

PART 5: TECHNICAL SPECIFICATIONS

PART 5 – TECHNICAL SPECIFICATIONS

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. General:
1. The Contract Documents describe the Work to be performed under this Contract which includes, but is not limited to, furnishing all tools, equipment, materials, supplies, and manufactured articles for the Project. It shall also include the furnishing of all transportation and services, including fuel, power, water, and essential communications necessary for the performance of all labor, work, or other operations required for the performance of the Contract in accordance with the Contract Documents.
 2. The Contractor should carefully review all sections of the Specifications in order to completely understand the Work and all constraints including schedule, environmental, permit and material requirements.
 3. Contractor is encouraged to proceed in an orderly and expeditious manner based on the constraints shown on the Drawings and described in the Specifications. All Work is to be constructed in strict accordance with the Contract Drawings and Specifications and subject to the terms and conditions of the Contract.
- B. The Contractor shall completely review, be familiar with and adhere to the terms of all permits and agency approvals for this project. Appendix A to these Specifications contain a summary of many, but possibly not all, of the most significant permit conditions that need to be actively complied with by Contractor. The HCRCDC will be providing the Contractor copies of permits, certifications, or authorizations from the following agencies including, but not limited to: California Department of Fish and Wildlife; U.S. Army Corps of Engineers; California Regional Water Quality Control Board; the U.S. Fish and Wildlife Service; National Marine Fisheries Service; State Lands, California Coastal Commission; and Humboldt County Building Department. Copies of all permits are available from the HCRCDC and will remain at the project site throughout the duration of construction. The Contractor is also responsible for adhering to all conditions provided in the Stormwater Pollution Prevention Plan (SWPPP) and shall also remain at the Project Site.
- C. Contractor shall obtain all other necessary permits and comply with them and all other applicable Local, State, and Federal laws and regulations.
1. Compliance with County permits: Contractor is responsible for obtaining and compiling with any relevant County Encroachment permit needed for the proposed construction activities, including, but not limited to, traffic and encroachment permits related to the delivery and hauling of construction equipment and materials, and traffic control measures. The Contractor must follow all pertinent Caltrans requirements for hauling large vehicles or equipment to the project site. To determine requirements for the specific vehicles to be used, see the web site at <http://www.dot.ca.gov/hg/traffops/permits>, if a county road is used for heavy equipment transport or wide loads, pertinent clearances with the Humboldt County Department of Public Works must be obtained.

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D. Location of the Work:

1. The project is located in Humboldt County near Ferndale, CA. A Vicinity Map is provided on the cover sheet of the drawings that illustrate the location of the project. The design drawings provide information regarding the limits of the project and its topography.

E. Technical Data and Other Reports:

1. Geotechnical and Engineering Geologic Report for the Salt River Ecosystem Restoration Project prepared by LACO Associates (March 2012) contains geotechnical evaluation of site conditions and recommendations. Copies of this report are available for review upon request. The Contractor shall be aware that the hydrologic conditions at the time the work was completed for the Geotechnical and Engineering Geologic Report may be different than the conditions that the Contractor shall encounter based on the Contractor's construction schedule. The Contractor shall account for actual hydrologic conditions experienced during construction.
2. Electronic Data: Upon request and subject to signing a release of liability, the following computer generated data will be provided:
 - a. Existing and Finished Ground Surface Models provided in a 2020 Autodesk Civil3D drawing file or as XML data or as determined appropriate by the HCRCD.
3. Limited Reliance by Contractor on *Technical Data Authorized*: Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against HCRCD, GHD, or any of their Related Entities with respect to:
 - a. The completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - b. Other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - c. Any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

F. Contractor's Duties:

1. Except as specifically noted, provide and pay for:
 - a. Labor, materials, and equipment.
 - b. Tools, construction equipment, and machinery.
 - c. Water and utilities required for construction.

- d. All other facilities and services necessary for proper execution and completion of Work.
2. Pay legally required sales, consumer, and use taxes.
3. Conform to the requirements of the project permits.
4. Secure and pay for, as necessary for proper execution and completion of the Work, all other applicable permits and licenses.
5. Give required notices.
6. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of the Work.
7. Promptly submit written notice to Construction Manager of observed variance of Contract Documents from legal requirements.
8. If any Subcontractor or person employed by the Contractor shall appear to the Construction Manager to be incompetent or to act in a disorderly or improper manner, he shall be discharged immediately on the requisition of the Construction Manager, and such person shall not again be employed on the Work.
9. The Contractor is responsible for providing construction staking and surveying as required for the job. The HCRCD will provide available control point information and an electronic file of the finished design surface and alignments as needed for the purpose of construction staking.

1.02 CONTRACT DESCRIPTION

A. General:

1. All Work is contained in this Contract. The limits of Work are shown in the Contract Drawings and described in these Specifications. It will be the Contractor's responsibility to coordinate their activities to resolve conflicts.
2. All risk of loss, damage or diminution to the Work shall rest with Contractor until final acceptance of the Work by the HCRCD.

B. Work conducted includes, but is not limited to:

1. Installation of signage and temporary stormwater BMPs.
2. Installation of temporary construction access routes, entrances, and equipment and material handling/storage areas;
3. Install cofferdams and water management system;
4. Demolition and removal of debris;
5. Within limits of grading, grub, clear vegetation
6. Strip and stockpile existing gravel levee access road material
7. Strip and stockpile existing herbaceous vegetation and organics

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8. Excavate levee material to lower levee elevation and haul to designated sediment reuse areas;
9. Place rock surfacing on lowered levee segments;
10. Excavate drainage ditches and haul to designated sediment reuse areas;
11. Install pipe culverts with flap gates through existing levee fill prism
12. Place rock slope protection at culvert crossings, rock surfacing at levee excavation locations, rock bedding rock at inlet and outlets;
13. Place seed/mulch;
14. Place Biodegradable Mat;
15. Install fencing and gates;
16. Install public access amenities (including but not limited to signs, kiosks, bike racks, concrete wheel stops, picnic tables, minor concrete, benches, gravel path, ADA parking, gravel parking area)
17. Install fiber rolls and other erosion/sediment control BMPs to achieve final site stabilization.

1.03 SPECIAL CONSTRUCTION REQUIREMENTS

A. General:

1. The excavation and application areas are on CDFW property and adjacent to private property. The Contractor will be required to coordinate their schedule with the Construction Manager personnel to ensure a minimum of interruptions to private property owners.
2. Construction sequence constraints are presented below. THIS PROJECT IS HIGHLY SENSITIVE TO TIMING CONSTRAINTS RELATED TO SPECIAL STATUS SPECIES, ASSOCIATED PERMIT CONDITIONS AND PHYSICAL CONDITIONS. The phasing/sequencing of most construction elements will be constrained by construction schedules stipulated by special status species in terms of construction windows and clearance and monitoring requirements, and requirements in environmental permits. Creek flow and weather conditions will also affect project scheduling.
3. Biological restrictions: Prior to start of construction, the Construction Manager will arrange for a qualified biologist to give Contractor's staff a presentation regarding special status species and restrictions required in terms of construction start clearance surveys, and construction monitoring. Because of the high number of special status species that occur in the area, most, if not all, elements may not be implemented until after certain dates and after construction clearance surveys by a qualified biologist have been performed and completed.
4. Prior to start of construction, a qualified biologist under the direction of the Construction Manager must complete a check for presence of sensitive aquatic, avian and terrestrial species within construction areas. In certain instances, only

one clearance survey may be required. In other instances, particularly in certain areas where special status species are sighted or known to occur, surveys to clear the site may be required on a more frequent basis. Once the site has been cleared, the Construction Manager will authorize the Contractor to begin work.

5. Required clearance surveys: if special status species are located during clearance surveys, the Contractor shall stop work immediately and notify the Construction Manager. If possible, a Biologist under direction of the Construction Manager will conduct seining or trapping to relocate the species a safe distance away from the construction activities and out of the work limit line. However, in some instances, a buffer zone may need to be established in which no work would be conducted within some specified distance from the species' location. Further required actions could include, but are not limited to: 1) temporary delay in construction while species are relocated by qualified biologists; or 2) delay of construction until predetermined date after breeding season with no construction occurring within a buffer zone around the area where species were found. Owner and their representatives are not liable for such delays.
6. Scheduling of required clearance surveys: The Contractor will be required to provide a construction schedule. On a weekly basis, the Contractor and Construction Manager will meet and discuss the status of the project and updates to schedules. Clearance surveys will be scheduled with the basis of this revised weekly schedule. The Contractor will not be allowed to start construction in specific areas until clearance surveys have been performed and authorization is given by the Construction Manager. It is the responsibility of the Contractor to provide the Construction Manager an updated schedule that allows for adequate time to schedule the clearance surveys required.
7. All in-stream construction activities within the Salt River channel, including excavation, shall be limited to June 15th thru October 15th, unless written authorization from California Department of Fish and Wildlife is received to extend the work period. Contractor shall not begin any instream work without prior approval of Construction Manager. In the event of rain, Contractor shall suspend all work until Construction Manager provides approval to resume work.
8. Work windows specified in the various project permit conditions may conflict within one another therefore the most restrictive windows shall be exercised and as shown in the schedule on the plans.
9. **The Contractor shall have all project work completed by October 15, 2024.** The HCRCD is not liable for any expenses that this regulatory-driven change in schedule that may incur.

B. Specific Sequence and Constraints:

1. The Contractor shall note that only certain constraints are addressed in this section. All Work, whether or not addressed here, shall be governed by applicable parts of this section, and schedules and procedures further submitted for approval.
2. The first order of business is submission of submittals. Complete submittals for all items to be incorporated into the Work shall be made no later than fifteen (15) calendar days following receipt of Notice to Proceed unless noted otherwise in these specifications.

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3. The Contractor shall include all Work described in this section in the construction schedule. The sequence and constraints identified in this section shall be followed in the construction of the Work. However, alternatives to these sequences and constraints may be submitted by the Contractor for review by the HCRCD.
4. Specific Sequencing constraints include:
 - a. The pre-construction conference described in this Section shall be coordinated to accommodate attendance by representatives of the HCRCD.
 - b. Contractor shall anticipate weekly construction progress meetings with HCRCD staff to review work progress and issues (see Section 01 33 00).
 - c. Contractor shall notify City of Ferndale Fire Department of any construction activity that may affect traffic and potentially impact emergency vehicle and fire apparatus access. Additionally, Contractor shall notify the City of Ferndale and Humboldt County Sheriff Departments of any life safety concerns.
 - d. Stockpiling of excavated soils that are potentially contaminated is not allowed. If hazardous materials are encountered, contractor to remove contaminated material from the site and dispose of it at an approved disposal site subject to the approval by the Construction Manager.
 - e. All temporary stockpiles shall be removed from within the limits of disturbance by October 15 of the construction year(s) and placed in designated areas shown on the plans.

1.04 CONTRACT METHOD

- A. The Contractor shall include the requirements of the General Conditions of the Contract as a part of all of its subcontract agreements.
- B. All work as identified and described in the construction drawings and Specifications. In the case that there are discrepancies between Drawings and Specifications, Specifications take precedence over drawings.

1.05 UNDERGROUND FACILITIES

- A. The Contractor shall exercise care in all excavations to avoid damage to existing underground facilities. This shall include potholing and hand digging in those areas where underground facilities are known to exist until they have been sufficiently located to avoid damage to the facilities.
- B. Prior to fabrication of any materials, the Contractor shall verify the locations and elevations of existing underground facilities which the Contractor is connecting to.
- C. The Contractor shall exercise care in maintaining those pipes, valves, and appurtenances to be abandoned and/or removed which are required for the continuing operation of the existing facilities until such time as they can be abandoned. The Contractor shall exercise extreme caution in working in any area adjacent to existing underground pipes. It is essential that the existing utilities be maintained in service until the new Work is ready for full-time operation and is placed in service.
- D. No additional compensation shall be provided the Contractor for compliance with the provisions of this section for the damage and repair of such facilities due to the lack of care.

1.06 PROJECT MEETINGS

- A. Section 01 30 00 - Administrative Requirements: Preconstruction Meeting, Progress Meetings, and Close Out Meetings.

1.07 PROJECT APPROACH PLAN

- A. Contractor shall submit for review and approval a Project Approach Plan that shall summarize the contractor's approach to completing the clearing, grubbing and earthwork operations of the project. The intent of the Plan is to demonstrate how the Contractor will approach and quantify the work to be completed and demonstrate compliance with the plans and specifications. This submittal covers several technical specifications as well as the plans and it is the Contractor's responsibility to understand the requirements of the contract, and how the plans and specifications relate to one another and to this submittal.
- B. The Contractor's Project Approach Plan shall be provided as a submittal as a first order of business prior to mobilization. The plan shall be kept up to date during the project and shall be revised as necessary as the project progresses. The plan shall be reviewed at the regular construction progress meetings.
- C. The Contractor's Project Approach Plan should briefly and clearly describe the Contractor's proposed approach to conduct the following work.
 - 1. Mobilization and Site Preparation
 - a. Describe the strategy for mobilization and site preparation including equipment staging proposed access locations and other preparations for the Contractor to prepare for the work.
 - 2. Stripping and Stockpiling
 - a. Describe how the stripping and stockpiling operations will be conducted in accordance to the specifications and where the material will be temporarily/permanently placed and the hauling methods/routes.
 - 3. Earthwork and Sediment Hauling Operations

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- a. Describe the sequencing to excavate the levee and drainage ditches following stripping and stockpiling operations.
 - b. Describe how the Contractor will conduct the sediment hauling and application process include haul routes and application timing in accordance to the plans.
 - c. Describe how the Contractor will document finish grades suitable for generating Contractor provided Record Drawings.
4. Debris Disposal of Other Materials
- a. Describe how the Contractor will handle and account for temporarily stockpiled debris and other deleterious material to be disposed of offsite.
 - b. Provide a proposed disposal plan subject to approval by the Construction Manager's approval.
5. Demobilization and Site Cleanup
- a. Describe the strategy for demobilization at the conclusion of the job including cleanup, removal of temporary facilities, and other work associated with job closeout.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION [NOT USED]

END OF SECTION 01 11 00

SECTION 01 14 19

USE OF SITE

PART 1 GENERAL

1.01 DESCRIPTION

- A. Related Requirements specified elsewhere:
 - 1. Section 01 57 00 – Environmental Requirements and Water Management
 - 2. Section 31 10 13 - Demolition/Debris Removal
 - 3. Section 31 11 00 – Grubbing and Clearing

1.02 INFORMATION OF ON SITE CONDITIONS

- A. Information obtained by the Construction Manager regarding site conditions, subsurface information, and existing facilities, and similar data are shown on the Plans and are from the information made available by the HCRCD. Exact location and completeness are not guaranteed.
- B. Construction activities is limited to the limits of disturbance and sediment application areas shown on drawings.

1.03 CONTRACTOR'S RESPONSIBILITIES

- A. The HCRCD has entered into agreements with all property owners within the project limits of disturbance and the sediment reuse areas. These agreements allow the Contractor's use of these areas in accordance to the plans and specifications. The Contractor is responsible to execute the work within these areas in accordance to the plans and specifications including hauling the excavated sediment to the designated application / reuse areas.
- B. If additional areas beyond the limits of disturbance and sediment application areas shown on the plans are desired by the Contractor to execute the work, the Contractor shall first receive authorization from the Construction Manager. Contractor shall obtain all necessary permissions and approvals for use of these areas and shall submit a signed statement from the property owner granting permission and holding the HCRCD harmless from any and all damages that may result from the Contractor's use of the site.
- C. The Contractor shall satisfy their self as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, work in sensitive environment and uncertainties of weather, tidal variations, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this contract.

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- D. The Contractor further shall satisfy their self as to the character, quality, and quantity of materials to be encountered from inspecting the site, any exploratory work done by the HCRCD, as well as from information presented by the Plans and Specifications made a part of this contract. Any failure by the Contractor to acquaint himself with all the available information available as part of the Bid Documents or referenced in the Bid Documents will not relieve him from responsibility for properly estimating the difficulty or cost of successfully performing the work.
- E. The Contractor shall note that many of the staging and stockpile areas and construction entrances are located on CDFW property and that heavy truck and equipment operations may cause damage. A portion of the fencing is located on private property. The Contractor shall restore these areas back to pre-project conditions or better. Damage caused by Contractor's operations shall be repaired by the Contractor at no additional cost to the HCRCD or property owner.
- F. The Contractor shall note that many of the existing roads and streets needed to access the site are rural in character and that heavy truck and equipment operations may cause roadway damage in excess of normal usage. Damage caused to the streets by Contractor's operations shall be repaired by the Contractor at no additional cost to the HCRCD.

1.04 USE OF SITE AND ACCESS ROADS

- A. The Contractor shall:
 - 1. Conduct all operations with the least possible obstruction and inconvenience to the public and adjacent landowners.
 - 2. Have under construction no greater length or amount of work than can be continuously and vigorously prosecuted properly with due regards to the rights of the public.
 - 3. To the extent possible, finish each section before beginning work on the next.
 - 4. Be cognizant of other construction projects within the vicinity that may create traffic delays to trucks transporting fill material between the Project and offsite disposal sites.
 - 5. Assume full responsibility for protection and safekeeping of products stored on premises.
- B. Manage construction worker parking and access to avoid impeding access for emergency vehicles and local area residents.
- C. Protect the rights of abutting property owners by:
 - 1. Planning and conducting construction operations so that the least inconvenience as possible is caused to abutting property owners;
 - 2. Prohibit access of staff and subcontractors to properties abutting the project site, except as approved in writing by the Construction Manager.
- D. Access to Private Properties:

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1. Contractor shall maintain access for local vehicular and pedestrian traffic to private properties along the main access road to the project site.
- E. The Contractor shall be responsible for providing adequate safeguards, safety devices, and protective equipment, and for taking any other needed actions to protect the life, health, and safety of the public, and to protect property in connection with the performance of the work covered by the Contract.
- F. The Contractor shall stage materials and equipment in designated staging and stockpile areas as shown on the plans.
- G. Staging in permitted areas shall be at the Contractor's risk. HCRCD or their representatives shall not be held liable for any damage to or loss of materials or equipment located within these areas or at any location on the project site(s).
- H. Access to worksite: Contractor and Contractor's employees and subcontractors shall use access routes as indicated on project plans.
- I. **Contractor shall repair any damage to existing roads and property to pre-existing conditions or better, this includes the existing levee that is not lowered and access roads.**
- J. The Contractor shall remediate temporary haul roads at the conclusion of use through blading, ripping or otherwise removing ruts and de-compaction. The Construction Manager reserves the right to require the Contractor to repair damage where haul roads were constructed. Restore access roads and staging areas to pre-existing conditions or better.
- K. Construction access routes and equipment staging areas shall be limited within the project disturbance areas to the extent feasible and as shown on the plans. Construction activities shall be prohibited from unnecessarily disturbing aquatic habitat. Disturbance such as excavation, filling or dewatering of any existing ditches, channels and other ponded water areas shall occur only after the area has been seined and cleared by qualified biologist hired by the HCRCD.
- L. Hauling Restrictions:
 1. Comply with all legal load restrictions in the hauling of materials. Delivery and haulage access, including contractor mobilization and demobilization, will be scheduled to minimize impacts on traffic on area roadways.
 2. Do not load structure, roadway or roadway shoulder with weight that will endanger or render unusable any structures or roadways or underground utilities.
- M. Parking and Traffic Regulations:
 1. Persons involved in construction operations shall comply with parking and traffic regulations for use of County/State streets, as enforced by County/State authorities, except for other arrangements as may be agreed to between Contractor and County authorities and approved by the Construction Manager.
- N. Existing Improvements in Streets:
 1. Existing street signs, electroliers, traffic signals, fire hydrants, underground

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valves and meter boxes, manholes, trees and other items occurring in streets adjacent to the site shall be left undisturbed, unobstructed, and easily accessible at all times during construction, except as otherwise indicated or agreed to between Contractor and County authorities.

- O. Covering, moving, trimming, or altering trees and other vegetation which may become necessary shall be done only with consent of and in cooperation with County and City authorities having jurisdiction. Contractor shall pay costs, which may be incurred.
- P. Construction Camp: Establishment of a camp within the project property will not be permitted.
- Q. Residence trailers will not be allowed within the project site, or designated staging and stockpiling areas, except for security purposes as approved by the Construction Manager.

1.05 PROTECTION OF NATURAL FEATURES

- A. Avoid impacts to vegetation outside the limits of construction disturbance. Prior to any construction, the Contractor shall demarcate the limits of construction disturbance. No access or construction permitted outside of the designated work / access zones without prior approval from the Construction Manager.
- B. Confine all operations to limits shown for the project. Prevent damage to natural surroundings. Restore damaged areas, repairing or replacing damaged trees and plants, at no additional expense to the HCRCD.
- C. Do not remove, injure, or destroy trees or other plants without prior approval of the Construction Manager. Consult with the Construction Manager and remove agreed upon roots and branches that interfere with construction. All pruning of canopy or cutting of roots will be done under the supervision of the Construction Manager or their representative, and shall be done as set forth by the National Arborist Association or the International Society of Arboriculture.
- D. If the Contractor destroys or injures trees and shrubs designated for protection or outside of the work limits, the Contractor shall replant at a 3:1 ratio pursuant to Mitigation Measure 3.4.1-1.6 in the FEIR and as directed by the Construction Manager.
- E. Water quality of all creeks must be maintained through the implementation of a Storm Water Pollution Prevention Plan (SWPPP) that includes measures for controlling erosion and preventing fuel spills.
- F. As specified in Section 01 57 00, the Contractor shall take all preventative measures to protect the staging areas from contamination due to oil or fuel spills or any other contaminants. The Contractor will submit to the Construction Manager for approval a Spill Prevention and Response Plan. Any leaks or spills which occur on the project site shall be fully removed from the project site. If contamination occurs, the Contractor shall immediately notify the Construction Manager, and decontaminate the area to the satisfaction of the Construction Manager, prior to further improvement or further construction activities in general.
- G. All staging and laydown areas disturbed by the Contractor or construction or construction related activities shall be restored to their pre-existing state or in accordance with these

Specifications.

