

YOSEMITE NATIONAL PARK AND THE STANISLAUS NATIONAL FOREST

ACKERSON MEADOW
RESTORATION PROJECT

PROJECT SPECIFICATIONS



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SECTION 01 11 00 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes the following:
 - 1. Work Covered by Agreement
 - 2. Work Phases
 - 3. Work Under Other Contracts
 - 4. Yosemite National Park-Furnished Materials
 - 5. Contractor Use of Site
 - 6. Public Use of Site
 - 7. Conduct of Operations
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1.2 WORK COVERED BY AGREEMENT

- A. Project Location: This project is located at Ackerson Meadow in the Stanislaus National Forest and near Yosemite National Park.
- B. The Work consists of:
 - 1. Restoring a natural mountain meadow by filling in an eroded channel to restore hydrology and reestablish native vegetation.
- C. Project will be constructed under a single prime contract.

1.3 WORK PHASES AND LIMITED OPERATING PERIOD

- A. The Work shall be conducted in two phases in the following order, with each phase substantially complete before beginning next phase:
 - 1. Phase One: Construct grade control structure, fencing, stock pond, and lower portion of meadow restoration, including South Ackerson meadow.
 - 2. Phase Two: Construct upper portion of meadow restoration
- B. The operating period for all work other than staging shall be limited to the period each year no earlier than August 15th and no later than October 31st.
- C. Each stage will be completed in a single-year operating period, requiring two consecutive years for completion of the two phases.

1.4 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Agreement. Coordinate Work of this Agreement with work performed under separate contracts.
- B. Preceding Work: None
- C. Concurrent Work
 - 1. American Rivers, Yosemite National Park (YNP), and the Stanislaus National Forest (STF) will award separate contract(s) for the following operations at Project site. Those operations will be conducted simultaneously with work under this Agreement.
 - a. Off-site tree clearing with delivery of logs to Project Site staging area. This is in addition to onsite tree clearing performed under this contract by the Contractor.
 - b. Furnishing and delivery of wetland seed.
 - c. Furnishing and delivery of container plantings.
 - 2. Tuolumne County will be reconstructing the primary ingress/egress (Evergreen Road) to the Project Site at an as-yet-unspecified date, likely in 2025.
- D. Future Work: The NPS will conduct future work at this site primarily related to vegetative restoration.

1.5 YOSEMITE NATIONAL PARK -FURNISHED MATERIALS

- A. In case of YNP-furnished materials:
 - 1. YNP will arrange and pay for delivery of YNP-furnished items according to Contractor's Construction Schedule.
 - 2. Contractor is responsible for initial inspection, receiving, unloading, and handling YNP-furnished items at Project site.
 - 3. YNP will inspect delivered items for damage after delivery. Contractor shall be present for and assist in YNP's inspection.
 - 4. YNP will arrange for replacement if YNP-furnished items are damaged, defective, or missing.
 - 5. Contractor is responsible for protecting YNP-furnished items from damage during storage and handling, including damage from exposure to the elements, including but not limited to fire, frost, and wind, and herbivory.
 - 6. No YNP-furnish items shall be over-wintered at the site.
 - 7. If YNP-furnished items are damaged as a result of Contractor's operations, Contractor shall repair or replace them in a timely manner.
 - 8. Contractor shall install and otherwise incorporate YNP-furnished items into Work.
- B. YNP-Furnished Materials:
 - 1. Cut trees to be chipped for use as soil amendment in the fill (supplemental to those collected on site.)

2. Native wetland seed
3. Wetland container plantings

1.6 CONTRACTOR USE OF SITE

- A. General: Contractor shall have limited use of site for construction operations. Limit use of premises to areas within the construction limits indicated on drawings. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 1. Limits: Confine constructions operations to areas within the construction limits
 2. Limit site disturbance to the work limits shown on the drawings.
- B. Storage of Materials: Confine storage of materials to staging areas shown in the plans.
- C. Parking: Confine parking to the work area as shown in the plans.
- D. Stockpiling: Confine stockpiling to staging and borrow areas shown in the plans.
- E. Preservation of Natural Features:
 1. Prevent damage to natural surroundings. Restore damaged areas, repairing or replacing damaged trees and plants outside of work limits, at no additional expense to American Rivers, YNP, or the Stanislaus National Forest (STF).
 2. Provide Environmentally Sensitive Area fencing or other linear barrier to all work limits.
 3. Provide temporary barriers to protect existing trees and plants and root zones.
 4. Do not remove, injure, or destroy trees or other plants without prior approval. Consult with Engineer's Representative and remove agreed-upon roots and branches that interfere with construction.
 5. Do not fasten ropes, cables, or guys to existing trees.
 6. Carefully supervise excavating, grading, filling, and other construction operations near trees to prevent damage.
- F. Driveways and Entrances: Keep existing Forest Service Roads, County Roads, driveways and entrances serving premises clear and available to employees, and emergency vehicles at all times. Do not use for parking or storage of materials.
 1. Schedule deliveries to minimize use of driveways and entrances.
 2. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- G. Construction Camp: Establishment of a camp within National Park or National Forest lands will not be permitted unless specifically authorized on National Forest land.
- H. Food Storage: No food or food waste shall be kept onsite unless properly stored and kept out of access to bears, according to standard National Park and National Forest procedures. All food and food waste shall be kept in bear-proof containers. The contractor may be issued a citation if food or food waste is improperly stored.

- I. Hauling Restrictions: Comply with legal load restrictions in hauling of materials. Load restrictions on Park and Forest roads are identical to state load restrictions with such additional regulations as may be imposed by the Park Superintendent or Forest Supervisor. Information regarding rules and regulations for vehicular traffic on Park and Forest roads may be obtained from the Office of the Park Superintendent and Forest Supervisor. Contractor shall check and follow county hauling restrictions. A special permit will not relieve Contractor of liability for damage which may result from moving of equipment.
- J. Bridge Restrictions: Identify jurisdictions, load restrictions, permit requirements, time and calendar restrictions as outlined.

1.7 PUBLIC USE OF SITE

- A. The work area will be closed to the public during construction; however, the surrounding Park and Forest lands are not closed to public use.

1.8 CONDUCT OF OPERATIONS

- A. Work on Saturdays, Sundays, Federal holidays or at night may not be performed unless stated in the Work Restrictions below or without prior consent from the Engineer's Representative. Submit requests **2 business days** in advance of the work to the Engineer's Representative for approval.
- B. No signs or advertisements (except those specified herein) shall be displayed on the construction site or within the Park or Forest unless approved by the Engineer's Representative.

1.9 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed during business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, except when otherwise indicated.
- B. All earthwork work and fencing must occur between August 15th and October 31st of the same calendar year. Revegetation work is permitted outside of the August 15-October 31 time frame per the revegetation plan. No overwintering of equipment will be allowed.
- C. Existing Utilities
 - 1. Existing Utilities: Notify Engineer's Representative and utility companies of proposed locations and times for excavation.
 - 2. Contractor shall be responsible for locating and preventing damage to known utilities. If damage occurs, repair utility at no additional expense.
 - 3. If damage occurs to an unknown utility, repair utility.
- D. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by YNP, STF, or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Engineer's Representative not less than **two** business days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without Engineer's Representative Representative's written permission.

1.10 SOILS INVESTIGATION REPORT

- A. The soils investigation report is an appendix with this package.
- B. In case of conflict between report and drawings or specifications, the drawings and specifications govern.

1.11 ADDITIONAL REPORTS

- A. The "Basis of Design Report" prepared by Evan Wolf is an appendix with this package.
- B. The project Environmental Assessment, Finding of No Significant Impact (FONSI), and Mitigated Negative Declaration, is included with this package.
- C. In case of conflict between reports and drawings or specifications, drawings and specifications govern.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 11 00

SECTION 01 27 00 – DEFINITION OF AGREEMENT LINE ITEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section explains in general, what is and is not included in an agreement line item, and limits or cut-off points where one item ends and another begins.
- B. If no agreement line item exists for a portion of work, include costs in a related item.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 BASIS FOR MEASUREMENT AND PAYMENT

3.2 Measurement and Payment will be made for only those items included in the Agreement or any Change Order(s).

- A. All measurement for payment will be for completed work performed according to 100% Drawings and Specifications. American Rivers shall measure all work according to the methods outlined below.
- B. Payment for any item is full compensation for furnishing all labor, materials and equipment required to provide a complete and operable item of the work. Any work or material paid for under one item will not be paid for under another item.
- C. Where units differ between the items listed below and the Agreement, the Agreement governs.

3.3 PLAN QUANTITY

- A. Items noted as Plan Quantity and denoted as (P), are items where approximate quantities have been determined. Items noted as Plan Quantity and denoted as (P), are items where approximate quantities have been determined, but where the quantity will not be measured in the field.

The difference between Lump Sum and Plan Quantity is: Plan Quantity has a specific basis of payment, but will not be overrun or underrun unless the item has been affected by a related agreement amendment. In other words, the quantity shown in the Agreement shall be the quantity for which payment is made.

It shall be the responsibility of the Contractor to verify the accuracy of the listed quantities.

3.4 LIST OF CONTRACT LINE ITEMS

1. Mobilization & Demobilization

- A. Mobilization and Demobilization shall consist of preparatory work and operations for all items under the contract, including, but not limited to those necessary for:
 - i. The movement of personnel, equipment, supplies, and incidentals to the project site,
 - ii. The establishment of all offices, buildings, and other facilities necessary for work on the projects, and
 - iii. All other work or operations which shall be performed, or costs incurred prior to beginning work on the various items on the project site.
- B. Mobilization shall include bonding, and may include permitting where not covered elsewhere.
- C. Nothing herein is to be construed to limit or preclude partial payments otherwise provided for by the contract.
- D. This item shall not exceed 20% of the total bid price.
- E. This line item includes implementing the Temporary Fire Plan requirements throughout construction according to specification 015116.
- F. This line item includes providing a temporary job trailer according to specification 015000.
- G. Measure and payment for Mobilization and Demobilization shall be on a Lump Sum basis. No more than 75% of this pay item shall be paid until the project is substantially complete and major equipment has been demobilized off-site

2. Remove Fence

- A. Removal of Fence shall be according to Specification 024113.
- B. There shall be no distinction made between fence types, condition of fence, materials, and linear footage consisting of gates, corners, braces, etc.
- C. Measurement and payment for Remove Fence shall be on Lump Sum basis.

3. Clearing & Grubbing

- A. Clearing and Grubbing shall be according to Specification 311111.
- B. This item does not include any clearing or grubbing required to establish or enhance Access Routes. Establishment of Access Routes is paid separately.
- C. This pay item shall include tree removal and hazard tree removal.
- D. Measurement and payment for Clearing and Grubbing shall be on a Lump Sum basis.

4. Establish Access Routes

- A. This item shall consist of constructing access routes as shown in the plans and Specification 015 00.
- B. The degree to which access routes are established shall be left to the contractor. Routes only need be established to permit the passage of construction equipment. Depending on conditions, the contractor may need to place temporary erosion control material and/or drainage structures such as culverts along the routes according to the SWPPP, Specification 015723. The contractor may also need to place temporary base materials such as crushed rock to enable access by equipment.; however the addition of base material shall not be permitted within meadow, wetland, or stream channel areas. See Specification 015500 for details.

- C. Access routes must be maintained and stabilized throughout construction in accordance with the SWPPP, Specification 015723.
- D. This item includes rehabilitation of temporary access routes, including the removal of materials placed by the Contractor.
- E. For routes that are to remain, the contractor shall repair any damage caused to drainage structures, cattle guards/gates, or any other preexisting infrastructure and roughly grade the road upon completion to create a surface that's relatively free of ruts and/or drivable by 4-wheel drive vehicle.
- F. Where required, meadow mats shall be incidental to this pay item.
- G. Measurement and payment for Establish Access Routes shall be on a Lump Sum basis.

5. Culverts

- A. This item consists of furnishing and installing CMP or RCP culverts as shown in the drawings.
- B. Culverts shall meet the requirements of either Caltrans Specification 65 or 66.
- C. Culverts shall be constructed to Caltrans standards and shall have no less than 1 foot of cover.
- D. Measurement and payment for Culverts shall be on an installed Linear Foot basis.

6. Temporary Traffic Control

- A. Temporary Traffic Control shall be according to Specification 015000.
- B. Measurement and payment for Traffic Control shall be on a Lump Sum basis.

7. Dewatering

- A. This item shall include all labor, materials, and equipment required to divert and dewater the site, including groundwater and surface water, throughout construction.
- B. Dewatering and Diversion Shall be according to Specification 312319.
- C. Measurement and payment for Dewatering and Diversion shall be on a Lump Sum basis.

8. Topsoiling

- A. This item consists of stripping, salvaging, stockpiling, and spreading topsoil as specified in Specification 312200.
- B. Measurement and payment for Topsoiling shall be on a Lump Sum basis.

9. Tub Grinding & Chipping

- A. This item consists of furnishing and operating a tub grinder and loading equipment capable of processing the YNP supplied trees and on-site salvaged woody material.
- B. This item also includes all work required to receive and stockpile YNP-furnished trees.
- C. Tub grinder shall be able to process material to pass a 4" sieve.
- D. Material processed in the Tub Grinder & Chipper will be used for Soil Amendment and Wood Mulch. Payment for the placement of these materials is covered elsewhere.
- E. Measurement and payment for Tub Grinding & Chipping shall be on a Lump Sum basis.

10. Borrow Excavation (P)

- A. Borrow Excavation shall be according to Specification 312300, except as supplemented in this section.
- B. The intent of this pay item is to cover all expenses required to handle and transport mineral soil from the borrow areas to the meadow fill areas.
- C. Measurement and payment for Borrow Excavation shall be on a Plan Cubic Yard basis. The plan quantity listed in the proposal represents the amount of mineral soil borrow prior to soil amendment.

11. Soil Amendment Handling (P)

- A. This item shall consist of handling and transporting Soil Amendment material from the receiving and processing areas to the meadow fill areas.
- B. Measurement and payment for Soil Amendment shall be on a Plan Cubic Yard basis. The quantity listed in the proposal represent the amount of soil amendment (consisting of wood chips) that will be blended with on-site borrow excavation.

12. Amended Soil Fill (P)

- A. This item shall consist of blending and placing Borrow Excavation and Soil Amendment Material as specified in Specification 322300.
- B. This pay item also includes soil testing as required.
- C. Non-amended fill (primarily associated with the rock-arch-rapids and gully plugs) is a minor amount of the overall project and shall be considered incidental.
- D. Measurement and payment for Amended Soil Fill shall be on a Plan Cubic Yard basis. The quantity listed in the proposal represents the combined quantity of mineral soil and soil amendment materials.

13. Directed Site Grading

- A. This item consists of conducting minor grading and shaping operations under the direction of the Engineer's Representative. In general, this work will occur after the mass grading effort. The work may include smoothing out existing rills and gullies, select placement of fill, constructing small berms and diversions, placing on-site woody debris, and adjusting the final grade to allow for drainage to achieve the goals of the project.
- B. The contractor shall provide a mini excavator and an experienced operator who will move earthen and other natural materials as directed. The majority of the cuts and fills are anticipated be less than one foot deep.
- C. This item shall not include any mass hauling of material that would otherwise require the use of additional equipment. Earth fill for this task is accounted for elsewhere. It is envisioned that fill material for this task will be dumped at select locations and placed with the excavator at the direction of the Engineer's Representative.
- D. Measurement and payment for Directed Site Grading shall be on an Hourly basis.

14. Aggregate Subbase

- A. Aggregate Subbase shall be according to Specification 310516

- B. Measurement and payment for Aggregate Subbase shall be on a Cubic Yard basis. Contractor shall provide weigh tickets to the Engineer's Representative for reference.

15. Aggregate Base

- A. Aggregate Base shall be according to Caltrans Specification 311123.
- B. Measurement and payment for Aggregate Base shall be on a Cubic Yard basis. Contractor shall provide weigh tickets to the Engineer's Representative for reference.

16. Void Filled Riprap

- A. Void Filled Riprap shall be according to Specification 313700.
- B. Payment for this item primarily includes rock riprap. Void fill material required to complete construction is measure and paid separately.
- C. Payment for this item shall also include furnishing and installing Geotextile between rock layers as shown in the plans. Geotextile material shall not be measured or paid separately.
- D. Measurement and Payment for Void Filled Riprap shall be on a placed Per Ton basis.
- E. Contractor shall provide weigh tickets to the Engineer's Representative.

17. Void Fill Material

- A. Void Filled Riprap shall be according to Specification 313700.
- B. Payment for this item primarily includes the Void Fill Material, excluding the blended aggregate base and filter material which is paid separately.
- C. Measurement and Payment for Void Fill Material shall be on a placed Per Ton basis.
- D. Contractor shall provide weigh tickets to the Engineer's Representative.

18. Base Stone

- A. Base Stone shall be according to Specification 313700.
- B. Measurement and Payment for Erosion Stone shall be on a Per Ton basis.
- C. Contractor shall provide weigh tickets to the Engineer's Representative.

19. Weir Stones

- A. Weir Stones shall be according to Specification 313700.
- B. Measurement and Payment for Weir Stones shall be on a Per Each basis.

20. Random Boulders

- A. Random Boulders shall be according to Specification 313700.
- B. This pay item does not include random boulder associated with the pond, as those are paid under Construct Habitat Pond.
- C. Measurement and Payment for Random Boulders shall be on a Per Each basis.

21. Low Water Crossing

- A. This item consists of constructing the proposed stream crossing as shown in the plans.
- B. This item generally includes site grading, shaping, dewatering, and preparation required to construct the crossing. Materials including Aggregate Base and Aggregate Subbase shall be measured and paid separately as specified elsewhere in this section.
- C. Measurement and payment for Stream Crossing Access shall be on a Lump Sum basis.

22. Erosion Matting - Stock

- A. This item consists of furnishing and installing Erosion Matting - Stock at the stock watering pond.
- B. Erosion Matting - Stock shall be Flexamat Plus UV-T or equal.
- C. Install according to manufacturer's recommendations.
- D. Measurement and payment for Erosion Matting - Stock shall be on a Square Yard basis.

23. Construct Habitat Pond

- A. This item consists of constructing the habitat portion of the pond as shown in the plans
- B. This item includes, but is not limited to, detailed site grading, furnishing and installing random boulders, basking logs, and anchoring systems.
- C. This item does not include fencing.
- D. Measurement and payment for Construct Habitat Pond shall be on a Lump Sum basis

24. Fencing

- A. Fencing shall be according to Specification 323126.
- B. Measurement for Fencing shall be on a Linear Foot basis. Fencing components including bracing, corners, posts, ends, stays, etc. shall not be measured separately. Measurement shall not include gate lengths.
- C. Payment for Fencing shall be on a Linear Foot basis as measured by the Engineer's Representative.

25. Fence Gate – Standard

- A. Fence Gate – Standard shall be according to Specification 323126.
- B. Turnstyle Gates shall be measured and paid as Standard Gates.
- C. Measurement and Payment for Fence Gate – Standard shall be on a Per Each basis.

26. Fence Gate – Steel Frame

- A. Fence Gate – Steel Frame shall be according to Caltrans Specification 323126 except as supplemented in this section.
- B. Measurement and Payment for Fence Gate – Steel Frame shall be on a Per Each basis.

27. Coffer Dam

- A. Dewatering Plugs shall be according to Specification 312500.

