

**Meeting of the Central Valley Flood Protection Board
September 26, 2014**

Staff Report

**Woodland-Davis Clean Water Agency
Davis Woodland Water Supply Project
Yolo County**

1.0 – ITEM

Consider approval of Draft Permit No. 18957
(Attachment B).

2.0 – APPLICANT

Woodland-Davis Clean Water Agency

3.0 – LOCATION

The project is located approximately 1,000-feet north of Interstate 5 along County Road 22 in the Yolo Bypass east of Woodland.
(Yolo Bypass, Yolo County, see Attachment A).

4.0 – PROJECT DESCRIPTION

The applicant proposes to install a 42-inch diameter HDPE raw water pipeline under (HDD) the left (east) and right (west) bank levees of the Yolo Bypass and connect to a new 36-inch diameter steel pipeline installed by the trenching method across the interior of the Yolo Bypass. The project includes the installation of a 3-inch diameter steel conduit up-and-over the right (west) bank levee to accommodate a cathodic protection wire. Water conveyed by the pipeline is supplied by the Sacramento River Joint Intake Pump Station that is operated by Reclamation District 2035 and Woodland-Davis Clean Water Agency (Permit No. 18763).

5.0 - AUTHORITY OF THE BOARD

California Water Code § 8534, 8590 – 8610.5, and 8700 - 8710

California Code of Regulations, Title 23 (Title 23)

- § 6, Need for a Permit
- § 13, Evidentiary Hearings
- § 112, Streams Regulated and Nonpermissible Work Periods
- § 123, Pipelines, Conduits, and Utility Lines

6.0 – PROJECT ANALYSIS

The Woodland-Davis Clean Water Agency (WDCWA) is a joint powers authority agency between the Cities of Woodland and Davis that was established to implement and oversee the Davis Woodland Water Supply Project (DWWSP), in partnership with the University of California at Davis (UC Davis). The DWWSP includes the new RD-2035/WDCWA Sacramento River intake structure, transmission pipelines, and a new water treatment plant that will provide a new surface water supply to the Cities of Woodland and Davis, and UC Davis. The three primary objectives of the Project are to (1) provide a reliable water supply to meet existing and future needs, (2) improve water quality for drinking supply purposes, and (3) improve treated wastewater effluent quality discharged by the City of Davis, City of Woodland, and UC Davis through 2040, as required under existing or anticipated future water discharge regulations.

In March of 2013 the Board approved Permit No. 18763 which authorized the removal and replacement of the Reclamation District (RD) 2035 water intake pump station on the Sacramento River at river mile 70.8. The WDCWA entered into an agreement with RD 2035 to share responsibility for the construction, operation, and maintenance of the new intake facility. The new DWWSP raw water pipeline will convey water from the intake pump station across the Yolo Bypass (bypass) to the new regional water treatment facility currently being constructed in the City of Woodland. The total length of the raw water pipeline will be approximately 5.1 miles long. Permit No. 18957 will authorize installation of the pipeline under and across the bypass. The pipeline will be 42-inches in diameter and will be placed approximately 60-feet below the east levee and approximately 50-feet below the Tule Canal using Horizontal Directional Drilling (HDD) methods. The pipeline will be reduced to 36-inches in diameter across the bypass where it will be placed using the open-cut trenching method. The pipeline will

be located inside the County Road 22 right-of-way for approximately 6,500 feet. The pipeline will again be expanded to 42-inches in diameter and placed approximately 50-feet below the west levee of the bypass using HDD methods.

6.1 – Hydraulic Analysis

A hydraulic analysis was not required as the project will be entirely underground across the Yolo Bypass.

6.2 – Geotechnical Analysis

Jacobs Associates of Walnut Creek, California prepared a predesign geotechnical report for the pipelines (Jacobs Associates, 2012a). In addition, Bennett Trenchless Engineers prepared a preliminary assessment of the East and West Yolo Bypass levee crossings as part of the Regional Water Transmission Mains Basis of Design Report (West Yost, 2012a). Numerous historical geotechnical explorations have been performed in the immediate vicinity of the pipeline alignments. Data from historical explorations, project-specific explorations by CH2M HILL, and published and available water level measurements were used to develop recommendations for the project. In general the subsurface profile encountered during explorations for the project consists of clay soils overlaying granular soils.

Trenchless construction methods were recommended for going under the East and West levees of the Yolo Bypass based on the interpretation of the subsurface conditions encountered during the geotechnical investigations and the anticipated ground behavior during construction. Other considerations include the length of the crossing, feasibility of construction, cost of construction, potential settlement, agency requirements, and environmental requirements. WDCWA has chosen HDD as the most efficient method to cross beneath the levees of the Yolo Bypass. Board staff concurs with this assessment.

7.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with this project, from all pertinent agencies are shown below:

- Reclamation District No. 2035 has endorsed the project with no conditions.
- Reclamation District No. 827 has endorsed the project with no conditions.

- California Department of Water Resources Sacramento Maintenance Yard has endorsed the project with no conditions.
- The U.S. Army Corps of Engineers (USACE) Sacramento District comment letter has not been received for this application. Staff anticipates receipt of a letter indicating that the USACE District has no objection to the project, subject to conditions. Upon receipt of the letter, staff will review to ensure conformity with the permit language and incorporate it into the permit as Exhibit A.

8.0 – CEQA ANALYSIS

Board staff has prepared the following CEQA findings:

The Board, acting as a responsible agency under CEQA, has independently reviewed the Draft Environmental Impact Report (DEIR, SCH No. 2006042175, April 2007), the Final Environmental Impact Report (FEIR, SCH No. 2006042175, October 2007), Addendum No. 3 (October 2012), and the Mitigation Monitoring and Reporting Plan (MMRP) on the David-Woodland Water Supply Project (incorporated herein by reference and available at the Central Valley Flood Protection Board or City of Davis offices). These documents, including project design, may be viewed or downloaded from the Central Valley Flood Protection Board website at <http://www.cvfpb.ca.gov/meetings/2014/09-26-2014.cfm> under a link for this agenda item. The documents are also available for review in hard copy at the Board and City of Davis offices.