1.06 PROTECTION OF PROPERTY AND LANDSCAPE

- A. Preserve public and private property, and protect monuments established for the purpose of perpetuating horizontal, vertical, cadastral, or boundary control. When necessary to destroy a monument, reestablish the monument according to applicable state statute or by the direction of the Construction Manager. The Contractor shall notify the Construction Manager of any monument that may need to be destroyed. If the Construction Manager determines that the destruction of the monument is unavoidable, Construction Manager will arrange for resetting the monument and associated costs. If a monument is destroyed by the Contractor's negligence or without the Construction Manager's approval the Contractor shall pay for resetting the monument.
- B. Do not excavate, remove, damage, alter or deface any archeological or paleontological remains or specimens. Control the actions of employees and subcontractors on the project to ensure that protected sites are not disturbed or damaged. Should any of these items be encountered, suspend operations at the discovery site, notify the Construction Manager and continue operations in other areas. The Construction Manager will inform the Contractor when operations may resume at the discovery site.
- C. Existing Utilities:
 - 1. Contractor shall be responsible for locating and preventing damage to known utilities or utility support structures. If damage occurs to utilities, Contractor shall repair utility at no additional expense to HCRCD.
- D. Protect utilities from construction operations: 48 hours before beginning work in an area, the Contractor shall notify Underground Service Alert (USA), at 1-800-227-2600, to determine locations of existing utilities. Cooperate with utility owners to expedite the relocation or adjustment of their utilities to minimize interruption of service and duplication of work.
- E. If the work requires removing or relocating a utility, the contract will assign the task to the Contractor or the utility owner. When this task is assigned to the utility owner and work is not complete before the Contractor begins work, the Contractor shall immediately notify the Construction Manager in writing.
- F. Any authorized agent of the Owner or utility owners may enter the site to repair, rearrange, alter, or connect their equipment. The Contractor shall cooperate with such efforts and shall avoid creating delays or hindrances to those doing the work. As needed, the Contractor shall arrange to coordinate work schedules.
- G. If utility services are interrupted as a result of damage by the construction, immediately notify the utility owner, the Construction Manager, and other proper authorities. Cooperate with them until service is restored. Do not work around fire hydrants until provisions for continued service are made and approved by the local fire authority.
- H. The Contractor shall protect private or public property on or in the vicinity of the work site. The Contractor shall ensure that it is not removed, damaged, destroyed, or prevented from being used unless the contract so specifies.

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- I. Fencing: The Contractor shall maintain existing fencing to remain and install temporary fencing to maintain a safe worksite and to preserve livestock, pasture, or property when working through or adjacent to private property.
- J. Livestock and Gate Control: Contractor shall follow all Construction Manager's instructions regarding gate closure. Contractor is liable for all damages resulting from any and all improper gate closure instructions.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION [NOT USED]

END OF SECTION 01 14 19

SECTION 01 15 00

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 GENERAL

- A. Unless otherwise specified in other individual sections of these specifications, quantities of work shall be determined from measurements or dimensions in horizontal planes.
- B. Units of measurement shall be in accordance with U.S. Standard Measures.
- C. See the general conditions for special provisions related to progress payments and payment schedule to the contractor.
- D. The measurement and payment items are listed below:
 - 1. Pay Item Quantities- All bid Item List quantities are shown in the Bid Schedule as final pay items for payment purposes only. For a final pay item, accept payment based on the Bid Item List quantity, to achieve the lines and grades shown on the plans, regardless of actual quantity used unless dimensions are changed by the Construction Manager.
 - 2. The payments to the Contractor are based on the following items. It is the intent that the scope of the description of the following items encompasses the entire scope of the work as shown on the plans and described in the specifications. The bid amounts shall be for complete in place installations.
 - 3. Any other work shown on the plans and not specifically mentioned/described in the following bid items will be paid under Bid Item No. 1.

1.02 BASE BID SCHEDULE

ITEM 1. MOBILIZATION/DEMobilIZATION

Measurement for this item shall be on a LUMP SUM basis. Payment shall correspond to percent complete as confirmed by the Construction Manager and described in this bid item below. This Work covers all Contractor costs and effort associated with mobilizing equipment, materials, and labor to the project site as well as demobilization of the same for the base bid schedule. The incremental mobilization/demobilization costs associated with any additive bid items will be covered in those items, if awarded. Items covered by this item include, but are not limited to, bonds, insurance, contracting and administrative and permitting costs, equipment mobilization to the work areas, temporary facilities and utilities, gravel access roads, temporary culverts, temporary fencing and construction entrances, punch list items, repairs of damaged property, site cleanup, final site restoration, road repairs and project maintenance and warranty.

- 1. This Bid Item also covers all Contractor costs and effort associated with providing traffic control measures as described in these Specifications, the Plans, and Contractor obtained encroachment permit. Items covered by this include, but are not limited to, labor, materials, equipment, and other expenses for complete traffic control throughout the length of the project including times when the Contractor is not working on site. Included are notifications, road closures and detours, flaggers as necessary, and all other materials and equipment needed to temporarily control traffic throughout the project.

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2. This Bid Item also covers the development of the Project Approach Plan submittal. The Project Approach Plan will define the overall approach the contractor proposes to take to complete the work associated with the contract documents. It also includes any revisions based on owner or agency comments.
3. When 10 percent of the total original Contract amount is earned from bid items, excluding amounts paid for materials on hand, 50 percent of the amount of the bid price for mobilization/demobilization will be paid for mobilization/demobilization. Upon completion of all Work on the project, payment of the balance of the bid amount for mobilization/demobilization will be paid.
4. Any other work shown on the plans and not specifically mentioned/described in the following bid items will be paid under mobilization/demobilization.

ITEM 2. WATER MANAGEMENT, DUST/EROSION CONTROL AND ENVIRONMENTAL PROTECTION

Measurement for this item shall be on a LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to construct and manage facilities and work associated with water meeting permit requirements including control, diversion and disposal of water. Items covered by this include, but are not limited to, cooperation with CDFW biologists, installation of fish screens, cofferdams, dewatering pumps, and disposal of water. This item also includes maintenance and removal of water management system. This item also includes routine dust suppression, maintenance of existing construction entrances, tire cleaning stations as needed to prevent tracking, and cleaning of public roads. This Work covers all Contractor costs and effort associated with obtaining construction water from approved sources, applying water to prevent fugitive dust, and as-needed routine street sweeping/vacuuming on County roads to comply with project permits. This item covers all Contractor costs and effort associated with providing erosion/sediment control BMPs, complying with the Storm Water Pollution Prevention Plan (SWPPP) and performing all necessary inspections and adjustments to the BMPs to comply with the SWPPP and compliance with all applicable local, regional and federal laws, protection of cultural and historic resources, and all other environmental protection measures shall be considered incidental to this item and includes all erosion control items necessary to comply with the SWPPP which are not covered under Bid Item No. 25, 26 and 27.

ITEM 3. DEMOLITION AND DEBRIS DISPOSAL

Measurement for this item shall be on a LUMP SUM basis. Payment shall correspond to percent complete as confirmed by the Construction Manager. This Work covers all Contractor costs and effort associated with all demolition shown on the plans or required to complete the work shown on the plans, and the removal and disposal of deleterious materials encountered during construction. This includes waste, refuse, and fencing to be removed as shown on the plans, as well as materials removed as part of the demolition as shown on the plans. This also includes the removal, and disposal of additional deleterious materials that may be encountered during construction such as fence material, tires, piping, culverts, bottles, metals, abandoned water piping, appliances, and other waste.

ITEM 4. CONSTRUCTION SURVEYING AND STAKING

Measurement for this item shall be on a LUMP SUM basis. Payment shall correspond to percent complete as confirmed by the Construction Manager. This Work covers all Contractor costs and effort associated with providing construction staking, establishing control and project layout as described in these Specifications and as required to meet the requirements of the plans. Items covered by this item include, but are not limited to, labor, materials, equipment, and other expenses required to stake the alignment and grades, project features and improvements, grubbing limits and all other areas as required to construct the work.

- ITEM 5. CLEARING AND GRUBBING
Measurement for this item shall be on a LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to clear, grub and chip all stumps, roots, logs, and other woody debris encountered on the surface or subsurface where shown on the plans or as required to complete the work. The cleared and grubbed material shall be chipped, hauled to designated onsite stockpiles shown on the plans, and the remainder volume hauled and stockpiled in the Staging Area shown on the plans. This bid item also includes the incidental clearing of areas encountered in the field that require clearing prior to grubbing, hauling and chipping this material and placing in designated areas.
- ITEM 6. VEGETATION STRIPPING & PLACEMENT
Measurement for this item shall be on a LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to strip, stockpile, and place vegetative and organics encountered on the surface or subsurface where shown on the plans. The stripped vegetation and organics shall be stockpiled within the limits of disturbance shown on the plans and placed in location shown on the plans.
- ITEM 7. EARTHWORK (EXCAVATION, SEDIMENT REUSE PLACEMENT & GRADING)
Measurement and payment for this item shall be on a LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to complete the excavation, segregating, hauling, temporary stockpiling and placement in accordance with the requirements as shown on the Plans and as described in the Specifications. Payment shall also include full compensation for all materials, labor, equipment and supervision necessary to complete all excavation, finished grading and compaction of fill to achieve the required lines and grades shown on the Plans as required by the Specifications, including but not limited to subgrade preparation, moisture conditioning, re-conditioning, compaction, testing, and any necessary re-testing. The intent of the grading design is to reuse all excavated soil onsite in the sediment reuse areas as shown on the plans. Fill depths of the sediment reuse areas shown may vary, subject to authorization, to accommodate reuse of all excavated sediment onsite and at no additional cost to the project.
- ITEM 8. ROCK SURFACING FOR LEVEE TOP (METHOD B)
Measurement and payment for this item shall be on a CUBIC YARD basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to complete all onsite placement required to achieve the required lines and grades shown on the Plans and as required by the Specifications, including but not limited to preparing the subgrade, placement of the geotextile fabric, rock placement and compaction to achieve final grades. This item also includes the removal, temporary stockpiling and placement of the existing ¾" minus rock on levee top shown to be reused in the rock surfacing. The volume shown in the bid schedule is the total volume of rock surfacing to achieve the in final grades. Fabric placed under the rock surfacing is included in this bid item.
- ITEM 9. CLASS II AGGREGATE BASE FOR ENHANCED, NEW AND BOAT LAUNCH TRAILS
Measurement and payment for this item shall be on a CUBIC YARD basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to complete all onsite placement required to achieve the required lines and grades shown on the Plans and as required by the Specifications, including but not limited to water conditioning, compaction, testing, and any necessary re-testing. Fabric placed under the grave is included in this bid item.
- ITEM 10. ROCK SLOPE PROTECTION (CLASS V, METHOD B)
Measurement for this item shall be on a CUBIC YARD basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to prepare the

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subgrade, place the geotextile fabric and rock at new culvert location as shown on the plans and as required in the specifications. Materials include, but are not limited to, geotextile fabric and rock necessary to meet the intent as shown on the plans and as required by the specifications.

ITEM 11. 60" DIAMETER CULVERT WITH FLAP GATE

Measurement for this item shall be on an EACH basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary for completing all the work involved in subgrade preparation, coupling pipe segments, installing to required lines and grades, bedding, backfilling, compacting, testing, re-testing, and flap gate installation as shown on plans and as required by the specifications.

ITEM 12. CONCRETE PAVING

Measurement for this item shall be on a LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary for completing all the work involved in furnishing and installing concrete ADA parking space, concrete walkway and concrete patio, and shall be considered as full compensation for furnishing all labor, materials and equipment necessary to complete the work, including but not limited to: layout of forms, aggregate base compaction, rebar, concrete and concrete placement and finishing, curing of concrete, striping of forms, site and area cleanup, installation of associated signs and concrete surface markings, and all other work necessary for completion of work as specified in these specifications and as directed by the Engineer.

ITEM 13. WHEEL STOPS

Payment for bike racks shall be on the basis of the bid price per EACH wheel stop installed, complete and in place, as determined by a field count by the Construction Manager, and shall be considered as full compensation for providing all labor, equipment, and materials necessary to install wheel stops, including, but not limited to, furnishing and installing new wheel stops as shown on the Plans, as specified in these specifications, and as directed by the Construction Manager.

ITEM 14. PARKING STALL DELINEATORS

Payment for bike racks shall be on the basis of the bid price per EACH parking stall delineator installed, complete and in place, as determined by a field count by the Construction Manager, and shall be considered as full compensation for providing all labor, equipment, and materials necessary to install parking stall delineators, including, but not limited to, furnishing and installing parking stall delineators as shown on the Plans, as specified in these specifications, and as directed by the Construction Manager.

ITEM 15. BENCHES

Payment for benches shall be on the basis of the bid price per EACH bench installed, complete and in place, as determined by a field count by the Construction Manager, and shall be considered as full compensation for providing all labor, equipment, and materials necessary to install benches, including, but not limited to, furnishing and installing new benches as shown on the Plans, as specified in these specifications, and as directed by the Construction Manager.

ITEM 16. PICNIC TABLE

Payment for picnic tables shall be on the basis of the bid price per EACH picnic table installed, complete and in place, as determined by a field count by the Construction Manager, and shall be considered as full compensation for providing all labor, equipment, and materials necessary to install the picnic table, including, but not limited to, furnishing and installing the new picnic table as shown on the Plans, as specified in these specifications, and as directed by the Construction Manager.

ITEM 17. BIKE RACKS

Payment for bike racks shall be on the basis of the bid price per EACH bike rack installed, complete and in place, as determined by a field count by the Construction Manager, and shall be considered as full compensation for providing all labor, equipment, and materials necessary to install bike racks, including, but not limited to, furnishing and installing new bike racks as shown on the Plans, as specified in these specifications, and as directed by the Construction Manager.

ITEM 18. SIGN STRUCTURE

Payment for interpretative sign post shall be on the basis of the bid price per EACH sign structure installed, complete and in place, as determined by a field count by the Engineer, and shall be considered as full compensation for providing all labor, equipment, and materials necessary to install new sign structure, including, but not limited to, furnishing and installing new sign posts, panel, top cap as shown on the Plans, as specified in these specifications, and as directed by the Engineer.

ITEM 19. KIOSK STRUCTURE

Payment for interpretative sign post shall be on the basis of the bid price per EACH kiosk structure installed, complete and in place, as determined by a field count by the Engineer, and shall be considered as full compensation for providing all labor, equipment, and materials necessary to install new kiosk structure, including, but not limited to, furnishing and installing new footings, support columns, panel, and roof as shown on the Plans, as specified in these specifications, and as directed by the Engineer.

ITEM 20. FENCE (3-STRAND FOR LEVEE TOP)

Measurement for this item shall be on a LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to complete the installation of the permanent exclusion fencing to meet the intent as shown on the plans and as required by the specifications.

ITEM 21. FENCE AND GATES (4-STRAND FOR PUBLIC ACCESS AREA)

Measurement for this item shall be on a LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to complete the installation of the fencing and gates to meet the intent as shown on the plans and as required by the specifications.

ITEM 22. STEEL BOARD HORSE FENCE

Measurement for this item shall be on a LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to complete the installation of the gates to meet the intent of the manufacturer's instructions and recommendations and as shown on the plans.

ITEM 23. STEEL BOARD HORSE FENCE GATE

Measurement for this item shall be on a EACH basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to complete the installation of the gates to meet the intent of the manufacturer's instructions and recommendations.

ITEM 24. STEEL TUBE GATE

Measurement for this item shall be on an EACH basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary for completing all the work involved in furnishing and installing steel tube gate as shown on the plans and as required by the specifications.

ITEM 25. BIODEGRADABLE MAT

Measurement for this item shall be on a LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to complete

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the installation of the biodegradable mat as shown on the plans and as required by the specifications.

ITEM 26. FIBER ROLLS

Measurement for this item shall be on a LINEAR FOOT basis measured along the top of a single fiber roll. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to install and maintain the fiber rolls during site stabilization and per satisfaction of the Construction Manager and as shown on the plans and as required by the specifications and SWPPP compliance. No additional payment will be paid for maintained/replaced fiber rolls.

ITEM 27. SEEDING AND MULCHING

Measurement for this item shall be on an LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to complete the seeding and mulching as shown on the plans and as required in the specifications. The Lump Sum bid price for Seeding and Mulching shall include coordination, soil preparation, seed application, mulching, inspections and shall include all supervision, labor, material, equipment, supplies, and incidentals, required for performing all incidental and related work involved in seed and mulch applications including but not necessarily limited to cooperation with the third party Landscape Contractor, seed mixing, applications, irrigation as needed for seed germination and growth until acceptance of SWPPP Notice of Termination (NOT); furnishing and installing supplemental seed, mulch and all other work necessary to establish vegetative cover over seed application areas shown on the Plans.

ITEM 28. TEMPORARY SHORING AND BRACING

Measurement for this item shall be on a LUMP SUM basis. Payment shall include full compensation for all materials, labor, equipment and supervision necessary to complete the installation of the temporary shoring as necessary to construct the project in accordance to the plans and specifications.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION [NOT USED]

END OF SECTION 01 15 00

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Coordination and project conditions
- B. Field Construction Managing
- C. Pre-bid meeting
- D. Preconstruction meeting
- E. Progress meetings
- F. Environmental compliance training

1.02 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.03 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various sections of Project to ensure efficient and orderly sequence of installation of construction elements.

1.04 FIELD CONSTRUCTION MANAGER

- A. The Contractor will provide construction staking services.
- B. Protect survey control points prior to starting site Work; preserve permanent reference points during construction.
- C. Promptly report to Construction Manager loss or destruction of reference point or relocation required because of changes in grades or other reasons.
- D. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Construction Manager.

1.05 PRECONSTRUCTION MEETING

- A. Construction Manager will schedule meeting after Notice of Award.
- B. Prior to the commencement of Work at the site, a Preconstruction meeting will be held at a mutually agreed time and place.
- C. Unless previously submitted to the Construction Manager, the Contractor shall bring to the conference three (3) copies of each of the following:
 - 1. Draft Construction Schedule.

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2. Procurement schedule of major equipment and materials and items requiring long lead time.
 3. Submittal schedule.
 4. Substitution Requests per Section 01300, "Administrative Requirements."
 5. Letter of Responsibility designating emergency contacts for the Contractor after business hours (3 copies).
- D. The purpose of the meeting is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established.
- E. The Construction Manager will preside at the Preconstruction Meeting and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.
- F. Agenda (Tentative):
1. Notice to Proceed date.
 2. Contractor's tentative schedules.
 3. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
 4. Critical work sequencing.
 5. Designation of personnel representing parties in Contract, and Construction Manager.
 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 7. Scheduling.
 8. Major equipment deliveries and priorities.
 9. Use of premises by HCRCD and Contractor.
 10. Environmental compliance.
 11. Owner's requirements and occupancy.
 12. Site Safety Contractor's assignments for safety and first aid.
 13. Construction facilities and controls provided by HCRCD.
 14. Application for payment procedures.
 15. Procedures for maintaining record documents.

1.06 PROGRESS MEETINGS

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- A. The Construction Manager shall schedule, arrange and conduct progress meetings. These meetings shall be conducted once per week, or as mutually agreed by Contractor and HCRCD, and shall be attended by the Contractor's superintendent and representatives of key Subcontractors, utilities, and others, who are active in the execution of the Work. The purpose of these meetings shall be to review the Contractor's schedule provided in accordance with this Section, resolve conflicts, and in general, coordinate and expedite the execution of the Work.
- B. Construction Manager will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings and record the meeting minutes.
- C. Attendance Required: Job superintendent, key subcontractors, HCRCD, Construction Manager, as appropriate to agenda topics for each meeting.
- D. Agenda (Tentative):
 - 1. Review and acceptance of minutes of previous meeting.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Site Safety.
 - 5. Environmental compliance.
 - 6. Identification of problems impeding planned progress.
 - 7. Review of submittals schedule and status of submittals.
 - 8. Review of delivery schedules.
 - 9. Maintenance of progress schedule.
 - 10. Corrective measures to regain projected schedules.
 - 11. Planned progress during succeeding work period.
 - 12. Coordination of projected progress.
 - 13. Maintenance of quality and work standards.
 - 14. Effect of proposed changes on progress schedule and coordination.
 - a. Progress Payment.
 - b. Change Orders.
 - c. Claims.
 - 15. Other business relating to Work.
- E. Record minutes and distribute copies within two days after meeting to participants, with one copy each to Construction Manager, HCRCD, and those affected by decisions made.

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1.07 ENVIRONMENTAL COMPLIANCE TRAINING

- A. All personnel working on site will be required to participate in a short briefing by the Construction Manager and qualified biologist about the presence of federally and state-listed bird, fish, amphibian, reptile, mammalian, and Plant species at the site, 2) non disturbance areas; 3) construction windows and effects on sequencing of work; 4) buffers between construction activities and breeding/nesting areas; and 5) pre-construction and construction clearance surveys and construction monitoring requirements prior to initiating and continuing work in construction work areas, including the potential necessity for trapping or seining and relocation; 6) Need to halt work if potential special status species located by Contractor or representative and notify the Construction Manager before proceeding with work; 7) Requirements for minimizing other environmental impacts, including noise, traffic, etc.; and 8) The possible presence of archaeological or cultural resources and need to halt work if suspected archaeological or historic resources are found and notify the Construction Manager before proceeding with work.
- B. Contractor shall ensure that all on-site workers and contractors understand and agree to observe the standards for work outlined in project permits.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION [NOT USED]

END OF SECTION 01 30 00

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Product data & shop drawings.
- D. Test reports.
- E. Certificates.

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for this item shall be included in the Bid Item to which it relates. No additional measurement or payment will be included for the requirements of this section.