- B. This pay item is primarily for the required dewatering plug located downstream of the rock arch rapids. Additional dewatering plugs may be used elsewhere, but they shall be at the contractor's discretion and shall be paid as part of Dewatering.
- C. Measurement and payment for Dewatering Plug shall be on a Lump Sum basis

28. Temporary Silt Fence

- D. Temporary Silt Fence shall be according to Specification 312500.
- E. Measurement and payment for Temporary Silt Fence shall be on a Linear Foot basis.

29. Temporary Fiber Rolls

- A. Temporary Fiber Rolls shall be according to Specification 312500.
- B. Measurement and Payment for Temporary Fiber Rolls shall be on a Linear Foot basis.

30. Temporary RECP

- A. Temporary RECP shall be according to Specification 312500.
- B. Measurement and payment for Temporary RECP shall be on a Square Yard basis.

31. Wood Mulch

- A. This item consists of stockpiling, transporting, and spreading Wood Mulch to serve as a ground cover in areas as shown in the plans (primarily upland borrow areas).
- B. Harvesting, receiving, and shredding of trees to create Wood Mulch is covered elsewhere.
- C. Measurement and Payment for Wood Mulch shall be on a placed Per Acre basis, measured to the nearest one-tenth acre.

32. Wetland Seeding

- A. Wetland Seeding shall be according to Specification 329219.
- B. Measurement and payment for Wetland Seeding shall be on a Per Acre basis measured to the nearest one-tenth acre.

33. Container Plantings

- A. Container Plantings shall be according to Specification 329200
- B. Measurement and payment for Container Plantings shall be on a Per Acre basis, measured to the nearest one-tenth acre.

34. Salvaged Sod

- A. This item consists of salvaging, transporting, storing, and placing Salvaged Sod according to Specification 329226.
- B. Measurement and payment for Salvaged Sod shall be on a Lump Sum basis.

35. Salvaged Willows

- A. This item consists of salvaging, coppicing, storing, transporting, and placing Salvaged Willows according to Specification 329226.
- B. Measurement and payment for Salvaged Willows shall be on a Lump Sum basis.

36. SWPPP Management

- A. SWPPP Management shall be according to the SWPPP Specification 015723.
- B. This item consists of implementing and managing the SWPPP throughout the duration of the project.
- C. Items included under this pay item include, assigning a SWPPP manager (Qualified SWPPP Practitioner or QSP), site monitoring, maintenance of BMPs, site inspection, sampling as required, record keeping, and submittals.
- D. This pay item does not include products for BMPs such as Silt Fence, and Fiber Rolls. BMPs items are paid for separately. This pay item does not include replacement BMPs. Occasionally BMPs may need to be replaced and payment for additional BMP quantities will be paid at the contract unit rate.
- E. Measurement and payment for SWPPP Management shall be on Lump Sum basis.

37. Site Restoration & Cleanup

- A. This item includes general site clean-up, fine grading, surface restoration, access route restoration, and miscellaneous trash/debris removal.
- B. This pay item also includes removing non-permanent Best Management Practices.
- C. Measurement and payment for Site Restoration and Cleanup shall be on a Lump Sum basis.

38. Range Rider

- A. This item includes all prevention and management of trespassing cattle into the work area. May include monitoring of existing and installed fences, maintenance of existing and installed fenced during contract period, escorting trespassing cattle out of work area, and communication with Stanislaus National Forest Range Program Manager. This item includes incidental costs for the repair of any existing or installed fences or gates.
- B. This pay item does not include any work stoppage costs incurred by contractor due to trespassing cattle in work area.
- C. Measurement and payment for Range Rider shall be on an Hourly basis.

Bid Option 1 & 3: Water Quality Monitoring (Phase 1 and Phase 2 respectively)

- A. This item consists of collecting water quality samples and performing required testing in accordance with the Section 401 water quality certification. This sampling is only required if the Contractor has to dewater or divert surface water flow around the work area.
- B. Measurement and payment for Water Quality Monitoring shall be on a lump sum basis.

END OF SECTION 01 27 00

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.0 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Definitions
 - 2. Construction Coordination
 - 3. Submittals
 - 4. Coordination Drawings
 - 5. Requests for Information (RFIs)
 - 6. Project Meetings
 - 7. Environmental Coordination
 - 8. Permits
- B. Related Requirements:
 - 1. Section 01 32 16 "Construction Schedule" for preparing and submitting Contractor's construction schedule.
 - 2. Section 01 73 40 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Section 01 77 00 "Closeout Procedures" for coordinating closeout of the Contract.

1.1 DEFINITIONS

- A. Agency with Jurisdiction: An Agency that has been granted legal authority over a location, action, or resource. This authority includes the ability to issue a permit or other legal permission document.
- B. Contractor Permits: Permits obtained by the Contractor based on the means and methods to conduct the work. Construction Permits are typically issued by the Agency to the Contractor and not to the National Park Service. Examples of typical Contractor Provided Permits are: National Pollutant Discharge Elimination System (NPDES) Construction Permit (ground disturbance), dewatering permit, permit for work in a roadway (with traffic management plan), temporary utility tap permit, etc.
- C. Furnished Permits: Obtained by others including American Rivers, Forest Service (USFS), National Park Service (NPS), and are usually concerned with impacts to resources protected by federal law. However, furnished permits can include other permits that are obtained for the convenience of the American Rivers during design. Furnished permits are "furnished" to the Contractor in the Request for Proposal (RFP) and as part of the final contract documents. The Contractor must comply with furnished permit provisions.
- D. Project Site: refers to the work limits in and around Ackerson Meadow as mapped in the plans and drawings associated with these specifications.

- E. Owner: refers to the landowners of the Project Site, Yosemite National Park and Stanislaus National Forest.
- F. Park: Yosemite National Park
- G. Forest: Stanislaus National Forest
- H. Contract Holder: American Rivers, Inc.
- I. Contractor: The entity hired under contract to complete the work outlined in these specifications.
- J. Engineers Representative: An appointed representative of the American Rivers, whose role will be to advise and ensure the Contractor properly executes the work outlined in the Contract. This project includes multiple Engineer's Representatives from YNP, American Rivers, and Evan Wolf LLC.
- K. Substantial Completion: All operations are complete and accepted by American Rivers and Engineer's Representative. Demobilization is the only task not required to be complete for Substantial completion.
- L. Design Grade: The elevation of surfaces to be constructed by cut and fill, as shown on plans and profiles.
- M. Finish Grade: The upper 2 vertical feet of fill; from design grade to 2 feet depth.
- N. Subgrade: All fill more than 2 vertical feet below design grade.
- O. Borrow area: Upland hillsides where soil material will be excavated.
- P. Fill area: Erosion gully within the meadow to be filled.

1.2 CONSTRUCTION COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other Contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of components, including mechanical and electrical.
 - 5. Properly plan construction operations to include permit requirements. Allow enough time to execute permit provisions to maintain work schedule, site visits, inspections, and reporting deadlines.

- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to:
 - 1. Preparation of Contractor's Construction Schedule
 - 2. Installation and removal of temporary facilities and controls
 - 3. Delivery and processing of submittals
 - 4. Progress meetings
 - 5. Permit requirements
 - 6. Pre-construction conference
 - 7. Project closeout activities

1.3 SUBMITTALS

- A. Division 1 documents: The following items shall be submitted a minimum of one week prior to Preconstruction Conference. American Rivers will notify Contractor of tentative date for Pre-Construction Conference.
 - 1. Letter designating Project Superintendent
 - 2. Construction Schedule
 - 3. Accident Prevention Plan
 - 4. A List of Subcontractors for this project
 - 5. Written statements from Subcontractors certifying compliance with applicable labor standard clauses.
 - 6. Certificates of Insurance for Contactor and all Subcontractors
 - 7. Quality Control Plan
 - 8. List of Required Construction Permits. Include the following information for each permit:
 - a. Name of Permit
 - b. Agency(ies) with Jurisdiction issuing the permit
 - c. Information required from American Rivers to complete permit application
- B. Provide items listed to American Rivers before Pre-Construction Conference. If all documents have not been received one week prior to scheduled Pre-Construction Conference date, conference may be cancelled, Notice to Proceed may not be issued. Work shall not commence until written Notice to Proceed has been issued.

1.4 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of Agreement documents, Contractor shall prepare and submit an RFI to American Rivers utilizing provided form.
 - 1. American Rivers will not respond to RFIs submitted by other entities controlled by Contractor.
 - 2. Coordinate and submit RFIs in a prompt manner to avoid delays in the work.

- B. Content of RFI: Include detailed, legible description of item needing information or interpretation and the following:
1. RFI number, numbered sequentially
 2. Date
 3. RFI subject
 4. Specification Section number and title and related paragraphs, as appropriate.
 5. Drawing number and detail references, as appropriate.
 6. Field dimensions and conditions, as appropriate.
 7. Contractor's suggested resolution: If Contractor's suggested resolution impacts Contract Term or Contract Price, Contractor shall state impact in RFI.
 8. Contractor's signature
 9. Requested date for response
 10. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- C. Engineer's Representative's Action: Engineer's Representative will review each RFI, determine action required, and respond. Engineer's Representative will determine critical nature of each RFI and issue response accordingly.
1. The following are not considered to be RFIs and will receive no action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in Agreement documents.
 - e. Requests for adjustments in Contract Term or Contract Price.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
 2. Engineer's Representative's action may include a request for additional information; time for response will date from time of receipt of additional information.
 3. Engineer's Representative's action on RFIs may result in need for a change to Contract Term or Contract Price. All agreement amendments will be processed following terms and conditions of the Agreement.

1.5 PROJECT MEETINGS

- A. Preconstruction Conference: Before start of construction, American Rivers and the Engineer's Representative will arrange an on-site meeting with Contractor. Meeting agenda will include the following as a minimum:
1. Roles & Responsibilities / Lines of Authority
 2. Rules and regulations
 3. Jobsite Safety
 4. Resolution of comments on required Division 1 documents
 5. Coordination of Subcontractors
 6. Labor law application
 7. Modifications
 8. Payments to Contractor
 9. Payroll reports
 10. Contract time

11. Liquidated damages
12. Display of Hotline posters
13. Notice to Proceed
14. Correspondence procedures
15. Acceptance/rejection of work
16. Progress meetings
17. Submittal procedures
18. Environmental requirements
19. Permit requirements
20. As-Built records and drawings.
21. Saturday, Sunday, holiday and night work.

B. Progress Meetings: American Rivers or Engineer's Representative will schedule weekly meetings with Contractor.

1. Attendees: In addition to American Rivers Representatives, each Contractor, Subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented. Participants at meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Meeting agenda will include:
 - a. Approval of minutes of previous meetings
 - b. Submittal status
 - c. Review of off-site fabrication and delivery schedules.
 - d. Requests for information (RFI) and other issues.
 - e. Modifications
 - f. Work in progress and projected.
 - g. Inspections of work in progress and projected
 - h. Construction Schedule update
 - i. Status of As Built record drawings
 - j. Other business relating to work.
 - k. Compliance or Permit requirements

1.6 ENVIRONMENTAL COORDINATION

A. Contractor's Environmental Manager and QSP: Designate on-site party responsible for overseeing Contractor's conformance to environmental goals for project and implementing procedures for environmental protection.

1. Responsibilities: Responsibilities shall include:
 - a. Compliance with applicable Federal, State, and local environmental regulations, including maintaining required documentation.
 - b. Implementation of Storm Water Pollution Prevention Plan (SWPPP).
 - c. Present overview of environmental issues and summarize site specific procedures relating to management plans at Preconstruction conference.
 - d. Training for Contractor personnel in accordance with position requirements.
 - e. Monitoring and documentation of environmental procedures.

- B. Perform project quality control in accordance with requirements specified in Related Sections, including:
 - 1. Quality Requirements
 - 2. Regulatory Requirements
 - 3. Temporary Storm Water Pollution Prevention Environmental Management
 - 4. Construction Waste Management

- C. Contractor's Environmental Training Program: Contractor and NPS shall provide environmental training for workers performing work on project site. Training shall include:
 - 1. Overview of environmental issues related to Project.
 - 2. Review of site-specific procedures and management plans:
 - 3. Compliance with environmental regulations: As specified in Regulatory Requirements. Submit Contractor 40 CFR (Code of Federal Regulations) employee training records upon request of Engineer's Representative.

- D. Provide documentation for environmental procedures as specified herein and in accordance with approved environmental compliance documents and Storm Water Pollution Prevention Plan.

1.7 PERMITS

- A. General:
 - 1. Permits and Responsibilities: Contractor shall, without additional expense to the American Rivers, be responsible for obtaining necessary licenses and permits, and for complying with Federal, State and municipal laws, codes, and regulations applicable to the performance of the work. Contractor shall also be responsible for damages to persons or property that occur as a result of Contractor's fault or negligence; and for materials delivered and work performed until completion and acceptance of the work.
 - 2. For the purpose of this contract, Contractor will not be considered an agent of the Government or American Rivers. Contractor shall comply with appropriate Federal, State and local laws.

- B. Furnished Permits: During development of the project's design, permits listed below were negotiated and agreed to by the American Rivers. Terms and provisions of these permits shall be adhered to for the duration specified in each permit.
 - 1. US Army Corps of Engineer's Section 404
 - 2. Central Valley Regional Water Quality Control Board Section 401 Water Quality Certification
 - 3. Tuolumne County Encroachment permit
 - 4. State Water Resources Control Board Construction General Permit

- C. Contractor Permits: Permits listed below were identified during the design process as required or likely to be required. The list is provided to assist Contractor in determining which permits will be required for contract's chosen means and methods. The list shall not be considered complete; it is the Contractors' responsibility to determine means and methods and obtain required permits. Contractor shall obtain all permits required to legally conduct work.

1. Stormwater Pollution Prevention Permit, (Construction General Permit) required – Contractor is co-signee
2. Water Withdrawal Permit (as required)

D. Coordination with Agency(ies) with Jurisdiction Issuing Permits

1. Coordination: Contact the Agency(ies) with Jurisdiction as needed and sufficiently in advance to avoid delaying work: Coordinate meetings, reporting requirements, inspections, and other requirements.

E. Administrative Procedures:

1. Coordinate scheduling and timing of required administrative provisions of project permits with Agency(ies) with Jurisdiction, and Park to avoid conflicts.
2. Supply needed information to Agency(ies) with Jurisdiction issuing permits, pay fees required and provide material needed to comply with permit's conditions and provisions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

Request for Information (RFI) Form

National Park Service (NPS)

RFI Number:	
Project:	
Contract Number:	
Date:	
To:	
Carbon Copy (CC):	
From:	
Subject:	
Please provide the following information or clarification:	
Response Required By:	

Date:	
To:	
From:	
Subject:	Response to RFI Number:
Response:	

SECTION 01 32 16 – CONSTRUCTION SCHEDULE

PART 1 - GENERAL

1.0 SUMMARY

- A. Section consists of Construction Schedule requirements including:
1. Construction Schedule Requirements.
 2. Construction Schedule Updates.
 3. Time Impact Analysis.
- B. Purpose: The Construction Schedule ensures adequate planning, coordination, scheduling, and reporting during execution of the work by the Contractor. It shall assist the Contractor and Engineer's Representative in monitoring the progress of the work, evaluating proposed changes, and processing Contractor's monthly progress payments. It shall include the dates in the contract, phases, milestones, occupancies, holidays, weather consideration, a critical path, and the requirements of this section.

1.1 DEFINITIONS

- A. Activity: A discrete part of a project identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
1. Critical activities are activities on the critical path. They start and finish on the planned early start and finish times.
 2. Predecessor Activity: An activity that precedes another activity in the network.
 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: Allocation of the Schedule of Values for completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by the Engineer's Representative.
- C. Critical Path Method (CPM): Method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: Longest connected chain of interdependent activities through the network schedule that establishes minimum overall Project duration and contains no float.
- E. Float: Measure of leeway in starting and completing an activity.
1. Float: Not for the exclusive use or benefit of the American Rivers or Contractor but is jointly owned.
 2. Free Float: Amount of time an activity can be delayed without adversely affecting the early start of the successor activity.

3. Total Float: Measure of leeway in starting or completing an activity without adversely affecting planned Project completion date.
- F. Resource Loading: Allocation of manpower and equipment necessary for completion of an activity as scheduled.

1.2 SUBMITTALS

- A. Construction Baseline Schedule: After contract award and before Pre-Construction conference, submit baseline schedule, large enough to show entire schedule for entire construction period.
- B. Critical Path Method (CPM) Reports: Concurrent with CPM schedule, submit the following computer-generated reports. For each activity, include activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
- C. Construction Schedule Updates: On or before 7th day preceding progress payment request date, submit estimates of percent completion of each schedule activity and necessary supporting data.

1.3 QUALITY ASSURANCE

- A. Contractor shall meet with Engineer's Representative on the day of the preconstruction conference to go over:
 1. Discuss constraints,
 2. Review delivery dates for YNP-furnished products.
 3. Review schedule for work of separate American Rivers contracts.
 4. Review time required for review of submittals and re-submittals.
 5. Review time required for obtaining and activating permits.
 6. Review and finalize list of construction activities to be included in schedule.
 7. Review baseline schedule comments, resolve issues and progress on incorporating them
 8. Review procedures for updating schedule.
 9. Discuss reporting requirements and establish protocol for naming and transmitting electronic schedules.
- B. Contractor's Schedule Representative: Before the preconstruction conference, designate an authorized representative to be responsible for preparing and maintaining the Construction Schedule.

1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate Contractors.
- B. Coordinate Construction Baseline Schedule with list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 1. In developing Construction Baseline Schedule, ensure Subcontractor's work at all tiers, and prime Contractor's work, is included and coordinated.
 2. Secure time commitments for performing critical elements of work from parties involved.

3. Coordinate each construction activity in network with other activities and schedule in proper sequence.

PART 2 - PRODUCTS

2.1 CONSTRUCTION SCHEDULE REQUIREMENTS

- A. Construction Baseline Schedule: Prepare Construction Baseline Schedule using a computerized, cost and resource-based, time-scaled Critical Path Method network analysis diagram for the Work.
 1. Develop and finalize Construction Baseline Schedule so it can be accepted for use no later than 30 days after date established for the Notice of Award.
 - a. Failure to include any work item required for performance of this Agreement shall not excuse Contractor from completing work within applicable completion dates, regardless of American Rivers acceptance of schedule.
 2. Establish procedures for monitoring and updating Construction Baseline Schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
- B. Construction Baseline Schedule Preparation: Prepare a list of all activities required to complete the Work. Using preliminary Critical Path Method network diagram, prepare a skeleton network to identify probable critical paths.
 1. Activities: Indicate estimated duration, sequence requirements, and relationship of each activity in relation to other activities.
 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with milestone dates.
 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the Critical Path Method schedule within the limitations of the Contract Term.
 4. Show sequence and interdependence of activities required for completion of work. Ensure work sequences are logical and Construction Baseline Schedule shows a coordinated plan of the work.
 5. Resource loading of each activity shall include personnel by labor category and equipment type and capacity proposed to complete the activity in duration shown.
 6. Consider seasonal weather conditions in planning and scheduling work influenced by high and low ambient temperatures, wind, or precipitation to ensure completion of work within contract time.
 7. Time Frame: Proposed duration assigned to each activity shall be Contractor's best estimate of time required to complete activity considering the scope and resources planned for activity.
 - a. Agreement completion date shall not be changed by submission of a schedule that shows an early completion date.
 - b. Contractor shall limit use of lead or lag duration's between schedule activities.