The City of Davis, as the lead agency, determined that the project would have a significant effect on the environment on October 16, 2007 (including Statement of Facts, Findings, Impacts and Mitigation Measures, Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program) and adopted Resolution No. 07-168. The Notice of Determination was filed with State Clearinghouse on October 19, 2007.

Since the certification of the EIR in 2007, the Cities of Woodland and Davis have formed the Woodland Davis Clean Water Agency (WDCWA), a joint powers authority (JPA), to implement the DWWSP. Additionally, changes in the regulatory setting, as well as minor refinements to the project have prompted the issuance of several addendums to the FEIR. In 2012, WDCWA identified the need to modify the alignment of the proposed raw water pipeline from the Sacramento River intake structure. As a result of this change, an Addendum No. 3 was prepared. The Addendum No. 3 analyzes the

modified crossing of Tule Canal and the interior of the Yolo Bypass as it is detailed in this staff report.

Based on its independent review of the FEIR, the Board finds that although the proposed project could have a potentially significant effect on the environment, revisions have been made to the project and/or agreed to by the project proponent that reduce the environmental impacts to less than significant. The project proponent has incorporated mandatory mitigation measures into the project plans to avoid identified impacts or to mitigate such impacts to a point where no significant impacts will occur. Moreover, such changes or alterations are within the responsibility and jurisdictions of another public agency, WDCWA, and such changes have been adopted by that agency. These mitigation measures are included in the project proponent's FEIR and address impacts to biological resources, cultural resources, noise, and transportation and circulation. The description of the mitigation measures are further described in the certified FEIR.

The documents and other materials which constitute the record of the Central Valley Flood Board's proceedings in this matter are in the custody of Leslie Gallagher, Acting Executive Officer, Central Valley Flood Protection Board, 3310 El Camino Ave., Rm. 151, Sacramento, California 95821.

9.0 – WATER CODE SECTION 8610.5 CONSIDERATIONS

1. Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

The Board has considered all the evidence presented in this matter, including the original and updated applications and supporting documents, this Staff Report and attachments, all other evidence presented by any individual or group, and all letters and other correspondence received by the Board and in the Board's files related to this matter.

2. The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

The accepted industry standards for the earth work proposed and water delivery channels under this permit as regulated by Title 23 have been applied to the review of this permit.

3. Effects of the decision on facilities of the State Plan of Flood Control, and consistency of the proposed project with the Central Valley Flood Protection Plan as adopted by Board Resolution 2012-25 on June 29, 2012:

The proposed project is completely underground; therefore there will be no adverse effect on facilities of the State Plan of Flood Control and the project is consistent with the 2012 Central Valley Flood Protection Plan.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

There will be no effects of reasonable projected future events as the project will be constructed underground.

10.0 – STAFF RECOMMENDATION

Staff recommends that the Board (in substantially the form provided):

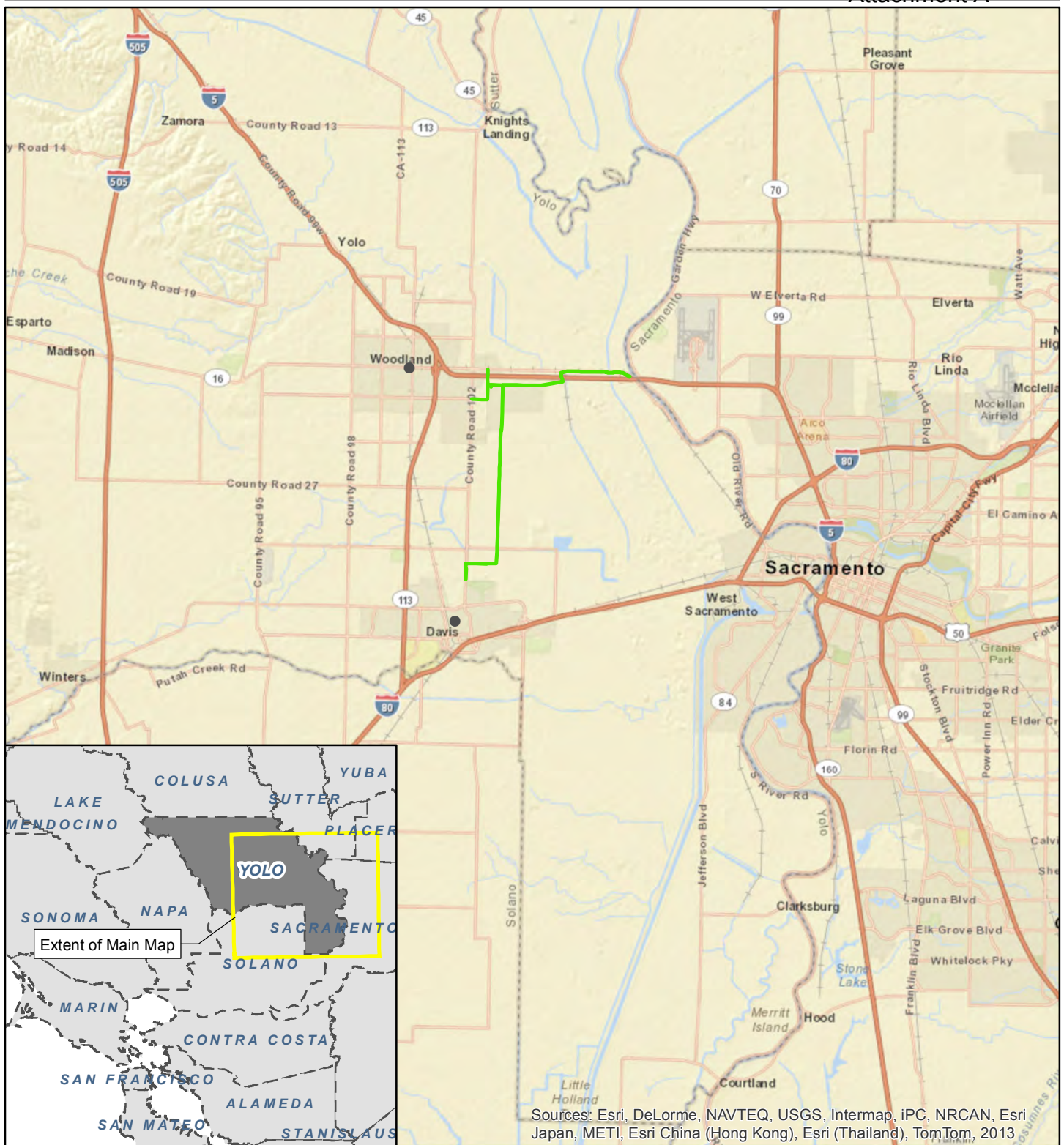
- Adopt the CEQA findings,
- Approve Board Encroachment Permit No. 18957; and
- Direct the Executive Officer to take the necessary actions to prepare and execute the permit and any related documents and to file a Notice of Determination with the State Clearinghouse.

