

**TECHNICAL SPECIFICATIONS
FOR
DONNER CREEK RESTORATION PROJECT
SITES 2-4**

Prepared for:

**Truckee River Watershed Council
Truckee, CA**



Prepared by:



Prepared for

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SECTION 01050

FIELD ENGINEERING

PART 1 GENERAL

1.1 DESCRIPTION

- A. This section describes how to use and protect the establishment of control points, benchmarks, and grade staking implemented for the layout and installation of the Project.
- B. The reference points to be provided by the Engineer will include referenced monuments and elevation benchmarks in the vicinity of the project.
- C. The Contractor will meet onsite with the Engineer and Licensed Land Surveyor to discuss extent and positioning of grade stakes and information to be recorded on the stakes to adequately locate and construct the wetland swales at Site 3 and vegetated (grass-lined) swales at Site 4. Site 2 will largely be a field fit effort, so grade stakes are not anticipated to be needed.

1.2 SURVEY AND STAKING REQUIREMENTS

- A. Preserve all reference and control points. After beginning construction, replace all destroyed or disturbed initial reference or control points necessary to the Project.
- B. Survey and establish controls and staking shall be within the tolerances as follows.

	<u>Horizontal</u>	<u>Vertical</u>
Permanent Reference Points	0.05 feet	0.05 feet
Excavation and Earthwork	0.20 feet	0.20 feet

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- A. Units: The work described in this section will not be measured for payment.

4.2 Basis of Payment

- A. Payment: No direct payments for the work described under this section will be made. The Contractor shall include consideration for this item in the bid price for other items of the Contract.

END OF SECTION

SECTION 01110

SUMMARY OF WORK AND DEFINITION OF BID ITEMS

PART 1 GENERAL

1.1 DESCRIPTION

The Donner Creek Restoration (DCR) Project Sites 2 – 4 sponsored by the Truckee River Watershed Council is intended to enhance, and stabilize riparian and wetland areas, provide water quality treatment and protection, and enhance geomorphic function and riparian habitat. The Project is located within the Town of Truckee in Nevada County, CA, and portions of Sites 2 - 4 are located within the Caltrans Right of Way (ROW).

The construction activities detailed below provide a partial overview of the project's scope and should not be considered an exhaustive list of all the tasks and responsibilities that the Contractor is expected to fulfill. In accordance with the project Specifications and Plans the Contractor is required to execute all work, both those explicitly mentioned in this summary and within the Contract Documents, to ensure the successful and complete execution of the project in accordance with the specified requirements and standards.

The work at **Site #2** consists of the following:

1. Mobilization to Temporary Staging Area
2. Installing temporary traffic control signage
3. Installing construction limits fencing
4. Installing silt fencing
5. Installing temporary construction signage
6. Protecting a temporary access road
7. Installing a temporary fish screen and diversion dam on Donner Creek
8. Installing a temporary gravity pipeline for diversion structure
9. Installing an equipment crossing over diversion pipe
10. Installing a diversion outlet energy dissipator
11. Salvaging on-site boulders
12. Salvaging mature willows
13. Lowering the east channel gravel bar
14. Reconstructing a portion of the west bank of Donner Creek per Engineer field direction using imported boulders and salvaged excavated material from gravel bar and other onsite materials
15. Installing boulder bendway weirs per field direction by the Engineer
16. Importing river rock and installing two 10-foot-wide rocked sections per field direction by Engineer
17. Installing willows concurrently with rock slope protection within the Caltrans ROW
18. Revegetation

The work at **Site #3** consists of the following:

1. Mobilization to Temporary Staging Area
2. Constructing or installing stabilized construction entrance
3. Installing construction limit fencing
4. Installing silt fencing
5. Installing two sand/oil/trash interceptors
6. Removing and replacing chain link fence sections for access
7. Excavating, off hauling and properly disposing of the spoils material
8. Revegetation

The work at **Site #4** consists of the following:

1. Mobilization to Temporary Staging Area
2. Installing temporary traffic control devices and signage
3. Executing a temporary shoulder closure along I-80 EB
4. Installing silt fencing
5. Removing and replacing chain link fence sections for access
6. Constructing temporary staging areas
7. Constructing temporary access ramps
8. Installing temporary fish screen and diversion dam(s) on Donner Creek
9. Installing temporary gravity pipeline for diversion structure
10. Installing diversion outlet energy dissipator
11. Importing rootwad logs for weir structures, secured by TRWC
12. Installing rootwad bendway weirs
13. Excavating to create inset floodplain benches and salvaging and locally hauling material to be used as backfill in slope revetments as Site 4 and possibly Site 1 (under separate plans and specs)
14. Reconstructing a portion of the south bank of Donner Creek per Engineer field direction using imported boulders and salvaged excavated material from floodplain bench creation.
15. Excavating and constructing a vegetated (grass-lined) swale in Caltrans ROW and off hauling and properly disposing of the spoils
16. Installing rock checks and rock apron outlet for swale
17. Revegetation

1.2 SPECIAL CONSTRUCTION REQUIREMENTS

- A. Construction is expected to begin July 1, 2024, and be completed by October 15, 2024.
- B. Construction at sites 2 and 4 shall only be conducted after flow rates in Donner Creek at USGS Gage Station 10338700 drop below 100 cubic feet per second. USGS gage station data is available for review at: https://waterdata.usgs.gov/nwis/uv/?Site_no=10338700

- C. Site 3 construction shall be conducted during summer break for the local public school system.
- D. Utility/Infrastructure Discovery: Locate existing structures and utilities prior to construction and maintain them in service except as otherwise specified. Prior to any excavation work the Contractor shall contact Underground Service Alert (USA) to have utilities marked on the ground by the various utility owners. Contractor to pothole and confer with the utilities as needed to determine the exact location of all underground utilities within the project limits and identify any connections that could be disrupted ahead of any excavation work.
- E. Utility/Infrastructure Protection: Contractor shall immediately notify the Engineer of any changed conditions or discrepancies from the plans so that field fit changes may be made in a timely manner. The Contractor shall provide protection and be responsible for and repair any damage to underground utilities caused by the Work at no increase in Contract price.
- F. Potholing: Contractor shall commence potholing to determine the actual location of underground utilities where in close proximity to any excavation work based on USA markings. Underground utilities shall be uncovered to one foot below the pipe where crossing interferences or connections are shown on the plans. Once uncovered the Contractor shall record and clearly mark the depth of the utility at the pothole location and inform the Engineer. Excavations around underground utilities shall be performed using extreme caution to prevent injury to workers or damage to the utilities. All potholes shall be backfilled and compacted.
- G. Interruption of Services: Contractor shall make provisions to accomplish the work of this Contract without undue interference of operation of adjacent facilities. Interruptions to services for the purpose of making or breaking connection shall be made only after consultation with TRWC and Caltrans (if in regard to Caltrans electrical) a minimum of two weeks in advance of connection break and shall be at such time and of such duration as directed.
- H. Changed Conditions: The Contractor shall promptly notify TRWC and the Engineer prior to earth disturbance activities if any of the following is discovered;
 - a. Material that the Contractor believes may be material that is hazardous waste, as defined in Cal Health and Safety Code § 25117, that is required to be removed to a Class I, II or III disposal site in accordance with the law.
 - b. Subsurface or latent physical conditions of the site differing from those indicated.
 - c. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract.
- I. Tree Protection: Any trees outside of the grading limits or not identified for tree protection

within the grading limits that are injured or damaged by the work under this Contract shall be repaired as recommended by TRWC, which may include removal of severely damaged branches or sealing of wounds or cuts.

- J. Storm Water Pollution Prevention Plan (SWPPP): The Contractor shall have a copy of the SWPPP on site and adhere to it at all times during construction.
- K. Spill Prevention and Control: The Contractor shall take any and all precautions to prevent accidental spills during construction. Spill clean up materials and proper disposal containers shall be kept on site where readily accessible. In the event of a spill the Contractor shall immediately contain and prevent leaks and spills from entering any storm drains or surface water drainages or water bodies and properly clean up and dispose of waste and clean up materials in compliance with Federal, state, and local hazardous waste requirements. Contractor shall not wash any spilled materials into the streets, gutters, storm drains, drainages or waterways.
- L. Vehicle/Equipment Maintenance and Fueling: The Contractor shall inspect vehicles and equipment arriving or working on site for any leaking fluids and shall promptly repair or replace any that are leaking. Drip pans shall be immediately placed under the leaks and use of the leaking equipment suspended until repairs are made. The Contractor shall perform maintenance and fueling of vehicles or equipment in designated staging areas a minimum of 50 feet away from any surface water drainage or waterway. The Contractor shall use secondary containment such as a drip pan to catch any leaks or spills anytime that vehicle or equipment fluids are dispensed, changed, or poured. The Contractor shall clean up any leaks or spills of fluids immediately and dispose of the waste and cleanup materials as required for hazardous waste.
- M. Construction Sequence and Schedule: Before initiating construction, Contractor shall confer with TRWC to review sequence of construction operations. Contractor shall provide TRWC with construction progress schedules as required by the Contract.
- N. Hours of Work: Contractor shall perform the Work of the Contract Monday through Friday, between the hours of 7:00 AM and 6:30 PM. Days and hours outside of this may be permitted upon review and approval by TRWC and Caltrans.
- O. Site Conditions: Contractor shall keep highway, roadway, drainage, walkways, and paved areas clean and free of mud and dirt, obstacles, etc. so that normal drainage, vehicular and pedestrian travel may be maintained.
- P. The time intervals for trenching or excavating for Underground Utilities shall be kept to the absolute minimum.
- Q. This project is covered by several regulatory permits and environmental compliance documents secured by the TRWC. The Contractor shall be responsible for complying with the requirements of and maintaining on-site copies of project permits and compliance documents during construction. These permits include the following:

1. CEQA Categorical Exemption for Small Habitat Restoration Projects;
2. USACE Section 404 Nationwide permit;
3. Lahontan Regional Water Quality Control Board Section 401 Water Quality Certification General Order For Small Habitat Restoration Projects;
4. State Water Resources Control Board NPDES Construction General Permit;
5. California Dept. of Fish and Wildlife Section 1653 Habitat Restoration and Enhancement Act Approval;
6. Town of Truckee Grading Permit; and
7. California Department of Transportation (Caltrans) Encroachment Permit.

END OF SECTION

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 DESCRIPTION

- A. Compensation provided for in the Contract is full payment for performing all contract work in a complete and acceptable manner. All risk, loss, damage, or expense arising out of the nature or prosecution of the work is included in the compensation provided by the Contract.
- B. Work under this Contract has been subdivided into “Items,” each item with a “Unit Price” and “Estimated Quantities” or “Lump Sum” Price per 2.1.A below.
- C. Measurement and payment for contract work will be made only for and under those pay items DESIGNATED IN THE SCHEDULE OF ITEMS (BID SHEET). Any and all other work and materials will be considered as included in the payment for the pay items shown. No payment will be made for work performed in excess of that staked, ordered, or otherwise authorized.
- D. The bid items as listed are meant to encompass all construction and work items as called out in the Contract Documents. If an item is not specifically mentioned, it shall be assumed to be included in the most appropriate bid item.
- E. Contractor shall be familiar with the approved SWPPP and all permit conditions for the Project and shall be responsible for any additional costs incurred due to any work stoppage as a result of Contractor’s non-compliance with the SWPPP requirements or permit conditions.

1.2 UNITS OF MEASURE

Payment will be defined by units defined and determined according to measure. Unless otherwise specified, the meanings of the following terms are as follows:

- A. Each (EA). One entire unit, which may consist of one or more parts. The quantity is the actual number of units completed and accepted.
- B. Cubic Feet (CF). Measure of volume.
- C. Cubic Yard (CY). Measure of volume.
- D. Square Feet (SF). Measure on a plane parallel to the surface being measured or horizontal.
- E. Square Yard (SY). Measure on a plane parallel to the surface being measured or horizontal.
- F. Linear Feet (LF). Measure along the horizontal plane.

