

Appendix D

90% Preliminary Construction Designs Set 1 (pages 1-3)



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.

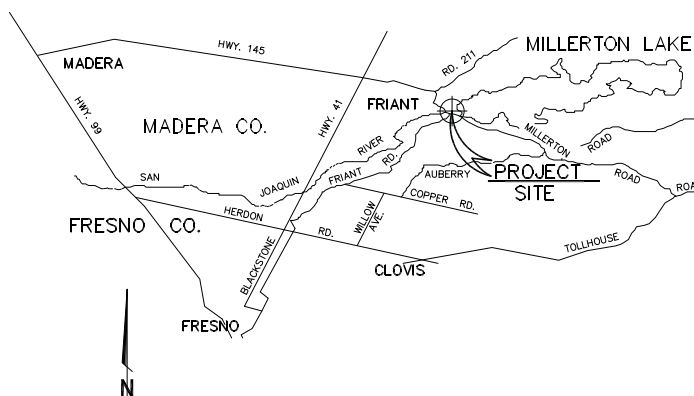
THE CONTRACTOR AGREES THAT IT SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE 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 LINES 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

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PRELIMINARY
NOT FOR CONSTRUCTION
90% DRAFT SUBMITTAL

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 200
Fresno, CA 93703
TEL: 559/440-2700 FAX: 559/440-2701
WWW.PRIVOST-PRITCHARD.COM

DESIGN ENGINEER:

LICENSE NO:

DRAFTED BY: JSD CHECKED BY:

SCALE: AS SHOWN

DATE: 2011-11-02

JOB NO: 13281106

DWG. NO:

SHEET

1 of 6

A PIPELINE OPERATIONS AND MAINTENANCE AGREEMENT (PERMIT OR LICENSE) SHALL BE SECURED FROM THE USBR PRIOR TO ENTRY ONTO THE FRIANT 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 FRIANT DAM PROPERTY. (PRELIMINARY ACCESS CAN BE OBTAINED FOR TESTS AND EVALUATION BY OBTAINING A LETTER OF CONSENT TO ENTER.)

- ## 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, SHALL BE REUSED IN PLACE 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 OF EXCAVATION AND BACKFILL EQUIPMENT SHALL BE USED TO COMPACT THE SURFACE AREA AROUND ANY STRUCTURE SHALL BE GRADED TO CONVEY SURFACE RUNOFF AWAY FROM THE STRUCTURE. STRUCTURES SHALL BE PROTECTED BY 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 EXCAVATION. GRADE EXCAVATION TOP PERIMETER TO PREVENT SURFACE WATER RUN-OFF INTO EXCAVATIONS.
9. COMPACTED EARTHFILL AND SUBGRADES SHALL MEET MINIMUM 90% RELATIVE DENSITY (ASTM D-1557) AND BE ACCOMPANIED BY MANUALLY OPERATED COMPACTORS AROUND STRUCTURES AND TO MINIMIZE THE RISK OF DAMAGE TO THE TOP OF PIPE.
10. ALL TRENCH EXCAVATION SHALL COMPLY WITH THE MOST CURRENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS (OSHA).