- c. Project schedule shall include the Limited Operating Period. All work, except revegetation, must occur between August 15th and October 31st of the same calendar year.
 - d. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 calendar days, as separate activities in the schedule. Procurement cycle activities can include submittals, approvals, purchasing, fabrication, and delivery.
 - e. Submittal Review Time: Include review and re-submittal times indicated. Coordinate submittal review times in Construction Baseline Schedule.
 - f. Substantial Completion: Allow time for American Rivers administrative procedures necessary for certification of Substantial Completion. (For more information, refer to Specification 01 77 00 "Closeout Procedures.")
8. Constraints: Include constraints and work restrictions indicated in Agreement documents and as follows in schedule and show how the sequence of Work is affected.
- C. Joint Review, Revision, and Acceptance:
- 1. Within seven calendar days of receiving Contractor's proposed Construction Baseline Schedule, Engineer's Representative shall review initial Construction Baseline Schedule.
 - 2. Within seven calendar days after review, Contractor shall revise and resubmit Construction Baseline Schedule in accordance with comments presented from review.
 - 3. In the event the Contractor fails to define any element of work, activity, or logic, and the Engineer's Representative review does not detect this omission or error, such omission or error, when discovered by Contractor or Engineer's Representative, shall be corrected by Contractor within seven calendar days and shall not affect contract period.
 - 4. Upon acceptance of the Construction Baseline Schedule, Engineer's Representative saves schedule as a baseline and updates on a bi-weekly basis. Construction schedule update will be used to evaluate Contractor's monthly applications for payment based upon information developed at monthly Construction Schedule update meeting.

PART 3 - EXECUTION

3.1 CONSTRUCTION SCHEDULE UPDATES

- A. Progress Meeting Updates: Provide a 2 week look-ahead schedule, derived from the currently accepted schedule, before each weekly progress meeting. Utilize look-ahead schedule to facilitate and take notes on discussions held during progress meeting.
- B. Bi-Weekly Schedule Updates:
 - 1. General: Update Construction Schedule on bi-weekly basis to reflect construction progress and activities throughout entire contract period and until project substantial completion.
 - 2. Procedure: Contractor shall meet with Engineer's Representative to review progress made through the status date of the Construction Schedule update, including dates activities were started or completed and percentage of work completed on each activity started or completed.
 - 3. Narrative: Report shall include a brief description of actual progress made during update period; actual and potential delaying activities; impediments to progress; issues related to inclement weather; progress toward established milestones and project float. Report shall

include a brief description of work anticipated to be performed in the two weeks. Minor revisions to the schedule should be identified for evaluation and acceptance or rejection.

4. As Work progresses, indicate Actual Completion percentage for each activity.
 5. If schedule update shows a late finish date after contract completion date, include:
 - a. Known delays
 - b. Actions to get back on schedule
 - c. Pending modifications
 - d. Impediments or constraints affecting progress
 6. Progress Payments: Bi-Weekly updating of the currently accepted Construction Schedule shall be an integral part of the process upon which progress payments will be made. If Contractor fails to provide schedule updates or revisions, a portion of the monthly payment may be retained until corrections have been made.
- C. Distribution: Distribute copies of accepted schedule to Engineer's Representative, Subcontractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to same parties and post in same locations. Delete parties from distribution when they have completed their assigned portion of the Work.

END OF SECTION 01 32 16

SECTION 01 33 23 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.0 SUMMARY

- A. Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.1 DEFINITIONS

- A. Action Submittals: Written, graphic information, and physical samples that require American Rivers' responsive action.
- B. Informational Submittals: Written information that does not require American Rivers' responsive action. Submittals may be rejected for not complying with requirements.
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.2 GENERAL SUBMITTAL PROCEDURES

- A. General: Prepare and submit submittals required by individual Specification Sections and in some cases as requested in drawings. All submittals are to be sent to American River's Project Manager. Types of submittals are indicated in individual specific sections.
 - 1. Engineer's Representative (ER) reserves right to require submittals in addition to those called for in individual sections.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Review for legibility, accuracy, completeness, and compliance with Agreement documents.
 - 1. Coordinate submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of Work so processing will not be delayed because of need for concurrent review coordination.
 - a. Engineer's Representative reserves right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittal List: Submittal list is attached to the end of this Specification Section. The intent is to provide an overall summary of submittal requirements. The requirements of individual Specification Sections and terms and conditions of the Agreement still apply regardless of what is shown on submittal list.

- D. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. When Engineer's Representative has completed review, e-mail notification will be sent to Contractor indicating submittal has been processed. No extension of Contract Term will be authorized because of failure to transmit submittals in advance of Work to permit processing, including re-submittals.
1. Action Submittals
 - a. Initial Review: Allow 5 business days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required.
 - b. Re-submittal Review: Allow 5 days for review of each re-submittal.
 2. Informational submittals
 - a. Review: Allow 5 business days for review of each submittal.
- E. Approved Equals:
1. For each item proposed as an "approved equal," submit supporting data, including:
 - a. Drawings and samples as appropriate.
 - b. Comparison of the characteristics of the proposed item with that specified.
 - c. Changes required in other elements of the work because of the substitution.
 - d. Name, address, and telephone number of vendor.
 - e. Manufacturer's literature regarding installation, operation, and maintenance,
 2. A request for approval constitutes a representation that Contractor:
 - a. Has investigated the proposed item and determined that it is equal or superior in all respects to that specified.
 - b. Will provide the same warranties for the proposed item as for the item specified.
 - c. Has determined that the proposed item is compatible with interfacing items.
 - d. Will coordinate installation of an approved item and make changes required in other elements of the work because of the substitution.
 - e. Waives claims for additional expenses that may be incurred as a result of the substitution.
- F. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Transmittal Form (CM-16): All submittals shall be transmitted using National Park Service Transmittal Form (CM-16). No action will be taken on a submittal item unless accompanied by this Transmittal Form.
 - a. Complete the general information at the top of form.
 - b. Provide all required information based on submittal type
 - c. Attach all related documents.
 - d. Sign the Contractor section at bottom of the Transmittal Form (CM-16).
- G. Identification: Submittal number or other unique identifier, including revision identifier.
1. Submittal number shall use a sequential number (e.g. .001). Re-submittals shall include alphabetic suffix after another decimal point (e.g. .001.A).

- H. Re-submittals: Make re-submittals using same process used with initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in the title block on the Transmittal Form (CM-16) and clearly indicate extent of revision.
 - 3. Re-submit submittals until they are marked "Approved" or "Approved with notations".
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, and others as necessary for performance of construction activities.
- J. Use for Construction: Use only final submittals with mark indicating "Approved" or "Approved with notations". Ensure notations have been incorporated and, at a minimum, keep one copy of final approved submittal on site for use during construction.

1.3 CONTRACTOR'S USE OF CAD/BIM FILES

- A. General: At Contractor's written request, copies of CAD (Computer Aided Design) files will be provided to Contractor for Contractor's use in connection with Project, subject to:
 - 1. Electronic Release Agreement

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each submittal to show which products and options are applicable.
 - 3. As applicable, include:
 - a. Manufacturer's product specifications.
 - b. Manufacturer's installation instructions: When Agreement documents require compliance with manufacturer's printed instructions, provide one complete set of instructions to Engineer's Representative and keep another complete set of instructions at the project site until substantial completion.
 - c. Manufacturer's catalog cuts: Submit only pertinent pages; mark each page of standard printed data to identify specific products proposed for use.
 - d. Wiring diagrams showing factory-installed wiring.
 - e. Printed performance curves.
 - f. Operational range diagrams.
 - g. Compliance with specified referenced standards.
 - h. Testing by recognized testing agency.
 - 4. Submit product data in PDF (portable document format) file format before or concurrent with samples.

- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in Agreement documents. As applicable, include:
 - a. Dimensions
 - b. Identification of products
 - c. Fabrication and installation drawings
 - d. Roughing-in and setting diagrams
 - e. Shopwork manufacturing instructions
 - f. Templates and patterns
 - g. Schedules
 - h. Notation of coordination requirements
 - i. Notation of dimensions established by field measurement
 - j. Relationship to adjoining construction clearly indicated
 - k. Seal and signature of professional engineer if specified
 2. Submit shop drawings as PDF electronic file
- C. Construction Materials: Contractor is encouraged to submit products made out of recycled or environmentally responsible material.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by individual Specification Sections.
1. Certificates and Certifications: Provide a notarized statement with signature of entity responsible for preparing certification. Certificates and certifications shall be signed by officer or other individual authorized to sign documents on behalf of that entity.
 2. Informational submittals that do not comply with requirements specified in Contract Documents will be rejected and one copy will be returned.
- B. Contractors Construction Schedule: Comply with requirements specified in Section 01 32 16 "Construction Schedule."
- C. Accident Prevention Plan: Comply with requirements specified in Section 01 35 23 "Safety Requirements."
- D. Quality Control Plan: Comply with requirements specified in Section 01 40 00 "Quality Requirements."
- E. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of Agreement and for compliance with Agreement documents. Note corrections and field dimensions.

3.2 ENGINEER'S REPRESENTATIVE'S ACTION

- A. General: Submittals will be disapproved without technical review if identification information is missing, not filled in, or if placed on back of submittal; an incorrect format of submittals is provided; transmittal form is incorrectly filled out; submittals are not coordinated; or submittals do not show evidence of Contractor's approval.
 - 1. Any work done or orders for materials or services placed before approval shall be at Contractor's own risk.
- B. Action Submittals: Engineer's Representative will review each submittal, generate comments on corrections or modifications required, and indicate appropriate action on the Transmittal Form (CM-16). Submittal will be marked as defined below:
 - 1. APPROVED: Acceptable with no corrections.
 - 2. APPROVED WITH NOTATIONS: Minor corrections or clarifications required. Comments are clear and no further review is required. Contractor shall address review comments when proceeding with the work.
 - 3. DISAPPROVED - RESUBMIT: Rejected as not in accordance with the contract or as requiring major corrections or clarifications. Engineer's Representative will identify reasons for disapproval. Contractor shall revise and resubmit with changes clearly identified.
- C. Informational Submittals: Engineer's Representative will review each submittal and will either accept or reject it.
- D. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.

END OF SECTION 01 33 23

Preliminary Submittal List

	Specification
Division 1 Items (Multiple)	013100
Geotextile & Geogrid	310519
SWPPP, BMPs/Products	312500/SWPPP
Riprap/Stone	313700
Aggregates	311123
Dewatering Plan	312300
Fencing Materials	323126
Soil Amendment Plan	329219

Transmittal Form (CM-16)

National Park Service (NPS) - Denver Service Center (DSC) | 10-7-20

ACRONYMS: **A/E**: Architect/Engineer; **CMR**: Construction Management Representative; **FAR**: Federal Acquisition Regulation; **LEED**: Leadership in Energy & Environmental Design; **N/A**: Not Applicable; **PMIS**: Project Management Information System

Submittal Number: PARK Acronym: PMIS Number: Project:

Contract Number:

Date:

Sheet: 1 of 2

Transmittal Number:

Construction Contractor:

Subcontractor / Supplier:

Action Submittal	Informational Submittal	Item Number	Specification Section Number	Paragraph Number	Description of Item (Size, Type, Name, Manufacturer, Use, etc.)	Alternate Materials Proposed	A/E ACTION			NPS ACTION				
							Action Submittal	Action Submittal	Informational Submittal	Action Submittal	Action Submittal	Informational Submittal		
							Approved	Approved with Notations	Disapproved - Resubmit	Approved	Approved with Notations	Disapproved - Resubmit	Accept	Reject

Construction Contractor - Name, Title, & Signature:

Date:

Recommended By - NPS COR or Alternate COR - Name, Title, & Signature:

Date:

I hereby certify this submittal has been reviewed for accuracy, completeness, and compliance with contract requirements. FAR 52-236-21

CMR - Name, Title, & Signature:

Date:

Action By - NPS Name, Title, & Signature:

Date:

A/E - Name, Title, & Signature:

Date:

Approval of this submittal is subject to the provisions of the contract drawings and specifications. This action is for general concurrence only and the Government is not responsible for errors or omissions.

Date Received:

Date to Construction Contractor:

Distribute 1 copy each: CMR Interim, A/E, DSC, & Construction Contractor.

Review Comments - Name: Comment(s):

NPS Review Comments - Name: Comment(s):

Transmittal Form (CM-16) - Continuation

National Park Service (NPS) - Denver Service Center (DSC) | 10-7-20

ACRONYMS: **A/E:** Architect/Engineer; **CMR:** Construction Management Representative; **FAR:** Federal Acquisition Regulation; **LEED:** Leadership in Energy & Environmental Design; **N/A:** Not Applicable; **PMIS:** Project Management Information System

Submittal Number: PARK Acronym: PMIS Number: Project:

Contract Number:

Date:

Sheet: 2 of 2

Transmittal Number:

Construction Contractor:

Subcontractor / Supplier:

Action Submittal
Informational Submittal
Item Number
Specification Section Number
Paragraph Number

Description of Item (Size, Type, Name, Manufacturer, Use, etc.)

Alternate Materials Proposed

A/E ACTION			NPS ACTION	
Action Submittal	Action Submittal	Informational Submittal	Action Submittal	Informational Submittal
Approved	Approved with Notations	Disapproved - Resubmit	Approved	Approved with Notations
			Disapproved - Resubmit	Accept
				Reject

Review Comments - Name: Comment(s):

SECTION 01 35 13 – ARCHEOLOGICAL PROTECTION

PART 1 - GENERAL

1.0 SUMMARY

- A. Section consists of protecting archeological resources contained in soil deposits.

1.1 DEFINITIONS

- A. Archeological Resources: Archeological resources are physical evidences of past human activity, including evidences of effects of that activity on the environment. Archeological resources represent both prehistoric and historic time periods, found above and below ground and under water.
- B. Archeologically Sensitive Areas: Areas having potential to contain significant (National Register eligible) archeological resources. If National Register eligible or listed archeological resources could not be avoided, an appropriate mitigation strategy would be developed in consultation with state historic preservation officer and, if necessary, associated American Indian tribes.
- C. Non-sensitive Areas: Areas with little potential of containing significant (National Register eligible) archeological resources.
- D. Archeological Monitor: Representative of Owner or American Rivers designated to oversee construction activities that could disturb archeological resources.
- E. Archeological Resources Protection Act (ARPA) of 1979 (Public Law (P.L.) 96-95; 93 United States Statues at Large (Stat.) 712): defines archeological resources as any material remains of past human life or activities that are of archeological interest and at least 100 years old; Section 4 of the statute describes the requirements that must be met before Federal authorities can issue a permit to excavate or remove any archeological resource on Federal or Indian lands; the curatorial requirements of artifacts, and other materials excavated or removed.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 BARRICADES

- A. Comply with requirements specified in Section 01 50 00 "Temporary Facilities and Controls."

3.2 ARCHEOLOGICAL INVESTIGATION BY NON-NPS PERSONNEL

- A. On NPS land, a permit is required for archeological investigations (e.g. excavation, shovel testing, coring, pedestrian survey, underwater archeology, rock art documentation, or other types of reconnaissance including archaeological monitoring of construction) carried out on parklands by non-National Park Service (NPS) personnel, unless carried out under a contract or a cooperative agreement specifically written for archeological investigations. Permits are issued under the Archaeological Resources Protection Act of 1979 (ARPA). The NPS does not issue a permit for archeological investigations carried out by NPS archeologists, or to archeologists working on NPS archeological projects under a contract or cooperative agreement.
- B. Applicants should submit a Permit Application (DI Form 1926 (Revision September 2004) Office of Management and Budget (OMB) Number (No.) 1024-0037, approved through 1/31/2008. Permit Application form is available, in PDF (portable document file) format, to the manager of the park in which they propose to work; or to the regional director, with a copy to the park manager.

3.3 OBSERVATION

- A. Archeological Monitor may observe ground-disturbing site work, including construction of temporary facilities, at archeologically sensitive areas, from a safe location mutually agreed on by Contractor and Monitor. As new ground is broken, Monitor may examine excavated materials, using construction layout centerline and perimeter staking as a reference point to record locations of findings.

3.4 DISCOVERY OF RESOURCES

- A. If anyone discovers resources, immediate relocation of work to a non-sensitive area may be required for Monitor to identify and document resources and, if necessary, develop appropriate mitigation plan. While Archeological Monitor is documenting resources in sensitive areas, Contractor shall relocate work to non-sensitive areas where monitoring is not normally required.
- B. If resources are discovered while Archeological Monitor is absent, stop work immediately and report the discovery to the Engineer's Representative.

3.5 WORK STOPPAGE

- A. Contractor shall plan, schedule, and execute work to prevent stoppages at one area from stopping all work at construction site.

END OF SECTION 01 35 13

SECTION 01 35 14 – AQUATIC SPECIES PROTECTION

PART 1 - GENERAL

1.0 SUMMARY

- A. Section consists of protecting certain aquatic species that may be present on site.

1.1 DEFINITIONS

- A. Sensitive Aquatic Species: Protected wildlife species that occur in and around aquatic habitat. Northwestern pond turtles are known to occupy the channels of Ackerson Creek throughout the project area. They may be found in the water or in the land areas surrounding the channels (even up to 500 feet or more away).
- B. Sensitive Aquatic Species Habitat: Areas having high potential to contain sensitive aquatic species. In this case, this would be the channels of Ackerson Creek to be filled, as well as a 100 foot terrestrial buffer surrounding the channel.
- C. Non-sensitive Areas: Areas with little potential of containing aquatic sensitive species. archeological resources.
- D. Biological Monitor: Representative of Owner designated to oversee construction activities that could disturb biological resources, such as aquatic wildlife.

1.2 QUALITY ASSURANCE

Educational Briefing: All staff working on site will be trained in the identification, habitat, and protection of the Northwestern pond turtle by the Owner's representative before they begin any on site work involving modification of the aquatic channel, earth moving, or use of heavy equipment of any kind.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 DRAFTING, DEWATERING, DIVERSION

Comply with requirements specified in Section 01 50 00 "Temporary Facilities and Controls," with specific regard to decontamination of dewatering/bypass equipment.

3.2 OBSERVATION

Biological Monitor may observe ground-disturbing site work, including construction of temporary facilities, in Sensitive Aquatic Species Habitat areas, from a safe location mutually agreed on by Contractor and Monitor. As new ground is broken, Monitor will survey for Northwestern Pond turtles that may be in the active construction area and relocate them to the South Ackerson Meadow ponds or the restored cattle pond. Biological Monitors are anticipated to conduct daily telemetry, GPS, and canine-scent surveys to find and relocate Northwestern Pond turtles in the project area.

3.3 DISCOVERY OF RESOURCES

- A. If anyone discovers resources, immediate relocation of work to a non-sensitive area may be required for Monitor to identify and document resources and, if necessary, develop appropriate mitigation plan. While Biological Monitor is documenting resources in sensitive areas, Contractor shall relocate work to non-sensitive areas where monitoring is not normally required.
- B. If sensitive aquatic species are discovered while Biological Monitor is absent, stop work immediately and report the discovery to the Engineer's Representative.

3.4 WORK STOPPAGE

Contractor shall plan, schedule, and execute work to prevent stoppages at one area from stopping all work at construction site.

END OF SECTION 01 35 14

SECTION 01 35 23 - SAFETY REQUIREMENTS

PART 1 - GENERAL

1.0 SUMMARY

- A. Section includes establishing an effective accident prevention program and providing a safe working environment for personnel and visitors.