1.03 SUBMITTAL PROCEDURES

- A. Submit on Submittal Form with information similar to the attached.
- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite Project, and deliver to Construction Manager.
- F. For each submittal for review, allow fourteen (14) calendar days excluding delivery time to and from Contractor.
- G. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.
- H. When revised for resubmission, clearly identify changes made since previous submission.
- I. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

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1.04 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedules within ten (10) calendar days after date of Notice to Proceed. After review, resubmit required revised data within ten (10) calendar days.
- B. Submit revised Progress Schedules with each Application for Payment.
- C. Distribute copies of reviewed schedules to Project site file, Subcontractors, suppliers, and other concerned parties.
- D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities.
- F. Indicate estimated percentage of completion for each item of Work at each submission.
- G. Revisions To Schedules:
 - 1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
 - 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.

1.05 PRODUCT DATA AND SHOP DRAWINGS

- A. Product Data and Shop Drawings: Submit to Construction Manager for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Submit a single re-producible copy or email an electronic version of the submittal to the Construction Manager.
- C. Mark submittal to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

1.06 TEST REPORTS

- A. Submit for Construction Manager's knowledge as contract administrator.
- B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.07 CERTIFICATES

- A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Construction Manager, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Construction Manager.

1.08 REQUESTS FOR SUBMITTALS

- A. Contractor is directed to each Specification section for required submittals, however, the anticipated Submittals shall consist of, but is not necessarily limited to the following:

Section	Submittal Title
01 11 00	Project Approach Plan
01 30 00	Draft Construction Schedule (3 copies)
01 30 00	Submittal Schedule (3 copies)
01 30 00	Substitution Requests (3 copies)
01 30 00	Letter of Responsibility (3 copies)
01 50 00	Construction Water Sources
01 55 50	Temporary Traffic Management Plan
01 55 50	County Encroachment Permit and Caltrans Encroachment Permit
01 57 00	Spill Prevention and Response Plan
01 57 00	Water Management Plan
01 57 00	Tire Tracking Control Plan
01 57 00	Dust Prevention Plan
01 77 00	Record Drawings
31 05 16	Rock Materials
32 92 19	Seed and Straw Mulch
Per Note on Plans	Biodegradable Mat
Per Notes on Plans	Public Access Improvements (Minor Concrete, Picnic Tables, Signs, Kiosks, Geotextile Fabric)
Per Note on Plans	Fencing

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION [NOT USED]

END OF SECTION 01 33 00

SHOP DRAWING/MATERIAL REVIEW REQUEST

INSTRUCTION: Complete this form and attach to each specific Shop Drawing Submittal.

1. Contract Name _____

2. Submission No. _____

Submittal: 3. New _____ 4. Resubmittal _____

5. Date of this submittal _____

6. Date of receipt by Construction Manager _____

7. Previous Submission No. (if any) _____

8. Contractor _____

9. Submitted by (signature and date)

10. <u>Item</u>	11. <u>Specification Section and Paragraph Nos.</u>	12. <u>Description of Material (Name, Type, Model, Catalog No., Mfg., Etc.)</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

13. Comment:
Include all drawing titles and numbers, specific information not on drawings, information coming later, etc.

For Use of Construction Manager Only:

14. Action taken* _____

15. Review by (signature and date)

*See review stamp on individual items.

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Public Utilities
 - 1. Agencies Affected
 - 2. Notification Requirements
 - 3. Contractor Responsibility
- B. Temporary Utilities
 - 1. Temporary electricity
 - 2. Temporary sanitary facilities
- C. Existing Utilities and Improvements
 - 1. General
 - 2. District Right of Access
 - 3. Underground Utilities Indicated
 - 4. Underground Utilities not Indicated
 - 5. Approval of Repairs
 - 6. Maintain in Service
- D. Temporary Field Office and Storage Facility
- E. Vehicular Access
- F. Parking
- G. Progress Cleaning and Waste Removal
- H. Barriers
- I. Security
- J. Construction Water
- K. Removal of utilities, facilities, and controls

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1.02 RELATED SECTIONS

- A. Section 01 33 00 – Submittal Procedures

1.03 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.04 SUBMITTAL REQUIREMENTS

- A. Section 01 33 00 - Submittal Procedures
- B. Refuse Disposal and Recycling Plan
 1. Within five (5) working days of Award of Contract, Contractor shall prepare and submit a Refuse Disposal and Recycling Plan. The Plan shall include:
 - a. A list of materials that could be recycled during the course of the Contract. This list should name the material, recycling methods, and/or proposed disposal location.
 - b. Anticipated approach for collection, stockpiling, and disposal of materials.
 - c. List of potential disposal and recycling locations.

1.05 PUBLIC UTILITIES

- A. Agencies Affected
 1. Electrical: Pacific Gas & Electric. It should be noted that where a structure is known to receive service does not have overhead service then underground service shall be assumed to exist.
 2. Gas: Delivered Propane
 3. Telephone and Communication Service: AT&T and Frontier. It should be noted that where service to a structure is known to receive service does not have overhead service then underground service shall be assumed to exist.
 4. Potable Water Service:
 - a. RCSD has jurisdiction over potable water usage for residence along Riverside Road.
 - b. Also, Individual owner provided water (See 1.14.A, this Section)
 5. Drainage and Public Roads: Humboldt County Department of Public Works has jurisdiction over drainage in County ROW.
 6. Sewer Service:
 - a. Individual owner provided septic system.
- B. Notification Requirements

1. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway; the Contractor shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than three (3) work days nor more than seven (7) work days prior to excavation.
2. Notify USA at (800) 227-2600 at least three (3) work days, but no more than fourteen (14) work days, prior to such excavation.

C. Contractor Responsibility

1. The Contractor shall anticipate water, sewer, electrical, communication, drainage and telephone services. It may be expected that there will be variation in location from that as shown on the Plans to the actual location. Contractor responsible for verifying actual location in the field after pre-marking by the various utilities affected.
2. No extra payment will be allowed for the removal, replacement, repair, or possible increased cost caused by inadvertent or planned interception and breaking of underground obstructions which may exist.
3. It should be understood that the various utilities are indicated on the Plans to show only the approximate location and must be verified in the field by the Contractor. The various utility agencies will cooperate with the Contractor to endeavor to familiarize him with all known underground utilities obstructions, but this will not relieve the Contractor from full responsibility in anticipating and locating their actual location.
4. The Contractor, in conjunction with the affected utility company(s), shall pothole and establish the horizontal and vertical locations of all utilities shown on the Plans and marked in the field. This may be done on an area-by-area basis, but shall be accomplished at least five working days in advance of the date of construction within such area. Any discrepancies (horizontal and/or vertical) between the locations of utilities found by the potholing operation than that shown on the Plans shall be brought to the Construction Manager's attention immediately. Potholing shall be required at the connection to existing facilities prior to the shop drawing submittals.

1.06 TEMPORARY UTILITIES

A. Temporary Electricity

1. HCRCDD supplied temporary electricity is not available.
2. Contractor shall provide such temporary electrical facilities as necessary for Work, to supply temporary lighting for work operations and temporary power for portable power driven tools. Contractor will pay cost of energy used and is responsible for all necessary permits, permissions, code and regulatory compliance associated with such use.
3. Before temporary electrical facilities are installed either by utility company or Contractor, the exact location of such facilities shall be approved by the Construction Manager. It is essential that Contractor located facilities so as not to interfere with construction equipment, materials handling or storage, traffic areas, later project construction or site development, other contracts, or subsequent work.

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B. Temporary Sanitary Facilities

1. Provide and maintain required facilities and enclosures sufficient to accommodate Contractor and Subcontractor personnel at locations easily accessible from work. Provide facilities at time of project mobilization and at location approved by the Construction Manager.
2. Contractor is responsible for cleaning, maintenance, security, placement and removal of facilities.

1.07 EXISTING UTILITIES AND IMPROVEMENTS

A. General

1. The Contractor shall protect all underground utilities and other improvements that may be impaired during construction operations. It shall be the Contractor's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. The Contractor shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.
2. In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the Contractor, be notified by the HCRCD to move such property. Time of relocation of the utility by the utility company is not a responsibility of the HCRCD. When utility lines that are to be removed are encountered within the area of operations, the Contractor shall notify the Construction Manager a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.
3. Where the proper completion of the Work requires the temporary or permanent removal and/or relocation of an existing utility or other improvement that is indicated, the Contractor shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the Construction Manager and the HCRCD. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the Contractor in a manner that will restore or replace the utility or improvement as nearly as possible to its former location and to equal or better condition as found prior to removal.

B. Right of Access

1. The right is reserved to the HCRCD, regulatory agencies, County staff, Caltrans, private property owners to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property when necessary during the performance of the Work of this Contract.

- C. Underground Utilities Indicated
 - 1. Existing utility lines that are indicated or the locations of which are made known to the Contractor prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling, and if damaged, shall be immediately repaired or replaced by the Contractor.

- D. Underground Utilities not indicated
 - 1. In the event that the Contractor damages any existing utility lines that are not indicated or the locations of which are not made known to the Contractor prior to excavation, a written report there-of shall be made by the Contractor to the HCRCD.
 - 2. All costs of locating, repairing damage not due to failure of the Contractor to exercise reasonable care, and removing or relocating such utility facilities not shown in the Contract documents with reasonable accuracy, and for equipment on the project which was actually working on that portion of the Work which was interrupted or idled during such Work will be paid for as extra Work.

- E. Approval of Repairs
 - 1. All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement Owner before being concealed by backfill or other Work. Contractor to schedule with Owner for the inspection and shall notify the Construction Manager of the schedule and place of the inspection a minimum of three (3) calendar days prior to inspection.

- F. Maintain In Service
 - 1. All power and telephone or the communication cable ducts, gas and water mains, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the corridor of Work shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the Construction Manager are made with the Owner of said pipelines, duct, main, sewer, storm drain, pole, or wire or cable. The Contractor shall be responsible for and shall repair all damage due to its operations, and the provisions of this section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

1.08 TEMPORARY FIELD OFFICE AND STORAGE FACILITY

- A. Jobsite trailers, offices, additional parking, fuel storage and small equipment storage may be located within the staging areas shown the plans and subject to the approval of the Construction Manager.

1.09 VEHICULAR ACCESS

- A. Provide unimpeded access for HCRCD vehicles.
- B. Provide means of removing mud from vehicle wheels before entering streets.
- C. Use existing on-site roads for construction traffic.

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- D. Reasonable precautions shall be taken to prevent the entry of unauthorized vehicles into the corridor and application areas during non-work hours.

1.10 PARKING

- A. Arrange for temporary surface parking areas in staging areas to accommodate construction personnel.
- B. Use of existing on-site driveways used for construction traffic is NOT permitted, unless authorized by the Construction Manager.
- C. Tracked vehicles not allowed on paved areas.
- D. Maintenance
 - 1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, and mud.
 - 2. Maintain existing areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain surface course and drainage in original, or specified, condition.
- E. Removal, Repair
 - 1. Remove temporary materials and construction at Substantial Completion.
 - 2. Repair existing facilities damaged by use, to original condition.

1.11 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.
- B. Collect and remove waste materials, debris, and rubbish from site weekly and dispose off-site.

1.12 SIGNS

- A. At all times during construction, Contractor shall install and maintain precautionary signage or warning buoys upstream and downstream of the project areas in order to provide adequate warning notices to recreational users on the Salt River of the potential safety hazards associated with project construction.
- B. See Haul and Application Plan for additional signage requirements.

1.13 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations. Access to adjacent ranches/dairies shall not be restricted or denied at any time.
- B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.14 SECURITY

A. Security Program

1. Protect Work, existing premises and operations from theft, vandalism, and unauthorized entry.
2. Initiate program in cooperation with existing property owners.
3. Maintain program throughout construction period until HCRCD acceptance precludes need for Contractor security.

B. Entry Control

1. Restrict entrance of unauthorized persons and vehicles into active construction area.
2. HCRCD will control entrance of persons and vehicles related to HCRCD operations.

1.15 CONSTRUCTION WATER

- A. The HCRCD has identified the following potential water sources for use during construction. Additional sources may be available and subject to review and approval by the Construction Manager. The Contractor shall make arrangements for water required for construction, and furnish all necessary equipment, labor, materials and owner compensation as needed. All water sources, including those listed below shall be approved by the Construction Manager prior to use. All water used within the project area shall be non-saline unless authorized by the Construction Manager.

Optional Sources		Contact (Owner)	Available Volume	Notes
1	Nuisance water encountered during excavation	NA	Undefined	Water withdrawal shall comply with project permits.
2	Del Oro Water District	Troy Huber 707-786-9080	TBD	Withdrawal location TBD
3	Riverside Community Service District (RCSD)	Nancy Trujillo 707-502-8005	TBD	Withdrawal location TBD
4	Other unidentified sources	TBD	TBD	To be approved by Construction Manager

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1.16 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION

3.01 HOUSEKEEPING

- A. The Contractor shall keep project site neat, orderly, and in a safe condition at all times.
- B. The Contractor shall provide enough containers for collecting construction debris and construction materials to be recycled.
- C. The Contractor shall cover or wet down dry materials and rubbish when necessary to prevent blowing dust.
- D. The Contractor shall keep volatile wastes in covered containers.
- E. The Contractor shall use excavated material as soon as possible.
- F. The Contractor shall place construction debris in refuse containers at least daily.
- G. The Contractor shall contain stockpiled soil/material in a neat and orderly fashion and prevent from eroding or migrating into any water bodies. The Contractor shall use silt fencing or similar, if necessary.
- H. The Contractor shall keep all construction equipment and construction materials, including stock-piles, out of road-side drainages.

END OF SECTION 01 50 00

SECTION 01 55 50

TEMPORARY TRAFFIC CONTROL SYSTEMS

PART 1 GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide all materials, equipment, and labor necessary to furnish, place, and maintain all temporary traffic control systems, including construction and maintenance area traffic control devices and flaggers as required to perform the Work in accordance with this Section, and all other appurtenant Work, complete in place, as shown on the Contract Drawings and as specified herein.
- B. The contractor is responsible for obtaining all traffic and encroachment permits related to the delivery and hauling of construction equipment and materials, and traffic control measures and devices. The contractor must follow all pertinent state and local requirements for transporting large vehicles and equipment to the project site.
- C. The contractor is responsible for temporary placement, maintenance and removal of temporary traffic control devices and signs in accordance to these plans and the approved traffic management plan. If signs are placed in the county right-of-way (row), the contractor shall be responsible for applying for and securing the necessary encroachment permit(s) and paying all associated fees. If signs are to be placed on private property, the contractor shall receive permission from the construction manager and property owner prior to placement.
- D. Work Specified in this Section
 - 1. Review of proposed Work areas to determine temporary traffic control requirements.
 - 2. Verification of temporary traffic controls with the Construction Manager prior to implementation.
 - 3. Maintenance of traffic control during the Work.
 - 4. Monitoring traffic control during the Work to determine necessary changes required to maintain adequacy.
 - 5. Maintenance of traffic control during non-work hours to maintain adequacy.
 - 6. Removal of temporary traffic control systems after completion of the Work.

1.02 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. General Provisions, Section B-51 – Public Convenience.
- B. Humboldt County Public Works Encroachment Permit Application.
- C. State of California, Department of Transportation (Caltrans) Specifications and Standards

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1. Standard Specifications
 - a. Section 7 Legal Relations and Responsibility
 - b. Section 12 Construction Area Traffic Control Devices
 2. California Manual on Uniform Traffic Control Devices, Current Edition (California MUTCD)
- D. Commercial Standards
1. State of California, Division of Industrial Safety, Department of Industrial Relations.
 2. Safety Orders of the Division of Industrial Safety, Department of Industrial Relations of the State of California, current edition.

1.04 SUBMITTALS

- A. In addition to the submittal requirements of Section 01 33 00 "Submittal Procedures," the Contractor shall provide the following at least ten (10) working days prior to any work in or on public roadways or private right-of-ways and shall meet with the approval of the Construction Manager:
1. Prior to receiving a notice to proceed, the contractor shall provide a Temporary Traffic Management Plan for review and approval by the Construction Manager, and the County Department of Public Works. The Temporary Traffic Management Plan shall conform to the provisions on the plans, these specifications, the County encroachment permit provisions and shall be a living document, subject to modification and updated as project conditions change. If changes are made to the traffic plan, Contractor shall submit and allow 10 working days for plan review and approval by the construction manager and the county. The traffic plan shall be specific to the proposed activities that will occur on the existing roads:
 - a. Traffic plan shall be developed and implemented in accordance to the latest edition of the California manual on uniform traffic control devices (MUTCD) and all other pertinent state and local requirements. The traffic plan shall include, but is not limited to, the proposed average daily traffic (ADT), duration of work, haul routes, sign placement, and frequency of on-site meetings to be performed to review and update the traffic plan.
 - b. Specific details for construction staging, including the location and limits of the work zone. Contractor is responsible to install signs in accordance to the plans.
 - c. Locations of all encroachments and excavations.
 - d. Plans for protection of the public from construction-related hazards.
 - e. Lane closures and traffic routing including consideration of construction-related trucking routes.
 - f. Hauling routes for approval by the Construction Manager and County.

- g. Lane closure markings, barricade locations, and sign locations showing the necessary signing, methods of delineation and channelization and reference to the appropriate Caltrans standards and California MUTCD details for all affected roads.
 - h. Dimensions of lanes affected by traffic control that will be open to traffic.
 - i. Dimensions and locations of signs and cone tapers.
 - j. Identification of side streets and driveways affected by construction and show how they will be handled.
 - k. Detail of how public transit will be handled through the construction area.
 - l. Time periods of lane closures and detours.
- 2. No work except for installation of project identification signs will be allowed to commence prior to approval of the Traffic Plan.
 - 3. A "Letter of Responsibility," on company letterhead, indicating the names and telephone numbers of at least three different persons who shall be available to be contacted in case of emergency at any time during the life of the contract. Said persons must have decision-making authority within the company.

PART 2 PRODUCTS

2.01 GENERAL

- A. All construction area stationary and portable sign panels, lights, barricades, and traffic control devices shall be the product of a commercial sign or safety device manufacturer conforming to the requirements of Section 12, "Construction Area Traffic Control Devices," of the Caltrans Standard Specifications, unless otherwise specified in this Section, shown on the Drawings, and/or as directed by the Construction Manager.

PART 3 EXECUTION

3.01 GENERAL

- A. No work shall commence until traffic control signing has been approved by the Construction Manager and the encroachment permit issued by the County.
- B. The Contractor shall take all necessary precautions for the protection of the Work and the safety of its employees and the public. Traffic shall be maintained through the construction or maintenance zone in accordance with Sections 7-1.08, 7-1.09 and 12 of the Caltrans Standard Specifications and Sections 01 10 00 "Summary of Work."
- C. Field changes to traffic control plans shall be approved by the Construction Manager prior to installation.
- D. The Contractor shall provide all appropriate traffic control measures in accordance with this Section prior to start of construction in the public right-of-way or in any area adjacent to the street right-of-way where public safety is affected.
- E. All construction area signs, lights, barricades, and traffic control devices shall be furnished, installed, maintained, and removed in conformance with the latest edition of the California

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MUTCD. Additional or alternate signs may only be used when specifically authorized by the Construction Manager.

- F. The Contractor shall monitor traffic and safety conditions and maintain adequate traffic control measures during both work and non-work hours in order to maintain compliance with the requirements of this Section.
- G. If a hazardous condition is observed and the Construction Manager notifies the Contractor either directly or by telephone, the Contractor shall correct the condition immediately. If the Contractor fails to correct the hazardous condition immediately, the HCRCDC reserves the right to call in a local contractor to perform the necessary work needed to improve public safety. The cost incurred shall be billed to the Contractor. Should the Construction Manager point out any inadequacy of warning and protective measures, such action on the part of the Construction Manager shall not relieve the Contractor from responsibility for public safety nor abrogate his obligation to furnish and pay for these devices.
- H. All construction area signs, lights, barricades, and temporary traffic control devices shall be completely removed from the roadway when not in use. Locations and methods of storing traffic control equipment adjacent to the roadway between interrupted use shall require prior approval of the Construction Manager.
- I. Unless noted otherwise on the plans, the Contractor shall completely remove all temporary signs, striping and/or delineators and restore the pavement, as necessary, upon removal or relocation of any temporary traffic controls or detours constructed as part of the Work.
- J. Temporary traffic control measures shall be in effect only during work hours. Normal traffic routing shall be reestablished at the end of each workday.
- K. Contractor shall conduct his operation as to offer the least possible obstruction and inconvenience to the public, and he shall have under construction no greater amount of work than he can prosecute properly with due respect to the rights of the public. Contractor shall provide personal advance notice to each affected resident or business informing him of impending work and provide ample time to remove vehicles and estimated time of driveway closure. This shall be accomplished by delivering a notice to all houses or businesses to be affected by the impending work. The notice shall be typed and signed by the contractor or his designated superintendent. The format and contents of the notice shall be approved by the Construction Manager prior to commencement of the Work.
- L. Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property owners. Convenient access to driveways, houses, and buildings along the line of the work shall be maintained, and temporary approaches to crossings or intersecting roads shall be provided and kept in good condition.
- M. Whenever the Contractor's operations create a condition hazardous to the public, furnish, erect, and maintain such fences, barricades, lights, signs and other devices as are necessary to prevent accidents or damage or injury to the public.
- N. Should the Contractor appear to be neglectful or negligent in furnishing warning and protective measures as above specified, the Construction Manager may direct attention to the existence of hazard, and the necessary warning and protective measures shall be furnished and installed by the Contractor at his expense, without cost to the Owner. Should the Construction Manager point out any inadequacy of warning and protective measures, such action on the part of the Construction Manager shall not relieve the Contractor from responsibility for public safety nor abrogate his obligation to furnish and pay for these devices.