- G. Lump Sum (LS). Do not measure directly. The bid amount is complete payment for all work described in the contract and necessary to complete the work for that item.

1.3 METHODS OF MEASUREMENT

One of the following methods of measurement for determining final payment is DESIGNATED IN THE SCHEDULE OF ITEMS for each PAY ITEM.

- A. DESIGNATED QUANTITIES (DQ). These quantities denote the final number or units to be paid for under the terms of the contract. They are based upon the original design data available prior to advertising the project. Original design data include the preliminary survey information, design assumptions, calculations, drawings, and the presentation in the contract. Changes in the number of units SHOWN in the SCHEDULE OF ITEMS may be authorized under any of the following conditions:
1. As a result of changes in the work authorized by the TRWC's appointed Engineer (Engineer) or the TRWC's Representative.
 2. As a result of the Engineer or the TRWC's Representative determining that errors exist in the original design that causes a pay item quantity to change by 15 percent or more.
 3. As a result of the contractor submitting to the Engineer or the TRWC's Representative a written request showing evidence of errors in the original design that cause a pay item quantity to change by 15 percent or more. The evidence must be verifiable and consist of calculations, drawings, or other data that show how the designed quantity is believed to be in error.
- B. ACTUAL QUANTITIES (AQ). These quantities are determined for measurements of completed work.
- C. LUMP SUM QUANTITIES (LSQ). These quantities denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, labor to complete the job. They will not be measured.

PART 2 PRODUCTS

2.1 SCHEDULE OF ITEMS

- A. The following table shows the SCHEDULE OF ITEMS (BID SHEET). Note that these specifications cover the bid items for Sites 2-4 (exclude Site 1) plus a proportion of the total mobilization/demobilization and revegetation warranty/maintenance costs at the Contractor's discretion.

**Donner Creek Restoration Project Sites 2-4
Technical Specifications**

Description	UNIT PRICE	UNIT	QUANTITY	COST
Site 1 Staging, Access, Temp. Erosion Control				
Install temporary signage		EA	6	
Install construction limit fence		LF	200	
Install turbidity curtain/reinforced silt fence		LF	215	
Construct temporary access ramp		LS	1	
			Subtotal	
Site 1 Restoration Earthwork				
Salvage onsite boulders		TON	20	
Salvage/import onsite/local rootwads/footer logs		EA	6	
Regrade bank/prep for install		SY	472	
Install Caltrans Class No. 2 backing		CY	12	
Install rootwad revetments		EA	6	
Install boulders and RSP backfill		CY	400	
Remove fill spoils pile/regrade/decompact, place as backfill		CY	50	
			Subtotal	
Site 1 Revegetation				
Salvage willow pole cuttings and prepare for planting		EA	126	
Install willow pole plantings		EA	126	
Purchase containerized plants		EA	140	
Install containerized plants		AC	0.06	
Purchase seed mix		MSF	2.40	
Apply upland seed and purchase and install Coir 70/700		SY	56	
Apply wood mulch		MSF	6	
Irrigate plantings/success guarantee		LS	1	
			Subtotal	
Site 2 Staging, Access, Temp. Erosion Control				
Install temporary signage		EA	6	
Install construction limit fence		LF	630	
Install silt fence		LF	40	
Install in-channel creek diversion and crossing over diversion (includes dewatering)		LS	1	
Install steel plates along access route for sanitary sewer line protection		LS	1	
			Subtotal	
Site 2 Restoration Earthwork				
Rework gravel bar (restore floodplain and secondary channels remove debris pile)		CY	220	
Salvage onsite boulders		TON	11	
Rebuild bank w/ planted rock slope protection (RSP)		CY	330	
Install boulder bendway weirs		EA	5	
			Subtotal	
Site 2 Revegetation				
Salvage willow pole cuttings and prepare for planting		EA	80	
Install willow pole plantings concurrent with RSP		EA	80	
Purchase seed mix		AC	0.28	
Broadcast Revegetation Seed Mix 1 & 2		MSF	5.0	
Scarify and Hydroseed Revegetation Seed Mix 1 & 2		MSF	7.3	
Purchase and Install Coir 70/700		SF	750	
			Subtotal	
Site 3 Staging, Access, Temp. Erosion Control				
Construct stabilized entrance		EA	1	
Install construction limit fence		LF	1430	
Remove (E) chain link fence sections, replace at end		EA	4	
Install silt fence		LF	100	
Potholing		LS	1	
Purchase and install sand/oil interceptor		EA	2	
			Subtotal	
Site 3 Restoration Earthwork				
Excavate, salvage sod and emergent vegetation, grade extended basins		CY	3300	
Off haul excavated material		CY	2000	
Install rock apron swale outlet		EA	1	
			Subtotal	

**Donner Creek Restoration Project Sites 2-4
Technical Specifications**

Description	UNIT PRICE	UNIT	QUANTITY	COST
Site 3 Revegetation				
Reapply salvaged material to finish grade		CY	545	
Salvage willow pole cuttings and prepare for planting		EA	150	
Install willow pole plantings		EA	150	
Purchase seed mix		AC	0.53	
Broadcast Revegetation Seed mix 3		MSF	14.7	
Scarify and Hydroseed Revegetation Seed Mix 2		MSF	8.2	
Purchase and Install Coir 40/400		SF	9800	
			Subtotal	
Site 4 Staging, Access, Temp. Erosion Control				
Install silt fence		LF	933	
Remove (E) chain link fence sections, replace at end		EA	1	
Construct temporary ramps		EA	2	
Install in-channel creek diversion and crossing over diversion (includes dewatering)		LS	1	
Temporary Traffic Control		LS	1	
Potholing		LS	1	
			Subtotal	
Site 4 Restoration Earthwork				
Excavate Floodplain benches		CY	280	
Rebuild south bank (install RSP - includes incorporation of D/S deposited material)		CY	150	
Extend RSP at Lower Site 4		CY	60	
Import rootwad bendway weir logs from TRWC source		LS	1	
Install rootwad bendway weirs		EA	9	
Install grass-lined swale		LF	875	
Install rock check dams within grass-lined swale		LF	9	
Off-haul spoils from bench lowering on Site #4 to Site #1		LS	1	
Off-haul and dispose of spoils from grass-lined swale		CY	140	
Install rock apron swale outlet		EA	1	
			Subtotal	
Site 4 Revegetation				
Salvage willow pole cuttings and prepare for planting		EA	80	
Install willow pole plantings		EA	80	
Purchase seed mix		AC	0.9	
Broadcast Revegetation Seed Mix 1 (Scarify where lowered floodplain)		MSF	16.7	
Hydroseed Revegetation Seed Mix 2 and 4 (Scarify where compacted staging and access)		MSF	22.5	
			Subtotal	
Mobilization/Demobilization				
Mobilization/Demobilization		LS	1	
			Subtotal	
Revegetation Warranty/Maintenance (3 years)				
Revegetation Warranty/Maintenance (2 years)		LS	1	
			Subtotal	
TOTAL				
AC = acres, EA = each, LF = linear feet, MSF = 1000 SF, SY = square yards, BCY = bank cubic yards, CY = cubic yards (loose), SFCA = Square Foot of Contact Area				

PART 3 EXECUTION

Not used.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- A. Units: The work described in this section will not be measured for payment.

4.2 Basis of Payment

- A. Payment: No direct payments for the work described under this section will be made. The Contractor shall include consideration for this item in the bid price for other items of the Contract.

END OF SECTION

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of submittal requirements before and during construction.

1.2 SUBMITTAL AND APPROVAL PROCEDURES

- A. As specified in the individual sections, forward submittals electronically to the Engineer or TRWC's Representative at least 7 days before need for approval. Unless a different number is specified, submit 1 reproducible original and 2 copies of each shop drawing, 2 copies of manufacturer's catalog sheets (cut sheets), 2 specimens of each sample, and 2 copies of all other submittals requested.

1. Shop Drawings: Include the following information with each copy of shop drawings:
 - a. Date
 - b. Date of revisions (when applicable)
 - c. Contractor's certification that shop drawing has been checked for compliance with Contract documents
 - d. Details of fabrication, assembly, and erection, including connections and engagement to contiguous work
 - e. Materials used
 - f. All required dimensions
2. All work to be performed by others shall be identified by Contractor or subcontractor name, discipline, or trade.
3. Samples: Samples shall be large enough to clearly illustrate the functional characteristics and full range of color, texture, or pattern.
4. Manufacturers' Catalog Sheets: Submit only pertinent pages; mark each copy of standard printed data to identify specific products proposed for use.

5. Manufacturer's Installation Instructions: When Contract documents require compliance with manufacturer's printed instructions, provide 1 complete set of instructions to TRWC and keep another complete set of instructions at the project site until substantial completion.
 6. Provide ASTM data sheets for any applied/sprayed erosion control products.
- B. The Engineer reserves the right to require submittals in addition to those called for in individual sections.
- C. Approved Equals:
1. For each item proposed as an *approved equal*, submit supporting data, including:
 - a. Drawings and samples as appropriate
 - b. Comparison of the characteristics of the proposed item with that specified
 - c. Changes required in other elements of the work because of the substitution
 - d. Name, address, and telephone number of vendor
 - e. Manufacturer's literature regarding installation, functionality, operation, and maintenance, including schematics for electrical and hydraulic systems, lubrication requirements, and parts lists. Describe availability of maintenance service, and state source of replacement materials.
- D. Engineer's Review:
1. Any work done or orders for materials or services placed before approval shall be at the Contractor's own risk.
 2. The returned submittal will be marked in one of three ways:
 - a. APPROVED: Acceptable with no corrections.
 - b. APPROVED WITH NOTATIONS: Minor corrections or clarifications required. All comments are clear, and no further review is required. The Contractor shall address all review comments when proceeding with the work.
 - c. DISAPPROVED - RESUBMIT: Rejected as not in accordance with the Contract or as requiring major corrections or clarifications. The Engineer, Engineer's representative or TRWC will identify the reasons for disapproval. The Contractor shall revise and resubmit with changes clearly identified.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- A. Units: The work described in this section will not be measured for payment.

4.2 Basis of Payment

- A. Payment: No direct payments for the work described under this section will be made. The Contractor shall include consideration for this item in the bid price for other items of the Contract.

END OF SECTION

SECTION 01500

MOBILIZATION AND TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 DESCRIPTION

- A. Work shall consist of preparatory work, providing temporary services and facilities required for Contractor's performance of the work of this contract and operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site, and for all other work and operations that must be performed or that cause costs to be incurred prior to beginning work on the various items on the project site.
- B. Work also includes obtaining any necessary permits, insurance, and bonds. The Contractor shall utilize the proposed staging area and temporary access routes as shown on the Plans. Any proposed deviations must be approved by the Engineer and TRWC. At least 30 days prior to mobilization, the Contractor shall submit a Staging and Access plan that includes the following details:
- Any proposed deviations from the access route alignments and staging area configuration;
 - Fuel and chemical storage areas;
 - Materials/equipment staging areas; and
 - Employee parking areas.

1.2 SUBMITTALS

- A. Spill Prevention and Response Plan Submittal: Contractor shall submit at least 7 days prior to construction a Spill Prevention and Response Plan (Plan) to the TRWC and Engineer for review and approval. The Plan that the Contractor shall be prepared to implement needs to include at a minimum the operational and notification guidelines to mitigate any potential spills and effectively address them if they were to occur. The Plan shall also include a list of spill kits or spill response materials and used spill response material containment that will be kept on site and on any vehicles that carry fuel.

PART 2 PRODUCTS

2.1 CONSTRUCTION EQUIPMENT

- A. Erect, equip, operate, and maintain construction equipment in strict accordance with applicable statutes, laws, ordinances, rules, and regulations of authorities having jurisdiction.