SLIP 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 GASKETS.
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 BE DRAGGED WITHOUT PROTECTIVE INTERVENEING SURFACES. USE SUITABLE PADS, STRIPS, SHIMS, OR BLOCKS FOR EACH PIPE DURING TRANSPORTATION AND WHILE WAITING 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 WDM 18.
5. SEQUENCING AND SCHEDULING - SUBMIT PLAN FOR FINAL APPROVAL OF CONSTRUCTION SEQUENCES AND A SCHEDULE PRIOR TO COMMENCING CONSTRUCTION.
6. MATERIALS - SECURE WRITING PRODUCT APPROVAL FROM WDM 18 ENGINEER BEFORE COMMENCING ANY WORK.
- D. POLYETHYLENE PIPE - PROVIDE PIPE MANUFACTURED TO MEET THE REQUIREMENTS OF HOPE DR9, 18" DIA. (PE4710, ASTM F714/33035, ANNA C290/C906, NSF-6).
- PROVIDE PIPE MANUFACTURED OF HIGH OR LOW DENSITY POLYETHYLENE COMPOUND HAVING A MINIMUM CELL CLASSIFICATION OF 445474CA 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.
- E. GROUT MATERIALS AND MIXES - ESTABLISH PROPOSED GROUT MATERIALS AND MIXES, EQUIPMENT, PLACEMENT PROCEDURES, APPLICATION, SET-UP, AND CRITERIA THAT THE GROUTING OPERATIONS MEET. PERFORM A GROUTING SYSTEM HAVING SUFFICIENT GAUGES, MONITORING DEVICES, AND TESTS TO DETERMINE THE EFFECTIVENESS OF THE GROUTING OPERATION. MONITOR GROUT MIX WITH A DENSITY THAT THE SLP LINE PIPE IS FULLY ENCLOSED IN GROUT. IF THE GROUTING OPERATION OR THE GROUTING DOES NOT CONFORM AS SUBMITTED AND NOT APPROVED BY THE WDM 18 ENGINEER.
- GROUTING MATERIALS INCLUDE, BUT ARE NOT LIMITED TO, NEAT GEMENT GROUT (CEMENTATION) AND CELLULAR GROUT (CELLULAR CEMENTATION), CONFORMING TO ASTM C150/C150M, ASTM C796 AND ASTM C869/C869M.
- PROVIDE GROUT WITH A MINIMUM PNEUMATIC RESISTANCE OF 100 PSI IN 24 HOURS WHEN TESTED IN ACCORDANCE WITH ASTM C403/C403M AND A MINIMUM COMPRESSIVE STRENGTH OF 300 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C496. DESIGN GROUT MIX WITH A DENSITY THAT WILL NOT FLOW THE SLP LINE PIPE WHILE MAINTAINING AN APPARENT VISCOSITY AS TESTED IN ACCORDANCE WITH ASTM C150/C150M. THE GROUTING OPERATION SHALL BE IN ACCORDANCE WITH ASTM C138/C138M OR BY OTHER METHODS AS APPROVED BY THE WDM 18 ENGINEER.