- O. Under no circumstances shall access to businesses or residences be held up more than fifteen (15) minutes at any one time. The Contractor may coordinate with property and business owners to schedule work so that longer delays do not adversely affect residents or business owners to their satisfaction. In addition, Contractor shall give personal notice to all affected property owners as specified in paragraph M, hereinbefore. Before closing any street to through traffic, Contractor shall obtain prior approval from the Construction Manager seven (7) calendar days in advance of closure. Contractor shall at all times provide access to public facilities such as schools, etc. and make provisions for passage of emergency vehicles.
- P. The Contractor shall keep the Ferndale Fire Department informed regarding the closure of any traveled way. At a minimum, the Contractor shall call the Ferndale Fire Department, daily to report any traveled way closure. This requirement applies immediately upon closure for that day and again immediately after removal of the closure. For closures over multiple days, the daily notification still applies. This requirement does not apply for single lane closures on multiple lane local streets.

3.02 USE OF COUNTY AND STATE RIGHT OF WAY AND PUBLIC ROADS

- A. The contractor will be responsible for repair of any damage to roads resulting from the construction and hauling activities. The post-project road conditions shall meet or exceed pre-project conditions and, if necessary, be repaired by the Contractor to the satisfaction of the Construction Manager at contractor's expense. The Construction Manager will video document the roads within the project area prior to commencement.
- B. All fueling, equipment maintenance, staging and construction management shall be located outside the county road right of way. No construction materials (construction trailers, storage containers, equipment, etc.) shall be allowed within the County right of way.
- C. Site visibility must be maintained at the construction entrances in conformance with county code.
- D. Temporary lane closure traffic control to be consistent w/ lane closure for low volume, two lane roads per current edition of Caltrans manual of traffic controls and in conformance with the project specifications.
- E. Trucks leaving the identified project site shall have tires free of sediment to prevent/minimize sediment from being tracked onto public roadways.
- F. All public roads and bridges impacted by the construction activities shall be cleared of all sediment and debris on a daily basis or as directed by the Construction Manager.
- G. All active construction areas, application areas and gravel roads shall be watered at a rate sufficient to keep soil moist and prevent wind-blown dust.
- H. All trucks hauling soil, sand, and other loose materials shall be covered, or all trucks shall be required to maintain at least 2 feet of freeboard, or shall have adequate moisture content to prevent dust, or utilize some other methods that prevents generation of fugitive dust.
- I. Traffic speeds on unpaved roads shall be limited to 10 miles per hour or less if posted, or as directed by the Construction Manager.

END OF SECTION 01 55 50

SECTION 01 57 00

ENVIRONMENTAL REQUIREMENTS AND WATER MANAGEMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Water Management (Dewatering and Clear Water Diversion)
- B. Permit Compliance
- C. Spill Prevention
- D. Dust Control
- E. Related Sections
 - 1. Section 01 33 00 – Submittal Procedures
 - 2. Appendix A – Permit Conditions
 - 3. Appendix B – Nesting Bird Avoidance Memo

1.02 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.03 SUBMITTAL REQUIREMENTS

- A. Section 01 33 00 – Submittal Procedures
- B. Water Management Plan

The Contractor shall submit a Water Management Plan within five (5) working days of Award to Contract. The Plan shall describe, in detail, the Contractor's approach to control water during construction activities. The Plan shall cover both clear water diversion and dewatering, which should be described separately.

- 1. Tidal Inundation Management
 - a. Surface water flows in the Salt River and slough channels within the Salt River Estuary are tidally influenced and shall be maintained throughout construction. The new culvert placement and sediment reuse areas are subject to daily tidal inundation. Tidal elevations are shown on the plans. To avoid impacts to water quality and aquatic species, all construction activities associated with the sediment reuse areas and new culvert placement shall be completed in the dry during low tidal periods. The contractor may construct a cofferdam or other method that isolates the culvert installation and associated rock slope protection work area while allowing surface water to enter the active work areas. Where coffer dams are installed for placement of the new culverts, the coffer dams shall be constructed with minimum top elevation to prevent tidal overtopping (minimum 9-feet

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elevation) and to avoid tidal inundation into the active culvert installation work area.

- b. The Contractor shall be responsible for final design, installation, piping, pumps, cofferdam materials, electrical, fish screens, ditches and erosion control measures. The Water Management Plan shall present the result of the design effort and the anticipated execution of the work.
- c. During instream construction activities that could increase turbidity levels in receiving waters, the Construction Manager will conduct sampling downstream of the activity to monitor compliance. Contractor shall modify techniques as needed to remain in compliance such that the allowable zone of dilution as stipulated in the Regional Water Quality Control 401 Water Quality Certification is not exceeded.

2. Dewatering

- a. Shallow groundwater exists beneath the project site. The Contractor shall anticipate encountering groundwater during excavation activities for culvert placement. This water, and other water that enters the construction area is referred to as nuisance water. The Contractor must manage nuisance water in order to conduct construction activities and comply with project permits.
- b. The Contractor shall be responsible for final design, installation, maintenance and removal of all dewatering systems including coffer dams.
- c. The Contractor is required to meet the surface water discharge limit requirements listed below and outlined by the Regional Water Quality Control Board. The Construction Manager will conduct sampling downstream of the discharge location to monitoring compliance.
- d. The Contractor is required to dewater construction areas to provide for proper excavation and filling. Although dewatering methods are left to the discretion of the Contractor, the Dewatering Plan needs to be approved by the Construction Manager prior to beginning and construction work. Water pumped from typical drainage ditch and culvert excavations is likely to contain suspended sediments or other materials, and may not be discharged directly to surface waters. Sediment controls shall be provided to remove sediments generated during the dewatering activities, pumped water shall be discharged in conformance with all applicable laws and permit requirements.
- e. Potential Dewatering discharge areas include:
 - Any surface water within the existing Salt River or slough channel may be pumped, prior to channel excavation, downstream to the receiving Salt River if the Regional Water Quality Control Board limitations are not exceeded and subject to prior approval by the Construction Manager.
 - Groundwater/nuisance water encountered during culvert excavation is anticipated to have saline conditions and therefore shall be spray dispersed and infiltrated along the west side of the levee on dry ground.
- f. Because dewatering may occur in areas that have special status species, the Contractor will need to work with the Construction Manager and Aquatic

Biologist to develop dewatering plan approaches that will allow appropriate time for surveys and relocation efforts or to develop alternatives for dewatering that would reduce the amount of "take" of a special status species.

- g. The Water Management Plan shall include, but not be limited to, the methods used, schedule of operation, description of equipment such as sump pumps, baker tanks or other forms of conveyance and storage and/or filtration equipment to be used for groundwater pumping and treatment, discharge location and erosion control measures.

C. Spill Prevention and Response Plan

1. Prior to beginning of work and within five (5) working days after date of the Award of Contract, the Contractor shall prepare and submit for approval by the Construction Manager, a Spill Prevention and Response Plan to regulate the use of hazardous and toxic materials, such as fuels and lubricants for construction equipment. The Construction Manager will review, approve, and oversee implementation of the Spill Prevention and Response Plan.
2. The Contractor's Spill Prevention and Response Plan must include: 1) spill cleanup procedures; 2) worker training; and 3) impact avoidance measures.
3. As part of the Plan, the Contractor shall indicate fueling areas for equipment and shall be a minimum of 100 feet away from coastal waters unless the Contractor receives written permission from the Construction Manager.

D. Tire Tracking Control Plan

1. The Contractor shall provide a Tire Tracking Control Plan for all trucks and construction equipment, which enter and leave the construction site and application sites during the project. Prior to any construction activities, the Contractor shall prepare and submit to the Construction Manager for review and approval.
2. The Contractor shall provide means of removing sand, mud, vegetation, rhizomes/roots, and seeds from vehicle wheels and under carriage before entering and exiting the construction site onto County and State roadways through installation of stable rock construction entrances, steel grates, tire cleaning stations and routine street sweeping/vacuuming and as necessary to maintain the roads free of sediment.
3. County and State roads utilized as part of the project shall be monitored by the Contractor on a daily basis for sediment tracking and other materials due to construction activities, and swept in a timely manner, as needed to prevent suspension of material which has a tendency to become airborne, or that could wash off into waterways. Roads shall be left clean at the end of each working day; cleaning operations shall not create water runoff or dust.
4. The plan shall include the location, size, maintenance and removal of such controls and designated monitoring periods and personnel to minimize sediment tracking onto County and State roads.

E. Dust Prevention Plan

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1. The Contractor shall provide a Dust Prevention Plan for all construction activities that have the potential to generate visible dust. Activities including, but not limited to grubbing, stripping, excavation, hauling, travel on gravel roads, and sediment placement on application areas. Prior to any construction activities, the Contractor shall prepare and submit to the Construction Manager for review and approval.
2. At a minimum the submittal shall include the water source(s), proposed spray/application methods, frequency of watering, location, possible tarping of haul trucks, designated monitoring periods and personnel to prevent visible dust in accordance to these specifications and project permits.

1.04 GENERAL PROJECT-WIDE MEASURES

- A. Contractor shall comply with all provisions of any additional federal, state and local permits necessary to complete the project.
- B. The HCRCD has been issued project permits from multiple regulatory agencies including but not limited to:
 1. State Lands Commission Lease,
 2. North Coast Regional Water Quality Control Board 401 Water Quality Certification,
 3. California Department of Fish and Wildlife Streambed Alteration Agreement,
 4. County of Humboldt Conditional Use Permit,
 5. County of Humboldt Grading Permit,
 6. California Coastal Commission Coastal Development Permit,
 7. National Marine Fisheries Service's Biological Opinion,
 8. U.S. Fish and Wildlife Service's Tidewater Goby specific Biological Opinion,
 9. U.S. Army Corps of Construction Managers 404, and
 10. Final Environmental Impact Report Mitigation, Monitoring and Reporting Program
- C. The Contractor, Contractor's staff and Contractor's subcontractors shall be fully informed of the requirements of these permits and environmental regulatory documents as well as rules, regulations, and conditions that may govern the Contractor's operations in the project area and shall conduct the work accordingly. The Contractor shall comply with all project permit and environmental regulatory document requirements. The project permits and environmental regulatory documents have been included in the contract documents. For the Contractor's convenience a summary of relevant conditions have been tabulated in Appendix A. The Contractor is responsible to conduct the work in accordance with all project permits and environmental documents. Work windows specified in the various project permit conditions may conflict within one another, therefore the most restrictive windows shall be exercised and as shown in the schedule on the plans.
- D. It is the responsibility of the Contractor to verify that the HCRCD has obtained all necessary federal and state permits. The Contractor is responsible for securing all County and California Department of Transportation permits, copies of which must be provided to the

Construction Manager prior to construction start. Contractor will maintain a copy of all permits at the Project site.

- E. The Contractor shall comply with all other permit conditions, including construction windows, restrictions on work approach related to special status species and archaeologically significant resource areas, buffer zones related to special status species, pre-construction and construction clearance surveys, daily site clearances, and construction monitoring.
- F. All personnel working on site will be required to participate in a short briefing by Construction Manager and qualified biologist about the presence of federally and state- listed bird, fish, amphibian, reptile, mammalian, and Plant species at the site, 2) avoidance areas; 3) construction windows and effects on sequencing of work; 4) buffers between construction activities and breeding/nesting areas; and 5) pre-construction and construction clearance surveys and construction monitoring requirements prior to initiating and continuing work in construction work areas, including the potential necessity for trapping or seining and relocation; 6) Need to halt work if potential special status species located by Contractor or representative and notify Construction Manager before proceeding with work; 7) Requirements for minimizing other environmental impacts, including noise, traffic, etc.; and 8) The possible presence of archaeological or cultural resources and need to halt work if suspected archaeological or historic resources are found and notify the Construction Manager before proceeding with work.
- G. Contractor shall ensure that all on-site workers and contractors understand and agree to observe the standards for work outlined in project permits.
- H. Procedures regarding Encountering Human Remains. Human remains may be encountered, given the reported presence of prehistoric sites in the vicinity. If human graves or remains are encountered, the following measures shall be implemented:
 - 1. The Contractor will halt the work in the vicinity
 - 2. The County Coroner will be notified. At the same time, a qualified archaeologist will be contacted to evaluate the situation.
 - 3. The Construction Manager will be notified.
 - 4. If human remains are of Native American origin, the Coroner will notify the Native American Heritage Commission within 24 hours of identification (916) 653 – 4082
- I. Procedures regarding Agricultural and Cultural Sensitive Resources: Surface surveys have not detected cultural materials within the limits of planned excavation. However if any items of potential cultural or archeological significance are encountered during excavation operations, construction within this area shall be halted immediately, and the Contractor shall notify the archeologist/Construction Manager. The Contractor is advised that if any archaeological findings are discovered during construction that the monitor or archaeologist has the authority to slow or stop construction activities as they deem necessary.
- J. Hazardous Materials
 - 1. Work Cessation in the Event Suspected Hazardous Materials are Encountered. Project construction Contractors shall stop all work in the area of any suspected soil or groundwater contamination, or any unearthing of storage drums or other potential sources of hazardous materials/wastes. The Contractor shall then comply with Section B-52(k) of the General Conditions.

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- K. Avoidance of Impacts to Nesting Birds:
1. Nesting bird clearance surveys will be conducted by the biologist in accordance to the nesting bird avoidance survey memo (see specification appendices). All construction related disturbance will not occur until area is cleared of nesting birds and contractor shall not claim delay.
 2. If surveys identify active nests, the Contractor shall cooperate with the Construction Manager and the appropriate exclusion zones are implemented around the nests and maintained until nesting has completed.
 3. Scheduling of required clearance surveys: At the start of construction, the contractor will be required to provide an updated construction schedule. On a weekly basis, the contractor, Construction Manager, and biologist will meet and discuss the status of the project and updates to schedules. Clearance surveys will be scheduled with the basis of this revised weekly schedule. The contractor will not be allowed to start construction until all the approved clearance surveys have been performed. It is the responsibility of the contractor to provide the biologist an updated schedule that allows for adequate time to schedule the clearance surveyor surveys required.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION

3.01 TIDAL INUNDATION MANAGEMENT

- A. In scheduling dewatering activities, the Contractor shall notify the Construction Manager ten (10) working days prior to any planned diversion activity to ensure HCRCDD has adequate time to schedule the appropriate staff for clearance surveys, monitoring, and relocation of native aquatic vertebrates and large invertebrates to nearby suitable habitat prior to implementation of construction. If relocation is necessary and allowable under permit conditions, the HCRCDD preliminary scheduling of qualified biologists based on the construction schedule provided by the Contractor or updated construction schedules provided by the Contractor during weekly meetings. Should the Contractor wish to proceed with diversion ahead of the timeline given in the updated schedule and without 10-day notice, the Construction Manager reserve the right to deny permission to proceed until the appropriate surveys can be done.
- B. Cofferdams shall be constructed of non-polluting materials including steel sheet pile, sand bags, water bags, concrete ecology blocks, rock, native soil with appropriate erosion/sediment control measures and/or plastic tarps.
- C. In design, installation and maintenance of dewatering systems, Contractor shall comply with all other project permits and the project SWPPP.
- D. Contractor's system and practices shall comply with the policies and guidelines presented in Caltrans Storm Water Quality Handbook, Construction Site Best Management Practices Manual, Section 7 (Clear Water Diversion NS-5; 2003) and the Caltrans Field Guide to Construction Site Dewatering (2001).

3.02 DEWATERING

- A. Dewatering locations must be approved by the Construction Manager or located in accordance to the Dewatering Plan. Dewatering 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 Construction Manager and the aquatic biologist prior to installation and use. Screens at the suction end of all dewatering pump intakes are required to be equipped with a maximum screen size of 3/32-inch opening mesh screen or size meeting CDFW and NOAA criteria, whichever is smaller. Screens shall be regularly checked and cleaned of debris to permit free flow of water. All work areas to be dewatered shall be cleared by the aquatic biologist prior to installation of ditch diversion station structures/equipment. The Contractor is not allowed to make modifications to the ditch bank or bed during installation and use of the ditch water diversion stations without prior authorization from Construction Manager. Contractor shall provide the necessary pumps to extract water from ditches to water trucks.

- B. Measures to reduce potential impacts, such as screening pump intake areas, will be maintained by Contractor on a daily basis to ensure proper operation. Dewatering shall continue throughout excavation activities. The Contractor shall coordinate with the Construction Manager prior to initiating dewatering activities so the site can undergo any necessary environmental clearance.
- C. Temporary dewatering structures and activities are anticipated over the life of the construction project. Any areas affected by dewatering structures/activities will be returned to pre-project condition by Contractor as part of project close-out.
- D. Contractor shall design pump intakes and outlets to minimize turbidity and the potential to wash contaminants into adjacent creeks or wetlands.
- E. 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.
- F. Any turbid water pumped by Contractor 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 or tidal waters. The turbidity control methods need to be approved by the Construction Manager prior to implementation.
- G. During excavation of mainstem Salt River, in lieu of excavating in the wet, the Contractor may want to dewater the channel, generating turbid water. One potential dewatering approach of the Salt River channel is to direct turbid water via a detention and sediment control system in a downstream direction. The turbidity conveyance system needs to be sized to promote low velocity flow, the settling of solids, and stay confined to the boundaries of the Salt River excavation. Water may be discharged into the receiving water of Salt River if the NCRWQC 401 and SWPPP regulations are not exceeded.
- H. The Contractor shall refuel pumps in areas a minimum of 100-feet away from coastal waters and where approved by the Construction Manager. The Contractor shall place fuel absorbent mats under pumps while refueling.
- I. Once construction is completed, the dewatering facilities are to be removed by the Contractor. 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 Construction Manager approves their removal.

3.03 AIR QUALITY AND DUST CONTROL

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- A. The Contractor shall adhere to all project permits and shall utilize BMPs to minimize fugitive dust generation and assure compliance with North Coast Unified Air Quality Management District Rule 104 Section 4.0 regarding the control of fugitive dust.
- B. Unimproved access or unpaved haul roads, material stock piles, excavated and graded areas, and areas of exposed soil on the construction site shall be sprinkled with water or otherwise treated to fully suppress dust when and where dust becomes a problem. Sources of water for dust control are provided above.
- C. At the discretion of the Construction Manager, grading and construction may be prohibited during periods of high winds (>15 mph), which have the potential to result in the generation of windblown dust and sediment not reasonably controllable with standard watering techniques.
- D. When not in use or unattended, construction equipment and vehicles will be shut down, locked up, and not left idling.
- E. Contractor shall be required to minimize idling time to 5 minutes for all trucks and maintain properly tuned equipment.
- F. Equipment and vehicles shall also be tuned and maintained in accordance with manufactures' specifications to avoid excessive emissions.
- G. All equipment shall operate with factory-equipped mufflers.
- H. Water active earthwork areas and staging areas as needed for dust control. All active construction areas and sediment application areas shall be watered at a rate sufficient to keep soil moist and prevent formation of wind-blown dust.
- I. Exposed stockpiles of dirt, sand, and similar material shall be enclosed, covered, and/or watered daily, or treated with approved non-toxic soil binders as necessary to prevent generation of fugitive dust.
- J. Contractor shall use water trucks or spray from hoses to control dust created by outdoor work operations during entire period of the Contract as directed by Construction Manager and stipulated in Specifications; Contractor shall satisfactorily control dust created by operations to the satisfaction of the Construction Manager.

END OF SECTION 01 57 00

SECTION 01 71 23.16

CONSTRUCTION SURVEYING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Qualified services.
- B. Lines and grades.
- C. Survey of layout and performance.
- D. Surveying accuracy and tolerances in setting survey stakes.

1.02 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.03 QUALIFIED SERVICES

- A. Surveying services and field engineering services shall be performed under the direct supervision of a professional land surveyor or civil engineer currently licensed or registered in the State of California. A civil engineer providing field surveying shall have been registered prior to 1982 or have a current professional land surveyors license in the State of California.

1.04 LINES AND GRADES

- A. Only such primary control lines, monuments, and bench marks will be set by the Construction Manager as the Construction Manager determines to be necessary to control establishment of the lines and grades required for completion of the Work. In general, these will consist of the primary horizontal and vertical control points indicated on the Contract Drawings. Work points shall be established by the Contractor for all major structures and creek alignments.
- B. Contractor must independently verify the primary horizontal and vertical control and inform Construction Manager of any significant differences between published values and found values within 30 days of Notice to Proceed.
- C. Primary control monuments currently on site shall be carefully preserved by the Contractor. In case such monuments are destroyed or damaged, they will be replaced at the Construction Manager's earliest convenience. The Contractor will be charged for the cost of replacing or restoring monuments destroyed or damaged by the Contractor's operations. This charge will be deducted from any monies due or to become due the Contractor.
- D. The Contractor shall temporarily suspend work at such points and for such reasonable times as the Construction Manager may require for resetting monuments, and the Contractor will not be entitled to any additional compensation or extension of time therefore.
- E. All other stakes or markers required to establish the lines and grades required for the completion of the Work shall be the responsibility of the Contractor.

