
DRAFT ENVIRONMENTAL ASSESSMENT (11-097)

*FRESNO COUNTY WATER WORKS DISTRICT NO. 18 AND LOWER TULE RIVER
IRRIGATION DISTRICT REQUEST FOR APPROVALS PURSUANT TO THE FRIANT
RANCH SPECIFIC PLAN*

Appendix D

90% Preliminary Construction Designs Pages 1-3

May 2013



Know what's below.
Call before you dig.



UTILITY LOCATION NOTE

CONTRACTOR SHALL UTILIZE AN ELECTRONIC LOCATING DEVICE TO IDENTIFY EXISTING UTILITIES WITHIN AREAS PROPOSED FOR EXCAVATION. UTILITIES THAT ARE IDENTIFIED AS BEING IN POSSIBLE CONFLICT WITH, OR IN CLOSE PROXIMITY TO PROPOSED EXCAVATION SHALL BE POTHOLED AND EXACT LOCATIONS DETERMINED PRIOR TO FULL-SCALE EXCAVATION. ANY POTENTIAL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER UPON DISCOVERY.



LOCATION MAP

SPECIAL NOTE

WHERE UNDERGROUND AND SURFACE STRUCTURES ARE SHOWN ON THE PLANS, THE LOCATIONS, DEPTH AND DIMENSIONS OF STRUCTURES ARE BELIEVED TO BE REASONABLY CORRECT, BUT ARE NOT GUARANTEED. SUCH STRUCTURES ARE SHOWN FOR THE INFORMATION OF THE CONTRACTOR, BUT INFORMATION SO GIVEN IS NOT TO BE CONSTRUED AS A REPRESENTATION THAT SUCH STRUCTURES WILL, IN ALL CASES, BE FOUND WHERE SHOWN, OR THAT THEY REPRESENT ALL OF THE STRUCTURES WHICH MAY BE ENCOUNTERED.

SITE SAFETY AND PROTECTION NOTES

THE DUTY OF THE ENGINEER, OWNER OR ITS AGENTS TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE AND THE UNDERTAKING OF INSPECTIONS OR THE GIVING OF INSTRUCTIONS AS AUTHORIZED HEREIN IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF THE ACTUAL CONSTRUCTION NOR MAKE THE ENGINEER, OWNER OR ITS AGENTS RESPONSIBLE FOR PROVIDING A SAFE PLACE FOR THE PERFORMANCE OF WORK BY THE CONTRACTOR, SUBCONTRACTORS, OR SUPPLIERS, OR FOR ACCESS, VISITS, USE, WORK, TRAVEL OR OCCUPANCY BY ANY PERSON.

THE CONTRACTOR SHALL HAVE AT THE WORK SITE, COPIES OR SUITABLE EXTRACTS OF CONSTRUCTION SAFETY ORDERS, ISSUED BY CAL-OSHA. CONTRACTOR SHALL COMPLY WITH PROVISIONS OF THESE AND ALL OTHER APPLICABLE LAWS, ORDINANCES AND REGULATIONS. THE CONTRACTOR MUST COMPLY WITH PROVISIONS OF THE SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION, PROMULGATED BY THE SECRETARY OF LABOR UNDER SECTION 107 OF THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT, AS SET FORTH IN TITLE 29 C.F.R.

TO PROTECT THE LIVES AND HEALTH OF CONTRACTOR'S EMPLOYEES UNDER THE CONTRACT, THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT PROVISIONS OF THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" ISSUED BY THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC., AND SHALL MAINTAIN AN ACCURATE RECORD OF ALL CASES OF DEATH, OCCUPATIONAL DISEASE, AND INJURY REQUIRING MEDICAL ATTENTION OR CAUSING LOSS OF TIME FROM WORK, ARISING OUT OF AND IN THE COURSE OF EMPLOYMENT OR WORK UNDER THE CONTRACT.

THE CONTRACTOR ALONE SHALL BE RESPONSIBLE FOR THE SAFETY, EFFICIENCY, AND ADEQUACY OF CONTRACTOR'S FACILITIES, APPLIANCES, AND METHODS AND FOR ANY DAMAGE, WHICH MAY RESULT FROM THEIR FAILURE OR THEIR IMPROPER CONSTRUCTION, MAINTENANCE OR OPERATION.

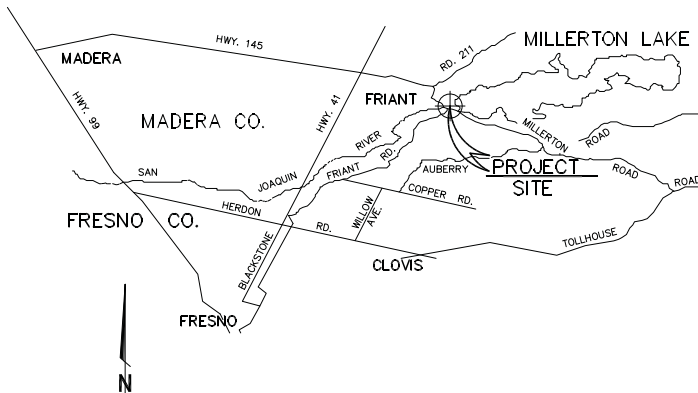
THE CONTRACTOR AGREES THAT IT SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THE REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, PRIVOST & PRITCHARD CONSULTING GROUP, AND THEIR RESPECTIVE AGENTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF OWNER, ENGINEER, OR THEIR RESPECTIVE AGENTS.