1.1 CONDITIONS PRESENT FOR PROJECT

- A. Work will generally take place within a known floodplain and channel. There will likely be open excavations and large earth-moving equipment.

1.2 SUBMITTALS

- A. Accident Prevention Plan (APP): Submit APP to American Rivers after Notice of Award and before Pre-Construction conference. Engineer's Representative (ER) will review proposed APP. If APP requires any revisions or corrections, Contractor shall resubmit APP within 10 days. No progress payments will be made until the APP is accepted.

1.3 QUALITY ASSURANCE

- A. Comply with contract clauses regarding safety. Safety shall be the sole responsibility of the contractor. In case of conflicts between Federal, State, and local safety and health requirements, the most stringent shall apply. Onsite equipment shall meet 29 CFR 1926 (Code of Federal Regulations) (Occupational Safety and Health Administration (OSHA)) requirements. Failure to comply with requirements of this section and related sections may result in suspension of work.

- B. Site Safety Supervisor:

1. Designate authorized onsite representative for preparation and maintenance of the APP.
2. Shall be responsible for:
 - a. Implementation and enforcement of the APP
 - b. Daily safety inspections
 - c. Conducting and documenting weekly and monthly safety meetings
 - d. Review of safety requirements at progress meetings
 - e. Compilation and maintenance of Safety Data Sheets (SDS) and safety reference materials
 - f. Tracking and resolution of safety violations
 - g. Site personnel and visitor compliance with site safety and health requirements and APP
 - h. Investigation and reporting of accidents and injuries

- C. Qualifications of Employees:

1. Physically and able to perform their assigned duties in a safe manner.
2. Do not allow employees whose ability or alertness is impaired because of prescription or illegal drug use, fatigue, illness, intoxication, or other conditions that may expose themselves or others to injury to perform work.
3. Provide operating instructions for equipment. Operators of vehicles, hoisting equipment, and hazardous plant equipment shall be able to understand signs, signals, operating instructions, and be fully capable of operating such equipment. Retain copies of operator licenses and certifications onsite.

1.4 ACCIDENT REPORTING

- A. Reportable Accidents: Defined as: death, occupational disease, and/or traumatic injury to employees or the public; fires; and/or property damage by accident in excess of \$100.
1. Notify American Rivers immediately in the event of a reportable accident.
 2. Fill out and forward an Accident/Property Damage Report Form (CM-22) to American Rivers within 7 days of a reportable accident. Obtain form from Engineer's Representative.

PART 2 - PRODUCTS

2.1 ACCIDENT PREVENTION PLAN (APP)

- A. APP shall be written to comply with OSHA and project requirements (generic plan is not acceptable) including but not limited to:
1. Name and qualifications of supervisor responsible to carry out program.
 2. Weekly and monthly safety meetings shall be documented with topics and attendees.
 3. First aid and rescue procedures.
 4. Job Hazard Analysis (JHA) for each major phase. List of hazards associated and methods proposed to provide for property protection and safety of the public, National Park Service, Stanislaus National Forest, American Rivers, Evan Wolf LLC subcontractors and personnel, and Contractor's employees. Include initial and continuing training.
 5. Planning for possible emergency situations, as detailed in Article 1.2. Such planning shall take nature of construction, site conditions, and degree of exposure of persons and property into consideration.
 6. Infectious Disease Preparedness:
 - a. Contractors are responsible for their employees' safety and the safety of job site visitors during the performance of this contract. We encourage Contractors to follow guidance from the Department of Labor (DOL), Occupational Safety and Health Administration (OSHA), the Centers for Disease Control and Prevention (CDC), and all other applicable local, city, and state mandates. We encourage Contractors to develop policies for infection prevention and an Infectious Disease Preparedness and Response Plan.
 - b. To the extent appropriate, Contractors should include the protective health and safety measures they intend to implement in any accident prevention or safety submittals required under this contract. These plans should contain preventive measures the Contractor intends to follow while performing work on site as well as

responsive and corrective actions to be taken if an employee exhibits symptoms or tests positive for contagion.

- c. Upon Notice of Award, Contractors should communicate with American Rivers regarding Contractor decisions and actions to protect the health and safety of workers for the duration of contract performance under which pandemic conditions exist.

2.2 FIRST AID FACILITIES

- A. Provide adequate facilities for number of employees and appropriate to construction hazards.

2.3 PERSONNEL PROTECTIVE EQUIPMENT (PPE)

- A. Selection shall conform to OSHA Subpart E.

PART 3 - EXECUTION

3.1 DAILY SAFETY INSPECTIONS

- A. Conduct daily safety inspections and maintain daily safety reports which include:
 1. Area/operation inspected
 2. Date of inspection
 3. Identified hazards
 4. Corrective actions taken

3.2 EMERGENCY INSTRUCTIONS

- A. Post telephone numbers and reporting instructions for ambulance, physician, hospital, fire department, (including requirements of TEMPORARY FIRE PROTECTION 01 51 16 - 3) and police in conspicuous locations at work site.

3.3 FIRE AND LIFE SAFETY

- A. Comply with requirements of National Fire Protection Association (NFPA) 241 (Standard for Safeguarding Construction, Alteration, and Demolition Operations), and Section 015116 Temporary Fire Protection.

3.4 HAZARDOUS MATERIALS

- A. Hazardous materials: Explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful substances that could cause death or injury.
- B. Store hazardous materials in accordance with manufacturer's and OSHA Subpart D requirements. Maintain Safety Data Sheets (SDS) for each chemical readily available on site.

1. Immediately report spills of hazardous materials to the Park.
2. Maintain a spill emergency response kit.
3. Train employees how to respond to a spill and use emergency response kit.

3.5 PROTECTIVE EQUIPMENT

- A. Inspect personal protective equipment daily and maintain in a serviceable condition. Clean, sanitize, and repair personal items as appropriate before issuing to another individual.

3.6 SAFETY MEETINGS

- A. As a minimum, conduct one weekly 15-minute "toolbox" safety meeting conducted by a foreman or supervisor and attended by construction personnel at worksite. Topics shall coincide with work scheduled for following week.
- B. Conduct monthly safety meetings for personnel, contractors, and subcontractors performing work on the site. Notify Engineer's Representative of meeting dates and times. Meetings shall be used to: review effectiveness of Contractor's safety effort; resolve current health and safety problems; provide a forum for planning safe construction activities, and for updating Accident Prevention Plan. Engineer's Representative will attend meetings and enter results of meetings into the daily log.

3.7 HARD HATS AND PROTECTIVE EQUIPMENT AREAS

- A. A hard hat use area shall be designated by Contractor. Hard hat area shall be posted by Contractor in a manner satisfactory to Engineer's Representative.
- B. It is Contractor's responsibility to require persons working on or visiting site to wear hard hats and PPE in good repair at all times. As a minimum, maintain **six** hard hats and other APP required equipment.

3.8 TRAINING

- A. First Aid: Provide training to personnel to ensure prompt and efficient first aid.
- B. Hazardous Material: Train and instruct each employee exposed to hazardous material in safe and approved methods of handling and storage.

END OF SECTION 01 35 23

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.0 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Agreement requirements. Quality of work shall be responsibility of the Contractor.
- C. See Divisions 2 through 49 Sections for specific test and inspection requirements.

1.1 DEFINITIONS

- A. Quality Assurance Services: Activities, actions, and procedures performed before and during execution of the work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the work to evaluate actual products incorporated into the work and completed construction comply with requirements.
- C. Source Quality Control Testing: Tests and inspections performed at the source, i.e., plant, mill, factory, or shop.
- D. Field Quality Control Testing: Tests and inspections performed on-site for installation of work and for completed work.
- E. Testing Agency or Laboratory: Entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.2 CONFLICTING REQUIREMENTS

- A. Reference Standards: If compliance with two or more standards is specified and standards establish different or conflicting requirements for minimum quality levels, comply with most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Engineer's Representative before proceeding.
- B. Minimum Quality Levels: Quality level shown or specified shall be minimum provided or performed. Actual installation may comply exactly with minimum quality specified, or it may exceed minimum within reasonable limits. To comply with requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer's Representative before proceeding.

1.3 SUBMITTALS

A. Quality Control Plan:

1. After contract award and before Pre-Construction conference, submit a written Contractor Quality Control (CQC) plan.
2. If plan requires revisions or corrections, Contractor shall resubmit plan within 10 days.
3. American Rivers reserves the right to require changes in plan during contract period as necessary to obtain the quality specified.
4. No change in the approved plan may be made without written concurrence by Engineer's Representative.

1.4 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Contractors Quality Control Staff:

1. Contractor's Quality Control Supervisor may also perform other duties.
2. Contractor's designated Quality Control Supervisor shall be on the project site whenever agreement work is in progress.

C. Testing Agency Qualifications: A Nationally Recognized Testing Laboratory (NRTL), a National Voluntary Laboratory Accreditation Program (NVLAP), or an independent agency with experience and capability to conduct testing and inspecting indicated, according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by Contract, is acceptable to Engineer's Representative.

1. Nationally Recognized Testing Laboratory (NRTL): Nationally recognized testing laboratory according to 29 CFR 1910.7 (Code of Federal Regulations).
2. National Voluntary Laboratory Accreditation Program (NVLAP): Testing agency accredited according to National Institute of Standards and Technology's (NIST) National Voluntary Laboratory Accreditation Program.
3. Measuring devices, laboratory equipment, and instruments shall be calibrated at established intervals against certified standards in accordance with NIST requirements. Measuring and testing devices shall be made available for use by American Rivers for verification tests.

1.5 QUALITY CONTROL

A. Contractor is responsible for testing and inspections, including Structural Tests and Special Inspections (STSI), as identified in attached STSI. Inspect and test work as needed to ensure quality of materials, workmanship, construction, finish, and functional performance are in compliance with applicable specifications, drawings, and those required by the Building Code.

1. Engage qualified testing agency to perform quality-control services.
2. Submit appropriate report for each quality-control service.
3. Testing and inspecting requested by Contractor and not required by Agreement are Contractor's responsibility.

4. Engineer's Representative may designate test locations.
- B. Re-testing/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction of replaced work that failed to comply with Agreement.
- C. Testing Agency Responsibilities: Cooperate with NPS and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Engineer's Representative and Contractor promptly of irregularities or deficiencies observed in work during performance of services.
 2. Determine location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections, State in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit 3 copies of certified written report of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase Agreement requirements or approve or accept any portion of Work.

PART 2 - PRODUCTS

2.1 QUALITY CONTROL PLAN

- A. Quality Control Plan shall include:
1. List of personnel responsible for quality control and assigned duties. Include each person's qualifications. Include alternate(s) and qualifications.
 2. Copy of letter of direction to Contractor's Quality Control Supervisor(s) outlining assigned duties and authorities.
 3. Names, qualifications / accreditations, and descriptions of laboratories to perform sampling and testing, and samples of proposed report forms from laboratories.
 4. Methods of performing, documenting, and enforcing quality control of work including Contractor report forms.
 5. Methods of monitoring and controlling environmental pollution and contamination as required by regulations and laws.
 6. Specific discussion regarding mockups, off-site visits, receiving inspections, manufacturers representation, startup requirements, and other aspects of performance specific to Project.
 7. Provisions for substantial completion(s) and final inspection(s) per Agreement.

PART 3 - EXECUTION

3.1 OFF-SITE CONTROL

- A. Items fabricated or assembled off-site shall be inspected for quality control at place of fabrication.

3.2 ENFORCEMENT

- A. Contractor shall stop work on any item or feature pending satisfactory correction of deficiency noted by quality control staff or Engineer's Representative.

3.3 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

Construction Management Representative (CMR) & Contractor Quality Control (CQC) Daily Report

National Park Service (NPS) - Denver Service Center (DSC) | 2-6-18

REPORT NUMBER		PROJECT MANAGEMENT INFORMATION SYSTEM NUMBER (PMIS No.):					
PROJECT		CONTRACT NUMBER	DATE				
PARK		CONTRACTOR	CMR REPORTING				
WEATHER (Rain, Snow, Cloudy, Windy)	MOISTURE AMOUNT (INCHES)	TEMPERATURE		WEATHER DELAY	DESCRIBE WEATHER DELAYED WORK	GROUND CONDITIONS (Dry, Damp, Wet, Frozen)	
		MAXIMUM	MINIMUM				Yes
PRIME CONTRACTOR:							
EMPLOYEES BY JOB CATEGORIES	NUMBER	HOURS	EQUIPMENT ON JOB (Include model, manufacture, size, year.)	NUMBER OF UNITS	EQUIPMENT HOURS WORKING		
					YES	STANDBY	MOBILIZED/ DEMOBILIZED DATE
Project Manager (PM)							
Superintendent							
Quality Control Officer							
Safety Officer							
Laborers							
MATERIALS DELIVERED			QUANTITY		OFFICIAL VISITORS		
WORK PERFORMED BY PRIME: (Include detail description per each activity including location, quantities, and production.)							
SPECIFIC INSPECTIONS: (Inspections performed, results, and corrective actions, and Primes and Subprimes.)							
TESTING:							
Was any testing performed today YES / NO. (Complete and attach Test Report Information Sheets.)							
Type and Location of Testing:							

SUBCONTRACTOR(S):	PMIS Number:	Date:
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SUBCONTRACTOR NAME

EMPLOYEES BY JOB CATEGORIES	NUMBER	HOURS	EQUIPMENT ON JOB (Include model, manufacturer, size, and year.)	NUMBER OF UNITS	EQUIPMENT HOURS WORKING		
					YES	STANDBY	MOBILIZED/ DEMOLIBIZED DATE

MATERIALS DELIVERED	QUANTITY	EQUIPMENT MOBILIZED/DEMOLIBIZED

WORK PERFORMED BY SUBCONTRACTOR: Include detail description per each activity. Include location, quantity, and production.

SUBCONTRACTOR NAME

EMPLOYEES BY JOB CATEGORIES	NUMBER	HOURS	EQUIPMENT ON JOB (Include model, manufacturer, size, and year.)	NUMBER OF UNITS	EQUIPMENT HOURS WORKING		
					YES	STANDBY	MOBILIZED/ DEMOLIBIZED DATE

MATERIALS DELIVERED	QUANTITY	EQUIPMENT MOBILIZED/DEMOLIBIZED

WORK PERFORMED BY SUBCONTRACTOR: Include detail description per each activity. Include location, quantity, and production.

SUBCONTRACTOR NAME

EMPLOYEES BY JOB CATEGORIES	NUMBER	HOURS	EQUIPMENT ON JOB (Include model, manufacturer, size, and year.)	NUMBER OF UNITS	EQUIPMENT HOURS WORKING		
					YES	STANDBY	MOBILIZED/ DEMOLIBIZED DATE

MATERIALS DELIVERED	QUANTITY	EQUIPMENT MOBILIZED/DEMOLIBIZED

WORK PERFORMED BY SUBCONTRACTOR: Include detail description per each activity. Include location, quantity, and production.

SUBCONTRACTOR(S):	PMIS Number:	Date:	
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SUBCONTRACTOR NAME

EMPLOYEES BY JOB CATEGORIES	NUMBER	HOURS	EQUIPMENT ON JOB (Include model, manufacturer, size, and year.)	NUMBER OF UNITS	EQUIPMENT HOURS WORKING		
					YES	STANDBY	MOBILIZED/ DEMOBILIZED DATE

MATERIALS DELIVERED	QUANTITY	EQUIPMENT MOBILIZED/DEMOBILIZED

WORK PERFORMED BY SUBCONTRACTOR: Include detail description per each activity. Include location, quantity, and production.

SUBCONTRACTOR NAME

EMPLOYEES BY JOB CATEGORIES	NUMBER	HOURS	EQUIPMENT ON JOB (Include model, manufacturer, size, and year.)	NUMBER OF UNITS	EQUIPMENT HOURS WORKING		
					YES	STANDBY	MOBILIZED/ DEMOBILIZED DATE

MATERIALS DELIVERED	QUANTITY	EQUIPMENT MOBILIZED/DEMOBILIZED

WORK PERFORMED BY SUBCONTRACTOR: Include detail description per each activity. Include location, quantity, and production.

SUBCONTRACTOR NAME

EMPLOYEES BY JOB CATEGORIES	NUMBER	HOURS	EQUIPMENT ON JOB (Include model, manufacturer, size, and year.)	NUMBER OF UNITS	EQUIPMENT HOURS WORKING		
					YES	STANDBY	MOBILIZED/ DEMOBILIZED DATE

MATERIALS DELIVERED	QUANTITY	EQUIPMENT MOBILIZED/DEMOBILIZED

WORK PERFORMED BY SUBCONTRACTOR: Include detail description per each activity. Include location, quantity, and production.

PMIS Number:		Date:	
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CRITICAL POINT/MILESTONE OBSERVATIONS *(Describe item inspected, observations, problems, and action items.)*

DESCRIPTION OF WORK BEING MONITORED ON A TIME AND MATERIAL BASIS AND WHY

BREAKDOWN OF TIME AND MATERIAL WORK PERFORMED

Location: Labor: Equipment: Material: Production Rates:

STATUS OF GOVERNMENT FURNISHED SERVICES AND/OR SUPPLIES

SAFETY COMMENTS

Accidents / Lost Time: Incidents: First Aid Administered: Other:

DIFFICULTIES WITH CONSTRUCTION CONTRACTOR

UNFORESEEN DEVELOPMENTS *(Describe conditions, action taken, person contacted, and recommended actions.)*

CONSTRUCTION DEFICIENCIES OR RE-TESTING REQUIRED

OTHER COMMENTS

CERTIFICATION	
<p>For Construction Management Representative (CMR): I certify the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the Prime Contractor and each Subcontractor and determined all materials, equipment, and workmanship are in strict compliance with plans and specifications except as may be noted above.</p> <p>I certify that I or my authorized representative have reviewed and reconciled all differences between this daily report and the Construction Contractors. In the event a discrepancy is found, the Construction Contractor was notified and an acceptable revision was completed and resubmitted by either or both parties within this document. If unable to agree with the Construction Contractor, explain nature of disagreement in "Other Comments" above as needed.</p> <p>For Contractor's Representative: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the Prime Contractor and each Subcontractor and determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications except as may be noted above. I have reconciled all differences found when comparing this CQC daily diary with the CMR's daily diary. All unresolved issues are described under "Other Comments" above.</p>	
SIGNATURE	TITLE:

PMIS Number:		Date:	
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ADDITIONAL COMMENTS OR INFORMATION (*Describe item inspected, observations, problems, and action items.*)

PMIS Number:		Date:	
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IMAGES IN SUPPORT OF REPORT INFORMATION

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.0 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.1 QUALITY ASSURANCE

Environmental Protection: Provide environmental protection as required by agency(ies) with jurisdiction and as indicated in Agreement. Coordinate with requirements of the following:

1. Regulatory Requirements of Project permits and environmental compliance documents
2. Environmental Management
3. Construction Waste Management

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Temporary materials may be new or used, but must be adequate in capacity for required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.
- B. Safety Barrier Fence (ESA Fence): Orange plastic fence, minimum height, 4 feet or other equal product as accepted by the Engineer's Representative.
- C. Barrier Tape: Yellow tape Imprinted with "CAUTION: CONSTRUCTION AREA," manufactured by Reef Industries, Inc., Houston, Texas, or approved equal.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Engineer's Representative Field Office: The Contractor shall provide a field office for use by the Engineer's Representative and other project staff. The field office shall be a separate structure from Contractor's office. The field office shall meet the following requirements:
 1. Prefabricated, or a mobile unit; excellent condition, structurally sound, non-flammable exterior construction, weather tight, minimum 150 square feet.
 2. Operable windows and security screens, adjustable ventilation.
 3. Interior partition with lockable door to divide office

4. Paneling or freshly painted walls, acoustical tile or painted ceilings, and resilient flooring.
5. Two exterior doors with dead bolts keyed from outside,
6. Minimum 20-square-foot landing and steps at each exterior door.
7. Include a desk, office chair, and filing cabinet.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work. Facilities may only be installed within staging area limits as shown on the Drawings.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 1. Arrange with utility company, NPS, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services. Acquire necessary permits.
- B. Non-potable water for construction is not available within the Park boundaries. Contractor shall furnish non-potable water from a source outside park boundary. Non-potable water may be developed on Forest land subject to Forest approval and under the following conditions:
 1. For water drafting on fish-bearing streams: do not exceed 350 gallons per minute for streamflow greater than or equal to 4.0 cubic feet per second (cfs); do not exceed 20% of surface flows below 4.0 cfs; and, cease drafting when bypass surface flow drops below 1.5 cfs.
 2. For water drafting on non-fish-bearing streams: do not exceed 350 gallons per minute for streamflow greater than or equal to 2.0 cfs; do not exceed 50% of surface flow; and, cease drafting when bypass surface flow drops below 10 gallons per minute.
 3. Locate water drafting sites to avoid adverse effects to in-stream flows and depletion of pool habitat.
 4. Do not allow water drafting from streams by more than one truck at a time.
 5. Do not construct basins at culvert inlets for the purpose of developing a waterhole, as these can exacerbate plugging of the culvert.
 6. Gradually remove temporary dams when operations are complete so that released impoundments do not discharge sediment into the streamflow.