11.0 – LIST OF ATTACHMENTS

- A. Location Maps and Photos
- B. Draft Permit No. 18957
- C. Project Drawings

Design Review:	Gary W. Lemon P.E.
Environmental Review:	Andrea Buckley, Senior Environmental Scientist
Document Review:	Mitra Emami P.E., Permitting Section Chief, Len Marino P.E., Chief Engineer
Legal Review:	Leslie Gallagher, Chief Counsel

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Legend

— Project Location

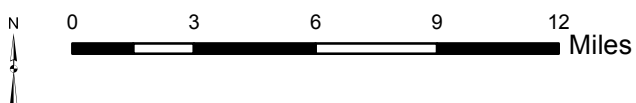
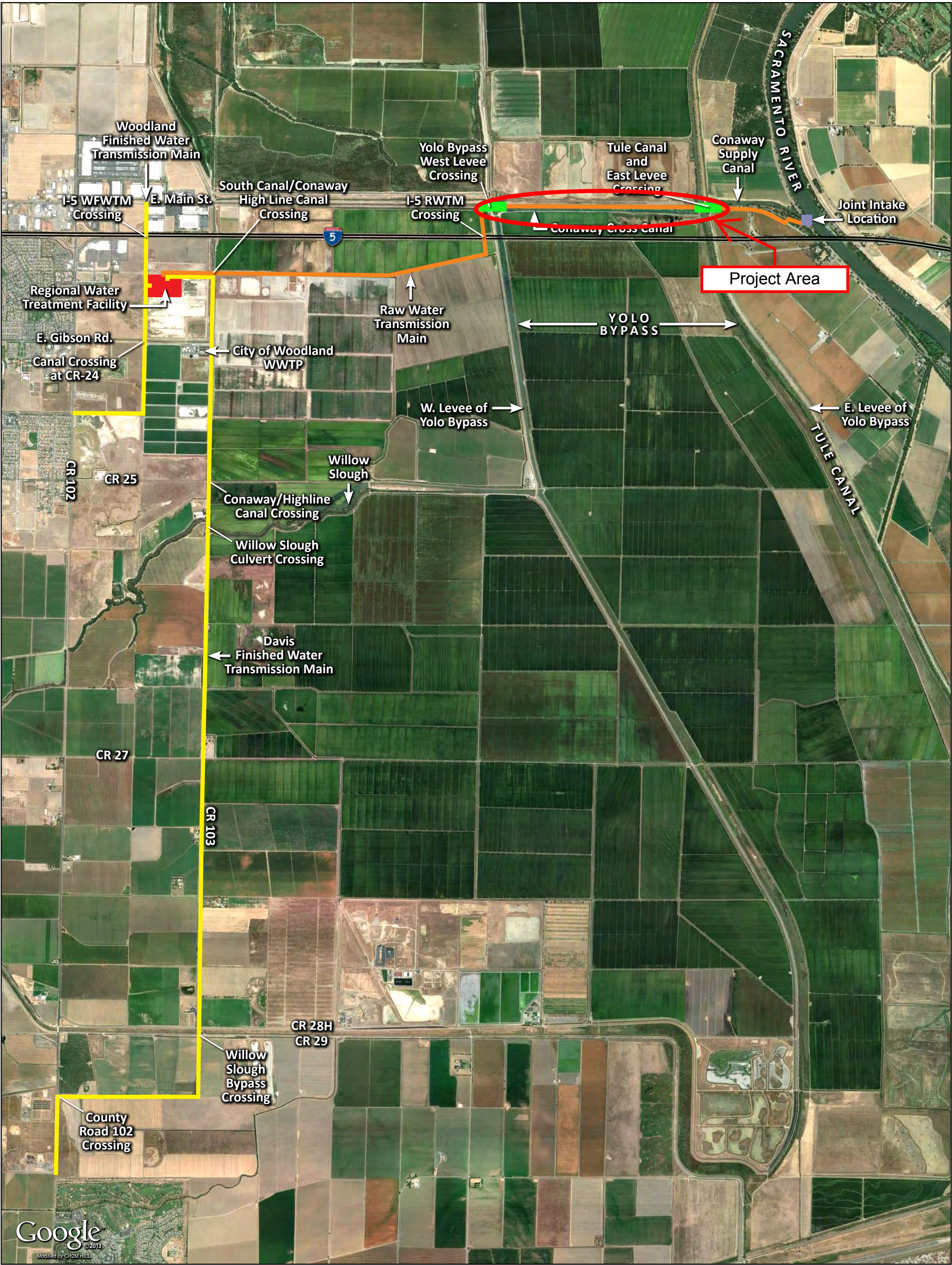


FIGURE 1
Regional Location

Davis Woodland Water Supply Project
Yolo County, CA



LEGEND

- Raw Water Transmission Main
- Finished Water Transmission Mains
- Proposed Intake Site
- Regional Water Treatment Facility
- Horizontal Directional Drill

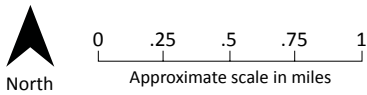


FIGURE 2
Overall Site Map
Woodland-Davis Clean Water Agency (WDCWA)
Davis Woodland Water Supply Project

DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18957 BD

This Permit is issued to:

Woodland-Davis Clean Water Agency
23 Russell Boulevard
Davis, California 95616

To install a 42-inch diameter HDPE raw water pipeline under (HDD) the left (east) and right (west) bank levees of the Yolo Bypass and connect to a new 36-inch diameter steel pipeline installed by the trenching method across the interior of the Yolo Bypass. The project includes the installation of a 3-inch diameter steel conduit up-and-over the right (west) bank levee to accommodate a cathodic protection wire. Water conveyed by the pipeline is supplied by the Sacramento River Joint Intake Pump Station that is operated by Reclamation District 2035 and Woodland-Davis Clean Water Agency (Permit No. 18763). The project is located approximately 1,000-feet north of Interstate 5 along County Road 22 in the Yolo Bypass east of Woodland (Section 32, 33, T 10N, R3E, MDB&M, Reclamation District 2035, Yolo Bypass, Yolo County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____

Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18957 BD

THIRTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board.

FOURTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California; including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

FIFTEEN: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Central Valley Flood Protection Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

SIXTEEN: The Central Valley Flood Protection Board, Department of Water Resources, Reclamation

District No.827, and Reclamation District No.2035 shall not be held liable for any damages to the permitted encroachment(s) resulting from flood fight, operation, maintenance, inspection, or emergency repair.

SEVENTEEN: Upon receipt of a signed copy of the issued permit the permittee shall contact the Department of Water Resources by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

EIGHTEEN: No construction work of any kind shall be done during the flood season from November 1st to April 15th without prior approval of the Central Valley Flood Protection Board.

NINETEEN: A temporary bench mark, set to a known datum, shall be placed at the project site(s) to monitor possible settlement during and after construction.

TWENTY: The permittee shall be responsible for the repair of any damages to the project levee and other flood control facilities due to construction, operation, or maintenance of the proposed project.

TWENTY-ONE: Exit points located within the Yolo Bypass shall be a minimum of 300 feet from the waterside levee toe.

TWENTY-TWO: Drilling fluid pressures and flow rates shall be carefully monitored and controlled to minimize the potential for hydrofracturing.

TWENTY-THREE: Pipe installed under the levees and Tule Canal shall have a minimum of 30 feet of cover below the levee toes and under the stream channel.

TWENTY-FOUR: The annular space between the bore hole and pipe shall be filled with cementitious grout above elevation -10 feet on the landside of the levee.

TWENTY-FIVE: Excess bentonite or other drilling fluids shall be properly disposed of outside of the Yolo Bypass. The bentonite or other drilling fluids shall not be used as backfill.

TWENTY-SIX: The permittee shall be responsible for all damages due to settlement, consolidation, or heave from any construction-induced activities.

TWENTY-SEVEN: Boring pit excavations within the Yolo Bypass shall be filled with concrete having a thickness of 18 inches minimum or 24 inches maximum. The concrete cap shall be overlain by a minimum of 2 feet of native materials that is compacted in 4- to 6-inch layers to at least the density of the adjacent firm, undisturbed material.

TWENTY-EIGHT: The pipeline within the Yolo Bypass shall be buried with a minimum of 2 feet of cover.

TWENTY-NINE: Backfill material for excavations shall be placed in 4- to 6-inch layers and compacted to at least the density of the adjacent, firm, undisturbed material.

THIRTY: The project area shall be restored to at least the condition that existed prior to

commencement of work.

THIRTY-ONE: The mitigation measures approved by the CEQA lead agency and the permittee are found in its Mitigation and Monitoring Reporting Program (MMRP) adopted by the CEQA lead agency. The permittee shall implement all such mitigation measures.

THIRTY-TWO: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the Department of Water Resources or any other agency responsible for maintenance.

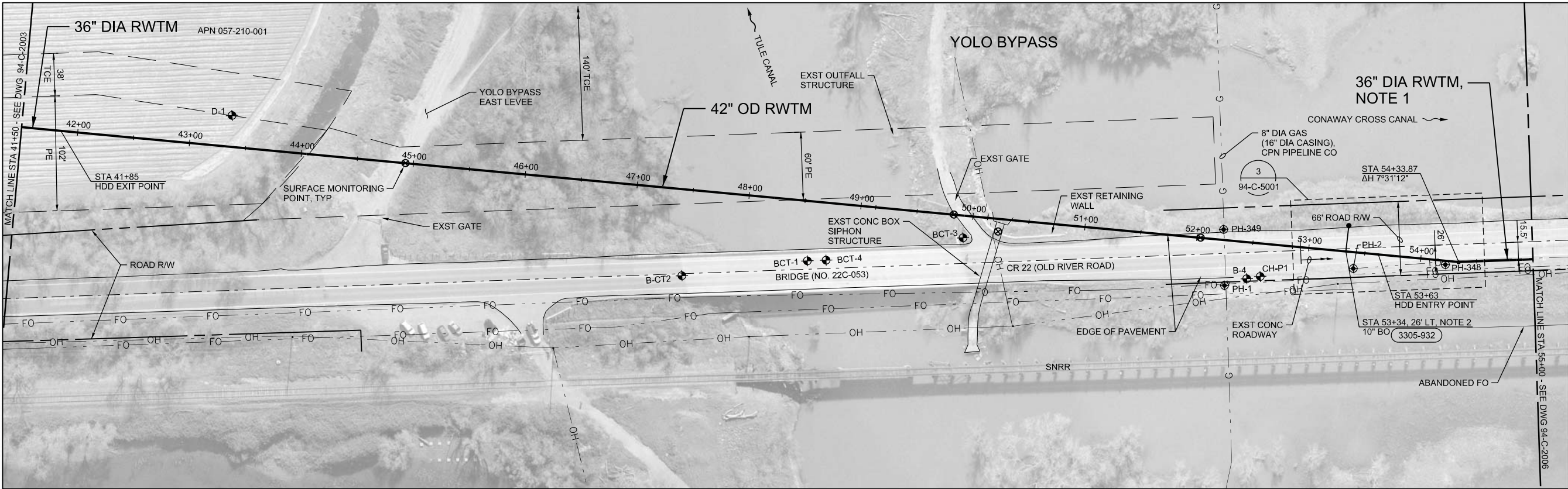
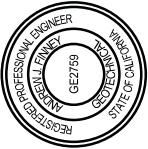
THIRTY-THREE: The permitted encroachment(s) shall not interfere with operation and maintenance of the flood control project. If the permitted encroachment(s) are determined by any agency responsible for operation or maintenance of the flood control project to interfere, the permittee shall be required, at permittee's cost and expense, to modify or remove the permitted encroachment(s) under direction of the Central Valley Flood Protection Board or Department of Water Resources. If the permittee does not comply, the Central Valley Flood Protection Board may modify or remove the encroachment(s) at the permittee's expense.