THE OWNER AND ITS AGENTS' SITE RESPONSIBILITIES ARE LIMITED SOLELY TO THE ACTIVITIES OF THEIR EMPLOYEES ON SITE. THESE RESPONSIBILITIES SHALL NOT BE INTERFERED BY ANY PARTY TO MEAN THAT THE OWNER OR ITS AGENTS HAVE RESPONSIBILITY FOR SITE SAFETY, SAFETY IN, ON, OR ABOUT THE SITE IS THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR ALONE. THE CONTRACTOR'S METHODS OF WORK PERFORMANCE, SUPERINTENDENCE AND THE CONTRACTOR'S EMPLOYEES, AND SEQUENCING OF CONSTRUCTION ARE ALSO THE SOLE AND EXCLUSIVE RESPONSIBILITIES OF THE CONTRACTOR ALONE.

FRESNO COUNTY WATER WORKS DISTRICT NO. 18

FRESNO COUNTY, CA

SLIPLINED 24-INCH ABANDONED PIPELINE FOR NEW WATER TREATMENT PLANT RAW WATER CONNECTION TO FRIANT DAM



VICINITY MAP

GENERAL NOTES

- FRESNO COUNTY WATER WORKS DISTRICT NO. 18 (WWD 18) 559-822-3575 SHALL BE CONTACTED AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK ON OR NEAR EXISTING DISTRICT FACILITIES.
- USED MATERIAL, REJECTS, MISFITS, OR SECONDS, ETC. ARE NOT ACCEPTABLE FOR USE ON FACILITIES.
- ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THESE PLANS.
- CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS (POTHOLE) OF ALL EXISTING FACILITIES PRIOR TO COMMENCING WORK. CALL UNDERGROUND SERVICE ALERT (USA) AT 8-1-1. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION TO ALLOW FOR TIMELY DECISIONS TO BE MADE ON NECESSARY RELOCATIONS AND/OR GRADE CHANGES TO PROPOSED AND/OR EXISTING FACILITIES. FIELD CHANGES (INCLUDING RELOCATIONS, GRADE CHANGES, AND/OR CONFLICTS WITH OTHER FACILITIES) ASSOCIATED WITH INTERSECTING FACILITIES, SHALL BE APPROVED BY THE ENGINEER.
- ALL CAST-IN-PLACE CONCRETE STRUCTURES SHALL BE FORMED INSIDE AND OUT AND CONCRETE VIBRATED SUFFICIENTLY TO PROVIDE FOR SMOOTH SURFACED WALLS/FLOORS WITHOUT VOIDS AND HONEYCOMBS.
- WWD 18 SHALL INSPECT ALL WORK PHASES ON FACILITIES FOR CONFORMANCE TO WWD 18 SPECIFICATIONS. REINFORCING SHALL NOT BE ENCASED IN CONCRETE WITHOUT PRIOR WWD 18 INSPECTIONS. LIKEWISE, CONCRETE SHALL NOT BE COVERED WITH EARTH PRIOR TO WWD 18 INSPECTION.
- CONCRETE DESIGN MIX SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. ALL CONCRETE SHALL HAVE A 28-DAY MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI UNLESS OTHERWISE SPECIFIED.
- ALL STEEL PIPE AND FITTINGS SHALL BE FURNISHED WITH A SHOP APPLIED HEAT FUSION EPOXY COATING ON THE INTERIOR AND EXTERIOR, UNLESS OTHERWISE INDICATED. ALL OTHER EXPOSED STEEL SHALL BE PAINTED WITH A PRE-TREATMENT PRIMER, AN UNDERCOAT AND A FINAL COAT OF PAINT IN ACCORDANCE WITH WWD 18 SPECIFICATIONS.
- ALL NUTS, BOLTS, AND WASHERS USED TO SECURE UNDERGROUND FITTINGS SHALL BE CARBON STEEL. AFTER INSTALLATION, ALL STEEL HARDWARE SHALL BE COATED WITH A RUST PREVENTATIVE, WRAPPED WITH 4 MIL POLYETHYLENE SHEETING, AND SECURE WITH PVC TAPE. SEE SHEET 6 FOR BOLT TORQUE TABLE.
- THRUST RESTRAINTS TO BE PROVIDED AT ALL PIPELINE BENDS, WHETHER OR NOT SHOWN ON THE PLANS.
- ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE HEALTH AND SAFETY LAWS OF THE STATE OF CALIFORNIA AND CAL/OSHA STANDARDS.
- CONCRETE VAULTS AND BOXES MAY BE PURCHASED FROM A PRECAST MANUFACTURER OR CONTRACTOR MAY CONSTRUCT THE STRUCTURES IF STRUCTURAL CALCULATIONS AND DESIGN IS APPROVED BY WWD 18 AND THE ENGINEER.
- ALL EXCESS MATERIAL AND/OR DEBRIS SHALL BE REMOVED UPON COMPLETION OF INSTALLATION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE DUST CONTROL AT ALL TIMES. A DUST CONTROL PERMIT FROM SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (SVAPCD) MAY BE REQUIRED. CONTRACTOR TO APPLY DUST PALLIATIVE AND SITE SWEEPING AS REQUIRED TO CONTROL FUGITIVE DUST FROM CONSTRUCTION.
- CONTRACTOR SHALL PREPARE, FILE, AND CONFORM WITH ALL PROVISIONS OF A STORM WATER POLLUTION PREVENTION PLAN, IF NEEDED. CONTRACTOR SHALL INCLUDE ALL EFFORTS RELATED TO PROVIDING, INSTALLING, AND MAINTAINING STORMWATER BMP'S IN ITS BID FOR THE WORK.
- THE EXISTING 44-INCH STEEL FISH HATCHERY LINE SHALL BE RETAINED AND PROTECTED SUCH THAT ITS OPERATION WILL NOT BE EFFECTED DURING THE CONSTRUCTION OF THE NEW SLP LINE RAW WATER LINE FOR WWD 18.
- THE EXISTING 6-INCH STEEL WWD 18 RAW WATER LINE SHALL BE RETAINED AND PROTECTED SUCH THAT ITS OPERATION WILL NOT BE EFFECTED DURING THE CONSTRUCTION OF THE NEW SLP LINE RAW WATER LINE FOR WWD 18.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER TRENCH AND EXCAVATION SHORING. THE PROPOSED METHODS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE BEGINNING OF CONSTRUCTION. THE ENGINEER SHALL IMMEDIATELY STOP ALL CONSTRUCTION ACTIVITIES IF THE APPROVED METHODS ARE NOT USED BY THE CONTRACTOR. ALL TRENCH EXCAVATIONS SHALL BE SUPPORTED IN ACCORDANCE WITH BUREAU OF RECLAMATION (RECLAMATION) CONSTRUCTION SAFETY STANDARDS (CSS) PARAGRAPHS 22.2 THROUGH 22.5.
- CONTRACTOR SHALL NOT OPERATE ANY VALVES WITHOUT PRIOR CONSENT OF RECLAMATION AND/OR ORANGE COVE IRRIGATION DISTRICT (OOD).
- CONTRACTOR SHALL COORDINATE WORK NEAR OOD HYDROPLANT WITH OOD TO PREVENT INTERFERENCE OR INTERRUPTION OF OPERATIONS. UNDER NO CIRCUMSTANCES SHALL CONTRACTOR BE ALLOWED TO INTERRUPT OPERATIONS RELATED TO OOD OR THE FISH HATCHERY.
- FOR SECURITY PURPOSES, CONSTRUCTION HOURS SHALL BE LIMITED TO 6:30AM - 3:00PM, M-F, EXCLUDING HOLIDAYS. WORK DESIRED OUTSIDE OF THESE HOURS WILL REQUIRE REIMBURSEMENT TO USBR FOR OVERTIME STAFFING.
- PROJECT IS NOT FUNDED BY USBR, THEREFORE PROVISIONS SHALL BE MADE TO PRECLUDE CONTRACTOR FROM FILING PRE-LENS AND/OR LENS AGAINST US GOVT. RELATIVE TO WORK CONTEMPLATED HEREIN.
- CONTRACTOR'S ACTIVITIES SHALL NOT INTERFERE WITH OR REQUIRE SHUTDOWN OF EXISTING ON-SITE FACILITIES OR OPERATIONS.
- CONTRACTOR SHALL BE REQUIRED TO HAVE A CALIFORNIA GENERAL "A" LICENSE.