7. EXECUTION

1. PREPARATION - COMPLETE THE FOLLOWING PREPARATIONS. THE WWO 18 AND USW MAKES NO GUARANTEE REGARDING THE INFORMATION, DATA, PHYSICAL CONDITION OF THE UNDERGROUND OR EXISTING PIPE. THE CONTRACTOR SHALL COMMENCEMENT WITH ANY WORK, OR ORDERING ANY MATERIALS, PHYSICALLY MEASURE THE EXISTING PIPE LINE AND REVIEW THE CCTV INSPECTION REPORT (WWO 18 AND USW 12) TO DETERMINE THE LOCATION OF THE EXISTING PIPE. THE CONTRACTOR SHALL CARRY OUT ALL OPERATIONS IN STRICT ACCORDANCE WITH ALL APPLICABLE OSHA STANDARDS. PARTICULAR ATTENTION IS DIRECTED TO THOSE SAFETY REQUIREMENTS INVOLVING THE USE OF A CONFINED SPACE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THEMSELVES WITH OSHA STANDARDS AND REGULATIONS PERTAINING TO ALL ASPECTS OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES BY CCTV VIDEO THE EXISTING PIPE BEFORE UNFILING, PLAN WORK AS NEEDED AFTER REVIEW OF THE CCTV INSPECTION VIDEO AND CCTV REPORTS (PROVIDED BY WWO 18).
2. EXISTING PIPE REPAIRS - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIRS WITH A MINIMUM LENGTH OF ONE JOINT OF PIPE COMPLETELY THROUGH EACH PROPOSED REHABILITATED PIPE LINE. USE AS MUCH OF THE SAME SIZE AND TYPE OF PIPE AS POSSIBLE. THE CONTRACTOR SHALL BE RESPONSIBLE IF A PRE-INSTALLATION PLUG-THROUGH WITH A MANHOLE RESULTS AN OBSTRUCTION (SUCH AS A CRACK, CRACK, DROPPED JOINT, OR OTHER OBSTRUCTION) THAT CANNOT BE REPAIRED OR REMOVED BY PIPE CLEANING EQUIPMENT, PERFORM A POINT REPAIR EQUIPMENT TO SLIP LINING. APPROVED BY WWO 18, COMPLETE ALL POINT REPAIRS, MOBILIZE EQUIPMENT AND MATERIAL, AND REMOVE ALL EXCESS MATERIAL FROM THE SITE.
3. PRE-INSTALLATION PLUG-THROUGH WITH A MANHOLE RESULTS IN SIGNIFICANT SURFACE CUTS OR DISPLACEMENTS OF THE EXISTING PIPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION PROCEDURES PER MANUFACTURER'S RECOMMENDATIONS FOR APPROVAL. BY WWO 18 SHALL BE REQUIRED PRIOR TO INSTALLATION.
8. INSTALLATION
- A. ADVANCE THE FOLLOWING INSTALLATION PROCEDURES UNLESS OTHERWISE SPECIFIED BY WWO 18.
1. REMOVE AND REPLACE FENCES, REPAIR DAMAGE TO PAVED SURFACES, ETC. DUE TO INSTALLATION AND MOVEMENT OF THE MANHOLE, CLEANING, OR OTHER TRUCKS AND/OR EJECTION OF THE EXISTING PIPE.
2. POINT REPAIRS, DEMOLISHED NECESSARY AT ANY POINT ON THE EXISTING PIPELINE BY WWO 18, INCLUDING THE EXISTING PIPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIRS OF THE EXISTING PIPE. FOR HOPE SLIP LINE PIPE, ALLOW THE INSTALLED PIPE TO RELAX AND COLD FOLLOWING INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED TIME, BUT NOT LESS THAN 24 HOURS PRIOR TO ANY REPAIRS TO THE EXISTING PIPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSERTION PIT.
3. PROTECT THE PRODUCTION OF GROUT AND BACKFILLING, PERFORM A DYE WATER TEST ON THE LINE PIPE TO TEST THE BULKHEADS AT EACH END FOR LEAKS. PLACE WITHIN TWO HOURS OF SLIP LINE.
4. PRESSURE TEST NEW PIPE AND FITTINGS @ MIN. 150 PSI. COMPLY WITH ASTM F2164 AND ASWWA MANUAL OF PRACTICE MASS CHAPTER 8. IF THE TEST SECTION FAILS THIS TEST, THE CONTRACTOR SHALL REPAIR OR REPLACE THE TEST SECTION AT HIS OWN RISK AND WITHOUT ADDITIONAL COST TO THE OWNER.
5. IF THE WORK IS COMPLETED, PROVIDE WWO 18 WITH VIDEO TAP SHOWING POST-INSTALLATION CONDITIONS INCLUDING THE RESTORED CONNECTIONS, CORRECT ALL DEFECTS DISCOVERED DURING THE POST-INSTALLATION TELEVISION INSPECTION, AT NO COST TO WWO 18, BEFORE THE WORK BEGINS ON THE NEXT CONTRACT.

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 FRIANT-KERN CANAL OUTLET FOR AN ELEVATION OF 468.0±. AT STATIC CONDITION THE HGL WILL ALSO BE AN ELEVATION OF 468.0± AT THE WWO NO. 18 TREATMENT PLANT.

TYPICAL OPERATIONS PRESSURE USING THE HIGH LEVEL PENSTOCK
THE HGL USING THE HAZEN-WILLIAMS FORMULA, $C=120$, $\phi=18"$ FOR 490 FEET (EXISTING PIPELINE) AND $C=140$, $\phi=18"$ FOR 2150 FEET (SULPHINE 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 = 6.6 FEET. THE TOTAL COMBINED HEAD LOSS = 7.7 FEET. THE ACTUAL LINE WILL BE LOCATED WELL BELOW THE ACTUAL HYDRAULIC GRADE LINE.



NTS



Know what's below.
Call before you dig.

**PRELIMINARY
FOR CONSTRUCTION
DRAFT SUBMITTAL**

NEW RAW WATER CONNECTION
AT FRIANT DAM
FRESNO COUNTY WATER WORKS DISTRICT N

PROVOST & PRITCHARD
An Employee Owned Company
288 WEST CROMBELL AVENUE
FRESNO, CALIFORNIA 93711-6962
509/440-2700 FAX 509/440-2715

DESIGN ENGINEER

LICENSE NO:

DRAFTED BY:

SCALE: AS SHOWN

DATE:	2011-11-02
JOB NO:	13281106

DWG. NO:
SHEET

2 OF 6

NO.	TELEVISION	DATE	ENTERING UNDER NO.
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99	10	10	10
100	10	10	10



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 seals and labels intact and legible. Exposed ends of 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.

SLIPLINER LOCATION AT
USBR LAYDOWN PAD

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[illegible]

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