THIRTY-FOUR: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

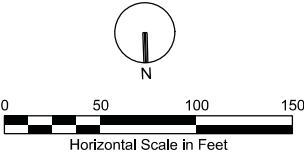
THIRTY-FIVE: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

THIRTY-SIX: The permittee shall comply with all conditions set forth in the letter from the Department of the Army (U.S. Army Corps of Engineers, Sacramento District) dated September xx, 2014, which is attached to this permit as Exhibit A and is incorporated by reference.

THIRTY-SEVEN: Upon completion of the project, the permittee shall submit as-constructed drawings to: Department of Water Resources, Flood Project Inspection Section, 3310 El Camino Avenue, Suite 256, Sacramento, California 95821.



- NOTES:
- SUBCONTRACTOR SHALL DEMOLISH 1/2" DIRECT BURY FIBER OPTIC CABLE OWNED BY YOLO COUNTY BETWEEN STATION 54+00± AND STATION 124+75±.
 - SEE PIPELINE NOTE 3 ON DWG 01-GP-0003.



SEE DWG 94-C-2005 FOR PROFILE

CH2MHILL®

OFF-SITE RAW WATER PIPELINE
PLAN
STA 41+50 TO STA 55+00

DAVIS WOODLAND WATER SUPPLY PROJECT
WOODLAND-DAVIS
CLEAN WATER AGENCY (WDCWA)
OFF-SITE PIPELINES

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PROJ	481331
DWG	94-C-2004
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PH RIDE

SC PATTERSON

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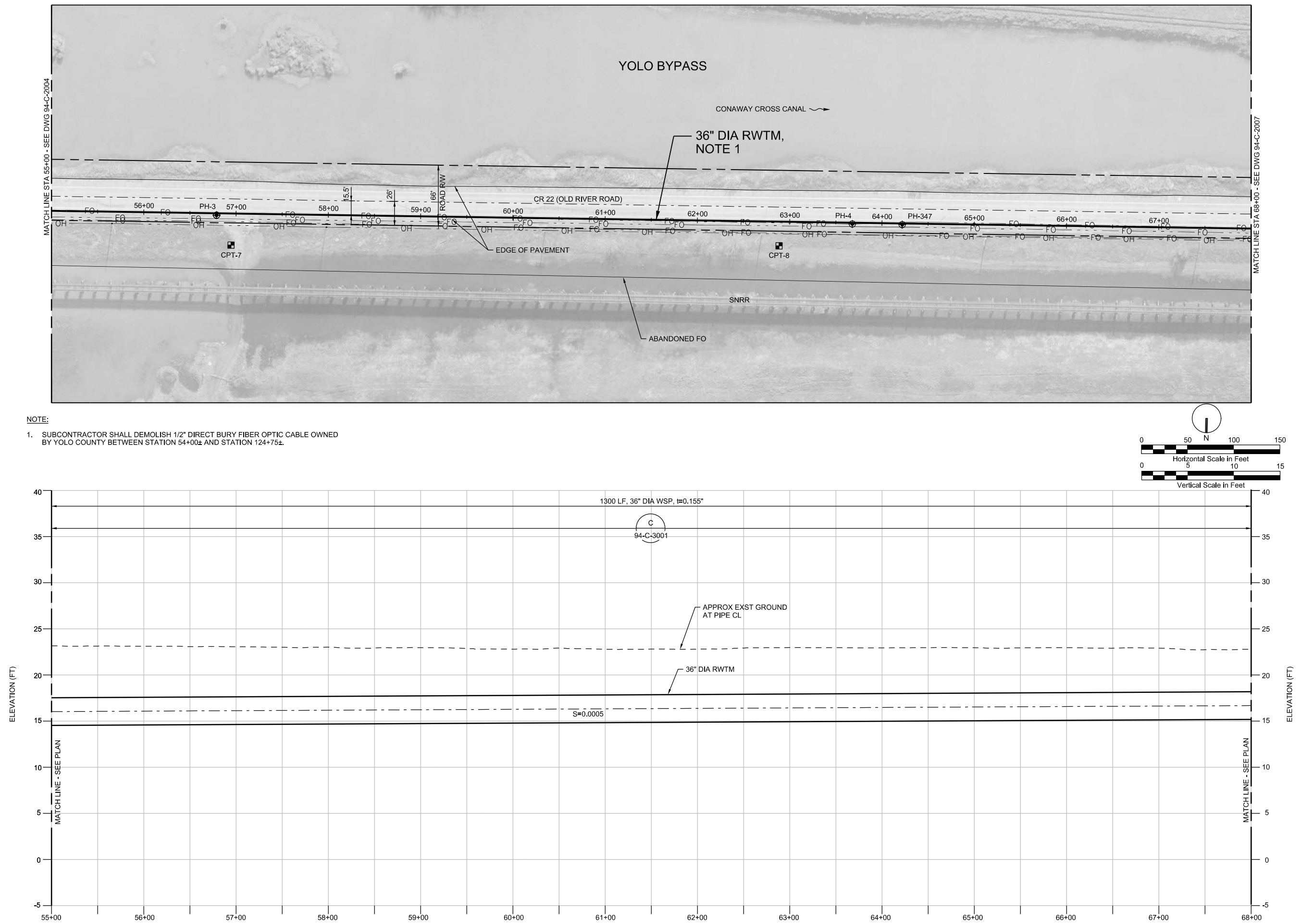
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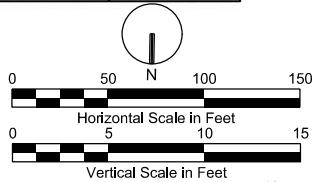


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1. SUBCONTRACTOR SHALL DEMOLISH 1/2" DIRECT BURY FIBER OPTIC CABLE OWNED BY YOLO COUNTY BETWEEN STATION 54+00± AND STATION 124+75±.