APPROVALS

WATERWORKS DISTRICT 18	DATE
U.S. BUREAU OF RECLAMATION	DATE
FRIANT WATER AUTHORITY	DATE

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	COVER SHEET
2	HYDRAULIC PROFILE
3	PLAN VIEW
4	DETAILS
5	DETAILS
6	DETAILS

THIS DRAWING IS THE PROPERTY OF PRIVOST & PRITCHARD CONSULTING GROUP, INC. (PPC) AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF PPC. ANY UNAUTHORIZED USE OF THIS DRAWING IS PROHIBITED AND WILL BE CONSIDERED A VIOLATION OF THE PROFESSIONAL ENGINEERING ACT. PPC ASSUMES NO LIABILITY FOR ANY DAMAGE, LOSS, OR INJURY RESULTING FROM THE USE OF THIS DRAWING. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. PPC DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED HEREIN. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. PPC DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED HEREIN.

PRELIMINARY NOT FOR CONSTRUCTION 90% DRAFT SUBMITTAL	DATE
REVISION	BY
NO.	DATE

NEW RAW WATER CONNECTION AT FRIANT DAM FRESNO COUNTY WATER WORKS DISTRICT NO. 18 FRESNO COUNTY, CA	COVER SHEET
---	-------------

PRIVOST & PRITCHARD
CONSULTING GROUP, INC.
AN Equal Opportunity Employer
1000 N. G Street, Suite 100
Fresno, CA 93703
(559) 440-2700 FAX (559) 440-2710
FRESNO, CA 93703

DESIGN ENGINEER:	LICENSE NO:
DRAFTED BY:	CHECKED BY:
SCALE: AS SHOWN	DATE: 2011-11-02
JOB NO: 13281106	DWG. NO:
SHEET	1 of 6

GENERAL REQUIREMENTS (PER USBR CHECKLIST)

A PIPELINE OPERATIONS AND MAINTENANCE AGREEMENT (PERMIT OR LICENSE) SHALL BE SECURED FROM THE USBR PRIOR TO ENTRY ONTO THE PRIANT DAM PROPERTY, FACILITIES, OR LANDS FOR THE PURPOSES OF ALTERING OR MODIFYING THE LANDS RIGHT-OF-WAY OR FACILITIES.

