code of Regs § 8422.

7-1.02K(6)(d) Confined Space Safety

Comply with 8 CA Code of Regs § 5158 while working in a confined space.

7-1.02K(6)(e) Scaffolding

Reserved

7-1.02K(6)(f)–7-1.02K(6)(i) Reserved

7-1.02K(6)(j) Lead Safety

7-1.02K(6)(j)(i) General

Reserved

7-1.02K(6)(j)(ii) Lead Compliance Plan

Section 7-1.02K(6)(j)(ii) applies if a bid item for a lead compliance plan is shown on the Bid Item List.

Regulations containing specific Cal/OSHA requirements when working with lead include 8 CA Code of Regs § 1532.1.

Submit a plan:

1. That documents your compliance program to prevent or minimize worker exposure to lead
2. Including the items listed in 8 CA Code of Regs § 1532.1(e)(2)(B)
3. Sealed and signed by a CIH

Allow 7 days for review. Obtain authorization for the plan before starting any activity that presents the potential for lead exposure.

Before starting any activity that presents the potential for lead exposure to employees who have no prior training, including State employees, provide a safety training program to these employees that complies with 8 CA Code of Regs § 1532.1 and your lead compliance plan.

Submit copies of air monitoring or job site inspection reports made by or under the direction of the CIH under 8 CA Code of Regs § 1532.1 within 10 days after the date of monitoring or inspection.

Supply personal protective equipment, training, and washing facilities required by your lead compliance plan for 5 State employees.

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

Reserved

7-1.02K(6)(j)(iv–viii) Reserved

7-1.02K(6)(k)–7-1.02K(6)(t) Reserved

7-1.02L Public Contract Code

7-1.02L(1) General

Reserved

7-1.02L(2) Antitrust Claims

In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with § 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgment by the parties. [Pub Cont Code § 7103.5 (b)]

2. State and federal laws and regulations governing hazardous waste
3. County and municipal ordinances and regulations governing hazardous waste

Within 5 business days of transporting Department-generated hazardous waste, submit documentation of proper disposal from the receiving landfill.

14-11.08 MATERIAL CONTAINING HAZARDOUS WASTE CONCENTRATIONS OF AERIALLY DEPOSITED LEAD

14-11.08A General

Section 14-11.08 applies if management of material containing hazardous waste concentrations of ADL is specified in the special provisions. Section 14-11.08 includes specifications for hazardous waste management while excavating, stockpiling, transporting, placing, and disposing of material containing hazardous waste concentrations of ADL.

Excavate, reuse, and dispose of material containing ADL under the rules and regulations of the following agencies:

1. US Department of Transportation
2. US EPA
3. California Environmental Protection Agency
4. CDPH
5. DTSC
6. Cal/OSHA
7. California Department of Resources Recycling and Recovery
8. California Air Resources Board

14-11.08B Definitions

Type Y-1 material: California hazardous waste that may be reused under a variance from the DTSC if the contaminated soil is placed at least 5 feet above the maximum historic elevation of the water table and covered with at least 1 foot of nonhazardous soil. This material contains ADL in average concentrations of 1.5 mg/L or less extractable lead and 1,411 mg/kg or less total lead. The average concentrations are calculated using the 90 percent upper confidence limit. The extractable lead concentrations are determined by a modified waste extraction test using deionized water as the extractant.

Type Y-2 material: California hazardous waste that may be reused under a variance from the DTSC if the contaminated soil is placed at least 5 feet above the maximum historic elevation of the water table and protected from infiltration by pavement that will be maintained by the Department. This material contains ADL in average concentrations between 1.5 and 150 mg/L extractable lead and between 1,411 mg/kg and 3,397 mg/kg total lead. The average concentrations are calculated using the 90 percent upper confidence limit. The extractable lead concentrations are determined by a modified waste extraction test using deionized water as the extractant.

Type Z-2 material: Department-generated California hazardous waste that must be disposed of at a California Class I disposal facility. Type Z-2 material is either:

1. Surplus material that contains ADL in average concentrations greater than or equal to 1,000 mg/kg total lead or 5.0 mg/L soluble lead. The average concentrations are calculated using the 95 percent upper confidence limit. The soluble lead is tested using the California Waste Extraction Test.
2. Material that contains ADL in average concentrations greater than 3,397 mg/kg total lead or 150 mg/L extractable lead. The average concentrations are calculated using the 90 percent upper confidence limit. The extractable lead concentrations are determined by a modified waste extraction test using deionized water as the extractant.

Type Z-3 material: Department-generated federal hazardous waste that must be disposed of at a California Class I disposal site. This material contains ADL in average concentrations greater than 5.0 mg/L soluble lead using a 95 percent upper confidence limit as tested under the toxicity characteristic leaching procedure.

14-11.08C Site Conditions

Concentration data and sample location maps for ADL are included in the *Information Handout*.

14-11.08D Submittals

14-11.08D(1) General

Reserved

14-11.08D(2) Excavation and Transportation Plan

Within 15 days of Contract approval, submit 3 copies of an excavation and transportation plan for material containing hazardous waste concentrations of ADL.

If the plan requires revisions, the Department provides comments. Submit a revised plan within 7 days of receiving comments. The Engineer may allow construction to proceed while minor revisions or amendments are being completed.

The excavation and transportation plan must comply with:

1. DTSC regulations
2. Variance regarding the use of material containing ADL
3. Cal/OSHA regulations
4. Requirements for the design and development of a sampling plan, statistical analysis, and reporting of test results under US EPA, SW 846, "Test Methods for Evaluating Solid Waste," Volume II: Field Manual Physical/Chemical, Chapter 9, section 9.1

14-11.08D(3) Burial Location Report

Reserved

14-11.08D(4) Bill of Lading

Submit copies of the bills of lading as an informational submittal upon placement of Type Y-1 or Y-2 material in its final location.

14-11.08E Dust Control

Prevent visible dust migration during excavation, transportation, placement, and handling of material containing hazardous waste concentrations of ADL under section 14-11.04.

14-11.08F Air Monitoring

Reserved

14-11.08G Material Management

Reserved

14-11.08H Surveying Type Y-1 or Y-2 Material Burial Locations

Survey the bottom and top perimeters of each location where you bury Type Y-1 or Type Y-2 material.

The survey must be performed by or under the direction of one of the following:

1. Land surveyor licensed under the Bus & Prof Code Ch 15, starting with § 8700
2. Civil engineer licensed before January 1, 1982 under the Bus & Prof Code Ch 7, starting with § 6700

Survey 10 points to identify each burial location horizontally and vertically within the specified accuracies and to create closed polygons of the bottom and top perimeters of the burial location. If needed to adequately define the polygon, survey additional points. Establish the position of the bottom and top perimeters before placing subsequent layers of material that obstruct the location.

Report each burial location in California state plane coordinates in US survey feet within the appropriate zone of the California Coordinate System of 1983 (CCS83) and in latitude and longitude. Reference horizontal positions to CCS83 (epoch 2007.00 or later National Geodetic Survey [NGS] or California Spatial Reference Center [CSRC] published epoch) to an accuracy of 3 feet horizontally. Identify the survey points to an accuracy of 1 foot vertically. Reference the top and bottom elevations of the burial

locations to North American Vertical Datum of 1988 (NAVD88). Report the accuracy of spatial data in US survey feet under Federal Geographic Data Committee (FGDC)-STD-007.1-1998.

The Department does not pay for:

1. Stockpiling of material containing ADL unless the stockpiling is ordered
2. Sampling and analysis unless it is ordered

14-11.08I Material Transportation

Before traveling on public roads, remove loose and extraneous material from surfaces outside the cargo areas of the transport vehicles. Place tarpaulins or other cover over the cargo as described in the authorized excavation and transportation plan. You are responsible for costs due to spillage of material containing ADL during transport. Transportation routes for Type Y-1 or Type Y-2 material must only include the highway.

14-11.08J Disposal

Transport and dispose of material containing hazardous waste levels of lead under federal and state laws and regulations and county and municipal ordinances and regulations. Laws and regulations that govern this work include:

1. Health & Safety Code § 25100 et seq
2. 22 CA Code of Regs § 66250 et seq
3. 8 CA Code of Regs

The Department does not pay for additional sampling and analysis required by the receiving landfill.

14-11.09 MINIMAL DISTURBANCE OF MATERIAL CONTAINING HAZARDOUS WASTE CONCENTRATIONS OF AERIALLY DEPOSITED LEAD

14-11.09A General

Section 14-11.09 applies if minimal disturbance of material containing hazardous waste concentrations of ADL is specified in the special provisions. Section 14-11.09 includes specifications for handling and managing material containing hazardous waste concentrations of ADL when there is a minimal disturbance.

Compliance with 22 CA Code of Regs is not required where there is minimal disturbance of hazardous waste concentrations of ADL.

Hazardous waste concentrations of ADL are typically found within the top 2 feet of material in unpaved areas of the highway. Management of this material exposes workers to health hazards that must be addressed in your lead compliance plan.

14-11.09B Material Management

Handling of material containing ADL must result in no visible dust migration. Use dust control measures. A means of controlling dust must be available at all times when handling material in work areas containing ADL at hazardous waste concentrations.

Separate material from vegetation. The resulting soil must remain on the job site.

Surplus material from the areas containing hazardous waste concentrations of ADL must remain in the area of disturbance. Do not dispose of surplus material outside the highway.

14-11.10 NATURALLY OCCURRING ASBESTOS

Reserved

14-11.11 DEPARTMENT-GENERATED CONTAMINATED SOIL

Reserved

locations to North American Vertical Datum of 1988 (NAVD88). Report the accuracy of spatial data in US survey feet under Federal Geographic Data Committee (FGDC)-STD-007.1-1998.

The Department does not pay for:

1. Stockpiling of material containing ADL unless the stockpiling is ordered
2. Sampling and analysis unless it is ordered

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Before traveling on public roads, remove loose and extraneous material from surfaces outside the cargo areas of the transport vehicles. Place tarpaulins or other cover over the cargo as described in the authorized excavation and transportation plan. You are responsible for costs due to spillage of material containing ADL during transport. Transportation routes for Type Y-1 or Type Y-2 material must only include the highway.

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14-11.10 NATURALLY OCCURRING ASBESTOS

Reserved

14-11.11 DEPARTMENT-GENERATED CONTAMINATED SOIL

Reserved

COMMUNITY UPDATE

The mission of DTSC is to protect California's people and environment from harmful effects of toxic substances by restoring contaminated resources, enforcing hazardous waste laws, reducing hazardous waste generation, and encouraging the manufacture of chemically safer products.

STATEWIDE AGREEMENT FOR CALTRANS FOR REUSE OF AERIALLY DEPOSITED LEAD-CONTAMINATED SOILS

You are invited to review and comment on a draft agreement between the Department of Toxic Substances Control (DTSC) and the California Department of Transportation (Caltrans) for Caltrans to reuse soil containing elevated concentrations of aerially deposited lead during highway improvement projects. The agreement applies to various freeway/highway construction projects in all Caltrans Districts statewide. Previously, Caltrans used a variance issued by DTSC to reuse ADL-contaminated soil.

SITE BACKGROUND

Until the mid-1980's gasoline and other fuels contained lead as an additive. As each motor vehicle traveled the highways, tiny particles of lead were emitted in the exhaust and settled on the soils next to the freeways and roads. Most of the time, lead tends not to move very far or very fast in the environment. Over the years, lead built up alongside the freeways and roads. Caltrans highway-widening projects disturb the soils, some of which contains lead. DTSC regulations specify at what levels lead in soil is considered to be a risk. In areas where road construction will occur, Caltrans has found levels of lead that are higher than DTSC's specifications. The lead is found within 30 feet of the edge of the pavement and within the top six inches of the soil. In some cases, the lead is as deep as two to three feet below the surface.

Public Comment Period

March 24, 2016 - May 10, 2016

DTSC will accept public comments on the Statewide Agreement for Caltrans during the public comment period beginning **March 24, 2016 through May 10, 2016**. All comments must be received by **May 10, 2016**. Send all comments to:

Perry Myers, Project Manager
8800 Cal Center Drive
Sacramento, California 95826
(916) 255-3708
Perry.Myers@dtsc.ca.gov

Public meeting and hearing held:

Tuesday, May 3, 2016
6:00 P.M. - 8:00 P.M.
North Highlands-Antelope Library
4235 Antelope Road
Antelope, California 95843
and
Thursday, May 5, 2016
6:00 P.M. - 8:00 P.M.
Lynwood Library
11320 Bullis Road
Lynwood, California 90262

HEALTH RISK ASSESSMENT

Lead is toxic and it is present everywhere in the environment, most often at very low levels. If lead gets into the body above certain levels, it can cause damage to the nervous system or blood cells. Children are at the highest risk because their bodies are still developing. In children, even relatively low blood lead levels can cause learning disabilities. However, lead must enter the bloodstream to be harmful.

People can absorb lead into their blood in several ways. Adults, and especially children, could swallow lead that is attached to small dirt particles that gets into their mouths or on their hands. People can also swallow lead if it has gotten into drinking water. There are other routes of exposure, but DTSC does not believe that those routes apply in this case.

VARIANCE HISTORY

In April 1996, Caltrans asked DTSC to grant a variance from the hazardous waste rules to allow road construction projects to reuse soils containing lead from motor vehicle exhaust on the project site. Although the level of lead found in some areas is higher than that which is considered to be hazardous waste, Caltrans proposed to reuse the soil along the freeways and roads under construction without posing a threat to human health or the environment.

Caltrans identified several potential uses for the soil containing lead. These included:

- raising ground level for building park-and-ride lots and placing under new roads;
- building embankments at freeway overcrossings and interchanges;
- creating small hills along parts of freeways and roads;
- using as backfill for structures, to replace soils which construction crews remove to construct sound walls;
- re-filling trenches and holes created by removing obstacles, such as trees and barriers that are no longer needed; and
- as roadbase fill, to level out the ground.

In addition, Caltrans has incorporated sections in its contracts with construction contractors that would require contractors to handle the lead-contaminated soil in certain ways. For example, soil found to contain lead would be kept separate from non-hazardous soil and the contractor would have to take dust control and security measures to keep people from coming into contact with it until it is reused. The lead would stay in place (beneath the road, highway, freeways, or a thick layer of clean soil, etc.) for the life of the highway. Even though current freeways and roads are designed to last 30 to 50 years, Caltrans notes that additional upgrades and widening are much more likely than abandoning old freeways. Therefore, the lead remains secure, and human health and the environment are protected.

In reviewing the variance request, DTSC studied how people might be exposed to the lead left in the soil and how best to protect their health. DTSC concluded that Caltrans could reuse soil containing lead as long as the concentration is below a certain level and people are kept from coming into contact with the lead-containing soil.

DTSC approved Caltrans request for a variance and it has been updated and renewed periodically from 1996 to the present. The current variance has been in effect since 2009. In June 2015, DTSC made the decision to transition from a variance to a new Agreement between DTSC and Caltrans to better manage soil with lead from vehicle exhaust that is disturbed during highway improvement projects in the State rights-of-way.

THE NEW AGREEMENT

The new Agreement DTSC is proposing to approve is similar to the variance with additional special provisions. This section outlines key conditions of the Agreement:

- The Agreement would only apply to soils containing lead from motor vehicle exhaust;
- Caltrans must sample and test soils for lead content;

- When implementing the Agreement, Caltrans must obtain the approval of other state, regional, and local regulatory authorities;
- Caltrans must take certain steps when lead is at or above specified levels;
- Caltrans will properly dispose of lead-containing soil for which it has no use;
- Caltrans will be restricted to placing the soils only in areas that are at least five feet above the maximum water table elevation;
- Caltrans must take precautions with lead-contaminated soil that it digs and must keep it covered with thick plastic until it is reused;
- Caltrans may reuse the soil within the designated freeway corridor from which it came; and
- Caltrans will keep records and provide detailed reports to DTSC when it handles the soil containing lead. Caltrans will make copies of those records available to the public at applicable Caltrans District offices and at the appropriate information repositories.

The proposed Agreement contains several other detailed technical requirements as well. The table below shows the actions that Caltrans may take depending on the lead concentration of the soil.

Minimum Cover Requirements for ADL-contaminated Soil
Based on Extractable and Total Lead Concentrations

Extractable Lead Concentration		Total Lead Concentration	Minimum Cover Requirement
Less than 5 mg/l CA-WET	and	Less than 320 mg/kg	No cover requirement
Greater than 5 mg/l CA-WET and equal to or below 1.5 mg/l DI-WET	or	Greater than 320 mg/kg but equal to or below 1600 mg/kg	One foot of clean soil
Greater than 1.5 mg/l DI-WET but equal to or below 150 mg/l DI-WET	or	Greater than 1600 mg/kg but equal to or below 3200 mg/kg	Pavement structure
Greater than 150 mg/l DI-WET	or	Greater than 3200 mg/kg	Subject to full regulation as hazardous waste

* This is the minimum requirement. Such soil may alternatively be covered by a pavement structure.

To put the numbers shown in the table in context, soil containing lead with levels below 80 parts per million (ppm) is considered appropriate for use without restrictions at any property. Soil containing lead with levels below 320 ppm but above 80 ppm is considered appropriate for use at commercial properties but not residential properties.

Finally, as Caltrans plans and designs its highway projects, each project must comply with Federal as well as State environmental quality laws.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

DTSC has chosen to evaluate the decision to enter into an agreement with Caltrans for the management of lead containing soils through the California Environmental Quality Act (CEQA) to determine if it could have significant adverse impacts. DTSC completed an Initial Study and determined that the proposed project would not have a significant adverse impact. This finding is described in the Negative Declaration.

The environmental assessment included areas that could potentially be affected (soil, air, surface and ground water, transportation, public health and safety, etc.). DTSC analyzed the potential for residents, school children, etc., to be exposed to the lead-contaminated soil. The finding that the project would not have an adverse impact on the environment was based on:

- the low level of toxicity of the lead at the concentrations in the contaminated soil
- the lead-contaminated soil would be properly managed, tracked, and monitored and would not move.

NEXT STEPS

DTSC will review and consider comments received during the public comment period before making a final decision to approve, modify or deny the new Agreement. If comments are received from the community on the Statewide Agreement for Caltrans, DTSC will prepare a "Response to Comments" at the completion of the public comment period. Anyone who submits comments will receive a copy of the "Response to Comments". Additionally, a copy of the "Response to Comments" would be placed in the information repositories.

INFORMATION REPOSITORIES

The Statewide Agreement for Caltrans, and project-related documents can be viewed at:

Central Library	**Southern - Caltrans**	**Central Valley - Caltrans**	**DTSC-Sacramento**
828 I Street	120 South Spring Street	1352 West Olive Avenue	8800 Cal Center Drive
Sacramento, California 95814	Los Angeles, California 90012	Fresno, California 93728	Sacramento, California 95826
(916) 264-2700	(213) 897-0693	(559) 488-4082	(916) 255-3758
Call for hours	Call for hours	Call for hours	Call for appointment

DTSC CONTACT INFORMATION

The following individuals can be contacted with any questions or concerns you may have regarding the project.

Perry Myers	Tammy Pickens	Russ Edmondson
Project Manager	Public Participation Specialist	Public Information Officer
(916) 255-3708	(916) 255-3594 or (866) 495-5651	(916) 323-3372
Perry.Myers@dtsc.ca.gov	Tammy.Pickens@dtsc.ca.gov	Russ.Edmondson@dtsc.ca.gov

Appendix J: American Water Safety Requirements

1. **Contractor Safety Requirements**
2. **Contractor Safety Orientation Checklist**
3. **Contractor Health and Safety Questionnaires (pending)**

CONTRACTOR SAFETY REQUIREMENTS

1.0 Purpose

The purpose of this section is to describe the responsibilities of American Water and its contractors who perform work for American Water or on premises operated by American Water.

2.0 Scope

This procedure applies to all American Water operations that utilize contractors for the performance of work.

3.0 Responsibilities

The contractor has the responsibility to ensure that their employees are adequately trained in safe work practices and comply with applicable regulations. American Water locations may designate a representative(s) to monitor construction/maintenance activities. American Water is responsible for ensuring that contractors follow this procedure and that applicable hazard information specific to the areas where the contactor may work are conveyed to the contractor at the start of a project.

4.0 Procedures

Contractor Safety

All contractors shall abide by the safety and health policies pertaining to the location, facility, or project on which they are working. A contractor's violation of these safety and health policies could expose our employees, the public and our property, as well as the contractor, to unnecessary hazards. Strict enforcement of this policy by supervisory personnel is expected.

The contractor shall designate a safety representative.

Each contractor must be apprised of any hazards and pertinent safety information before commencing any task (see Contractor Safety Orientation Checklist).

Each contractor must certify in writing that he/she has been informed about, and understands, all relevant safety information before coming onto American Water premises.

4.2 Qualifications of Contractors

Contractor safety performance will be a significant requirement in the contractor selection process. Compliance with the following criteria will be minimum requirements in contractor selection and will be monitored on a continuing basis.

Safety results should be judged on a continuing basis. Safety results should be judged on the basis of improvement made in year-to-year results. Criteria for contractor health and safety information are listed below (see Contractor Health and Safety Questionnaire).

Contractor Safety Orientation Checklist

I, _____, as an authorized representative of _____ (Contractor), acknowledge having received safety orientation information from American Water on the requirements noted below for Outside Contractors (OC). I understand the information that has been provided, and further understand that failure to comply with Occupational Safety & Health Administration (OSHA) requirements will be a breach of the agreement with American Water and will be cause for American Water to suspend performance of the outside contract under this agreement.

Plant: _____ District: _____ Project: _____		YES	NO	N/A	Initials	
					OC	AW
Section I. Hazard Communication (29 CFR 1910.1200)						
1.	Location of written program/SDS book					
2.	Provided with an explanation of the labeling system					
3.	Informed of emergency procedures					
Section II. Permit Required Confined Space Entry (29 CFR 1910.146)						
1.	Advised that permit space entry must comply with OSHA standard					
2.	Advised of known hazards contained within the permit space					
3.	Advised of precautions taken for employees who are working in or near the space to be entered					
4.	Combined entry operations coordinated with contractor					
5.	Advised post entry field conference required to review hazards encountered, if any					
Section III. Process Safety Management (29 CFR 1910.119)						
1.	Contractor safety programs/employee training evaluated					
2.	Contractor informed of potential hazards of fire, explosion and toxic releases					
3.	Contractor advised of Emergency Action Plan					
4.	Contractor informed of periodic work performance evaluation procedures					
5.	System of restricted access to chemical process area implemented					
6.	Contractor informed of illness/injury requirements and reporting procedures					
Additional Recommendations						
1.	Contractor provided with an overview of American Water safety rules					
2.	Contractor informed of hazardous chemical clean-up responsibility					
3.	Contractor informed of special requirements of Federal, State, and local laws					
4.	Contractor informed of responsibilities regarding employee conduct					

_____

Authorized Contractor Representative Date

_____ _____

Authorized American Water Representative Date

Appendix K: American Water Electrical Requirements

1. **Acceptable Electrical Equipment Manufacturers and Suppliers**
2. **Recommended Electrical Design Criteria and Standards**
3. **Electrical Pre-Job Briefing**
4. **Power System Study and Arc Flash Analysis Requirements**

AMERICAN WATER
ACCEPTABLE ELECTRICAL EQUIPMENT MANUFACTURERS AND SUPPLIERS

The following listing is intended to identify those manufacturers that are generally acceptable and capable of meeting American Water's Recommended Design Standards, and provides a unified approach in design, maintenance and operation across the entire Company. Unless specifically indicated, the naming of the manufacturers outlined below is not intended to provide the specified "order" for equipment selections. The list should be reviewed with the Water Company during the initial design phase to add or eliminate any manufacturers that are preferred or rejected by the local Operations team. The Consultant may propose other suppliers/manufacturers for Owner review and acceptance based on the specific nature of the Work and site location and/or conditions. The Consultant shall include a listing of proposed major electrical equipment manufacturers with the Design Memorandum for consideration by the Owner. The Basis of Design shall be established based on the Owner's preferences.

Equipment Description	Manufacturers
MV Switchgear – Vacuum Breaker, Draw-Out	Cutler-Hammer Square D Siemens General Electric
Medium Voltage Automatic Transfer Switchgear (Circuit Breaker Transfer Equipment – Manual or Automatic)	Cutler-Hammer Square D Siemens General Electric Or Acceptable Manufacturer from above provided by Generator Equipment Manufacturer (subject to Owner approval)
MV Fusible Switchgear	Cutler-Hammer Square D *(Note - HVLcc Type Equip Not Accepted)* Siemens General Electric S&C
MV Switchgear – SF6 Type	*Not Preferred Equipment*
MV Motor Control Equipment, MC Lineups (FVNR, RVSS Equipment)	Cutler-Hammer Siemens General Electric
MV Variable Frequency Drives	Toshiba Cutler-Hammer Siemens/Robicon
LV Power Distribution Equipment – (Swgr, Swbds, Panelboards, Circuit Breakers, etc)	Cutler-Hammer Square D Siemens General Electric
Transformers – Dry Type, VPI, VPE Insulation	Cutler-Hammer Square D/Sorgel Siemens ABB
Transformers – Cast-Coil	Square D/Sorgel ABB
Transformers – Liquid-Filled	*Not Preferred Equipment*

Equipment Description	Manufacturers
Protection Relays & Monitoring Relays for Voltage, Current, Phase Loss, Etc.	SEL (Schweitzer Engineering Laboratories) *Other acceptable manufacturers may include the following (subject to prior approval by AW Engr / Owner)* All to be provded with Fiber-Optic Communications over Ethernet / Modbus TCP/IP
Power Quality Metering, Motor Monitoring & Feeder Protection Relays	SEL 735, SEL 710, SEL 751A, SEL-489 Other SEL devices as applicable for the design of the power distribution system. *Communications to utlilize fiber-optic interface; dual-port for loop configuration where available. Copper communications to be utilized only where specifically indicated. All to be provded with Fiber-Optic Communications capability Ethernet / Modbus TCP/IP and DNP3*
Low Voltage Motor Control Centers	Cutler-Hammer Siemens General Electric
Full Voltage Motor Starters	Cutler-Hammer Siemens General Electric
Reduced Voltage (Solid-State, Soft Start) Motor Starters	Cutler-Hammer Siemens General Electric Danfoss Benshaw
Low Voltage Variable Frequency Drives – Stand Alone Applications (Free-Standing or Wall Mounted Units) *NOTE: All VFD equipment to be "Heavy Duty" / "Industrial Duty" and rated for 50 C. and shall be CT rated regardless of load type. Cooling fans shall be accessible without requiring total dismantling of the drive assembly; top outlet discharge preferred.* *"HVAC Rated" Drives are Not Permitted* *** NEMA4X Note: Drive assembly to be rated NEMA 4x by manufacturer; use of open chassis or NEMA 1 drives installed in NEMA 4x enclosure is not suitable in meeting this criteria.*	<u>Free-Standing – Wall or Floor Mounted</u> Toshiba ABB Siemens/Robicon Danfoss Benshaw Yaskawa <u>NEMA 4X Type (where required)**</u> Yaskawa T B Woods Harmonic Filters (where required) TCI Mirrus
Low Voltage Variable Frequency Drives – Part of MCC Lineup/Equipment *(Not an AW preferred method)*	Cutler-Hammer General Electric Square D Seimens
Low Voltage Automatic or Manual Transfer "Switches" – Contactor Type assembly	ASCO 4000 Series (unless otherwise suitable) Cutler-Hammer GE/Zenith Russelectric

Equipment Description	Manufacturers
Low Voltage (*Service Entrance Rated where applicable*) Automatic Transfer Equipment (Circuit Breaker Transfer Equipment – Manual or Automatic) *NOTE: Circuit Breaker – Main and Circuit Breaker – Standby REQUIRED unless specifically accepted otherwise*	Cutler-Hammer/Eaton Square D Russelectic Switchgear General Electric
Uninterrupted Power Supplies	APC Powerware General Electric Mesta Liebert MCG
Surge Protective Devices (UL-1449, Rev 3 Compliant and Listed/Labeled)	APT – Advanced Protection Technologies MCG APC
Lighting Fixtures – Fluorescent T-8 lamps, Program-Start Ballasts, Indoor Enclosed and Gasketed Fluorescent for Damp and Wet Locations (Process and Chemical Rooms)	EPCO GFF Series w/SS Latches, Simkar EN 2 or 3 w/SS Latches, Holophane ERS Series, Lithonia FSW or FHE Series, ILS Others as accepted by Owner *(Note – the use of fixtures similar to Lithonia DMR Series, Columbia LUN Series, Simkar OV450, etc are generally prohibited due to on-going physical / performance issues associated with this type of design (limited latches retaining sealed integrity of the assembly)). Fixture selection is to take into consideration lamp output, lumen maintenance, and environmental factors associated maintainability of the overall system.*
Lighting Fixtures – Fluorescent T-8 lamps, Program-Start Ballasts, Indoor dry applications	Benjamin, Philips, Keene, Lithonia and Others as accepted by Owner
Lighting Fixtures – Fluorescent T-8 lamps, Program-Start Ballasts, Indoor Hazardous Locations	Appleton Crouse-Hinds Killark Others as accepted by Owner
Lighting Fixtures – LED Indoor	Lithonia Philips Cree Others as accepted by Owner
All LED luminaires must be UL Listed (e.g. UL8753 / UL8750) and tested to IESNA LM-79 and LM-80 standards and that the results of those tests must be submitted to the Owner as part of the submittal review process. LED fixtures to be provided with a 5 year warranty covering the driver, the LED components and the luminaire.	
Lighting Fixtures – LED Outdoor	RAB Cree Philips Dialight Lithonia Others as accepted by Owner
Lighting Fixtures – HPS Outdoor	Holophane, Infranor Devine, Philips Others as accepted by Owner

Equipment Description	Manufacturers
Lighting Control - Occupancy Sensors	Sensor Switch (High Humidity / Low Temperature Type) – process & chem. Areas Leviton, Hubbell, P&S along with others mfgrs and products to be provided as determined suitable for the location and environment where installed. *NOTE: Technology (passive IR, ultrasonic, or dual) to be based on location where installed*.
Lighting Control – Daylight Harvesting and/or Special Function and Dimming	Lutron Wattstopper Day Light Controls Others as accepted by Owner
Control and Timing Relays (“Ice-cube” relay style)	Diversified Potter Brumfield Syrelec Allen Bradley Square D Cutler-Hammer Seimens Releco Others as accepted by Owner
Push Buttons, Selector Switches & Pilot Lights (30 mm minimum size devices, NEMA 4X style preferred and high-intensity LED pilot lamps)	Cutler-Hammer Square D Seimens Allen Bradley Kraus & Naimer
Definite Purpose Relays and Contactors	Cutler Hammer Square D Siemens Allen Bradley
Industrial Plugs & Receptacles	Meltric Corp. Hubbell Leviton Others as accepted by Owner
PVC Coated Rigid Steel Conduit	Ocal Robroy
Fiberglass Conduit	Champion FRE
Power Generation Equipment – (Diesel engine driven units)	Onan/Cummins Caterpillar Kohler Others only as determined accepted by Owner
Corrosion Resistant Wiring Devices	Woodhead, http://www.woodheadsales.com

RECOMMENDED ELECTRICAL DESIGN CRITERIA AND STANDARDS

AMERICAN WATER BUSINESS SERVICES ENGINEERING

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INTRODUCTION

Design of safe, reliable, and cost effective electrical power distribution systems is an essential aspect of the design of water and wastewater pumping, storage, and treatment facilities. Safety begins with proper sizing, coordination, selection, and installation of appropriate materials and power system components, all of which are critical to minimize the risk of worker injury and equipment damage from electrical hazards. Reliability is also tied to proper design and equipment selection because power system components are subject to unique thermal, magnetic, and vibration forces on an often continuous basis. Cost-effectiveness is impacted by numerous design decisions, including equipment location/layout, operating voltage, equipment specifications, design safety factors, environment, etc.

The purpose of this standard is to provide recommendations for electrical system design criteria and standards that American Water Engineering has found to be effective for maximizing value by assuring safe, reliable, and cost-effective electrical power system installations. None of the recommendations included herein shall be construed as superseding local building code requirements, and all facility designs and installations must fully comply with current electrical and building code requirements applicable to the project. In addition, it is the responsibility of the designer to develop a fully integrated and complete set of design plans and specifications based to the degree possible on these design recommendations.

Included with this guidance document are the following two attachments:

1. Attachment A – Power System Studies & Arc Flash Hazard Analysis Requirements. Provides detailed requirements for performing electrical coordination analysis and arc flash hazard assessments. These requirements are considered essential for a complete, coordinated design and should be included as part of a consultant's design scope of services.

2. Attachment B – Acceptable Electrical Equipment Manufacturers List. Identifies acceptable manufacturers for electrical equipment and systems. This listing is to be reviewed with the Owner prior to implementing the design in order to establish preferred sourcing of equipment and suppliers based on Owner preference, service/support and availability. The list is not intended to establish an order of preference; only manufacturers who have demonstrated capability to provide materials and quality of construction for the intended installations and applications. Other sources may be considered if accepted by the Owner in advance of the Design Memorandum submission. Any revisions are to be documented in writing with this submission.

POWER DISTRIBUTION AND ARC FLASH HAZARD CONSIDERATIONS

Arc flash hazard evaluations have continually shown that the incoming (line-side) terminations on 277/480 VAC and/or 480 VAC services pose significant risk due to high incident energy levels. Frequently, incident energy at the incoming service exceeds 40 cal/cm2, or PPE-4 level of protective equipment. To address this issue, AW recommends installing the incoming main service disconnect device in a separate enclosure, and then sub-feeding from this over-current protection (OCP) device to a main lug panel or distribution assembly. While this may still pose the risks at this service-entrance location, it is intended that the design and selection of the main device will lower the incident energy associated with the downstream equipment to a level below the PPE-4 maximum protective equipment available for any energized work required.

AW recommends only circuit breakers (no fusible switch equipment) be used for this main service over-current protection device. This allows the operator to “reset” the main in the event of a “trip” incident without having to “open” the equipment (to check fuses, etc.). This “main” should also be provided with the metering input components and devices as outlined herein under item #12 – “Power Monitoring/Metering and Protective Relaying”.

For those facilities where it is intended to also provide permanent or portable standby generator power, AW recommends considering the use of circuit breaker transfer equipment in lieu of contactor-based transfer equipment (e.g., typical Asco transfer switch). Benefits include combined (but shielded) circuit breakers for the utility and generator protection, UL service-entrance listed as well as UL-1008 listed/labeled for automatic transfer switch (ATS) applications and non-automatic operation associated with portable generator installations. AW has developed a configuration including standard and “optional” features associated with this equipment. The use of contactor based ATS equipment requires the use of a separate “Main” as well as an additional “generator circuit breaker” for those applications involving portable generator connections, and a shunt-trip interface with any permanently installed generator. Overall, the circuit breaker type ATS equipment typically represents a lower cost and requires less physical space within the facility providing a cost-effective solution where provided. For those facilities and service areas where contactor-based ATS equipment is already in service, the Owner may elect to continue to provide this type of equipment. However, the features and functions outlined as needed for OCP and Arc Flash Hazard isolation and protection are to be provided.

Portable standby generator installations offer unique challenges. Many of our portable generators are over-sized for the smaller stations they serve. As such, the OCP device on the generator will typically be larger than the service equipment ampacity ratings in the facility. This is the reason for the “generator circuit breaker” recommended above. Without this additional device, the station equipment is not adequately protected against an over-current event. The shunt-trip device mentioned previously is necessary to “trip” the circuit breaker on the permanently installed generator in order to isolate this power from the building system in the event of an emergency (fire or similar event). The use of the circuit breaker type ATS equipment addresses this concern and is part of the reason AW recommends consideration of this type equipment.