1.05 SURVEYS FOR LAYOUT AND PERFORMANCE

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- A. **Surveying Requirements:** Perform all surveys for layout and performance of the Work, reduce the field notes, and make all calculations and drawings necessary to carry out such work. The Contractor shall check the relative positions of all monuments and benchmarks to be used and shall report any damaged or out-of-position monuments to the Construction Manager at once. The Contractor shall check such relative positions each time the Contractor uses such monument or benchmark.
- B. **Datum:** The Contractor shall be responsible for correctly locating all lines and grades and for performing all measuring as required for the construction and completion of the Work from established reference points and information is shown on the Contract Drawings.
- C. **Equipment and Personnel:** The Contractor's instruments and other survey equipment shall be accurate, suitable for the surveys required in accordance with recognized professional standards, and in proper condition and adjustment at all times.
- D. **Field Notes and Records:** Furnish the original pages of all survey records to the Construction Manager at intervals required by the Construction Manager. Furnish each field notebook to the Construction Manager when filled or completed.
- E. **Use by the Construction Manager:** The Construction Manager may at any time use line and grade points and markers established by the Contractor. The Contractor's surveys are a part of the work and may be checked by the Construction Manager at any time. The Contractor shall be responsible for any lines, grades, or measurements which do not comply with specified or proper tolerances, or which are otherwise defective, and for any resultant defects in the work. The Contractor shall conduct resurveys or check surveys to correct errors indicated by review of the field notebooks or by check surveys performed by the Construction Manager.
- F. The Contractor shall start work only after staking for the affected work is accepted by the Construction Manager.
- G. The construction survey and staking work may be spot-checked by the Construction Manager for accuracy, and unacceptable portions of work may be rejected. The Contractor shall resurvey rejected work, and correct work that is not within the tolerances specified above. Acceptance of the construction staking does not relieve the Contractor of responsibility for correcting errors discovered during the work and for bearing all additional costs associated with the error.
- H. The Contractor shall remove and dispose of all flagging, lath, stakes, and other staking material after the project is complete unless the Construction Manager specifies otherwise.
- I. The Contractor shall perform all survey, staking, recording of data, and calculations as necessary to construct the project Construction Survey and Staking Tolerances from the initial layout to final completion. Reset stakes as many times as necessary to construct the work.

1.06 SURVEYING ACCURACY AND TOLERANCES IN SETTING SURVEY STAKES

- A. **Surveying Accuracy:** Control traverse field surveys and computations, including surveys of main control lines to determine horizontal and vertical alignment of major channel components, shall be done to maximum 0.5 inch or better accuracy.
- B. **Tolerances:** The tolerances generally applicable in setting survey stakes shall be as set forth above. Such tolerances shall not supersede stricter tolerances required by the Contract

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Drawings or Specifications, and shall not otherwise relieve the Contractor of responsibility for measurements in compliance therewith.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION [NOT USED]

END OF SECTION 01 71 23.16

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements preparatory to final inspection.
- B. Final inspection.
- C. Acceptance of the Work and final payment.

1.02 RELATED SECTIONS

- A. See General Contract

1.03 Measurement and Payment

- A. Refer to Section 01 15 00 Measurement and Payment.

1.04 REQUIREMENTS PREPARATORY TO FINAL INSPECTION

- A. The Contractor shall request a preliminary final inspection to determine the state of completion of the Work.
- B. The request shall be made in writing, addressed to the Construction Manager, at least seven calendar days in advance of the requested date of the preliminary inspection.
- C. The Construction Manager will perform the preliminary inspection within three days of the requested date.
- D. Prior to the requested date of the preliminary inspection, the Contractor shall perform or provide the following, as applicable:
 - 1. Temporary facilities, except as may be required for punch list work, shall be removed from the site.
 - 2. The site and all applicable appurtenances and improvements shall be cleaned as specified in these specifications.
 - 3. Record drawings and specifications shall be completed and submitted to the Construction Manager as specified below.
 - 4. Guaranties and warranties shall be submitted to the Construction Manager, as specified in the General Conditions and various sections of the Specifications.
- E. The Contractor shall be represented by its principal superintendent and such Subcontractors and Suppliers as may be necessary to answer the questions of the HCRCD inspection team.
- F. Certain elements of the Work may be scheduled separately at appointed times in order to

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keep the preliminary inspection more focused and the number of persons in the HCRCD inspection team to a minimum.

- G. From the information gathered from this inspection, the Construction Manager will prepare a punch list of work to be performed, corrected, or completed.
- H. All work on the punch list shall be completed by the Contractor prior to requesting the final inspection.

1.05 SUBMITTALS

- A. The Contractor shall provide the Construction Manager with Project Record Drawings in hard copy, consisting of clear and legible delineations and notations on existing design sheets.
- B. Guarantees and Bonds
- C. Spare parts and material
- D. Closeout Reports

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION

3.01 SITE CLEANUP

- A. Before scheduling the final inspection, the Contractor shall remove all tools, equipment, surplus materials, construction debris, and rubbish. The Contractor shall replace or refinish fencing, gates, or other infrastructure that are damaged due to work of this contract to previous condition as directed by the Construction Manager. At time of final inspection, the project sites shall be thoroughly clean and ready for use.
- B. All access roads utilized during construction shall be rehabilitated as necessary to pre-project conditions, or as directed by the Construction Manager. All access road rehabilitation work needs to be approved by the Construction Manager prior to implementation.

3.02 PROJECT RECORD DRAWINGS

- A. The Contractor shall maintain one complete full-size set of contract drawings and one full-size set of vendor-supplied drawings that comply with CDP condition 2 (A) 5. The Contractor shall clearly mark changes, deletions, and additions using the following drafting standards to show actual construction conditions. The Contractor shall show additions in red, deletions in green and special instructions in blue.
- B. The Contractor shall keep record drawings current and make record drawings available to the Construction Manager for inspection at the time of progress payment requests. If project record drawings are not current, the Construction Manager may retain the progress payment.
- C. On completion of the total project, the Contractor shall submit complete record drawings and 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.

3.03 CLOSEOUT SUBMITTALS

- A. The Contractor shall submit the following materials to the Construction Manager before final inspection request:
 - 1. Project Record Drawings: As specified above.
 - 2. Guarantees and Bonds: As specified in individual sections.
- B. Completion of Work Final Reports per Humboldt County Code Section 331-14 I.1. The following will be provided by the HCRCD's representative:
 - 1. Final Reports: Upon completion of the permitted rough grading work and at the final completion of the work, final reports and drawings and supplements thereto are required for engineered grading, or when professional inspection is performed for regular grading, as applicable. (Ord. 2275, OS/28/2002)
 - 2. Final Reports: Upon completion of the permitted rough grading work and at the final Notification of Completion. The permit tee shall notify the building official when the grading operation is ready for final inspection. Final approval shall not be given until all work, including installation of all drainage facilities and their protective devices, and all erosion-control measures have been completed in accordance with the final approved grading plan, and the required reports have been submit ted. (Ord. 2275, OS/28/2002)

3.04 FINAL INSPECTION

- A. When all requirements of the above prepared punch list have been completed, the Contractor shall request the final inspection to determine eligibility for issuance of the Certificate of Completion.
- B. The request shall be made in writing, addressed to the Construction Manager, at least seven calendar days in advance of the requested date of the final inspection.
- C. The Contractor shall be represented by its principal superintendent and such Subcontractors and Suppliers as may be necessary to verify the completion of the Work including punch list items.
- D. Depending on the extensiveness of the punch list items, certain elements of the Work may be scheduled separately for final inspection at appointed times.

3.05 ACCEPTANCE OF THE WORK AND FINAL PAYMENT

- A. The Construction Manager will accept the Work upon completion of completion punch list items.
- B. Acceptance of the Work will be made in accordance with the General Conditions, Final Inspection and Acceptance of All or a Portion of the Work, of the General Conditions. Final payment will be made in accordance with the Final Payment section of the General Conditions.

END OF SECTION 01 77 00

SECTION 02 25 00

SHORING AND TRENCH SAFETY

PART 1 GENERAL

1.01. SUMMARY OF SECTION

- A. Principle items specified herein are:
 - 1. Shoring required for general safety, worker protection and protection of adjacent property from the hazards of caving ground.
 - 2. Trench excavations
 - 3. Structural excavations

1.02. MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.03. RELATED SECTIONS

Related work specified in other sections:

- A. General Conditions
- B. Section 31 20 00 - Earthwork

1.04. REFERENCED CODES AND SPECIFICATIONS

The following standards apply:

- A. Cal/OSHA, State of California Administrative Code, Title 8; Industrial Relations, Chapter 4, Subchapter 4, Construction Safety Orders.
- B. Occupational Safety and Health Administration (OSHA) Regulations, 29 CFR Part 1926 Subpart P - Excavations.
- C. Where any of these are in conflict, the more stringent requirements shall be adhered to.

1.05. CONTRACTOR'S RESPONSIBILITIES FOR SAFETY

- A. The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons (including employees) and property during performance of the Work. This requirement shall apply continuously and not be limited to normal working hours.
- B. The duty of the HCRCD and Construction Manager to conduct construction review of the Contractor's performance is not intended to include a review or approval of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site.
- C. The HCRCD and Construction Manager will review the submittal of the Contractor's proposed shoring system to verify the general scope of the Work, to determine that qualified

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professional engineering services are used and to determine that appropriate construction techniques are proposed for use. This review shall not in any way be construed to relieve the Contractor from sole responsibility for the design and safety of such shoring.

- D. The Contractor shall appoint a supervisory employee who shall be responsible for determining which of the engineered shoring systems (if alternates are provided) shall be used depending on local soil type, water table, etc.
- E. Contractor's attention is drawn to the Geotechnical Report.

1.06. PERMIT

- A. For trenches or excavations five feet or more in depth, obtain from the State Division of Industrial Safety a permit for such excavation; submit a copy of the permit to the Engineer, prior to initiating any work requiring said permit.

1.07. SAFETY ORDERS

- A. The Contractor shall have at the work site, copies or suitable extracts of the Construction Safety Orders of Cal-OSHA.
- B. All work shall comply with the provisions of these and all other applicable laws, ordinances and regulations.

1.08. SUBMITTALS

Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

- A. Trench Safety Plan:
 - 1. For trenches or excavations five feet or more in depth, the Contractor shall submit to the Construction Manager a detailed plan design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazards of caving ground. The design shall be coordinated with other relevant specification sections. Such plans shall be submitted at least ten (10) working days before the Contractor intends to begin trenching or excavation work. Submittal shall be for trench work and work at vaults, and other cuts 5 feet or more in depth. NOTE: Water table and moisture content will vary with rainfall and cause varying soil strength.
 - 2. Groundwater may be present in trench backfill of existing utilities. Contractor shall design shoring and dewatering systems to mitigate against washout of materials from existing utility trenches. Reconstruction of the structural section of the road will be completed at the Contractor's expense.
 - 3. The trench safety plans shall be prepared, stamped and signed by a civil or structural engineer registered in California. Stamped and sealed copies of calculations necessary to obtain approval of the systems shall be submitted also. These plans shall be available at all times at the job site.
 - 4. Nothing herein shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by the Construction Safety Orders of the Division of Industrial Safety.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01. REMOVAL OF SHORING

- A. Removal of shoring shall not damage pipe or structures, cause settlement or heave the ground surface, or produce vibrations that could damage adjacent pipe or structures.
- B. Minimum compaction requirements must be met after shoring is removed.

PART 4 TESTING

No field testing is required.

END OF SECTION 02 25 00

SECTION 02 27 00

EROSION CONTROL AND SWPPP COMPLIANCE

PART 1 GENERAL

1.01 GENERAL

- A. The work of this section consists of furnishing and installing temporary erosion and sediment control measures necessary to prevent, control and abate water, mud, and erosion damage to public and private property as a result of the construction project.
- B. Implementing measures to prevent storm water pollution during construction activities, in accordance with federal, state, and local regulations, and in accordance with the Storm Water Pollution Prevention Plan (SWPPP) prepared for this project.
- C. Minimize the extent of all ground disturbing activities and avoid work in any drainage channels if at all feasible.
- D. Heavy equipment shall be placed outside of drainage channels except when absolutely necessary to perform the work.
- E. Upon completion of construction activities, natural drainage shall be restored and re-contoured as nearly as practicable to pre-project conditions, and shall match adjacent natural channel contours.

1.02 RELATED SECTIONS

- A. Related work specified in other sections:
 - 1. Section 01 57 00 – Environment Requirements and Water Management
 - 2. Section 31 20 00 – Earthwork
 - 3. Section 32 92 19 – Seed and Mulch
 - 4. Appendix A – Permit Conditions

1.03 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.04 SUBMITTALS

- A. Mill Certificate or Affidavit. A mill certificate or affidavit shall be provided attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified below.

1.05 REFERENCES

- A. Stormwater Pollution Prevention Plan (SWPPP)
- B. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

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- C. American Society for Testing and Materials (ASTM)
 - 1. ASTM D4439-04 - Standard Terminology for Geosynthetics.
 - 2. ASTM D4491-99a(2009) - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
 - 3. ASTM D4533- 04(2009) - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
 - 4. ASTM D4632-08 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
 - 5. ASTM D4751-04 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.
 - 6. ASTM D4873-02(2009) - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples.

1.06 EROSION AND SEDIMENT CONTROLS

- A. The controls and measures required by the Contractor are described but not limited to below.
 - 1. Structural Practices: Structural practices shall be implemented to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. Structural practices shall include the following devices.
 - a. Silt Fences. The Contractor shall provide silt fences (if shown on the plans) as a temporary structural practice to minimize erosion and sediment runoff. Silt fences shall be properly placed and installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, trench excavation, backfilling, and grading). Silt fences shall be installed in the locations as directed by the Construction Manager. Final removal of silt fence barriers shall be upon approval by the Construction Manager.
 - b. Fiber Roles (sediment logs or wattles): Contractor shall provide fiber roles as temporary structural practice to minimize erosion and sediment runoff. Fiber roles shall be properly placed and installed to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, trench excavation, backfill, and grading) in each independent runoff area (e.g., after clearing and grubbing in an area between a ridge and drain, fiber roles shall be placed as work progresses; fiber roles shall be removed/replaced/relocated as needed for work to progress in the drainage area). Final removal of fiber role barriers shall be upon approval by the Construction Manager. Fiber Roles shall be installed in accordance to the Plans, SWPPP and as directed by the Construction Manager.
 - c. Seed and Mulch: per plans and specifications.

1.07 STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

- A. A Stormwater Pollution Prevention Plan (SWPPP) has been developed for this project following Order No. 2009-0009-DWQ and NPDES No. CAS000002. A Project Risk Determination has been completed for the Phase 2 project and yielded a Risk Level 2.
- B. The Contractor will be responsible to comply with the regulations and implement the BMPs presented in the SWPPP. The Contractor is responsible for complying with the requirements of the SWPPP including but not limited to: implementation and maintenance of BMPs, performing inspections and correcting any deficiencies identified by the Construction Manager or the SWRCB at the Contractors expense. In addition, the Contractor shall (at Contractors expense) update the SWPPP to reflect modifications to stormwater control measures made in response to a change in design, construction, operation, or maintenance at the construction site that has or could have a significant effect on the discharge of pollutants from the project site that has not been previously addressed in the SWPPP. This work is necessary to control water pollution, soil erosion and siltation through the use of BMPs specified in the SWPPP. The Construction Manager will submit the Notice of Intent (NOI) and pay the permit fee.
- C. The SWPPP must remain on site for the full duration of the work. The Contractor shall review and abide by the instructions contained in the SWPPP. The Construction Manager will be responsible for the stormwater sampling and SMARTs database reporting. The Contractor shall adjust BMPs to maintain in compliance. The Contractor shall be liable for any fines issued to the project or to the HCRCB by the SWRCB for noncompliance. The contractor shall hold the HCRCB harmless for any fines or sanctions caused by the Contractor's actions or inactions regarding compliance with the permit or erosion control provisions of the Contract Documents and SWPPP.

PART 2 PRODUCTS

2.01 PER THE SWPPP

2.02 SILT FENCES

- A. Ultraviolet stabilized woven polypropylene face. The filter fabric shall meet the following requirements:

Physical Property	Test Procedure	Required Value
Grab Tensile	ASTM D 4632	160 lbs. min.
Elongation (%)	ASTM D 1682	25 % max.
Mullen Burst Strength, psi, min.	ASTM D 3876	350
Equivalent Opening Size, max.	US Standard Sieve	30-70
Ultraviolet Radiation Resistance, % Strength Retention	ASTM D 4355	70
Weight oz./sq. yd.	ASTM D 3776	4

- B. Mill Certificate or Affidavit. A mill certificate or affidavit shall be provided attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified above.

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- C. The Contractor may use either wooden stakes or steel posts for silt fence construction. See plans for size.

2.03 FIBER ROLES (SEDIMENT LOGS OR WATTLES)

- A. Composed of bio-degradable materials.
- B. The Contractor shall use wooden stakes for fiber role installation. Wooden stakes utilized for fiber role installation, shall have a minimum cross section of 1 inch by 2 inches, or as suggested by the fiber role manufacturer.

PART 3 EXECUTION

3.01 PER THE SWPPP

3.02 SPECIAL CONSTRUCTION REQUIREMENTS

- A. It is the responsibility of the Contractor to minimize erosion and prevent the transport of sediment to the adjacent stream and sensitive areas.
- B. At a minimum, the Contractor shall employ best management practices (BMPs) as described in the SWPPP.
- C. If discrepancies occur between these specifications, plans, SWPPP, material referenced herein or manufacturers recommendations, then the most protective shall apply.
- D. It is the responsibility of the Contractor to fix any erosion, sediment, pollution, & waste control deficiencies identified by the Construction Manager.
- E. Other selected disturbed earth areas shall be treated using appropriate erosion control measures per plans, specifications and SWPPP.
- F. Additional erosion/sediment BMPs beyond what is shown on the plans and SWPPP may be required to comply with project permits and it shall be the responsibility of the contractor to implement additional BMPs as needed and as directed by the construction manager at no additional expense to the HCRCD.
- G. Changes to the SWPPP may be made to respond to field conditions. Changes shall be noted on the plan when made.
- H. At the conclusion of construction of certain task elements, the contractor will be required to implement additional post-construction erosion control measures where specified in the plans or where directed by the Construction Manager in order to protect natural resources. These measures include, but are not limited to, installing seed, weed-free straw mulch and tackifier, weed-free straw wattles or fiber roles, and erosion control blanket consistent with the SWPPP.
- I. Contractor shall comply with the project Stormwater Pollution Prevention Plan (SWPPP) as required to ensure that water quality in the Salt River and tributaries is not degraded during construction activities and until the disturbed areas are stabilized and erosion potential is minimized. The SWPPP details erosion and sediment BMPs that will be implemented to prevent entry of storm water runoff into the excavation site, entrainment of excavated contaminated materials leaving the site, and entry of polluted storm water runoff into coastal waters during transportation and storage of excavated materials. BMPs that the Contractor shall implement as part of the SWPPP include:

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1. Preservation of existing vegetation shall occur to the maximum extent practicable.
2. Cofferdams or other temporary fish barriers/water control structures shall be placed in the channel during low tide, and shall only be removed during low tide (if possible), after work is completed.
3. Because cofferdams shall be installed and the channel will be dewatered prior to excavation after fish removal efforts have been completed, equipment shall not be operated directly within tidal waters or stream channels of flowing streams.
4. Appropriate energy dissipation devices will be utilized to reduce or prevent erosion at discharge end of dewatering activity.
5. Silt fences and or turbidity curtains shall be deployed as necessary during installation of selected cofferdams and pursuant to the SWPPP.
6. Sediment sources shall be controlled using materials and methods specified in the SWPPP.
7. Erosion control may include seeding, mulching, erosion control blankets, plastic coverings, and geotextiles that shall be implemented after completion of construction activities and pursuant to the SWPPP.
8. Stockpiled material will be covered or watered to eliminate excessive dust, as necessary.
9. Fiber rolls or similar products will be utilized in appropriate locations to reduce sediment runoff from disturbed soils, as necessary.
10. Excess water shall be pumped into the surrounding fields to prevent sediment-laden water from entering the stream channel.
11. Appropriate energy dissipation devices shall be utilized to reduce or prevent erosion at dewatering pipes/hose outfalls.
12. Turbidity and pH monitoring (as required in the monitoring plan of the SWPPP and the NCRWQCB 401 Water Quality Certification) will be conducted by the Construction Manager in the Salt River during channel activities and throughout the site stabilization period to ensure that water quality is not being degraded. Turbid water shall be contained and prevented from being transported in amounts that are deleterious to fish, or in amounts that could violate state pollution laws. Silt fences or water diversion structures shall be used to contain sediment. If sediment is not being contained adequately, as determined by visual observation, the activity shall cease.
13. Construction materials, debris, and waste will not be placed or stored where it can enter into or be washed by rainfall into waters of the U.S./State.
14. Appropriate vehicle storage, fueling, maintenance and cleaning areas shall be designated and maintained to prevent discharge of pollutants. Upland areas will be used for equipment refueling. If equipment must be washed, washing shall occur where wash water cannot flow into wetlands or waters of the U.S./States.
15. Operators of heavy equipment, vehicles, and construction work will be instructed to avoid sensitive habitat/resource areas. To ensure construction occurs in the designated areas and does not impact environmentally sensitive areas, the

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- boundaries of the work area shall be fenced or marked with flagging by the Contractor.
16. Equipment when not in use shall be stored outside of the slough channel and outside areas of tidal influence.
 17. All construction equipment will be maintained to prevent leaks of fuels, lubricants or other fluids into the slough. Service and refueling procedures will not be conducted where there is potential for fuel spills to seep or wash into the slough.
 18. Stationary equipment such as motors, pumps, generators, compressors, and welders, located within a dry portion of the stream channel or adjacent to the stream channel shall be positioned over drip pans. The Contractor shall have spill containment materials located at the site, with operators trained in spill control procedures.
 19. Extreme caution will be used when handling and/or storing chemicals and hazardous wastes (e.g., fuel and hydraulic fluid) near waterways, and any and all applicable laws and regulations will be followed. Appropriate materials shall be on site to prevent and manage spills. Contractor shall comply with the SWPPP, Emergency Spill Plan and Emergency Spill Response Plan and other relevant permit conditions.
 20. Covered and secured storage areas for potentially toxic materials shall be provided. all hazardous material containers should be placed in secondary containment.
 21. All construction vehicles or equipment shall be checked and maintained daily to prevent leaks of fuels and/or lubricants.
 22. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, oil or petroleum products, other organic material or earthen material from any construction related activity shall be allowed to enter into the active salt river or be placed where it may be washed by rainfall into the salt river or any waterways.
 23. Soil and material stockpiles shall be properly protected to minimize sediment and pollutant transport from the construction site.
 24. If, at any time, an unauthorized discharge of debris to surface water occurs, or any water quality problem arises, the associated project activities shall cease immediately until adequate BMPs are implemented, including stopping work. the regional water board will be notified by the construction manager promptly and in no case more than 24 hours after the unauthorized discharge or water quality problem arises.
 25. The plans may not cover all the situations that arise during construction due to unanticipated field conditions. Variations may be made to the plan in the field subject to the approval of or at the direction of the Construction Manager.
 26. Prior to final acceptance all areas of the site will be vegetated or permanently stabilized and all temporary sediment control measures shall be removed.