7. When diverting water from streams, maintain bypass flows that ensure continuous surface flow in downstream reaches, and keep habitat in downstream reaches in good condition.
8. Locate approaches as close to perpendicular as possible to prevent stream bank excavation.
9. Treat road approaches and drafting pads to prevent sediment production and delivery to a watercourse or waterhole. Armor road approaches as necessary from the end of the approach nearest a stream for a minimum of 50 feet, or to the nearest drainage structure (e.g., waterbar or rolling dip) or point where road drainage does not drain toward the stream.
10. Armor areas subject to high floods to prevent erosion and sediment delivery to water courses.
11. Install effective erosion control devices (e.g., gravel berms or waterbars) where overflow runoff from water trucks or storage tanks may enter the stream.
12. Check all water-drafting vehicles daily and repair as necessary to prevent leaks of petroleum products from entering Riparian Conservation Areas (RCA). Water-drafting vehicles shall contain petroleum-absorbent pads, which are placed under vehicles before drafting. Water-drafting vehicles shall contain petroleum spill kits. Dispose of absorbent pads according to the Hazardous Response Plan.
13. Use a screened intake device and pumps with low entry velocity and suction strainers with screen less than 2mm (1/8 in) in size to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. The suction strainer shall be inserted close to the substrate in the deepest water available. Place strainer in a canvas bucket to avoid substrate and aquatic species disturbance when stream flow approaches 1.5 cfs. A drafting box measuring 2 feet on all sides covered in a maximum of 0.25 inch screening is required.
14. If portable pump is used for stream drafting, place pump in containment pan. Spill pads shall be used for fueling in stream management zone (SMZ). Fuel shall be stored outside of SMZ.
15. Any equipment used to pump, draft, divert, or hold water must be thoroughly decontaminated before it arrives in Yosemite National Park. Use a 7.5% Quarternary ammonia compound at 6.5oz/gallon to decontaminate equipment with a 10 minute contact time; rinse all equipment thoroughly with tap water.

16.

Fish Bearing Streams			
CFS	GPM	Drafting cannot exceed (GPM)	Time to fill 1000 ga (min)
>4	>1800	350	3
3.5	1575	315	3
3	1350	270	4
2.5	1125	225	4
2	900	180	6
1.5	675	135	7
<1.5	<675	Cease Drafting	

Non-Fish Bearing Streams			
CFS	GPM	Drafting cannot exceed (GPM)	Time to fill 1000 ga (min)
>2	>900	350	3
1.5	675	338	3
1	450	225	4
0.9	405	203	5
0.8	360	180	6
0.7	315	158	6
0.6	270	135	7
0.5	225	113	9
0.4	180	90	11
0.3	135	68	15
0.2	90	45	22
0.1	45	23	44
0.09	41	20	49
0.08	36	18	56
0.07	32	16	63
0.06	27	14	74
0.05	23	11	89
0.04	18	9	111
0.03	14	7	148
0.02	10	5	200
<0.02	<10	Cease Drafting	

- C. Potable water is not available on site. Furnish cool, potable water for construction personnel in locations convenient to work stations.
- D. Sanitary Facilities: Provide temporary toilets, and wash facilities for use by construction personnel.
 - 1. Place in approved locations secluded from public observation and convenient to work stations. Relocate as work progress requires.
 - 2. Maintain and clean toilet facilities at least weekly.
 - 3. Completely remove sanitary facilities on completion of work.
 - 4. Toilets: There are no existing toilet facilities on site.
- E. Telephone Service: No telephone service is available on site for Contractor's use.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Provide incombustible construction for offices, shops, and sheds located within construction area. Comply with NFPA 241.
 - 2. Maintain support facilities until near Substantial Completion. Remove structures, equipment, and furnishings, and terminate services after punch list is 100 percent completed or when directed by Engineer's Representative.

- B. Traffic Controls: Erect and maintain barricades, lights, danger signals, and warning signs in accordance with Manual on Uniform Traffic Control Devices (MUTCD), Part IV, latest edition.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
 - 3. Illuminate barricades and obstructions at night; keep safety lights burning from sunset to sunrise.
 - 4. Adequately barricade and post open cuts in or adjacent to thoroughfares.
 - 5. Protect pedestrian traffic by guardrails or fences.
 - 6. When pedestrian traffic is detoured onto a roadway, provide temporary walkways with protection as required at ends and overhead. For walkways, use lumber running parallel to direction of traffic movement and provide ramps at changes of elevation.
 - 7. Cover pipes, hoses, and power lines crossing sidewalks and walkways with troughs using beveled edge boards.
 - 8. Install Barrier Tape where directed by Engineer's Representative. Keep a minimum of two rolls on site.
- C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of agency(ies) with jurisdiction.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Cleaning of Equipment: Contractor shall ensure prior to moving on to Project Area, equipment, is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. Ensure equipment has been pressure washed and is free of exotic species. Equipment shall be considered free of soil, seeds, and other debris when visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools are not required.
- C. Temporary Erosion and Sedimentation Control: Refer to Section 01 57 23 "Temporary Storm Water Pollution Prevention".
- D. Tree and Plant Protection: Refer to Section 01 11 00 "Summary of Work".
 - 1. Vehicles and Equipment: Provide one extinguisher on each vehicle or piece of equipment.
 - 2. Service and Refueling Areas: Locate areas a minimum of 50 feet from buildings. Shut down equipment before refueling.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.

- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
- D. Materials and facilities that constitute temporary facilities are property of Contractor.

END OF SECTION 01 50 00

SECTION 01 51 16 TEMPORARY FIRE PROTECTION

PART 1 - GENERAL

1.1 SCOPE

The provisions set forth below outline the responsibility for fire prevention and suppression activities and establish a suppression plan for fires within the Project Area. The Project Area is delineated by the Drawings in the Agreement. The provisions set forth below also specify conditions under which agreement activities will be curtailed or shut down.

1.2 RESPONSIBILITIES

A. The Contractor

1. Shall abide by the requirements of this Fire Plan.
2. Shall take all steps necessary to prevent his/her employees, subcontractors and their employees from setting fires not required in completion of the agreement, shall be responsible for preventing the escape of fires set directly or indirectly as a result of agreement operations, and shall extinguish all such fires which may escape.
3. Shall permit and assist in periodic testing and inspection of required fire equipment. Contractor shall certify compliance with specific fire precautionary measures in the fire plan, before beginning operations during Fire Precautionary Period and shall update such certification when operations change.
4. Shall designate in the Fire Plan and furnish on Project Area, during operating hours, a qualified fire supervisor authorized to act on behalf of Contractor in fire prevention and suppression matters.

B. Forest Service

The Forest Service may conduct one or more inspections for compliance with the Fire Plan. The number, timing, and scope of such inspections will be at the discretion of agency employees responsible for agreement administration. Such inspections do not relieve the Contractor of responsibility for correcting violations of the fire plan or for fire safety in general, as outlined in paragraph 2.A above.

1.3 DEFINITIONS:

Active Landing: A location the contractor may be skidding logs into, or performing other operations such as delimiting, log manufacturing, and chipping logs. Except for EV and E days, loading logs or stockpiling chips only, on a cleared landing, does not constitute an Active Landing.

Hot Saw: A harvesting system that employs a high-speed (>1100 rpm) rotating felling head, i.e., full rotation lateral tilt head.

Mechanical Operations: The process of felling, skidding, chipping, shredding, masticating, piling, log processing and/or yarding which requires the use of motorized power which includes, chainsaws, chippers, motorized carriages, masticators, stroke delimiters, skidders, dozers etc.

1.4 TOOLS AND EQUIPMENT:

The Contractor shall comply with the following requirements during the fire precautionary period, as defined by unit administering contracts:

The Fire Precautionary Period is set by the State of California which is April 1 through December 1 of any year.

- A. Fire Tools and Equipment: Contractor shall meet minimum requirements of Section 4428 of the California Public Resources Code (C.P.R.C.). Fire tools kept at each operating landing shall be sufficient to equip all employees in the felling, yarding, loading, chipping, and material processing operations associated with each landing. Fire equipment shall include two tractor headlights for each tractor dozer used in Contractor's Operations. Tractor headlights shall be attachable to each tractor and served by an adequate power source. All required fire tools shall be maintained in suitable and serviceable condition for firefighting purposes.

Trucks, tractors, skidders, pickups and other similar mobile equipment shall be equipped with and carry at all times a size 0 or larger shovel with an overall length of not less than 46 inches and a 2-1/2 pound axe or larger with an overall length of not less than 28 inches.

Where cable yarding is used, Contractor shall provide a size 0 or larger shovel with an overall length of not less than 46 inches and a filled backpack can (4 or 5 gallon) with hand pump within 25 feet of each tail and corner block.

- B. Fire Extinguishers: Contractor shall equip each internal combustion yarder, fuel truck, and loader with a fire extinguisher for oil and grease fires (4-A:60-B:C). Skidders and tractors shall be equipped with a minimum 5-BC fire extinguisher.

All Fire Extinguishers shall be mounted, readily accessible, properly maintained and fully charged.

Contractor shall equip each mechanized harvesting machine with hydraulic systems, powered by an internal combustion engine (chipper, feller/buncher, harvester, forwarder, hot saws, stroke delimber, etc), except tractors and skidders, with at least two 4-A:60-B:C fire extinguishers or equivalent.

- C. Spark Arresters and Mufflers: Contractor shall equip each operating tractor and any other internal combustion engine with a spark arrester, except for motor vehicles equipped with a maintained muffler as defined in C.P.R.C. Section 4442 or tractors with exhaust-operated turbochargers. Spark Arresters shall be a model tested and approved under Forest Service Standard 5100-1a as shown in the National Wildlife Coordinating Group Spark Arrester Guide, Volumes 1 and 2, and shall be maintained in good operating condition. Every motor vehicle subject to registration shall at all times be equipped with an adequate exhaust system meeting the requirements of the California Vehicle Code.

- D. Power Saws: Each power saw shall be equipped with a spark arrester approved according to C.P.R.C. Section 4442 or 4443 and shall be maintained in effective working order. An Underwriters Laboratories (UL) approved fire extinguisher containing a minimum 14 ounces of fire retardant shall be kept with each operating power saw. In addition, a size 0 or larger shovel with an overall length of not less than 38 inches shall be kept with each gas can but not more than 300 feet from each power saw when used off cleared landing areas.

E. Tank Truck or Trailer: Contractor shall provide a water tank truck or trailer on or in proximity to Project Area during Contractor's Operations hereunder during Fire Precautionary Period. When Project Activity Level B or higher is in effect, a tank truck or trailer shall be on or immediately adjacent to each active landing, unless otherwise excepted when Hot Saws or Masticators are being used. See Section 6 for specific contract requirements.

The tank shall contain at least 300 gallons of water available for fire suppression. Ample power and hitch shall be readily available for promptly and safely moving tank over roads serving Project Area. Tank truck or trailer shall be equipped with the following:

Pump, which at sea level, can deliver 23 gallons per minute at 175 pounds per square inch measured at the pump outlet. Pumps shall be tested on Contract Area using a 5/16 inch orifice in the Forester One Inch In-Line Gauge test kit. Pump shall meet or exceed the pressure value in the following table for nearest temperature and elevation:

Temp (F)	Sea Level		1000 Feet		2000 Feet		3000 Feet		4000 Feet		5000 Feet		6000 Feet		7000 Feet		8000 Feet		9000 Feet		10000 Feet	
	1	23	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
55	7	9	4	3	6	9	5	2	6	1	7	5	3	5	0	4	6	4	2	4	1	9
70	7	5	1	3	6	6	2	6	2	8	5	4	5	0	4	7	3	4	1	3	9	6
85	7	1	6	3	6	3	5	2	5	9	5	1	4	7	4	4	0	4	1	3	6	3
100	6	8	4	3	5	9	5	2	5	5	4	1	4	8	4	1	7	3	0	3	3	1
	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G
	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P
	I	M	I	M	I	M	I	M	I	M	I	M	I	M	I	M	I	M	I	M	I	M

The pump outlet shall be equipped with 1-1/2 inch National Standard Fire Hose thread. A bypass or pressure relief valve shall be provided for other than centrifugal pumps.

300 feet of 3/4-inch inside diameter rubber-covered high-pressure hose mounted on live reel attached to pump with no segments longer than approximately 50 feet, when measured to the extreme ends of the couplings. Hose shall have reusable compression wedge type 1-inch brass or lightweight couplings (aluminum or plastic). One end of hose shall be equipped with a coupling female section and the other end with a coupling male section. The hose shall, with the nozzle closed, be capable of

withstanding 200 PSI pump pressure without leaking, distortions, slipping of couplings, or other failures.

A shut-off combination nozzle that meets the following minimum performance standards when measured at 100 P.S.I. at the nozzle:

	G.P.M.	Horizontal Range
Straight Stream	10	38 feet
Fog Spray	6 - 20	N/A

Sufficient fuel to run the pump at least 2 hours and necessary service accessories to facilitate efficient operation of the pump.

When Contractor is using Hot Saws or Masticators, an additional 250 feet of light weight hose, approved by the Forest Service, shall be immediately available for use and be capable of connecting to the 300 feet of hose and appurtenances in (2) and (3) above.

This equipment and accessories shall be deliverable to a fire in the area of operations and is subject to the requirements for each specific activity level identified in Section 6.

Compressed Air Foam System: A Compressed Air Foam System (CAFS) is a fire suppression system where compressed air is added to water and a foaming agent. By agreement, Contractor may substitute a CAFS or functional equivalent in lieu of the tank truck, trailer or fire extinguishers, provided it meets or exceeds the following specifications and requirements:

- a. Variable foam expansion ratio – 10:1 to 20:1.
- b. Units shall be kept fully charged with air; water and foam concentrate as recommended by the manufacturer and have the appropriate tools to service the system.
- c. The unit shall contain enough energy to empty tank and clear hose prior to exhausting propellant.
- d. The unit shall be capable of being completely recharged within 10 minutes.
- e. When used on cable yarding landings, the unit shall be outfitted for immediate attachment to carriage and transported without damage to the unit.

Fire extinguishers required for Hot Saws, Masticators and similar equipment identified above may be substituted with a 3 gallon CAFS.

Tank truck, trailer or equivalent may be substituted with a 30 Gallon CAFS with at least 550 feet of one inch hose and an adjustable nozzle with enough water, air and foam concentrate for at least one recharge.

This equipment and accessories shall also be deliverable to a fire in the area of operations and subject to the requirements for each specific activity level identified in Section 6.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. State Law: In addition to the requirements in this Fire Plan, the Contractor shall comply with all applicable laws of the State of California. In particular, see California Public Resource Codes.
- B. Permits Required: The Contractor must secure a special written permit from the District Ranger, and Yosemite National Park or designated representative before burning, welding or cutting metal or starting any warming fires. If contract requires Blasting and Storing of Explosives and Detonators, an Explosives Permit may be required pursuant to the California Health and Safety Code, Section 12101.
- C. Smoking: Smoking shall not be permitted during fire season, except in a barren area or in an area cleared to mineral soil at least three feet in diameter. In areas closed to smoking, the Owner may approve special areas to be used for smoking. The Contractor shall sign designated smoking areas. Contractor shall post signs regarding smoking and fire rules in conspicuous places for all employees to see. Contractor's supervisory personnel shall require compliance with these rules. Under no circumstances shall smoking be permitted during fire season while employees are operating light or heavy equipment, or walking or working in grass and woodlands.
- D. Storage and Parking Areas. Equipment service areas, parking areas, and gas and oil storage areas shall be cleared of all flammable material for a radius of at least 10 feet unless otherwise specified by local administrative unit. Small mobile or stationary internal combustion engine sites shall be cleared of flammable material for a slope distance of at least 10 feet from such engine. The Engineer's Representative shall approve such sites in writing.
- E. Reporting Fires: As soon as feasible but no later than 15 minutes after initial discovery, Contractor shall notify Forest Service of any fires on Contract Area or along roads used by Contractor. Contractor's employees shall report all fires as soon as possible to any of the following Forest Service facilities and/or personnel listed below, but not necessarily in the order shown:

	Name	Office Address	Office telephone
Dispatch Center	Stanislaus	19777 Greenley Road Sonora CA 95370	(209) 532-3786
Nearest FS Station	Groveland RD	24545 Highway 120 Groveland, CA 95321	(209) 962-7825
Inspector	TBD	19777 Greenley Road Sonora CA 95370	
COR	TBD	19777 Greenley Road Sonora CA 95370	
District Ranger	Jim Junette	24545 Highway 120 Groveland, CA 95321	209-732-8189 Cell 209-768-3335

YOSE Emergency Communications			209-379-1992
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When reporting a fire, provide the following information:

- Your Name
- Call back telephone number
- Project Name
- Location: Legal description (Township, Range, Section); and Descriptive location (Reference point)
- Fire Information: Including Acres, Rate of Spread and Wind Conditions.

F. Communications: Contractor shall furnish a serviceable telephone, radio-telephone or radio system connecting each operating site with Contractor's headquarters. When such headquarters is at a location which makes communication to it clearly impractical, Forest Service may accept a reasonable alternative location. The communication system shall provide prompt and reliable communications between Contractor's headquarters (or agreed to alternative) and Forest Service via commercial or Forest Service telephone.

G. Fire Patrolperson: Contractor shall furnish a qualified fire patrolperson each operating day when Project Activity Level C or higher is in effect. When on duty, sole responsibility of patrolperson shall be to patrol the operation for prevention and detection of fires, take suppression action where necessary and notify the Forest Service as required. This Fire patrol is required on foot, unless otherwise agreed. By agreement, one patrolperson may provide patrol on this and adjacent projects. No patrolperson shall be required on Specified Road construction jobs except during clearing operations unless otherwise specified.