2.2 SANITARY FACILITIES

- A. Mobilization shall include sanitary facilities. The Contractor shall furnish and install temporary sanitary facilities for use throughout construction period. This includes containers to dispense drinking water, enclosed toilet facilities and general washing facilities for construction personnel, which complies with OSHA safety and health regulations for these facilities.
- B. All sanitary facilities are to be within the project site.
- C. Sanitary facilities are to be in a staging area located away from natural drainages, streams, and wetlands.
- D. Sanitary facilities are to be maintained and cleaned at least weekly and removed following completion of the Project.

2.3 WATER

- A. A water truck used for dust control shall be capable of meeting any applicable requirements as described below. Water truck supply port shall be equipped with an approval backflow device or air gap.
 - a. Ensure a uniform application of water for optimum moisture content. Avoid excess runoff and minimize water waste.
 - b. Use water truck to keep dust to a minimum at removal site and on haul roads while in use.

PART 3 EXECUTION

3.1 AIR QUALITY

- A. Use water trucks or spray from hoses to control dust.
- B. Streets at the construction ingress/egress when used for hauling shall be swept daily when soils are visibly carried onto public streets.
- C. At the discretion of the Engineer or TRWC's Representative, grading and construction may be prohibited during periods of high winds, which have the potential to result in the generation of windblown dust and sediment not reasonably controllable with standard watering techniques.
- D. Equipment and vehicles shall be maintained in accordance with the manufacturers' specifications to avoid excessive emissions.
- E. Trucks are required to be covered or have a minimum of 1-foot of freeboard and be watered to prevent airborne dust.
- F. Traffic speeds on unpaved roads shall be limited to 10 mph.

3.2 WATER QUALITY

- A. Restoration work and access will take place within sensitive upland and riparian habitat where water quality protection is of utmost importance. Contractor shall remain within all access and construction limits.
- B. All stockpiles inactive for greater than 14 days or prior to a storm are to be enclosed by a filter barrier and tarped.
- C. Before beginning construction activities, such as grading or excavating, Contractor shall install temporary structures to guide runoff away from the work area and to capture eroded material before it reaches natural watercourses. The measures shall be in accordance with the approved SWPPP.
- D. Contractor shall implement spill prevention measures, including:
 - 1. Training workers to avoid and manage spills.
 - 2. Preventing construction and maintenance materials from entering surface waters and groundwater.
 - 3. Having adequate spill kits and absorbent materials and cleaning up spills immediately and notifying the Engineer or TRWC's Representative of spills.
 - 4. Servicing vehicles offsite or only in designated equipment staging areas.
 - 5. Immediately repairing or removing leaking vehicles from the work area.

3.4 STAGING AND STORAGE AREAS

- A. All staging areas to be located, marked in the field, and approved at the discretion of the Engineer or TRWC's Representative. No staging or storage activities will be permitted until the location of a staging area is approved.

3.5 SECURITY

- A. Contractor is responsible for security of this Project, during entire time of Contract. Make good all damages to work and loss of materials due to vandalism or theft, within this responsibility.

3.6 MAINTENANCE OF TEMPORARY FACILITIES

- A. Keep refuse and recycling containers covered with working lids and latches and secure container latches at the end of each workday. All trash containers must be bear-proof.
- B. Ensure erosion and sediment control structures remain effective throughout excavation and grading operations. Inspect erosion and sediment control structures daily and before,

during, and after each significant rainfall. Promptly repair all breaches.

3.7 REMOVAL OF FACILITIES

- A. All temporary facilities shall be removed prior to final inspection at the end of the Project or by October 15th with the exception of those authorized to remain by the TRWC's Representative.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- A. Units: Mobilization work will be part of a Lump Sum under Schedule of Items.

4.2 Basis of Payment

- A. The method of measurement will be designated in the SCHEDULE OF ITEMS.
- B. The mobilization lump sum will be paid as follows:
 - 1. If applicable, bond premiums will be reimbursed according to FAR clause 52.232-5, Payment Under Fixed-Price Construction Contracts, after receipt of evidence of payment.
 - 2. Fifty percent of the lump sum, not to exceed 5 percent of the original contract amount, will be paid following completion of 5 percent of the original contract amount, not including mobilization.
 - 3. Payment of the remaining portion of the lump sum, up to 10 percent of the original contract amount, will be paid following completion of 10 percent of the original contract amount, not including mobilization.
 - 4. Any portion of the lump sum in excess of 10 percent of the original contract amount will be paid after final acceptance.

END OF SECTION

SECTION 1600

PRODUCT STORAGE AND HANDLING REQUIREMENTS

PART 1 GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of the general procedures for handling, storing, and protecting material and equipment.

1.2 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of materials in accordance with construction schedules; coordinate to avoid conflict with work and conditions at the site. Deliver materials in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

1.3 STORAGE AND PROTECTION

- A. Store materials in staging areas designated in the plans or designated by the Engineer or the TRWC's Representative.
- B. Store materials in accordance with manufacturer's instructions, with seals and labels accessible for inspection.
- C. Exterior Storage:
 - 1. Store products subject to damage by the elements in weather tight enclosures.
 - 2. Store fabricated products above the ground, on blocking or skids; prevent soiling or staining. Cover products subject to damage or deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.
 - 3. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- A. Units: The work described in this section will not be measured for payment.

4.2 Basis of Payment

- A. Payment: No direct payments for the work described under this section will be made. The Contractor shall include consideration for this item in the bid price for other items of the Contract.

END OF SECTION

SECTION 01770

CLOSEOUT PROCEDURES

PART 1 GENERAL

1 .1 DESCRIPTION

- A. The work of this section consists of final site cleanup, closeout submittals, and final inspection procedures.

1 .2 SUBMITTALS

- A. Project Record Drawings in electronic and hard copy, consisting of clear and legible delineations and notations on existing design sheets.
- B. Guarantees, Warranties and Bonds
- C. Spare parts and material
- D. Closeout Reports

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3 .1 SITE CLEANUP

- A. Before scheduling the final inspection, remove all tools, equipment, surplus materials, construction debris, and rubbish. Replace or refinish fencing, gates, or other infrastructure that are damaged due to the work of this contract to previous condition as directed by TRWC's Representative.

3.2 PROJECT RECORD DRAWINGS

- A. The Contractor is responsible for maintaining one complete full-size set of contract drawings. Clearly mark changes, deletions, and additions. Show additions in red, deletions in green, and special instructions in blue.
- B. Keep record drawings current. Make record drawings available to the TRWC's Representative for inspection at the time of progress payment requests. If project record drawings are not current, TRWC may retain the progress payment.

- C. On completion of the total project, the Contractor shall submit complete record drawings. Include all shop drawings, sketches, and additional drawings that are to be included in the final set, with clear instructions showing the location of these drawings.

3.3 CLOSEOUT SUBMITTALS

- A. Submit before final inspection request:
 - 1. Project Record Drawings: As specified above.
 - 2. Guarantees, Warranties and Bonds: As specified in individual sections.
 - 3. Spare Parts and Materials: As specified in individual sections.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- A. Units: The work described in this section will not be measured for payment.

4.2 Basis of Payment

- A. Payment: No direct payments for the work described under this section will be made. The Contractor shall include consideration for this item in the bid price for other items of the Contract.

END OF SECTION

SECTION 02040

TEMPORARY TRAFFIC CONTROL

PART 1 GENERAL

1.1 DESCRIPTION

Site 4, located along the Interstate 80 eastbound corridor, will require temporary construction signage and temporary shoulder closure to perform the work. These shoulder closures are expected to last up to two weeks. Interstate 80 is a four-lane highway with a posted speed limit of 65 miles per hour and annual average daily traffic volumes of 31,000 vehicles.

Site 2 will require temporary construction area signage to alert pedestrians and bicyclists of construction activities near the staging area off the shoulder on College Trail Rd and motorists on State Route 89 of trucks entering and existing College Trail Road. The Contractor shall not block access to College Trail Road. The Contractor shall always maintain sidewalk access for pedestrian and bicyclist traffic.

For traffic control procedures and layouts see Caltrans Standard Plans T-10 for shoulder closure on Freeway and Expressways and CA MUTCD Chapter 6H Typical Applications for conventional highways. For shoulder closure policies see CA MUTCD Chapter 6C Temporary Traffic Control Elements and Chapter 6G Type of Temporary Traffic Control Zone Activities. Employees shall wear proper high visibility safety apparel as described in the Caltrans Safety Manual, Chapter 12.

1.2 SUBMITTALS

A. TRAFFIC CONTROL PLAN

The Contractor shall submit a detailed Traffic Control Plan, along with the proposed Construction Schedule, to TRWC, Caltrans and the Engineer for review and approval at least four weeks prior to construction. The Contractor's Traffic Control Plan shall include, but not be limited to the following:

1. Designated construction site Traffic Control Supervisor (TCS) name and contact information.
2. Detailed layout of closure area.
3. Schedule of shoulder closure.
4. Types and locations of signage and warning devices.
5. Types and locations of traffic control devices.
6. Accommodations for pedestrians and bicycles.
7. Safety measures for workers and the public.

The Engineer and TRWC will provide written comments on the Traffic Control Plans and if necessary, the Contractor and Engineer will meet to consider the comments prior to the preconstruction site meeting.

- B. If requested, submit the following as informational submittals for Products listed in Part 2:
1. Self-certification for crashworthiness of Category 1 temporary traffic control devices at least 5 business days before starting any work using the devices or within 2 business days after the request if the devices are already in use. Either you or the manufacturer must perform the self-certification. Include the following information:
 - 1.1. Date
 - 1.2. Federal aid number for a federal-aid contract
 - 1.3. Contract number, district, county, route, and post miles of the project limits
 - 1.4. Company name, street address, city, state, and zip code of the certifying vendor
 - 1.5. Printed name, signature, and title of the certifying person
 - 1.6. Types of Category 1 temporary traffic control devices

Obtain a standard form for self-certification from the Engineer.

Submit a sample of the type of portable delineator that you will be using before placing the delineators on the job site.

2. List of proposed Category 2 temporary traffic control devices at least 5 business days before starting any work using the devices or within 2 business days after the request if the devices are already in use.

1.3 TRAFFIC CONTROL NOTIFICATION

- A. The Contractor shall provide advance notification to the California Department of Transportation (Caltrans) regarding any traffic control activities at least ten (10) working days prior to the commence of any traffic control operations. The notification must include the details of the Traffic Control Plan. This allows time for Caltrans to review the proposed activities and provide feedback or request adjustments if necessary.

In the event of changes or extensions to the Traffic Control Plan, the Engineer and Caltrans must be informed immediately. These changes need to highlight any new impacts or deviations from the original Traffic Control Plan.

The Contractor must maintain records of all notifications sent to Caltrans, including dates, times, and details of communications. These records should be readily available for inspection upon request by the Engineer, Caltrans, or other regulatory bodies.

1.4 TRAFFIC CONTROL REQUIREMENTS

- A. One way traffic flow shall be provided at all times and controlled by a minimum of two flaggers if and when there is only one lane available for traffic.
- B. Access to all out of project areas shall be maintained during Project construction.
- C. The Contractor shall not terminate access through the area without providing adequate alternate routing for local traffic and emergency access. The contractor shall install trench plates where needed to maintain emergency access. Any alternative routes shall be made safe and clearly delineated at all times.

PART 2 PRODUCTS

2.1 TEMPORARY TRAFFIC CONTROL DEVICES

This section includes general specifications for providing the necessary traffic control devices. All traffic control devices shall adhere to the 2014 California Manual on Uniform Traffic Control Devices (CA MUTCD 2014 Revision 4) guidance. Providing temporary traffic control devices includes installing, placing, maintaining, repairing, and replacing and removing temporary traffic control devices.

Do not use different types of channelizing devices on the same alignment. The types include plastic drums, portable delineators, channelizers, tubular markers, traffic cones, and Type I and Type II barricades.