Connection of portable generators is another area which is to be carefully considered. The use of portable generators with large cables and connector bodies poses risks during the installation and connection of these devices to the station. To address this, AW recommends using a color coded pin and sleeve type connector assembly in lieu of the three-phase connector plug and receptacle method. This allows easier and safer connectivity of the equipment by operational staff during an event.

TECHNICAL CRITERIA AND DESIGN STANDARDS

1. Basic Electrical Materials and Raceways

a. All materials shall be suitable for the location and environment where installed.
b. Control panels and related enclosures in corrosive areas shall generally be non-metallic type with non-metallic hardware; NEMA 12 metallic or non-metallic in non-corrosive areas unless otherwise accepted. The use of stainless steel enclosures should be limited to areas not exposed to chlorine fluoride fumes. Provide NEMA 4X non-metallic enclosures in these and other corrosive areas.
c. All feeders (and branch circuits rated 100 amps and larger) shall be provided in rigid hot-dipped galvanized steel (RGS) or aluminum conduit. The use of fiberglass conduit is an acceptable alternative where approved by the Owner. Other building areas to utilize raceway materials as outlined herein (see 2 below) unless otherwise indicated. Exposed exterior locations may utilize hot-dipped RGS or aluminum conduit where determined suitable for the application.

Additionally, the use of fiberglass conduit is acceptable where determined to be suitable for the location and application. The use of intermediate metal conduit (IMC) is prohibited anywhere on the project. The use of electro-metallic tubing (EMT) is prohibited on any Industrial Buildings and Related Type Areas as outlined below.

d. All conduit fittings to utilize gasketed screw covers; clip cover fastening type fittings are prohibited. Provide “Myers hub” type connectors associated with exterior and wet location enclosures.
e. Where served from overhead or above, raceway penetrations into buried or below grade equipment / enclosures and exposed exterior equipment enclosures shall not enter the top; they shall enter the bottom side and be provided with a means for draining moisture from the raceway and sealed between the raceway and the enclosure with duct-seal material. These enclosures shall be provided with a vapor corrosion inhibitor (Cortec, or equivalent) sized appropriately for the interior volume of the cabinet.
f. Receptacles and switches to be heavy-duty rated, 20 ampere minimum rated; material type and configuration to be suitable for the application.
g. Control Station devices should be NEMA 12 minimum; NEMA 4X rated in corrosive and damp locations where available; all devices to be 30 mm minimum size for gloved operation. All pilot lights are to be high intensity 120 VAC LED type; red for “run”, green for ‘off”. Other colors to be coordinated with the Water Company to match existing conventions or as requested; generally in accordance with NFPA-79, Table 10.3.2.

2. Raceway Material and General Applications

a. GENERAL NOTE: Raceways are not permitted to be installed concealed in water-bearing walls. All equipment, devices and raceways shall be installed on the dry-side wall surface using nominal 7/8" non-metallic channel support stand-offs installed vertically to allow ventilation air to pass behind equipment and raceways. Fastening hardware to be 316 Stainless Steel

The following general criteria are to be used for raceway material selection and installations. This listing is not intended to address all applications and/or specific equipment requirements which may be outlined elsewhere on the Engineer’s Drawings or indicated in the Specifications.

b. Industrial Buildings and Related Type Facilities or Areas:

1) Chemical Storage and Dispensing (non-hazardous materials)

i. Exposed from Finished Floor to 8"-0" AFF

a. PVC Coated rigid galvanized steel (RGS) Conduit and Liquidtight Flexible Metal Conduit are recommended. PVC Schedule 40 Conduit and Non-Metallic Liquid-tight Flexible raceways may be used in areas where not subject to physical damage from O&M activities such as chemical deliveries or vehicular traffic.
b. Outlet and Junction Boxes - PVC Coated, Cast Type, FD capacity for use with the PVC Coated RS Conduit. As above, where non-metallic raceways are utilized, the use of non-metallic outlet and junction boxes may be provided.
c. All outlet cover plates to be "in-use", weather-protected type and gasketed.

ii. Exposed 8'-0" AFF and above within the room

a. PVC Schedule 40 Conduit may be used in lieu of PVC Coated RS Raceways. Where provided, the Contractor shall include the use of expansion and axial connectors as

recommended by the non-metallic raceway Manufacturer (not just at building expansion points).

b. Junction Boxes - PVC, FD capacity for use with the PVC Conduit System.

iii. *NOTE: No "in-floor" conduit or floor penetrations are permitted within chemical containment areas.*

iv. The use of fiberglass conduit systems is permitted to be used in place of the PVC Coated RGS raceways and PVC Schedule 40 Conduit hybrid systems outlined above. As above, no penetrations within the chemical containment areas are permitted.

Engineers NOTE - Potentially, a listing or some other form for identifying which chemicals / areas require the use of seal-offs will need to be determined and included in the Contract Documents (below)

v. Transitions from Chemical Storage and Dispensing Areas to other building areas shall utilize PVC Coated RS Conduit within the area and transition to RGS material where extending to a non-chemical area. Provide seal-off fittings and appropriate sealing material (as specified) to prevent vapor transmission through the raceway system at this transition point inside the chemical area.

2) "Damp" Areas, including those areas involving enclosed tanks and piping, but do not involve direct wash-down or similar use of water, and where the ambient temperature of the space may drop below 65 degrees F.

i. Rigid Galvanized Steel (RGS) Conduit and fittings.
ii. Liquidtight Flexible Metal Conduit.
iii. Exposed outlets - Cast Type, FD capacity.
iv. Recessed Outlets (where permitted) - one-piece galvanized steel (expandable metal outlets not permitted).
v. Cover plates – stainless steel or cast cover type or as specified and/or indicated on the Drawings.

3) "Wet" Areas, including those areas involving exposed/open tanks and direct wash-down and similar applications, where water is routinely present.

i. Rigid Galvanized Steel (RGS) Conduit and fittings or PVC Coated RGS Conduit and PVC Coated fittings as indicated on the Drawings.
ii. Liquidtight Flexible Metal Conduit.
iii. Exposed outlets - Cast Type, FD capacity (PVC Coated where coated raceway systems are indicated on the Drawings.
iv. Recessed Outlets (where permitted) - one-piece galvanized steel (expandable metal outlets not permitted).
v. All outlet device cover plates to be "in-use", weather-protected and gasketed type.

Engineers Note - "Damp" and "Wet" terms will need to be defined and included in the Contract Documents.

Owner's Note – AWBSE has found metallic raceway systems provide higher reliability and longevity than PVC systems, but Owner may consider the use of non-metallic raceway systems on projects involving limited conduit lengths and where risks for damage to raceway is considered minimal.

4) Electrical, Mechanical (HVAC) and General Equipment Storage Rooms

   i. Rigid Galvanized Steel (RGS) Conduit and fittings.
   ii. Flexible Metal Conduit - Lighting Fixtures and similar type equipment.
   iii. Liquidtight Flexible Metal Conduit - motor (and similar equipment involving close proximity to water and/or oil) connections.
   iv. Exposed outlets - Cast Type, FD capacity.
   v. Recessed Outlets (where permitted) - one-piece galvanized steel (expandable metal outlets not permitted).
   vi. Cover plates - companion type as specified and/or indicated in Specifications or on the Drawings.

5) Hangers, Supports and Fasteners

   i. In chemical and corrosive areas, FRP Threaded Rod with non-metallic FRP channel supports and fasteners shall be provided. In areas other than Chlorine and Fluoride environments, the use of 316 Stainless Steel threaded rod and fasteners also is permitted. Where the weight of the installation exceeds that permitted by the FRP materials, the use of 316 SS channel supports and threaded rod will be considered acceptable. PVC Coated steel channel supports is not accepted.

   ii. In all other areas channel supports shall be hot-dipped galvanized and threaded rod shall be galvanized steel. All fasteners shall be 316 Stainless Steel.

6) Cable Tray and Trough Systems

   i. The use of aluminum or FRP cable tray is an acceptable practice for wiring of equipment; especially in pipe galleries, alongside of walkways and similar tight areas where access to equipment is very restricted.
   ii. Solid-bottom (or ventilated bottom) cable trough systems are also considered acceptable for locations where ladder type cable tray is not appropriate due to special considerations of the work.
   iii. The use of cable tray and / or trough systems is to be reviewed with and accepted by the Owner prior to the start of design. The Design Memorandum shall include a description of what is being proposed and wiring systems to be included.
   iv. Cable types to be UL Listed for the applications and isolation between voltages, including low voltage and instrumentation systems shall be included in the design.

c. Administrative Buildings and Related Type Facilities or Areas

1) All areas within conditioned rooms (those spaces where heating and/or air conditioning/ventilation is provided to maintain a nominal ambient temperature of 68 degrees and higher).

2) General Installations

   i. Conduits 1-¼" and smaller may be EMT. This raceway type may be provided for either exposed or concealed raceways. All EMT connectors and fittings shall be compression type only (the use of set-screw fittings is NOT permitted)
   ii. Rigid Galvanized Steel (RGS) Conduit and fittings shall be used for all raceways 1-½" and larger.

iii. PVC Conduit is NOT to be used for any application other than for approved in-floor (or other encased in concrete) applications as outlined elsewhere in these Documents.
iv. Flexible Metal Conduit - Recessed Lighting Fixture connections and similar type equipment terminations. Alternatively, the use of MC Cable is permitted for lighting fixture installations where determined acceptable by the Owner.
v. Liquidtight Flexible Metal Conduit is to be used for motor and transformer terminations as well as other equipment where vibration and/or access is required that would otherwise be impeded by a fixed raceway installation. Connections are to utilize stainless steel fittings; PVC Coated where installed in chemical and corrosive atmospheres
vi. Exposed outlets - Cast Type, FD capacity.
vii. Recessed Outlets - one-piece galvanized steel (expandable metal outlets not permitted).
viii. Cover plates - companion type as specified and/or indicated on the Drawings.

3) In-floor (or other encased in concrete) Installations

i. PVC Schedule 40 for 120 volt and greater general power / branch circuits; transition to metallic or fiberglass raceway system for continuation in or on wall as identified above. (Note - refer to VFD cabling installation requirements for special installation considerations).
ii. EMT for Data, Instrumentation and low voltage signal (less than 50 V) circuits; maintain metallic raceway system for continuation in or on wall as identified above.
iii. All conduits embedded in concrete floor to be compliant with ACI-318 criteria for minimum embedment and spacing requirements to assure structural integrity of structure.
iv. All transitions from "in-floor" to above floor in any area or room where water is also supplied in the room shall utilize PVC Coated RS Conduit sweeps to provide corrosion / physical protection; extend PVC Coated raceway minimum 6" AFF. Alternatively, the use of fiberglass raceways may be accepted if approved by the Owner. No transitions to be installed where raceway penetrates floor finish on an angle of the radius.

d. Underground and Similar Raceway Applications

1) Encased in Concrete Raceway Installations - (Ductbanks, Equipment Bases, etc) as identified on the Drawings

i. Minimum size conduits for underground installation to be 1”.
ii. Conduits smaller than 2" in diameter - PVC Schedule 40 Conduit with PVC Schedule 40 sweep radius horizontal bends and PVC Coated RS raceway sweep radius bends for vertical transitions to above grade or concrete surface.
iii. Conduits 2” in diameter and greater - PVC Schedule 40 Conduit with RGS or fiberglass sweep radius horizontal bends and PVC Coated RS Conduit sweep radius bends for vertical transitions to above grade or concrete surface.
iv. Alternative use of fiberglass raceways may be considered acceptable where approved by the Owner for those underground horizontal and vertical transitions to above grade or floor / concrete base.
v. Note - Refer to VFD cabling installation requirements for special installation considerations that may alter the criteria outlined above.
vi. Conduit supports, spacing and concrete / reinforcement to be as specified.

2) Direct Burial Raceway Installations - Ductbanks, Branch Circuits and Feeders as Identified on the Drawings

   i. Conduits smaller than 2" in diameter - PVC Schedule 40 Conduit with PVC Schedule 80 sweep radius horizontal bends and PVC Coated RS raceway sweep radius bends for vertical transitions to above grade or concrete surface.
   ii. Conduits 2” in diameter and greater - PVC Schedule 40 Conduit with RGS sweep radius horizontal bends and PVC Coated RS Conduit sweep radius bends for vertical transitions to above grade or concrete surface. .
   iii. Alternative use of fiberglass raceways may be considered acceptable where approved by the Owner for those underground horizontal and vertical transitions to above grade or floor / concrete base.
   iv. Note - Refer to VFD cabling installation requirements for special installation considerations that may alter the criteria outlined above
   v. Conduit spacing and protective concrete cover to be as specified below or as detailed on the Drawings. Note, Direct Burial installations do not use conduit "chairs" or separators; embedment is provided by screening material only.
   vi. Provide 5” thick concrete protective pour with 10 x 10 WWF over top of screening backfill for physical protection and vehicular wheel loading. Where crossing roadways or drives, conduit work to be reinforced, concrete encased as in #d.1 above; extended a minimum 10’ on either side of pavement.
   vii. Transitions from underground to building or other structure to be provided as detailed on the Drawings

3. Lighting Systems

a. Indoor Locations:
   1) Fluorescent lighting systems are recommended for all interior applications; fixture types and source control as outlined in Appendix B. These systems have demonstrated cost-effective solutions which allow for component replacement and enclosure types to address any normal application or location. Based on AWBSE and Manufacturer data, the proper selection of lamp, ballast and control components has shown long term life-cycle and maintainability benefits. Note: The use of LED lighting sources and devices has become more popular in recent time. These systems may be considered by the Owner and used upon approval from the Owner and after review of the life-cycle costs associated with total installations.
   2) Night-lighting / means of egress lighting fixtures shall be incorporated in the normal lighting layout / scheme to ensure that all passages and exits remain illuminated in the event of a power failure. These fixtures may be switched in areas where required providing they include the lighting transfer device integral with the fixture. (i.e... training and AV presentation areas, operational control rooms, etc.). This pass-thru/night lighting should be otherwise be un-switched; other lighting in the area or room to be controlled by means of suitable occupancy sensors
   3) Separate battery-powered emergency lighting units shall also be provided to augment this night-lighting system and provide Code required means of egress lighting in the event of a power failure of the Utility and/or Stand-By Power System. Provide a remote battery-controlled lamp on the exterior of building exit doors connected to the interior unit to provide illumination away from the building. These units are to be powered from the local area night-lighting circuits and wired ahead of any switching.
   4) Lighting fixtures types are to be suitable for the environments where installed and shall be located (serviceable and accessible) for routine maintenance. Provide calculations

and fixture catalog data/specification sheets for review and acceptance by the Water Company.

b. Outdoor Locations:
   1) The use of LED type lighting fixtures shall be used in the design for the exterior of the building; HID lighting (HPS) shall be an acceptable alternative for exterior use where providing similar type to match existing. Illumination levels to be as recommended by IES for the space and tasks being performed.
   2) Wall mounted lighting units to be coordinated with AW Security Group for illumination of areas where specifically required.
   3) Pole mounted fixtures to utilize tapered aluminum poles; height as required to meet lighting illumination levels in area. Pole heights and locations to also address maintainability issues for Owner replacement and repair.

c. Where otherwise required by the authority having jurisdiction , provide means of egress and emergency lighting systems in conformance with NFPA 101 (the Life Safety Code)

d. Illuminated Exit Signs: IF REQUIRED by CODE, provide LED type and placed inside the facility per the latest requirements of NFPA 101 (the Life Safety Code) as applicable. Otherwise, provide non-illuminated, non-metallic exit signage for general egress direction and identification as determined by the engineer/architect and/or building official.

4. Cables

a. Low Voltage Wire and Cable:
   1) Those rated for 480V and below shall be listed as XHHW-2 for general underground, damp and wet locations and other similar areas. In addition, only XHHW-2 insulated conductor material is to be used with any variable frequency drive application.
   2) Dual-rated THHN/THWN type is for use ONLY in interior, *(Administrative Buildings and Related Type Facilities or Areas as previously defined)* dry locations.
   3) Insulation shall be UL listed for at least 90 degrees centigrade but applied at its 75 degree ampacity rating (maximum). Provide specific information in the Documents outlining where each type of conductor insulation material for review and acceptance by the Water Company
   4) Multi-conductor, Tray Rated Cable to be provided for cable tray applications as outlined. All cables to be 600 volt insulated, 90 ^{0}C rated / applied at 75 ^{0}C ampacity rating. In general, provide;
      i. Type A – XHHW-2 (XLP) insulated conductors with ICEA Method E-1 or E-2 color coding; note this info on the Drawings. Cable to have PVC outer jacket. Uses include power and control devices.
      ii. Type B – THHN/THWN-2 with black insulated conductors with white printed numbers, #14 AWG, number of conductors as required; PVC overall jacket. Uses include control / monitoring interface with SCADA/RTU equipment and field devices
      iii. Other types and specific color coding to be provided based on voltage application for power conductors and control wiring for interface with SCADA/RTU equipment.
   5) All conductors to be copper.

b. Medium Voltage Cable:
   1) Provide Type MV-105 shielded medium voltage cable for all normal power and feeder installations unless specifically required otherwise by the serving Utility Company for materials associated with a medium voltage service entrance installation.
   2) For medium voltage motor installations, provide shielded conductors (Type MV-105) along with means for terminating the cable shields (and bonding to the equipment grounding conductor) before entering the motor termination box on the motor.
   3) All conductors to be copper.

5. Grounding

a. General - Unless otherwise indicated or required, all facility installations shall utilize grounded power distribution systems. Normally, all will be solidly-grounded; provide resistance-grounded systems only where determined to be required for equipment and/or life-safety protection.
b. The electrical system and equipment grounding is to be in compliance with the National Electrical Code. A buried grounding grid or counterpoise is to be provided for the new switchgear equipment, transformers and standby generators.
c. Conductors shall be No. 2 AWG stranded copper (minimum) for interconnecting ground rods and for connection to transformers and MCC's and other major electrical equipment. All connections to this underground earthing system shall be made using exothermic weld process. Connections to reinforcement steel in foundations shall utilize hydraulic compression fittings. Bolted connections shall only be provided where accessibility and temporary removal for testing is required. All electrical equipment shall be bonded to the grounding system including motors, transformers, panelboards, other equipment, metal stairs / ladders, etc. and metallic raceway systems. All conduits containing power and control wiring shall be provided with a separate "green" grounding conductor; use of the raceway system as a sole means of grounding is not permitted.
d. Provide test well for grounding system testing at main service bonding to ground rod and other locations as determined appropriate. Ground test well to be minimum 12' x 12" with tamper-resistant stainless steel bolted cover and "Ground" cast into the cover plate.
e. Increased conductor sizing to be as required by Code and/or grounding calculations where associated with switchgear substations and lightning protection system installations.
f. Instrumentation Grounding – review and provide grounding associated with the special requirements for this system.

6. Medium Voltage Equipment

a. The following criteria apply to 5 KV – 15 KV maximum installations *(higher voltage applications to be coordinated with AWBSE).*
b. Medium Voltage Transformers
    1) AWBSE recommends the use of dry-type transformers over liquid-cooled units to avoid potential environmental concerns and risks as well as reduced maintenance requirements and associated O&M costs. Our preferred equipment uses cast-coil, epoxy encapsulated windings on the primary and secondary windings. Other possible solutions involve the use of VPE insulated assemblies which provide a higher degree of protection over the standard VPI insulated units.
    2) The use of liquid-cooled units is generally only recommended where transformers are needed for 5 MVA and larger service applications; the type and associated ratings, cooling capabilities and auxiliary features and appurtenances to be coordinated with Utility and Owner criteria as outlined in the RFP for the project.
    3) Provide alarm monitoring for reporting to the process control system and include provisions for forced air cooling were appropriate
    4) All transformers are to utilize copper winding material – primary and secondary coils.

c. Medium Voltage Switchgear
    1) Type of Equipment: Plated copper bus as determined suitable for the installation/location and environmental conditions, 3-phase, 3-wire plus ground operating at 60 Hz. Utilize draw-out vacuum circuit breakers and/or fusible type switchgear assemblies where specifically identified in the RFP. All components are U.L. listed. Switchgear equipment shall consist of standardized, freestanding structures bolted together for form a single

dead-front panel assembly containing circuit breakers, control devices, protective relay and metering units and all interlocking and miscellaneous control / interface devices.

2) Fusible sections (where applicable) to be configured from left to right; use of front to back fuse arrangements are not permitted.
3) Protective relaying and/or metering to be as outlined in #12 below. Relay coordination settings and ratings to be selected by the Engineer based on the Protective Coordination and Arc Flash Hazard analysis outlined in Attachment A
4) In general, Metal-Enclosed Switchgear is considered acceptable. Provide Metal-Clad Switchgear type design where required or indicated or otherwise due to specific design and/or Utility considerations.

d. Medium Voltage Motor Controllers
   1) Type of Equipment: Tin-plated copper bus (phase and ground), 3-phase, 3-wire plus ground operating at 60Hz. All components are U.L. listed. MCC equipment shall consist of standardized, freestanding structures bolted together for form a single dead-front panel assembly containing combination vacuum contactor motor controller units; feeder units; metering, relaying, and interlocking and miscellaneous control devices. Provide magnetically-held or mechanically latched type of vacuum contactor controllers as required for the application or equipment served.
   2) Fusible sections to be configured from left to right; use of front to back fuse arrangements are not permitted. Fuse types and ratings to be selected by the Engineer based on the Protective Coordination and Arc Flash Hazard analysis outlined in Attachment A
   3) Starters:
      i. Full-Voltage or Reduced Voltage NEMA rated fusible switch / contactor type combination controllers as outlined in the RFP or otherwise determined by the Engineer and Owner. The use of IEC rated controller is prohibited.
      ii. Solid-state reduced voltage motor starters shall be utilized where required due to power utility requirements, process control of hydraulic transients, and/or engine-generator sizing considerations.
      iii. The Engineer shall coordinate starter types with the Water Company.
   4) Control power – provide each starter with individual 120 VAC CPT rated for minimum 100 VA above that required for loads served; min 150 VA. CPT's to be fused on primary and secondary.
   5) Control devices – provide minimum 30 mm diameter devices for all control switches, push buttons and pilot lights. Pilot lights to be high intensity, 120 VAC LED type; color as outlined herein or otherwise required by Owner.
   6) Protective relaying and/or metering to be as outlined below. Relay coordination settings and ratings to be selected by the Engineer based on the Protective Coordination and Arc Flash Hazard analysis outlined in Attachment A.

7. Low Voltage Motor Control Centers/Motor Controllers

a. Type of Equipment: Tin-plated copper bus (phase and ground), 600V, 3-phase, 3-wire plus ground operating at 60Hz; provide a neutral bus (3-phase, 4-wire plus ground applications) only in those MCC assemblies where required. All components are U.L. listed. MCC equipment shall consist of standardized, freestanding structures bolted together for form a single dead-front panel assembly containing combination motor control units; feeder units; metering, relaying, and interlocking and miscellaneous control devices and will be of the per definitions in the latest edition of NEMA ICS 3 and UL 845.

b. Starters:
   1) Full-Voltage NEMA rated (Size 1 minimum) combination magnetic starters shall be utilized as required. The use of IEC rated starters is prohibited.
   2) Solid-state reduced voltage motor starters may be utilized where required due to power utility requirements, process control of hydraulic transients, and/or engine-generator sizing considerations.
   3) The Engineer shall coordinate starter types with the Water Company.
c. Circuit Breaker Compartments and Circuit Breakers: Control center disconnects shall be three-pole, single-throw, 600-volt, molded-case circuit breakers
   1) Feeder and branch circuit breakers to be thermal-magnetic or solid-state trip type as required for the loads served, protective coordination and arc-flash hazard considerations.
   2) Circuit breakers associated with combination starters shall be magnetic motor circuit protector (MCP) type where appropriate.
   3) All shall be manually operated with quick-make, quick-break, trip-free toggle mechanism.
d. Control power – provide each starter with individual 120 VAC CPT rated for minimum 100 VA above that required for loads served; min 150 VA. CPT's to be fused on primary and secondary
e. Control devices – provide minimum 30 mm diameter devices for all control switches, push buttons and pilot lights. Pilot lights to be high intensity, 120 VAC LED type; color as outlined herein or otherwise required by Owner.
f. Protective relaying and/or metering to be as outlined in #12 below. Relay coordination settings and ratings to be selected by the Engineer based on the Protective Coordination and Arc Flash Hazard analysis outlined in Attachment A.
g. VFD Installations – while not recommended, where VFD's are required to be installed in MCC type construction, locations and general arrangements to address ventilation requirements of equipment. These installations typically will necessitate use of NEMA 1 configurations to avoid undue costs for the overall assembly; special attention to this is required to coordinate the design. Where it is determined NEMA 12 (or NEMA 4X) is necessary, VFD's shall not be included in MCC type construction.
h. Enclosure Type: Typically NEMA 1 is acceptable for conventional MCC construction utilizing only starters and circuit breakers. Match existing NEMA ratings in equivalent areas of the plant. Engineer shall also propose modifications to the NEMA rating if appropriate for intended service.

8. Variable Frequency Drives (VFDs)

a. In general, 6 pulse VFDs with line reactors are to be used for motor loads 50 HP and smaller. On motors greater than 50 HP but less than 100 HP evaluation of drive type to be determined based on base load versus non-linear loading. On all drives where harmonics at the Owner's equipment bus is potentially determined to be greater than 5% TDD. Provide VFD with passive or active harmonics filter / line conditioning unit.
b. In general, 18 pulse VFDs are to be used on motors 100 HP and larger. However, final determination from harmonics analysis and evaluation of linear versus non-linear loading is to be taken into account in making final selection. Harmonics at the Owner's equipment is to be below 5% TDD. Provide harmonics filtering / line conditioning as required to meet these criteria.
c. For motor applications involving long cable feeders between the VFD and the motor (e.g., ~100'+ or as defined by manufacturer), provide dv/dt output filters based on VFD and motor criteria for selected equipment.
d. VFD's installed in damp locations to be provided as NEMA 12 type equipment; those installed in locations such as dedicated electrical equipment rooms may be NEMA 1 type. However, all drives to be provided with door filter units mounted on exterior for access where possible.

e. All VFDs shall be rated as Industrial Duty / Heavy Duty type and be rated for a 50 ^{0}C ambient location. The use of 40 ^{0}C rated equipment and "HVAC" rated VFDs are not permitted.
f. Unless specifically accepted, all VFDs shall be stand-alone enclosed, wall or floor mounted equipment; do not combine in common enclosures or MCC construction.
g. VFDs shall be provided with Bypass starters where outlined in the RFP. Bypass starter type and rating to be as outlined; FVNR or RVSS types are typically required based on starting and hydraulic concerns in the system.

Note: Ventilation / Air Conditioning – AWBSE recommends ventilation air be used as the primary means of cooling for VFD applications and installation locations. The use of Air Conditioning (A/C) is not typically required in most geographic locations. Where A/C is determined to be necessary, the units shall be provided with an economizer mode which uses outside air as the first stage. Additionally, ventilation system should be designed to withdraw heat from above VFD enclosures and introduce cooling air near lower air intake section of VFD.

9. Miscellaneous Power Distribution:

a. Panelboards and Switchboards: Circuit breakers will be of the "Bolt-On" type;"Push-On" / "Plug-On" type circuit breakers are not allowed. Use plated copper bus and ensure U.L. labeling of entire system.
b. Provide a transient voltage surge suppresser on the main of each power distribution panel where applicable. For more specific requirements for the protection of sensitive electronic instrumentation, see Instrumentation section.
c. Lighting and General Power Transformers: Dry type to limit maintenance items. A minimum of (2) taps will be provided above rated voltage (in 2.5% increments) and a minimum of (2) taps will be provided below rated voltage (in 2.5% increments). Open type transformer cases are not allowed. All units located in wet or chemical areas will be of sealed type construction. Provide open ventilated type enclosures for other general dry, environmentally ventilated/conditioned spaces. All transformers to utilize copper windings; 115 degree C rated. The Engineer shall examine the need to install transformers with a higher than average Basic Impulse Level (BIL) that is not normally required in the 480V class.

10. **Power Monitoring/Metering and Protective Relaying**

a. General: AW objective is to provide power monitoring to allow trouble-shooting, harmonics assessment, and data collection for evaluating efficiency, etc.
b. AW has a national contract agreement with SEL and is our preferred manufacturer for new work. Refer to RFP for systems involving modifications / upgrades to existing installations
c. Low Voltage Systems: For small stations involving a limited number of motors / loads, metering as outlined below alone is sufficient. On larger low voltage systems, addition protective relays and monitoring may be appropriate to allow evaluation of sub-distribution equipment and systems and data collection of power characteristics to be captured by the SCADA system for evaluation and reporting.
d. Make provisions for power monitoring/metering on incoming three-phase electrical services (main) as follows:
   - All 480/277 VAC services are to provide 3-PTs and CTs wired to field terminal blocks for connection to metering equipment.
   - On installations where the metering is to be provided by Owner, allow physical space next to main incoming OCP device for meter enclosure installation.
   - On installations where metering is to be provided with equipment, refer to the RFP for specific criteria or review with Owner to define requirements.

e. Medium Voltage Systems: Power distribution systems involving medium voltage motors and equipment are to be provided with the protective relaying/monitoring devices for not only equipment protection, but also to allow data collection of power characteristics to be captured by the SCADA system for evaluation and reporting. Provide 3- PT / CT input devices and control voltage for power metering and protective relays as required for system protective schemes required by the design.
f. Data Collection: The use of fiber-optic interface between devices and to SCADA is a preferred method of communicating the data transfer between devices and into the process control system. Applications involving the use of copper are to be specifically approved by the Owner. Where available, dual-port communications capabilities of the protective relays shall be utilized and the devices configures in a loop with IP addressing. The design and configuration of the communications loop and serial connectivity is to be developed as part of the instrumentation design effort.
g. Power Monitoring/Metering;
    1) Provide microprocessor based SEL 735 metering unit on main incoming feeder circuit breaker. Unit shall compute voltage, amperes, power factor, kilowatt-hour, etc. Communications will be via fiber-optic cable back to a port on a plant's process control system.
h. Protective Relaying;
    1) Provide SEL 710 motor protective units on all medium voltage motors wired to plant's process control system for monitoring, trending and archiving.
    2) Provide SEL 849 motor protective units on 480 VAC motor loads larger than 50 horsepower wired to plant's process control system RTU for monitoring, trending and archiving
    3) Provide SEL 751A Feeder protective units on MV Feeders wired to plant's process control system for monitoring, trending and archiving
i. Other SEL protective relays to be provided as determined through the design; reviewed and accepted by the Owner.
j. Refer to RFP for additional and/or supplemental information regarding protective relays, applications and coordination of Ethernet communications requirements.

ATTACHMENTS

A. American Water Power System Study Requirements – Short Circuit, Protective Coordination, and Arc Flash Hazard Analysis/Evaluation

B. Acceptable Electrical Equipment Manufacturers and Suppliers

AMERICAN WATER Electrical Pre - Job Briefing

This form will be used to facilitate Job Briefing and Planning as outlined in CSA Z462/ NFPA 70E and assist in identifying necessary information, asking the appropriate questions, checking for available information, communicating key information about the work task, analyzing the situation and preparing for an emergency.

Name:	**Date:**

Electrical Work Task: _____

_____

Workers involved: **Standby person:** _____

1. _____ 2. _____

3. _____ 4. _____

Identify:

- ☐ Hazards present:
  - o Arc Flash and Shock
  - o Working in confined spaces
  - o Working at heights
  - o Moisture/Weather related (e.g. heat/cold/wind)
  - o Other: _____
  - o Other: _____
- ☐ Secondary voltage sources:
  - o Feed-back
  - o Generators
  - o UPS systems
  - o Capacitive stored energy
  - o Induced voltages
  - o Other: _____
- ☐ Number of people needed to do the job: _____
- ☐ Worker skills required:
  - o Voltage testing
  - o Breaker racking
  - o Application of TPGs
  - o UPS work
  - o Other: _____
  - o Other: _____
- ☐ Unusual work conditions.
  - o Lack of Maintenance
  - o Equipment age
  - o Environmental (e.g. dust, fluids)
  - o Inadequate lighting
  - o Location
  - o Previous work activities
  - o Equipment is damaged
  - o Panels removed
  - o Other: _____
- ☐ Maximum voltage levels to be encountered: _____Volts
- ☐ Potential for arc flash & shock (conduct an Arc Flash & Shock Hazard Analysis).
- ☐ Maximum Incident Energy level: _____cal/cm^2
- ☐ Arc Flash Boundary: _____ft/in
- ☐ Shock Approach Boundaries
  - o Limited: _____ ft/in
  - o Restricted: _____ ft/in
  - o Prohibited: _____ ft/in
- ☐ Is work task risk as low as reasonably practicable? (Yes/No)

Ask:

- ☐ Can the equipment be de-energized? (Yes/No)
- ☐ Has appropriate equipment maintenance been performed?
- ☐ Are back-feeds of the circuits to be worked on possible? (Yes/No)
- ☐ Is a "standby person" required: (Yes/No)
- ☐ Are equipment drawings, diagrams and identification tags up to date? (Yes/No)
- ☐ What plans are in place to eliminate hazards and risks?

Comments:

_____

_____

_____

_____

_____

_____

_____

_____

AMERICAN WATER Electrical Pre - Job Briefing

Check:

- ☐ Job plan(s)/procedure #'s: _____ _____
- ☐ Single-line diagrams: _____ _____ _____
- ☐ Information on plant and vendor resources is up to date? (Yes/No)
- ☐ Company safety procedures, permits and forms completed in accordance with approved, documented and established policies.
- ☐ Vendor prints and manuals.
- ☐ Equipment status board:
  - o On-line
  - o Maintenance/testing mode
  - o Off-line/damaged
  - o Commissioning mode
- ☐ Are workers familiar with the facility and standard procedures?
  - o Electrically Safe Work Procedures

Single Line Diagram sketch:

Know:

- ☐ What the work task is.
- ☐ Person in charge: _____
- ☐ Communicate job details where appropriate to personal or depts:
  - o Maintenance
  - o Operations
  - o Management
  - o Contractors and Visitors

Think:

- ☐ About the unexpected event(s) ... What if?
- ☐ Lock – Tag – Test – Try
- ☐ Test – Before – Touch
- ☐ Install barriers/barricades/signs.
- ☐ Install & remove Temporary Protective Grounds (TPGs).
- ☐ Create an "Electrically Safe Work Condition"
- ☐ What else? _____ _____
- ☐ Use the appropriate PPE, Tools & Equipment:
  - o Everyday wear arc rated clothing ATPV= _____ cal/cm^2
  - o Arc Flash Suit (hood, pants and jacket) ATPV= _____ cal/cm^2
  - o Hard-hat, safety glasses, earplugs, leather work gloves
  - o Arc rated face shield
  - o Arc rated balaclava
  - o Rubber Insulating Gloves (RIG) with Leather Protectors
- ☐ Use the appropriate PPE, Tools & Equipment (cont'd):
  - o High Voltage Proximity detector
  - o Multi-meter
  - o Insulated hand tools
  - o Hotstick
  - o Extension cord GFCIs
  - o TPGs / ground trucks
  - o PPE testing is up to date?
  - o Other: _____
  - o Other: _____

Prepare for an emergency:

- ☐ Exact work location description: _____
- ☐ Emergency Plan reviewed? (Yes/No)
- ☐ Standby person is CPR trained? (Yes/No)
- ☐ Automated External Defibrillator (AED) available? (Yes/No) Location: _____
- ☐ Rescue Hotstick (optional) location: _____
- ☐ Is confined space rescue available? (Yes/No)
- ☐ Emergency Response Plan (ERP) Electrical Isolation Point: _____
- ☐ Fire alarm location: _____
- ☐ Fire extinguishers location(s): _____ _____ _____
- ☐ First Aid Station at: _____
- ☐ Emergency eye wash station location: _____
- ☐ RF radio pair and personal monitoring transmissions: Channel #: _____ Contact: _____
- ☐ Emergency phone location: _____
- ☐ Emergency phone contact #: _____
- ☐ Emergency Muster Point: _____

AMERICAN WATER

AMERICAN WATER
POWER SYSTEM STUDY AND
ARC FLASH ANALYSIS REQUIREMENTS

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Version Date: July 2017

AMERICAN WATER POWER SYSTEM STUDY AND ARC FLASH ANALYSIS REQUIREMENTS

1. DESCRIPTION OF WORK REQUIRED

A. Provide all items of labor, materials and equipment necessary for data collection, development, evaluation and report generation of the work described in this Section. The entire power distribution system (all equipment), new and existing is to be included in the study being provided for this Project.