1. THE PLAN FOR THE EXECUTION OF THE WORK MUST BE APPROVED BY USBR PRIOR TO ENTRY TO THE PRIANT DAM PROPERTY. (PRELIMINARY ACCESS CAN BE OBTAINED FOR TESTS AND EVALUATION BY OBTAINING A LETTER OF CONSENT TO ENTER).
2. THE APPLICANT WILL AGREE TO HOLD HARMLESS THE UNITED STATES OR THE DISTRICT FROM ANY LOSS, CLAIM OR LIABILITY WHICH MAY ARISE BY REASON OF THE APPLICANT'S ENDOACHMENT.
3. A MINIMUM OF TWO WEEKS ADVANCE NOTICE MUST BE GIVEN TO USBR, RELEVANT WATER AUTHORITY AND/OR THE WATER DISTRICT BEFORE WORK COMMENCES.

4. THE TYPE AND WEIGHT OF THE EQUIPMENT WORKING ADJACENT TO THE STRUCTURES MUST BE APPROVED BY USBR.
5. NO BUILDING OR PORTIONS OF BUILDINGS SHALL BE BUILT ON THE CANAL RIGHT-OF-WAY OR USBR LANDS.

6. UPON COMPLETION OF THE WORK, THE APPLICANT WILL FURNISH TO USBR TWO (2) SETS OF REPRODUCIBLE "AS BUILT DRAWINGS", ACCURATELY REFLECTING ALL APPROVED CHANGES, SIGNED AND SEALED BY A REGISTERED ENGINEER.
7. HORIZONTAL CONTROL IS BASED ON THE PIPELINE CENTERLINE STATIONING.

8. THROUGHOUT THE PERIOD OF CONSTRUCTION OR RELATED ACTIVITIES, THE APPLICANT OR HIS CONTRACTOR SHALL MAINTAIN IN FORCE POLICIES OF BUILDER'S RISK & COMMERCIAL/GENERAL LIABILITY (MINIMUM \$2,000,000), AND SHALL NAME THE USBR AND DISTRICT AND/OR AUTHORITY AS ADDITIONALLY INSURED, AND CARRY WORKERS COMPENSATION POLICIES FOR EMPLOYEES AS REQUIRED BY LAW.
9. APPLICANT'S ENDOACHMENT MUST NOT INTERFERE WITH USBR AUTHORITY OR DISTRICTS' OPERATION, MAINTENANCE OR REPAIR OF USBR FACILITIES.

10. ADEQUATE FENCING, PER USBR APPROVAL WILL BE PROVIDED BY THE APPLICANT TO PREVENT TRESPASS AND UNAUTHORIZED ACCESS TO THE PIPELINE PROJECT AND OTHER FACILITIES.
11. LAND AND FACILITIES WITHIN AND ADJACENT TO THE RIGHT-OF-WAY MUST BE RESTORED TO PRE-PROJECT CONDITIONS BY THE APPLICANT UPON THE COMPLETION OF ALL WORK TO THE SATISFACTION OF USBR, AUTHORITY AND/OR DISTRICT.

12. ALL PLANS, SPECIFICATIONS, AND CALCULATIONS ARE SUBJECT TO USBR REGULATIONS, STANDARDS AND GUIDELINES, AND FINAL APPROVAL.
13. NO EXCAVATION, GRADING, OR CONSTRUCTION ON USBR LANDS OR RIGHT-OF-WAY SHALL COMMENCE UNLESS AND UNTIL ALL APPLICABLE REQUIREMENTS OF NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) AND CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) HAVE BEEN COMPLIED WITH, AND ALL NECESSARY DISTRICT, AUTHORITY, COUNTY, CITY, OR STATE PERMITS HAVE BEEN ISSUED.

14. IN ADDITION TO THE ADMINISTRATIVE COSTS, THE APPLICANTS WILL ALSO BE REQUIRED TO PAY A LAND USE FEE BASED ON THE MARKET VALUE OF THE USE AS DETERMINED BY RECLAMATION PRIOR TO ISSUANCE. CODE OF FEDERAL REGULATION TITLE 43, PART 429 DESCRIBES THE PROCEDURES THAT WILL BE USED TO PROCESS AND RECOVER THE VALUE OF RIGHT-OF-USE AND ADMINISTRATIVE COSTS INCURRED IN PERMITTING SUCH USE.