3.03 INSTALLATION OF SILT FENCES

- A. Silt fences shall extend a minimum of 16 inches above the ground surface and shall not exceed 34 inches above the ground surface. Filter fabric shall be from a continuous roll cut

to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 6 inch overlap, and securely sealed. A trench shall be excavated approximately 4 inches wide and 4 inches deep on the upslope side of the location of the silt fence. The 4-inch by 4-inch trench shall be backfilled and the soil compacted over the filter fabric. Silt fences shall be removed upon approval by the Construction Manager.

- B. Maximum spacing for post supports shall be 6 feet on center. Posts shall be buried 12 inches minimum and shall not exceed 36-inches above the ground surface.

3.04 INSTALLATION OF FIBER ROLLS (SEDIMENT LOGS OR WATTLES)

- A. Fine grade the subgrade by hand, dressing where necessary to remove local deviations and to remove larger stones or debris that will inhibit intimate contact of the fiber roll with the subgrade. Prior to roll installation, contour a concave key trench 2 to 4 inches deep along the proposed installation route. Soil excavated in trenching should be placed on the uphill or flow side of the roll to prevent water from undercutting the roll.
- B. Place fiber rolls into the key trench and stake on both sides of the roll within 6 feet of each end. Spacing for stakes shall be 3 to 5 feet. Stakes are typically driven in on alternating sides of the roll. Stakes shall be buried 12 inches minimum.
- C. When more than one fiber roll is placed in a row, the rows should be abutted securely to one another to provide a tight joint, not overlapped. Fiber rolls shall be placed in a single row, lengthwise on the contour, with ends of adjacent rolls tightly abutting one another.

3.05 MAINTENANCE

- A. The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.
 - 1. Silt Fence Maintenance. Silt fences shall be inspected in accordance with paragraph INSPECTIONS. Any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be re-vegetated.
 - 2. Fiber Roll Maintenance. Fiber roll barriers shall be inspected in accordance with paragraph INSPECTIONS. Close attention shall be paid to the repair of damaged rolls, end runs and undercutting beneath rolls. Necessary repairs to barriers or replacement of rolls shall be accomplished promptly. Sediment deposits shall be removed when deposits reach one-half of the height of the barrier. Roll rows used to retain sediment shall be turned uphill at each end of each row. When a fiber roll barrier is no longer required, it shall be removed. The immediate area occupied by the roll and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be re-vegetated.

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3.06 INSPECTIONS AND ACCEPTANCE

- A. General. The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site, at least once every seven (7) calendar days, within two (2) calendar days of forecasted rains, and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site and in accordance to the SWPPP.
- B. Inspection Details. Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.
- C. Inspection Reports. As required per the SWPPP.
- D. Acceptance: Final stabilization as defined by the SWPPP and acceptance of the Notice of Termination (NOT) by the State Water Resources Control Board.

END OF SECTION 02 27 00

SECTION 31 05 16

ROCK WORK

PART 1 GENERAL

1.01 DESCRIPTION

- A. The work includes furnishing all labor, supervision, materials, equipment, and incidentals necessary to safely perform all excavations, grading, backfilling, and compaction associated with installation of all the rock and Engineered Streambed Material indicated on the Contract documents or specified herein.

1.02 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

PART 2 REFERENCES

- A. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 4. Caltrans Standard Specifications Section 72

PART 3 SUBMITTALS

- A. Refer to section 01 33 00 submittal procedures.
- B. All materials required by the Contract Documents shall be submitted with the supplier's name, address, telephone number, fax number, email address and the name of the responsive person at the supplier's site at least three (3) weeks prior to delivering the material to the site.

PART 4 PRODUCTS

2.01 GENERAL

- A. Sediment Reuse per Section 31 20 00
- B. All materials shall be natural material. No recycled concrete, asphalt or other manmade material will be permitted.

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- C. Rocks larger than the maximum size specified will not be accepted.
- D. All rock and aggregate shall meet the following material properties:

Rock Material Properties

Select Property	California Test	Value
Apparent specific gravity	206	2.5 minimum
Absorption	206	4.2% maximum
Durability index	229	52 minimum

- E. Existing onsite rock as shown on the plans to be removed may be reused if it meets the above requirements and will be subject to approval of the Construction Manager prior to reuse.

2.02 ROCK SLOPE PROTECTION (RSP) FOR BANKS AT CULVERT INSTALLATION LOCATIONS

- A. Caltrans Class V RSP per Section 72-2 of the Caltrans Standard Specifications
- B. Class 8 RSP fabric per Section 72-2 of the Caltrans Standard Specifications

2.03 ROCK SURFACING

- A. Rock/Gravel from the existing levee access road surface may be reused.
- B. All rock shall be rigid and resistant to erosion.
- C. Rocks with diameters greater than 3 inches shall be angular.
- D. Rock shall conform to the material specifications in Section 72 of the Caltrans Standard Specifications.
- E. The rock shall conform to the following gradation:
 - 1. Passing 9-inch square sieve: 100%
 - 2. Passing 6-inch square sieve: 80 to 100% maximum
 - 3. Passing 3-inch square sieve: 20 to 40% maximum
 - 4. Passing 3/4-inch square sieve: 0 to 20% maximum
- F. Geotextile fabric placed under rock surfacing shall be Woven Mirafi 500X or approved equal.

2.04 BEDDING ROCK AND CONTROLLED LOW-STRENGTH MATERIAL

- A. Bedding Rock rock size and gradation per Class 2 Aggregate Base Section 26-1.02B of the Caltrans standard specifications.
- B. Controlled Low-Strength Material per Section 19-3.02G of the Caltrans standard specifications.

PART 5 EXECUTION

3.01 EXCAVATION

- A. Excavation shall occur in order to achieve the desired thickness and finished grades.
- B. The subgrade surfaces on which the rock, bedding, filter, or geotextile is to be placed shall be cleared and graded prior to placement of bedding, geotextile, or rock.
- C. Subgrade shall be compacted to minimum 85% relative compaction or as noted on the plans.
- D. When fill to subgrade lines is required, it shall consist of approved materials and shall conform to the requirements of Section 31 20 00.

3.02 STOCKPILING

- A. Stockpile materials on site at locations indicated in the Contract Drawings.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.
- D. Any material not utilized for this project shall become the property of the Contractor and hauled offsite.

3.03 ROCK PLACEMENT

- A. Rock shall be placed in general accordance to Section 72 of the Caltrans Standard Specifications.
 - 1. Rock used for Rock Surfacing shall be track-walked or rolled in max 6" lifts to reduce voids.
 - 2. Rock for Culvert RSP shall be individually placed to provide 3-point contact with adjacent rock.
- B. All rock surfacing and bedding rock shall be mixed prior to being placed. These mixtures shall be placed such that the voids between rocks are filled.
- C. The rock shall be placed in such a manner as to avoid displacement of the underlying materials.

3.04 FILTER LAYERS OR BEDDING

- A. When specified, the filter, bedding, or geotextile beneath the rock shall be placed on the prepared subgrade. Compaction of filter layers or bedding will not be required, but the surface of such material shall be finished reasonably free of mounds, dips, or windrows.

3.05 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Decompact and naturalize the stockpile site surface to pre-construction conditions.

END OF SECTION 31 05 16

SECTION 31 10 13

DEMOLITION/DEBRIS DISPOSAL AND SALVAGE

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Demolition, removal, salvaging and disposal of the miscellaneous items shown on the plans, including but not limited to existing concrete drainage structures, automobile chassis, culverts, wood and metal posts, miscellaneous agricultural equipment, gates, tires, piping, fencing and dump site contents.

1.02 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.03 SUBMITTALS

- A. Within five (5) working days of Award of Contract, Contractor shall submit a site-specific structure Demolition and Debris Removal Plan and Schedule for site work, outlining work areas, methods, start work dates, equipment and crew types to perform the work as well as hazardous material handling and disposal Plans consistent with the Debris Disposal Plan.
- B. Working with the Construction Manager, the Contractor shall develop a list of off-site refuse disposal facilities, including contact information and list of items accepted for disposal at identified facility consistent with the Debris Disposal Plan.

1.04 QUALITY ASSURANCE

- A. In addition to complying with all pertinent codes and regulations, comply with the requirements of those insurance carriers providing coverage for this work.
- B. The Contractor shall comply with all OSHA and California DTSC requirements for demolition of item described in description of work, and for items that may be encountered during this work.
- C. The Contractor shall not disturb any power poles, overhead lines or other utilities.

1.05 PROJECT CONDITIONS

A. Disposition of material:

1. Title to materials:
 - a. Title to all materials to be removed, except as specified otherwise, is vested in the Contractor upon receipt of notice to proceed. The HCRCD will not be responsible for the condition or loss of, or damage to, such property after notice to proceed.

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- 2. Reuse of materials and equipment:
 - a. Carefully remove and store materials and equipment indicated to be reused or relocated to prevent damage, and reinstall as the work progresses.
- B. Cleanup:
 - 1. Debris and rubbish:
 - a. Contain, remove and transport debris and rubbish in a manner that will prevent spillage to adjacent areas.
 - 2. General:
 - a. Use all means necessary to protect existing structures designated to remain and, in the event of damage, immediately make all repairs and replacements necessary to the approval of the Construction Manager at no additional cost to the HCRCD.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION

3.01 SITE INSPECTION

- A. Prior to any demolition and debris removal work, carefully inspect the site and determine the extent of work involved.
- B. Report any discrepancy to the Construction Manager immediately.

3.02 COORDINATION AND SCHEDULING

- A. Coordinate work with other trades and subcontractors.

3.03 SAFETY

- A. All work shall conform to pertinent OSHA regulations and to other State and local codes and ordinances as applicable.
- B. If discovered, the Contractor shall not cut or crush potentially asbestos containing materials. Contractor shall attempt to remove these materials in an intact fashion and separating pipe at existing joints.

3.04 PROTECTION

- A. Locate, identify, and protect conduits and other underground utilities indicated to remain, from damage as shown on the Plans.
- B. Protect trees, plant growth, and features designated to remain.
- C. Protect benchmarks and existing structures from damage or displacement.

3.05 SALVAGING MATERIAL

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- A. The Contractor shall salvage, with reasonable care, all material designated to be salvaged on project plans or as identified by the Construction Manager. The Contractor shall salvage in readily transportable sections or pieces.
- B. The Contractor shall stockpile salvaged material at a designated area on the project as directed on plans or by the Construction Manager.
- C. Rock removed from the existing levee access road and not reused onsite shall become the property of the contractor and hauled offsite.

3.06 REMOVAL AND DISPOSAL OF DEBRIS

- A. Remove all debris from the site and leave the site in a neat and orderly condition.
- B. The Contractor shall handle and dispose of unsuitable and excess material legally, at refuse facility outside the Project site.
- C. All salvaged material remains the property of the HCRCD and shall be stockpiled by the Contractor where directed by the Construction Manager.
- D. Asbestos Containing Materials and Hazardous Material: The Contractor shall handle and dispose of material according to Federal, State, and local regulations at a legal off-site location. Contractor shall furnish a copy of all disposal permits to the Construction Manager.

END OF SECTION 31 10 13

SECTION 31 11 00

CLEARING AND GRUBBING

PART 1 GENERAL

1.01 DESCRIPTION

- A. The work of this section consists of clearing, grubbing, and incidental clearing.
- B. No clearing or grubbing shall occur outside construction limits of disturbance without prior approval from the Construction Manager and completion of environmental clearance surveys.
- C. Grubbing is defined as removing sticks, brush, stumps, grass, weeds, roots, decayed vegetable matter, and woody debris resting on or protruding through the ground surface and all objectionable woody matter which is embedded in the underlying soil. All material generated during grubbing shall be hauled off-site to an authorized site or used as directed by the Construction Manager.
- D. Clearing is defined as removing existing vegetation within the limits shown on the plans. All vegetative material generated during clearing shall be hauled off-site to an authorized site or used as directed by the Construction Manager.
- E. All work shall be conducted in accordance to the Nesting Bird Habitat Avoidance Memo and as directed by the HCRC D biologist and Construction Manager. The Nesting Bird Habitat Avoidance Memo has been provided as reference in Appendix B.
- F. Related work described elsewhere:
 - 1. Section 31 20 00 – Earthwork

1.02 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.03 SUBMITTALS

- A. See Section 01 11 00 Summary of Work for the requirements of the Project Approach Plan, which includes work completed under this specification.

1.04 QUALITY ASSURANCE

- A. Qualifications of workmen:
 - 1. Provide sufficient skilled workmen and supervisors who shall be present at all times during execution of this portion of the work and shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.

1.05 PRESERVATION OF PROPERTY

- A. Where construction is to be performed in the vicinity of trees and shrubbery, the work

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shall be carried on in a manner which will cause minimum damage. Trees which are to be removed will be designated on the drawings. Under no circumstances are additional trees to be removed without written permission from the Construction Manager. Trees and shrubbery that are not to be removed shall be protected from injury or damage resulting from the Contractor's operations. It shall be the responsibility of the Contractor to alert his men, his suppliers, and all sub-contractors of the intent of these Specifications pertaining to the protection of vegetation. During the execution of his work, the Contractor shall use the same care and protection of all vegetation within their work area.

- B. In areas where trees or shrubs may be damaged by construction equipment, the Contractor shall provide protective fencing, padding on tree trunks, tie-back branches or take other necessary actions to prevent damage to the trees, shrubs, or other vegetation. Damage to trees and shrubs shall include, but will not be limited to:
 - 1. Bark damage to trees
 - 2. Breakage of branches on trees or shrubs
 - 3. Breaking or tearing of roots
 - 4. Spilling toxic materials near the root zones
 - 5. Spraying toxic materials on foliage
 - 6. Fire damage to foliage and branches
 - 7. Compaction of root areas under the drip line or damage by fill or storage of materials over the root zone
 - 8. Foot or vehicular damage on low shrubs and groundcover
- C. All damage shall be immediately reported to the Construction Manager who will file a report so that penalties may be determined.
- D. If the Contractor inadvertently removes vegetation not designated for removal, the Contractor shall replant at a ratio of 3-to-1 (replanted area-to-removed area) of species, size and location directed by the Construction Manager. The penalty is also applicable to trees damaged to the extent that such damage will, in the Construction Manager's opinion, cause the tree to die.
- E. Contractor shall exercise caution when working near trees not designated to be removed, so that the trees will not be damaged. No root greater than 1 inch in diameter shall be cut unless it is necessary to do so during excavation to reach the specified grade.

1.06 PROJECT CONDITIONS

- A. Environmental requirements:
 - 1. No burning shall be permitted.
 - 2. Contractor shall be responsible for obtaining all necessary permits, approvals and Construction Manager's authorization for disposal of material resulting from grubbing and stripping operations in areas not already specified in the contract documents.

PART 2 PRODUCTS

2.01 PRODUCTS

- A. NOT USED

PART 3 EXECUTION

3.01 LAYOUT

- A. The Contractor shall layout the grubbing and stripping limits with lath five (5) working days prior to work, for review and approval by the Construction Manager.
- B. The Construction Manager will review the clearing and grubbing layout and will direct the Contractor to make adjustments to the limits if necessary, prior to approval.

3.02 CLEARING AND GRUBBING

- A. **Within Limits of Grading:** As shown on the plans and directed by the Construction Manager, all debris including but not limited to fence posts, trees, stumps, large roots, buried logs, decayed vegetable matter, loose above ground logs, and all other objectionable material shall be removed and chipped.
- B. **Outside Limits of Grading:** Any clearing and/or grubbing activities outside the limits of grading is prohibited unless authorized by the Construction Manager.

END OF SECTION 31 11 00

SECTION 31 14 00

EARTH STRIPPING AND STOCKPILING

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. This section specifies requirements for furnishing all equipment, labor, materials, and incidentals, and performing all operations necessary for the following:
 - 1. Stripping for excavation and other areas requiring clearing and grubbing and for topsoil and gravel reuse.
 - 2. Removal and disposal of stripped materials not suitable for reuse.
 - 3. Stockpiling of materials suitable for reuse.

1.2 SEQUENCE OF WORK

- A. Clearing and grubbing to be performed prior to earth stripping.
- B. After clearing and grubbing is completed, Contractor to confirm limits of topsoil and gravel stripping with District.
- C. Contractor shall not proceed with any earth stripping or excavation until Construction Manager has confirmed the limits of topsoil and gravel stripping.

1.3 REFERENCES- NOT USED

1.4 DEFINITIONS

- A. Unsuitable Material: Materials containing roots greater than 1/4 inches in diameter, debris, rubble, trash, or other deleterious items must be classified as unsuitable
- B. Stripping: Stripping is the removal of native vegetative materials and the removal of surface soil to a depth of 4 inches and described in the Specifications.
- C. Gravel Removal and Reuse: Remove gravel within areas shown on the Drawings to a depth of 6 inches or to the existing underlying fabric and as described in the Specifications.
- D. Stockpiling: Stockpiling shall consist of the temporary placement and storage of earthen materials to be blended, moisture conditioned, and/or other processing, and reused.

1.5 SUBMITTALS

- A. Shop Drawings:
 - 1. Stripping Plan
 - a. Contractor shall prepare and submit a Stripping Plan for review and approval by the District. The plan shall outline the proposed stripping operations at the project site.
 - 2. Stockpile Plan

- a. Contractor shall prepare and submit a detailed plan identifying proposed final stockpile locations, heights, slopes, and limits and proposed drainage around stockpile areas. Plan shall include characterization of stripped materials and conformance of the striped materials with specification requirements.
- b. Coordinate the Stockpile Plan with the Excavation and sediment reuse shown on the Drawings.

1.6 GENERAL CONDITIONS

- A. Conduct of the Work
 1. Maintain and protect the site preparation in a satisfactory condition at all times until final completion and acceptance of all work under the Contract.
 2. Maintain slopes in a satisfactory condition at all times until final completion and acceptance of all work under the Contract.
 3. Perform work in a manner to avoid disturbance of areas beyond the work area shown on the Drawings and trees designated to remain.
 4. Limit the stripping of land within the designated area to those portions of the area that the Contractor will disturb.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 STRIPPING

- A. Prior to placement of excavated sediment in the sediment reuse areas, strip existing vegetation between elevations 7.5-9ft (NAVD88) as shown on the drawings and segregate for reuse over finished grades of sediment reuse areas per the drawings.
- B. Stripped material shall include removal of topsoil within areas shown on the Drawings to the deeper of 4 inches or as required to remove roots, rocks, debris and other deleterious materials as directed by the Engineer.

3.2 GRAVEL REMOVAL AND REUSE

- A. Remove gravel within areas shown on the Drawings to a depth of 6 inches or to the existing underlying fabric or as directed by the Construction Manager to remove and salvage gravel suitable for re-use.

3.3 STOCKPILING

- A. Material stripped or removed as indicated on the Drawings will be stockpiled on site. Stripped materials to be used in sediment reuse area shall be stockpiled separately from stripped material for gravel.
- B. Stockpiles shall have slopes no steeper than 2 Horizontal to 1 Vertical, and shall be no taller than 10 feet.

- C. No material shall be stockpiled closer than 50 feet from any existing structure or any completed portion of the work without the written approval of the Construction Manager.

- D. No temporary, permanent, or construction slope shall be surcharged with excavated or stockpiled material, heavy construction equipment, or other loadings which could cause slope instability. The toe of stockpiled material shall be maintained a minimum distance back from the top of the finished excavation equal to the depth of the excavation. The Contractor shall determine the maximum height of such stockpile that will not cause instability of the excavation slope. Any slide or other adverse conditions caused by failure of the Contractor to maintain these conditions shall be considered the responsibility of the Contractor and remedial measures shall be at the Contractor's expense.

END OF SECTION

SECTION 31 20 00

EARTHWORK

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: excavation, trenching, backfilling, compaction, and grading necessary or required for the construction of the work as covered by these Specifications and indicated on the Drawings.

1.02 RELATED SECTIONS:

- A. Section 01 33 00 – Submittal Procedures
- B. Section 01 11 00 – Summary of Work
- C. Section 01 14 19 – Use of Site
- D. Section 31 05 16 – Rock Work
- E. Section 31 10 13 –Demolition/Debris Disposal
- F. Section 31 11 00 – Clearing and Grubbing
- G. Section 31 14 00 – Earth Stripping and Stockpiling
- H. Section 32 92 19 – Seed and Mulch

1.03 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.04 REFERENCES

- A. Documents:
 - a. “Geotechnical and Engineering Geologic Report, Salt River Ecosystem Restoration Project” (Geotechnical Report), dated March 2012. The Geotechnical Reports contain geotechnical evaluation of site conditions, construction guidelines, soil moisture conditioning, and compaction testing guidelines. The reports are available upon request to the Construction Manager.
- B. California Standard Specifications – latest edition

1.05 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 Submittal Procedures.
- B. See Section 01 11 00 Summary of Work for the requirements of the Project Approach Plan, which includes work completed under this specification.

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- C. Submit the following:
 - 1. Product Data: Submit data and samples for geotextile fabric indicating fabric and construction and for the biodegradable mat, erosion control blanket and stakes.