B. Visit the site to determine actual conditions, equipment and settings and related elements necessary to prepare a complete oneline diagram of the entire power distribution system. Provide a complete oneline diagram including all equipment (loads/ratings), cable and raceway information and other data associated with the installations to allow evaluation and calculation of the various Studies to be provided in the Report outlined herein. Where required, coordinate field work with the Owner and shall follow all applicable safety standards for the activities required.

   1. Those involved with the field data collection work shall review / compare the Owner's operational and safety standards with their own and provide adequate Personal Protective Equipment (PPE) for those individuals involved in any data gathering activities as outlined by applicable Regulatory Agencies. No extra compensation will be allowed by failure to determine existing conditions.

C. Furnish a complete Short-Circuit, Protective Coordination, and Arc Flash Hazard Analysis Study per the requirements set forth in the criteria established for the Project, the criteria outlined herein this document, and as identified in the latest version of NFPA 70E– 2015 Edition; *Standard for Electrical Safety in the Workplace and as outlined herein regarding American Water Site Specific PPE Category Labeling criteria*. The arc flash hazard analysis shall be performed according to the IEEE Standard 1584-1992 including latest revisions and IEEE 1584-2004 and IEEE 1584-2011 addenda; the IEEE *Guide for Performing Arc-Flash Calculations;* modified as hereinafter identified.

D. Arc-Flash Equipment Labeling shall be provided upon acceptance of the Engineer's final report. Labeling shall be provided for all equipment as identified herein this document.

E. In addition, where indicated in the Scope of Work identified by the Owner, provide a Load Flow analysis using the power systems software identified herein to model the operational scenarios required for the project and requested by the Owner. These Load Flow analysis reports are to be provided in accordance with the Owner's criteria for loading and report submission.

F. Any Drawings and Material Data Sheets / Product Information provided by the Owner is considered as generally indicative of Power System but is not to be considered as matching actual site conditions. Modifications/field changes may have occurred which were not recorded; therefore, provide field verification as necessary to validate the Power System as Work under this project in preparation of the Short-Circuit, Protective-Coordination and Arc-Flash Study and Analysis.

G. The general (not limited) approach to the evaluation and analysis work included in this assignment shall include the following effort;
   1. Collect system and "as-installed" data associated with all electrical equipment, feeders, and devices associated with this Study/Report. This effort shall also include obtaining the necessary load-history and available fault current (max and min) and Utility Overcurrent Protective Device (OCP) device(s) from the serving Power Utility Company along with the technical data associated with their system and transformer equipment being provided.
   2. Determine system modes of operation by conducting interviews with Owner's Operational / Production Staff
   3. Determine bolted short-circuit and arc fault currents
   4. Determine protective device characteristics and duration of arcs
   5. Document system voltages and classes of equipment
   6. Evaluate existing equipment short circuit ratings against computed available fault currents.
   7. Arc Flash Hazard Analysis to select working distances as outlined herein, determine incident energy for all equipment and determine flash-protection boundary zones for all affected equipment. Conduct arc flash analysis based on the utility fault current and at a value approximately 50% of this or as otherwise determined from the fault current range as provided by the serving Utility Company.

      a. In addition, where Standby power (generator) is also provided as part of the Project, evaluate the arc flash hazard based on this power source. Summarize each evaluation and develop arc flash labeling based on the worst case scenario or as otherwise accepted by the Owner.
         1) Where the installation includes the use of a portable generator, provide a cautionary label on both the transfer switching equipment and on the outdoor generator termination enclosure as outlined in Attachment D.
      b. Furthermore, provide analysis of any arc flash reduction methods being utilized or included for the equipment. While these devices are not considered in actual labeling, they are to be clearly identified and reported for potential use by maintenance staff when required activities include conducting work on energized and exposed electrical equipment. Provide full analysis of these devices including effects on the downstream equipment being served where applicable.
      c. Finally, where power distribution systems involve the application of "Main – Tie – Main" or similar multi-operational configurations, provide analysis for these schemes in order to determine effects of the operational differences with regard to loading, short-circuit, protective coordination and arc flash hazard. As above, each operational scenario is to be clearly identified in the reports submitted.

2. REFERENCES

A. ANSI – American National Standards Institute, Inc.

   1. ANSI C57.12.00 – Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers
   2. ANSI C37.13 – Standard for Low Voltage AC Power Circuit Breakers Used in Enclosures
   3. ANSI C37.010 – Standard Application Guide for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis
   4. ANSI C 37.41 – Standard Design Tests for High Voltage Fuses, Distribution

Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories.

B. ASTM – American Society for Testing and Materials

B. IEEE – Institute of Electrical and Electronic Engineers

1. IEEE 141 – Recommended Practice for Electric Power Distribution and Coordination of Industrial and Commercial Power Systems
2. IEEE 242 – Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems
3. IEEE 399 – Recommended Practice for Industrial and Commercial Power System Analysis
4. IEEE 1584, Latest Edition – Guide for Performing Arc-Flash Hazard Calculations; including all Addenda

D. IPCEA – Insulated Power Cable Engineers Association

E. NEMA – National Electrical Manufacturers Association

F. NESC – National Electrical Safety Code

H. NFPA – National Fire Protection Association
1. NFPA 70 – National Electrical Code, latest edition
2. NFPA 70E – Standard for Electrical Safety in the Workplace, latest edition

3. STUDY REQUIREMENTS

A. The Work associated with this assignment must comply with all Federal and State, municipal or other authority's laws, rules and/or regulations. These services shall be provided by a qualified, licensed Professional Engineer (hereinafter referred to as Engineer and/or Engineer-of-Record) to conduct the actual analysis, evaluation and development of the Report and Arc Flash labeling.

B. The Power System Study / Analysis is to include all electrical equipment; and specifically include / address the following:
1. In general (not limited to) and starting at the Utility, all electrical equipment including the main service transformer, Utility OCP device and system ratings shall be evaluated and included in this Study.
2. Where included, all medium voltage equipment, motors, transformers (primary and secondary) shall be included as applicable, as well as all 480 VAC low voltage equipment, motors nominally 25 HP (or as otherwise outlined) and larger, all transfer switch equipment, safety disconnect switches rated 100 amps and above, all automatic and manual transfer switches, panelboards, transformers (primary and secondary locations) and other electrical equipment requiring routine inspection or maintenance while energized (including Infrared (IR) Scans).
a. 120/208-240 VAC equipment shall be included in the Study in accordance with the latest information and Addenda issued with IEEE / NFPA criteria, and as outlined herein below

b. 120/240 VAC Single phase equipment need not be included in the actual analyses where the fault current is determined to be less than 10 kAIC, but these panelboards and related transformers, etc. shall be shown on the facility's oneline diagrams for identification and labeling shall be provided as outlined herein below.

3. Refer to other criteria and reporting requirements are outlined elsewhere in this Document.

C. 120/208-240 VAC, Three Phase Power Systems – American Water Corporate Engineering has developed the following recommendations for Arc Flash Hazard labeling on 120/208 – 240 VAC, three-phase grounded and ungrounded power systems:
   1. Service-Entrance and sub-distribution locations: AW Engineering recommends the application of a "standard" label (see Attachment B herein) at those locations where the Main Over-Current Protective Device (OCPD) is equal to or less than 250 amps AND the transformer is equal to or less than 112.5 KVA.
      a. Based on criteria evaluated, and the with specific reference to the 2015 NFPA-70E Tables ("Table 130.7(C)(15)(A)(a) Arc Flash Hazard Identification for Alternating Current (ac) and Direct Current (dc) Systems"), AW recommends that the AW standardized Arc Flash Hazard Warning Labels indicating an Arc Flash PPE Category 2 hazard be used where the following criteria has been determined and/or otherwise verified.
         1) Voltage is
            a. 120/208 VAC, 3-phase, 4-wire (grounded WYE); or
            b. 120/240 VAC, 3 –Phase, 4-wire ("High-leg Delta"); or
            c. 240 VAC, 3-phase, 3-wire (Grounded & Ungrounded Delta)
      b. Where the ampacity rating of the Main OCPD is greater than 250 amps OR the transformer size is greater than 112.5 KVA, calculations shall be performed utilizing the "2-Second" clearing time of the OCP as permitted in NFPA-70E and IEEE – 1594 Standards. The use of this 2-Second criteria associated with max clearing time is ONLY permitted for use on these low voltage (120/208-240 VAC) installations.

D. 120/240 VAC, Single-Phase Power Systems – American Water Corporate Engineering has developed the following recommendations for Arc Flash Hazard labeling on 120/240 VAC, single-phase grounded power systems:
   1. All 120/240 VAC Single Phase installations shall be provided with the application of a "standard" label (see Attachment C herein) at those locations.

E. The Report(s) with calculations must be supplied to the Owner before final equipment labels are printed and applied before the work is considered accepted or approved. The Engineer shall provide documentation for all presumptions / assumptions related to machine impedances, cable impedances (both resistance and inductance), transformer impedances and other equipment values used to complete the computations where obtaining actual data is not available.

F. The Engineer shall consider fault conditions under minimum, maximum, and average power consumption scenarios based on facility operations as well as in the varying Utility fault conditions outlined previously. The Engineer shall also develop fault scenarios with standby power generators where included and used instead of or in conjunction with the electric utility source along with the other scenarios outlined. Arc Flash Hazard analysis and equipment evaluations to be provided as hereinafter indicated.

G. All oneline diagrams included in the Study / Report shall utilize naming conventions and identifiers matching the Design Documents or actual equipment field labels; generic identifiers are not considered appropriate. Coordinate equipment naming / identifiers with the Owner taking into account any existing terminology used. Individual oneline diagrams are required for each of the following evaluations as well as each scenario associated with the work outlined for various operational modes, arc reduction methods/devices and multiple configuration capabilities within the power distribution system. The following ones identified are listed only to establish the primary categories associated the overall scope of evaluations to be included; include supplemental documentation as necessary to clearly and individually identify the study scenario and/or evaluation being considered.
    1. Provide annotated onelines for the Power Distribution System identifying all equipment and naming conventions as stated above.
    2. Provide annotated onelines identifying the available short-circuit current at each piece of equipment; include this in the Report; tabbed as associated with this topic.
    3. Provide annotated onelines identifying the settings associated with the protective device settings at each piece of equipment; include this in the Report; tabbed as associated with this topic. Additional setting details associated with electronic trip devices, relays, etc. are to be clearly identified and included on the partial oneline clips associated with the protective coordination TCC diagrams.
    4. Provide annotated onelines identifying the Incident Energy and Arc Flash Hazard Level at each piece of equipment; include this in the Report; tabbed as associated with each Topic and Evaluation
    5. All onelines shall be legible and readable with a minimum 10 point (Arial or similar) font size; coordinate drawing size (not to exceed 22” x 34”) accordingly. Provide sleeved drawing holders where printed size is larger than 11” x 17”.

H. Short Circuit, Protective Coordination and Arc Flash Hazard Analysis Study
    1. A short circuit, protective coordination and arc flash hazard analysis study shall be made for the entire distribution system in accordance with ANSI/IEEE C37.10 & C37.13, IEEE Std. 141, 242 and 399 beginning at Utility connections and ending at the largest feeder from each motor control center or panel as applicable for the system and analysis being conducted in coordination with paragraph “B” above.
    2. Actual Utility data including system and equipment impedances, X/R Ratios, OCP device(s) and other applicable ratings are to be obtained by the Engineer; include this data <u>as provided by the Utility Company in the Report</u> provided.
    3. The protective coordination study shall consist of the following:
        a. All protective devices contained in the scope of work shall be evaluated. The coordination study shall include computer generated log-log plots of phase overcurrent and where applicable, ground overcurrent protection devices on log-log time-current characteristic paper as produced by the engineering software used for these evaluations and analyses. Complete plots of these devices will be accurately plotted through their operating range. Each TCC Plot shall include a oneline sketch showing the device identifications and ratings. The Engineer shall identify areas of non-coordination where considerations for modification may be determined. Actual modifications are not necessarily considered included in the scope of services under this project. Any suggested modifications affecting equipment and modifications to the system that the Owner may wish to consider will be handled as a change in the Contract. Appropriate maximum fault levels, transformer inrush currents, conductor insulation withstand curves and transformer

damage curves / withstand points shall be plotted on each coordination plot sheet to assure adequate component protection and maximum system reliability.

b. Where included in the power distribution system, each current transformer shall be checked for saturation to insure that they accurately translate all fault currents which may be available on the system.
c. All protective relay and solid-state device settings; fuse sizes; and low-voltage circuit breaker settings shall be tabulated and included on the respective TCC.
d. A complete set of coordination curves (complete with device settings indicated on the TCC) are to be prepared starting with the Utility Company's OCP device(s) and the main distribution devices protecting the Owner's service down through and including all on-site services, feeders, sub-feeders, transformers and secondary main and branch circuit devices, shall be included in the Study. These shall be arranged to provide a uniform approach to the review and device coordination for the system and shall include a "snap-shot"/annotated oneline diagram on each TCC sheet outlining the devices included. Provide sufficient overlap on the TCC evaluations included to demonstrate "upstream / downstream" coordination.
e. The Engineer shall also evaluate ground fault protection where provided in conjunction with the project. Provide Time Current Characteristic (TCC) curves for all GFI circuit breaker equipment protection as outlined above.
f. Motor starting current profiles for all large motors (over 25 HP or as otherwise determined and accepted by the Owner) shall be included on the appropriate TCC's to identify coordination and provided based on the starter type being provided; other motors to be configured as combined loads as applicable to the application
g. Tabulations shall include a listing of the worst-case calculated short circuit duties as a percentage of the applied device rating (automatic transfer switches, circuit breakers, fuses, etc.); the short circuit duties shall be upward-adjusted for X/R ratios that are above the device design ratings. This tabulation shall also include indication of acceptability or, in the event of a noted deficiency, provide recommended solution for corrective action.
h. As indicated, points of non-coordination shall be brought to the attention of the Owner; provide existing TCC identifying the issue and a separate TCC outlining proposed modifications and/or adjustments recommended for corrective action.
i. The Study shall include all electrical equipment as included in the Scope of Work for this assignment. The use of documentation and record information as may be provided by the Owner shall not be construed as providing all data necessary; the EOR shall be responsible to conduct or obtain field verification necessary to determine / obtain all required data in establishing the power distribution one-line diagram for the system being evaluated.
j. Submissions and approval of these studies are required as outlined herein after in this document.

4. Arc Flash Hazard Analysis
   a. The arc flash hazard analysis shall include the incident energy and flash boundary calculations.
      1) Unless otherwise specified or approved in writing by the Owner, the EOR shall utilize a Working Distance of 18 inches for ALL voltage levels (low & medium voltage values). Typical other typical distances (i.e... 24" or 36") for low voltage systems and/or 36" for medium voltage systems as otherwise permitted under NFPA-70E / IEEE are not permitted.

2) As indicated, calculated incident energy values shall be provided for both line and load sides of all transformers and the overcurrent protective devices served from these transformers or other separately derived sources and labeling developed to identify both calculated Incident Energy and Site-specific Arc Flash PPE Category values in addition to other equipment and devices as previously outlined herein. Equipment Arc Flash Hazard Analysis labeling to be provided with this and other labeling information as outlined herein to properly identify and notify workers to the hazards present.

b. The Engineer shall furnish the Arc Flash Hazard Analysis Study per the latest edition of NFPA 70E - *Standard for Electrical Safety in the Workplace*, reference Article 130.3 and as indicated in Annex D to these specifications.

c. The analysis shall utilize the appropriate short-circuit and clearing times associated with the over-current protective devices. Where this information is not available, alternative methods for similar devices shall be identified and submitted in the study for review and comment by the Owner.
   1) The arc flash study shall be run under a minimum of the following scenarios in order to account for varying source conditions and available Utility deviations. The worst case from these scenarios shall be considered in developing the PPE and Arc Flash Labeling for the equipment unless otherwise discussed and accepted by the Owner. Power Study scenarios to be considered include;
      a) Utility at nominal short circuit contribution,
      b) Utility at 50% of nominal contribution (or as otherwise determined based on available range of Utility data), and
      c) Standby (generator) contribution (where applicable)
      d) Other scenarios as previously indicated.
   2) Incident energy is greatly influenced by protective device clearing time, which is determined by the available short circuit current at that location. The intent for utilizing a 50% source is to provide some measure of assurance that a “low” utility source will not result in incident energy values higher than those indicated on the equipment labels.
   3) The flash protection boundary and the incident energy shall be calculated at all significant locations in the electrical distribution system as outlined herein.

d. The Arc-Flash Hazard Analysis shall include all medium voltage and 480/277 volt locations, as well as those three phase locations associated with the 240 volt and 208 volt systems as previously outlined..

e. All electrical equipment as herein outlined shall be labeled regardless of the arc-flash energy / incident energy level determined.

f. Safe working distances shall be identified for calculated fault locations based upon a calculated arc flash boundary considering a minimum Incident Energy level of 4 cal/cm^2; site-specific Arc Flash PPE Category as identified in Attachment D. Working distances shall be based on 18” as outlined previously and in accordance with the general criteria as outlined in IEEE 1584. The calculated arc flash protection boundary shall be determined using this working distances.

g. The Arc Flash Hazard analysis shall include calculations for contributions of fault current magnitude (based on the available fault-current values and not the AIC ratings of the equipment) as previously outlined herein. The calculations shall include all motor and other sources that can contribute to the available fault current. Where necessary, the Arc-Flash Hazard Analysis shall be performed utilizing mutually agreed upon facility operational

conditions, and the final report shall describe, when applicable, how these conditions differ from worst-case bolted fault conditions.

h. As previously noted, Arc flash computations shall include line and load side calculations associated with the "main" (service-entrance) breaker as well as any other transformer OCP devices associated with internal power distribution. Arc Flash calculations shall be based on actual overcurrent protective device clearing time. AW does not consider the use of this IEEE Exception to be appropriate. (Maximum clearing time of 2 seconds *based on IEEE 1584 is not acceptable*)

i. Results of the Analysis shall be submitted in tabular form, include device or bus name, (based on actual naming ID as identified on the Facility Oneline Diagram; not simply an ID assigned by the software), bolted fault and arcing fault current levels at the various scenarios outlined herein, flash protection boundary distances, personal-protective equipment classes and the arc flash incident energy levels determined. These results shall also be included on the oneline diagram associated with the specific study/scenario being evaluated.

j. The Report shall also include identification of the Personnel-Protective Equipment (PPE) Categories and identify minimum PPE required for each location. This information shall be included in the Report but not shown on the equipment labels.

k. Arc Flash Labeling of Electrical Equipment: Provide copies of the Arc Flash Labels (see sample attached below) in the Report for documentation of the information being identified on the equipment in a separately tabbed section of the report. Include in this section definitions of the terms and distances outlined along with information on the various PPE equipment classifications indicated.

4. POWER SYSTEM STUDY AND ARC FLASH ANALYSIS QUALIFICATIONS

A. The short-circuit, protective device coordination and arc flash hazard analysis studies shall be conducted under the supervision and approval of a Registered Professional Electrical Engineer skilled (*minimum of 10 years of demonstrated experience in conducting power systems studies; provide qualifications upon request*) in performing and interpreting the power system studies. The final report, including copies of the Arc Flash Labels, shall be sealed and signed by the EOR.

5. ENGINEERING STUDY / REPORT SUBMISSIONS

A. Submit the following Reports for AW Engineering / Owner Review and Comment. Coordinate these submission with the Design Criteria / Documentation Submissions as outlined for the Project. In general, the "Preliminary" Report should be provided with the 30% Design (or otherwise defined Project) Submission; the "Pre-Final" Report with the 60% submission and the "Final" Report provided with the 100% submission. Final adjusted report information, including final equipment labels to be provided once all field adjustments and acceptance testing has been completed. This Record Document Report shall be provided as part of the Operation and Maintenance Documents.

1. Preliminary – Submission to contain an annotated One-line Power Riser Distribution Diagram with OCP devices and other basic configurations associated with the power distribution system included; not a completely detailed and documented diagram. This diagram is intended to show the available power sources and devices which comprise the system and it's configuration for

operation. Additionally, this initial diagram is to include the major loads and presumptions for miscellaneous general power requirements which may be appropriate in considering Load Flow evaluations where necessary.

a. As part of this Preliminary effort, consideration related to new equipment selections shall be included. Provide initial discussion and/or indication related to proposed equipment for Owner consideration and comment.
b. Include the overall oneline diagram utilizing this simplified computer modeling approach. This information and modeling will allow basic configuration, operations and evaluations associated with equipment short-circuit ratings and types of devices to be considered / developed with the Owner.

2. Pre-Final – Report to contain an annotated One-line Power Riser Distribution Diagram with OCP devices, device ratings/settings and cable feeders (conductor size/type and raceway size/type) identified.
   a. As part of this continuing effort, consideration related to equipment selections shall include type of device and over-current protective features needed for protective coordination with other elements of the power distribution system and loads served. (including type of trip unit, potential arc flash reduction methods as applicable, etc.).
   b. Calculations associated with Short-Circuit AIC values and Equipment suitability along with Arc-Flash Hazard Analysis Report and sample of proposed / typical ANSI Z535.* label information (**current edition*) documentation are to be included.
   c. Included in this Report, Oneline Drawings for the overall Power Distribution Power Riser diagram, an annotated oneline outlining the Short-Circuit ampacity values calculated, and an annotated oneline showing the Arc Flash Incident Energy and PPE Levels calculated.
   d. In addition, a copy of the oneline diagram with the OCP devices indicated shall be included with the Protective Coordination TCC's. Each TCC shall include the partial oneline drawing associated with the protective coordination elements being evaluated and included.
3. Final - Provide a written response to Owner comments provided regarding Pre-Final Study Report. Finalize the information; update data, settings and other appropriate information including any accepted recommendations and/or modifications.
   a. Provide three hard-copies of each submission Report as well as editable Word electronic formatted Report document with the Final submission. Power Distribution Riser Diagrams shall be provided for all analysis configurations conducted including, but not limited to, short-circuit models for minimum and maximum operational scenarios and arc flash hazard models. Include hardcopies of equipment reports and calculations performed.
   b. Submit an electronic copy of the final Arc Flash Hazard Analysis and One-line Power Riser Diagram, complete with all associated equipment databases formatted with the engineering software used and as outlined herein.
   c. It is recommended that the final report include the following sections:
      1) Executive Summary including Introduction, Scope of Work and Results/Recommendations
      2) Short-Circuit Methodology Analysis Results and Recommendations
      3) Short-Circuit Device Evaluation Table
      4) Protective Device Coordination Methodology Analysis Results and Recommendations
      5) Annotated and revised oneline diagrams (all) as outlined in "2" above shall be provided with the Final Report.

6) Protective Device Settings Table associated with the field installed devices.
7) Time-Current Coordination Graphs and Recommendations
8) Arc Flash Hazard Methodology Analysis Results and Recommendations including the details of the incident energy and flash protection boundary calculations, along with Arc Flash boundary distances, working distances, Incident Energy levels and Personal Protection Equipment levels.
9) Arc Flash Labeling section showing types of labels to be provided. Section will contain descriptive information as well as actual copies of the label images.
10) One-line system diagram that shall be computer generated and will clearly identify individual equipment buses, bus numbers used in the short-circuit analysis, cable and bus connections between the equipment, calculated maximum short-circuit current at each bus location, device numbers used in the time-current coordination analysis, and other information pertinent to the computer analysis.

B. Upon acceptance of the Final Report, provide labeling of the power distribution equipment in accordance with ANSI Z535.4– Product Safety Signs and Labels; label size to be 4" x 6". Labels to be provided as outlined in Articles 1.03, C and 3.03 below. Label materials furnished to be suitable for either the interior or exterior locations where they are to be applied; provide samples for review and approval by the Owner along with data sheets from the Manufacturer outlining these applications.

C. As part of the final documentation associated with the project Record Drawing data, provide a copy of the oneline diagram that includes the essential equipment and devices without ratings to provide a concise representation of the power distribution system. All equipment and devices shall be identified based on the actual nameplates and identifiers developed under the project design; coordinate with final nameplates provided. Drawing size to be based on size of power distribution system but shall be large enough to provide clear reading of the text based on an Arial 10 point font or equivalent of the equipment naming and identifiers; maximum sheet size to be 22" x 34". Provide multiple drawings for systems where information cannot be legibly contained on a single sheet. This diagram is to include all revisions and modifications determined through the course of construction.

6. COMPUTER ANALYSIS SOFTWARE

A. The studies shall be performed using ETAP power systems software as provided by Operation Technology, Inc. (OTI), or SKM Systems Analysis Power Tools for Windows (PTW) software program.

B. Provide a final electronic file copy of all data, reports and the oneline diagram in electronic engineering database (ETAP or SKM) format to the Owner prior to final acceptance of the Project. This information is to be validated by the EOR as representing "As-Built" conditions including all over-current protective devices and their settings, feeder conductors and raceway information and load data; including inductive, resistive and combination loads.

C. The files shall contain all Reports (in Microsoft Word) conducted including Short-Circuit evaluations, Protective Coordination and Load Flow Studies as well as the Arc Flash analysis values determined as well as copies of the Arc Flash labels. The EOR for the

Study shall attest to this validation in writing when submitting the final electronic copy of the project.

7. FIELD INVESTIGATION / DATA COLLECTION AND IMPLEMENTATION ACTIVITIES

A. The Engineer (or authorized designee of the Engineer) conducting the field data collection work shall review and provide compliance with the following:
   1. Continuity of Service:
      a. If any service or system must be interrupted, the Engineer shall request permission in writing stating the date, time, etc. the same will be interrupted and the areas affected. This request shall be made in sufficient time (approximately 1 week minimum in advance) for proper arrangements to be made. Written permission shall be obtained from the Owner before any interruption to electrical power is permitted.
   2. Lock-Out / Tag-Out Procedures
      a. The Engineer shall provide his own lock-out / tag-out equipment in coordination with the Owner's program; coordinate with the Owner's field operational and maintenance staff.
      b. The Engineer shall have in effect a written safety program that includes a lock-out / tag-out safety program in accordance with OHSA under Part 1910, Subpart S.
   3. Electrical Safety Program
      a. The Engineer shall review the Owner's Electrical Safety Program and take the necessary precautions, in conjunction with his own safety program for employee protection.
      b. The Engineer is to have in effect a written electrical safety program that includes all applicable provisions of the NFPA-70E which has been adopted by OHSA under Part 1910, Subpart S.

B. The Engineer shall provide written documentation indicating that his employees, those working on American Water projects, have been trained and certified on all provisions applicable to B and C above upon request from the Water Company.

C. The Engineer's employees shall follow all provisions of "B" and "C" above including, but not limited to, the use of personal protective equipment (PPE), establish protective barriers, approach boundaries and documentation for such activities. Provide a written statement attesting to the above requirements prior to the start of the Field Investigation / Data Collection activities.

D. Field Adjustment
   1. The Engineer shall adjust protective devices settings based on the final accepted Study/Report provided by the Engineer; settings to be listed in a table format and submitted as part of the final O&M Manual for the equipment / system.

E. Arc Flash Warning Labels
   1. Provide an ANSI Z535.4 compliant (size 4 in. x 6 in.) thermal transfer or equivalent type two color die-cut arc flash label as provided by DuraLabel or Brady for each work location analyzed and included in this project. Material type to be suitable for the locations; IE indoor, outdoor, chemical resistively, etc.
   2. The label shall have either an orange header with black lettering and the wording, "**WARNING, ARC FLASH HAZARD**", or a red header with white lettering and the wording, **"DANGER, ARC FLASH HAZARD".** Include the ANSI Safety Symbol in the header as recommended. The Danger signal wording shall be provided for all

calculated incident energy values greater than 40 Cal/cm^2; Warning to be used for all calculated incident energy values below 40 Cal/cm^2. These labels shall include the following information:

a. Location designation
b. Shock Hazard Information including; Nominal voltage, Limited Approach and Restricted Approach with Covers Removed
c. Flash protection boundary
d. Site-specific Arc Flash PPE Category
e. Available Fault Current – include reference to Power Study as outlined on sample labels included in the Attachments to this criteria
f. Incident energy (calculated based on Incident Energy Analysis Method)
g. Working distance (18" typical for all equipment and applications)
h. Engineer, report number, revision number and issue date
i. Reference to "Owner's Arc Flash Procedures Manual" in lieu of actual listing of clothing and glove requirements.

Refer to Attachment at end of this document for Sample Label and Information to be included

3. Labels shall be machine printed, with no field markings. The size of the lettering is to be in accordance with ANSI-Z535.4 recommendations for a safe viewing distance of 3' minimum based on favorable viewing conditions and information to be included.
4. Arc flash labels shall be provided in the following manner and all labels shall be based on recommended over-current device settings. Coordinate the data provided with the Arc Flash Study results and the ANSI labeling requirements. Quantities outlined below are considered minimum quantities necessary; provide additional labeling as may be required by Regulatory or Inspection Agencies at no additional cost to the project.
    a. For each transformer, 480 and applicable 240 and/or 208 volt panelboard, individually-mounted circuit breaker and safety disconnect device, one arc flash label shall be provided
    b. For each motor control center, one arc flash label shall be provided at the top of each vertical section *(see footnote below).*
    c. For each low voltage switchboard, one arc flash label shall be provided at the top of each vertical section *(see footnote below).*
    d. For each low voltage switchgear, one arc flash label shall be provided at the top of each vertical section *(see footnote below).*
    e. For each medium voltage switchgear, one arc flash label shall be provided for each cell within each vertical section *(see footnote below).*
    f. For medium voltage switches one arc flash label shall be provided at the top of each vertical section *(see footnote below).*
    g. For each motor power terminal box, 25 horsepower and larger, one arc flash label shall be provided.
    h. Additional arc flash labels to address installations and specific equipment requirements to be provided based on an individual evaluation basis and coordinated with the Owner.
    i. General Use Safety labels shall be installed on equipment in coordination with the Arc Flash labels. The General Use Safety labels shall warn of general electrical hazards associated with shock, arc flash, and explosions, and instruct workers to turn off power prior to work.

    (Footnote – where control center, switchboard, or switchgear assemblies are dual-fed, provide an arc flash label at each main entrance device or section as

well as at any "Tie" device location. For equipment that is front and rear accessible, provide the same labeling on the rear sections as outlined above.)

5. Labels shall be field installed by the (Contractor or Engineer) at the conclusion of the project after acceptance by the Owner.