GRADING NOTES

1. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT AND PERFORM ALL GRADING AND EARTHWORK PROCEDURES TO INSTALL STRUCTURES AND PIPELINES.
2. OVEREXCAVATE AND RECOMPACT TO A MINIMUM DEPTH OF 12" UNDER AND WITHIN 5' OF ALL STRUCTURES TO A MINIMUM 90% RELATIVE COMPACTION.
3. NATIVE SOIL MATERIALS, EXCLUSIVE OF DEBRIS, LESS THAN 3 INCHES IN MAXIMUM DIMENSION, AT THE PROPER MOISTURE RANGE, AND CONTAINING LESS THAN 0.3% ORGANICS BY WEIGHT MAY BE USED AS ENGINEERED FILL.
4. ENGINEERED FILL SHOULD BE PLACED IN LOOSE LIFTS NO THICKER THAN 8 INCHES, AND UNIFORMLY MOISTURE CONDITIONED TO AT OR ABOVE OPTIMUM MOISTURE CONTENT AT THE TIME OF COMPACTION, AND RE-COMPACTED TO AT LEAST 90% RELATIVE COMPACTION.
5. THE MAXIMUM LABORATORY DENSITY AT OPTIMUM MOISTURE CONTENT WILL BE DETERMINED BY TEST METHODS IN CONFORMANCE WITH ASTM D1557. A MINIMUM OF 90% OF THE LABORATORY STANDARD MAXIMUM DENSITY WILL BE REQUIRED.
6. WITHIN 2' OF ANY STRUCTURE, HAND TAMPERS OR OTHER ACCEPTABLE MEANS EXCLUDING HEAVY EQUIPMENT SHALL BE USED TO COMPACT BACKFILL. THE SURFACE AREA AROUND ANY STRUCTURE SHALL BE GRADED TO CONVEY SURFACE RUNOFF AWAY FROM THE STRUCTURE. THE EARTHWORK SHALL BE CONSTRUCTED IN A CONTINUOUS MANNER ACROSS PROPOSED STRUCTURE LOCATIONS.
7. MOISTURE CONTENT OF COMPACTED TRENCH BACKFILL MATERIAL SHALL NOT BE GREATER THAN 3% ABOVE OPTIMUM MOISTURE CONTENT.
8. PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, UNDERPINNING, OR OTHER METHODS REQUIRED TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO EXCAVATIONS.
9. COMPACTED EARTHFILL AND SUBGRADE SHALL MEET MINIMUM 90% RELATIVE DENSITY (ASTM D1-1557) AND BE ACCOMPISHED BY MANUALLY OPERATED COMPACTORS AROUND STRUCTURES AND TO A MINIMUM DEPTH OF 12 INCHES OVER TOP OF PIPE.
10. ALL TRENCH EXCAVATION SHALL COMPLY WITH THE MOST CURRENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS (OSHA).

MATERIALS NOTES & SPECIFICATIONS

SUP LINING OF EXISTING PIPE

1. SYSTEM DESCRIPTION -
2. DESIGN REQUIREMENTS - SLIP LINE PIPE MATERIALS MINIMUM PRESSURE RATED TO 200 PSI.
3. SUBMITTALS -
 - A. SHOP DRAWINGS - DETAIL DRAWINGS OF SPECIALTY FITTINGS AND CONNECTIONS TO EXISTING PIPING.
 - B. MANUFACTURER'S DETAILED PRODUCT DATA - COMPLETE INFORMATION ON PIPELINE MATERIALS, FITTINGS AND SPECIALS, PHYSICAL PROPERTIES, DIMENSIONS, MAXIMUM RECOMMENDED EXTERNAL GROUT PRESSURE, AND MINIMUM BENDING RADIUS OR MAXIMUM JOINT ANGULAR DEFLECTION, INCLUDE MANUFACTURER'S CERTIFICATE OF COMPLIANCE WITH SPECIFICATIONS FOR PROPOSED MATERIALS.
 - C. PRODUCT DATA - SUBMIT MANUFACTURER'S CATALOG DATA FOR PIPES, JOINTS, AND CASSETS.
4. DELIVERY, STORAGE, AND HANDLING - PREVENT INJURY OR ABRASION TO PIPE DURING LOADING, TRANSPORTATION, AND UNLOADING. DO NOT DROP PIPE FROM CARS OR TRUCKS, NOR ALLOW PIPE TO ROLL DOWN SLOES WITHOUT PROPER RESTRAINING ROPES. USE SUITABLE PADS, STRIPS, SKIDS, OR BLOCKS FOR EACH PIPE DURING TRANSPORTATION AND WHILE AWAITING INSTALLATION IN THE FIELD.

REMOVE PIPE WITH CUTS, GASHES, NICKS, ABRASIONS, OR ANY SUCH PHYSICAL DAMAGE WHICH IS DEEPER THAN 10 PERCENT OF THE WALL THICKNESS FROM THE SITE AND REPLACE WITH UNDamaged PIPE AT NO ADDITIONAL COST TO WWD 18.

5. SEQUENCING AND SCHEDULING - SUBMIT PLAN FOR FINAL APPROVAL OF CONSTRUCTION SEQUENCES AND SCHEDULES PRIOR TO COMMENCING CONSTRUCTION.
6. MATERIALS - SECURE WRITTEN PRODUCT APPROVAL FROM WWD 18 ENGINEER BEFORE COMMENCING ANY WORK.

- A. POLYETHYLENE PIPE - PROVIDE PIPE MANUFACTURED TO MEET THE REQUIREMENTS OF HOPE DR9, 18" DIA. (PE4710, ASTM F714/D3035, AWWA C902/C906, NSF-61).

PROVIDE PIPE MANUFACTURED OF HIGH OR LOW DENSITY POLYETHYLENE COMPOUND HAVING A MINIMUM CELL CLASSIFICATION OF 445474C AS DEFINED BY ASTM D3350.