CH2MHILL®

DAVIS WOODLAND WATER SUPPLY PROJECT
WOODLAND-DAVIS
CLEAN WATER AGENCY (WDCWA)
OFF-SITE PIPELINES

OFF-SITE RAW WATER PIPELINE
PLAN AND PROFILE
STA 68+00 TO STA 80+00

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DAVIS WOODLAND WATER SUPPLY PROJECT
WOODLAND-DAVIS
CLEAN WATER AGENCY (WDCWA)
OFF-SITE PIPELINES

PLAN AND PROFILE
STA 80+00 TO STA 92+00

AS SHOWN

VERIFY SCALE

BAR IS ONE INCH ON
ORIGINAL DRAWING.

DATE SEPTEMBER 2014

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WOODLAND-DAVIS
CLEAN WATER AGENCY (WDCWA)
OFF-SITE PIPELINES

STA 92+00 TO STA 104+00

AS SHOWN

VERIFY SCALE

BAR IS ONE INCH ON
ORIGINAL DRAWING.

DATE SEPTEMBER 2014

PROJ	481331
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-
- Figure 10 shows two scales. The top scale is the 'Horizontal Scale in Feet', with markings at 0, 50, 100, and 150. Above this scale is a north arrow pointing upwards. The bottom scale is the 'Vertical Scale in Feet', with markings at 0, 5, 10, and 15.



PLAN AND PROFILE STA 104+00 TO STA 116+00

DAVIS WOODLAND WATER SUPPLY PROJECT
WOODLAND-DAVIS
CLEAN WATER AGENCY (WDCWA)
OFF-SITE PIPELINES

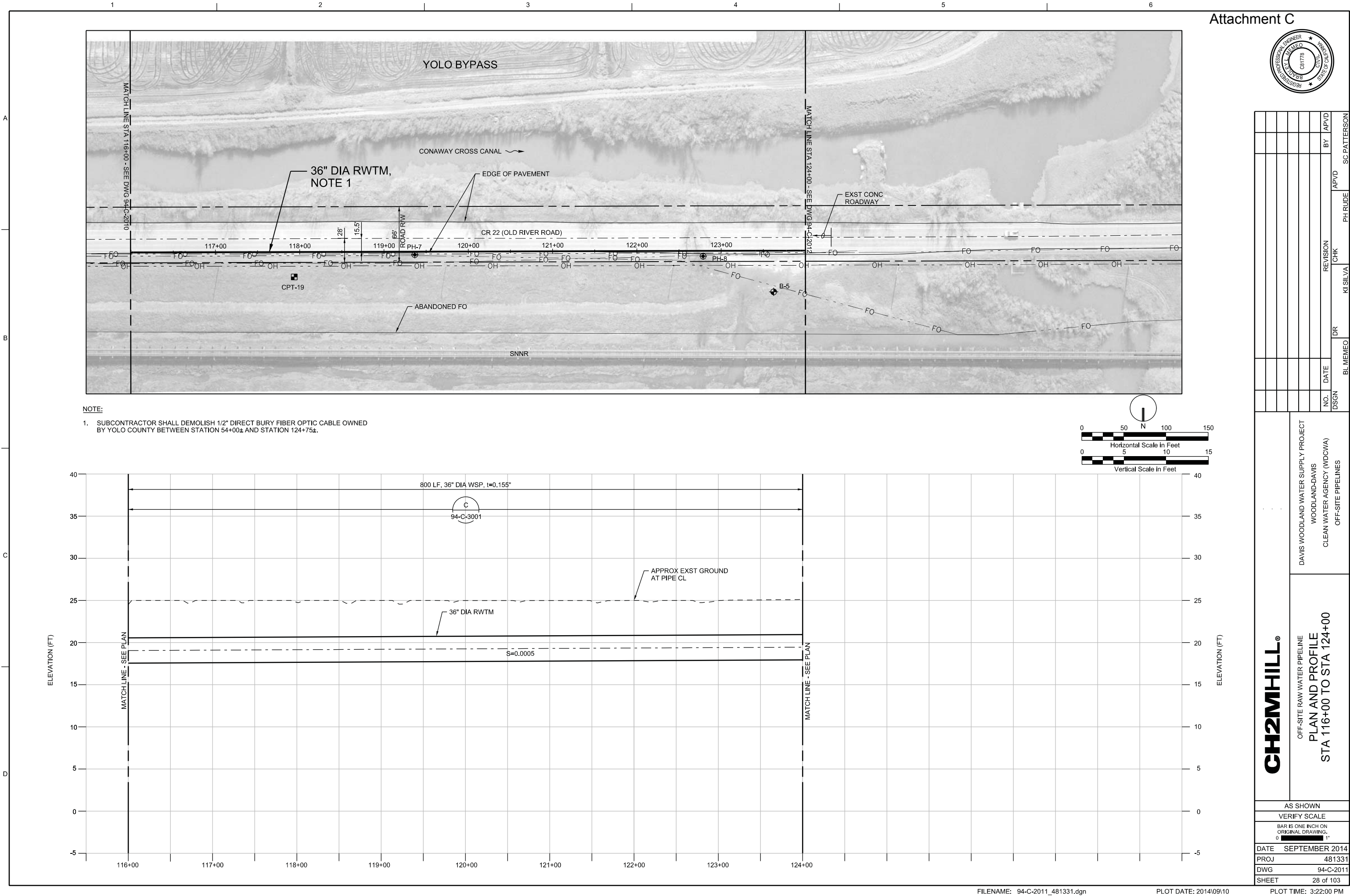
014			
331			
2010			
03			

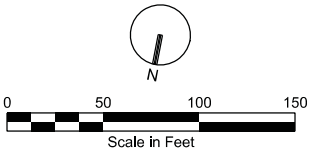
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1. SUBCONTRACTOR SHALL DEMOLISH 1/2" DIRECT BURY FIBER OPTIC CABLE OWNED BY YOLO COUNTY BETWEEN STATION 54+00± AND STATION 124+75±.
2. SEE PIPELINE NOTE 3 ON DWG 01-GP-0003.