1.06 QUALITY ASSURANCE

- A. Before beginning construction activities, such as grading, excavation, trenching, or filling, in any part of the project site, 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 reviewed and approved Water Management Plan and Storm Water Pollution Prevention Plan (SWPPP).
- B. Contractor shall arrange construction activities to minimize erosion to the maximum practical extent. Clearing, excavation, and grading shall be limited to those areas of the project site necessary for construction. Contractor shall minimize the area that is exposed and unprotected.
- C. Contractor shall clearly mark and delineate the limits of work activities and Limits of Disturbance. Contractor shall not allow equipment to operate outside the limits of work or to disturb protected areas, except as already noted in specifications.
- D. Qualifications of work force:
 - 1. Provide sufficient skilled work force and supervisors who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.

1.07 COMPACTION TESTING

- A. The Contractor shall engage a qualified third party compaction testing firm to provide compaction testing at the locations described in the section below (Testing Frequency). Testing reports shall be provided to the Construction Manager for review and approval.
- B. The Construction Manager may engage a qualified compaction testing laboratory to perform field tests and inspections to verify the Contractor's compaction effort meet the compaction requirements of plans and specifications. Relative compaction tests will be made at locations determined by the Construction Manager. When tests indicate that the specified compaction has not been achieved, that portion of the Work shall be reworked until the required density has been attained.
- C. The Contractor shall make all necessary excavations for compaction tests. Costs of excavating, backfilling, and compacting in connection with compaction testing shall be borne by the Contractor. Excavations for compaction tests shall be backfilled with native backfill and compacted to the specified density. The Contractor shall engage a qualified testing organization subject to approval by the Construction Manager and pay for all testing in accordance to the specifications. The Contractor shall be required to pay for all required repeat tests in that area until the required results are obtained and including all associated incurred costs **AND in areas where the Contractor inadvertently over-excavates beyond the finished grades shown on the plans.**
- D. All compaction shall be by mechanical means unless the Contractor can demonstrate other means that will accomplish required compaction to the satisfaction of the HCRCD. Compaction equipment shall be of suitable type and adequate to obtain the densities

specified and approved. Compaction equipment shall be operated in strict accordance with the manufacturer's instructions and recommendations. Equipment shall be maintained in such condition that it will deliver the manufacturer's rated compactive effort.

E. Testing Methods:

1. In-place Density: ASTM D1557
2. ASTM D-698 (Standard Proctor)

F. Testing Frequency:

- a. Culvert Bedding and Backfill: Common Backfill Salvaged from Excavation for Culverts and Crushed Aggregate Backfill.
 - i. 2 per lift.
- b. Onsite Native for Sediment Reuse Areas AND Under Rock Surfacing – Contractor shall demonstrate in the presence of the Construction Manager their method(s) to achieve the specified compaction for sediment reuse and conduct a minimum of three (3) successful and consecutive tests per method and for up to three (3) representative locations of minimum size 10ft x 20ft.
- c. Class 2 Aggregate Base:
 - i. Trail, Parking Area and Concrete Sub-Base: minimum one (1) successful test per lift per 10,000 square feet
- d. The frequency of compaction tests may be reduced if the compaction tests consistently meet the compaction requirements and the Construction Manager approves of a reduction.

G. Definition:

1. Relative Compaction: In-place density divided by the maximum dry density laboratory compaction expressed as percentage.

1.08 PRESERVATION OF PROPERTY

- A. Where construction is to be performed in the vicinity of trees and shrubbery, the work shall be carried on in a manner which will cause minimum damage.
- B. Existing power and telephone lines, fences, pipelines or other conduits, embankments, and structures in the vicinity of the work shall be supported and protected from injury by the Contractor during the construction and until the completion of the work
- C. All damage shall be immediately reported to the Construction Manager who will file a report so that penalties may be determined.
- D. The Contractor shall remove all temporary stockpiles by October 15th, decompact and rehabilitate the stockpile/staging areas and leaving it in clean and neat condition.

1.09 EXPLOSIVES

- A. The Contractor shall not use explosives of any kind on the premises.

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1.10 GRADES, LINES, LEVELS, AND PERMANENT MARKERS

A. Staking:

1. The Contractor is responsible for providing all surveying and staking for laying out the earthworks at the site based on bench marks shown on the plans and in accordance to the specification section 01 71 23.16 Construction Survey Staking.

B. Responsibility for correctness:

1. Contractor will be held responsible for the correctness of the layout and for establishing the location of possible buried utility lines. In the event there is any conflict between actual conditions and the drawings, Contractor shall notify the Construction Manager immediately and shall not proceed with the work until directed by the Construction Manager.

C. Preservation of markers:

1. All stakes, boundary lines, corner markers, bench marks or survey markers, etc., which have been or may be established in any part of the site, shall be carefully preserved and respected by the Contractor and shall be restored at the Contractor's expense if lost or destroyed as a result of his operations.

1.11 ACCURACY OF DATA

- A. Site data given herein and on the drawings are as exact as could be secured, but their absolute accuracy cannot be guaranteed. Exact locations, distances, elevations, etc., shall be finally governed by field conditions and the Construction Manager's instructions.

- B. The Contractor shall promptly, and before such condition is disturbed, notify the Construction Manager in writing of soil or subsurface conditions which differ materially from those conditions shown in the Contract Documents or in the records of investigations of soil or subsurface conditions referred to above. The Construction Manager shall promptly investigate the conditions. If he/she finds the conditions materially different from those which reasonably should have been anticipated on the basis of a careful consideration of said records of investigations, logs of borings and examination of the site, and finds that said conditions will cause an increase or decrease in the cost of, and/or the time required for performance of the Contract, he/she will, after approval by the HCRCDC, modify the Contract Terms in writing to provide for an equitable adjustment in cost and/or time of performance.

- C. A thorough attempt has been made to show the type, location, and number of all utilities, however, no guarantee is made as to the location and number of such utilities. The Contractor shall repair all utilities damaged in the progress of his work. The Contractor shall notify all owners of utilities of commencement of and sufficiently in advance to have the utilities mark the location of their facilities. The Contractor shall be prepared at all times with labor, equipment, and materials to make repairs on damaged mains or utilities.

1.12 ADDITIONAL SAFETY RESPONSIBILITIES

- A. 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 Construction Manager's sampling and testing within the excavation, (4) provide safe access for backfill, compaction, and compaction testings, 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 and applicable OSHA requirements.

1.13 SPECIAL CONSTRUCTION REQUIREMENTS

- A. Materials excavated is anticipated to be primarily silty fine sands (SM) and sandy silts (ML) with minor amounts of clay (CL), poorly graded sand (SP), and poorly graded fine gravels (GP), LACO Associates 2012.
- B. Contractor should anticipate the potential for soft, saturated soils and/or poor performance of soils under repeat vehicle traffic and heavy loads, LACO Associates 2012.
- C. Repeated vibration and/or high loads may lead to pumping of the native fine sand/silt soils resulting in the saturation of surficial soils. Contractor should expect soft saturated subgrades under roadways and other surface improvements. See project Geotechnical Report, available upon request from the Construction Manager.
- D. Excavations lower than an elevation 8 feet (NAVD 88) should anticipate saturated soil conditions. Specialized equipment and/or dewatering may be necessary for Contractor to work within the saturated soils.
- E. Contractor should expect the in-situ volume material to increase (termed “expansion”) by approximately 10 to 15 percent during excavation. Therefore, Contractor's transportation volume estimates should be based on a minimum 10 to 15 percent increase in calculated cut volumes.

PART 2 PRODUCTS

2.01 SOIL AND OTHER MATERIALS

- A. On Site Generated Materials
 - a. Fill for onsite use (Sediment Reuse): satisfactory soil materials free of vegetation, rock, woody debris, and deleterious materials and as approved by the Construction Manager.
 - b. Gravel for Rock Surfacing: contractor may use existing gravel access road material, in the Rock Surfacing gradation. Contractor to assume existing gravel is 6 inches thick and conforms to the Caltrans Standard Specification for Class II Aggregate Base.

2.02 GEOTEXTILE FABRICS

- A. Geotextile fabric shall be per plans or approved equal.

PART 3 EXECUTION

3.01 OVERVIEW

- A. Contractor is responsible for excavating sediment, hauling to specified application areas and placing and compacting in accordance to the plans and these specifications.

3.02 EXAMINATION

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- A. Verification of Conditions: Prior to commencement of site grading work the Contractor shall notify the Construction Manager that the site has been cleared. The Construction Manager shall have sufficient time to review the site. Site grading shall not commence until the Construction Manager has completed review of the site and the Construction Manager has given approval to proceed.

3.03 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, freezing temperatures or frost, and other hazards created by earthwork operations. Provide protective insulating materials as necessary.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and roadways.
- C. Prevent surface water and ground water from entering excavations, from ponding on prepared sub grades, and from flooding Project site and surrounding area.
- D. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

3.04 CLEARING AND GRUBBING WORK REQUIRED

- A. Clearing and grubbing work shall be accomplished in accordance with the provisions of Section 31 11 00 of these specifications.

3.05 CONTROL OF WATER

- A. The Contractor shall be responsible for furnishing temporary drainage facilities to convey and dispose of surface water falling on or passing over the site. This work shall be accomplished in accordance with the provisions of Section 01 57 00 of these specifications.

3.06 EXISTING UTILITIES

- A. The known existing utilities are shown on the Drawings in their approximate location. The Contractor shall exercise care in avoiding damage to all utilities, as he will be held responsible for their repair if damaged. There is no guarantee that all utilities or obstructions are shown, or that locations indicated are accurate. Utilities are piping, conduits, wire, cable, ducts, manholes, pull boxes and the like, located at the project site and adjoining said site.
- B. Excavations around underground electrical ducts and conduits shall be performed using extreme caution to prevent injury to workers or damage to electrical ducts or conduits. Similar precautions shall be exercised around gas lines, telephone and television cables.

3.07 PRIMARY SITE ACCESS

- A. Within one (1) week of the Notice to Proceed Contractor shall initiate improvements to the primary site access locations as indicated on Plans. Establishing and maintaining construction entrances is a priority as all equipment and worker access and off-hauling of material shall occur only through the construction entrances shown on the plans; no off-

hauling of demolition material or excavated soil may occur along any other access without prior written consent of the Construction Manager.

- B. Contractor shall not import any fill material without receiving prior approval from the Construction Manager.
- C. The HCRCDD and their representatives are not liable for any delays that result from regulatory-driven changes in the construction entrance access design and/or County encroachment permit.

3.08 TEMPORARY CONSTRUCTION ACCESS AND HAUL ROUTES

- A. Surface soil throughout much of the channel corridor and application areas may yield under the weight of medium and heavy-duty earthmoving equipment. Thus, Contractor may need to create or improve temporary construction access routes through the project area. Potential access route design alternatives include the following as provided in the Geotechnical Report:
 - 1. Proof-rolling with treatment of soft spots by excavation and replacement with crushed rock or river-run gravel. Interlocking mats or planks may be used for short soft segments as well.
 - 2. Construct a structural subgrade by emplacing compacted native material on top of geotextile fabric.
 - 3. Construct a structural subgrade using woven or non-woven geotextile fabric and imported Class 2 aggregate base and/or river-run gravel.
- B. All temporary construction access roads shall be removed and native ground decompacted and restored back to pre-project conditions and to the satisfaction of the Construction Manager.

3.09 GRADING AND EXCAVATION

- A. Perform all excavation of every description, regardless of the type, nature, or condition of material encountered, as specified, shown, or required to accomplish the construction. Material for fill, backfill, or for protection of excavations from surface drainage shall be neatly placed and kept shaped so as to cause no interference with public travel
- B. The Contractor shall be responsible for meeting the finish grades as shown on the plans.
- C. All areas covered by the project, including excavated and filled areas and adjacent transition areas, shall be uniformly graded so those finished surfaces are at the elevations established by the plans.
- D. In some instances, the existing Salt River channel, drainage ditches and other low areas adjacent to the channels/ditches may become disconnected by the new grading. At the direction of the Construction Manager, the Contractor shall grade a connection channel to those lower areas to allow drainage and connectivity.
- E. Cut the levee to the grades shown. **Take care not to over-excavate** and backfill excessive excavation to grade.
- F. Cut ditches/outfalls/swales accurately to the grades shown. **Take care not to over-excavate.** Backfill excessive excavation to grade. Trim all roots, stumps, rock and other

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foreign matter from the sides and bottom of the ditches. Compact the surfaces of ditch slopes and bottom.

- G. Correct areas over excavated with appropriate backfill and compact to a minimum of 85% relative compaction or as specified or as directed by Construction Manager.
- H. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- I. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.
- J. Temporary cut slopes – maximum slope of temporary cut slopes shall be determined by the Geotechnical Report.
- K. Groundwater may be encountered within the planned excavation depth, including utility trenches. Dewatering may be necessary to accomplish required excavations.
- L. Due to the potential for slope failure associated with surcharges loads and/or vibrations from the vehicle traffic, high traffic and/or high load construction roads, stored materials, excavated soils, and other similar loads should be sited outside of the projection of a 4H:1V slope, as measured from the base of the slope.
- M. Notify the Construction Manager of unexpected subsurface conditions.

3.10 BACKFILLING AND COMPACTION

- A. The placement of fills to achieve the finished grades shall be done under the supervision of the Construction Manager.
- B. Compact subgrade as necessary to support density requirements of subsequent layers of fill and as shown on the plans.
- C. Fill in lifts allowing time for material tester to test each lift for compaction.
- D. Each lift shall not exceed six inches unless otherwise indicated or as directed by the Construction Manager.
- E. All areas to receive fills shall be uniformly moisture conditioned as required to obtain the required compaction.
- F. Add water to the backfill material or dry the material as necessary to achieve specified compaction density of each layer of backfill being compacted. Employ such means as may be necessary to secure a uniform moisture content throughout the material of each lift being compacted.
- G. After the material has been moisture conditioned, compact it with compaction equipment appropriate for the use to achieve 85% compaction or as otherwise specified. Compact using the approved means and methods demonstrated by the contractor to achieve 85% compaction. If other methods are utilized, contractor shall provide in-place density testing at a frequency acceptable to the Construction Manager.
- H. If the backfill material becomes saturated from rains or any other source because it was not compacted to the specified density or was not backfilled and compacted to surface grade, through negligence or otherwise, remove the faulty material and replace it with

suitable material compacted to the specified density. No additional payment will be made for doing such work or removal and replacement.

- I. Recompaction: Where, in the judgment of the Construction Manager, or the results of the field density testing, the moisture content is not suitable or insufficient compaction has been obtained, the fill shall be reconditioned and/or recompacted to the specified density prior to placing any additional fill material. The Contractor shall be responsible for placing and compacting approved fill material in accordance with these specifications. If the Contractor fails to meet the compaction requirements, he/she shall reduce his rate of haul, furnish additional spreading, moisture conditioning and/or compacting equipment or make any other adjustments necessary to produce a satisfactory compacted fill.
- J. Heavy compaction equipment shall not be operated within two feet of any structure. Hand directed tampers or plate vibrators shall be used on areas not accessible to heavy compaction equipment. Fills compacted in this manner shall be placed in layer not greater than four inches in thickness before compaction, and shall meet the same density requirements as adjacent areas.
- K. After the placement of the native backfill, the surface areas shall be left constructed and trimmed to conform to the lines, grades, and cross sections shown on the plans. The surface area shall be graded to provide surface drainage to flow to desired locations.

3.11 PLACEMENT OF GEOTEXTILE FABRIC

- A. Prior to the placement of geotextile fabric, the surface shall be prepared in accordance to the plans and approved by the Construction Manager.
- B. Geotextile fabric shall be placed in accordance with manufacturers recommendations. Where placed horizontally, joints may be oriented parallel to the axis of the embankment. Where placed on slopes, joints shall be oriented perpendicular to the axis of the embankment. Joints shall consist of overlaps of at least one foot if sewn and otherwise at least three feet. All sharp objects shall be removed within a depth of one foot below finished grade.

3.12 AGGREGATE BASE PLACEMENT

- A. Soil below the aggregate base foundation shall be compacted to the minimum density as shown on the plans. Compacted aggregate base shall be placed under structures as specified on the plans.
- B. Each layer of the aggregate base shall be compacted to the density shown on the plans with approved compaction equipment. Water content shall be maintained during the compaction procedure to within plus or minus 1 percent of the optimum water content determined from ASTM D 1557.
- C. For placement on tidal ridges, rolling shall begin at the outside edge of the surface and proceed to the center, overlapping on successive trips at least one-half the width of the roller. Alternate trips of the roller shall be slightly different lengths. Speed of the roller shall be such that displacement of the aggregate does not occur. In all places not accessible to the rollers, the aggregate base shall be compacted with hand-operated power tampers. The finished aggregate base surface shall be graded to a smooth condition and graded to provide positive drainage.

3.13 CULVERT PIPE PREPARATION

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- A. The Contractor shall compact the in-situ material at the bottom of the excavation to a minimum density as shown on the plans. The excavation shall be of sufficient depth to allow for bedding or the placement of aggregate base where required on the plans and/or specified herein. The resulting bed shall be fully leveled and compacted throughout the full width and length of the excavation.
- B. Excavations shall be of sufficient depth to allow for bedding where required. Where pipe attaches to structures, the pipe shall be fully supported in the immediate vicinity of the structure by:
 - 1. Structure excavations shall be keyed in such that the prepared pipe trench base of in-situ material fully supports the pipe adjacent to the structure
 - 2. The pipe shall be bedded such that the bedding fully supports the pipe adjacent to the Structure
- C. No boulders, rock, organic material or debris shall be permitted in the trench. This material will be classified as unsuitable material and treated as such. A minimum of 4 inches of bedding material shall be placed under the pipe if rocky conditions exist.
- D. The Contractor shall compact the in-situ material at the bottom of the excavation to a minimum density shown on the plans. The resulting bed shall be fully leveled and compacted throughout the full width and length of the trench such that the pipe is fully supported for its entire length. Rocks that could potentially puncture the pipe or cause stress points shall be removed and backfilled.
- E. All pipe shall be bedded to a depth where and as specified on the plans, or as directed by the Engineer. Bedding material and placement shall be per the plans.

3.14 PIPE HAUNCHING

- A. Haunching, placement of material between the bottom of the pipe and the springline, is critical to ensuring proper support of the pipe and minimizing the potential for loss of soil material by water seepage, or "piping". Placement of material under the pipe haunches shall be performed as specified for Initial Pipe Backfill. Proper care and control of the pipe shall be exercised to avoid vertical and horizontal displacement of the pipe.

3.15 INITIAL PIPE BACKFILL

- A. Initial backfill shall be deposited in horizontal, uniform layers not exceeding 6 inches in thickness before compaction, and each layer shall be thoroughly compacted throughout to ensure thorough tamping of backfill under the haunches and around the pipe. This is to be achieved by hand and mechanical compaction to the minimum density shown on the plans. Compacted backfill shall be placed in this manner and shall continue vertically to a distance of 1 foot above the top of the pipe for the entire width of the trench. Vehicles shall not be permitted to cross the pipe until initial backfill is completed. Compaction equipment or methods that produce horizontal or vertical earth pressures which may cause excessive displacements or which may damage the installation shall not be used.

3.16 FINAL PIPE BACKFILL

- A. After initial backfilling has been completed, the remaining backfill, consisting of select fill material, shall be placed in layers not exceeding 8 inches before compaction. Each layer shall be compacted by suitable compaction equipment to a minimum density shown on the plans. Compaction equipment or methods that produce horizontal or vertical earth

pressures which may cause excessive displacements or which may damage the installation, shall not be used. Backfill shall be executed and trimmed to the lines and grades shown on the plans.

3.17 WATER FOR COMPACTION

- A. See Temporary Facilities and Controls specification for optional water sources.
- B. Water shall be clean and free of oil, acids, salts, and other deleterious substances and suitable for agricultural purposes. Furnish as required from source approved by Construction Manager, and as specified in these specifications.
- C. Water shall be applied by means of pressure-type distributors or pipe lines equipped with a spray system or hoses with nozzles that will ensure a uniform application of water.

3.18 SUPPORT OF EXCAVATIONS

- A. All necessary measures to protect excavations and adjacent improvements from running, caving, boiling, settling, or sliding soil resulting from the groundwater table and the nature of the soil excavated. See Geotechnical Report for recommendations for 4H:1V projection for excavation setbacks.

3.19 FINISH GRADING AND SOIL PREPARATION

- A. Except where shown otherwise in the Drawings, restore the finish grade to the original contours and to the original drainage patterns. Grade surfaces to drain away from structures.
- B. Upon completion of grading and prior to seed and mulch application, soil preparation shall occur in accordance to the seed and mulch specification section 32 92 19.
- C. Earthwork tolerances shall conform to the following:

Description of Earthwork Feature	Tolerance (ft)	
	Horizontal	Vertical
Drainage Ditches	0.5	0.1
Berm/Levee Trail/Access Road		
Trails		
Limits of Grading	1.0	EG
EG = Existing Ground		

- D. Excessive passes of finish grading equipment that would compact seeding areas shall be avoided. Where equipment access routes are required, the sequence of construction activities shall be coordinated to only allow equipment access prior to preparation of soils. Upon completion of soil preparation activities, no further vehicular traffic will be allowed other than equipment required for seeding or planting. If equipment access should become necessary, the access route shall be disked and fine graded again prior to seeding to eliminate any resulting soil compaction.

3.20 FIELD QUALITY CONTROL

- A. If, in the opinion of the Construction Manager, required compaction is not being achieved, Contractor will provide reimbursement for re-testing. The Construction Manager shall determine the number and location of tests required. The Contractor shall furnish a

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backhoe and operator upon request to the testing laboratory, at no cost to the HCRCD.

- B. Perform additional compacting effort or re-work as required until compaction meets or exceeds requirements.
- C. Ensure excavations are safe for testing personnel.

3.21 PROTECTION

- A. The Contractor shall prevent erosion of freshly graded areas during construction and until such time as a permanent drainage and erosion control measures have been installed.
- B. Earthwork operations shall be conducted so as to prevent windblown dust and dirt from interfering with the surrounding normal operations. Contractor shall assume liability for all claims related to windblown dust and dirt. Water shall be applied in conformance with applicable provisions of Section 17 of the State Standard Specifications and with Section 1590 (e) of CAL/OSHA, Title 8, and SWPPP.