2.2 DEFINITIONS

Category 1 Temporary Traffic Control Devices: Small devices weighing less than 100 lb certified as crashworthy by crash testing or crash testing of similar devices. Category 1 temporary traffic control devices include traffic cones, plastic traffic drums, portable delineators, and channelizers.

Category 2 Temporary Traffic Control Devices: Small devices weighing less than 100 lb that are not expected to produce significant changes in vehicular velocity but could cause harm to impacting vehicles. Category 2 temporary traffic control devices include barricades and portable sign supports.

Orange: Orange, red-orange, fluorescent orange, or fluorescent red-orange.

Useable shoulder area: Any longitudinal paved or unpaved contiguous surface adjacent to the traveled way with.

Background: Dominant sign color.

Legend: Letters, numerals, tildes, bars, arrows, route shields, symbols, logos, borders,

artwork, and miscellaneous characters that are intended to convey specific meanings on traffic signs.

2.3 TRAFFIC CONES

A traffic cone must be flexible, orange, and manufactured from commercial-quality material designed for the intended purpose. The outer section of the portion above the base of the traffic cone must be translucent and fabricated of a highly pigmented, orange, PV compound. The overall height of a traffic cone must be at least 28 inches and the bottom inside diameter of the traffic cone must be at least 10.5 inches. During the hours of darkness, a traffic cone must have a retroreflective cone sleeve.

Retroreflective cone sleeves must be permanently affixed, double-band, sleeves consisting of 2 white retroreflective bands. The top band must be 6 inches wide and placed a maximum of 4 inches from the top of the cone. The lower band must be 4 inches wide and placed 2 inches below the bottom of the top band. You may use traffic cones with double-band retroreflective cone sleeves during daylight hours.

Use the same type of retroreflective cone sleeve for all cones used on the project. Anchor the base of a traffic cone if it does not have enough size and weight to keep the cone in an upright position.

2.4 CONSTRUCTION AREA SIGNS

A construction area sign must be the product of a commercial sign manufacturer and have Type III or higher-grade retroreflective sheeting. The style, font, size, and spacing of the legend must comply with the Standard Alphabets published in the FHWA's Standard Highway Signs Book. The sign must be visible from 500 feet and legible from 300 feet at noon on a cloudless day and during the hours of darkness under an illumination of legal low-beam headlights by persons with 20/20 vision or vision corrected to 20/20. A fabric sign panel on a portable sign is not subject to the visibility and legibility requirements for headlight illumination during the hours of darkness. A construction area warning or guide sign must have a black legend on a retroreflective, orange background. A W10-1 advance warning sign for highway-rail grade crossings must have a black legend on a retroreflective, orange background. A W10-1 advance warning sign for highway-rail grade crossings must have a black legend on a retroreflective yellow background.

Place all construction area signs outside of the traveled way. Do not block a bicycle or pedestrian pathway with a construction area sign. Place, install, maintain, and remove temporary object markers shown as construction area signs as specified for construction area signs. Maintain accurate information on construction area signs. Immediately replace or correct signs that convey inaccurate information.

During the progress of work, immediately cover or remove unneeded signs. Cover each unneeded sign such that the message cannot be seen. Securely fasten the cover to prevent movement from wind. Check each covered sign daily for damage to the cover and

immediately replace any cover if needed. Clean each construction area sign panel at the time of installation and at least once every 4 months thereafter. Be prepared to furnish additional construction area sign panels, posts, and mounting hardware or portable sign mounts on short notice due to changing traffic conditions or damage caused by traffic or other conditions. Maintain an inventory of commonly required items at the job site or plan with a supplier who can furnish the items daily on short notice. Replace any damaged construction area sign or repair the sign if authorized. Remove any sign panel that exhibits irregular luminance.

2.6 PORTABLE FLASHING BEACON

Each portable flashing beacon must have:

1. Standard and base
2. Lighting unit
3. Flasher unit
4. Battery power source

The components must be assembled to form a complete, self-contained, flashing beacon that can be delivered to the job site and placed into immediate operation. The lens for the beacon lighting unit must have a visible diameter of 12 inches. The lens must be glass or plastic complying with ANSI D-10.1 for a yellow traffic signal lens.

The beacon lighting unit must be equipped with a visor and backplate except a visor is not required during hours of darkness. The visor must be at least 8 inches long. The flasher unit must be capable of flashing from 50 to 60 flashes per minute with a dwell time from 250 to 350 milliseconds.

The standard must be adjustable to allow variable mounting of the lighting unit from 6 to 10 feet, measured from the bottom of the base to the center of the lens, and be capable of being secured at the desired height. The standard must be securely attached to the base and have a length of multiconductor, neoprene-jacketed cable long enough for the full vertical height.

The base must be (1) large enough to accommodate at least two 12 V automotive-type storage batteries and (2) a shape and weight such that the beacon will not roll if struck by a vehicle or pushed over.

The lamp must be rated at 25 W for operation on 12 V battery current. The flashing beacon must be weatherproof and must be capable of operating a minimum of 150 hours between battery recharging and other routine maintenance.

The standard and base must be finished with 2 applications of commercial-quality enamel matching color no. 12473 of FED-STD-595. The interior of the visor and the front face of the backplate must be finished with 2 applications of commercial quality, nonreflective black enamel.

2.7 MATERIALS

The condition of temporary traffic control devices must comply with the most current edition of the American Traffic Safety Services Association publication *Quality Guidelines for Temporary Traffic Control Devices and Features*.

Category 2 temporary traffic control devices must be on FHWA's list of acceptable crashworthy Category 2 hardware for work zones. For this list, go to FHWA's Safety Program website.

Category 2 temporary traffic control devices must be labeled with the FHWA acceptance letter code and the name of the manufacturer. The label must be legible and permanently affixed to the temporary traffic control device by the manufacturer.

Retroreflectivity for the following materials must comply with Table 2A-3, "Minimum Maintained Retroreflectivity Levels," of the *California MUTCD* and be on the Authorized Material List for signing and delineation materials:

1. Retroreflective sheeting for barricades
2. Retroreflective bands for portable delineators
3. Retroreflective sheeting for construction area signs
4. Retroreflective sheeting for channelizers
5. Reflectors for Type K temporary railing
6. Retroreflective cone sleeves
7. White and orange retroreflective stripes for plastic traffic drums

The following temporary traffic control devices must be visible from 1,000 feet during the hours of darkness under an illumination of legal high-beam headlights by persons with 20/20 vision or vision corrected to 20/20:

1. Retroreflective bands on portable delineators
2. Retroreflective sheeting on channelizers
3. Retroreflective cone sleeves on traffic cones

PART 3 EXECUTION

A. Perform all layout work necessary to place channelizing devices:

1. On the proper alignment
2. Uniformly at the location and spacing described
3. Straight on a tangent alignment
4. On a true arc in a curved alignment

If temporary traffic control devices are damaged, displaced, or stop operating or functioning as described from any cause during the progress of the work, immediately repair, repaint, or replace the components and restore them to their original locations and positions.

If ordered, furnish and place additional temporary traffic control devices. This work is change order work unless the temporary traffic control devices are being furnished and placed for public safety or public convenience.

PART 4 MEASUREMENT AND PAYMENT

4.1 Basis of Payment

- A. Traffic Control work will be part of a Lump Sum for Sites 3 and 4 under Schedule of Items.

END OF SECTION

SECTION 02110

CLEARING AND GRUBBING

PART 1 GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of clearing, grubbing, removing vegetation, salvaging topsoil, and stockpiling salvaged material within the construction limits.

PART 2 PRODUCTS

2.1 SALVAGED FILL

- A. Soil and other organic material salvaged during grubbing activities shall be stockpiled for later reuse on disturbed areas.
- B. Topsoil: The top 6 inches of soil will be salvaged and stockpiled on site within the construction limits as a top-dressing after existing grades per the Plans have been met.
- C. Salvaged topsoil and subsoil shall be covered prior to and in the event of rain or snow.

PART 3 EXECUTION

3.1 LAYOUT

- A. The Contractor shall layout the grading limits (and hence the clearing and grubbing limits) prior to clearing and grubbing work, for review and approval by the TRWC's Representative or Engineer.

3.2 CLEARING

- A. Remove all brush and vegetation from areas designated for new construction. No trees should be removed without prior approval of the TRWC's Representative or Engineer.

3.3 DEBRIS DISPOSAL

- A. Vegetative debris shall be chipped and spread evenly in areas adjacent to the clearing limits in depths no greater than 3 inches.
- B. All other debris to be disposed of at an authorized offsite disposal facility.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- A. Units: The work described in this section will not be measured for payment.

4.2 Basis of Payment

- B. Payment: No direct payments for the work described under this section will be made. The Contractor shall include consideration for this item in the bid price for other items of the Contract.

END OF SECTION

SECTION 02111

TEMPORARY EROSION CONTROL

PART 1 GENERAL

1.1 DESCRIPTION

- A. Temporary erosion control shall consist of, but not be limited to, constructing such facilities, and implementing such measures that are necessary to prevent, control and abate sediment laden water, airborne dust, or pollutant discharges from entering surface waters, drainages, or groundwater.
- B. Temporary erosion control and water protection measures (BMPs) are to be put into place prior to any earth disturbing activities.
- C. The Storm Water Pollution Prevention Plan (SWPPP) shall be kept onsite and adhered to at all times and may require additional temporary BMPs.
- D. Efforts shall be made during construction to prevent disturbed soil movement by both wind and water. A water truck will be required on site to maintain moist soil conditions in the construction and staging/access areas to minimize airborne dust.

PART 2 PRODUCTS

- 2.1 The Contractor shall furnish, install, and maintain all erosion control measures shown in the Staging, Access & Temp Erosion Control plans, including construction limit fencing (i.e., exclusion fencing), silt fencing, drain inlet protection (sediment filter bags) and stabilized construction entrances as depicted in the project details plan sheet. The Contractor shall furnish erosion control product of the material types specified in the project design details or equivalents approved in writing by the Engineer.

PART 3 EXECUTION

- 3.1 Silt fence shall be furnished and installed in accordance with Section 13-10.03F “Temporary Silt Fences” of the Caltrans Standard Specifications.
- 3.2 Construction Limit Fence/Tree Protection: Temporary Construction Limit fencing shall be installed where needed and around the driplines of trees to be preserved as shown on the plans and where directed by the Engineer to protect public safety or sensitive resources. Fencing shall be a minimum of 4-ft high and orange in color to alert equipment operators and the public.

- 3.3 Stabilized Construction Entrance shall be furnished and installed in accordance with Section 13-7.03 “Temporary Construction Roadways and Entrances” of the Caltrans Standard Specifications. Rumble or Trackout plates may be used in lieu of a constructed stabilized entrance under the condition that they alone or in combination with daily crew sweeping prevent noticeable sediment tracking.
- 3.4 Drain Inlet Protection w/ Sediment Filter Bags or Approved Equivalent shall be furnished and installed in accordance with Sections 13-6.02C and 13-6.03C of the Caltrans Standard Specifications.
- 3.5 Steel plates may be required to protect the existing sanitary sewer line at Site 2 where the access road crosses or encroaches on the existing line.
- 3.6 Maintenance of any silt fencing, construction limit fencing, drain inlet protection and stabilized construction entrances shall be conducted daily or as directed by the Engineer.
- 3.7 At the end of the Project all temporary fencing, stabilized entrances, drain inlet protection and steel plates shall be removed and become the property of the Contractor who shall reuse or dispose of it outside of the Project site.

Part 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- A. Units: Construction limit fence, and silt fence will be paid by linear feet under the Schedule of Items.
- B. Stabilized construction entrance will be paid for by “each” entrance and any steel plates at Site 2 will be paid as a lump sum.
- C. The payment quantity for temporary erosion control bid items paid for by the length is the length measured along the centerline of the installed material.

4.2 Basis of Payment

- D. Payment for these items shall be as listed under Schedule of Items.