The Contractor shall, prior to commencing work, furnish the following information relating to key personnel:

<u>Title</u>	<u>Name</u>	<u>Telephone Number</u>
<u>Fire Supervisor</u>		
<u>Fire Patrolperson</u>		

H. Clearing of Fuels: Contractor shall clear away, and keep clear, fuels and logging debris as follows:

Equipment and stationary log loaders, yarders and other equipment listed in California State Law:	10 feet slope radius
Tail or corner haulback blocks:	All running blocks shall be located in the center of an area cleared to mineral soil at least 15 feet in diameter.

Lines near, between or above blocks:	Sufficient clearing to prevent line from rubbing on snags, down logs and other dead woody material.
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3.2 EMERGENCY PRECAUTIONS

Contractor's Operations shall conform to the limitations or requirements in the Project Activity Level (PAL) table (attached). Project Activity Levels applicable to this project shall be the predicted activity levels for the Fire Danger Rating Area(s), or fire weather station(s) stated in Project Area Map Legend on Integrated Resource Service Contracts (IRSC's), and other contracts where applicable.

Fire Danger Rating Area/Fire Weather Station for Project FDRA 348

The Forest Service, in its sole discretion, may change the predicted activity level if the current fire suppression situation, weather and vegetation conditions warrant an adjustment. If practicable, Forest Service will determine the following day's activity level by 6:00 PM. Contractor shall obtain the predicted Project Activity Level from the appropriate Ranger District Office before starting work each day.

Phone Number or Website to obtain Predicted Activity Levels: (209) 532-5601

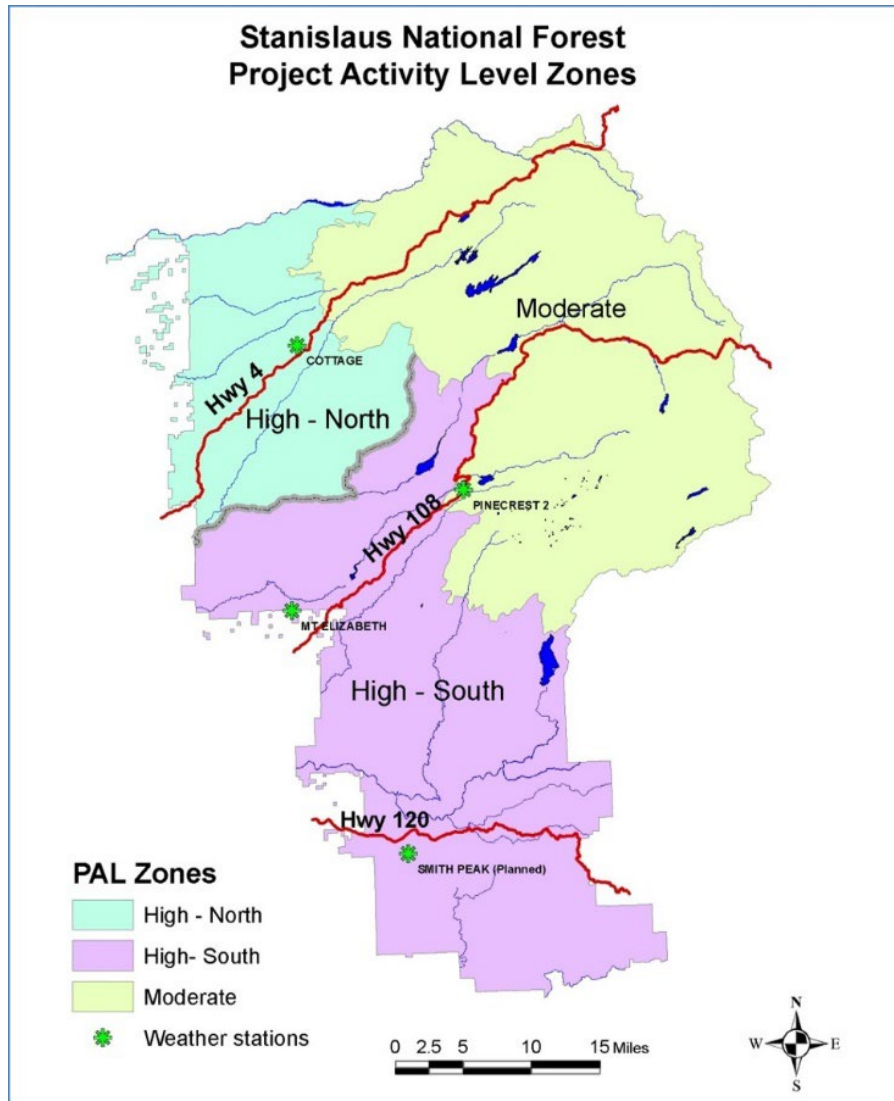
Forest Service may change the Project Activity Level Table to other values upon revision of the National Fire Danger Rating System. When Contractor is notified, the revised Project Activity Levels will supersede the levels in the Project Activity Level Table below.

PROJECT ACTIVITY LEVEL

Level	<i>Project Activity Minimum Requirements and Restrictions. Restrictions at each level are cumulative.</i>
A	Minimum requirements noted above in Sections 4 and 5.
B	<ol style="list-style-type: none"> 1. Tank truck, trailer, or approved CAFS substitute shall be on or adjacent to the Active Landing.
C	<ol style="list-style-type: none"> 1. When Hot Saws or Masticators are operating, a tank truck, trailer, or approved CAFS substitute shall be within ¼ mile of these operations. Effective communications shall exist between the operator and the Active Landing. 2. Immediately after Mechanical Operations cease, Fire patrol is required for two hours.
D	<ol style="list-style-type: none"> 1. Immediately after Hot Saw or Masticator operations cease, Fire patrol is required for three hours. 2. No Dead Tree felling after 1:00 PM, except recently dead. 3. No burning, blasting, or cutting of metal after 1:00 PM, except by special permit.
Ev	<ol style="list-style-type: none"> 1. The following activities may operate all day: <ol style="list-style-type: none"> a. Loading and hauling logs decked at approved landings. b. Loading and hauling chips stockpiled at approved landings. c. Servicing equipment at approved sites. d. Dust abatement, road maintenance (Chainsaw use prohibited), culvert installation within cleared area, chip sealing, paving, earth moving or rock aggregate stock pile loading and installation (does not include pit or quarry development). e. Chainsaw and log processing operations associated with loading logs or other forest products at approved landings. 2. Hot Saws or Masticators may operate until 1:00 PM; provided that: <ol style="list-style-type: none"> a. A tractor with a blade or other equipment capable of constructing fireline is on or adjacent to the active landing or within ¼ mile of the operating equipment. This piece of equipment shall have effective communication with the Hot Saw or Masticator. b. Any additional restrictions specified by the Forest. 3. All other conventional Mechanical Operations are permitted until 1:00 PM. 4. Some operations may be permitted after 1:00 PM, on a case-by-case basis, under the terms of a PAL Ev Variance Agreement. Activities for which a Variance may be issued are: <ul style="list-style-type: none"> • Rubber Tire Skidding • Chipping on Landings • Helicopter Yarding • Fire Salvage <p>When approved by a Line Officer, a Variance Agreement can be implemented when the criteria specified in the agreement are met and mitigation measures are in place. This approval is good for ten (10) days unless cancelled sooner or extended by the Contracting Officer for an additional ten</p>

	<p>(10) days. Variance approval can be withdrawn at the sole discretion of the Forest Service. Variance approval is contingent on the 7-day fire weather forecast, fuel conditions, site characteristics, current fire situation, state of Contractor's equipment for prevention and suppression readiness, type of operation and social and community considerations etc. (See attached Project Activity Level Variance Agreement).</p>
<p>E</p>	<p>The following activities may operate all day:</p> <ol style="list-style-type: none"> 1. Loading and hauling logs decked at approved landings. 2. Loading and hauling chips stockpiled at approved landings. 3. Servicing Equipment at approved sites. 4. Dust abatement, road maintenance (chainsaw use prohibited) or loading stock piles and rock aggregate installation (does not include pit or quarry development). 5. Chainsaw operation associated with loading at approved landings. <p>All other activities are prohibited.</p>

This Project utilizes “The Project Activity Level” (PAL), an industrial operation’s fire precaution system. The following Climatology Chart indicates the Historic Activity Levels for the Project Fire Danger Rating Area or Fire Weather Station utilized on this Project. This is only a historical average of the Activity Levels for the identified Fire Danger Rating Area or Weather Station.



Region 5 Project Activity Level (PAL) Ev Variance Application/Agreement

Project Name: _____

Contract Number: _____

Contractor Name: _____

Request # __, for period: _____

Units/Subdivisions Affected: _____

Location of operation:	
Slope	
Aspect	
Elevation	
Fuels on site	
Fuels in surrounding area	
7 Day PAL Outlook	
Short range predictions (Red Flags)	
Fuel Moistures	
Response time of suppression resources	
Potential for ignition	
RAWS location	
Current Fire Situation:	
Draw down information	
National Readiness Level	
Contractual considerations:	
Normal Operating Season	
Frequency of recent contract fires in area	

Type of operation	
Contractors past/current performance & equipment readiness	
Other site specific mitigation or precaution (i.e. Contractors proposals)	
Social & Community Considerations:	
Proximity of high value resources	
Sensitivity of location	
Proposed Actions:	
Description of Mitigation Measures:	
Remarks:	

Fire Management Officer Concurrence

Date

Line Officer Approval

Date

I have considered the above request and determined the specified mitigation measures or actions must be implemented to continue operations in Project Activity Level Ev. Unless extended, the approval remains in effect for ten (10) calendar days unless cancelled sooner or extended by the Forest Service for an additional ten (10) days. At the sole discretion of the Forest Service, this variance can be modified and/or cancelled at no cost to the American Rivers.

Contracting Officer

Date

Contractor Representative

Date

SECTION 01 55 00 - VEHICULAR ACCESS AND PARKING

PART 1 - GENERAL

1.1 SUMMARY

- A. This work consists of establishing, maintaining, and then decommissioning and obliterating temporary and designated pre-existing roads, routes, and staging areas for construction operations.
 - 1. Establish new temporary roads, routes, and staging as indicated on Drawings.
 - 2. Conduct topsoil salvage, clearing/grubbing, and drainage and surface improvements as necessary prior to vehicular access.
 - 3. At the conclusion of work temporary roads, access routes, staging areas, and pre-existing roads identified in the plans must be decommissioned and restored.
 - 4. General route decommissioning sequence:
 - a) Removing any temporary fill
 - b) Decompacting native soil
 - c) Replacing salvaged topsoil
 - d) Placing erosion blanket on decompacted access routes in the meadow, as indicated in the plans and Section 312500
 - e) Planting nursery stock on decompacted and blanketed access routes in the meadow, as indicated in the plans and Section 329200

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 PREPARATION

- A. To the extent practicable, avoid locating access routes or staging through mapped occurrences of rare plants (*Diplacus pulchellus* and *Erythranthe filicaulis*).
- B. No access routes, staging, or any ground disturbance will be allowed in Archaeological Avoidance areas (see Section 01 35 13)
- C. Where access or staging must overlap with rare plant occurrences equipment will not pass over mapped rare species areas within meadow access routes until protection measures have been installed.
- D. Protect designated access routes at existing mapped rare plant populations by temporarily placing track mats or equivalent soil compaction protection approved by Engineer's Representative to protect the soil surface in these areas before use by equipment.

3.2 RARE PLANT TOPSOIL SALVAGE

- A. There is a limited area within the area shown on the plans as “partial fill” that may contain rare plants. Placement of fill in this area will be limited and will generally be directed by the Engineer’s Representative under the Directed Site Grading pay item.
- B. If directed, strip and salvage topsoil (roughly 12 inches in depth) from this area.
- B. Stockpile meadow topsoil containing rare plant populations separately from other stockpiled topsoil.
- C. The Engineer’s Representative will approve the appropriate stockpile location where it will remain undisturbed until final placement.
- D. Once topsoil with rare plant populations has been stockpiled, do not move, disturb, or cover with more soil, because repeated moving or disturbance of soil with rare plant populations may disrupt an entire generation of plants.

3.3 DECOMMISSIONING AND RESTORATION OF ROADS, ROUTES, AND STAGING

A. Meadow Access Route rehabilitation.

- i. After completion of use of the access routes, the Contractor shall remove construction mats and restore areas disturbed by equipment.
- ii. If substantial compaction (e.g., greater than 80% proctor in the top two feet of soil, see Section 31 23 00) is present at the track mats contractor shall decompact up to 3.0 acres of the area of disturbance, per Section 31 23 00, and as directed by the Engineer’s Representative.
- iii. If fill is required to bring the area up to grade and specified proctor as determined by the Engineer’s Representative, Contractor shall salvage up to 3.0 acres top soil (roughly 12 inches in depth). Set topsoil on pile aside, then place fill, replace topsoil back on top, and perform Seeding, Erosion blanket placement, and Planting as described in section 32 92 19, section 32 92 00, and section 32 92 00.
- iv. Replacement of stockpiled topsoil containing rare plant populations will be determined by the Engineer’s Representative. Topsoil containing rare plant populations will only be placed between August and November each year, after germination is complete.
- v. Surfaces designated to receive rare plant salvaged topsoil application shall be decompacted and smoothed (without ruts or surface irregularities that could contribute to concentrated waterflow downslope) just before the topsoiling operation.
- vi. Erosion control blanket will be placed over decompacted access routes in locations indicated in the plans.

B. Upland route, road, and staging rehabilitation

- i. Obliterate roadways and staging areas designated for decommissioning by restoring to approximate original ground contours. Keep excavated material within the original construction limits. Finish slopes to provide gradual transitions in slope adjustments without noticeable breaks.
- ii. Decompact upload routes, roads, and staging areas to 24 inch depth. Provide a smooth finished surface for revegetation and application of wood chip mulch.

C. Waterbars and Barriers. Construct barriers to prevent vehicle access and waterbars as shown in the plans.

SECTION 01 57 23 - STORM WATER POLLUTION PREVENTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Federal Regulations for controlling discharges of pollutants (including chemicals, erodible material, and trash) from municipal separate storm sewer systems, construction sites, and industrial activities, were brought under the National Pollution Discharge Elimination System (NPDES) permit process by amendments to the Clean Water Act (CWA), and promulgation of federal stormwater regulations issued by the United States Environmental Protection Agency (USEPA). The USEPA uses amount of ground disturbance as a measure of a project potential to generate pollution from erosion. NPDES Phase I regulates discharges from construction sites that disturb 5 acres or more. NPDES Phase II regulations expand existing General Permit requirements under Phase I to include/regulate discharges from construction sites that disturb land equal to or greater than one (1) acre and less than 5 acres, known as Small Construction Activity. Construction disturbances 1 acre and above typically require a formal NPDES permit and a formal Stormwater Pollution Prevention Plan (SWPPP) must be submitted to Agency(ies) with Jurisdiction for review and approval.
- B. Work of this section consists of implementing Storm Water Pollution during construction activities through compliance with NPDES permit program.

1.2 DEFINITIONS

- A. Environmental Pollution and Damage: The presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances; or degrade utility of the environment for aesthetic, cultural, or historical purposes.
- B. National Pollution Discharge Elimination System (NPDES) Phase I: Regulates discharges from construction sites that disturb 5 acres or more.
- C. NPDES Phase II: Regulations expand existing General Permit requirements under Phase I to include and regulate discharges from construction sites that disturb land equal to or greater than one (1) acre and less than 5 acres, known as Small Construction Activity.
- D. Storm Water Pollution Prevention Plan (SWPPP): Developed and implemented stormwater management measures to protect surface water from pollutants during construction activities disturbing an acre or more in compliance with federal, state, and local requirements for permit approval under NPDES program.
- E. Surface Water: "In-channel water flow that originates upstream of the construction limits, and continues to the top of fill."
- F. Nuisance water: "Groundwater, or soil-water that may be exposed in puddles or pools of stream channels or gullies. Nuisance water does not have continuous flow through substantial portions of the construction limits."

1.3 SUBMITTALS

- A. Inspection Schedule: Submit schedule for inspection and monitoring of storm water pollution prevention measures.
- B. Erosion Control Products: Submit manufacturer's product information and installation recommendations for silt fence, filter fabric, erosion control blanket, and other materials and best management practices proposed for use on this project.

1.4 QUALITY ASSURANCE

- A. Contractor shall prepare and submit a plan for review and concurrence.
- B. Orientation Meeting: Contractor shall arrange and conduct an erosion and sediment control meeting/briefing to inform parties, scheduled to be on-site during project, of measures to be implemented for proper erosion and sediment control (may be included as part of Pre-Construction Meeting).
 - 1. Installation of silt fences, storm drain protection, and other forms of erosion and sediment control shall not begin until after this meeting has occurred.
- C. Pollution Prevention and Erosion Control Manager (QSP, may be the same as Environmental Manager): Contractor shall designate Pollution Prevention and Erosion Control Manager responsible for implementation, inspection, maintenance, and amendments to approved plan.
 - 1. Pollution Prevention and Erosion Control Manager shall be certified as a QSP and familiar with temporary storm water pollution prevention procedures and Best Management Practices and ensure emergency procedures and plan are updated as needed and available for inspection.
 - 2. When changes in approved plan are required, Pollution Prevention and Erosion Control Manager shall prepare and certify an amendment and submit to the American Rivers for review and concurrence.

PART 2 - EXECUTION

2.1 ENVIRONMENTAL PROTECTION

- A. Protection of Natural Resources: Comply with applicable regulations and these specifications. Preserve natural resources within project boundaries and outside limits of work performed under this Contract in their existing condition.
- B. Construction Zone: Arrange construction activities to minimize pollution (i.e., erosion, trash, etc.) to maximum practical extent.
 - 1. Clearing, excavation, and grading shall be limited to those areas of project site necessary for construction. Minimize area exposed and unprotected.
 - 2. Clearly mark and delineate limits of work activities.

3. Equipment shall not be allowed to operate outside limits of work or to disturb existing vegetation.
4. Excavation and grading shall be completed during dry season to maximum extent possible.
5. Material shall be stored away from locations where water is present to greatest extent practicable.

2.2 REGULATORY REQUIREMENTS

- A. Permits: Contractor shall co-sign required NPDES permits resulting in no impacts to scheduled work. Contractor shall account for possibility of significant lead time in scheduling and executing work.
1. Implement requirements of NPDES permit for erosion control due to storm water runoff during construction.
 2. Implement good housekeeping practices, inspections and record keeping.
 3. Prior to construction, Contractor and Subcontractors shall sign certifications (included in the plan) that they understand requirements of NPDES permit.
 4. Subcontractors shall comply with requirements of NPDES under supervision of Contractor.
 5. Accepted plan shall comply with terms and conditions of NPDES permit.
- B. Notification: Contractor shall notify American Rivers in writing (email) of these events:
1. Erosion and sediment control meeting/briefing.
 2. Following installation of required sediment control structures.
 3. Prior to removal of or modification to sediment control structures.
 4. Prior to removal of sediment control structures.