8. ATTACHMENTS

A. Sample Labels - Three Phase Systems involving calculated incident energy analysis:
   1. DANGER
   2. WARNING

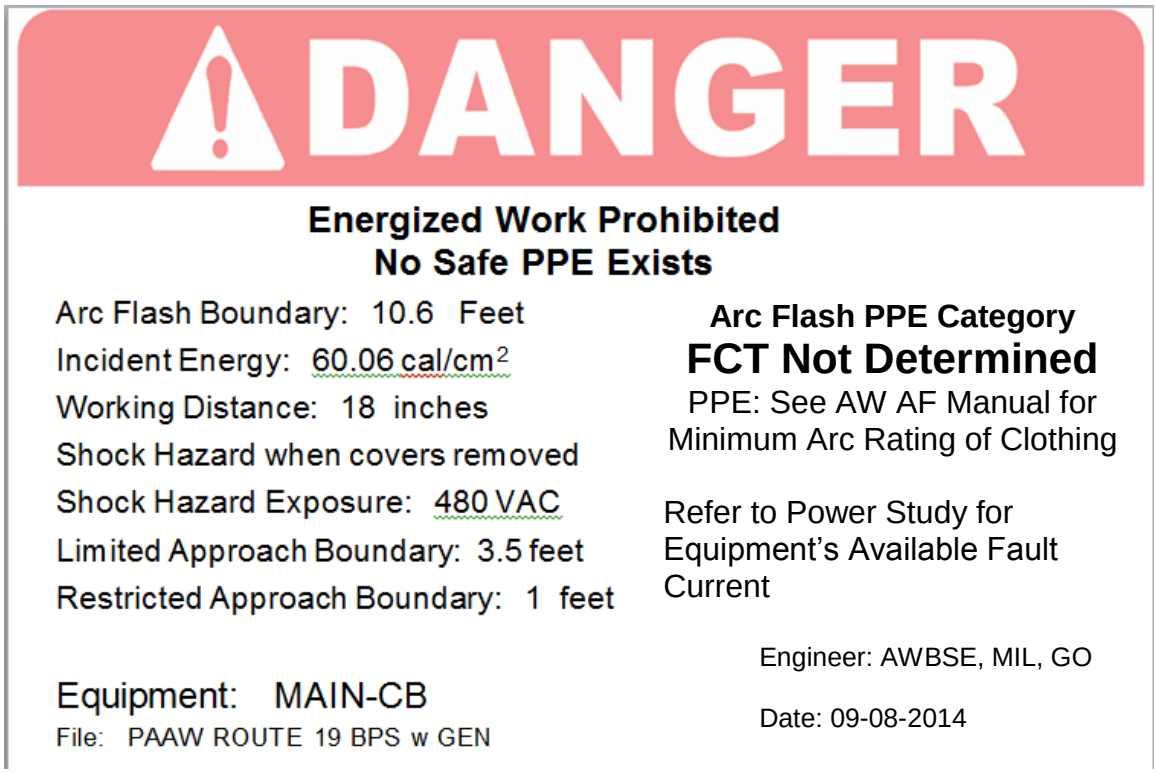
B. Sample Labels – Three Phase 120/208-240 VAC Systems associated with AW Standardized labeling
   1. WARNING

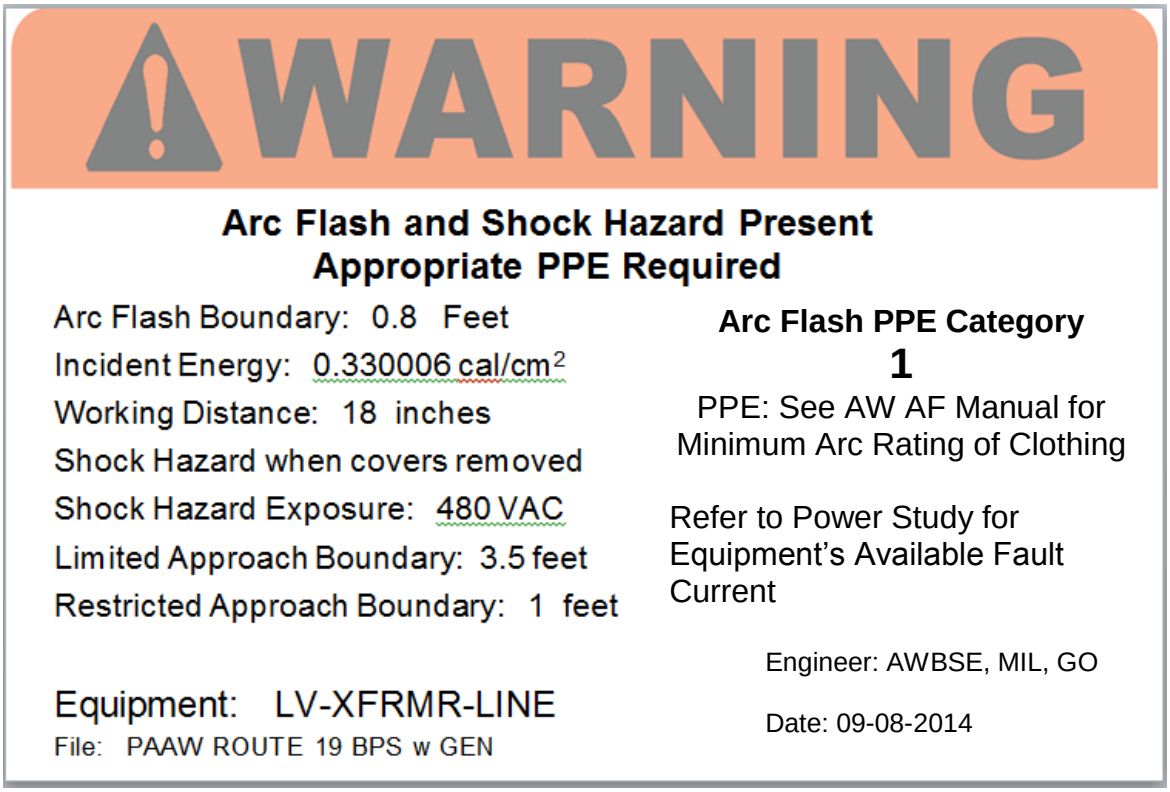
C. Sample Labels – Single Phase 120/240 VAC Systems associated with AW Standardized labeling
   1. WARNING

D. AW Engineering Criteria for Portable Generator Transfer Switch and Termination Enclosure Identification

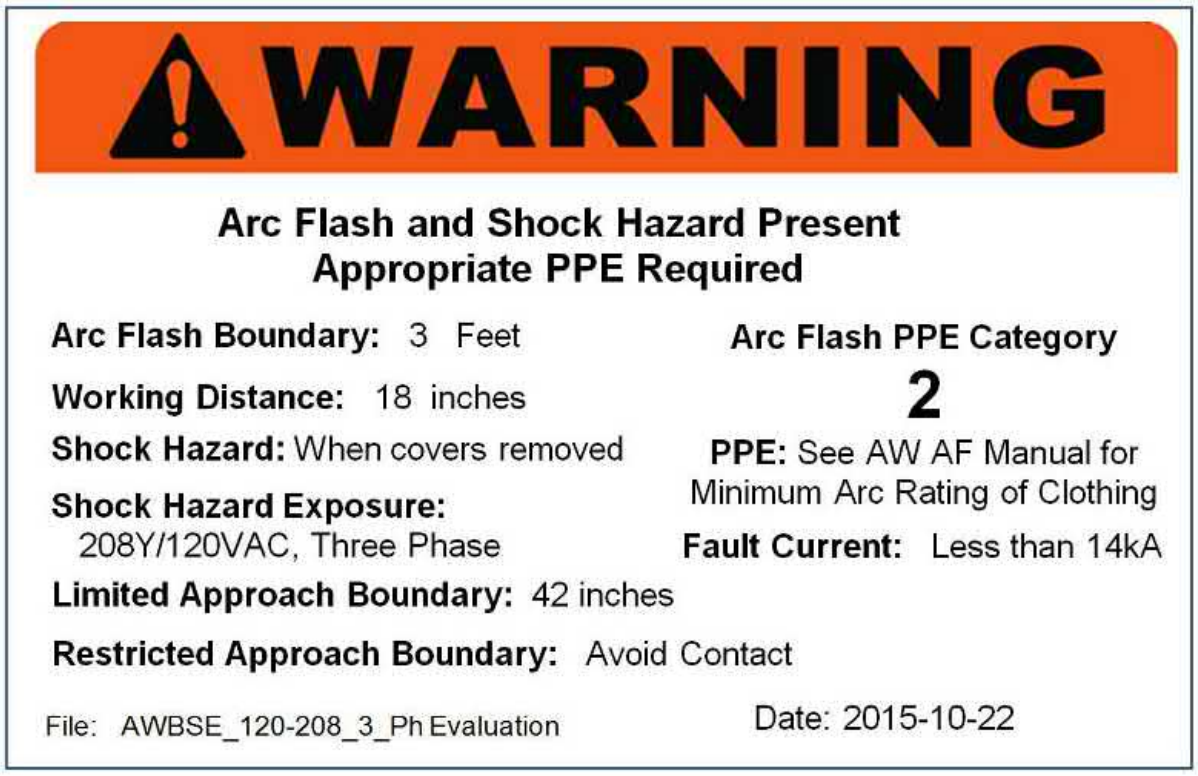
E. AW Engineering Criteria for Site Specific Arc Flash PPE Category Identification

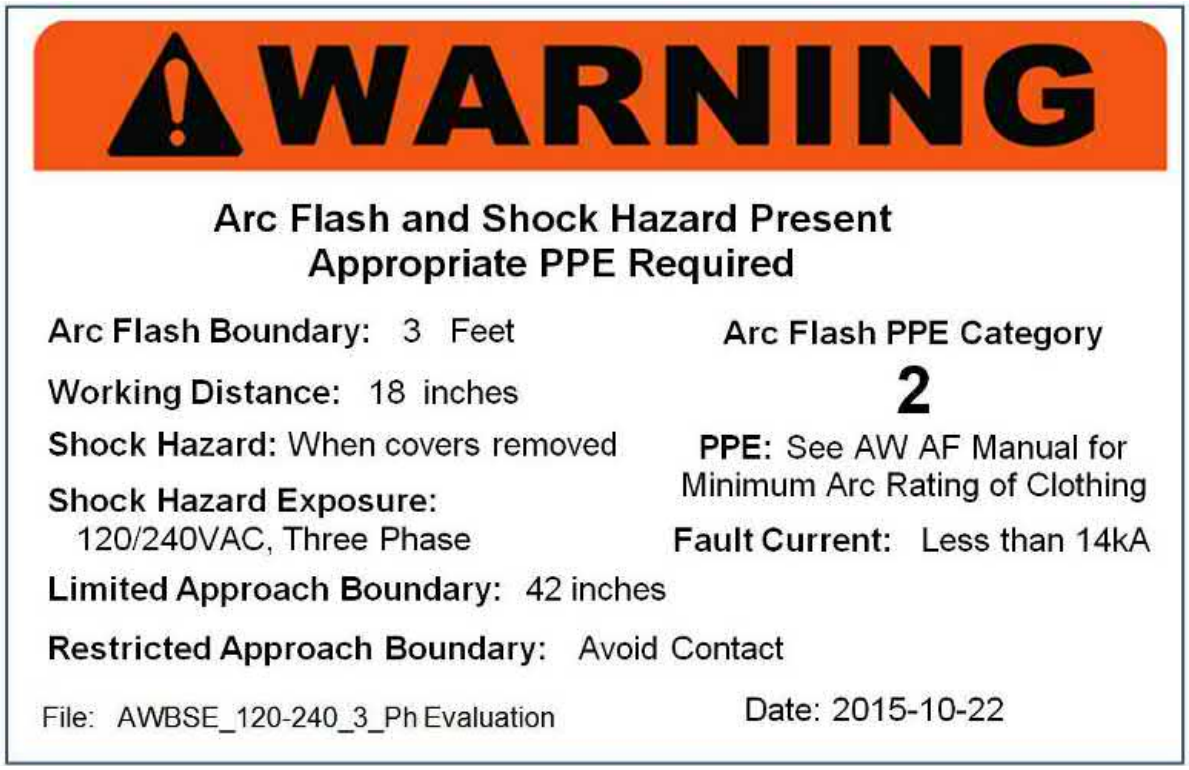
ATTACHMENT A –
Three Phase Systems involving calculated incident energy analysis





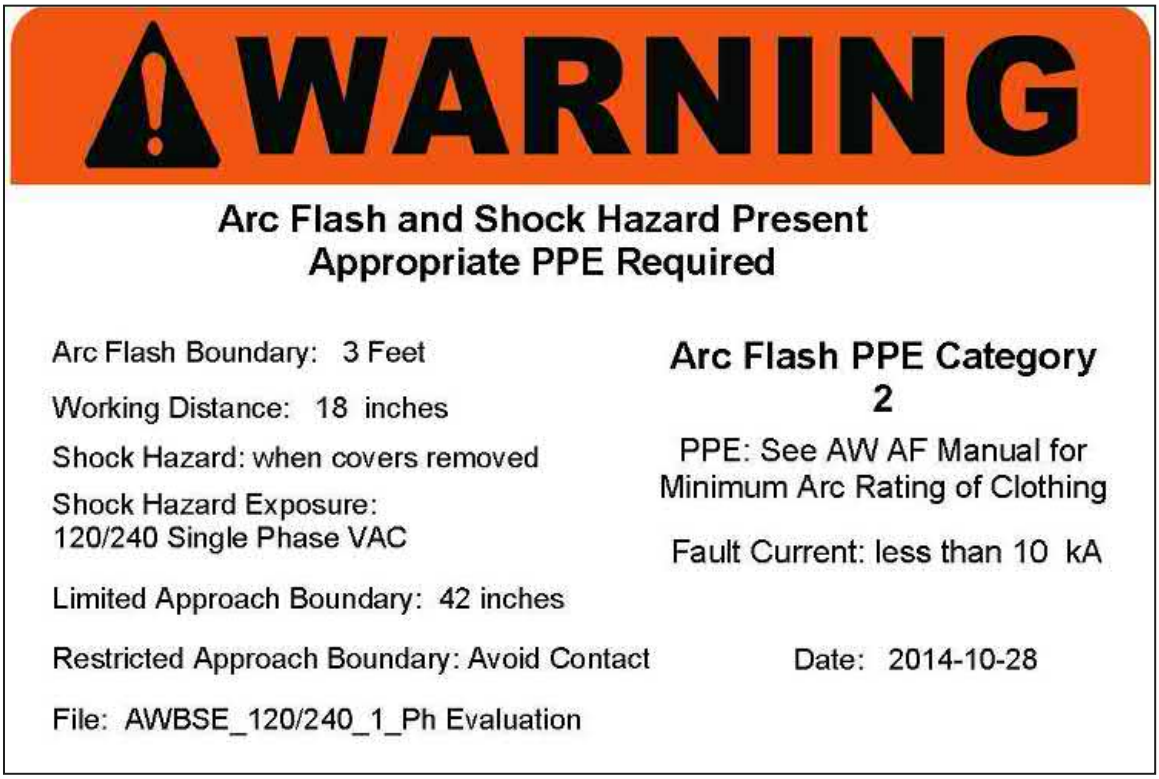
ATTACHMENT B -
Three Phase 120/208-240 VAC Systems associated with AW Standardized labeling





ATTACHMENT C –

Single Phase 120/240 VAC Systems associated with AW Standardized labeling



ATTACHMENT D –

AW Engineering Criteria for Portable Generator Transfer Switch and Termination Enclosure Identification

ATTACHMENT E –

American Water Engineering Criteria for Site Specific Arc Flash PPE Category Identification

Incident Energy Range (cal/cm²)	Arc Flash PPE Category
0 – 4.0	1
4.01 – 8.0	2
8.01 – 25.0	3
25.01 – 40.0	4
40.01 and above	DANGEROUS (No Safe PPE Exists)

Appendix L: Monte Rd. Bridge Drawings

N E SN. 26933

SHEET NO.	TOTAL SHEETS
1	20

COUNTY OF MONTEREY

IN THE

STATE OF CALIFORNIA

DEPARTMENT OF PUBLIC WORKS

SEISMIC RETROFIT OF VARIOUS BRIDGES

MONTE ROAD BRIDGE AT SALINAS RIVER
STATE BRIDGE NO. 44C-0093, COUNTY NO. 135

DAVIS ROAD BRIDGE AT SALINAS RIVER
STATE BRIDGE NO. 44C-0068, COUNTY NO. 208

FEDERAL-AID PROJECT NO. BRLZ-5944(055), PROJECT NO. 01-220765

To be supplemented by California Department of Transportation Standard Plans dated July, 1992

INDEX OF SHEETS

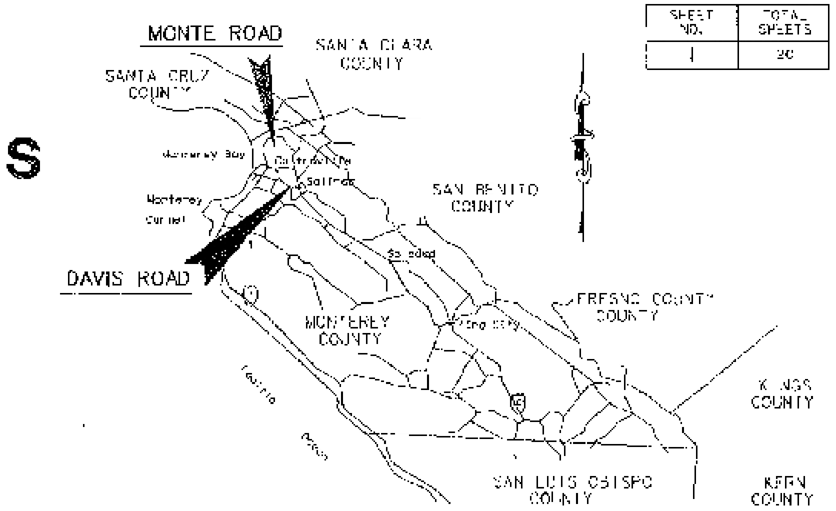
SHEET NO.	TITLE
1	TITLE SHEET AND STD PLANS LIST
MONTE ROAD BRIDGE	
2	CONSTRUCTION AREA SIGNS
3	GENERAL PLAN
4	PIER DETAILS NO. 1
5	PIER DETAILS NO. 2
6	HINGE DETAILS
7	PILE DETAILS
8	LOG OF TEST BORINGS (1 of 2)
9	LOG OF TEST BORINGS (2 of 2)
DAVIS ROAD BRIDGE	
10	ROADWAY AND UTILITIES
11	PAVEMENT DELINEATION & SIGNING
12	DETOUR PLAN
13	GENERAL PLAN
14	FOUNDATION PLAN
15	ABUTMENT RETROFIT DETAILS
16	TYPICAL SECTION
17	PILE DETAILS
18	METAL TUBE BRIDGE RAILING - TYPE 215 NO. 1
19	METAL TUBE BRIDGE RAILING - TYPE 215 NO. 2
20	LOG OF TEST BORINGS (1 of 1)

STANDARD PLANS LIST DATED JULY 1992

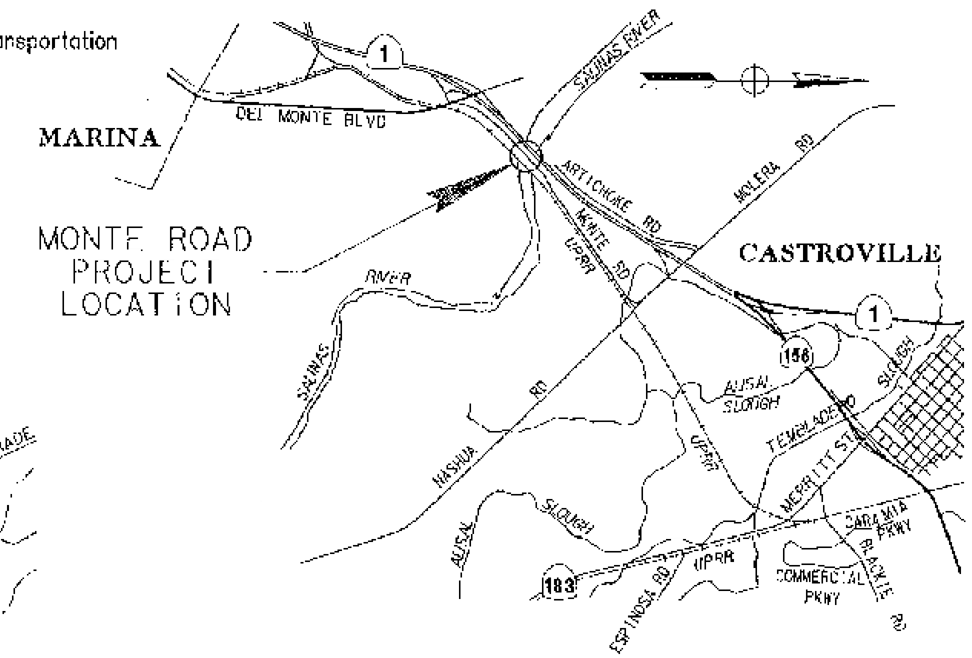
A10A	Abbreviations
A10B	Symbols
A62C	Limits of Payment for Excavation & Backfill- Bridge
A73A	Markers
A73B	Markers
RSP T2	Temporary Crash Cushion, Sand Filled
T3	Temporary Railing (Type K)
T13	Traffic Control System for Lane Closure on Two Lane Conventional Highways
B0-13	Bridge Details
RS1	Roadside Signs, Typical Installation Details No.1
RS2	Roadside Signs, Wood Posts, Typical Installation Details No.2

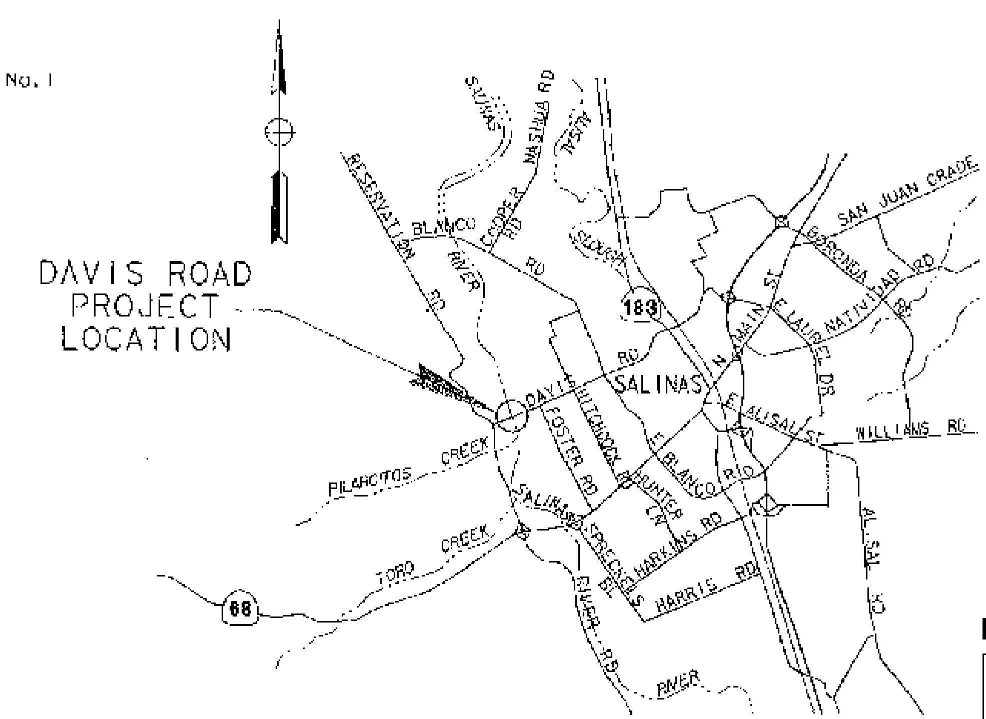
STANDARD PLANS LIST DATED JULY 1997

RSP A77A	Metal Beam Guard Railing - Wood Posts and Wood Blocks
RSP A77B	Metal Beam Guard Railing Standard Hardware
RSP A77C	Metal Beam Guard Railing - Wood Posts and Wood Blocks
RSP A77D	Guard Railing Typical Layouts
RSP A77F	Metal Beam Guard Railing - Typical Embankment Widening for End Treatments
RSP A77FA	Metal Beam Guard Railing - Typical Line Post Installations
RSP A77L	Guard Railing and Barrier Railing End Treatment
RSP A77M	Guard Railing and Barrier Railing End Treatment



LOCATION MAP





SITE MAPS

NO SCALE

CONTRACTOR'S CLASS "A" LICENSE REQUIRED

NO AS-BUILT CHANGES

AS BUILT PLANS

CORRECTIONS BY: EDB/LS

CONTRACT NO. 01-220765

DATE 2-4-02

PUBLIC WORKS DIRECTOR

APPROVED BY THE BOARD OF SUPERVISORS

DATED 12/12/00

CHAIR

CLERK

Project Manager 8-25-00 Date

DESIGN BY C. Iadi/A. Yoo — CHKD BY

DRAWN BY F. Nostrohle — CHKD BY A. Yoo

SPECIFICATIONS WRITTEN BY — CHKD BY

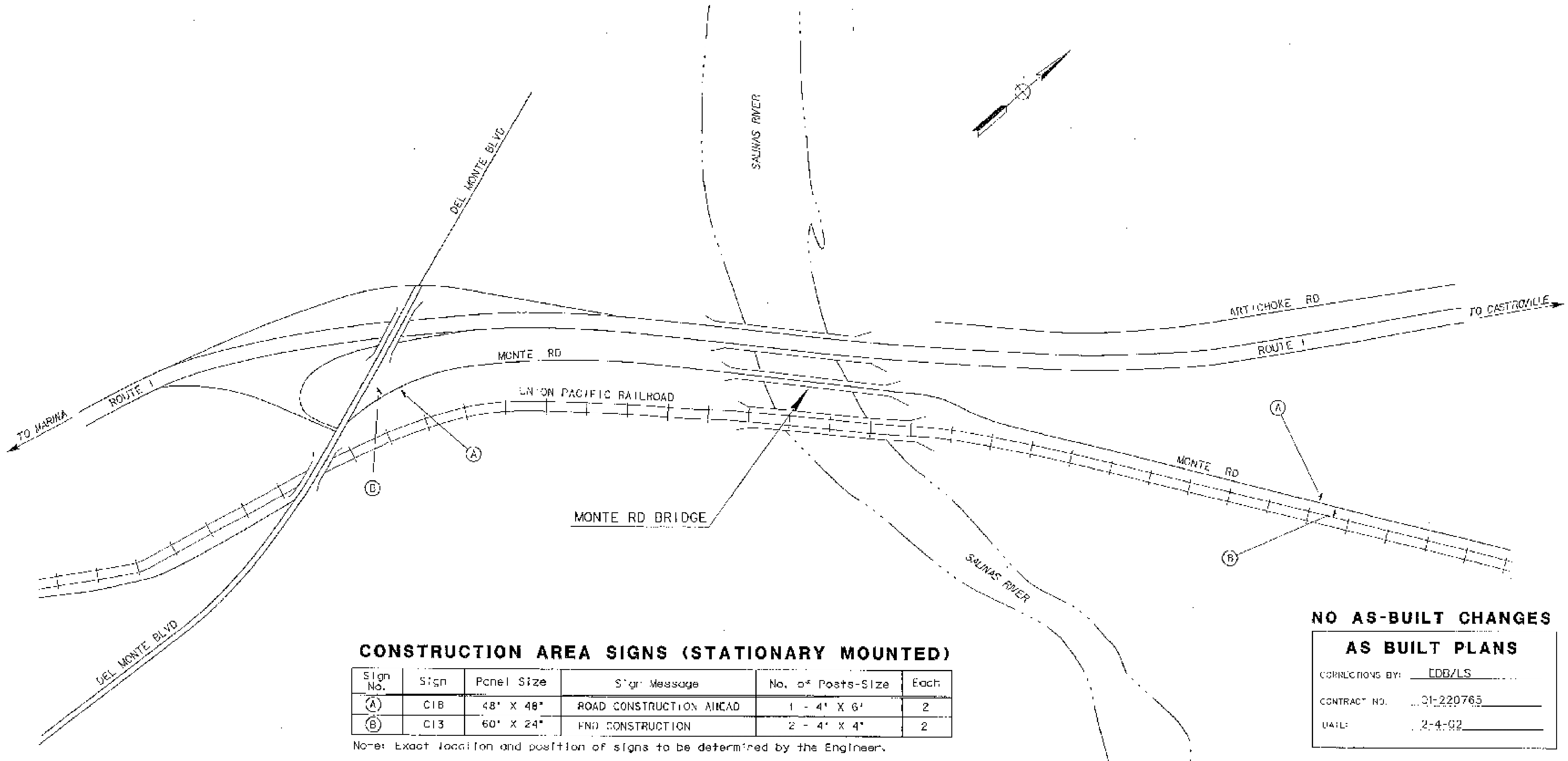
Approval Recommended by — Public Works Senior Design Engineer

REGISTERED PROFESSIONAL ENGINEER — No. C36573 — Exp. 6/30/04 — CIVIL — STATE OF CALIFORNIA

DOKKEN ENGINEERING

3054 Gold Canal Drive
Rancho Cordova, CA 95670
(916)858-0642

N. 2 161 200 E. 5 746 700 SN. 26934



CONSTRUCTION AREA SIGNS (STATIONARY MOUNTED)

Sign No.	Sign	Panel Size	Sign Message	No. of Posts-Size	Each
(A)	C18	48" X 48"	ROAD CONSTRUCTION AHEAD	1 - 4" X 6"	2
(B)	C13	60" X 24"	END CONSTRUCTION	2 - 4" X 4"	2

Note: Exact location and position of signs to be determined by the Engineer.

NO AS-BUILT CHANGES

AS BUILT PLANS

CORRECTIONS BY: EDB/LS

CONTRACT NO. 01-220765

DATE: 2-4-02

1025coso1.cgr REV. 3 KM 12/13/00

Submitted by Anthony L. Yee Date 7/14/00

DESIGN BY F. Hostrawia CHKD BY A. Yee

DRAWN BY F. Hostrawia CHKD BY A. Yee

SPECIFICATIONS WRITTEN BY A. Yee CHKD BY

Approval Recommended by ____ Public Works Senior Design Engineer

REGISTERED PROFESSIONAL ENGINEER — Anthony L. Yee — No. C46313 — Exp. 12/31/02 — CIVIL — STATE OF CALIFORNIA

DOKKEN ENGINEERING

3054 Gold Canal Drive
Rancho Cordova, CA 95670

(916)858-0642

MONTEREY COUNTY PUBLIC WORKS

BRIDGE DESIGN

312 EAST ALISAL STREET
SALINAS, CALIFORNIA 93901
(831) 755-4800/FAX 755-4958

EARTHQUAKE RETROFIT

CONSTRUCTION AREA SIGNS

MONTE ROAD BRIDGE

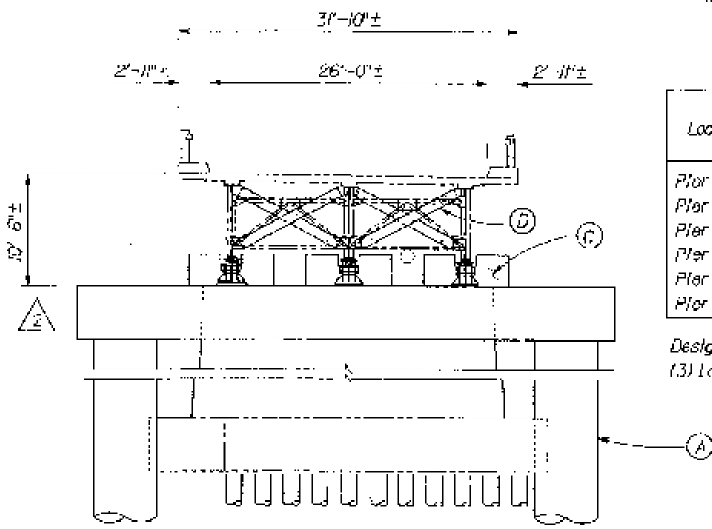
at Salinas River

County No. 135, State No. 44C-0093

DATE	DWG. NO.		SHEET
12/00			2
SCALE None	PROJECT NO. 01 220765		OF 20

TPA 4000

N. 2 161 200 E. 5 746 700 SN. 26 935



TYPICAL SECTION

1/8" = 1'-0"

PILE DATA - CAST-IN-STEEL-SHELL (CISS) CONCRETE PILES

Location/Type	Design Loading (Service)	Nominal Resistance		Design Tip Elevation	Specified Tip Elevation
		Compression	Tension		
Pier 1 /72x1.0	N/A	735 kips	0 kips	-66.0 (1); -55.0 (3)	-66.0
Pier 2 /72x1.0	N/A	990 kips	0 kips	-112.0 (1)&(4); -105.0 (3)&(4)	-112.0
Pier 3 /72x1.0	N/A	970 kips	0 kips	-110.0 (1)&(4); -105.0 (3)&(4)	110.0
Pier 4 /72x1.0	N/A	947 kips	0 kips	-106.0 (1)&(4); -105.0 (3)&(4)	-106.0
Pier 5 /72x1.0	N/A	955 kips	0 kips	-109.0 (1)&(4); -105.0 (3)&(4)	-109.0
Pier 6 /72x1.0	N/A	735 kips	0 kips	-100.0 (1)&(4); -105.0 (3)&(4)	-105.0

Design Tip Elevation is controlled by the following demands: (1) Compression, (2) Tension, (3) Lateral load during Seismic Condition, (4) Liquefaction to Elev. -30 feet (Piers 2 through 5)

RETROFIT LEGEND

- (A) Bent Retrofit
- (B) Pin and hanger retrofit
- (C) Catcher blocks & shear keys
- (D) Cross Bracing

LEGEND

- indicates existing structure
- indicates new construction
- indicates direction of traffic
- indicates direction of flow
- Standard plan sheet no.
- Detail no.

Mark	Date	Description	By	Chk'd
2	7-7-01	Revised cap width	CH	HM
1	5-12-01	(D) added @ pier 6	HHN	HM

REVISIONS

NO AS-BUILT CHANGES

AS BUILT PLANS

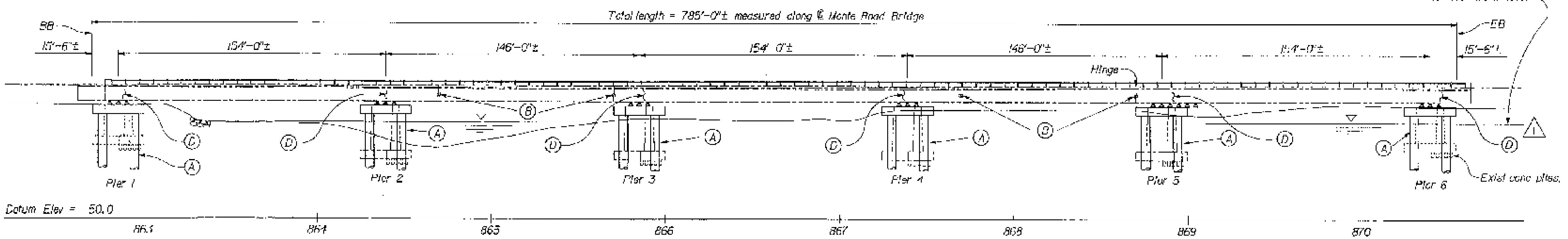
CORRECTIONS BY: EDB/LS

CONTRACT NO. 01-220785

DATE: 2-4-02

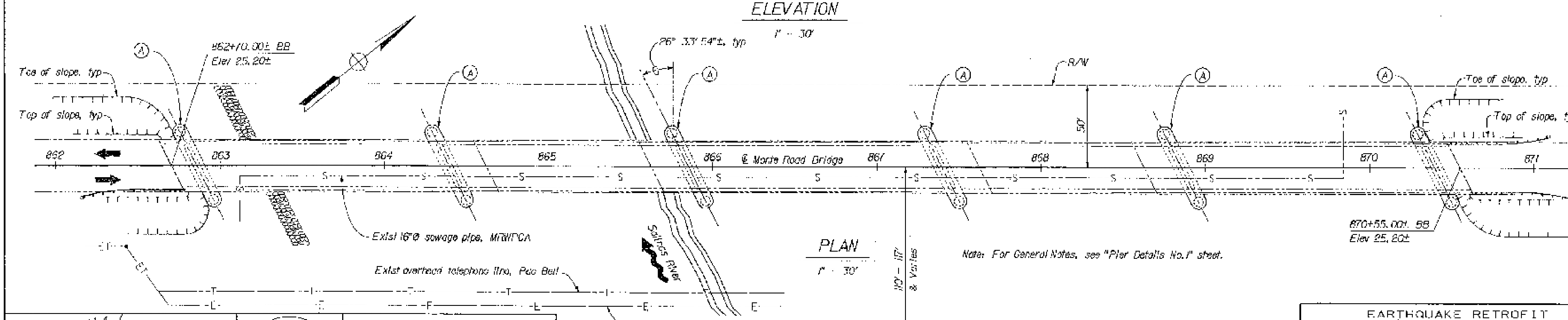
CONTRACT CHANGE ORDER NO. ____

SHEET ____ OF



ELEVATION

1" = 30'



PLAN

1" = 30'

Note: For General Notes, see "Pier Details No.1" sheet.

Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

For complete R/W data, see R/W Record Maps at County office

Submitted by ____ Date 12-20-00
DESIGN BY R. Miller — CHKD BY H. Homzawi
DRAWN BY T. Florence — CHKD BY H. Homzawi
SPECIFICATIONS WRITTEN BY R. Miller — CHKD BY ____
Approval Recommended by ____ Public Works Senior Design Engineer

REGISTERED PROFESSIONAL ENGINEER — RAYMOND S. MILLER, JR. — No. 42601 — Exp. 3-31-04 — CIVIL — STATE OF CALIFORNIA

DOKKEN ENGINEERING
3354 Gold Canal Drive, Rancho Cordova, CA 95670 (916)858-0642

MONTEREY COUNTY PUBLIC WORKS
BRIDGE DESIGN
312 EAST ALISAL STREET
SALINAS, CALIFORNIA 93901
(831) 755-4800/FAX 755-4958

EARTHQUAKE RETROFIT
GENERAL PLAN
MONTE ROAD BRIDGE
at Salinas River
County No.135, State No.44C-0093

DATE 12/00	DWG. NO.		SHEET 3
SCALE As Noted	PROJECT NO.	01-220765	OF 20

102SGP.DGN REV.10 KM 12/13/00

N. 2 161 200 E. 5 748 700 SN. 26936

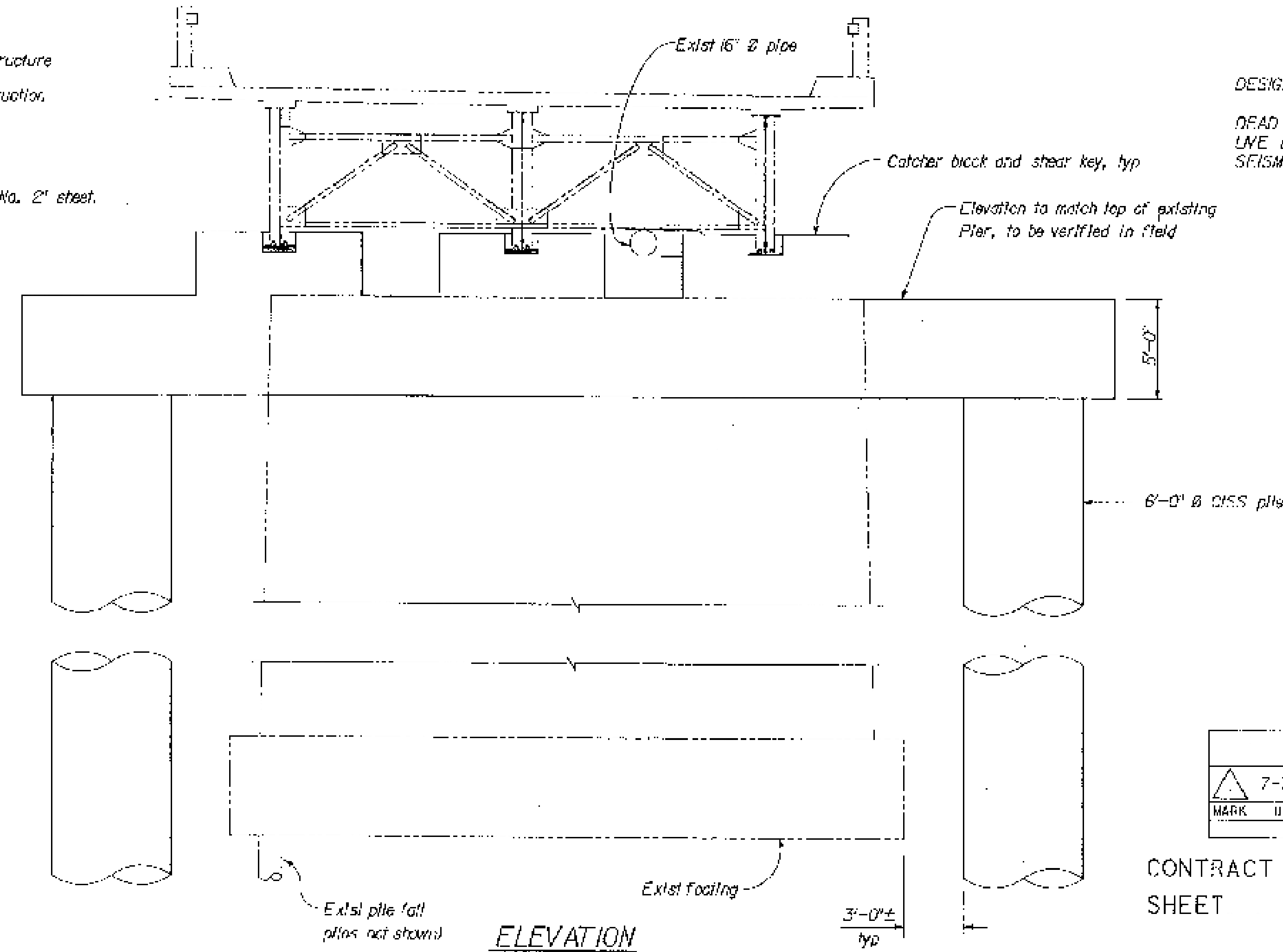
LEGEND

- - - - indicates existing structure

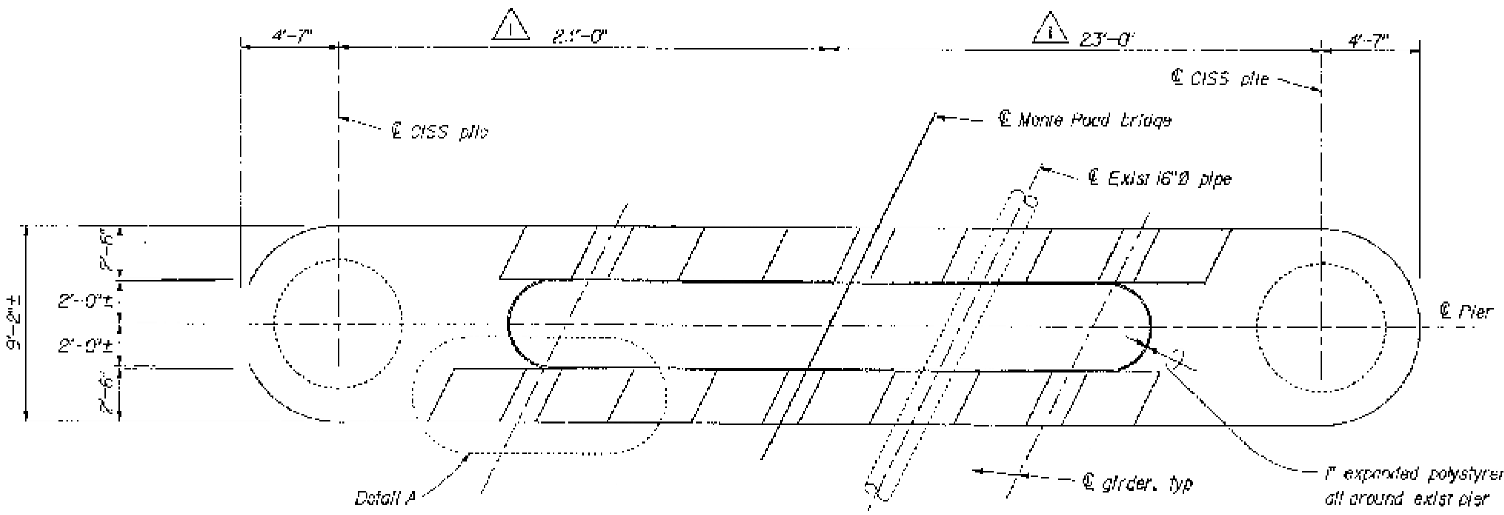
——— indicates new construction

Note:

For Detail A, see "Pier Details No. 2" sheet.



ELEVATION
1/4" = 1'-0"



PLAN
1/4" = 1'-0"

Note:

The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

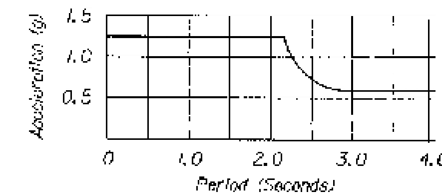
GENERAL NOTES LOAD FACTOR DESIGN

DESIGN: BRIDGE DESIGN SPECIFICATIONS (1983 AASHTO with Interims and Revisions by CALTRANS)

DEAD LOAD: Includes 35 psf for future wearing surface.

LIVE LOADING: HS20-44 and alternative and permit design load.

SEISMIC LOADING: Site Specific Acceleration Response Spectra



REINFORCED CONCRETE:

Existing	f_c	= 1,000 psi
	f_s	= 18,000 psi
	n	= 10
New construction	f'_c	= 3,250 psi
	f_y	= 60,000 psi

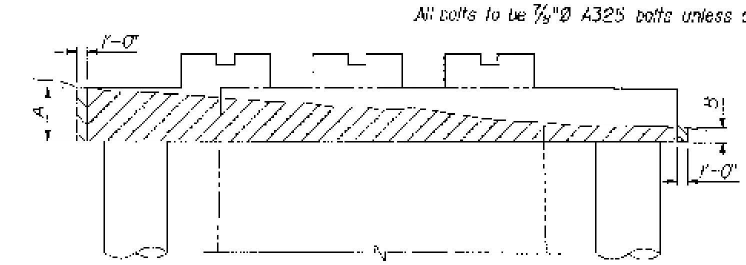
STRUCTURAL STEEL:

Existing	f_s	= 18,000 psi
New construction	f_y	= 36,000 psi

CISS CONCRETE PILE:

Concrete	f'_c	= 3500 psi
Steel pipe	f_y	= 45,000 psi

All bolts to be 7/8"Ø A325 bolts unless otherwise noted.



ELEVATION

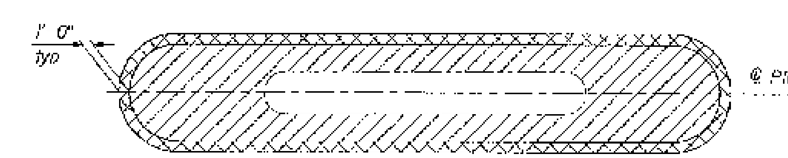
Location	Dimension (Ft) A	B
Pier 1	5	5
Pier 2	0	0
Pier 3	0	0
Pier 4	2	3
Pier 5	3	0
Pier 6	5	5

MARK	DATE	DESCRIPTION	BY	CH'D
1	7-7-01	Revised cap width	CH	RM

REVISIONS

CONTRACT CHANGE ORDER NO.

SHEET OF



PLAN

▨ Structure excavation (Bridge)

▩ Structure excavation & backfill (Bridge)

LIMITS OF PAYMENT FOR STRUCTURE EXCAVATION AND BACKFILL
1/8" = 1'-0"

NO AS-BUILT CHANGES

AS BUILT PLANS

CORRECTIONS BY: EDB/LS

CONTRACT NO. 01-220765

DATE: 2-4-02

Submitted by R. Miller		Date 12-20-00	
DESIGN BY R. Miller		CHKD BY H. Hassanat	
DRAWN BY J. Florence		CHKD BY H. Hassanat	
SPECIFICATIONS WRITTEN BY R. Miller		CHKD BY	
Approval Recommended by	Public Works Senior Design Engineer		

REGISTERED PROFESSIONAL ENGINEER RAYMOND H. MILLER III No. 42601 Exp. 3-31-04 CIVIL STATE OF CALIFORNIA

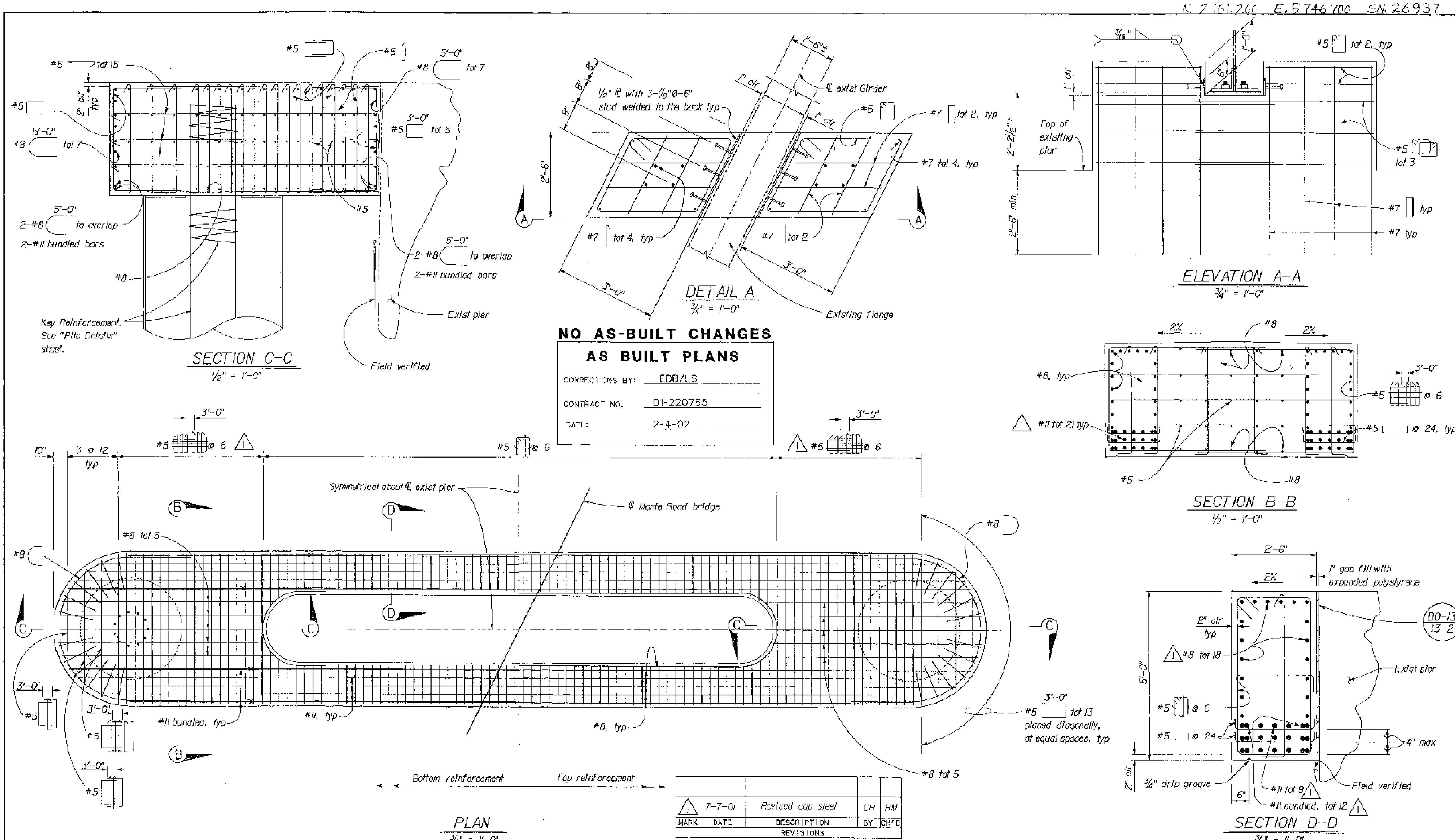
DOKKEN ENGINEERING
2054 Gold Court Drive, Rancho Cordova, CA 95670 (916)858-0642

MONTEREY COUNTY PUBLIC WORKS
BRIDGE DESIGN
312 EAST ALISAL STREET
SALINAS, CALIFORNIA 93901
(831) 755-4800/FAX 755-4958

EARTHQUAKE RETROFIT
PIER DETAILS NO. 1
MONTE ROAD BRIDGE
at Salinas River
County No. 135, State No. 44C-0093

DATE	DWG. NO.		SHEET
12/00			4
SCALE As Noted	PROJECT NO.	01-220765	OF 20

I025CBD2.DGN REV. 9 KM 12/13/00



NO AS-BUILT CHANGES

AS BUILT PLANS

CORRECTIONS BY: EDB/LS
CONTRACT NO. 01-220755
DATE: 2-4-02

MARK	DATE	DESCRIPTION	CH BY	HM CH'D
1	7-7-01	Revised cap steel	CH	HM

REVISIONS

CONTRACT CHANGE ORDER NO. ______
SHEET OF

X0E2E0L DGN REV.10 KC 7-6-01

Submitted by	B. Miller	Date	12-20-00
DESIGN BY	R. Miller	CHKD BY	H. Hamzawi
DRAWN BY	T. Florence	CHKD BY	H. Hamzawi
SPECIFICATIONS WRITTEN BY	R. Miller	CHKD BY	
Approval Recommended by	Monterey County Senior Design Engineer		

REGISTERED PROFESSIONAL ENGINEER — RAYMOND H. MILLER, JR. — No. 4260 — Exp. 3-31-04 — CIVIL — STATE OF CALIFORNIA

DOKKEN ENGINEERING
3054 Gold Canal Drive
Rancho Cordova, CA 95670
(916)858-0642

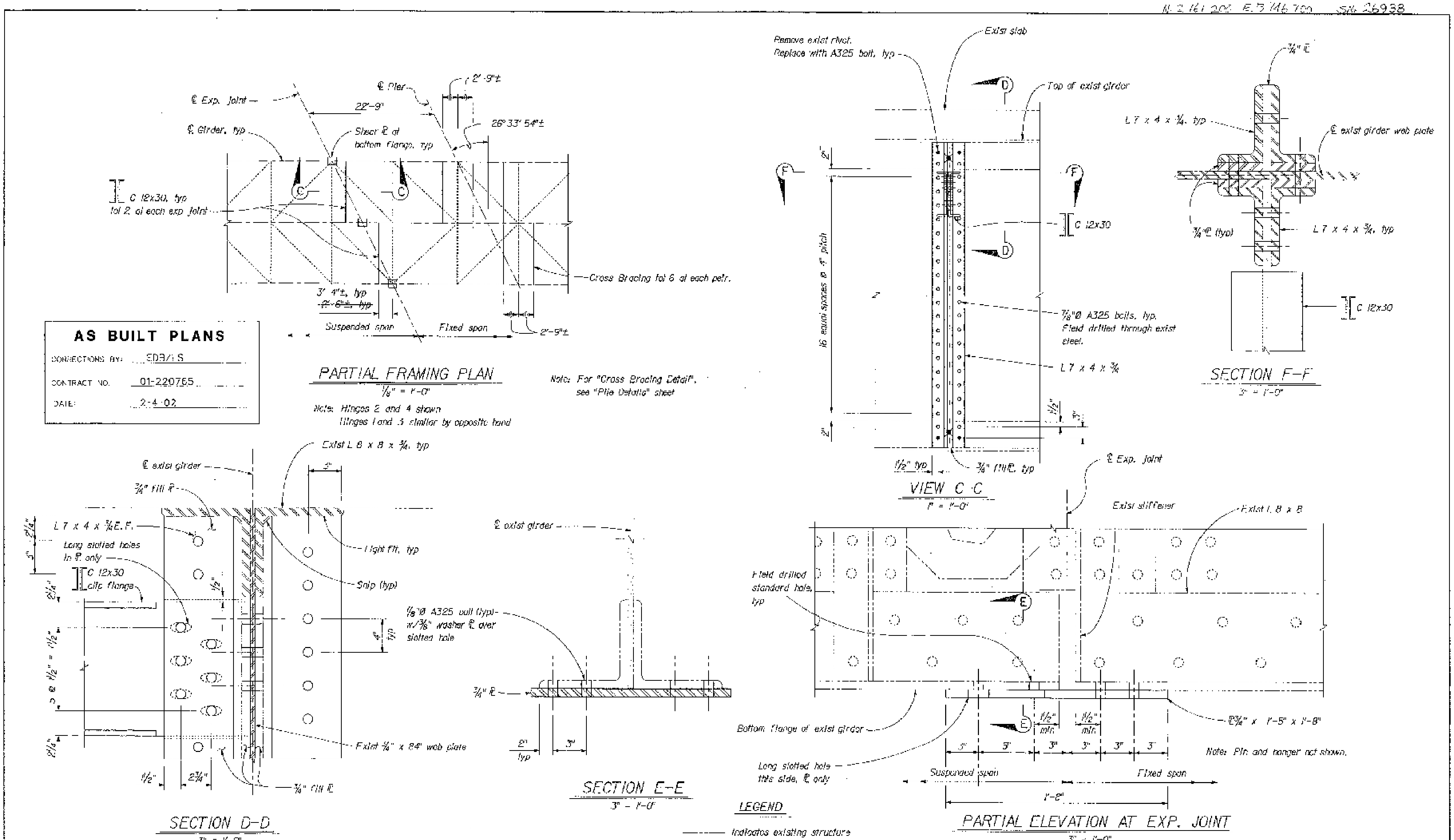
LEGEND
- - - - indicates existing structure
—— indicates new construction
—⊃ indicates bundled bars

Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

MONTEREY COUNTY PUBLIC WORKS
BRIDGE DESIGN
312 EAST ALISAL STREET
SALINAS, CALIFORNIA 93901
(831) 755-4800/FAX 755-4958

EARTHQUAKE RETROFIT
PIER DETAILS NO. 2
MONTE ROAD BRIDGE
at Salinas River
County No. 135, State No. 44C-0093

DATE	DWG. NO.	SHEET
12/00		5
SCALE: As Noted	PROJECT NO. 01-220755	OF 20



AS BUILT PLANS

CORRECTIONS BY: EDB/LS
CONTRACT NO. 01-220765
DATE: 2-4-02

LEGEND

- ——— Indicates existing structure
- ——— Indicates new construction
- ○ Indicates new bolt
- • Indicates replace existing rivet w/ bolt
- ✕ Indicates existing rivet to be abandoned. Grind exist rivet head flat, flush with steel surface, typ

Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

Submitted by: [signature] Date 12-20-00
DESIGN BY R. Miller — CHKD BY H. Hamzawi
DRAWN BY T. Florence — CHKD BY H. Hamzawi
SPECIFICATIONS WRITTEN BY R. Miller — CHKD BY
Approval Recommended by: Monterey County Public Works Design Engineer

REGISTERED PROFESSIONAL ENGINEER — RAYMOND H. MILLER, JR. — No. 42601 — Exp. 3-31-04 — CIVIL — STATE OF CALIFORNIA

DOKKEN ENGINEERING
3054 Gold Canal Drive, Rancho Cordova, CA 95670 (916)858-0642

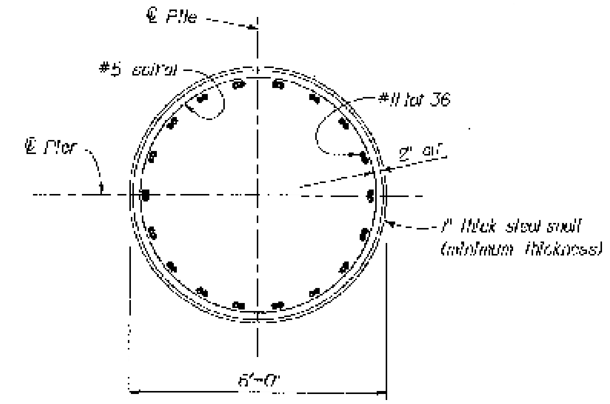
MONTEREY COUNTY PUBLIC WORKS
BRIDGE DESIGN
312 EAST ALISAL STREET
SALINAS, CALIFORNIA 93901
(831) 755-4800/FAX 755-4958

EARTHQUAKE RETROFIT
HINGE DETAILS
MONTE ROAD BRIDGE
at Salinas River
County No. 135, State No. 44C-0093

DATE	DWG. NO.	SHEET
12/00		6 OF 20
SCALE As Noted	PROJECT NO. 01 220765	

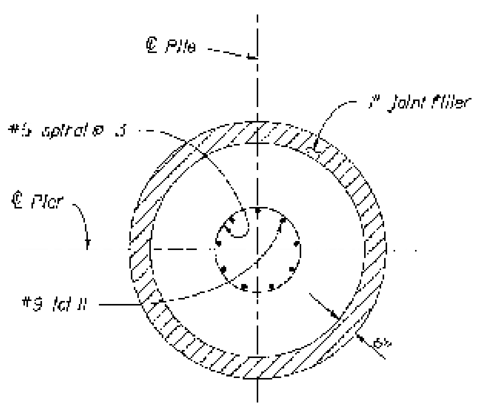
1025CHLDSN REV.10 KM 12/13/00

R 5/61 200, R 5 7/4 760 SW 26939



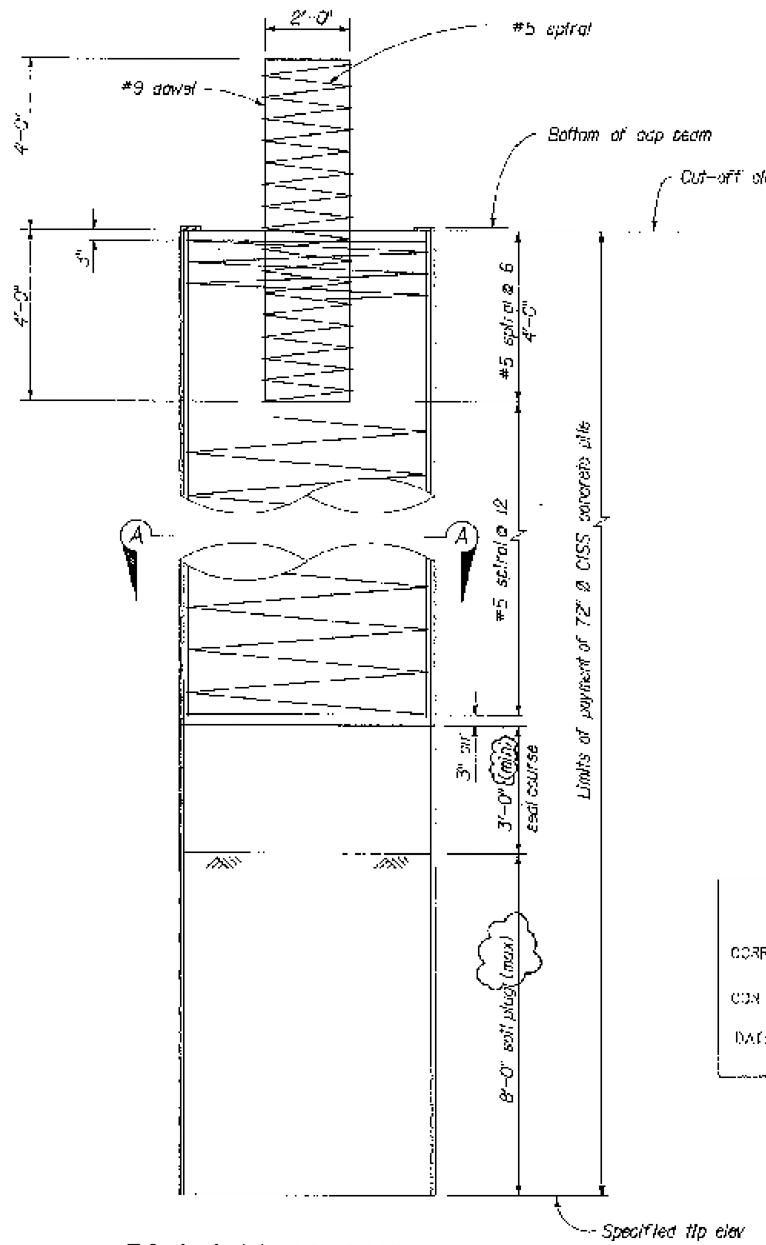
SECTION A-A

1/2" = 1'-0"



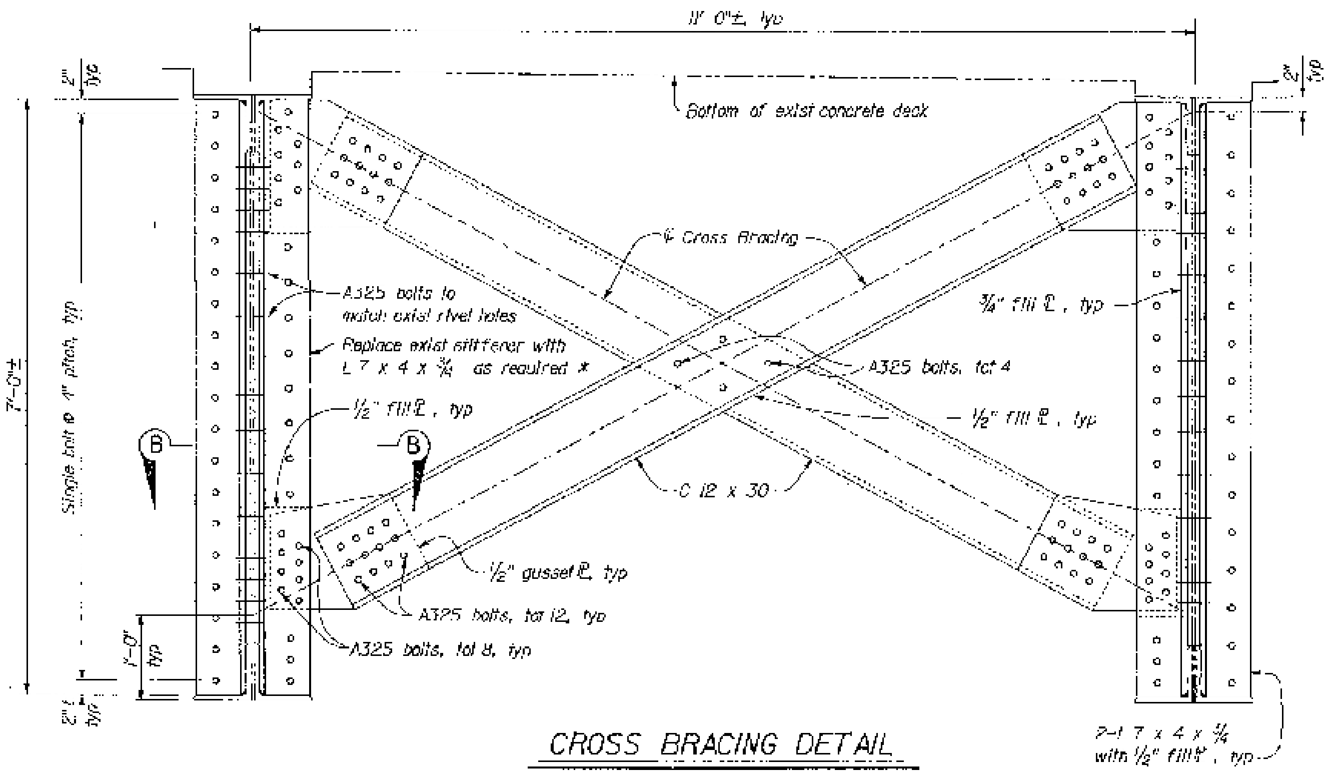
KEY DETAIL

1/2" = 1'-0"



72"Ø CISS CONCRETE PILE

1/2" = 1'-0"



CROSS BRACING DETAIL

1" = 1'-0"

Notes:

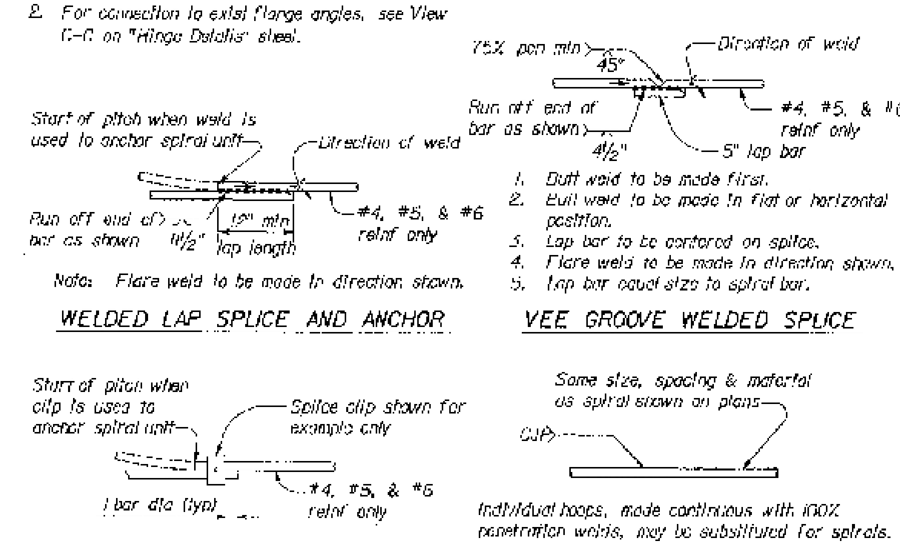
1. *Provide new L 7 x 4 x 3/4 if no existing stiffener at proposed location.
2. For connection to exist flange angles, see View C-C on "Hinge Details" sheet.

AS BUILT PLANS

CORRECTIONS BY: EDB/LS

CONTRACT NO. 01-220765

DATE: 2-4-02



BAR SPIRAL SPLICE & SPIRAL ANCHOR AND HOOP DETAIL

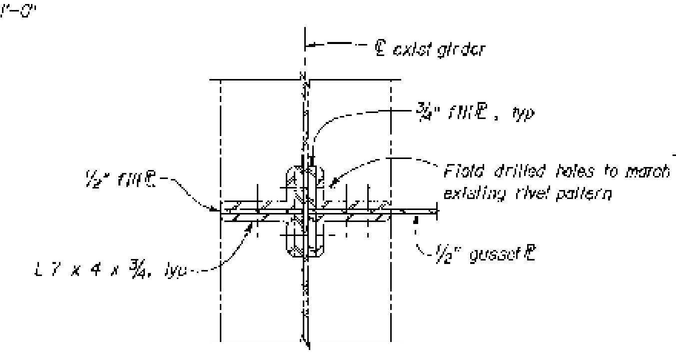
No Scale

LEGEND

- - - - - Indicates existing structure
——— Indicates new construction
∘ Indicates new bolt

Note:

The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.



SECTION B-B

1 1/2" = 1'-0"

1025C003.DGN REV.8 KM 12/13/00

Submitted by: R. Miller Date: 12-20-00

DESIGN BY: R. Miller | CHKD BY: M. Hurgesi

DRAWN BY: T. Florence | CHKD BY: M. Hurgesi

SPECIFICATIONS WRITTEN BY: R. Miller | CHKD BY:

Approval Recommended by: Public Works Senior Design Engineer

REGISTERED PROFESSIONAL ENGINEER — RAYMOND H. MILLER, JR. — No. 42601 — Exp. 3-31-04 — CIVIL — STATE OF CALIFORNIA

DOKKEN ENGINEERING

3054 Gold Canal Drive, Rancho Cordova, CA 95670 — (916) 858-0642

MONTEREY COUNTY PUBLIC WORKS

BRIDGE DESIGN

312 EAST ALISAL STREET, SALINAS, CALIFORNIA 93901, (831) 755-4800 FAX 755-4958

EARTHQUAKE RETROFIT

PILE DETAILS

MONTE ROAD BRIDGE

at Salinas River

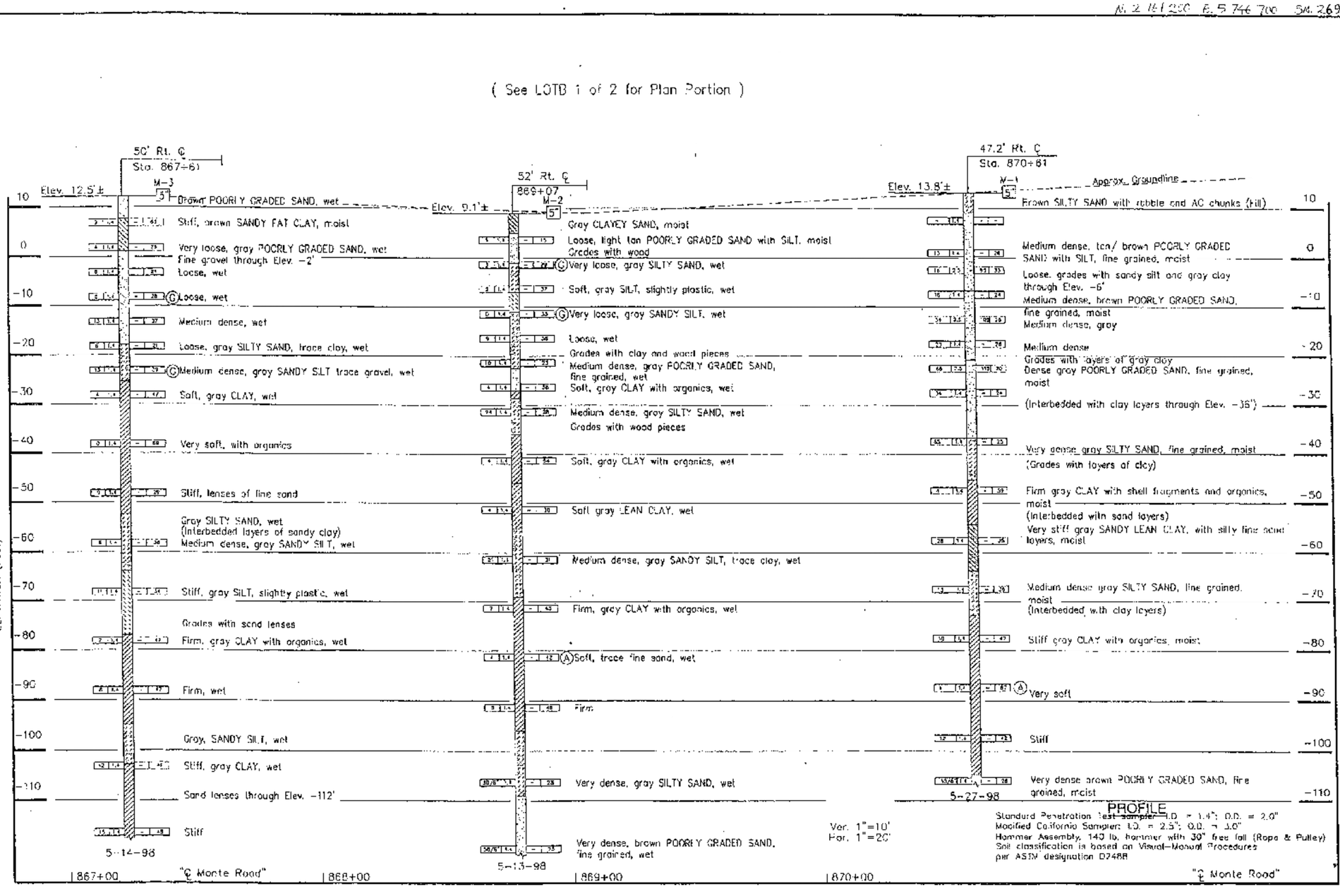
County No. 35, State No. 44C-0093

DATE: 12/00 | DWG. NO. | SHEET 7

SCALE: As Noted | PROJECT NO. 01-220765 | OF 20

N. 2 161 200 E. 5 746 700 SM. 2694

(See LOTB 1 of 2 for Plan Portion)



Submitted by OKKEN ENGINEERING
3054 Gold Canal Drive
Rancho Cordova, CA 95670

FIELD INVESTIGATOR GREG BLOOM
DRAWN BY TONIA DEAN
CHECKED BY Y. DAVID WANG
Y. DAVID WANG PROJECT ENGINEER
DATE SEPT. 1998

Approved Recommended by
Deputy Public Works Director, Engineering

PARIKH CONSULTANTS, INC.
481 VALLEY WAY
MILPITAS CA 95035

NO AS-BUILT CHANGES
AS BUILT PLANS
CORRECTIONS BY: EDB/LS
CONTRACT NO. 01-220765
DATE 7-11-02

MONTEREY COUNTY PUBLIC WORKS
BRIDGE DESIGN
312 EAST ALISAL STREET
SALINAS, CALIFORNIA 93901
(408) 755-4883, FAX 755-4953

LOG OF TEST BORINGS 2 of 2
MONTE ROAD AT SALINAS RIVER
County Bridge No. 135 State No. 44C-93

DATE	DWG. NO.	JOB No.	SHEET
12/21/2000	M-123	97112-13	9
SCALE	PROJECT NO.		OF
AS NOTED	01-220765		23

FILE 44C0135

MAP LOC. 7 N 521,400 E 1,185,200 SN 9120 AW(PE)FAS 109-A(1)

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
V	MON.	MIL.	ACCESS	1	11

UNIT NO.	PROJ. NO.			
2	CAL.	.	2	12

Approved December 15 1941

Asst. State Highway Engineer Civil Engineer License No 2084

1604'-0" Paving Notch to Paving Notch.