END OF SECTION

02140

DIVERSION AND DEWATERING

PART 1 GENERAL

1.1 DESCRIPTION

The work under this item shall consists of furnishing all labor, tools, equipment, and materials necessary to divert Donner Creek surface water around all work areas and dewater work areas to maintain a reasonably dry excavation for the proper installation of restoration features as shown on the Project Plans.

The Contractor shall provide water diversion structures during work within any sections of the active river including at Sites 2 and 4.

- A. The locations where water is diverted or pumped from the existing river must be approved by the Engineer. All water diversion stations should be established consisting of a large-screened drum, container, or similar structure that prohibits fish and vegetation from being entrained in the diversion pipe/hose. The screening size and mechanism shall be approved by the TRWC representative or Engineer prior to installation and use. No modifications to the existing river bed or bank are permitted during installation and use of water diversions.
- B. Fish Relocation: The Contractor shall coordinate with TRWC to have a qualified fisheries biologist relocate any fish occupying the pools during the dewatering process throughout the project reach prior to start of work in or adjacent to the creek bed.

1.2 SUBMITTALS

- A. The Contractor shall submit a Creek Diversion and Dewatering Plan to the TRWC and the Engineer for review and approval at least four (4) weeks prior to start of construction. The Diversion and Dewatering Plan may differ from what is shown on the plans, however, Contractor must be able to demonstrate that the diversion installation has sufficient capacity to convey the anticipated creek flows during the time of construction and the dewater installations will keep up with any anticipated surface and groundwater intrusion while continuously protecting water quality.
The dewatering portion of the plan shall include a list of any pumps, pipes and generator equipment that is to be used, including sizes and horsepower.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CLEAR WATER DIVERSION

- A. Measures to reduce potential impacts, such as fish screens, will be maintained by the Contractor on a daily basis to ensure proper operation. Diversion shall continue throughout excavation activities.
- A. Fish Protection: Fish screens made up of 3/32-inch hardware cloth shall be placed above diversion point and below outlet of diversion. Fish screens are to be installed prior to fish relocation or dewatering. The Contractor shall coordinate any diversion/dewatering work with the biologists performing fish relocation activities, to avoid conflicts. Fish relocation activities must be completed by a qualified fisheries biologist, experienced with fish capture and handling. All pools to be dewatered throughout the project reach will need to have species of concern removed by the fisheries biologist before they may be pumped completely dry.
- B. Water Bypass: Cofferdams shall be constructed upstream and downstream of work area to bypass all flow from upstream of the upstream cofferdam to downstream of the downstream cofferdam. The cofferdams may be constructed of native material, clean river gravel or clean gravel bags and shall be entirely lined with sheet plastic. Clean river gravel may be left by grading into natural bed elevation following construction, whereas sheet plastic must be removed. Water bypass shall be conducted using a gravity feed or pumped bypass line per approved Diversion and Dewatering Plan. Gravity feed is preferred. Bypass pipe diameter shall be sized to accommodate the anticipated July – September flows. Contractor is required to maintain free flowing water bypass at all times during project reach disturbance including nighttime and weekends. Bypass water shall be discharged to the channel downstream in a location approved by the Engineer and may require additional rock energy dissipation at the outlet.
- C. Water Release after Construction: Once the project is completed water shall be released slowly back into the work area so as to prevent erosion and increased turbidity. When construction is completed, the flow diversion structure shall be removed as soon as possible in a manner that will allow flow to resume with the least disturbance to the substrate.

Cofferdams will be removed so surface elevations of water impounded above the cofferdam will not be reduced by a rate greater than one inch per hour. This will minimize the risk of beaching and stranding of fish as the area upstream becomes dewatered.

3.2 DEWATERING

- B. Dewatering: All groundwater and nuisance water removed from work areas must be properly applied to upland areas either via a water truck for dust control along access roads or spread via a sprinkler system or flow spreader pipe in upland areas away from any storm drains, drainages, or waterways. If sufficient dust control or upland areas are unable to be located, a sedimentation tank(s) may be staged to collect and desilt the water, however adequate de-siltation (or clarity) of the decant water through turbidity testing must be demonstrated prior to release in areas that could reach drainages or waterways. Methods of dewatering proposed shall be described in detail in the Diversion and Dewatering submittal under Item 1.2 for review and approval prior to implementation.
- C. Dewatering Operations: Nuisance water (sediment-laden water) shall not be pumped directly into any drainage, waterway, or diversion bypass. A dewatering structure should be sized to allow water to flow through any outlet filtering media without overflowing the structure. An energy dissipater may be needed to prevent erosion at the outlet.
- D. If a sedimentation tank(s) is used, decant water from the tank can be further treated by running the water through an approved filter bag if turbidity levels need to be reduced further prior to discharging back into Donner Creek. The contractor is responsible for the design and establishment of the containment system to be approved by TRWC and the Engineer via the Diversion and Dewatering Plan. All sediment collected from dewatering the construction area will be disposed of offsite by the Contractor to an approved location.
- E. Pump intakes and outlets should be designed to minimize turbidity and the potential to wash contaminants into adjacent creeks or wetlands.
- F. Pumps shall be placed in flat areas and be well away from the stream channel. Refuel pumps in an area that is at least 50 feet away from the stream channel and use secondary containment and absorbent pads while refueling.
- G. Pump intakes should be completely screened with wire mesh, sized, and approved by the TRWC or the Engineer to prevent fish and amphibians from entering the pump system. Check intake periodically to ensure the screen is functioning properly.

- H. A dewatering structure should be sized to allow water to flow through any outlet filtering media without overflowing the structure. An energy dissipater may be needed to prevent erosion at the outlet.
- I. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an approved location, water truck, sediment settling tank, or equivalent, where it will not drain directly into any stream channel. The turbidity control methods need to be approved by the TRWC or the Engineer prior to implementation.
- J. Any generators or pumps shall have secondary containment (i.e., leak free trays). Refuel pumps in areas well away from stream channels and wetlands and where approved by the COR.
- K. Once construction is completed, the dewatering facilities are to be removed. Sediment control devices, including perimeter erosion controls, are to remain in place until all disturbed areas are stabilized in accordance with the SWPPP and the TRWC or Engineer approves their removal.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- A. Units: Diversion and Dewatering work will be paid by lump sum (LS) under the Schedule of Items.

4.2 Basis of Payment

- A. Payment for this item as broken out in the Schedule of Items.

END OF SECTION

SECTION 02300

EARTHWORK

PART 1 GENERAL

1.1 DESCRIPTION

- A. The work of this section shall consist of a) performing all operations necessary to prepare the site for excavation, b) excavating, backfilling, and grading to finish grades and contours per the Plans and these specifications, and c) furnishing all labor, materials, tools, equipment, and incidentals.

1.2 FIELD MEASUREMENTS

- A. It is the responsibility of the Contractor to verify that survey benchmarks and intended elevations for layout of the work are as indicated on the plans and as specified in Section 01050 (Field Engineering). If discrepancies are discovered the Contractor shall immediately notify the TRWC's Representative or Engineer to correct the problem or determine the next course of action.

1.3 SUBMITTALS

- A. The Contractor shall submit to the Engineer for review and approval an **Order of Work** at least seven (7) days after the Award of Contract or seven (7) working days prior to construction start. The Order of Work shall include installation of all temporary BMPs, grading, planted rock slope protection installation and revegetation operations.

1.4 REFERENCES

- A. Work shall comply with the rules and regulations of the Division of Industrial Safety and other local and State agencies having jurisdiction. Nothing contained herein shall be construed as permitting work that is contrary to such rules, regulations, and code.
- B. AASHTO Standards.
- C. American Society for Testing and Materials (ASTM):
 - 1. The latest edition of the following standards may apply:
 - a. D422 Standard Test Method for Particle-Size Analysis of Soils
 - b. D1557 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort

- c. D1556 Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
- d. D2216 Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock
- e. D2922 Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) (AASHTO T238)
- f. D3017 Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth) (AASHTO T239)

1.3 EXISTING CONDITIONS

- A. Existing soil conditions may include the occurrence of large, buried boulders or the interception of existing bedrock. Contractor shall be prepared to move, relocate, and incorporate existing large boulders where shown on the plans. Where boulders cannot be moved or shallow bedrock is encountered, Contractor shall work with the Engineer to alter the grading in a manner which maintains the intent of the design. Cost assumptions are based on Contractor utilizing excavation materials in project improvements.

PART 2 PRODUCTS

2.1 FILL MATERIAL

- A. Where possible, material produced from project excavations will be salvaged and used as fill material.

2.2 TOPSOIL

The top 6" of native material salvaged and re-applied as top dressing to disturbed areas.

PART 3 EXECUTION

3.1 PREPARATION AND LAYOUT

- A. Site preparation shall include removing all vegetation and over-size debris from the areas that will be graded.
- B. Establish extent of grading and excavation by area and elevation. Designate and identify datum elevation and project reference points. Set required lines, levels, and elevations.

- D. Protect tree and shrub vegetation outside of construction disturbance.

3.2 EXCAVATION

- A. Earth excavation shall include the satisfactory removal and off haul regardless of the nature of the materials, the condition of the materials at the time they are excavated, or the manner in which they were excavated.
- B. Where excavated materials from inset floodplain bench creation at Site 4 are deemed suitable by the TRWC or the Engineer, they may be incorporated into the Site 4 bank revetments where shown on the plans or if there is sufficient excess, locally hauled and incorporated into bank revetment where called for in the plans at Sites 1 and 2. Site 4 vegetated swale and Site 3 wetland swale spoils are not to be re-used onsite but off-hauled and properly disposed of.
- C. The Contractor shall select, install, and maintain shoring, sheeting, bracing, and sloping as necessary to maintain safe excavations. The Contractor shall be responsible for ensuring such measures; (1) comply fully with 29 CFR Part 1926 OSHA Subpart P Excavations and Trenches requirements, (2) provide necessary support to the sides of excavations, (3) provide safe access to the Contracting Officer's sampling and testing within the excavation (4) provide safe access for backfill, compaction, and compaction testing, and (5) otherwise maintain excavations in a safe manner that shall not endanger property, life, health, or the Project schedule. All earthwork shall be performed in strict accordance with applicable law, including local ordinances, applicable OSHA, CalOSHA, California Civil Code, and California Department of Industrial Safety requirements.

3.3 BACKFILL, PLACEMENT, AND COMPACTION

- A. Provide adequate equipment to achieve consistent and uniform compaction of fill and backfill materials.
- B. Spread approved fill material uniformly in layers not to exceed 8 inches of loose thickness over entire fill.
- C. When backfilling over planted rock slope protection, voids between rocks shall be less than two (2) inches to prevent surface water piping. Use hand labor with shovels or similar, to aid final surface backfill operations and ensure no large voids between rocks or rocks and plants.
- D. Lift thickness requirements may be modified in the field by the Engineer to suit equipment and materials or other conditions when required to assure satisfactory compaction and minimization of voids.

Place and compact each layer of fill using bucket of excavator or similar method to be approved by the Engineer in the field to roughly 85 percent compaction before placing additional fill material. Repeat filling until the proposed grade or slope profile is attained. Filling of the larger rock voids can be done via hand labor and shoveling in coordination with the excavator operator or by jetting.

- E. Suspend fill operations when satisfactory results cannot be obtained because of environmental or other unsatisfactory site conditions. Do not use muddy (or frozen) fill materials. Do not place fill material on muddy (or frozen) subgrade surface.

Maintain surface conditions that permit adequate drainage of rainwater and prevent ponding of surface water in pockets. When fill placement is interrupted by rain, remove wet surface materials, or permit to dry before placing additional fill material.

3.4 SITE GRADING

- A. Performing Grading: Perform grading within project limits, including adjacent to transition areas, to new elevations, levels, profiles, and contours indicated. Provide subgrade surfaces parallel to finished grade surfaces. Provide uniform levels and slopes between new elevations and existing grades.
- B. Grade subgrade and final grade surfaces smooth and even, free of voids to the required subgrade elevation.