2.3 STORM WATER POLLUTION PREVENTION PLAN

- A. Review and Acceptance: The Contractor will jointly review draft SWPPP and agree to needed revisions. YNP's Qualified SWPPP Developer (QSD) will finalize the SWPPP and YNP will secure NPDES permit coverage for the project with the Contractor as co-signee. The final SWPPP will be the document enforced on the project.
1. .
 2. Contractor shall maintain current copy of SWPPP and associated records and forms at jobsite throughout duration of project.
 3. SWPPP shall be available for public inspection.
 4. SWPPP does not relieve Contractor of responsibility for compliance with any other applicable environmental regulations.
- B. Implementation: Implement SWPP as required throughout construction period and maintain erosion control elements in proper working order.
1. Do not perform clearing and grubbing or earthwork until SWPPP has been implemented.
- C. SWPPP (including inspection forms) and all data shall be provided to American Rivers after Substantial Completion of project.

2.4 SITE INSPECTIONS AND PLAN REVISIONS

- A. Inspections: Contractor and Engineer's Representative will perform a weekly inspection onsite.
 - 1. Inspection shall include disturbed areas not completely stabilized, areas used for storage of materials, locations where vehicles enter or exit site, and other erosion and sediment controls included in the Plan.
 - 2. Inspections shall be documented.
 - 3. Inspection forms shall be retained onsite in Plan notebook throughout construction period.
- B. SWPPP Revisions: It may be necessary to revise SWPPP during construction to make necessary improvements, revisions, or to respond to unforeseen conditions noted during construction or site inspections.
 - 1. Contractor and QSD will jointly review each revision to SWPPP before changes incorporated and implemented. QSD will then provide revised copy of SWPPP to the Contractor.
 - 2. Accepted modifications will be implemented within 7 calendar days following date of inspection when deficiencies or necessary corrections are first noted.
- C. Negligence: Provide additional temporary erosion and pollution controls made necessary by Contractor's errors or negligence at no additional cost to American Rivers.

2.5 HOUSEKEEPING AND SITE MANAGEMENT

- A. Store materials onsite in conformance to Federal, state, local, and manufacturer's regulations and specifications. Use Best Management Practices to minimize risk of materials coming into contact with environmental conditions (i.e. water and wind) that could disperse them.
- B. Manage solid waste in conformance to Federal, state, and local regulations. Best Management Practices should be used to minimize risk of materials coming into contact with environmental conditions (i.e. water and wind) that could disperse them.
- C. Include a spill prevention and control plan with provisions placed in SWPPP.
- D. Manage hazardous waste (including contaminated soil) in conformance to Federal, state, local and NPS regulations and guidelines.

2.6 EROSION CONTROL MEASURES

- A. Erosion control measures shall consist of Best Management Practices for storm water discharges, including silt fencing, barrier protectors, straw bales, temporary soil retention blankets, excelsior drainage filters, sediment traps and berms.
- B. Berms and excelsior drainage filters shall be used to form sediment traps and control run-on and run-off into other areas, including creeks, streams, marshes, access roads, well areas, and staging areas.

- C. Erosion control measures shall be used to contain only direct precipitation in construction zone. Contained water shall be allowed to percolate into ground or drain slowly through drainage filter sediment traps.
- D. Earthen sediment traps or holding ponds shall not be used unless accepted by Engineer's Representative.
- E. Reduce runoff velocity and direct surface runoff around and away from fuel containment, storage, and borrow areas.
- F. Divert surface runoff around and away from cut and fill slopes.
- G. Place drainage filters around catch basins to create sediment traps to control run-off from construction area.
- H. Excess water used for dust control shall be contained within demolition areas by erosion control measures.
- I. Contractor shall prevent deposition of materials onto paved areas. Contractor shall inspect paved areas for deposited materials daily and remove materials immediately.
- J. Furnish, install, maintain, and operate necessary control measures and other equipment necessary to prevent erosion as described in approved SWPPP.
- K. Before work begins, sufficient equipment shall be available on site to assure operation and adequacy of erosion control system can be maintained.

2.7 MAINTENANCE OF TEMPORARY FACILITIES

- A. Ensure erosion and sediment control structures remain effective throughout excavation and grading operations. Relocate structures as necessary.
- B. Inspect control structures after each significant rainfall. Promptly repair breaches which occur.
- C. Contractor shall remove entrapped sediment from behind excelsior drainage filter after each storm.

2.8 REPORTING

- A. If a discharge occurs or if project receives written notice or order from regulatory agency, Contractor shall immediately notify American Rivers and . Corrective measures shall be implemented immediately following discharge, notice, or order. The report to the American Rivers shall contain:
 1. Date, time, location, nature of operation, and type of discharge, including cause or nature of notice or order.
 2. Best Management Practices deployed before discharge event, or prior to receiving notice or order.

3. Date of deployment and type of Best Management Practices deployed after discharge event, or after receiving notice or order, including additional Best Management Practices installed or planned to reduce or prevent re-occurrence.
4. An implementation and maintenance schedule for affected Best Management Practices.

2.9 SEDIMENT DISPOSAL

- A. Sediment excavated from temporary sediment control structures shall be disposed on site with general fill, or with topsoil. Sediment shall be allowed to dry out as required before reuse.
- B. Contractor shall place sediment removed from traps and other structures where it will not enter a storm drain or watercourse and where it will not immediately reenter the basin.

2.10 REMOVAL OF TEMPORARY STORM WATER POLLUTION CONTROL MEASURES

- A. Temporary control measures shall be removed with permission of Engineer's Representative within 20 working days after final acceptance of project, and/or once grading is complete and slopes have stabilized.

END OF SECTION 01 57 23

SECTION 01 73 40 - EXECUTION

PART 1 - GENERAL

1.0 SUMMARY

- A. Section includes general procedural requirements governing execution of Work including:
 - 1. Construction layout
 - 2. Field engineering and surveying
 - 3. General installation of products
 - 4. Progress cleaning
 - 5. Protection of installed construction

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: Existence and location of site improvements and other construction indicated as existing are not guaranteed.
- B. Existing Utilities: Existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify existence and location of underground utilities and other construction affecting Work.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit Work properly.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Agreement documents and Field Conditions: Immediately on discovery of need for clarification of the Agreement documents caused by differing field conditions outside control of Contractor, submit request for information to Engineer's Representative in accordance with Section 01 31 00 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Verify layout information shown on Drawings before proceeding to lay out Work. Notify Engineer's Representative promptly if discrepancies are discovered.

- B. General: Engage a land surveyor to lay out Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Notify Engineer's Representative when deviations from required lines and levels exceed allowable tolerances.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Record Log: Maintain log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning Work. Preserve and protect permanent benchmarks and control points during construction operations. Controls destroyed by Contractor will be replaced by Contractor at their expense.
 - 1. Existing Monuments: All benchmarks, land corners, and triangulation points, established by other surveys, existing within construction area shall be preserved. If existing monuments interfere with Work, secure written permission before removing them.
- B. Benchmarks: Establish and maintain a minimum of **two** permanent benchmarks on Project site, referenced to data established by survey control points.
 - 1. Record benchmark locations, with horizontal and vertical data, on As-Build records and drawings.

3.5 INSTALLATION

- A. General: Locate Work and components of Work accurately in correct alignment and elevation, as indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions for best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

- F. Templates: Obtain and distribute to parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Hazardous Materials: Use products, cleaners, and installation materials not considered hazardous.

3.6 PROGRESS CLEANING

- A. General: Clean Project site, work areas, and common areas daily. Coordinate progress cleaning for joint-use areas where more than one Contractor has worked. Enforce requirements strictly. Dispose of materials lawfully.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to level of cleanliness necessary for proper execution of Work.
- D. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- E. Final Cleaning: At completion of Work, remove remaining waste materials, rubbish, tools, equipment, machinery, and surplus materials. Leave Project clean.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

END OF SECTION 01 73 40 40

SECTION 01 73 50 – RANGE RIDER

PART 1- GENERAL

1.0 SUMMARY

The Forest Service lands around the project site are within an active Forest Service grazing allotment. The Forest Service portion project site is generally within and managed as part of that same grazing allotment but will be temporarily excluded from grazing activities during construction of the project and during a 3-5 year post project recovery period.

The project includes the installation of temporary and permanent fencing to exclude trespass cattle from the project site during construction. There is also existing fencing around the project site, and along the interagency (Yosemite National Park and Stanislaus National Forest) boundary, with different sections in various levels of repair.

The Contractor shall provide a designated Range Rider for this project. The work includes all prevention and management of cattle trespassing into the work area. This will include monitoring of existing and installed fences, maintenance and repair of existing and installed fences during contract period, escorting trespassing cattle out of work area as necessary, and communication with Stanislaus National Forest Range Program Manager.

1.1 DEFINITIONS

Low-Stress Livestock Techniques – best management practices for handling cattle based on animal psychology as outlined in Principles for Low Stress Cattle Handling by Temple Grandin (1999). Available digitally at: <https://digitalcommons.unl.edu/rangebeefcowsymp/134/>

PART 2 – PRODUCTS

2.1 MATERIALS

1. Fencing and Gate Repair

All fencing and gate repair materials will match the original materials used for construction or their approved equal, as approved by the Engineer's Representative. Repair materials are considered incidental to this work and no additional payment will be made.

PART 3- EXECUTION

3.1 SUBMITTALS

1. The Contractor shall designate a Range Rider for this project prior to the Pre-Construction Conference to be approved by the Engineer's Representative and the Forest Service in collaboration with the grazing lessee. The Contractor shall submit the following information:
 - a. Name
 - b. Contact information
 - c. Qualifications and Experience and two professional references

2. The Forest Service shall approve of the submitted Range Rider designee prior any work being undertaken. If, for any reason, the Engineer's Representative, Forest Service, or lessee do not approve the designated Range Rider, they shall provide the Contractor with corrective recommendations and require a new candidate be submitted.

3.2 GRAZING INFRASTRUCTURE MONITORING

1. Range Rider will complete daily monitoring of all existing and installed fencing and gates and document monitoring work and any deficiencies or necessary repairs in a daily log.
2. Work under other sections may require frequent traffic through cattle gates, Range Rider will monitor and close gates as needed to prevent trespass cattle into the work area.

3.3 INFRASTRUCTURE REPAIR

1. Range Rider will repair existing and installed fencing, gates, or other infrastructure to prevent trespassing cattle from entering the work area. This may include cutting or removing fallen logs and branches.
2. Any necessary repairs will be made within one business day of initial discovery.
3. Repairs will be made using the original designs and materials to the extent possible. Where the original designs are unclear, the Engineer's Representative shall provide direction.

3.4 HERDING TRESPASS CATTLE

1. Range Rider will remove any trespassing cattle from the entire work area and onto Forest Service permitted grazing lands. Cattle grazing is prohibited on NPS lands, and Range Rider shall not herd trespassing cattle onto those lands in any circumstances. Only the approved Range Rider is permitted herd cattle out of the work area. Removal will occur as soon as possible upon discovery. Only safe and humane or low-stress livestock techniques will be used to remove the livestock from the work area.
2. Range Ride will monitor for trespassing cattle six days per week (Monday to Saturday) regardless of work covered by other sections progressing on those days.

3.4 REPORTING

1. Range Rider will inform the Forest Service Range Program Manager of any trespass cattle entry into the work area within 1 business day of discovery and removal from the work area. Range rider shall keep a record of trespass cattle incidents to include the date, location, and number of cattle removed.
2. Contractor shall submit Range Rider's daily logs to Engineer's Representative on a weekly basis.

3.5 WORK STOPPAGE AND DAMAGE

1. Contractor take steps to ensure that cattle entry does not impede the performance of the contract. The Contractor is solely responsible for ensuring cattle trespass does not hinder the performance of the contract. No additional Contract Price will be awarded due to cattle trespass.

2. Contractor shall repair any damages to the work caused by cattle trespass during the term of the contract at no cost to American Rivers.

END OF SECTION

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.0 SUMMARY

- A. Section includes administrative and procedural requirements for:

1. Disposing of nonhazardous demolition and construction waste.

1.1 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, or repair operations. Construction waste includes packaging.
- B. Solid Waste: Garbage, debris, sludge, or other discharged material (except hazardous waste) including solid, liquid, semisolid, or contained gaseous materials resulting from domestic, industrial, commercial, mining, or agricultural operations.
- C. Debris: Non-hazardous solid waste generated during construction, demolition, or renovation of a structure which exceeds 2.5 inch (60 millimeter) particle size that is: a manufactured object; plant or animal matter; or natural geologic material (e.g. cobbles and boulders). A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if mixture is comprised primarily of debris by volume, based on visual inspection.
- D. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- E. Environmental Pollution and Damage: Presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances; or degrade utility of environment for aesthetic, cultural, or historical purposes.
- F. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.
- G. Hazardous Materials: Material regulated as a hazardous material in accordance with 49 CFR 173 (Code of Federal Regulations), requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.1200, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have potential to meet the definition of Hazardous Waste in accordance with 40 CFR 261.
- H. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

1.2 PERFORMANCE REQUIREMENTS

- A. General: Project shall minimize creation of construction, deconstruction, and demolition waste to protect and restore natural habitat and resources. Minimize factors contributing to waste such as over packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination.
- B. If waste materials encountered during deconstruction/demolition or construction phase are found to contain lead, asbestos, polychlorinated biphenyls (PCBs), (such as fluorescent lamp ballasts), or other harmful substances, they are to be handled and removed in accordance with local, state, and federal laws and requirements concerning hazardous waste.

1.3 SUBMITTALS

- A. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 IMPLEMENTATION

- A. Provide handling, containers, storage, signage, transportation, and other items as required to manage waste during entire duration of Agreement.
- B. Contractor shall establish contacts with local recycling and reuse companies to set up lines of responsibility. Contractor shall be responsible for coordination in terms of identifying materials, pickup schedules, and standard quality for recycled materials.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management and food storage procedures, as appropriate for the Work occurring at Project site.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- E. Separation facilities:
 - 1. Place waste and recycling bins near each other, and close to point of waste generation but out of traffic pattern.
 - 2. Keep recycling and waste bin areas neat, clean, and clearly marked in order to avoid co-mingling of materials.

3. Protect bins during non-working hours from off-site contamination.
4. Check garbage dumpsters periodically for recyclables being thrown away and undocumented materials that could be recycled.
5. All receptacles and dumpsters shall be visibly marked on all sides to read "NO FOOD WASTE – USE BEAR PROOF CONTAINERS."

3.2 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose in landfill or incinerator acceptable to authorities having jurisdiction.
 1. Except as otherwise specified, do not allow waste materials to accumulate on-site.
 2. Remove and transport debris in manner preventing spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off NPS or US Forest Service property and legally dispose of them.

END OF SECTION 01 74 19

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.0 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including:
 - 1. Project Record Drawings (As Built Records and Drawings)
 - 2. Closeout Submittals
 - 3. Substantial Completion and Final Inspection
 - 4. Permit Closure and Transfer
 - 5. Final Acceptance of the Work
 - 6. Warranties

1.1 PROJECT RECORD DRAWINGS

- A. Maintain one complete full-size set of contract drawings and one full-size set of vendor-supplied drawings. Clearly mark changes, deletions, and additions using NPS drafting standards to show actual construction conditions. Show additions in red, deletions in green and special instructions in blue.
- B. Keep record drawings current. Make record drawings available to Engineer's Representative (ER) for inspection at the time of monthly progress payment requests. If project record drawings are not current, Engineer's Representative may retain an appropriate amount of progress payment.
- C. Submit complete record drawings on completion of total project. Include shop drawings, sketches, and additional drawings to be included in final set, with clear instructions showing the location of these drawings.

1.2 CLOSEOUT SUBMITTALS

- A. A list of closeout requirements has been attached at the end of the Division 1 Specifications for your convenience. The intent is to provide an overall summary of requirements and not a comprehensive list. Terms and conditions of the contract require satisfaction of requirements of individual specification sections regardless of what is shown on the list. Submit the following before requesting final inspection:
 - 1. Specific warranties, guarantees, workmanship bonds, final certifications, and similar documents as applicable.

1.3 FINAL INSPECTION, SUBSTANTIAL COMPLETION AND ACCEPTANCE PROCEDURES

- A. Request final inspection in writing when project or designated portion of project is substantially complete. Engineer's Representative will proceed with inspection within 5 business days of

receipt of written request or will advise Contractor of items that prevent project from being substantially complete.

- B. If work is determined substantially complete, following final inspection, Engineer's Representative will prepare Punch List and American Rivers will issue a Letter of Substantial Completion.
- C. If work is not determined substantially complete following final inspection, Engineer's Representative will notify Contractor in writing. Contractor shall request new final inspection after completing work.
- D. Contractor shall complete Punch List within 10 calendar days, documented weather permitting.
- E. If Contractor completes items of work on Punch List and contractually required items, Engineer's Representative will issue Letter of Final Acceptance of Work.
- F. If Contractor fails to complete work within the time frame included in the Agreement, Engineer's Representative may correct work with an appropriate reduction in contract price or charge for re-inspection costs. See Liquidated Damages section of Agreement.

1.4 PERMIT CLOSURE AND TRANSFER

- A. When work covered by the Contractor's permits is complete, create list of tasks required to close or transfer permits to Park. Submit to Engineer's Representative for approval.
- B. After substantial completion and Punch List completion, permits shall be closed and documented by Agency(ies) with Jurisdiction for the permit.
- C. If responsibility for permits is to be transferred to Park, Park shall be informed of permit provisions completed and responsibilities transferring to Park staff.

SECTION 02 41 13 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.0 RELATED DOCUMENTS

Drawings and general provisions of the Agreement, and other Division 01 Specification Sections, apply to this Section.

1.1 SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected site elements.
2. Salvage of existing items to be reused or recycled.

1.2 DEFINITIONS

- A. Remove and Salvage: Detach items from existing construction and deliver them to Engineer's Representative.
- B. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to American Rivers, Yosemite National Park, or the Stanislaus National Forest that may be encountered during selective demolition remain American Rivers, Yosemite National Park, or the Stanislaus National Forest's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to the Engineer's Representative.
1. Coordinate with Engineer's Representative's archaeologist or historical adviser, who will establish special procedures for removal and salvage.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI A10.6 and NFPA 241.

1.5 PROJECT CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by Engineer's Representative as far as practical.
- B. Notify Engineer's Representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Engineer's Representative.
- D. Storage or sale of removed items or materials on-site is not permitted.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- C. When unanticipated elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Engineer's Representative.
- D. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or preconstruction videotapes.
- E. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."

3.3 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated in the drawings.
- B. Removed and Salvaged Items:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to Engineer's Representative.
 - 4. Transport items to storage area designated by Engineer's Representative.
 - 5. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
 - 1. Clean and repair items to functional condition adequate for intended reuse.
 - 2. Protect items from damage during transport and storage.
 - 3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer's Representative, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.4 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain American Rivers, Yosemite National Park, or the Stanislaus National Forest's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 - 4. Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off YNP and STF property and legally dispose of them.

3.5 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

SECTION 31 05 19 – GEOTEXTILE & GEOGRID

PART 1. GENERAL

1.1 SECTION INCLUDES

- A. Geotextile to stabilize and reinforce an aggregate cover material (subbase, base, select embankment, etc.)