125'-0" | 154'-0" | 146'-0" | 154'-0" | 146'-0" | 154'-0" | 146'-0" | 154'-0" | 146'-0" | 154'-0" | 125'-0"

Level Grade — See Roadway Section.

267+25.00

℄ P.C.C. Railing. Not to be used. See sheet No 11 for timber railing.

℄ Hinge

P.C.C. Railing

283+79.00

El. 80.00

H.W. Elev. 34.00

℄ Elev. 0.00

El. 20.00

Span No. 1 | Span No. 2 | Span No. 3 | Span No. 4 | Span No. 5 | Span No. 6 | Span No. 7 | Span No. 8 | Span No. 9 | Span No. 10 | Span No. 11

Datum Elev. - 50.00

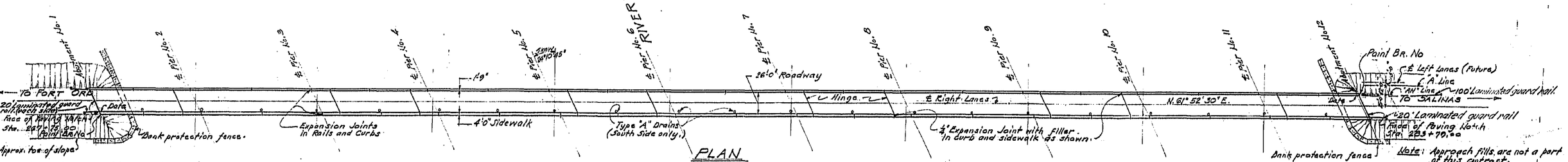
ELEVATION

Scale 1" = 60'-0"

B.M. No. 1
Nail in Tree
160' Lt. of Sta. 268+20
Elev. 27.01

B.M. No. 2
Nail in Tree
65' Rt. of Sta. 276+05
Elev. 21.61

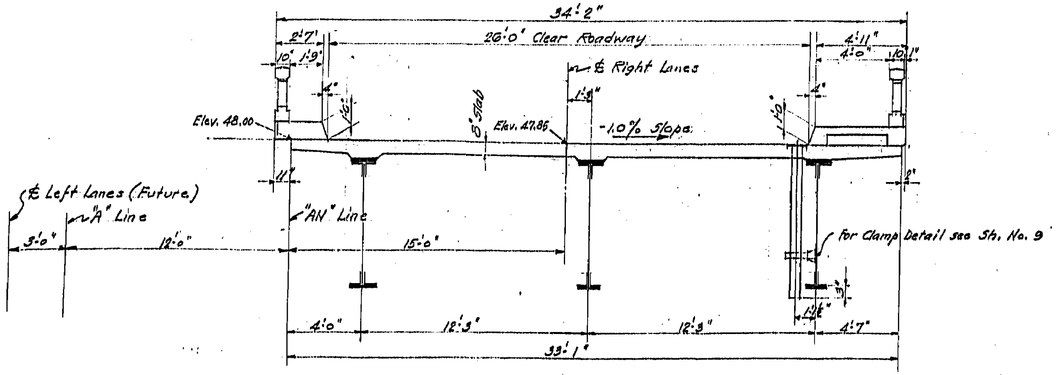
Note: Length of Piles for Estimating purposes
Under Piers 35'-0". Under Abutments 45'-0"
All piles to be concrete.



PLAN

Scale 1" = 60'-0"

SALINAS



ROADWAY SECTION

Scale 4" = 1'-0"

Note:
These drawings are provided by Monterey County Department of Public Works. They are not record drawings and appear to be slightly different from the actual bridge.

INDEX TO PLANS

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

BRIDGE ACROSS SALINAS RIVER

4 MILES SOUTHWEST OF SALINAS
NEAR FORT ORD IN MONTEREY COUNTY

GENERAL PLAN

SCALE As Shown.	FILE NO.
BRIDGE NO. 44C-22	DRAWING NO. C-1925-B

0 10 20 30 40 50 60 70 80 90 100
DEPARTMENT OF PUBLIC WORKS—MICROFILM SCALE 1" = 10 COUNTY OF MONTEREY

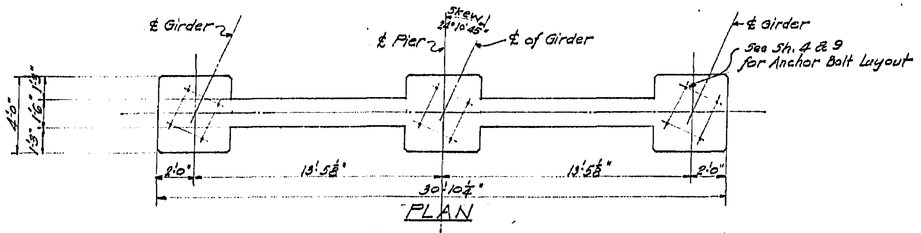
MAP LOC. 7 N 521,400 E 1,185,200 SN 9121 AW(PE) FAS 109-A(1)

DIST. NO.	STATE	PROJ. NO.	YEAR	NO.	SHEETS
2	CAL.			3	12

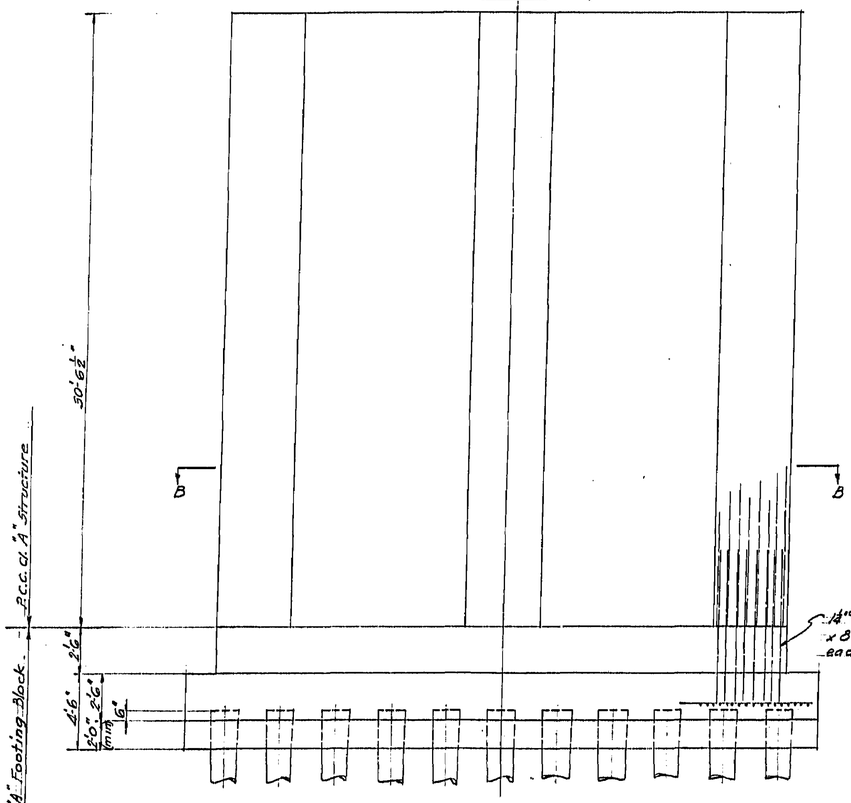
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
V	Mon.	Mil. Access		2	11

BRIDGE ENGINEER — CIVIL AND STRUCTURAL ENGINEER — LICENSE 1416

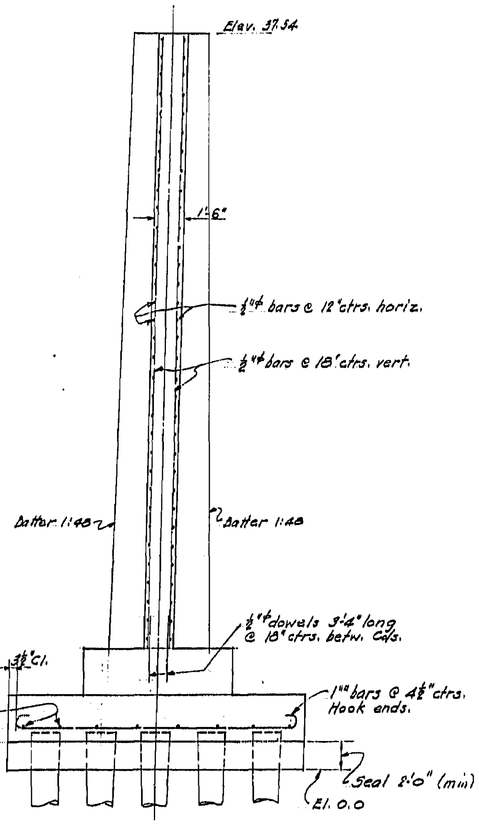
DATE APPROVED December 15, 1941



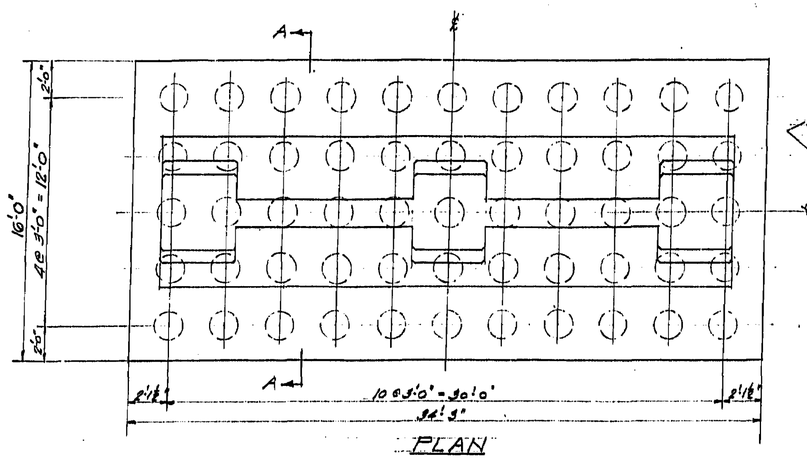
PLAN



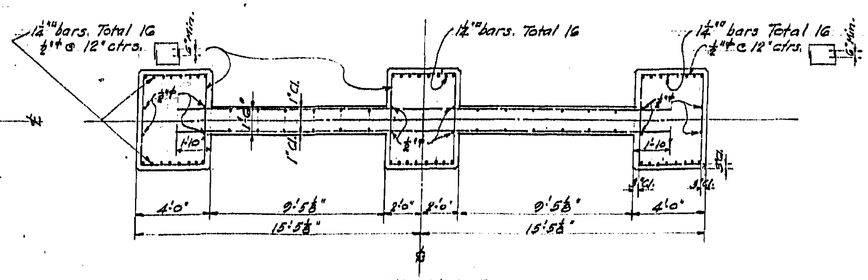
ELEVATION



SECTION A-A



PLAN



SECTION B-B

BRIDGE ACROSS SALINAS RIVER

PIER DETAILS

SCALE ¼" = 1'0"	FILE NO.
BRIDGE NO. 44C-22	DRAWING NO. C-1325-22

DEPARTMENT OF PUBLIC WORKS—MICROFILM SCALE 1"=10 COUNTY OF MONTEREY

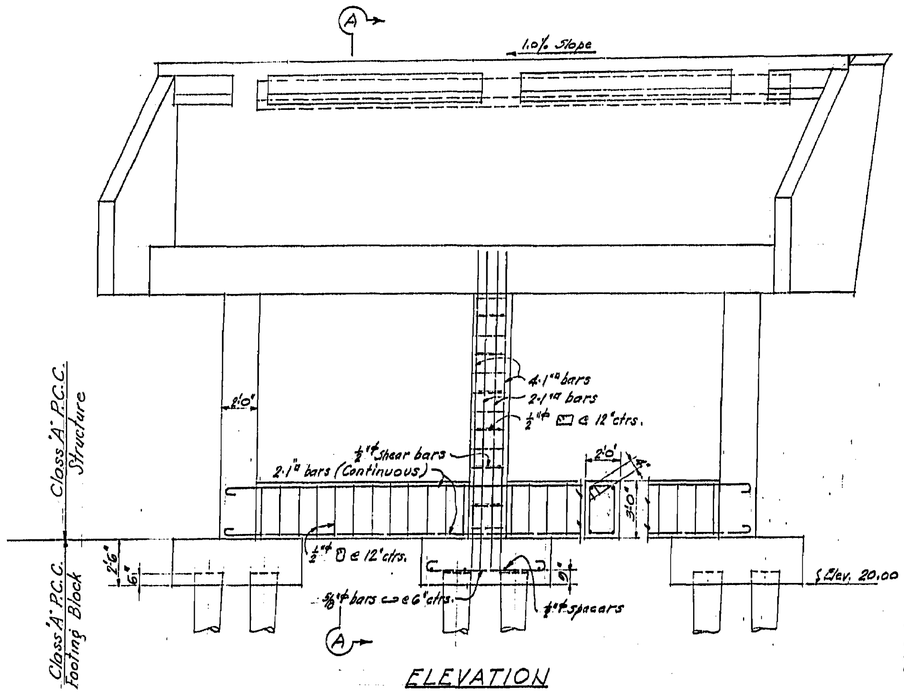
MAP LOC 7 N 521,400 E 1,185,200 SN 9122 AW(PE) FAS 109-A(1)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	CAL.			4	12

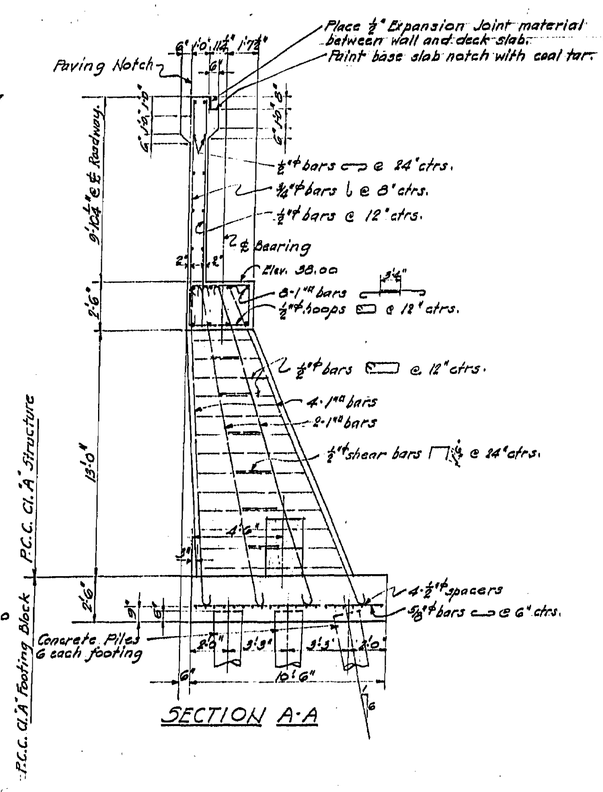
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
V	Mon.	Mil.	Access	3	11

BRIDGE ENGINEER — CIVIL AND STRUCTURAL ENGINEER — LICENSE 1414

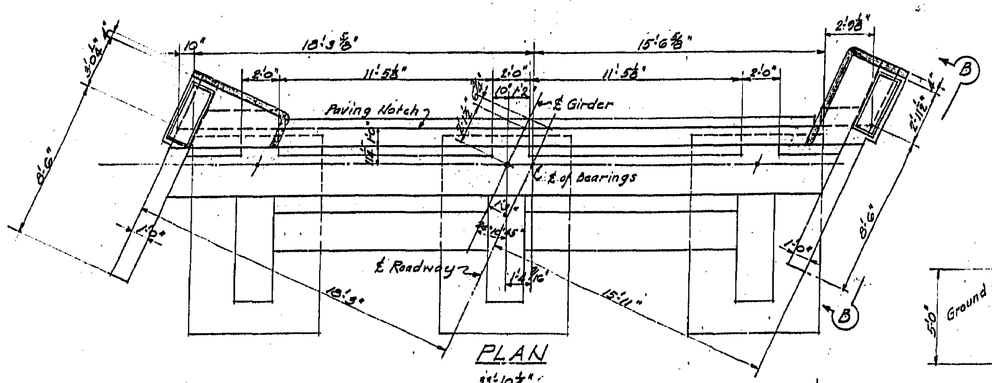
DATE APPROVED December 15, 1941



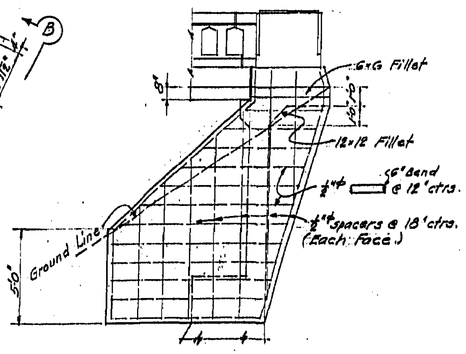
ELEVATION



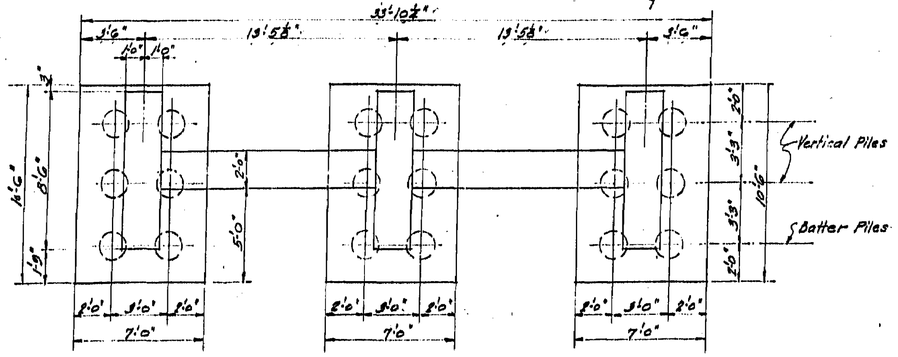
SECTION A-A



PLAN



SECTION B-B



FOOTING PLAN

Note: Abutment No. 1 as shown.
Abutment No. 12 similar.

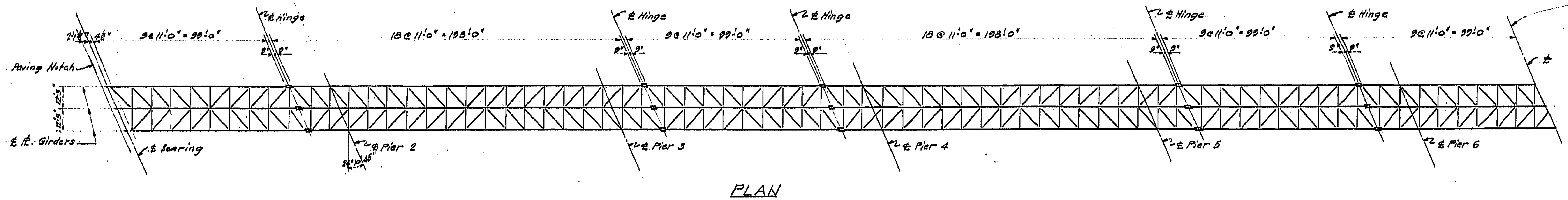
BRIDGE ACROSS SALINAS RIVER

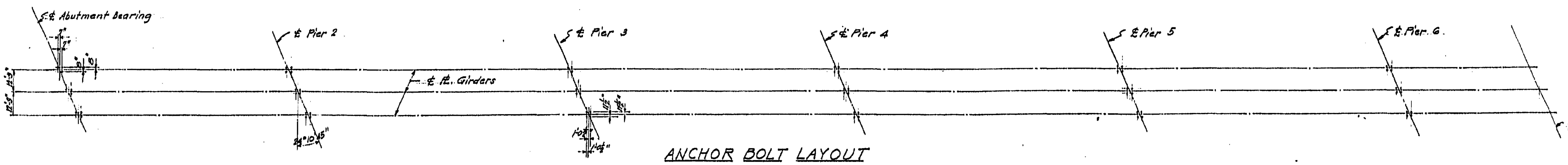
ABUTMENT DETAILS

SCALE ½"=1'-0"	FILE NO.
BRIDGE NO. 44C-22	DRAWING NO. C-1385-23

DEPARTMENT OF PUBLIC WORKS—MICROFILM SCALE 1"=10 COUNTY OF MONTEREY

Approved December 15, 1941





GENERAL NOTES

Specifications:- Materials and workmanship shall conform to the Standard Specifications of the State of California, Department of Public Works, Division of Highways, dated July 1940 and the special provisions accompanying this set of plans.

Loading:- Standard S-15-9 loading as specified in Standard Specifications for the Design of Highway Bridges supplementing the Standard Specifications referred to above.

Structural Steel:- Carbon steel A.S.T.M. Des. A7-39

Cast Steel:- Cast Steel shall conform to the A.S.T.M. A148-36 Class A, Grade I with subsequent amendments.

Rivets:- Rivets shall be 7/8"ϕ carbon rivet steel, A.S.T.M. A141-39

Reamed Work:- All field connections of girders and bracing shall be sub-punched and reamed in accordance with the Standard Specifications.

Reinforcing Steel:- Reinforcing Steel shall be structural grade deformed bars. Bars shall lap 40 dia. at splices and unless otherwise shown shall be embedded 3" clear in Footings, Piers & Abutments and 1" clear in deck slab, curb, sidewalk and railing.

Stresses:-

Structural Steel	18,000 lbs. per sq. in.	
Rivet Steel	13,500 lbs. per sq. in.	(Power driven)
Reinforcing bars	18,000 lbs. per sq. in.	
fc	1,000 lbs. per sq. in.	
n	10	

Pile Loading:- 35 Tons per pile.

BRIDGE ACROSS SALINAS RIVER	
STEEL LAYOUT	
SCALE 1" = 30'-0"	FILE NO.
BRIDGE NO. 44C-22	DRAWING NO. C-1385-24

MAP LOC. 7 N. 521,400 E 1,185,200 SN 9124 AW(PE) FAS 109-A(11)

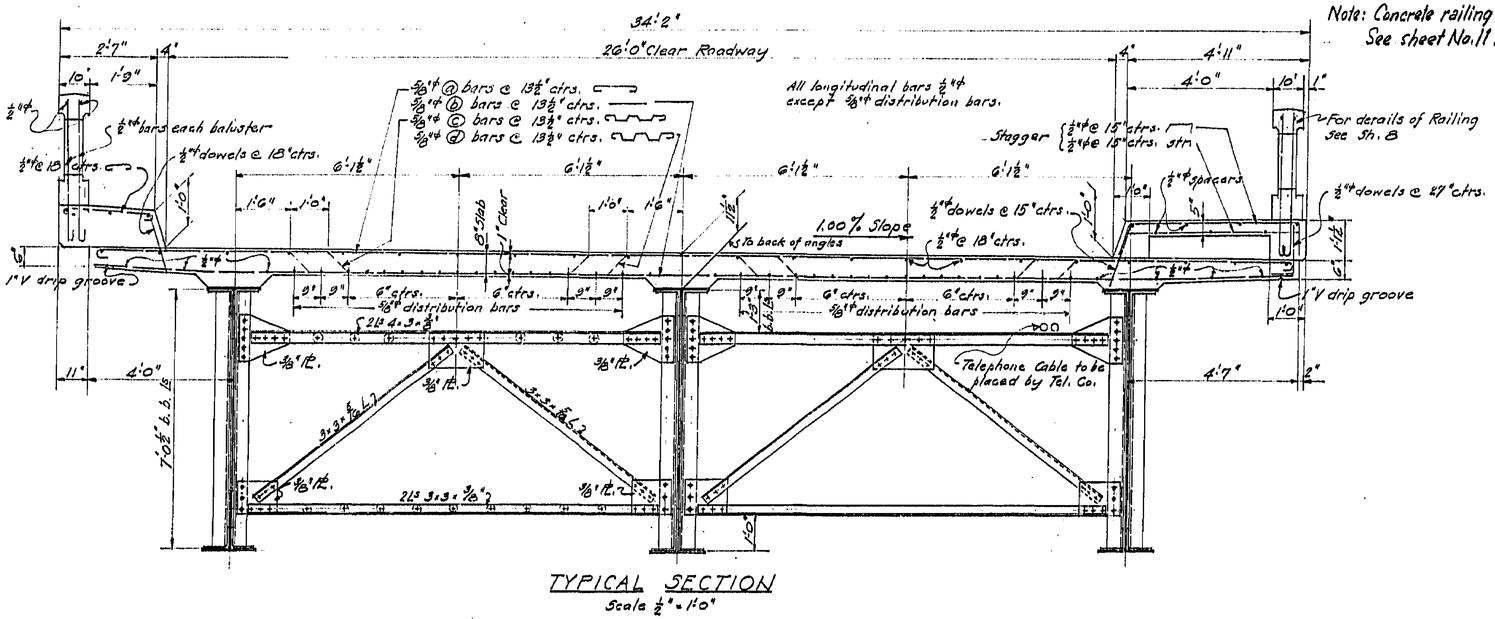
DIST. NO.	[illegible]	PROJ. NO.	TRAN	[illegible]	SHEETS
2	CAL.			6	12

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
V	MON.	MIL.	ACCESS	5	11

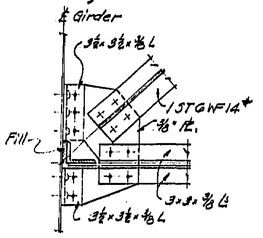
BRIDGE ENGINEER — CIVIL AND STRUCTURAL ENGINEER — SALINAS, CAL.

APPROVED... December 15, 1941

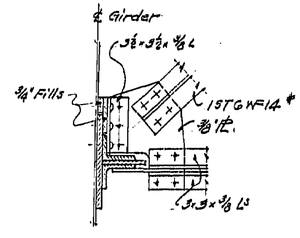
Note: Concrete railing not to be used.
See sheet No. 11 for timber railing.



TYPICAL SECTION
Scale ½" = 1'-0"

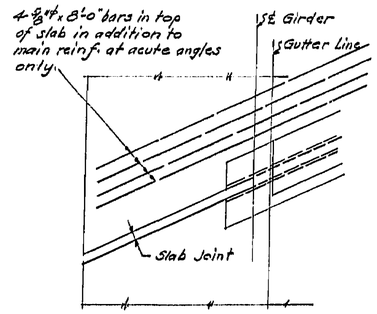


PLAN
BETW. BEARINGS

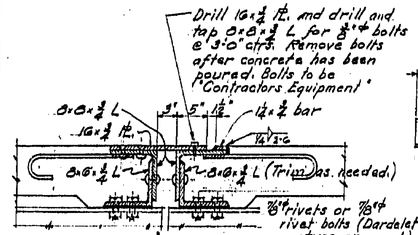


PLAN
AT BEARING

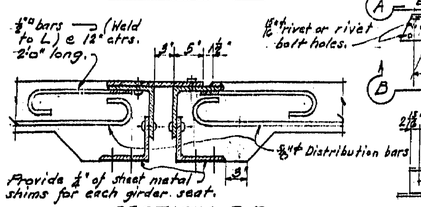
TYPICAL LATERAL CONNECTIONS
Scale 1" = 1'-0"



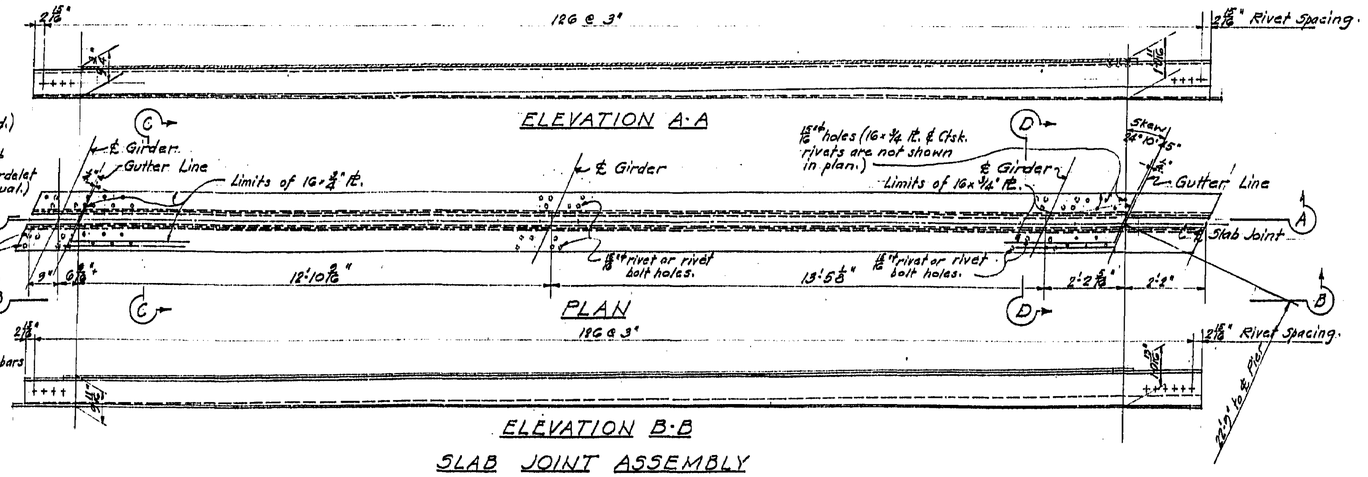
PART PLAN AT SLAB JOINT
Scale ½" = 1'-0"



SECTION C-C



SECTION D-D
Scale 1" = 1'-0"
Details of Sections C-C & D-D are similar.



SLAB JOINT ASSEMBLY
Scale ½" = 1'-0"
To be paid for as structural steel

BRIDGE ACROSS SALINAS RIVER
DECK DETAILS

SCALE AS NOTED	FILE NO.
BRIDGE NO. 44C-22	DRAWING NO. C-1325-35

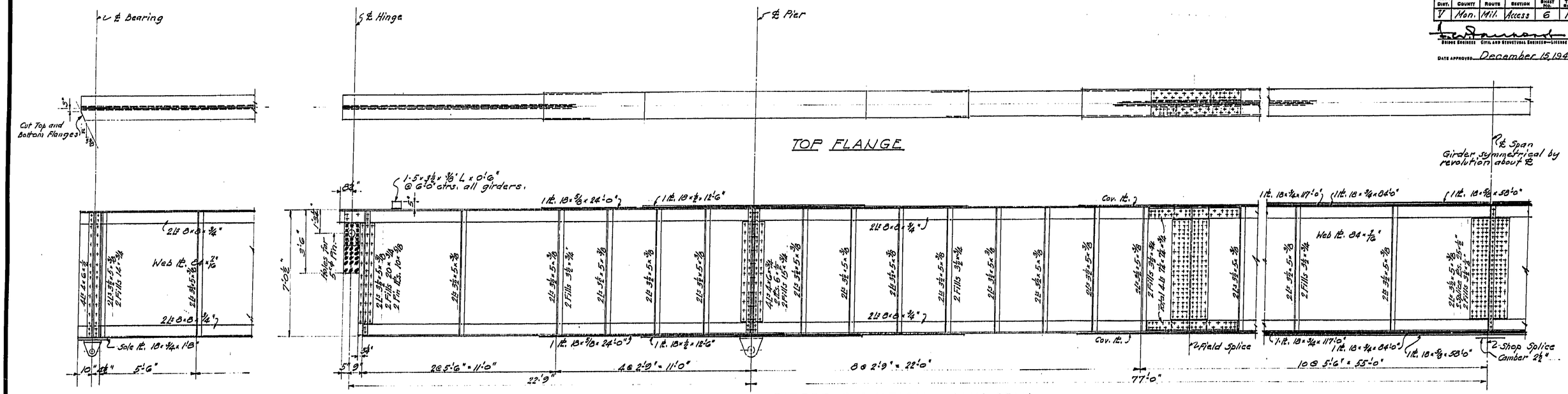
MAP LOC. 7 N 521,400 E 1,185,200 SN 9725 AW(PE) FAS 109-A(1)

DIST. NO.		PROJ. NO.	YEAR	
2	CAL.		7	12

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
V	Mon.	Mil. Access	6	11

Bridge Engineer — Civil and Structural Engineer — License 1416

DATE APPROVED December 15, 1941

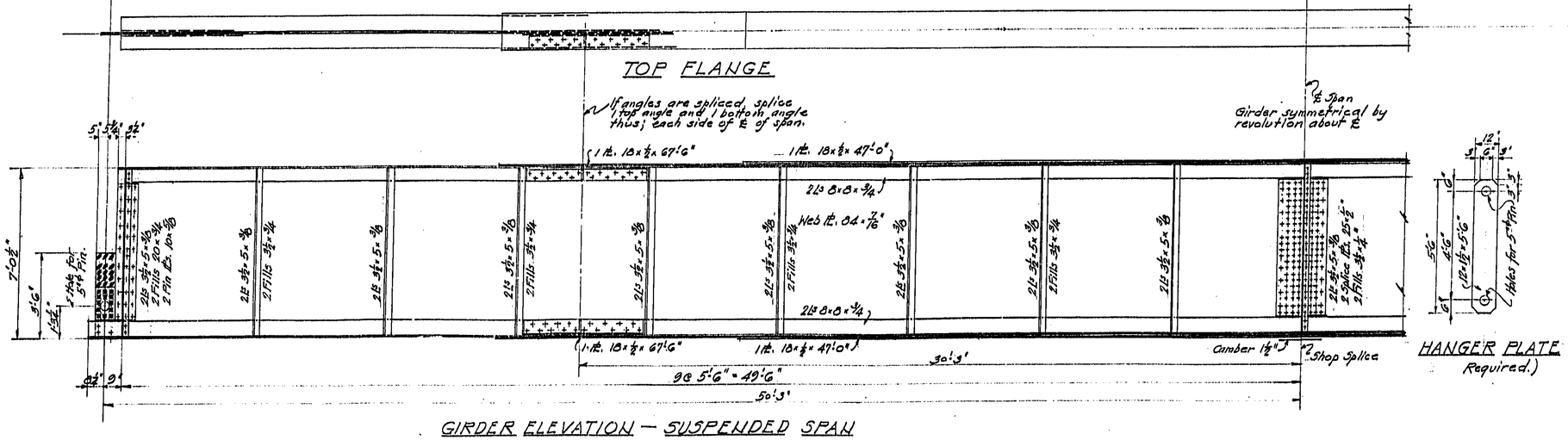


GIRDER ELEVATION - END SPAN

Note: All intermediate stiffners to be crimped except where angle is part of transverse bracing connection. Use 3½×¾" Fill under stiffner at bracing connection.