3.5 FINISH GRADE

- A. All backfill, and grading work shall meet subgrade elevations where materials are to be applied to meet finish grades or final grades where channel improvements are proposed or restore existing elevations and contours as shown on the plans in areas outside of the new channel crossing.

3.6 SALVAGED TOPSOIL

- A. Any salvaged topsoil shall be applied to areas restored to finish grade by spreading evenly and raked into the top two to three inches.

3.7 STOCKPILING

- A. Cover stockpiles prior to rain or when not actively used for more than 14 days. Excavated materials may be temporarily stockpiled on-site in areas identified on the plans for immediate reuse. Best Management Practices

(tarps, coir log, etc.) to be used on all temporary stockpiles to minimize the potential for erosion or pollution. All material stockpiles shall be removed at the completion of the work.

3.8 DISPOSAL OF MATERIAL

- A. Remove from site and legally dispose of all waste material, including Site 4 vegetated swale and Site 3 wetland swale spoils and trash and debris.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- B. Units: Excavation and grading work will be paid by cubic yard (CY) under the Schedule of Items.

4.2 Basis of Payment

- A. Payment for this item shall be paid by cubic yard (CY) under Schedule of Items: Cut and fill and as cubic yards for any material hauled.

END OF SECTION

SECTION 02500

ROCK AND AGGREGATE

PART 1 GENERAL

1.1 DESCRIPTION

Large boulders and rock are needed to rebuild and stabilize the bank slopes at Sites 2 and 4 and construct the Boulder Bendway Weirs at Site 2. Rock of other sizes will be needed to armor outfalls, access ramps and areas where vegetation is to be impeded to provide views of Donner Creek.

A few boulders and rock may be salvaged onsite and used as part of the bank restoration and boulder bendway weir installation under the direction of the Engineer. All remaining boulders and rock shall be purchased from an approved quarry or acquired from a nearby approved project source. Boulders shall be composed of dense, non-friable stone and free of organic material.

PART 2 PRODUCTS

2.1 ¼ Ton, ½ Ton and 1-Ton Rock for Slope Protection at Sites 2 and 4 and Boulder Bedway Weirs at Site 2

Rock size gradations including ¼ ton, ½ ton, and 1-ton (Caltrans Class V, VII and VIII) shall be clean subangular or angular granite rock with sizes and characteristics as shown in Tables 1 and 2 below. The Contractor shall provide information on the quarry site where the rock is to be purchased to TRWC and the Engineer for review and approval prior to purchase and delivery to the site.

2.2 3- to 6- Inch River Rock for Site 2

3- to 6- inch river rock that is clean, rounded to sub-rounded granite is to be used at Site 2 in two locations to armor the top of bank and provide for viewsheds to the river. Contractor shall provide a sample of the river rock to TRWC and the Engineer for review and approval prior to purchase and delivery to the site.

2.3 6-Inch Rock for Armored Outlets, Temporary Ramp Surface, and Check Dams

Clean 6-Inch (Caltrans Class 1) clean, angular rock per Tables 1 and 2 to be used for armored outlets, surface treatment of any temporary ramps and building the check dams within the vegetated (grass-lined) swales. The Contractor shall provide information on the quarry site where the rock is to be purchased to TRWC and the Engineer for review and approval prior to purchase and delivery to the site.

2.4 Granular Bedding/Backfill

Caltrans #3 Backing per Table 3 shall be used as needed for a base layer and or to backfill the voids along with native sourced materials.

Table 1. Caltrans Rock Size Classes

Nominal RSP class by median particle diameter ^b		Nominal median particle weight W ₅₀ ^{c,d}	d ₁₅ ^c (inches)		d ₅₀ ^c (inches)		d ₁₀₀ ^c (inches)	Placement
Class ^a	Diameter (inches)		Min	Max	Min	Max	Max	Method
I	6	20 lb	3.7	5.2	5.7	6.9	12.0	B
II	9	60 lb	5.5	7.8	8.5	10.5	18.0	B
III	12	150 lb	7.3	10.5	11.5	14.0	24.0	B
IV	15	300 lb	9.2	13.0	14.5	17.5	30.0	B
V	18	1/4 ton	11.0	15.5	17.0	20.5	36.0	B
VI	21	3/8 ton	13.0	18.5	20.0	24.0	42.0	A or B
VII	24	1/2 ton	14.5	21.0	23.0	27.5	48.0	A or B
VIII	30	1 ton	18.5	26.0	28.5	34.5	48.0	A or B
IX	36	2 ton	22.0	31.5	34.0	41.5	52.8	A
X	42	3 ton	25.5	36.5	40.0	48.5	60.5	A
XI	46	4 ton	28.0	39.4	43.7	53.1	66.6	A

^aFor RSP Classes I–VIII, use Class 8 RSP fabric. For RSP Classes IX–XI, use Class 10 RSP fabric.

^bIntermediate or B dimension (i.e., width) where A dimension is length and C dimension is thickness.

^cd%, where % denotes the percentage of the total weight of the graded material.

^dValues shown are based on the minimum and maximum particle diameters shown and an average specific gravity of 2.65. Weight will vary based on specific gravity of rock available for the project.

Rock material must comply with the requirements shown in the following table:

Table 2. Rock Material Requirements

Quality characteristic	Test method	Requirement
Apparent specific gravity (min)	California Test 206	2.5
Absorption (max, %)	California Test 206	4.2
Durability index (min)	California Test 229	52

Notes:

Durability absorption ratio (DAR) = course durability index/(percent absorption + 1)

If the DAR is greater than 10, the absorption may exceed 4.2 percent.

If the DAR is greater than 24, the durability index may be less than 52.

2.5 Select rock such that the shapes provide a stable structure for the required section. If the slope is steeper than 2:1, do not use rounded boulders and cobbles. Angular shaped rock may be used on any planned slope. Flat or needle-shaped rock must

**Donner Creek Restoration Project Sites 2-4
Technical Specifications**

not be used unless the individual rock thickness is greater than 0.33 times the length.

- 2.6 All purchased rock must be sourced from a certified weed-free quarry.

Table 3. Caltrans RSP Size Chart

STANDARD Rock SIZE or Rock MASS or Rock WEIGHT		GRADING OF ROCK SLOPE PROTECTION PERCENTAGE LARGER THAN											
		RSP-Classes [A]											
		Method A Placement					Method B Placement						
		RSP-Classes other than Backing									Backing No.		
		8 ton	4 ton	2 ton	1 ton	1/2 ton	1 ton	1/2 ton	1/4 ton	Light	1 [B]	2	3
US unit	SI unit	8 T	4 T	2 T	1 T	1/2 T	1 T	1/2 T	1/4 T	Light	1 [B]	2	3
16 ton	14.5 tonne	0-5											
8 ton	7.25 tonne	50-100	0-5										
4 ton	3.6 tonne	95-100	50-100	0-5									
2 ton	1.8 tonne		95-100	50-100	0-5		0-5						
1 ton	900 kg			95-100	50-100	0-5	50-100	0-5					
1/2 ton	450 kg				95-100	50-100	----	50-100	0-5				
1/4 ton	220 kg					95-100	95-100	----	50-100	0-5			
200 lb	90 kg							95-100	----	50-100	0-5		
75 lb	34 kg								95-100	----	50-100	0-5	
25 lb	11 kg									95-100	90-100	25-75	0-5
5 lb	2.2 kg											90-100	25-75
1 lb	0.4 kg												90-100

[A] US customary names (units) of RSP-Classes listed above SI names, example US is "2 ton" metric is "2 T".

[B] "Facing" has same gradation as "Backing No. 1". To conserve space "Facing" is not shown.

Example for determining RSP-Class of outside layer. By using Equation 1, if the calculated $W=135$ kg (minimum stable rock size):

1. Enter table at left and select closest value of STANDARD Rock SIZE which is greater than calculated W , in this case 220 kg
2. Trace to right and locate "50-100" entry 3. Trace upward and read column heading "1/4 T", then 1/4 T is first trial RSP-Class.

Source: Caltrans (California Department of Transportation). 2000. California Bank and Shore Rock Slope Protection Design. Practitioner's Guide and Field Evaluations of Riprap Methods. Page 24.

PART 3 EXECUTION

- 3.1 See Section 02501 Planted Rock Slope Protection
- 3.2 See Section 02502 for Boulder Bendway Weir
- 3.3 For Rock Check Dams in the vegetated (grass-lined) swales install perpendicular to the centerline of the swale with sufficient spillway depth to prevent flanking of concentrated flow around its ends.

PART 4 MEASUREMENT AND PAYMENT

- 4.1 Method of Measurement
 - A. The method of measurement will be designated in the SCHEDULE OF ITEMS.
- 4.2 Basis of Payment
 - B. Payment for this item shall be broken out as listed in the Schedule of Items: including, but not limited to CY of rock.

END OF SECTION

SECTION 02501

PLANTED ROCK SLOPE PROTECTION

PART 1 GENERAL

1.1 DESCRIPTION

Sites 2 and 4 will require the installation of planted rock slope protection (RSP) along designated banks of Donner Creek as specified in this section. The Contractor shall not begin this work until the Diversion Dam and Diversion Pipe system or approved equivalent creek diversion system is fully installed and operational.

PART 2 PRODUCTS

- 2.1 See Section 02500 Rock and Aggregate

PART 3 EXECUTION

- 3.1 For Sites 2 and 4, the Contractor shall rebuild the designated banks to 1.5:1 (H:V) max slope using imported rock backfilled with the excavated material from the lowered gravel bar and other onsite materials as available. The Contractor will need to supplement with fill materials from local sources with approval from the Engineer. Purchased rock used in installation of the Planted RSP must meet Caltrans Standard Specifications for rock materials as described in Section 02500.
- 3.2 It is essential that the 2-, 1-, and ½-ton boulders are placed individually under the direction of the Engineer to achieve adequate key depth, coverage, and functional integration with prescribed bendway weirs and willow pole plantings. Rock shall be placed to the vertical elevations shown on the plans under the direction of the Engineer. Planted RSP shall be tapered on either end to tie into existing slope protection elements such as rip rap or rooted trees as directed by the Engineer.
- 3.3 Rock placement for planted rock slope protection shall be done concurrently with willow planting under field direction by the Engineer and/or Restoration Specialist and base boulders must be keyed in and not simply placed on top of grade.
- 3.4 Boulder installation shall begin with placement of the largest boulders at the toe of the slope either in a footing trench or individual boulder key trenches and Contractor shall work up the slope as boulders are placed individually. Local surface irregularities of the Planted RSP must not vary from the planned slope by more than 1 foot as measured at right angles to the slope. At the completion of slope protection work, fill voids in the footing trench and between boulders with excavated material. Compaction shall be accomplished by pushing/tamping of the excavator bucket under Engineer's supervision.

- 3.5 For rocks above the foundation course, place them such that each rock has a 3-point bearing on underlying rocks; do not bear them on smaller rocks which may be used for chinking voids.
- 3.6 No boulders or rock are to be dumped as single loads and allowed to roll down the slope.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- B. The method of measurement will be designated in the SCHEDULE OF ITEMS.

4.2 Basis of Payment

- C. Payment for this item shall be broken out as listed in the Schedule of Items: including but not limited to CY of rock.

END OF SECTION

SECTION 02502

BOULDER/LOG BENDWAY WEIRS

PART 1 GENERAL

1.1 DESCRIPTION

Bendway Weirs are to be installed within the banks at Sites 2 and 4 to improve lateral stability and flow alignment, reduce shear forces on the outer banks and improve fish habitat by creating localized scour pools immediately downstream of the structures.

Boulder Bendway weirs to be constructed at Site 2 are low rock sills angled upstream and projecting downward from the bank. Log Bendway weirs to be constructed at Site 4 are similar however constructed with large rootwad logs weighted with boulder ballasts.