IF FUSION IS REQUIRED, PERFORM FUSION JOINTS BY A TECHNICIAN WITH A MINIMUM OF 5 YEARS EXPERIENCE. DESIGN ALL JOINTS SO THAT NEITHER THE OUTSIDE DIAMETER OF THE PIPE IS INCREASED NOR THE INTERNAL DIAMETER OF THE PIPE IS DECREASED AT THE JOINT.

- B. GROUT MATERIALS AND MIXES - ESTABLISH PROPOSED GROUT MATERIAL AND MIXES, EQUIPMENT, PLACEMENT PROCEDURES, APPLICATION, SET-UP, AND CRITERIA THAT THE GROUTING OPERATIONS MEET. PROVIDE A GROUTING SYSTEM HAVING SUFFICIENT GAUGES, MONITORING DEVICES, AND TEST TO DETERMINE THE EFFECTIVENESS OF THE GROUTING OPERATION. DOCUMENT COMPLIANCE WITH THE PROJECT AND SLIP LINER PIPE SPECIFICATION DESIGN LIMITS. MODIFY THE GROUTING OPERATION IF THE GROUTING DOES NOT CONFORM AS SUBMITTED AND NOT APPROVED BY THE WWD 18 ENGINEER.

GROUTING MATERIALS INCLUDE, BUT ARE NOT LIMITED TO, NEAT CEMENT GROUT (CEMENTATION) AND CELLULAR GROUT (CELLULAR CONCRETE), CONFORMING TO ASTM C150/C150M, ASTM C796 AND ASTM C869/C869M.

- C. PROVIDE GROUT WITH A MINIMUM PENETRATION RESISTANCE OF 100 PSI IN 24 HOURS WHEN TESTED IN ACCORDANCE WITH ASTM C403/C403M AND A MINIMUM COMPRESSIVE STRENGTH OF 300 PSI IN 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C493. DESIGN GROUT MIX WITH A DENSITY THAT WILL NOT FLOAT THE SLIP LINER PIPE WHILE MAINTAINING AN APPARENT VISCOSITY AS TESTED IN ACCORDANCE WITH ASTM C939. VERIFY THE DENSITY IN CONFORMANCE WITH ASTM C138/C138M OR BY OTHER METHODS AS APPROVED BY THE WWD 18 ENGINEER.

7. EXECUTION

- A. PREPARATION - COMPLETE THE FOLLOWING PREPARATIONS. THE WWD 18 AND USBR MAKES NO GUARANTEE REGARDING THE INFORMATION, DATA, PHYSICAL CONDITION OF THE UNDERGROUND FACILITIES OR EXISTING PIPE LINES. BEFORE COMMENCING WITH ANY WORK, OR ORDERING ANY MATERIALS, PHYSICALLY MEASURE THE EXISTING PIPE LINE AND REVIEW THE CCTV INSPECTION (PROVIDED BY WWD 18) TO VERIFY THAT THE REHABILITATION SPECIFIED HEREIN IS APPROPRIATE.
- B. SAFETY - CARRY OUT ALL OPERATIONS IN STRICT ACCORDANCE WITH ALL APPLICABLE OSHA STANDARDS. PARTICULAR ATTENTION IS DIRECTED TO THOSE SAFETY REQUIREMENTS INVOLVING ENTRY INTO A CONFINED SPACE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH OSHA STANDARDS AND REGULATIONS PERTAINING TO ALL ASPECTS OF THE WORK.
- C. PRE-LINING CLEANING - IT IS THE CONTRACTOR'S RESPONSIBILITY TO WASH, CLEAN AND VERIFY BY CCTV VIDEO THE EXISTING PIPE BEFORE LINING. PLAN WORK AS NEEDED AFTER REVIEW OF THE CCTV INSPECTION VIDEO AND CCTV REPORTS (PROVIDED BY WWD 18).
- D. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PULL A MANDREL WITH A MINIMUM LENGTH OF ONE JOINT OF PIPE COMPLETELY THROUGH EACH PROPOSED REHABILITATED PIPE LINE. USE A MANDREL OF THE SAME OUTSIDE DIAMETER AS THE SLIP LINING PIPE.
- E. IF A PRE-INSTALLATION PULL-THROUGH WITH A MANDREL REVEALS AN OBSTRUCTION (SUCH AS HEAVY SOLIDS, DROPPED JOINTS, OR COLLAPSED PIPE) IN THE EXISTING PIPE THAT CANNOT BE REMOVED BY PIPE CLEANING EQUIPMENT, PERFORM A POINT REPAIR PRIOR TO SLIP LINING AS APPROVED BY WWD 18. COMPLETE ALL POINT REPAIRS, MOBILIZE EQUIPMENT AND MATERIAL, AND INFORM WWD 18 OF THE IMPENDING WORK SCHEDULES FOR LINER INSTALLATIONS.
- F. IF A PRE-INSTALLATION PULL-THROUGH WITH A MANDREL RESULTS IN SIGNIFICANT SURFACE CUTS AND GOUGES PIPE SPACERS SHALL BE CONSIDERED. SUBMITTAL OF SPACERS AND REVISED INSTALLATION PROCEDURES PER MANUFACTURER'S RECOMMENDATIONS FOR APPROVAL BY WWD 18 SHALL BE REQUIRED PRIOR TO INSTALLATION.