GIRDER ELEVATION — MAIN SPAN

Note: All intermediate stiffners to be crimped except where angle is part of transverse bracing connection. Use 3½×¾" Fill under stiffner at bracing connection.



GIRDER ELEVATION — SUSPENDED SPAN

Note: All intermediate stiffners to be crimped except where angle is part of transverse bracing connection. Use 3½×¾" Fill under stiffner at bracing connection.

BRIDGE ACROSS SALINAS RIVER.

GIRDER DETAILS

SCALE 3/8"=1'0"	FILE NO.
BRIDGE NO. 44C-22	DRAWING NO. C-1325-26

MAP LOC. 7 N 521,400 E 1,185,200 SN 91.26 AW(PE) FAS 109-A(1)

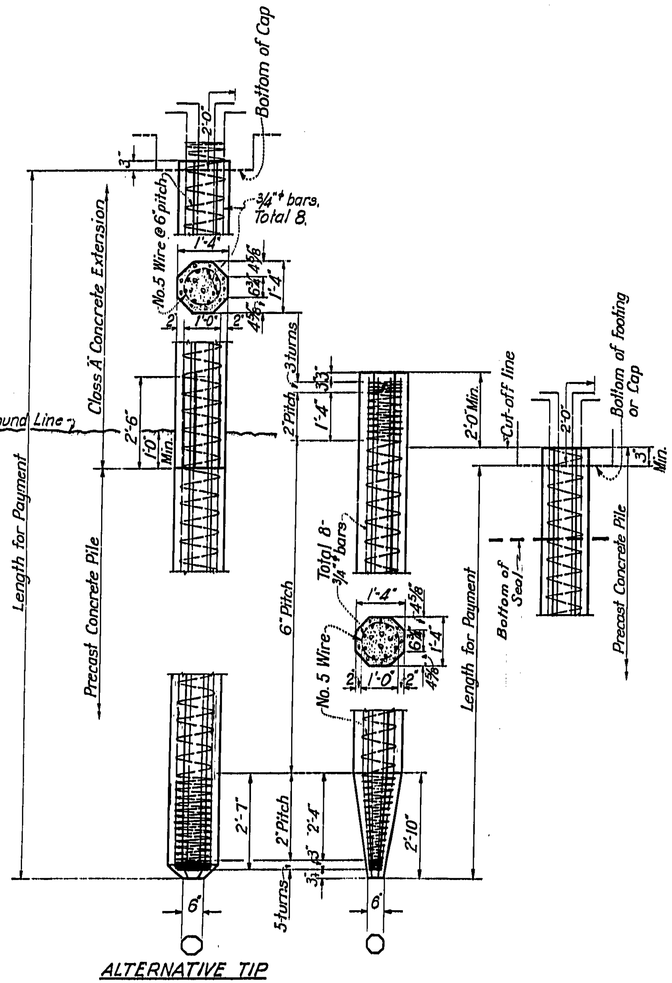
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	CAL.			8	12

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
V	Mont.	Mill.	Access	7	11

Bridge Engineer Structural Engineer - License 1414

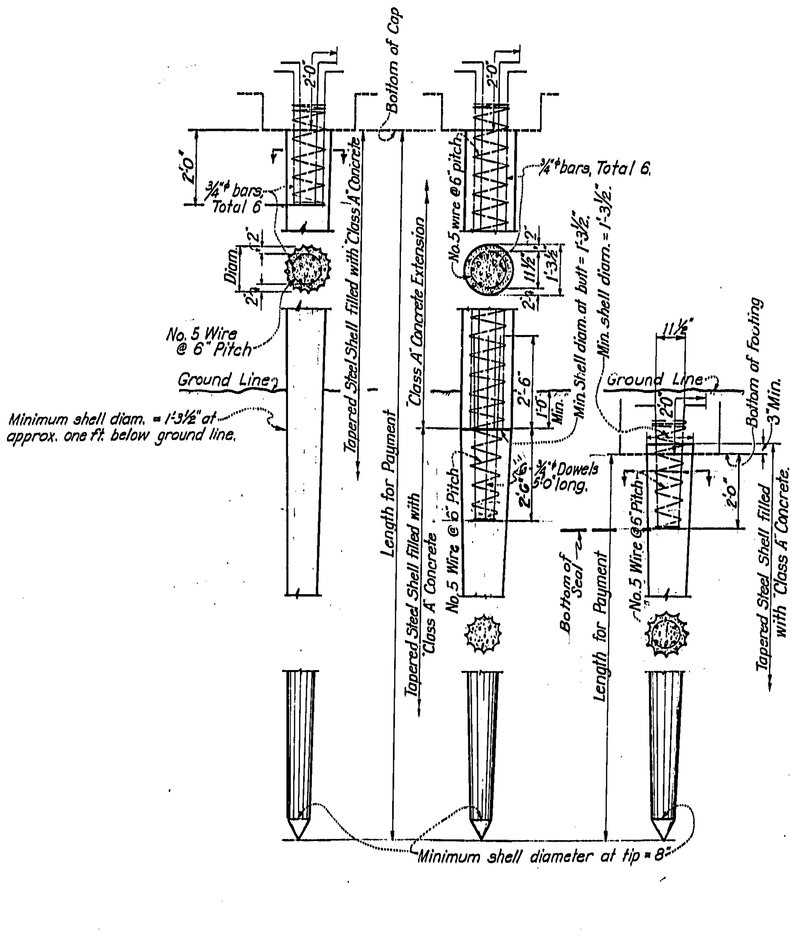
Approved December 15, 1941

BRIDGE DEPARTMENT



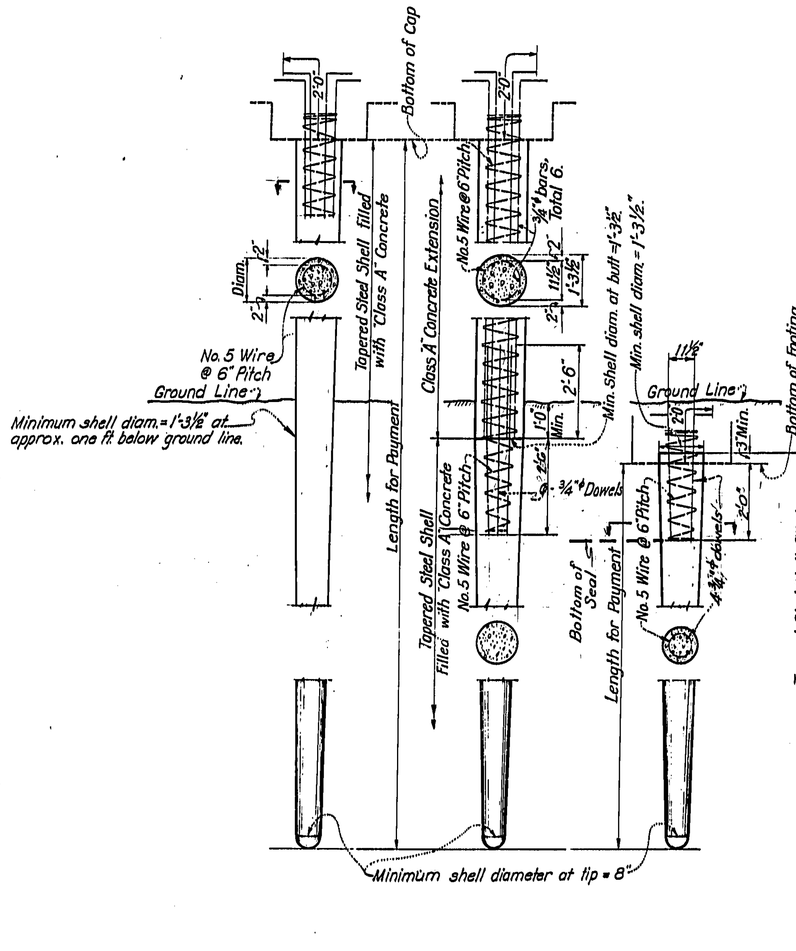
PRECAST CONCRETE PILE ALTERNATIVE "A"

Design Load 35 tons.
Drive to 35 tons bearing value.



CAST-IN-PLACE CONCRETE PILE ALTERNATIVE "B"

Design Load 35 tons.
Drive to 35 tons bearing value.
No. 9 (Min.) gage steel shell.



CAST-IN-PLACE CONCRETE PILE ALTERNATIVE "C"

Design Load 35 tons.
Drive to 35 tons bearing value.
No. 9 (Min.) gage steel shell.

BRIDGE ACROSS SALINAS RIVER	
PILE DETAILS	
SCALE 1 1/2" = 1'-0"	FILE NO.
BRIDGE NO. 44C-22	DRAWING NO. C-1325-27

DEPARTMENT OF PUBLIC WORKS—MICROFILM SCALE 1" = 10 COUNTY OF MONTEREY

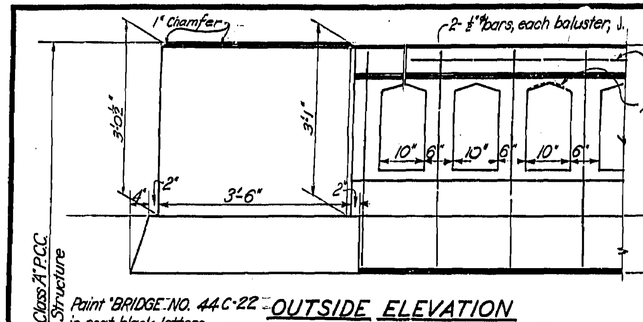
MAP LOC. 7 N 521,400 E 1,185,200 SN 9127 AW(PE) FAS 109-A(1)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	CAL.			9	12

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
V	Mon.	Mil.	Access	8	11

BRIDGE ENGINEER — CIVIL ENGINEER L.S. No. 1414

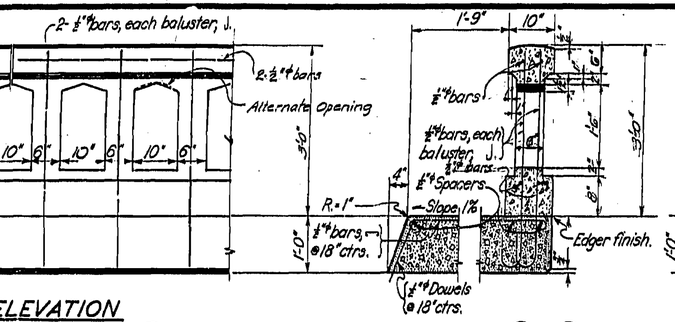
APPROVED December 15, 1941



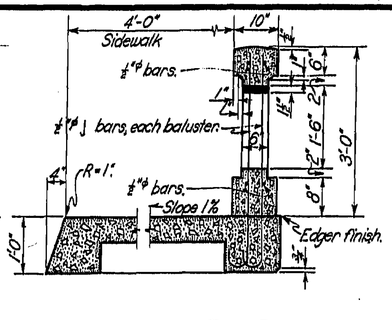
PLAN

DETAILS - CONCRETE RAIL AND END POST

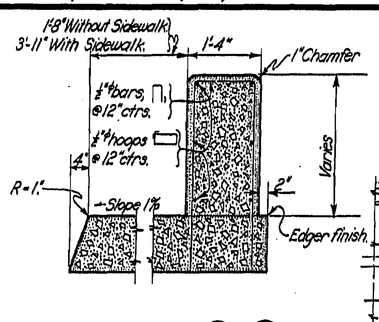
Scale: ½"=1'-0"



SECTION (A)—(A) WITHOUT SIDEWALK



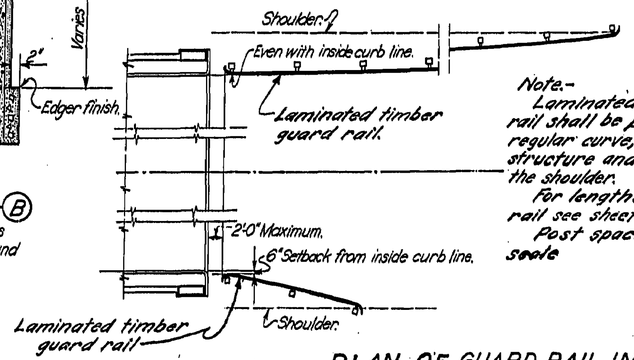
SECTION (A)—(A) WITH SIDEWALK



SECTION (B)—(B)

Note: When structure is set on a grade, the sides of the rail openings are to be set vertical and the bottoms set horizontal.

Note:- Concrete railing not to be used. See sheet No. 11 for timber railing.



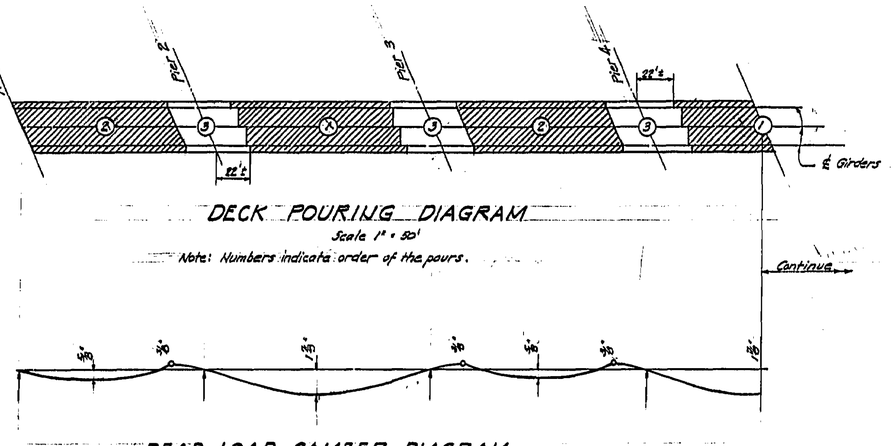
PLAN OF GUARD RAIL INSTALLATION

Scale: 1"=10'-0"

Note:- Laminated timber guard rail shall be placed on a regular curve, tangent to the structure and extending to the shoulder.

For lengths of guard rail see sheet No. 1.

Post spacing not to scale



DECK POURING DIAGRAM

Scale 1" = 50'

Note: Numbers indicate order of the pours.

DEAD LOAD CAMBER DIAGRAM

Note: Vertical dimensions given show gross amount of camber. Difference between gross camber and residual camber of steel girders after erection to be taken by deck fillets.

BRIDGE ACROSS SALINAS RIVER	
RAILING DETAILS	
SCALE As Noted.	FILE No.
BRIDGE No. 44C-22.	DRAWING No. C-1325-28

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
5	Mon.	Mil.	Various	2	11

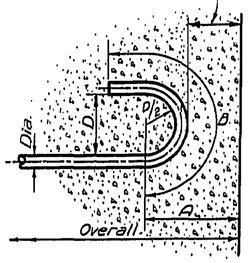
Bridge Engineer — Structural Engineer—License 1414

Approved— December 15, 1941

MAP LOC. 7 N 521,400 E 1,185,200 SN 9128 AW(PE) FAS 109-A(1)

DIST.	COUNTY	ROUTE	SECTION	FISCAL YEARS	SHEET NO.	TOTAL SHEETS
5	MON.				10	12

4 Dia. backing for all bars unless shown on the plans.

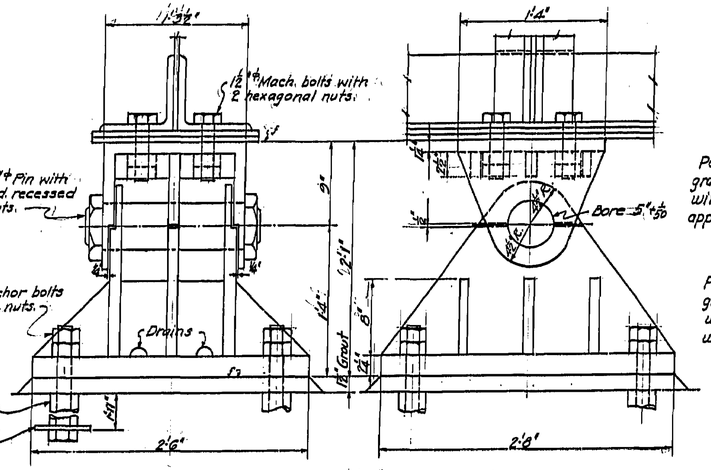


STIRRUP HOOKS

HOOKED BAR DATA				
4-DIA BACKING		ALL HOOKS		
SIZE OF BAR	OVERALL ⊕	A	B	D
1/2"	7 1/2"	4 1/2"	8"	3 1/2"
5/8"	1'-2 1/4"	4 7/8"	1'-0"	3 3/4"
3/4"	1'-7"	5 1/2"	1'-0"	3 1/2"
7/8"	2'-1 1/4"	7 3/8"	1'-3"	6"
1"	2'-0"	8"	1'-3"	6"
1 1/8"	1'-10 3/8"	8 5/8"	1'-3"	6"
1 1/4"	1'-9 1/2"	9 1/4"	1'-3"	6"

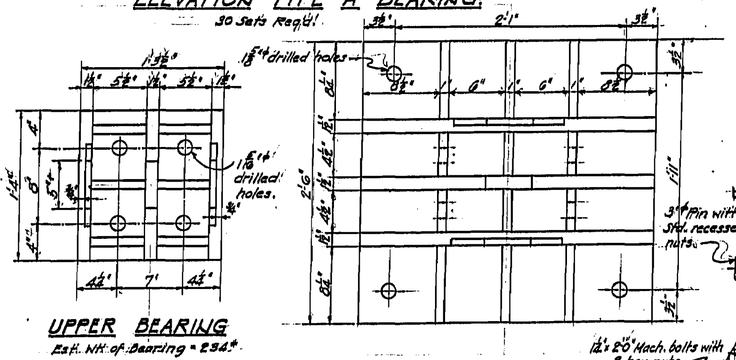
Note: All bar measurements are to center of bar except backing.

⊕ Amount to be added to overall dimension of concrete member to give the length of the hooked reinforcing bars, hooked at each end.



ELEVATION TYPE "A" BEARING.

30 Sets Req'd.



UPPER BEARING

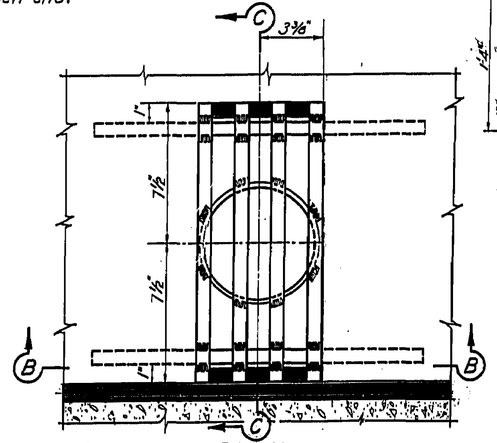
Est. Wt. of Bearing = 234#

LOWER BEARING

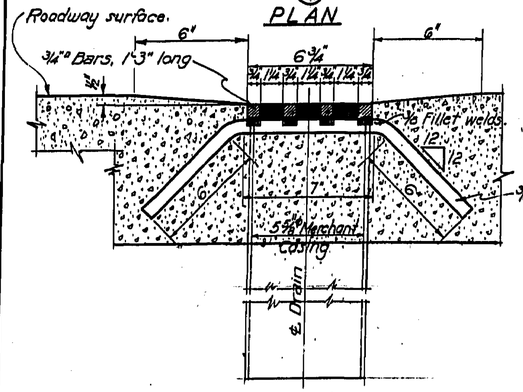
Est. Wt of Bearing = 1006#

PLAN OF TYPE "A" BEARING

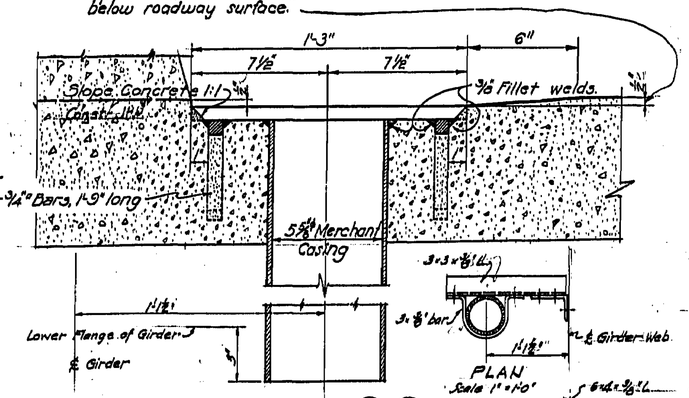
Scale: 1 1/2" = 1'-0"



PLAN



SECTION (B)-(B)



DRAIN DETAIL - TYPE "A"

21 Required.

Scale: 3" = 1'-0"

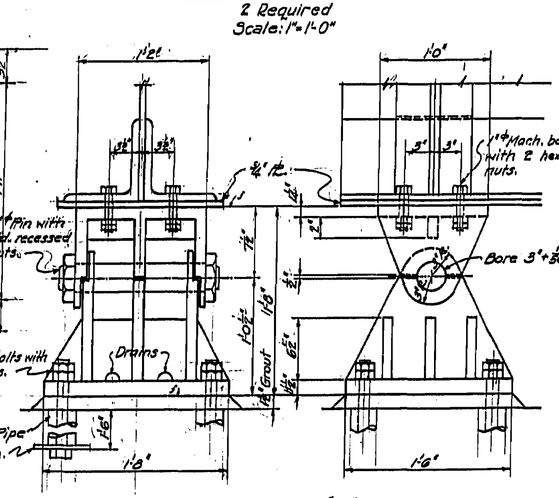
SECTION (C)-(C)

PLAN

Scale 1" = 1'-0"

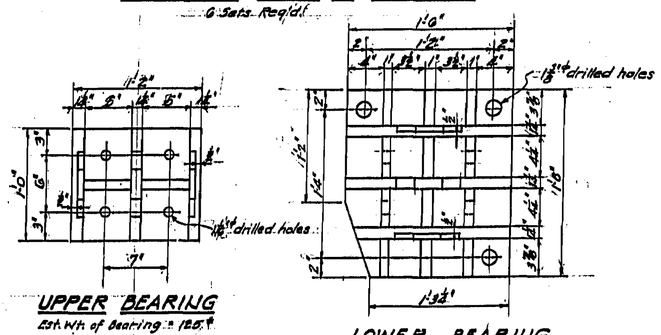
ELEV.

DRAIN CLAMP DETAIL See Sh. 31 for location.



ELEVATION TYPE "B" BEARING.

6 Sets Req'd.



UPPER BEARING

Est. Wt. of Bearing = 128#

LOWER BEARING

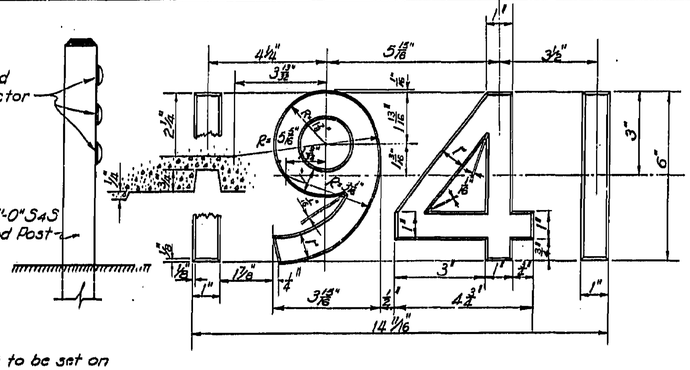
Est. Wt. of Bearing = 370#

PLAN OF TYPE "B" BEARING.

Scale: 1 1/2" = 1'-0"

NOTES FOR BEARINGS

Steel Castings shall conform to the requirements of the Specifications for steel castings of the A.S.T.M. A 148-30 Class A, Grade 1 with subsequent amendments. All holes to be drilled.



STANDARD 3 LIGHT CLEARANCE MARKER

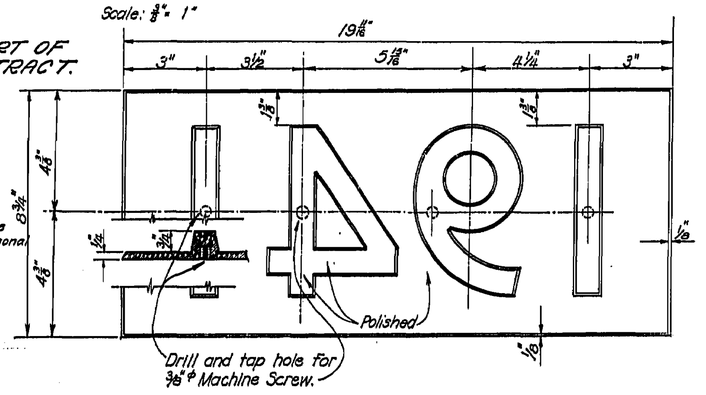
2 Required

Scale: 1" = 1'-0"

NOT A PART OF THIS CONTRACT.

DATE

Scale: 3" = 1"



DATE CASTING

Scale: 3" = 1"

BRIDGE ACROSS SALINAS RIVER	
MISCELLANEOUS DETAILS	
SCALE: As Noted	FILE NO.
BRIDGE NO. 44C-22	DRWG. NO. C-1925-29

0 10 20 30 40 50 60 70 80 90 100

DEPARTMENT OF PUBLIC WORKS—MICROFILM SCALE: 1" = 10 COUNTY OF MONTEREY

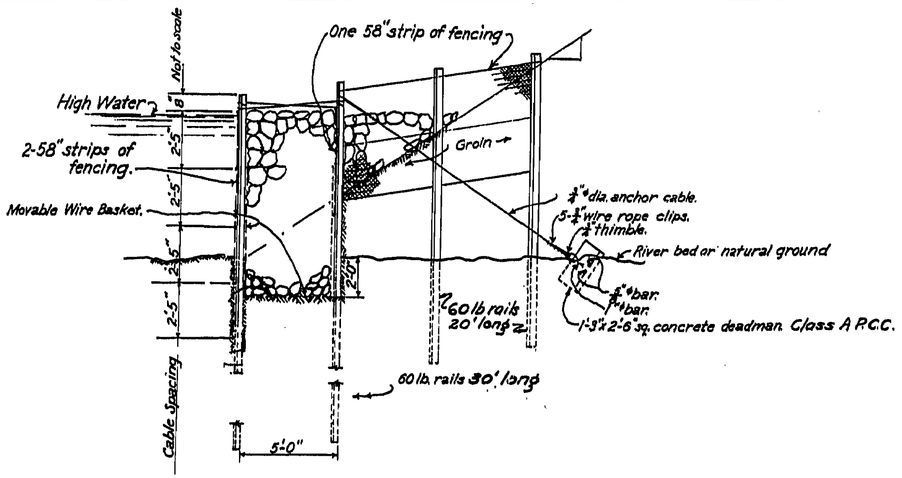
MAP LOC. 7 N 521,400 E 1,185,200 SN 9129 AW(PE) FAS 109-A(1)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	CAL.			11	12

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
V	MON	MIL.	ACCESS	10	11

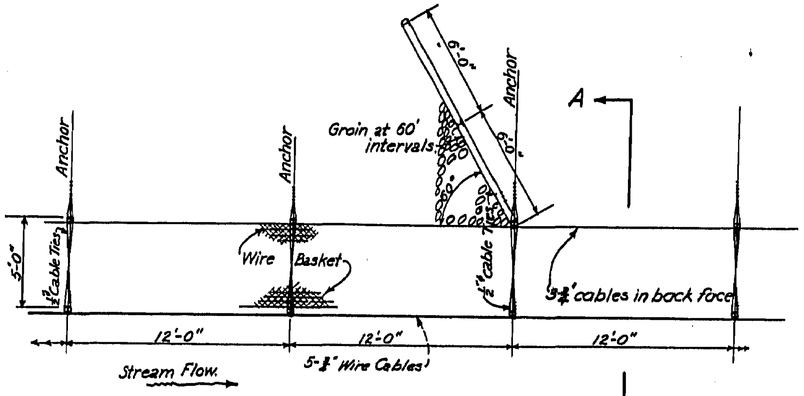
BRIDGE ENGINEER STRUCTURAL ENGINEER—LICENSE 7614

APPROVED December 15, 1941



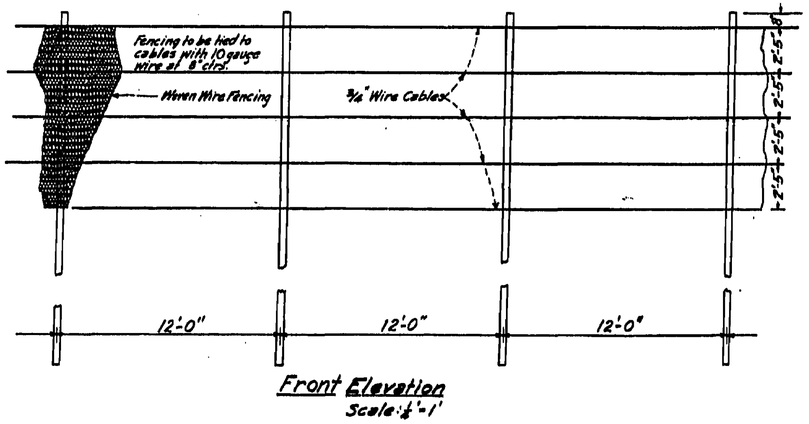
SECTION A-A

Scale: ¼"=1'-0"



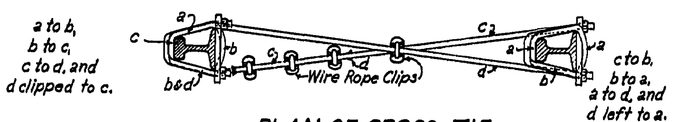
Plan

Scale: ¼"=1'-0"



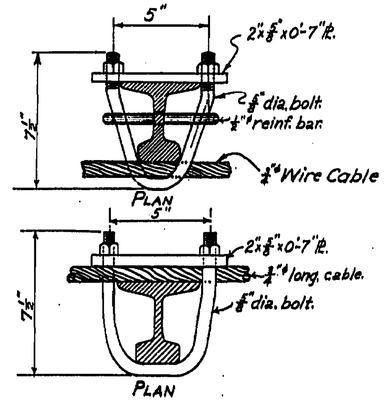
Front Elevation

Scale: ¼"=1'



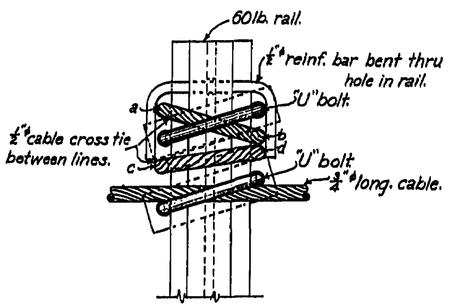
PLAN OF CROSS TIE

No Scale



CABLE FASTENER DETAILS

No scale



ELEVATION SHOWING CABLE FASTENINGS

No Scale

BRIDGE ACROSS SALINAS RIVER BANK PROTECTION DETAILS	
SCALE As Noted.	FILE No.
BRIDGE No. 44C-22	DRAWING No. C-1326-30

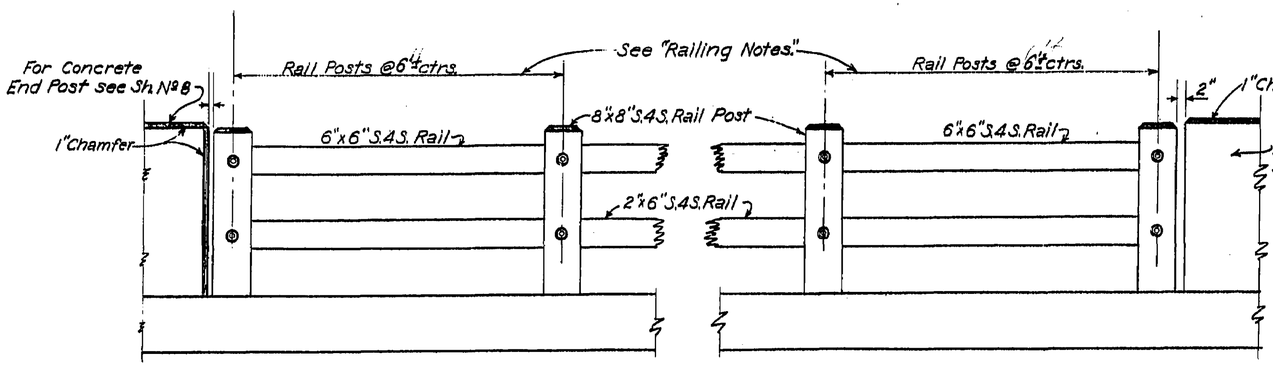
DEPARTMENT OF PUBLIC WORKS—MICROFILM SCALE: 1"=10 COUNTY OF MONTEREY

MAP LOC. 7 N 521,400 E 1,185,200 SN 91.30

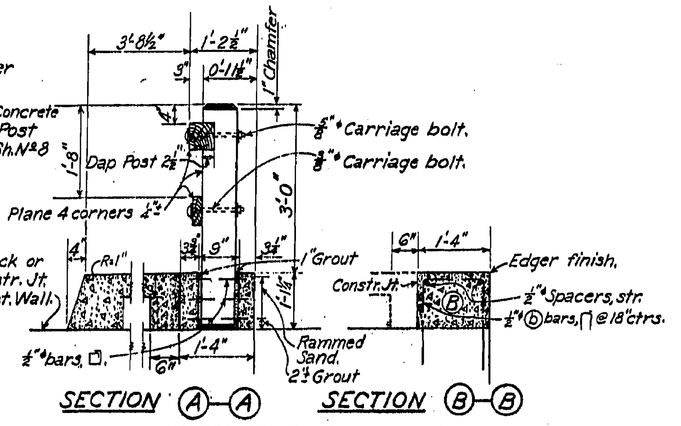
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	CAL.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
V	Mon	Mil	Access	11	11

DATE APPROVED December 15 1941

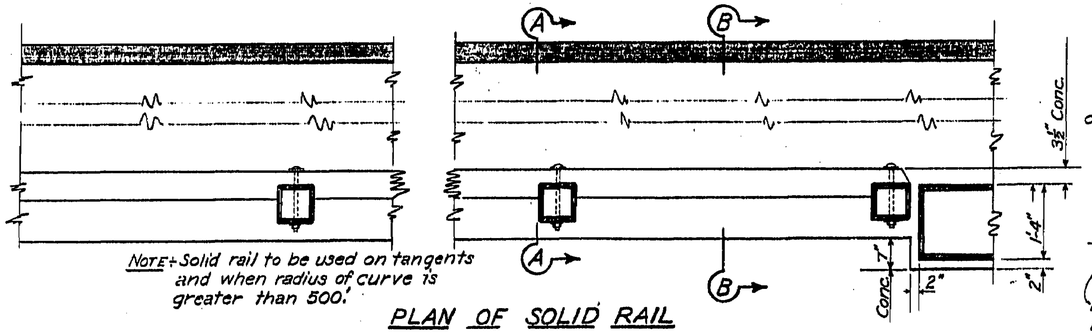


OUTSIDE ELEVATION



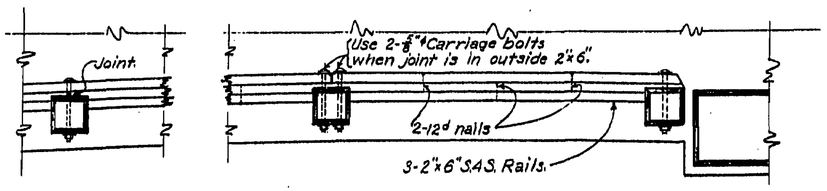
SECTION (A)–(A) SECTION (B)–(B)

WITH SIDEWALK



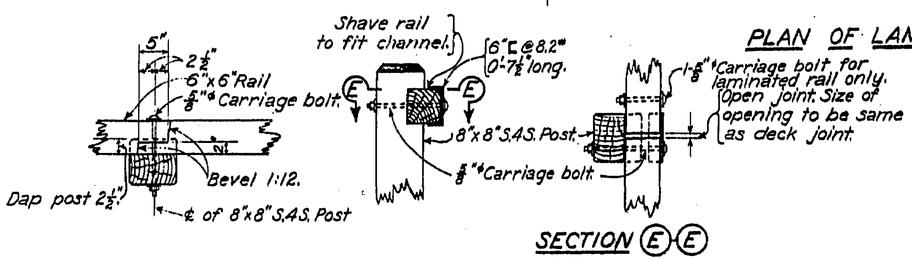
NOTE: Solid rail to be used on tangents and when radius of curve is greater than 500'.