Positioning and anchoring are critical to the long-term stability of these structures; therefore, the Contractor shall construct these features under the direction of the Engineer.

PART 2 PRODUCTS

- 2.1 For Boulder sizes and characteristics see the Plans and Specification Section 02500 Rock and Aggregate
- 2.2 Large trees for the Log Bendway Weirs to be provided by TRWC and are currently being staged at nearby Donner Memorial State Park. Contractor to coordinate with TRWC regarding pickup and delivery of the trees to the project site.

PART 3 EXECUTION

- 3.1 Boulder and Log Bendway weirs shall be installed at Sites 2 and 4 where indicated on the plans.
 - A. For both Boulder and Log Bendway Weirs prior to installation, under the direction of the Engineer excavate and set aside the necessary volume of channel bed and bank material to properly key and install the weirs as shown on the plans being sure to angle the installations upstream as shown on the plans. A certain amount of subgrade may be able to be preserved as the boulders and logs can be pushed or tamped in with the bucket of the excavator a certain degree after placement, and the first installation typically reveals the amount of additional key depth that can be achieved with tamping in order to avoid over-excavating. The less excavation and ground disturbance required to do the installation the more stable the installation will be.

- B. Boulder Bendway Weirs shall be constructed of large rocks that are angular to subangular and individually placed at the direction of the Engineer. Rock shall be ½ to 1-Ton, Caltrans Class VII/VIII, as indicated on the plans. Rock for weirs shall have a minimum specific gravity of 2.5 and be durable and of suitable quality, free from cracks, seams and other defects that would increase deterioration from weathering. No dumping shall be allowed except as approved/directed by the Engineer.
- C. Rocks for Boulder Bendway Weirs shall be placed following subgrade preparation and inspection by the Engineer. Footer rocks shall be the largest most angular rocks and keyed into the bed below the channel as shown on the plans in a manner such that they exert pressure on each other and into the banks. The next layer of rocks shall be placed so that each rock rests on two halves of each supporting footer rock. From the bank the placement of rocks towards the channel shall incline downwards as shown on the plans to end just above the channel bed surface before the channel centerline.
- D. The Boulder Bendway Weirs shall be backfilled with the native material (well graded mix of washed river run rock, cobble, and gravels) to prevent seepage flow as field directed by the Engineer. The backfill material shall be tamped down and if needed jetted in with a water hose so that the voids between large rocks are filled to the satisfaction of the Engineer.
- E. The Log Bendway Weirs on the bank side shall be backfilled with native material using a combination of the excavator bucket and hand labor to fill in and tamp in the voids where the logs intersect with the creek bank to the satisfaction of the Engineer.
- F. For the Log Bendway Weirs, Contractor to deliver logs with rootwads from Donner Memorial State Park to the Project site and stage in areas shown on the plans or request and acquire approval for any additional staging areas. Trees shall be marked in a manner so as to clearly identify which tree groupings of three each are planned for which installation location. Each grouping of three will require two (2) logs that are at least 2-ft diameter at DBH and a minimum of 15 ft long. The third pinning log can be smaller and/or substituted with the boulder ballasts.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- C. The method of measurement for Boulder and Log Bendway Weirs will be measured as each in place and include delivery and installation as designated in the SCHEDULE OF ITEMS.

4.2 Basis of Payment

- D. Payment for this item shall be broken out as listed in the Schedule of Items.

END OF SECTION

SECTION 02810

EXISTING ELECTRICAL SYSTEMS

PART 1 GENERAL

- 1.1 This section includes general specifications for performing work on existing electrical systems per Caltrans Section 87-21.01 to be used if relocating the Caltrans electrical line is required for construction of the vegetated (grass-lined) swale at Site 4.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

- 3.1 The following lists requirements for relocation of the electrical line when and where identified as necessary by the Engineer following Underground Service Alert (USA) markings.
- A. Unused underground conduit may be abandoned after pulling out all conductors and removing conduit terminations from the pull boxes.
 - B. If the existing material is unsatisfactory for reuse per the Engineer replace it with new material.
 - C. If the removed electrical equipment is to be reinstalled, supply all materials and equipment needed to complete the new installation.
 - D. Conduct operations to avoid damage to the elements of the system not slated for removal and replacement.
 - E. Obtain authorization from TRWC and Caltrans at least 72 hours before interrupting communication between an existing system and the traffic management center.
 - F. If the existing system is not fully operational due to the relocation activities, repair or replace the system within 72 hours. If the system cannot be fixed within 72 hours provide a temporary system, within 24 hours until the system can be fixed.
 - G. Perform a functional test of the system in the presence of the Caltrans Engineer/Inspector. If Contractor fails to perform the necessary repair or replacement work, Caltrans may perform the repair or replacement work and deduct the cost.

- H. If a fiber optic cable is damaged, install a new cable such that the length of the cable slack is the same as before the damage, measured from an original splice point or termination. All splices must be made using the fusion method.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- D. The method of measurement will be Lump Sum as designated in the SCHEDULE OF ITEMS.

4.2 Basis of Payment

- G. Payment for this item shall be included in Mobilization/Demobilization in the SCHEDULE OF ITEMS.

END OF SECTION

SECTION 02820

SAND OIL INTERCEPTOR

PART 1 GENERAL

This section provides information on Sand Oil Interceptors for Site 3.

1.1 SUBMITTAL

- A. The Contractor shall submit information on the proposed sand oil interceptor manufacturer, model type, dimensions, and specifications for TRWC and Engineer review and approval prior to purchase and delivery to the site.
- B. Attachment 1 provides one Sand Oil interceptor option from a Reno based vendor for consideration.

PART 2 PRODUCTS

2.1

- A. The minimum internal dimensions of the interceptor shall be approximately 24 inches wide by 72 inches long with 57 inches between the tank bottom and the bottom opening of the 90-degree bend at the outlet for a 490-gallon minimum liquid capacity per plans.
- B. The inlet and outlet piping shall conform to the plan details.
- C. The tank shall have a minimum of one self-sealing access port and shall be set in a leak tight condition so there is no surface or groundwater intrusion.
- D. To reduce infiltration, sand/oil interceptors in paved areas shall be installed with chimney seals between the interceptor cover and the manhole frame.
- E. Tank covers and access ports located in vehicle traffic areas shall be capable of withstanding an H-20 axle load.

PART 3 EXECUTION

3.1

- A. Contractor shall turn over any shop drawings and manuals to TRWC and the Truckee School District (District) once installation and testing is complete and approved by the Engineer so that the District can conduct periodic inspections and schedule periodic maintenance.
- B. The Sand Oil Interceptor shall be tested per manufacturer's specifications.

PART 4 MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- C. The method of measurement will be Each (EA) as designated in the SCHEDULE OF ITEMS.