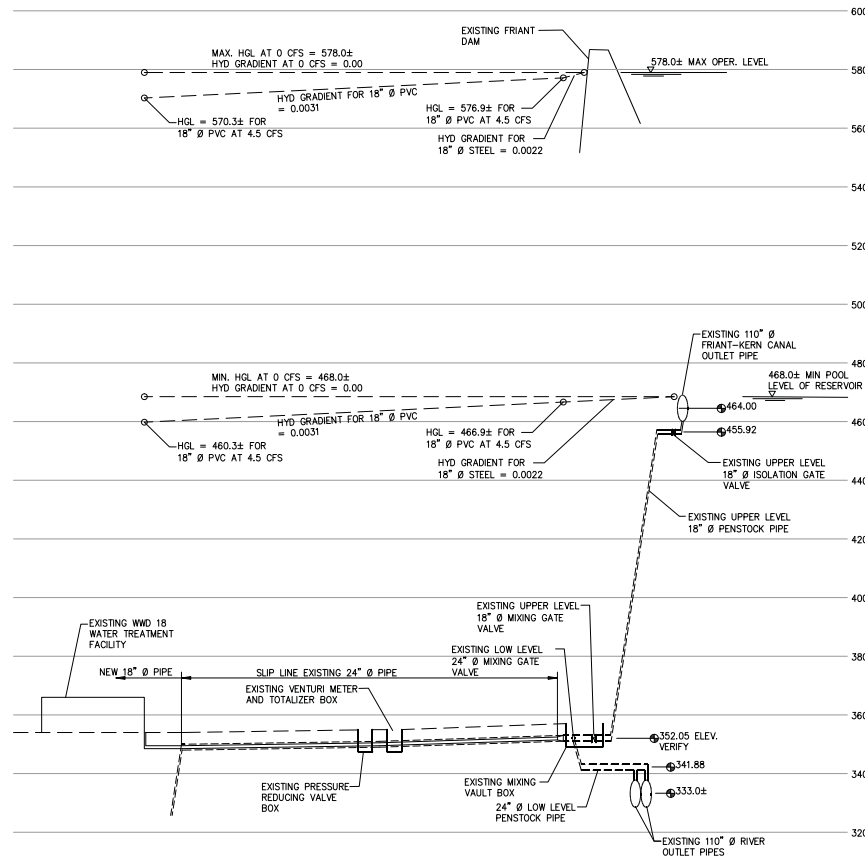
- B. INSTALLATION
ADHERE TO THE FOLLOWING INSTALLATION PROCEDURES UNLESS OTHERWISE SPECIFIED BY WWD 18:
 - A. REMOVE AND REPLACE FENCES, REPAIR DAMAGE TO PAVED SURFACES, ETC. DUE TO INSTALLATION AND MOVEMENT OF THE MANDREL, CLEANING, OR OTHER TRUCKS AND/OR ERECTION OF THE EQUIPMENT.
 - B. POINT REPAIRS, DEEMED NECESSARY AT ANY POINT ON THE EXISTING PIPELINE BY WWD 18, REQUIRE LOCATING THE INSERTION PIT AT THE POINT OF REPAIR LOCATION.
 - C. FOR HOPE SLIP LINE PIPE, ALLOW THE INSTALLED PIPE TO RELAX AND COOL FOLLOWING INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED TIME, BUT NOT LESS THAN 24 HOURS, PRIOR TO ANY RECONNECTION OF LINES, GROUTING THE ANNULUS, OR BACKFILLING THE INSERTION PIT.
 - D. PRIOR TO INTRODUCTION OF GROUT AND BACKFILLING, PERFORM A DYE WATER TEST ON THE LINER PIPE TO TEST THE BULKHEADS AT EACH END FOR LEAKS. PLACE GROUT WITHIN 72 HOURS OF SLIP LINING.
 - E. PRESSURE TEST NEW PIPE AND FITTINGS @ MIN. 150 PSI. COMPLY WITH ASTM F2164 AND AWWA MANUAL OF PRACTICE M20 CHAPTER 9. IF THE TEST SECTION FAILS THIS TEST, THE CONTRACTOR SHALL REPAIR OR REPLACE ALL DEFECTIVE MATERIALS AND/OR WORKMANSHIP AT NO ADDITIONAL COST TO THE OWNER.
 - F. AFTER ALL WORK IS COMPLETED, PROVIDE WWD 18 WITH VIDEO TAPE SHOWING POST-INSTALLATION CONDITIONS INCLUDING THE RESTORED CONNECTIONS. CORRECT ALL DEFECTS DISCOVERED DURING THE POST-INSTALLATION TELEVISION INSPECTION. AT NO COST TO WWD 18, BEFORE THE WORK UNDER CONTRACT WILL BE CONSIDERED FOR SUBSTANTIAL COMPLETION.

NOTES: HYDRAULIC PROFILE

MAXIMUM OPERATING PRESSURE
THE MAXIMUM HYDRAULIC GRADIENT LINE (HGL) WAS DETERMINED USING THE MAXIMUM OPERATING LEVEL OF THE MILLERTON LAKE AT THE SPILLWAY FOR AN ELEVATION OF 578.0±. AT STATIC CONDITION THE HGL WILL ALSO BE AN ELEVATION OF 578.0± AT THE WWD NO. 18 TREATMENT PLANT.