PLAN OF SOLID RAIL



PLAN OF LAMINATED RAIL

NOTE: Use Laminated rail when radius of curve is less than 500'. Details not shown are similar to solid rail. For radius see Sheet No



SECTION (E)(E)

TIMBER RAIL SPLICE

Dap posts with grain normal to dap.

Scale: 1"=1'-0"

EXPANSION JOINT IN RAILS

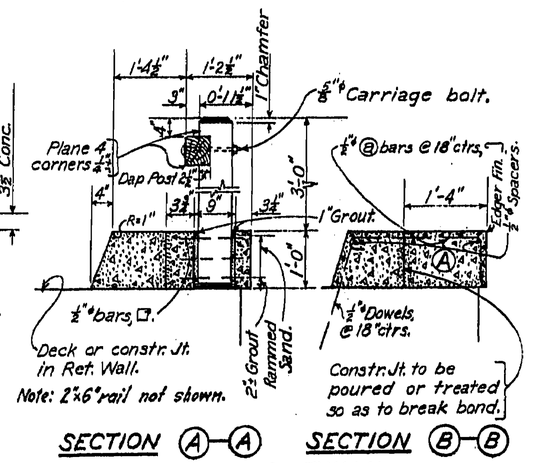
Joints to be located at posts nearest expansion joints in deck.

Scale: 1"=1'-0".

NOTE:-Details of lower rail are similar.

RAILING NOTES

Timber Railing to be used because of unavailability of other materials at time of construction.



Note: 2"x6" rail not shown.

SECTION (A)–(A) SECTION (B)–(B)

WITHOUT SIDEWALK

Substitution for Concrete Railing.

Spacing of Timber posts to be as shown. Concrete railing may be substituted for Timber railing in the future by removing concrete block (A) or (B), allowing bars (a) or (b) to remain undisturbed. Concrete railing and base may then be constructed.

Concrete curbs, sidewalks and end posts are designed to fit future concrete railing.

Clearances to Timber rail are 0'-4½" less than to Concrete rail.

For material see "Special Provisions."

BRIDGE ACROSS SALINAS RIVER

TIMBER RAILING

SCALE: ¾"=1'-0" Except as shown.	FILE NO.
BRIDGE NO. 44C-22	DRAWING NO. C-1925-31

Appendix M: CONTROL STRATEGY MEMO

AECOM

Memorandum

To	Shabad Khalsa, PE
Subject	Control Strategy for Castroville Pipeline
From	Jenn Hyman, PE
Date	August 15, 2018

1. Introduction

California American Water (CAW) has an agreement with the Castroville Community Services District (CCSD) to supply up to 800 acre-feet (AF)/year of desalinated water as part of the Monterey Peninsula Water Supply Project. We have designed the Castroville pipeline to move water from a connection on the 36-inch Transfer Pipeline at Lapis Rd. to CCSD well #3 at the corner of Hwy 183/Merritt St. and Del Monte Ave. as shown in the pipeline schematic in drawing 0000G06. This is the purpose of the Castroville Pipeline at this time. A tee along the pipeline at Nashua Rd may also provide water to the Castroville Seawater Intrusion Project (CSIP) facilities in the future. The purpose of this memo is to explain the desired operation of the pipeline so that the contractors can bid, construct, and program the PLC and SCADA work required in the project.

There are three facilities: CAW Lapis Meter Station, CAW Nashua Meter Station, and CCSD Nashua Meter Station. Each will have a local PLC (but no HMI screen) with the data sent to both the CAW and CCSD operators (assumed to be the CAW Desal Plant on Charles Benson Rd. and CCSD Operator Station at 11499 Geil St., Castroville, CA. The control functions will be permitted by CAW but not CCSD. Setpoints can be set locally or remotely by the respective operator.

2. CAW Facilities

CAW's SCADA system is based on cellular transmission of data. Typical pressure in the Transfer pipeline is expected to be a maximum of about 150 psi.

1. Lapis Meter Station: At the start of the pipeline is a flow (mag) meter and pressure transmitter in a vault powered by a small solar power system, including PV panels, charge controller and battery power.
    a. The flow signal will be sent via SCADA to the desal plant. The SCADA will totalize the flows and also send out a high flow alarm based on a user setpoint.
    b. There will also be an alarm if flows are above a user setpoint when the actuated valve is closed, indicating a break in the pipe.
    c. The electrical cabinet will have a solar power failure and door alarm in SCADA.
    d. There is also a pressure transmitter that sends the pressure to the operator via SCADA. A user setpoint high pressure alarm will alert CAW to atypically high pressures at the start of the pipeline.

2. CAW Nashua Meter Station: At the end of the CAW section of pipeline (on the south side of Nashua Rd.) are the following CAW facilities and their instrumentation, which will be powered by a new PG&E service:
    a. A backflow device. This has no instrumentation.
    b. A pressure regulating station (PRS) is in a vault. The pressure regulating valve (PRV) (there are 2; one is a backup for when the main valve is being serviced) will drop the pressure to a set pressure value and have a flow limiting device. This would restrict flows to no more than 800 gpm. There are pressure transmitters in the vault upstream and downstream of the PRV. The pressure signals will be transmitted to the local telemetry panel PLC which will have pressure setpoints (operator adjustable):
        - high-high,
        - high,
        - low; and,
        - low-low pressure alarms.
    c. When the pressure reaches the Hi-Hi level and the actuated butterfly valve is open, the actuated valve will shut. After a user-set period of time, after the pressure drops below the high level, the PLC will open the butterfly valve. This is to protect the CCSD pipeline from over-pressurization. If the valve is open and the low-low pressure is reached, the butterfly valve will shut. After a user-set period of time after the pressure returns to above the low level, the PLC will reopen the valve. This is to avoid wasting water, e.g., from a main pipeline failure.
    d. There is an actuated 8” butterfly valve in a vault. This will be operated in auto or manual mode, to remotely turn deliveries to CCSD on and off. In auto mode, the SCADA at the desal plant will be programmed to have operator-adjusted setpoints for times of day and days of the week when to open and close the valve. The concept at this time, based on conversations with CCSD, is to have the valve open on weekdays from noon to 8 am the next day. It is our understanding that CCSD has their own protection at their facilities for storage tank overflow, etc. There will be alarms related to proper functioning of the valve, with signals sent to the CAW operator for valve position, failure to open, etc.
    e. The electrical cabinet will have a power failure and door alarm in SCADA.

3. CCSD Facilities

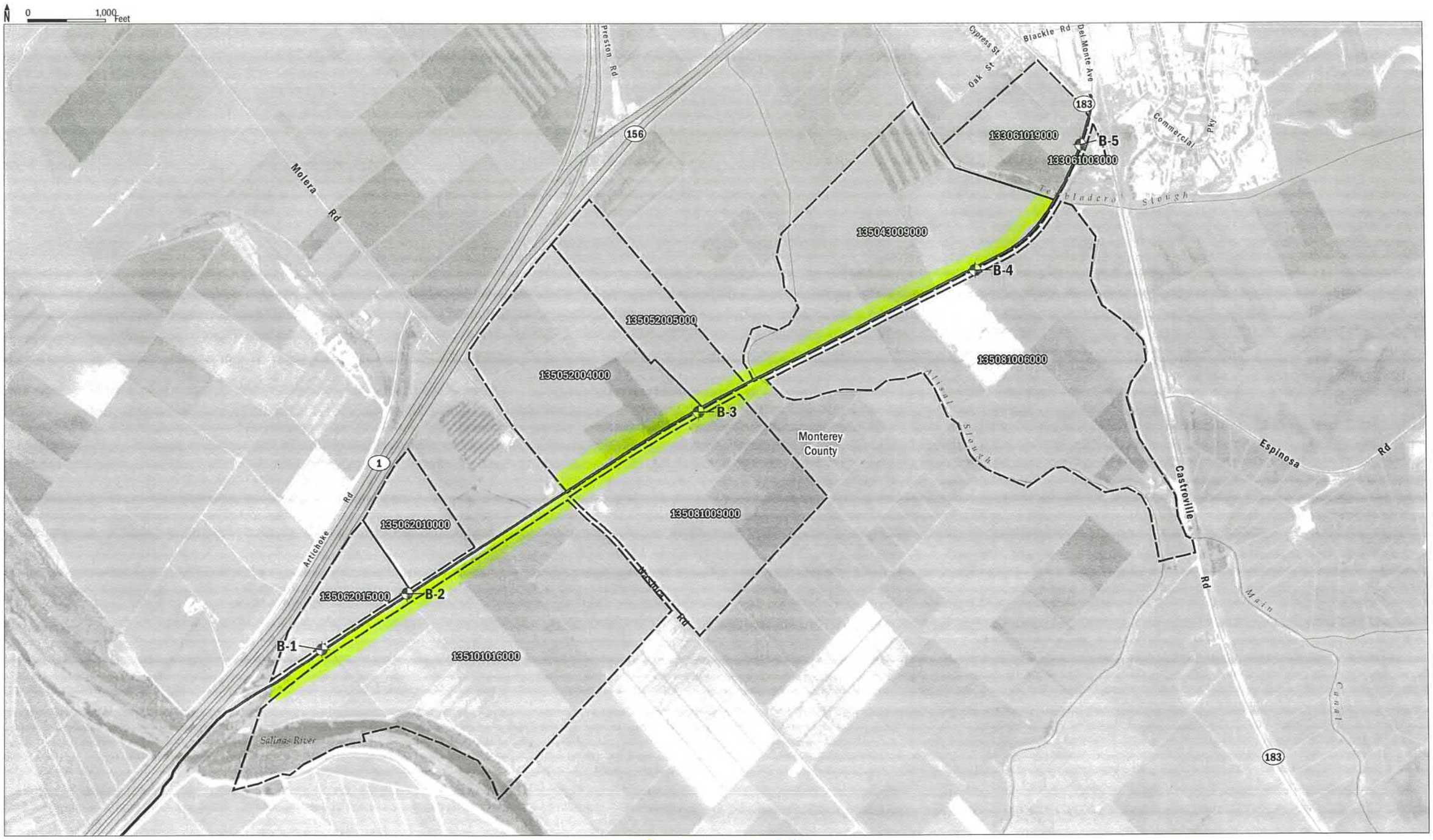
CCSD has requested the following:

i. Flow in the pipe shall be 750 gpm to completely replace pumping well #3.
ii. Provide pressure at 60-65 psi at the connection to their well #3
iii. A radio-based SCADA system

CCSD-owned facilities (installed by CAW) at the start of their portion of the pipeline (at the north side of Nashua Rd.) are called the CCSD Nashua Meter Station and will be powered by a small solar system. The equipment components are as follows:

1. A flow meter and pressure transmitter in a vault. The flow signal will be sent via SCADA (using a PLC and radio) to the operators. The SCADA will totalize the flows and also send out a high flow alarm with a user setpoint.
2. There will also be an alarm if flows are above a user setpoint when the actuated valve is closed, indicating that the valve is not closed all the way.
3. The pressure transmitter will send the pressure to the operators via SCADA. A user setpoint high and low pressure alarm will alert the operators to atypically high or low pressures. A low pressure alarm would indicate a possible break in the pipe.
4. The electrical cabinet will have a solar power failure and door alarm in SCADA.

Appendix N: TAMC LEASE AGREEMENTS



TAMC LEASE

AECOM
California American Water
Transmission Mains and Aquifer Storage & Recovery (ASR) Facilities
MONTEREY PENINSULA
WATER SUPPLY PROJECT, MPWSP
Imagery/Roads: ESRI, 2016

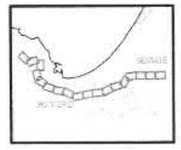


FIGURE X
Parcels Adjacent to Planned Borings along Castroville Alternative

PARTIAL LEASE OF MONTEREY BRANCH RAIL LINE

SALINAS, CALIFORNIA

LANDLORD

TRANSPORTATION AGENCY FOR MONTEREY COUNTY

55-B PLAZA CIRCLE

SALINAS, CALIFORNIA 93901

TENANT

EAGLE CREEK PACIFIC LLC

1920 Tienda Drive, Suite 204

Lodi, CA 95242

May 1, 2017 through April 30, 2022

LEASE

THIS LEASE AGREEMENT ("Lease") is made and entered into by and between the Transportation Agency for Monterey County ("Landlord") and Eagle Creek Pacific LLC ("Tenant"). Landlord and Tenant are collectively referred to hereinafter as the "Parties."

1. **LEASED PROPERTY.** Landlord hereby leases to Tenant, and Tenant hereby leases from Landlord, on the provisions, conditions, and covenants hereinafter set forth, that certain property described as Monterey Branch Rail Line Leased Property that is adjacent to property Tenant owns as of May 1, 2017, and further identified by red in Exhibit A of this Lease.

2. **RENT.** Tenant shall pay $21,306.00 per year in rent as set forth in Exhibit B of this Lease, without deduction, set off, prior notice or demand. Tenant shall pay the rent in two payments of $10,653.00 semiannually, commencing May 1, 2017. Tenant shall pay the rent to Landlord at 55 B Plaza Circle, Salinas, CA 93901, or at such other place as may be designated in writing by Landlord to Tenant.

3. **REIMBURSEMENT.** If Tenant fails to make any payment or take any action required of Tenant in this Lease, Tenant agrees to reimburse Landlord upon demand for all expenditures made by Landlord for the account of or benefit of Tenant, together with interest thereon at the maximum rate allowed by law, from the date of such expenditure until repaid.

4. **UTILITIES.** Tenant shall pay before delinquency all charges made for gas, electricity, sewer, telephone, garbage and any other utilities supplied to the leased property. Tenant shall arrange for frequent garbage and trash pick up and disposal to avoid any unsightly accumulations and as required by state and local laws. In addition to Tenant's independent obligation to keep the property free from trash and debris, Tenant shall make arrangements to clean up the property within five (5) business days' notice from Landlord.

5. **TERM.** The term of this Lease shall be five (5) years commencing on May 1, 2017, and ending on April 30, 2022, unless terminated earlier pursuant to Section 6.

6. **OPTION TO TERMINATE.**

6.1 Tenant understands and agrees that the landlord has future plans for the property. Namely, Landlord anticipates use of the railroad Right of Way to facilitate the restoration of rail/transit service to the Monterey Peninsula, and possibly as a bicycle trail or other transportation uses. Thus, Tenant agrees to vacate the property during the term of the Lease , without liability to the Landlord, upon receipt of twelve (12) months written notice.

6.2 Landlord may also terminate this Lease for cause if there is a default by Tenant as provided in Section 21 after giving Tenant notice of default and failure by Tenant to cure the default within thirty (30) days.

6.3 In the event any unharvested crops remain on the property upon the termination of the Lease, Tenant shall have the right to harvest any crop remaining on the property upon the crops' maturity, provided Tenant pays on a month by month basis in advance the prorated rent of $1,775.50 per month for the entire leased property for the time estimated as necessary to fully harvest any remaining crops. No new crops will be planted during the notice period provided for in Section 6.1, except for those that may be harvested prior to termination without the express written consent of Landlord. Tenant will also be liable for the prorated share of any taxes that might be due during this period. When Tenant actually vacates the property, the rent will be further prorated between Landlord and Tenant to cover the actual period of

occupancy under this hold over provision, which in no event will exceed the time necessary for Tenant to harvest crops in the ground prior to the Lease termination.

7. **CONDITION OF THE LEASED PROPERTY.** Tenant accepts the leased property in its present condition, as is, and Tenant acknowledges that Landlord shall have no obligation or liability whatsoever to make any improvements, alterations or repairs or to pay or reimburse Tenant for any part of the cost thereof, except as otherwise expressly provided in this Lease. Tenant further acknowledges that Landlord makes no warranties of any kind concerning the physical condition or soil of the leased property. Tenant agrees to keep the leased property in a neat and tidy condition and to remove any trash and debris that might accumulate on the property as required by state and local laws, and as provided in Section 4.

8. **ENCUMBRANCES, AGREEMENTS, RESERVATIONS, EXCEPTIONS AND EASEMENTS.** This Lease is subject and subordinate to the following items, effective without any further act of Tenant. Tenant shall from time to time, on request from Landlord, execute and deliver any documents or instruments that may be required to effectuate any subordination:

8.1 Any encumbrances now of record or recorded after the date of this Lease affecting the property.

8.2 The rights of the Union Pacific Railroad Company of the mineral estate underlying the leased property.

8.3 The rights of any Tenant under existing or future oil, gas and mineral leases affecting any part, or all, of the leased property.

8.4 All existing reservations, exceptions, easements, servitudes, licenses and rights of way, of record or in use, or as to which notice is given by possession, use or occupancy. Landlord reserves the right to install, lay, construct, maintain, repair and operate such sanitary sewers, drains, storm water sewers, pipelines, manholes, and connections; water, oil and gas pipelines; telephone and telegraph power lines; and the appliances and appurtenances necessary or convenient in connection therewith, in, over, upon, through, across, and along the property or any part thereof, and to enter the property for any and all such purposes. Landlord also reserves the right to grant franchises, easements, rights of way, and permits in, over, upon, through, across, and along any and all portions of the property. No right reserved by Landlord in this paragraph shall be so exercised as to interfere unreasonably with Tenant's operations hereunder. Landlord agrees that rights granted to third parties by reason of this paragraph shall contain provisions that the surface of the land shall be restored as nearly as practicable to its original condition upon the completion of any construction. Landlord further agrees that should the exercise of these rights temporarily interfere with the use of any or all of the property by Tenant, the rent shall be reduced in proportion to the interference with Tenant 's use of the property.

9. **OIL, GAS AND MINERAL RIGHTS RESERVATION.** There is reserved to Landlord (and to Union Pacific Railroad Company the mineral estate underlying the leased property only) the right to conduct seismic and other geophysical surveys and exploratory operations and otherwise to prospect for, drill, extract, mine, produce, remove, inject and/or store oil, gas or other hydrocarbon substances and minerals upon, from and through the leased property or any portion thereof. Said reservation shall include the right to construct, install, operate, maintain and remove whatever facilities, machinery, equipment, tanks, structures, buildings and appurtenances as may be reasonably necessary or convenient to the use and enjoyment of the aforesaid reservation, together with the reasonable right of ingress and egress to, from and upon said property for such purposes without interruption to Tenant's operations and providing for a reasonable abatement of rent based on any reduction of farmable crop acres.

10. **PURPOSE OF LEASE.** The express purpose of this Lease is for the growing of various row crops

(hereinafter called "Crops") on the leased property. Tenant shall not grow any other crops nor use any portion of the leased property for any other purpose whatsoever without Landlord's prior written consent.

11. **USE AND CARE OF PROPERTY.** Tenant agrees to use the leased property for the purpose of farming according to the highest standards of farm husbandry practices in the vicinity and for no other purpose without first obtaining Landlord's written consent. Tenant shall care for the soil in a first-class farmer-like manner, replenishing the nutrients and minerals as required. Tenant shall keep the soil free from noxious weeds and shrubs of all types, and shall take reasonable precautions to exterminate ground squirrels and rodents.

12. **WELLS AND PUMPS.** The leased property does not have any irrigation wells or pumping plants.

13. **IMPROVEMENTS AND INSTALLATION.** Tenant shall maintain and repair any roads or other improvements subject to this Lease in good order and condition. Landlord will have no responsibility for repair, maintenance or replacement of any such improvements.

14. **ENTRY BY LANDLORD.** Landlord and its authorized employees or agents shall have the right, at all reasonable times, to enter upon the leased property or any part thereof for any lawful purpose including to conduct studies or testing related to transportation projects and uses. The Tenant shall provide to the employees and agents of the Landlord, and on the request of the Landlord, to the occupants of adjacent lands, reasonable opportunities for ingress to and egress from the said adjacent lands

15. **TRANSFERABILITY OF LEASE.** Tenant shall not be entitled to assign the leased property without the written consent of Landlord. This Lease shall become null and void without any further action required by any party upon any transfer or attempted transfer of this Lease by Tenant. Tenant shall pay all of Landlord's costs and fees (legal or otherwise) in connection with any transfer or attempted transfer of this Lease.

16. **COMPLIANCE WITH LAW.** The Tenant, at its own risk and expense, shall observe and comply with all laws of the United States and the State of California, and with all rules and regulations of any department, commission, bureau, board or officers thereof, and with all ordinances of the County of Monterey, and with all rules and regulations of any department, commission, bureau, board or officer of the County of Monterey, relating to the use and occupation of the said farming land during the term of this Lease.

17. **INSURANCE COVERANGE REQUIREMENTS.**

17.1 Insurance. Insurance Coverage Requirements, without limiting Tenant's duty to indemnify, Tenant (at his cost) shall maintain in effect throughout the term of this Lease a policy or policies of insurance with the following minimum limits of liability:

Commercial general liability insurance including but not limited to premises, personal injuries, products, operations and completed operations, to protect against loss from liability imposed by law for damages occurring on account of bodily injury, including death therefrom, suffered or alleged to be suffered by any person or persons whomsoever, resulting directly or indirectly from any act or activities of Landlord or Tenant, its subTenants or any person acting for Landlord or Tenant or under its control or direction, and also to protect against loss from liability imposed by law for damages to any property of any person caused directly or indirectly by or from acts or activities of Landlord or Tenant, or its subTenants, or any person acting for Landlord or Tenant, or under its control or direction. Such insurance shall also provide for and protect Landlord against incurring any legal cost in defending claims for alleged loss. Such public liability and property damage insurance shall be maintained in full force and effect during the entire term of this Lease in the

amount of not less than $1,000,000 combined single limit per occurrence and $2,000,000 in the aggregate. Coverage shall be at least as broad as ISO Commercial General Liability Occurrence Form CG0001.

Workers' Compensation Insurance. If Tenant employs others in the performance of this contract, Tenant shall procure and maintain during the entire term of this Lease a Workers' Compensation Insurance Policy in accordance with California Labor Code section 3700 and with a minimum of $1,000,000 per occurrence for employer's liability.

Other Insurance Requirements. All insurance required by this Lease must be written by an insurance company admitted to do business in California or an insurance company authorized to transact insurance business in California and which holds a current A.M. Best's rating of no less than A: VI. Exception may be made for the State Compensation Insurance Fund when not specifically rated.

All insurance required by this Lease shall be written on an occurrence basis, or, if the policy cannot be written on an occurrence basis, such policy shall continue in effect for a period of five years following termination of Tenant's tenancy under this Lease.

Each insurance policy required by this Lease shall be endorsed to state that Landlord shall be given notice in writing at least thirty days in advance of any change, cancellation or non-renewal thereof.

Tenant's commercial general liability, automobile liability and All Risk property policies shall provide an endorsement naming the Landlord, its officers, agents, and employees as Additional Insureds with respect to liability arising out of ownership, possession, maintenance or use of the premises covered by this Lease; and shall further provide that such insurance is primary insurance to any insurance or self-insurance maintained by the Landlord and that the insurance of the Additional Insureds. Any insurance or self-insurance maintained by Landlord, its officers, officials, employees or volunteers shall be excess of Tenant's insurance and shall not be called upon to contribute to a loss covered by Tenant's insurance.

The workers' compensation policy shall be endorsed with a waiver of subrogation in favor of the Landlord for liability arising out of ownership, possession, maintenance or use of the premises covered by this Lease.

Prior to the effective date of this Lease, Tenant shall submit certificates of insurance and amendatory endorsements affecting coverage required by this clause to Landlord evidencing that Tenant has in effect the full insurance coverage required by this Lease. Within ninety (90) days of execution of this Lease, Tenant shall provide Landlord with a full and correct copy of all policies required by this Lease. Tenant shall file a new or amended certificate of insurance promptly after any change is made in any insurance policy which would alter the information on the certificate(s) then on file. Acceptance or approval of insurance shall in no way modify or change the indemnification clause in this Lease, which shall continue in full force and effect.

Tenant agrees that if the operation under this Lease results in an increased or decreased risk in the reasonable opinion of Landlord, then the minimum limits hereinabove designated shall be changed accordingly by Tenant upon request by Landlord. Tenant agrees to increase the limits of liability when, in the opinion of the Landlord, the value of the improvements covered is increased, subject to the availability of such insurance at the increased limits. Tenant agrees, at its sole expense, to comply and secure compliance with all insurance requirements necessary for the maintenance of reasonable fire and public liability insurance covering said premises, buildings and appurtenances. Any disagreement concerning the amount and nature of the coverage required shall be determined by Landlord.

Tenant agrees that the provisions of this section as to insurance shall not be construed as limiting in any way the extent to which the Tenant may be held responsible for the payment of damages to persons or property resulting from Tenant's activities, the activities of its subTenants or the activities of any person or persons for which Tenant is otherwise responsible.

Deductibles and Self-Insured Retentions: Any deductibles or self-insured retentions must be declared to and approved by Landlord. At the option of the Landlord either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Landlord, its officers, officials, employees and volunteers; or Tenant shall provide a financial guarantee satisfactory to Landlord guaranteeing payment of losses and related investigations, claim administration and defense expenses.

18. **INDEMNIFICATION.** In consideration for use of the property, Tenant agrees to indemnify, defend, and save harmless Landlord and its directors, officers, agents, and employees, from and against any and all claims, liabilities or losses whatsoever arising out of or in any way related to Tenant's use of the property under this Lease, including but not limited to claims for property damage, personal injury, death, injuries to reputation, economic losses, and emotional distress, and any legal expenses (such as attorney's fees, court costs, investigation costs, and expert fees) incurred by the Landlord in connection with such claims. "Tenant's use" includes Tenant's action or inaction and the action or inaction of its officers, employees, and agents, including but not limited to Tenant's customers. The obligation of Tenant to indemnify does not extend to claims or losses arising out of the sole negligence or willful misconduct of the Landlord or Landlord's directors, officers, agents, or employees.

19. **SURRENDER; CLEAN-UP; REMOVAL OF PROPERTY.**

19.1 Tenant agrees, on the last day of the term or sooner termination of this Lease, to surrender the leased property and all appurtenances thereto to Landlord in the same or better condition as when received, except for reasonable use, wear, act of God and the elements, and shall leave the leased property, including the banks of the ditches and pipes and other conduits, on or in the said property, clean and free from weeds and other growths, and otherwise in good order and condition. Tenant agrees to remove all of Tenant's personal property and trade fixtures from the property upon any termination of this Lease; provided, however, any underground pipelines, drain lines, pump motors or well improvements shall belong to Landlord upon termination of the Lease.

19.2 If Tenant fails to remove its property and restore the leased property under the conditions and within the time limits set, Landlord may: (a) do such removal and restoration at risk of Tenant and all costs and expenses thereof, together with interest thereon, shall be paid to Landlord by Tenant upon demand, or (b) claim all of such property, other than movable equipment, as its own, and Tenant shall execute and deliver to Landlord, within fifteen (15) days after written demand therefore, a bill of sale conveying all of Tenant's interest therein to Landlord, or (c) claim all movable equipment as its own, if Tenant fails to remove such equipment within fifteen (15) days of the delivery to Tenant of Landlord's written demand to do so, and Tenant shall execute and deliver to Landlord, within fifteen (15) days of the delivery of Landlord's written demand therefore, a bill of sale conveying all of Tenant's interest therein to Landlord, or (d) do any or all of the above.

19.3 Upon the expiration or earlier termination of this Lease, and if so requested by Landlord, Tenant shall execute, acknowledge and deliver to Landlord, a recordable quitclaim deed in form satisfactory to Landlord, conveying to Landlord or its nominee all rights of Tenant in the leased property.

20. **WAIVER.** Any failure or neglect of the Landlord to take advantage of any cause for the termination of this Lease, or for the forfeiture of the estate hereby created, shall not be a waiver of any other cause for such termination or forfeiture then existing, or a waiver of any cause for such termination or for-

feiture subsequently arising, and the receipt by the Landlord of any of said rent shall not be deemed to be a waiver of any cause otherwise then existing for the termination of this Lease, or for the forfeiture of the estate hereby created.

21. **DEFAULT.** Tenant shall be in default for any breach of this Lease, including but not limited to (i) Tenant's failure to pay Landlord any rental installment; (ii) Tenant's failure to pay Landlord any other sum in the amounts, manner, and at the time required; (iii) Tenant's breach of any nonmonetary obligation under this Lease; (iv) Tenant's making of an assignment for the benefit of creditors; (v) appointment of a receiver for Tenant's property; or (vi) appointment of a trustee for Tenant under the Bankruptcy Act (except a debtor in possession) or any trustee, assignee or receiver for creditors. Upon the termination of this Lease for any cause, Landlord may at once enter the leased property without notice or demand to Tenant and remove all persons and all of Tenant's property therefrom.

22. **POSSESSORY INTEREST AND PROPERTY TAXES.** Pursuant to California Revenue and Taxation Code Section 107.6, notice is hereby given that Tenant is responsible for any possessory interest, utility or personal property taxes that may be imposed as a result of, or related to, this Lease.

23. **NOTICES.** Any notice, demand or request required or permitted to be given to or made upon the Tenant by the Landlord under the provisions of this Lease, or otherwise by the law may be given to or made upon the Tenant, and either personally delivered to the Tenant or mailed by certified mail with the postage and fees thereon fully prepaid, to the Tenant at

Eagle Creek Pacific LLC
1920 Tienda Drive Suite 204
Lodi, CA 95242

and such notice, demand or request, when so mailed, shall have the same force and effect as if the same had been given or made upon the Tenant personally, and shall be deemed given three days after such deposit in the United States mail. Any notice, demand or request required or permitted to be given or made upon the Landlord by the Tenant may be given to or made upon the Landlord by letter addressed to it and either personally delivered to it or mailed by Certified mail, with the postage and fees thereon fully prepaid to the Landlord at its address set forth in Section 2, with a copy to:

Transportation Agency for Monterey County
55-B Plaza Circle
Salinas, California 93901
Attn: DAVID DELFINO dave@tamcmonterey.org (831) 775-0903

and such notice, demand or request, when so mailed, shall have the same force and effect as if the same had been given to or made upon it personally, and shall be deemed given three days after such deposit in the United States mail.

24. **CONDEMNATION.**

24.1 **Take.** If the whole of the leased property shall be taken for any public or quasi-public use under any statute or by right of eminent domain, then this Lease shall automatically terminate as of the date the title shall be taken. If any part of the leased property shall be so taken as to render the leased property unusable for the purposes for which the same was leased by Tenant, then either Landlord or Tenant may terminate this Lease on thirty (30) days written notice to the other party. In the event that this Lease shall terminate or be terminated pursuant to this paragraph 24.1, any prepaid rental shall be prorated to the terminated date.

24.2 **Rental Adjustment**. If any part of the leased property shall be taken for any public or quasi public use under any statute or by right of eminent domain, and this Lease shall not terminate under the provisions of Section 6, then the rental paid by Tenant shall be equitably adjusted according to the part so taken or rendered unusable.

24.3 **Award**. Any and all awards made for the taking of all or part of the leased property shall be the property of the Landlord, provided that any award made for the taking of any item of Tenant's crops or personal property, or on account of relocation or moving expenses of Tenant, or on account of prepaid rent, shall be the property of Tenant.

25. **TENANT'S LIENS AND ENCUMBRANCES**. Tenant shall not suffer or permit any lien or encumbrance of whatever kind or nature to be placed upon, levied upon or assessed against the leased property, or the real property of which the same are a part, by reason or as a result of any act of omission or commission of the Tenant.

26. **ABANDONMENT**. Tenant shall not vacate or abandon the property at any time during the term. If Tenant does abandon, vacate or surrender the property, or is dispossessed by process of law, or otherwise, this Lease shall terminate and any personal property belonging to Tenant shall be removed by Tenant if Landlord shall so request.

27. **HOLDING OVER**. Any holding over after expiration of the term of this Lease or any extension hereof, shall with Landlord's consent be treated as a tenancy from month to month, at a monthly rental of One Hundred Twenty-Five percent (125%) times the base rent per acre per month. Landlord may, by thirty (30) days written notice, change the rental and terms of such month-to-month tenancy.

28. **MISCELLANEOUS.**

28.1 **Covenants**. All covenants of Tenant contained in this Lease are expressly made conditions precedent to Landlord's continued duty to perform hereunder.

28.2 **Time**. Time is of the essence hereof.

28.3 **Entire Agreement**. The terms of this Lease are intended by Landlord and Tenant as a final expression of their agreement with respect to such terms as are included in this Lease and may not be contradicted by evidence of any prior or contemporaneous agreement. The Parties intend that this Lease constitutes the complete and exclusive statement of its terms and that no extrinsic evidence whatsoever may be introduced in any judicial proceeding, if any, involving this Lease.

28.4 **Interpretation**. This lease shall be interpreted according to the laws of the State of California.

28.5 **Good Faith**. The covenant of good faith and fair dealing implied in all contracts is made express herein.

28.6 **Gender and Tense**. Nouns and pronouns used herein shall include the masculine, feminine and neuter genders; words used in the singular shall include the plural; and tenses shall include the past, present and future; all to be construed as the context requires.

28.7 **Binding on Successors**. The covenants and conditions herein contained shall, subject to the provisions concerning assignment, apply to and bind the heirs, successors, personal representatives and assigns of all the parties hereto.

28.8 **Captions**. The captions and any table of contents to this Lease shall have no effect concerning its interpretation.

28.9 **Estoppel Certificate**. Each party, within fifteen (15) days after notice from the other party, shall execute and deliver to the other party, in recordable form, a certificate indicating that this Lease is unmodified and in full force and effect, or in full force and effect as modified and stating the modifications. The certificate shall also state the amount of rent, the date to which the rent has been paid in advance, if applicable, and the amount of any security deposit.

IN WITNESS WHEREOF, Landlord and Tenant have executed this Lease the day and year written below.

LANDLORD:

TRANSPORTATION AGENCY FOR MONTEREY COUNTY

BY: _____ DATE: 6/1/17
Debra L. Hale, Executive Director

TENANT:

EAGLE CREEK PACIFIC LLC

BY: _____ DATE: 6/8/17
ERIK C. ROBET, VICE PRESIDENT

Approved as to form:

_____ DATE: 5/31/17
TAMC Counsel

EXHIBIT B

RENT

Tenant shall pay to Landlord rent for a period Five (5) years commencing May 1, 2017, and ending April 30, 2022 as follows:

A. Semiannual Installments:

RATE	TOTAL	DUE
$1,907.43 per acre (X) 11.17 acres	**$21,306. ($10,653.00 Semi-Annually)**	**6/1/17, 11/1/17, 5/1/18, 11/1/18, 5/1/19, 11/1/19, 5/1/20, 11/1/20 and 5/1/21, 11/1/21.**

B. Tenant agrees to pay each installment of rent to the Landlord pursuant to Section 2 of the Lease.