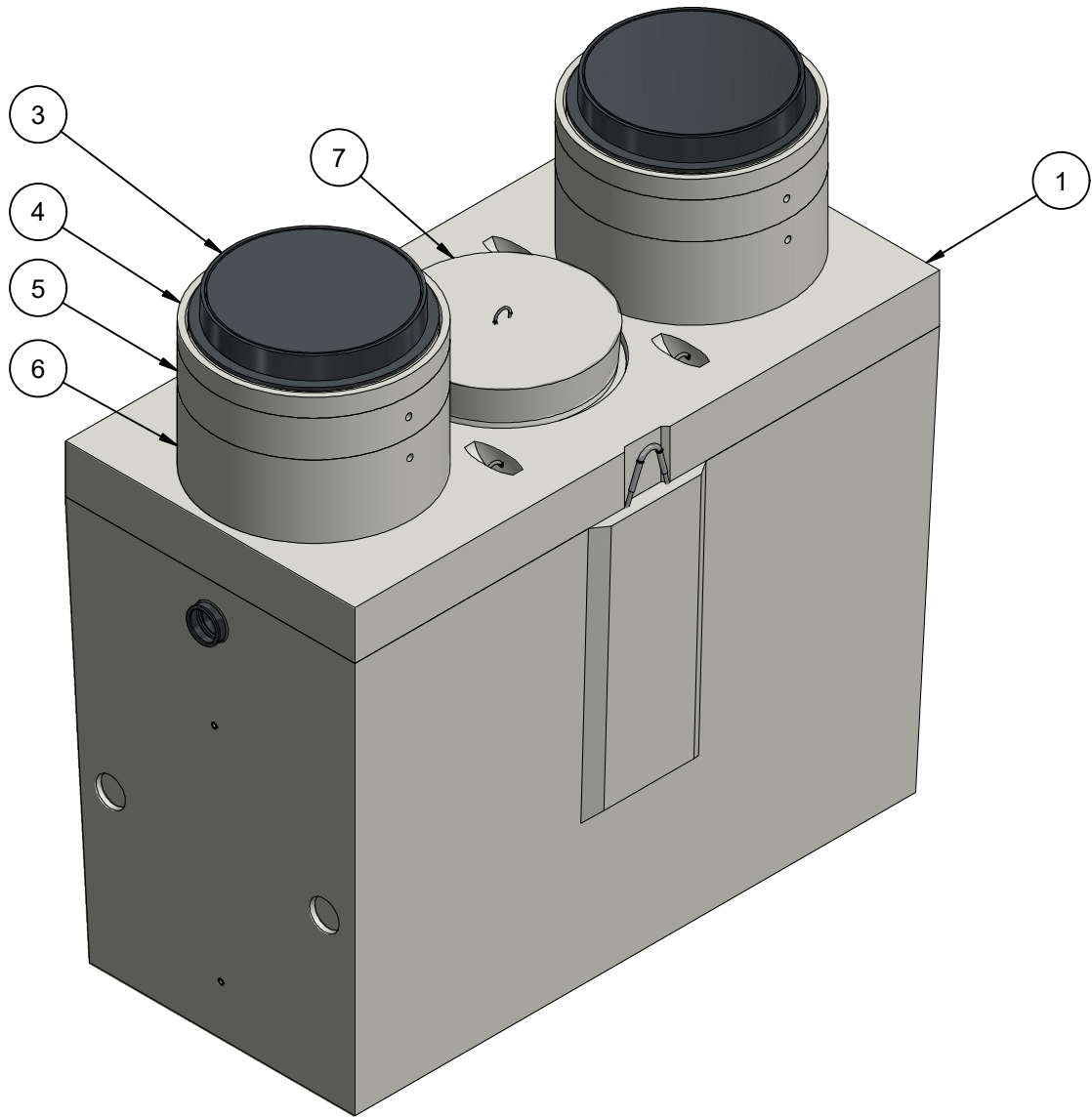
4.2 Basis of Payment

H. Payment for this item shall be per the Schedule of Items for Site 3.

END OF SECTION

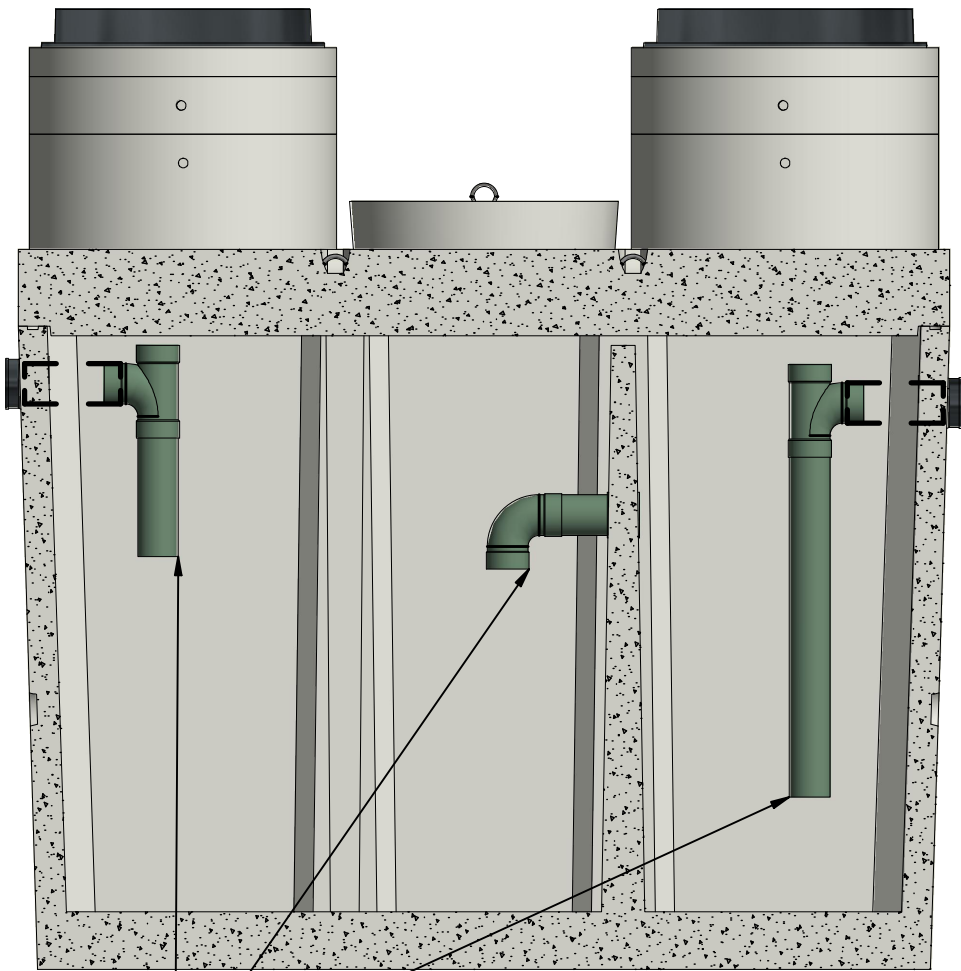
Attachment 1
Sand Oil Separator Product Option

NOTES
■ IN COMPLIANCE WITH UNIFORM PLUMBING CODE (UPC), INTERNATIONAL PLUMBING CODE (IPC), AND STRUCTURAL LOADING REQUIREMENTS OF ASTM INTERNATIONAL.
■ JENSEN PRECAST'S PRODUCT IS LISTED BY IAPMO R&T TO STANDARD Z1001. MODEL JP-750-ECE-SO
■ MINIMUM ONE (1) ACCESS OPENING PER COMPARTMENT REQUIRED (AS SHOWN). ADDITIONAL ACCESS CAN BE ADDED IN LIEU OF PLUG COVER WHEN REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
■ MUST BE INSTALLED PER "JENSEN PRECAST UNDERGROUND WASTEWATER PRECAST CONCRETE TANK INSTALLATION PROCEDURE" WHICH CAN BE FOUND AT https://www.jensenprecast.com/Tank-Installation-Procedure-d2106.pdf . THIS PROCEDURE ADDRESSES REQUIRED EXCAVATION, SITE PREPARATION, INSTALLATION, VENTILATION, AND WATER/VACCUM TESTING



ISO LAYOUT

BILL OF MATERIALS				
ITEM	QTY	PART NUMBER	DESCRIPTION	WEIGHT (LBS)
1	1	200018837	Tank JP 750 Gallon 4 Inch Assembly 24"E, 24"C, 24"E Single Baffle	10209
2	1	200048940	200030781 Plumbing - JP 750 4 Inch Sand-Oil Interceptor 24"E, 24"C, 24"E Single Baffle	8
3	JOB SPECIFIC	100005850	CI RINGCOVER 24DIA B-5105-02/B-5105-R2 ASTM A48 CL35B CP O-RING GASKET OSI JENSEN/INTERCEPT	196
4	JOB SPECIFIC	100001524	Grade Ring D2432x3	87
5	JOB SPECIFIC	100001525	Grade Ring D2432x6	180
6	JOB SPECIFIC	100001526	Grade Ring D2432x12	365
7	JOB SPECIFIC	100012046	Plug Cover D2428x6 Slab Top	300



SECTION

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	DRAWING CREATED	10/14/2019	T.Larson
B	OUTLET PLUMBING UPDATED	1/3/2020	T.Larson
C	TOP SLAB LIFTING AND PLUMBING UPDATED	2/10/2021	C.Keller
D	PRODUCT WEIGHT UPDATE	4/29/2021	BGD
E	ACCESSORIES UPDATED	6/30/2022	E.FINE

DESCRIPTION: Tank JP 750 Gallon 4 Inch Layout Sand-Oil Interceptors 24"E, 24"C, 24"E Single Baffle		REV: E-2	
LAYOUT REVIEW		SHEET: 1 OF 2	
PART NUMBER:	200030781	DRAWN BY:	E. Fine
CREATED:	1/31/2019	MODIFIED:	6/30/2022

BURY DEPTH:		1.1' - 6.0' to Top	
WATER LEVEL:	Below Structure	WEIGHT:	12173.21 Lbs
DESIGN SPEC:	ASTM C890,ACI 318	LOADING SPEC:	A-16 (AASHTO HS20-44)
REINFORCEMENT TYPE:		LIFTING TYPE:	

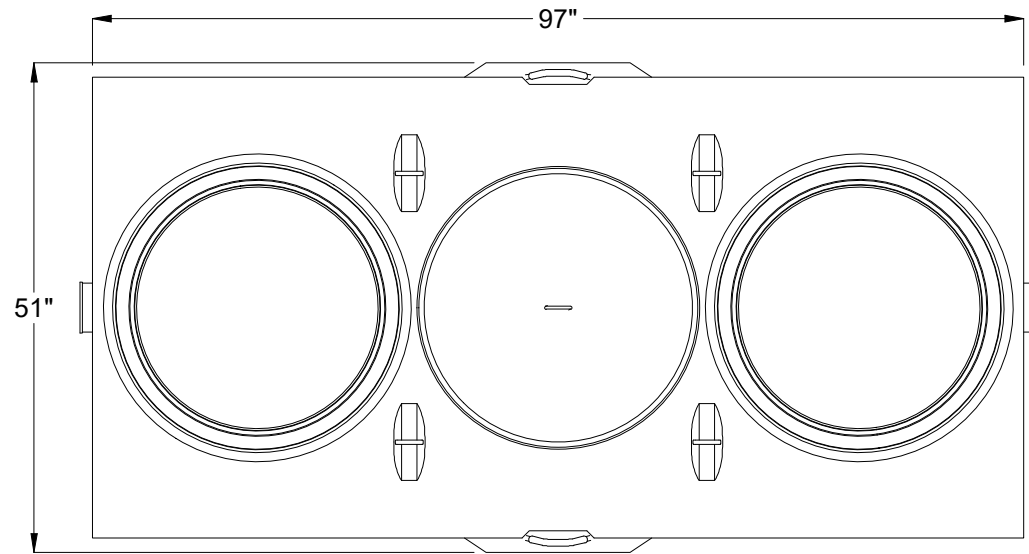


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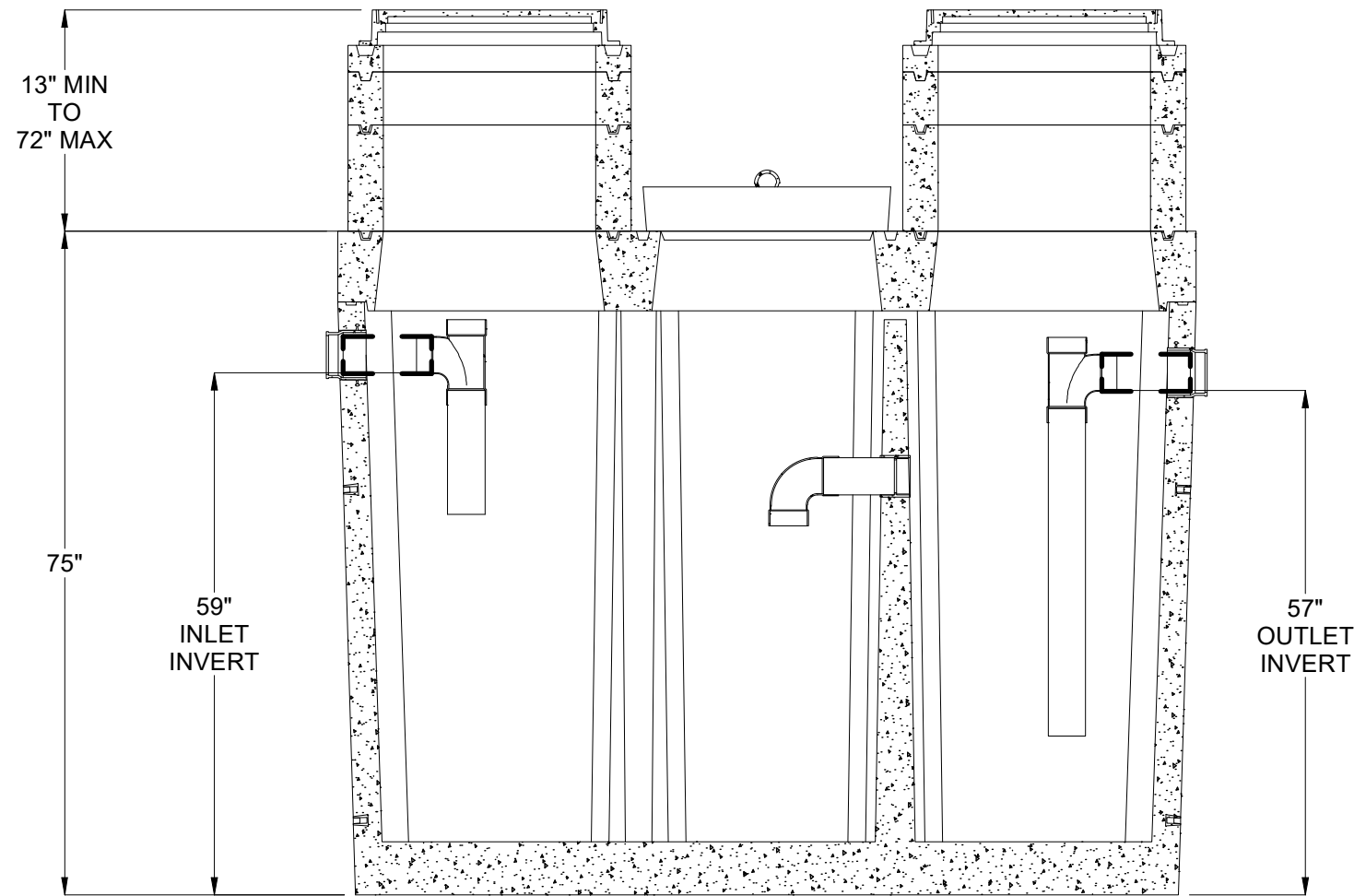
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MODEL:
JP-750-ECE-SO



PLAN VIEW



CROSS SECTION

BURY DEPTH:		1.1' - 6.0' to Top		<div><div><div>JENSEN®</div><div>PRECAST</div></div><div><div></div><div>EST. 1968</div></div></div> <div>WWW.JENSENPRECAST.COM</div>	©2018 Jensen Precast- All rights reserved. All materials appearing as Jensen Precast documents and the like are proprietary work product and are protected under U.S. copyright and other laws. Unless in conjunction with business conducted with Jensen Precast, any use of Jensen Precast work product without express, written consent is prohibited, and recipient is prohibited from distributing any and all work product to non-approved third parties under penalty of civil action.		DESCRIPTION:		REV:	
WATER LEVEL:		WEIGHT:					Tank JP 750 Gallon 4 Inch Layout Sand-Oil Interceptors 24"E, 24"C, 24"E Single Baffle		E-2	
DESIGN SPEC:		LOADING SPEC:			LAYOUT DRAWING				SHEET:	
REINFORCEMENT TYPE:		LIFTING TYPE:			PART NUMBER:		DRAWN BY:		2 OF 2	
					CREATED:		MODIFIED:			