CH2MHILL®

PLAN
STA 124+00 TO STA 137+00

DAVIS WOODLAND WATER SUPPLY PROJECT
WOODLAND-DAVIS
CLEAN WATER AGENCY (WDCWA)
OFF-SITE PIPELINES

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[illegible]

'=50'

VERIFY SCALE

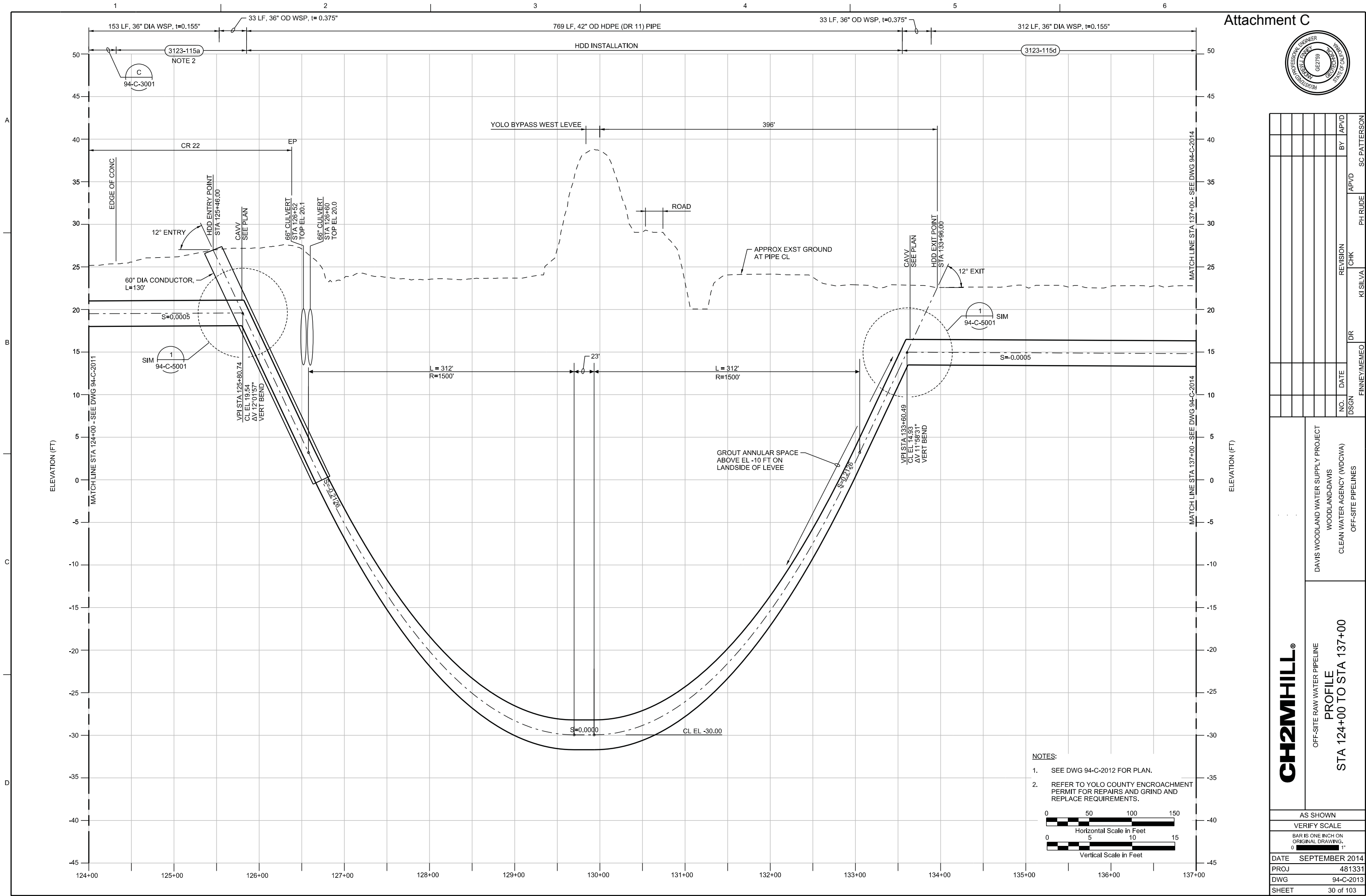
BAR IS ONE INCH ON
ORIGINAL DRAWING.
1"

DATE SEPTEMBER 2014

PROJ	481331
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DWG	94-C-2012
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SHEET 29 of 103






- | NO. | DATE | REVISION | | | BY | AP/D |
|-----|------|---|----------|---------|----|------|
| | | DR | CHK | AP/D | | |
| | | BL MEMEO | KI SILVA | PH RUDE | | |
| | | INSTRUMENT OF PARTIAL SERVICE IS | | | | |
| | | IN PART FOR ANY OTHER PROJECT WITHIN THE VERTICAL JURISDICTION OF CH2M HILL | | | | |
| | | © CH2M HILL | | | | |

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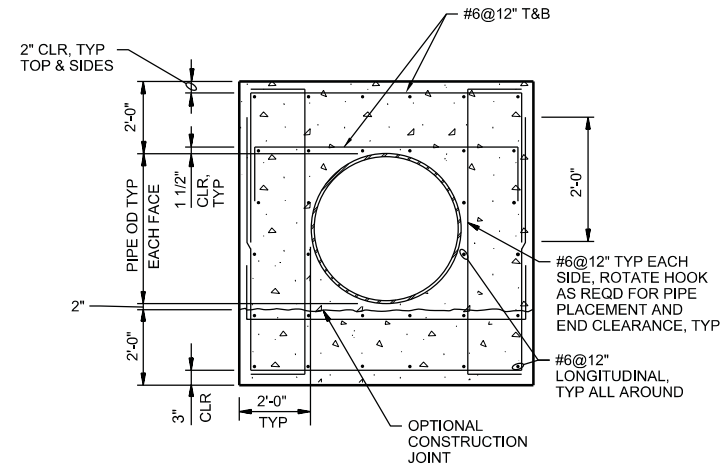
OFF-SITE RAW WATER PIPELINE