MINIMUM OPERATING PRESSURE
THE MINIMUM HYDRAULIC GRADIENT LINE (HGL) WAS DETERMINED USING THE MINIMUM OPERATING LEVEL OF THE MILLERTON LAKE AT THE PRIANT-HEIN CANAL OUTLET FOR AN ELEVATION OF 468.0±. AT STATIC CONDITION THE HGL WILL ALSO BE AN ELEVATION OF 468.0± AT THE WWD NO. 18 TREATMENT PLANT.

TYPICAL OPERATIONS PRESSURE USING THE HIGH LEVEL PENSTOCK
THE HGL USING THE HAZEN-WILLIAMS FORMULA, C=120, 18" FOR 490 FEET (EXISTING PIPELINE) AND C=140, 18" FOR 2150 FEET (SPLINE AND DIRECT BURIED PIPE) AND A FLOW OF 4.5 CFS. THE HEAD LOSS IN THE EXISTING 18" PIPE = 1.1 FEET AND THE HEAD LOSS IN THE NEW 18" PIPE = 6.8 FEET. THE TOTAL COMBINED HEAD LOSS = 7.7 FEET. THE ACTUAL LINE WILL BE LOCATED WELL BELOW THE ACTUAL HYDRAULIC GRADE LINE.



HYDRAULIC PROFILE

N.T.S.



Know what's below.
Call before you dig.

CAUTION: This drawing is for informational purposes only. It is not to be used for construction or other purposes without the approval of the engineer of record. The engineer of record is responsible for the accuracy and completeness of this drawing. The engineer of record is not responsible for the accuracy and completeness of any information obtained from this drawing. The engineer of record is not responsible for the accuracy and completeness of any information obtained from this drawing.

NO.	REVISION	BY	DATE
1	PRELIMINARY NOT FOR CONSTRUCTION 90% DRAFT SUBMITTAL		

NEW RAW WATER CONNECTION AT PRIANT DAM FRESNO COUNTY WATER WORKS DISTRICT NO. 18 FRESNO COUNTY, CA	HYDRAULIC PROFILE
--	-------------------

DESIGNED BY: PRITCHARD & ASSOCIATES, INC. 1000 N. G STREET, SUITE 100, FRESNO, CA 93703-1000 (559) 444-2710 FAX (559) 444-2711

DESIGN ENGINEER:	
LICENSE NO:	
DRAFTED BY:	JSD
CHECKED BY:	
SCALE:	AS SHOWN
DATE:	2011-11-02
JOB NO:	13281106
DWG. NO:	
SHEET	

2 of 6

9/7/2012 1:42 PM C:\Users\Fred\Desktop - 13281106 - slip\13281106 - slip hydraulic Profile.dwg - Adam Lee



SUPLINER LOCATION AT WATERWORKS DISTRICT NO. 18 CONNECTION (A/4)

RECEIVER PIT AT ANGLE POINT (B/4)

CONTRACTOR STAGING AREA SIZE TO BE DETERMINED USE FOR PIPING, EQUIPMENT & SOIL STOCKPILES (RESTORE TO PRIOR CONDITION WHEN COMPLETE)

SUPLINER LOCATION AT USBR LAYDOWN PAD (C/4)

DEMOLITION OF EXISTING VENTURI METER VAULT & PRIV VAULT (E/5)

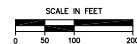
EXISTING 6\"/>

EXISTING 44\"/>

EXISTING 6\"/>

RECEIVER PIT AT EXISTING MIXING VALVE VAULT (D/5)

EXISTING 18-INCH PIPELINE: EXCAVATE SOIL AND PROVIDE CLEANING, COATING, AND CORROSION PROTECTION WRAPPING ON PIPE/SOIL INTERFACE LOCATIONS



STAGING AREA NOTES:

- A. The Contractor shall limit the location of his storage of equipment and materials outside of the project site. The Contractor shall make his own arrangements for space that may be required and bear all associated costs.
- B. The Contractor shall provide any additional temporary storage required for the protection of equipment and materials as recommended by manufacturers of such materials.
- C. Storage and protection:
1. Materials and equipment shall be stored in accordance with supplier's written instructions, with seats and labels intact and legible. Exposed metal surfaces of valves, fittings and similar materials shall be coated with accordance with manufacturer's recommendations to prevent corrosion.
 2. Storage shall be arranged to provide access for inspection. The Contractor shall periodically inspect to assure materials and equipment are undamaged and are maintained under required conditions.
- D. UTILITIES:
1. Electrical Service – Contractor to provide.
 2. Water – Contractor to coordinate with WWD 18.
 3. Sanitary Facilities – Contractor to provide. No onsite bathrooms are available for use.

THESE PLANS AND SPECIFICATIONS ARE PRELIMINARY AND NOT FOR CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

PRELIMINARY
NOT FOR CONSTRUCTION
90% DRAFT SUBMITTAL

NEW RAW WATER CONNECTION
AT FRIANT DAM
FRESNO COUNTY WATER WORKS DISTRICT NO. 18
FRESNO COUNTY, CA

PROVOST & PRITCHARD
AN ENGINEERING AND CONSULTING COMPANY
FRESNO, CALIFORNIA
509/440-2700 FAX 509/440-2715
WWW.PROVOST-PRITCHARD.COM

DESIGN ENGINEER:

LICENSE NO.:

DRAFTED BY: JSD CHECKED BY:

SCALE: 1" = 50'
DATE: 2011-11-02
JOB NO: 13281106
DWG. NO:
SHEET

3 OF 6