3.22 SETTLEMENT

- A. Any settlement in excess of Geotechnical Report findings, in backfill, fill, or in structures built over the backfill or fill, which may occur within the guarantee period specified in the General Conditions will be considered to be caused by improper compaction methods and shall be corrected at the Contractor's expense. Any structures damaged by settlement shall be restored to their original condition by the Contractor at no cost to the HCRCD.

3.23 DISPOSAL OF EXCAVATED MATERIAL

- A. All excavated soils shall be hauled to designated sites.
- B. Soil disposal on non-designated reuse areas is not permitted.

END OF SECTION 31 20 00

SECTION 32 92 19

SEED AND MULCH

PART 1 GENERAL

1.01 SUMMARY

- A. Provide all material, labor and equipment necessary to perform the Work for soil preparation, seeding, and mulching as shown on the Plans and as specified herein. The Work of this Seed and Mulch SECTION includes but is not limited to:
 - 1. Soil preparation.
 - 2. Seeding.
 - 3. Applying straw and tackifier.
- B. Work specified within this SECTION shall comply with the Project's SWPPP requirements per SECTION 02 27 00 EROSION CONTROL.

1.02 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 15 00 Measurement and Payment.

1.03 RELATED TECHNICAL SECTIONS

- A. SECTION 01 15 00 MEASUREMENT AND PAYMENT
- B. SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS
- C. SECTION 02 27 00 EROSION CONTROL AND SWPPP COMPLIANCE
- D. SECTION 31 14 00 EARTH STRIPPING AND STOCKPILING
- E. SECTION 31 20 00 EARTHWORK

1.04 REFERENCE STANDARDS

- A. Nomenclature:
 - 1. The Jepson Manual: *Vascular Plants of California, Second Edition*, University of California Press, Berkeley, CA.
- B. California Seed Law (California Department of Food and Agriculture). More information is available online at:
 - 1. http://www.cdfa.ca.gov/plant/pe/nursery/pdfs/SeedLaw_2011.pdf
 - 2. <http://www.cdfa.ca.gov/phpps/pe/nursery/Seed.html>
- C. All standards shall include the latest additions and amendments as of the date of advertisement for bids.

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- D. American Society for Testing and Materials (ASTM):
 - 1. D7047-04: Standard Test Method for Mucilloid Content of *Plantago Insularis* (Ovata, Psyllium) Used as a Tackifier.

1.05 SUBMITTALS

- A. General: Submittals to be in accordance with the requirements of DIVISION 01 - GENERAL CONDITIONS and SECTION 01 33 00 SUBMITTAL PROCEDURES.
- B. Prior to application, Contractor shall submit to Humboldt County Resource Conservation District (HCRCD) a signed acknowledgment from each supplier indicating that the seeding material meets requirements specified herein.
- C. Contractor shall submit the following:
 - 1. For Contractor-provided seed: A letter, or appropriate seed lot tags, from seed supplier stating the botanical name, common name, provenance, minimum percent purity, minimum percent germination, and pounds pure live seed of the seed mix prior to application.
 - 2. Proof that the tackifier meets the Specifications described in this SECTION.
 - 3. Prior to delivery of straw to Project site, submit the name, address, and telephone number of the straw supplier and proof that the straw meets the Specifications described in this SECTION.
 - 4. Hydroseeding and hydromulching: Proposed areas and proposed methods for hydroseeding and hydromulching.
- D. In the event that the Contractor chooses to force germinate, the Contractor shall submit a shop drawing of the proposed irrigation system as described in this SECTION.

1.06 TIMING AND COORDINATION

- A. Timing of seeding application is subject to the timeframes and conditions specified in sub-Section Broadcast Seeding.
- B. Timing of soil preparation, seeding, and mulching work shall be coordinated and sequenced with other project work.
 - 1. All earthwork and grading of the site shall be complete per DIVISION 31 – EARTHWORK prior to beginning soil preparation.
 - 2. Prior to installation of biodegradable mat and erosion control blanket per DIVISION 31 - EARTHWORK, the application of seed, straw, and tackifier shall be approved by the HCRCD in all areas receiving biodegradable mat and erosion control fabric.
- C. Seeding shall be completed prior to October 15th, or as otherwise approved by the HCRCD.
- D. For site access and water supply for optional force germination (per Sub-Section Force Germination), Contractor shall see SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS.

PART 2 PRODUCTS

2.01 GENERAL

- A. Materials not conforming to these Specifications and requirements shall remain the property of Contractor and shall be removed from Project site at no additional cost to the HCRCD.

2.02 SEED

A. Seed – General

1. All seed shall be provided by the Contractor at the proportions presented in the following tables:

Table 1. Freshwater Seed Mix

Scientific Name	Common Name	Pounds of Pure Live Seed/Acre
<i>Bromus carinatus</i>	California brome	6.0
<i>Deschampsia cespitosa</i> ssp. <i>cespitosa</i>	tufted hairgrass	2.0
<i>Elymus glaucus</i>	blue wild rye	8.0
<i>Elymus X Triticum</i>	regreen hybrid wheatgrass	15.0
<i>Festuca rubra</i>	red fescue	10.0
<i>Hordeum brachyantherum</i>	meadow barley	10.0
<i>Scirpus microcarpus</i>	panicled bulrush	2.0
TOTAL		53.0

Table 2. Organic Pasture Seed Mix

Scientific Name	Common Name	Pounds of Pure Live Seed/Acre
<i>Lolium perenne</i> ¹	tetraploid perennial ryegrass	8.0
<i>Trifolium alexandrinum</i>	Berseem clover	5.0
<i>Lotus corniculatus</i>	Birdsfeet trefoil	3.0
<i>Trifolium pratense</i>	Barduro red clover	5.0
<i>Trifolium repens</i>	white clover (ladino type)	3.0
<i>Trifolium fragiferum</i>	Salina clover	2.0
<i>Lolium perenne multiflorum</i> ¹	Italian ryegrass	4.0
<i>Lolium multiflorum</i> ¹	Tetraploid annual ryegrass	3.0
TOTAL		33.0

¹The Jepson Manual, 2nd edition (Baldwin et al. 2012) recognizes *Festuca perennis*, however many seed suppliers use the names *Lolium perenne* and *L. multiflorum* as synonyms.

Table 3. High Marsh Ecotone Seed Mix

Common Name	Scientific Name	Pounds of Pure Live Seed/Acre
tufted hairgrass	<i>Deschampsia cespitosa</i>	4.0
regreen hybrid wheatgrass	<i>Elymus X triticum</i>	16.0
meadow barley	<i>Hordeum brachyantherum</i>	12.0
red fescue	<i>Festuca rubra</i>	8.0
blue wild rye	<i>Elymus glaucus</i>	8.0
fat hen	<i>Atriplex triangularis</i>	2.5
gumweed	<i>Grindelia stricta</i>	2.0
marsh rosemary	<i>Limonium californicum</i>	0.5
alkali bulrush	<i>Bolboschoenus maritimus paludosus</i>	3.0
TOTAL		56.0

2. Legume seed shall be pellet-inoculated as provided in bulletin AXT-280 of the University of California Cooperative Extension, "Pellet Inoculation of Legume Seed."
3. Pasture Seed
 - a. All pasture seed shall be organic. In the event that species in the specified pasture mix are not all commercially available as certified organic seed, Contractor shall provide written certification from seed supplier stating such or provide alternative organic seed mix for review and approval.
 - b. Seed shall be endophyte-free.
 - c. Seed shall be non-GMO.
4. Inoculum sources shall be species-specific and shall be applied at a rate of two (2) pounds of inoculum per one hundred (100) pounds of seeds.
 - a. Legume seed shall be sown within ninety (90) calendar days after inoculation or shall be re-inoculated prior to sowing.
 - b. Inoculated legume seed shall have a calcium carbonate coating.

B. Seed

1. Seed shall be a fresh, clean, new crop mixed by dealer and packaged in dealer's unopened container with original label. Containers opened prior to inspection or without a label or tag will not be accepted. Each seed bag shall be delivered to Project site sealed and clearly marked as to the species, purity, percent germination, weed seed, inert material, dealer's guarantee, and date of test.
2. All Contractor-provided seed shall comply with the California Seed Law. Commercially obtained seed shall be labeled under the California Food and Agricultural Code, and by the vendors supplying the seed. The percent of weed seed shall not exceed 1.5 percent by weight of the total seed mixture.

3. Contractor-provided seed shall have been tested for purity and germination not more than fifteen (15) months prior to the application of the seed.
4. Seeds shall be obtained from regionally appropriate sources. Seed collected from within coastal Humboldt County is preferable and seed from alternative coastal sources between San Francisco Bay and Coos Bay will be subject to HCRCDD's approval. Contractor shall coordinate with the HCRCDD thirty (30) working days prior to seeding to obtain these approvals. Seed may be available from Pacific Coast Seed, 533 Hawthorn Place, Livermore, CA (925) 373-4417; Hedgerow Farms, 21740 County Road 88, Winters, CA (530) 662- 6847; S & S Seeds, P.O. Box 1275 Carpinteria, CA (805) 684-0436; Larner Seeds, 235 Grove Rd, Bolinas, CA (415) 868-9407; Sunmark Seeds, 18032 NE Airport Way, Portland, OR (888) 214-7333; or approved equal.

2.03 WATER

- A. Water shall be non-saline, suitable for agricultural use, shall be free of harmful substances that would adversely affect plant growth or vigor, and shall be as specified in SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS.

2.04 TACKIFIER

- A. Tackifier shall be non-asphaltic, non-toxic to plants and wildlife, and non-staining to rock surfaces. Tackifier shall be in powder form, may be re-emulsifiable, and shall be a processed organic adhesive derivative of *Plantago insularis* (per ASTM D7047-04) used as a soil binder, manufactured to be suitable for seeding applications.

2.05 FIBER

- A. Fiber material shall be wood cellulose fiber containing no growth or germination-inhibiting factors. Natural wood cellulose fiber shall have the property of dispersing readily in water and shall have no toxic effect when combined with other material. The homogenous slurry or mixture shall be capable of application with power spray equipment. A green colored dye which is non-injurious to seed growth shall be used. Wood cellulose fiber shall be packaged in new label containers marked by the manufacturer to show the air-dry weight content.

2.06 STRAW

- A. Straw shall be either rice or wheat derived from irrigated cropland. Straw shall not contain glass, plastic, metal, rocks, or other inorganic material. Straw shall not have been used previously for any other use and shall be certified weed free.

2.07 BROADCAST SEEDING EQUIPMENT

- A. An all-terrain vehicle (ATV) / tractor mounted or pulled broadcast spreader or "belly grinder" manual type seeder, or approved equal, shall be used to broadcast seed.

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

- A. Contractor shall request and receive approval from the HCRCDD prior to commencing soil preparation, seeding, and mulching work.

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- B. Contractor shall inspect Project site and become familiar with any access requirements, access restrictions, and any other site conditions.
- C. Contractor shall notify the HCRCD, in writing, of soil conditions encountered that Contractor considers detrimental to the growth of plant material.
 - 1. When detrimental conditions are uncovered, planting shall be discontinued until instructions to resolve these conditions are received from the HCRCD.
- D. Work described in this SECTION shall not be performed during muddy or frozen conditions.
- E. Contractor shall coordinate with the HCRCD to schedule inspections at the following stages.
 - 1. Inspection during soil preparation.
 - 2. Acceptance of soil preparation.
 - 3. Inspection during seeding and mulching.
 - 4. Acceptance of seeding and mulching.
 - 5. Acceptance of SWPPP Notice of Termination (NOT) per SECTION 02 27 00 EROSION CONTROL and these specifications.
- F. Progress inspections: In addition to the inspections specified, the HCRCD may make periodic progress inspections.
- G. The HCRCD reserves the right to take and analyze samples of materials for conformity to these Specifications at any time.

3.02 SOIL PREPARATION

- A. Timing
 - 1. Work in this SECTION shall not commence until:
 - a. All earthwork has been completed and approved per 31 20 00 EARTHWORK.
 - b. Contractor has requested and received approval from the HCRCD.
- B. Layout
 - 1. Soil preparation shall occur in all areas to be seeded as shown on the Plans, and any additional areas disturbed by construction (including non-paved access, staging, stockpiling, and haul routes necessary to access sediment application areas) to be seeded as specified herein.
 - 2. Contractor shall coordinate with the HCRCD to confirm the limits of soil preparation.
- C. Soil Preparation

1. Contractor shall review soil preparation areas for presence of rock, debris, chemicals, or other harmful substances and notify the HCRCD if such conditions are observed.
2. Contractor shall prepare the soil as follows in areas to be seeded:
 - a. Scarify mechanically to a depth of two (2) inches using a spike harrow, lightweight ring-roller/cultipacker or by hand methods, and as approved by the Construction Manager.
 - b. In areas where excessive compaction has occurred such as haul routes and staging areas, at the discretion of the Construction Manager, the Contractor shall disk or rototill a minimum fifteen (15) inches deep using conventional farming implements and then smooth with a ring-roller/cultipacker or harrow prior to seeding.**
 - c. In sloped areas of the graded corridor, harrowing shall be oriented parallel to slope contours.
 - d. Contractor shall protect Work from ruts and compaction until seeding occurs per Sub-Section Broadcast Seeding.

3.03 BROADCAST SEEDING

A. General

1. Contractor may propose hydroseeding application as an alternative to broadcast seeding. Areas and methods shall be submitted to and are subject to HCRCD approval.
2. Contractor may propose drill seed application as an alternative to broadcast seeding. Areas and methods shall be submitted to and are subject to HCRCD approval.

B. Timing

1. Seeding shall occur upon completion of soil preparation work and upon request and receipt of approval by the HCRCD.
2. Seed shall be applied before the onset of winter rains.
3. Seeding shall be completed by 15 October, unless otherwise approved by the HCRCD.
4. Contractor shall coordinate with the HCRCD for pick-up and delivery of HCRCD-supplied seed and shall request Contractor-provided seed delivery from supplier no less than five (5) working days prior to application. Contractor shall keep all seed in a cool, dry, shaded place until utilized.
5. Contractor shall coordinate with the HCRCD no less than five (5) working days prior to seeding so that the HCRCD can be present during seed application.
6. Work shall be performed only at times when weather conditions at Project site are favorable. No Work shall be performed when wind conditions prohibit uniform

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distribution of seed unless approved by the HCRCD. No Work shall be performed and no equipment shall be operated when soils are saturated.

C. Layout

1. Seed shall be applied in accordance to the areas shown on Plans and any additional areas impacted by construction; including unpaved access, staging, stockpiling, and haul routes necessary to access to sediment application areas.
2. Contractor shall flag all seeding areas and the HCRCD shall approve all areas to be seeded prior to seeding.
3. Contractor shall limit foot and equipment traffic and storage of supplies in seeded areas.

D. Preparation of Seeding Areas

1. Soil preparation within seeding areas shall occur prior to broadcast seeding per Sub-Section Soil Preparation.
2. Clear all areas to be seeded of substantial debris and any other impediments to seed-soil contact.

E. Seed Application

1. Seed shall be delivered to the Project site in unopened separate containers with the seed tag attached. Containers without a seed tag attached will not be accepted.
2. Limit foot traffic or storage of supplies in seeded areas.
3. Apply the seed mix evenly and at the rates specified in the tables in Sub-Section Seed.
4. Any remaining seed shall be applied evenly to the areas shown on the Plans.
5. Contractor shall use appropriate equipment such as a rake or light harrow immediately after application to lightly to cover seed with 1/8-inch to 1/4-inch layer of soil. Seed cover shall not exceed 1/4 inch.
6. After the site has been seeded, straw shall be applied per sub-Section Straw and Tackifier Application.

3.04 STRAW AND TACKIFIER APPLICATION

A. General

1. Contractor may propose hydromulch application as an alternative to blown straw. Areas and methods shall be submitted to and are subject to HCRCD approval.
2. Contractor may propose crimping straw as an alternative to tackifying. Areas and methods shall be submitted to and are subject to HCRCD approval.

- B. Timing: Straw and tackifier shall be applied within the same day following approval of seeding by HCRCD.

- C. Layout:
 - 1. Straw and trackifier shall be applied to all seeded areas.
- D. Straw shall be applied as follows:
 - 1. Straw shall be applied using a mechanical blower or by hand labor at a rate of 2,000 pounds per acre.
 - 2. Straw shall be applied uniformly.
 - 3. Where biodegradable mat and/or erosion control blanket are to be placed, only seed shall be applied, no straw
- E. Non-asphaltic tackifier shall be applied to straw at a rate of 120 pounds per acre.
- F. Fiber shall be applied (with the tackifier) at a rate of 500 pounds per acre.

3.05 FORCE GERMINATION OF SEED

- A. At the Contractor's discretion, force germination of seed may be performed to comply with the Project's SWPPP requirements per SECTION 02 27 00 EROSION CONTROL. The following specifications shall apply to any force germination of seed.
- B. Timing and Duration
 - 1. Contractor shall commence force germination of seed following completion of broadcast seeding, straw, tackifier application, biodegradable mat installation, and erosion control blanket, and acceptance of this work by the HCRCD.
 - 2. All irrigation lines and appurtenances shall be kept out of the active channel after September 30.
- C. Water Supply
 - 1. Contractor shall coordinate with water source provider per SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS.
- D. Application Method
 - 1. Water shall be applied to the seeded areas using a temporary on-grade spray irrigation system sufficient to provide an even precipitation rate of 0.25 inches of water to all areas at a frequency of one event every three (3) days, or as otherwise approved by the HCRCD.
 - a. Contractor shall provide and install impact rotors in a quantity to cover seeded areas and sufficient to meet the specified precipitation rate.
 - b. Prior to broadcast seed application, Contractor shall meet the HCRCD onsite to determine the layout of the rotors. Following this meeting, Contractor shall submit a shop drawing showing the layout of all irrigation equipment, piping, and points of connection, as well as flow and demand calculations, for approval by the HCRCD prior to installation of the system.

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- c. Contractor shall prevent runoff during irrigation. Any runoff or bank erosion resulting from force germination that does occur shall be repaired to the design grade and reseeded per these specifications at no additional cost to the HCRCD.

E. System Removal

- 1. Unless otherwise directed by the HCRCD, Contractor shall remove all components of the temporary irrigation system following completion of force germination and acceptance of work.

3.06 SITE CLEANUP

A. Contractor shall cleanup following soil preparation, seeding, and mulching activities as follows and as directed by the HCRCD:

- 1. Remove all containers, packaging, and other debris resulting from seeding operations.
- 2. Dispose of all debris legally at licensed disposal facilities.
- 3. Clean all surfaces not designated for treatment and remove all residues resulting from mixing, applying, or equipment flushing.
- 4. Remove temporary items.

B. Seeded or mulched areas disturbed by subsequent construction activities shall be re-seeded or re-mulched within five (5) working days of the completion of such activities.

3.07 ACCEPTANCE OF SEEDING

A. Acceptance of Work:

- 1. The HCRCD will accept work when all improvements and corrective work have been performed as specified and to the satisfaction of the HCRCD, and the following has been achieved:
 - a. Final stabilization as defined by the SWPPP and acceptance of the Notice of Termination (NOT) by the State Water Resources Control Board and in accordance to SECTION 02 27 00 EROSION CONTROL.

END OF SECTION 32 92 19

SECTION 33 41 00
STORM UTILITY DRAINAGE PIPING AND FLAP GATES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Section Includes:
 - 1. Storm drainage piping and flap gates.
- B. Related Sections:
 - 1. Section 31 20 00 – Earthwork

1.02 SUBMITTALS

- A. Product Data: Submit data for pipe and flap gates.
- B. Shop Drawings for pipe and flap gates.

PART 2 PRODUCTS

2.01 STORM DRAINAGE PIPING

- A. 60" Diameter: ADS High Performance (HP) Polypropylene Pipe, smooth interior, dual wall or equal

2.02 ACCESSORIES

- A. Drainage Structures: See Drawings for Drainage Structure requirements.
- B. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tee, bends, elbows, cleanouts, reducers, traps and other configurations required.
- C. Pipe shall be joined using a bell & spigot joint meeting the requirements of ASTM F2881 or AASHTO M330. The joint shall be watertight according to the requirements of ASTM D3212.
- D. Flap Gates: See Drawings
 - 1. Flap gates are for low pressure head and must be designed to operate in up to 10 feet of head face pressure. The head face pressure is measured from the center of the gate cover to the highest water level.

2.03 BEDDING AND COVER MATERIALS

- A. Bedding, Cover and Backfill: per Drawings and Section 31 20 00.

PART 3 EXECUTION

3.01 PREPARATION AND BEDDING

- A. Prepare subgrade in accordance with the plans and Section 31 20 00 for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated. Correct over excavation with backfill shown on plans.
- B. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.
- C. Place bedding material at trench bottom, level materials in continuous layer.

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3.02 INSTALLATION - PIPE

- A. No pipe shall be laid until the trench subgrade and bedding have been inspected and approved.
- B. Laying of lines shall begin at the lowest point in the direction of flow. All piping, fittings, and accessories shall be assembled per manufacturer's recommendations. Pipe deflections shall be kept to a minimum, any deflection in piping shall be per manufacturer's requirements.
- C. Before lowering pipe into the trench, the pipe shall be inspected. Cracked, chipped, broken, or otherwise defective pipe will be rejected and removed from the job site.
- D. Establish elevations and pipe inverts for inlets and outlets as indicated on Drawings.

3.03 INSTALLATION – FLAP GATES

- A. Per fabricator recommendations and approved submittal.

3.04 PROTECTION OF FINISHED WORK

- A. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.
 - 1. Take care not to damage or displace installed pipe and joints during construction of pipe supports, backfilling, testing, and other operations.
 - 2. Repair or replace pipe that is damaged or displaced from construction operations.

END OF SECTION