ROADWAY SECTIONS

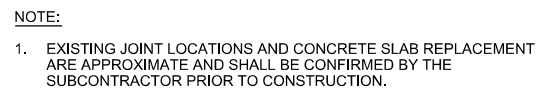
VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING.
0  1"

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OJ 48133
TG 94-C-300
EET 44 of 103

NOT FOR CONSTRUCTION




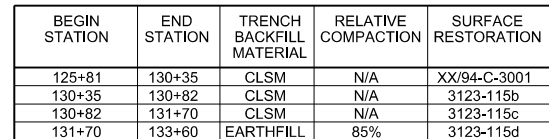
2 DETAIL
NTS



3 **DETAIL**
1"=10'

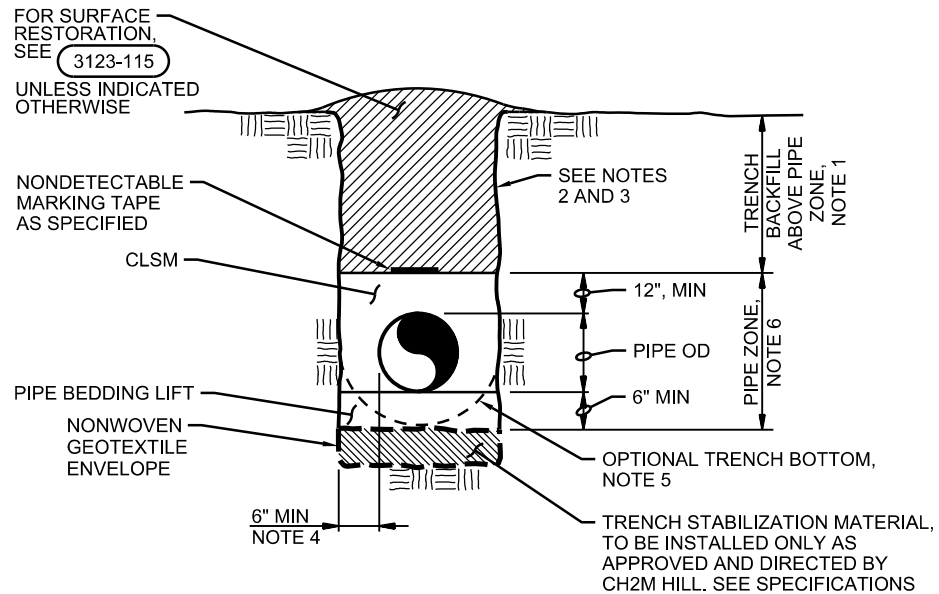
94-C-2004
94-C-2005

<div> <div>  </div> <div> <div>OFF-SITE RAW WATER PIPELINE</div> <div> <div>DAVIS WOODLAND WATER SUPPLY PROJECT</div> <div>WOODLAND-DAVIS</div> <div>CLEAN WATER AGENCY (WDCWA)</div> <div>OFF-SITE PIPELINES</div> </div> </div> </div>		<div> <div>DATE</div> <div>SEPTEMBER 2014</div> </div>	
		<div> <div>PROJ</div> <div>481331</div> </div>	
<div> <div>DATE</div> <div>SEPTEMBER 2014</div> </div>		<div> <div>DWG</div> <div>94-C-5001</div> </div>	
<div> <div>DATE</div> <div>SEPTEMBER 2014</div> </div>		<div> <div>SHEET</div> <div>45 of 103</div> </div>	
<div> <div>DATE</div> <div>SEPTEMBER 2014</div> </div>		<div> <div>SHEET</div> <div>45 of 103</div> </div>	



3123-110.dgn

2014/07/15

**NOTES:**

1. SEE 3123-111 FOR TRENCH BACKFILL MATERIAL AND COMPACTION SCHEDULE.
2. VERTICAL TRENCH WALLS ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY. SUBCONTRACTOR SHALL EXCAVATE AS NEEDED FOR CONSTRUCTION AND SLOPE AND/OR PROVIDE ADEQUATE SHORING FOR SAFETY AND CONFORMANCE, WITH APPLICABLE LOCAL, STATE AND FEDERAL CODES AND REGULATIONS. DO NOT EXCEED AVAILABLE WORK AREA.
3. PIPE ZONE AND BACKFILL MATERIAL AS SHOWN OR SPECIFIED SHALL EXTEND TO THE EDGE OF THE EXCAVATED TRENCH UNLESS SHOWN OTHERWISE.
4. PIPE SHALL BE CENTERED IN TRENCH.
5. THE TRENCH BOTTOM MAY BE ROUNDED, PROVIDED THAT MINIMUM CLEARANCES SHOWN ARE MAINTAINED BETWEEN THE OUTSIDE OF THE PIPE AND THE BOTTOM AND SIDES OF THE TRENCH.
6. CLSM PLACEMENT REQUIREMENTS:
 - A) CLSM SHALL BE VIBRATED IF NECESSARY FOR CLSM TO FLOW UNDER AND AROUND THE PIPE AS SPECIFIED.
 - B) SUPPORT PIPE ON SANDBAGS PRIOR TO PLACING CLSM. LIMIT NUMBER OF SANDBAG SUPPORTS TO 2 PER JOINT.
 - C) REFER TO SECTION 31 23 23.33, CONTROLLED LOW STRENGTH MATERIAL (CLSM) USING NATIVE MATERIALS.

TYPICAL TRENCH SECTION

NTS

WOODLAND-DAVIS CLEAN WATER AGENCY (WDCWA)
DAVIS WOODLAND WATER SUPPLY PROJECT

3123-110