1.2 REFERENCES

A. AASHTO Standards:

1. T088-10-UL - Particle Size Analysis of Soils
2. T090-00-UL - Determining the Plastic Limit and Plasticity Index of Soils
3. T099-10-UL - The Moisture-Density Relations of Soils Using a 5.5lb (2.5 kg) Rammer and a 12in (305 mm) Drop.
4. M288 - Geotextile Specification for Highway Applications

B. American Society for Testing and Materials (ASTM):

1. D123 - Standard Terminology Relating to Textiles
2. D276 - Test Method for Identification of Fibers in Textiles
3. D422 - Standard Test Method for Particle-Size Analysis of Soils
4. D4354 - Practice for Sampling of Geosynthetics for Testing
5. D4355 - Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
6. D4439 - Terminology for Geotextiles
7. D4491 - Test Methods for Water Permeability of Geotextiles by Permittivity
8. D4595 - Test Method for Tensile Properties of Geotextiles by the Wide- Width Strip Method
9. D4751 - Test Method for Determining Apparent Opening Size of a Geotextile
10. D4759 - Practice for Determining the Specification Conformance of Geosynthetics
11. D4884 - Standard Test Method for Strength of Sewn or Thermally Bonded Seams of Geotextiles
12. D4873 - Guide for Identification, Storage, and Handling of Geotextiles
13. D5321 - Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method
14. D6241 - Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe
15. D6706 - Standard Test Method for Measuring Geosynthetic Pullout Resistance in Soil

C. Geosynthetic Accreditation Institute (GAI) - Laboratory Accreditation Program (LAP)

D. International Standards Organization (ISO) - 9001:2015

E. National Transportation Product Evaluation Program (NTPEP)

1.3 DEFINITIONS

- A. Minimum Average Roll Value (MARV): Property value calculated as typical minus two standard deviations. Statistically, it yields a 97.7 percent degree of confidence that any sample taken during quality assurance testing will exceed value reported.

1.4 SUBMITTALS

- A. Submit the following:
 - 1. Certification: The contractor shall provide to the Engineer's Representative a certificate stating the name of the manufacturer, product name, style number, and chemical composition of the filaments or yarns and other pertinent information to fully describe the geotextile. The Certification shall state that the furnished geotextile meets MARV requirements of the specification as evaluated under the Manufacturer's quality control program. The Certification shall be attested to by a person having legal authority to bind the Manufacturer. Certifications from Private Label distributors will not be accepted.
 - 2. If an alternate product is submitted full scale performance testing performed by an independent testing agency shall be that quantifies the structural benefit of the geotextile. The benefit must meet or exceed the benefit of the design geotextile.
 - 3. Coefficient of Interaction (CI) test results performed by a lab with GRI accreditation should be provided to confirm conformance to the specified value.
 - 4. Manufacturer's installation Guidelines shall be provided.
 - 5. One 1' x 1' sample shall be provided.
 - 6. Quality Standards: The contractor shall provide to the Engineer the Manufacturer's Quality Control Plan.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. The geotextile Manufacturer shall have all the following credentials:
 - a. ISO 9001:2015 Quality Management System
 - b. Geosynthetic Accreditation Institute (GAI) Laboratory Accreditation Program (LAP)
- B. The geotextile Manufacturer shall have a GAI-LAP accredited laboratory at the location of production capable of performing the ASTM tests as outlined in the specification.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Geotextile labeling, shipment, and storage shall follow ASTM D4873. Product labels shall be color-coded to specifically identify each product and clearly show the Manufacturer's name, style name, and roll number.
- B. Each geotextile roll shall be wrapped with a material that will protect the geotextile from damage due to shipment, water, sunlight, and contaminants.
- C. During storage, geotextile rolls shall be elevated off the ground and adequately covered to protect them from the following: site construction damage, precipitation, extended ultraviolet radiation including sunlight, chemicals that are strong acids or strong bases, flames including welding

sparks, excess temperatures, and any other environmental conditions that may damage the physical property values of the geotextile.

PART 2. PRODUCTS

2.1 MATERIALS

A. Geotextile:

1. The geotextile with orange identification yarns and super high-tenacity polypropylene yarns with a weave pattern to maximize strength, water flow, soil interaction and soil retention. The yarns shall be from high-tenacity long-chain synthetic polymers composed of at least 95 percent by weight of polyolefins or polyesters. They shall form a stable network such that the filaments or yarns retain their dimensional stability relative to each other, including selvages.
2. The geotextile shall meet the requirements of Table 1. All numeric values in Table 1 except AOS represent Minimum, MARV, or Typical in the specified direction. Values for AOS represent maximum average roll values.

Table 1: Nonwoven Geotextile

Property	ASTM	Class A
Grab Tensile Strength, lbs.	D 4632	300
Grab Elongation, percent	D 4632	>15
Puncture Resistance, lbs.	D 6241	500
Trapezoid Tear, lb.	D 4533	80
Flux, gal/min/ft ²	D 4491	25
Apparent Opening Size, (AOSUS sieve)	D 4751	30
Ultraviolet Degradation, percent	D 4355	70
Permittivity, sec. -1	D 4491	.4

B. Geogrid

1. Geogrid shall be Tensar Triax or equal. Note that biaxial geogrids will not be accepted.

PART 3 EXECUTION

3.1 PLACEMENT

- B. Before placing the geotextile, grade the area smooth and remove stones, roots, sticks, or other matter that might prevent the geotextile from completely contacting the soil.
- C. Place the geotextile loosely and lay it parallel to the direction of water movement. The Engineer’s Representative may require pinning or stapling to hold the geotextile in place. Join separate pieces of geotextile by overlapping or sewing. Overlap the geotextile in the joints at least 24 inches in the direction of flow. After placing, do not expose the geotextile longer than 48 hours before covering. Cover damaged areas with a patch of geotextile that overlaps 3 feet in all directions. Place riprap from the base of the slope upward. The engineer will determine the freefall height of riprap, but in no case should this height exceed six inches

SECTION 31 11 11 - CLEARING & GRUBBING

PART 1 – GENERAL

1.1 SUMMARY

Section Includes: Requirements for clearing of all areas within the Project Area, including work designated in permits and other agreements, in accordance with the requirements of Division 1.

1.2 DEFINITIONS

- A. Clearing: Clearing is the removal from the ground surface and disposal, within the designated areas, of trees, brush, shrubs, down timber, decayed wood, other vegetation, rubbish.
- B. Grubbing: Grubbing is the removal and disposal of all stumps, buried logs, roots larger than 1-1/2 inches, matted roots and other organic materials.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 PREPARATION

A. Protection

1. Provide barricades, coverings, and other protection necessary to prevent damage to existing improvements and existing vegetation to remain
2. Protect improvements on adjoining properties as well as those on YNP and STF property.
3. Protect trees and shrubs within the construction limits that are delineated or are marked in the field to be saved from defacement, injury and destruction.
 - a. Work within the limits of the tree drip line with extreme care using either hand tools or equipment that will not cause damage to trees.
 - b. Do not smother trees by stockpiling construction materials or excavated materials within drip line.
 - c. Avoid foot or vehicular traffic or parking of vehicles within drip line.
 - d. Provide temporary protection as required to prevent damage to trees and vegetation to be left in place.
 - e. Do not fasten or attach ropes, cables, or guy wires to trees without permission. When such permission is granted, protect the tree before making fastening or attachments by providing burlap wrapping and softwood cleats.
 - f. Do not disturb or cut oak tree roots unnecessarily. Do not cut oak roots 1-1/2 inches and larger unless approved by the Engineer's Representative.
 - 1) Provide protection for oak roots over 1-1/2 inch diameter that are cut during construction operations.
 - 2) Coat cut faces with an acceptable coating especially formulated for horticultural use on cut or damaged plant tissues.

- 3) Temporarily cover all exposed oak roots with wet burlap to prevent roots from drying out.
- 4) Provide earth cover as soon as possible.

3.2 EXECUTION

A. Tree Removal

1. The contractor shall flag all trees to be removed. Flagged trees shall be verified by the Engineer's Representative prior to removal as some trees may provide habitat to sensitive species. The Engineer's Representative may flag specific trees that are to be protected throughout the project.
2. Remove trees within areas that are to be graded and/or disturbed as shown in the Drawings and as required for construction of access, fencing, borrow areas, and staging
3. Trees removed within Borrow Area 2 that are greater than 24" in diameter shall be stockpiled rather than chipped into soil amendment. Stockpiled trees shall be spread randomly within the finished borrow area.
4. Protect trees and shrubs designated/flagged to remain within the graded/disturbed areas.
5. Avoid damaging trees outside of areas that are to be disturbed.
6. Remove hazard trees that may become identified during construction, or that become hazard trees, based on staging and construction means and methods. The Project Area is partially located in previously burnt areas. Existing hazard trees have not been identified and new hazard trees develop on a regular basis.
7. The Contractor shall include as part of their safety plan a process by which hazard trees are identified and subsequently removed.
8. Before removing a hazard tree consult with the Engineer's Representative. Some hazard trees may be felled and left in place rather than removed.

B. Clearing and Grubbing

1. Clear from surface of existing ground within construction limits all trees and shrubs, brush, downed timber, rotten wood, vines, grasses and herbaceous growth, except those items specifically designated to be salvaged or to remain either on the plans or as marked in the field.
2. Salvage of wetland sod and willow root wads (Section 32 96 26) within fill limits should occur concurrently with clearing and grubbing.
3. Grub (remove) stumps, roots, root mats, logs and debris encountered within limits of construction, as follows:
 - a. In soil borrow areas, totally grub, except where specifically noted by Engineer's Representative or in the Drawings.
 - b. In fill areas, where fill is to be less than 2 feet (Finish Grade), totally grub ground, except where specifically noted.
 - c. In fill areas, where fill is to be 2 feet or more in depth (within the Subgrade), remaining stumps may be left no higher than 6 inches above existing ground surface (no grubbing necessary), except where specifically noted in Drawings or by Engineer's Representative.

C. Chipping of Trees, Stumps, and Shrubs

1. Cleared and grubbed materials, including trees, shrubs, and stumps shall be ground into chips, and used as soil amendment as described in Section 32 92 00.

3.3 ACCEPTANCE

1. Repair or replace trees and vegetation damaged by construction operations.
 - a. Repair to be performed by a qualified tree surgeon.
 - b. Remove trees which cannot be repaired.
 - c. Replace with new trees of minimum 4 inch caliper.
 - d. Repairs or replacements are to be completed in a manner acceptable to American Rivers, YNP, and STF at no additional expense to American Rivers.

END OF SECTION 31 11 11

SECTION 31 22 00 - TOPSOILING AND FINISH GRADING

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Topsoil removal, stockpiling, and replacement in borrow and staging areas after excavation work is completed.
- B. Finished Grading through fill areas, borrow areas, and all other areas disturbed in the course of the work.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Topsoil: Salvaged and stockpiled original borrow area surface soil. Topsoil is defined as the upper 6 inches of organic surface soil reasonably free of subsoil, clay lumps, stones and other objects over 6 inches diameter, and without weeds, large roots or limbs, and other objectionable material.

PART 3 – EXECUTION

3.1 TOPSOIL REMOVAL AND STOCKPILE

- A. Excavate the top 6 inches of topsoil from borrow areas, in manner to prevent intermingling with underlying mineral subsoil or objectionable soil material.
- B. Where trees within the work limits are indicated to remain (i.e. not removed), topsoil removal shall not encroach upon the main root system. and a buffer equal to the drip zone of the tree shall be left unaltered.
- C. Stockpile topsoil within or adjacent to each borrow area.
- D. Construct storage piles to freely drain surface water.
- E. Construct piles to minimize disturbance to the forest surrounding the borrow areas
- F. Do not pile topsoil within driplines or against trees with a diameter at breast height of greater than 12 inches.
- G. Construct piles as high as practicable, but no taller than 20 feet, to minimize ground area footprint. Topsoil stockpiles shall be separate from each other and from other excess and unsuitable material piles.
- H. Provide erosion control for stockpiles in accordance with SWPPP and Section 01 57 23. Stockpiles shall be watered down periodically by the Contractor or covered as necessary to mitigate the formation of windblown dust.
- I. Maintain all stockpiles free of weeds.

3.2 ROUGH GRADE REVIEW

- A. Rough grading to be reviewed and approved by Engineer's Representative prior to placing topsoil or finished grading.

3.3 PLACING TOPSOIL IN BORROW AREAS

- A. Do not place topsoil when subgrade is either wet or frozen enough to cause clodding.
- B. Surfaces designated to receive a topsoil application shall be lightly scarified just before the application.
- C. Apply and spread topsoil to depth of 0.3 feet plus/minus from required elevation for all disturbed earth surfaces within borrow areas.
- D. Make finished surface free of stones, sticks or other material 6 inch or more in any dimension.
- E. Make finished surface smooth within 0.3 foot tolerance and true to required grades as shown on Drawings without ruts or surface irregularities that could contribute to concentrated waterflow downslope.
 - 1. Spread topsoil evenly and grade to elevations and slopes shown. Hand rake areas inaccessible to machine grading.
 - 2. Match existing topography and create a natural appearance, as directed by the Engineer's Representative.
- F. For additional groundcover (e.g., to achieve requirements of the SWPPP), spread litter and duff evenly where available as specified by the Engineer's Representative; where litter and duff are not approved, spread woodchips evenly on areas of bare ground at a target depth of 1 inch and not more than 2 inches unless approved by the Engineer's representative, to cover no less than 70% of the surface area.
- G. Topsoil shall not be compacted beyond 80% proctor.
 - 1. If topsoil becomes overcompacted, it must be decompacted by ripping or similar procedure until 80% Proctor or less.
- H. Restore areas occupied by stockpiles to condition of finished borrow area.
 - 1. Do not disturb underlying native soil.
 - 2. If native soil surface layer of organic material (needles, small branches, plant debris, etc.) is taken when removing the overlying topsoil stockpile, hand rake a layer of organic material over the denuded area from surrounding forest floor.
- I. No vehicle traffic will be allowed across finished grade surfaces

3.4 FINISHED GRADING IN FILLED GULLY

- A. Correct, adjust and/or repair rough graded areas as directed by the Engineer's Representative.
 - 1. Cut off mounds and ridges.
 - 2. Fill gullies and depressions.
 - 3. Perform other necessary repairs.
 - 4. Bring all subgrades to specified contours, even and properly compacted.

- B. Loosen surface to depth of 18 inches, minimum, through ripping or other means as approved by Engineer's Representative.
- C. Remove all stones and debris on surface over 6 inches in any dimension.
- D. Conduct minor topographic grading as directed by the Engineer's Representative.
 - 1. This may include smoothing out existing rills and gullies, select placement of fill, constructing small berms and diversions, and adjusting the final grade to allow for drainage to achieve the goals of the project.
 - 2. Minor topographic grading should occur concurrently with placement of Salvaged Sod.
- E. Finish grading tolerance: 0.3 feet plus/minus from required elevations. as shown in the Drawings or as directed by Engineer's Representative in the field. Tolerance of Finish Grading is in relation to topsoil surface, and excludes litter and duff, erosion blanket, and revegetation treatments.

3.5 ACCEPTANCE

- A. Make test holes where directed, to verify proper placement and thickness of topsoil.
- B. Upon completion of topsoiling, obtain Engineer's Representative acceptance of grade and finished surface.

END OF SECTION 31 22 00

SECTION 31 23 00 - EXCAVATION & FILL

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Section Includes: Perform all excavation, shoring, dewatering, fill backfilling, compaction and grading necessary or required for the construction of the work as covered by these Specifications and indicated on the Drawing. The excavation shall include, without classification, the removal and disposal of all materials of whatever nature encountered, including water and all other obstructions that would interfere with the proper construction and completion of the required work.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM).
 1. ASTM D854-10 - Specific Gravity.
 2. ASTM D1557-12, Method A or C - Laboratory Compaction.
 3. ASTM D1556-07 or ASTM D2922-05 (2007) - In Place Density.
 4. ASTM D422-63 (2007) - Particle Size Analysis of Soils.
 5. ASTM D4318-10e1 - Plastic Limit and Plasticity Index.
 6. ASTM D2487-11 - Soil Classification.
 7. ASTM D3017-05 - In-Place Moisture Content.

1.3 DEFINITIONS

- A. Excavation: Removal of material encountered to indicated subgrade elevations and subsequent disposal of materials removed. Excavation material is unclassified.
- B. Unauthorized Excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction by the Engineer's Representative. Unauthorized excavation shall be at the Contractor's expense.
- C. Additional Excavation: When excavation has reached required subgrade elevations the Contractor shall notify the Engineer's Representative who will inspect conditions. If the Contractor encounters unsuitable materials at the required subgrade elevations Contractor shall carry excavations deeper and replace excavated material as directed by the Engineer's Representative. Removal of unsuitable material and its replacement, as directed, is part of this Agreement.
- D. Backfilling: Placement of fill soil, which shall be uniformly compacted to the required density.
- E. Borrow Excavation: Soil material that is excavated at designated on-site borrow areas for use as fill. All borrow material must be able to pass a 6 inch screen prior to Soil Amendment (Section 32 92 00) and use as Fill.
- F. Fill: Soil material which is placed as shown in the plans.
- G. Relative Compaction: In-place dry density divided by the maximum dry density laboratory compaction express as a percentage
- H. Rock Excavation: Excavation of igneous, metamorphic or sedimentary rock or hardpan which cannot be excavated without continuous drilling or continuous use of a ripper or other special equipment. Excavation of boulders of 1/2-cubic yard or more in volume.
- I. Structure: A building, retaining wall, tank, footing, slab or other similar construction.
- J. Base flow: The minimum flow of a creek. Base flow does not include flood flow from

rain and snow melt runoff events.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23 "Submittal Procedures."
- B. Submit the following under the Product Information category.
 - 1. Samples and Test Results: Furnish, without additional cost to the American Rivers, such quantities of import materials as may be required by the Engineer's Representative for test purposes. Cooperate with the Engineer's Representative and furnish necessary facilities for sampling and testing of all material and workmanship. Submit test results for import materials. Tests shall be performed within sixty (60) days of the submission. All material furnished and all work performed shall be subject to rigid inspection, and no material shall be delivered to the site until it has been favorably reviewed by the Engineer's Representative, or used in the construction work until it has been inspected in the field by the Engineer's Representative.
 - 2. Dewatering Plan-Contractor to submit dewatering and diversion plan to American Rivers within 10 days of the Pre-Construction Conference. .

1.5 QUALITY ASSURANCE

- A. Source Quality Control: Test import materials proposed for use to demonstrate that the materials conform to the specified requirements. Tests shall be performed by an independent testing laboratory. The Contractor shall be responsible for hiring an independent testing laboratory.
- B. Field Quality Control:
 - 1. The Engineer's Representative will:
 - a. Review material test results on materials proposed for use.
 - b. Inspect foundations, site grading and borrow operations.
 - c. Inspect placement and compaction of fill.
 - 2. Contractor shall excavate holes for in-place soil sampling. Contractor shall be responsible for costs of additional inspection and re-testing resulting from noncompliance.
- C. Testing Methods:
 - 1. Specific Gravity: ASTM D854-10.
 - 2. Laboratory Compaction: ASTM D1557-12, Method A or C.
 - 3. In-Place Density: ASTM D1556-07 or ASTM D2922-05 (2007).
 - 4. Particle Size Analysis of Soils: ASTM D422-63 (2007).
 - 5. Plastic Limit and Plasticity Index: ASTM D4318-10e1.
 - 6. Soil Classification: ASTM D2487-11.
 - 7. In-Place Moisture Content: ASTM D3017-05.

1.6 PRESERVATION OF NATURAL FEATURES

- A. Confine all operations to work limits of the project. Heavy equipment will be confined to use on the access routes, Borrow Areas, Staging Areas, and work limits, or as determined by the Engineer's Representative. Avoid unnecessary soil compaction, disturbance of ground cover, and creation of wheel ruts. Restore damaged areas, repairing or replacing damaged trees and plants, at no additional expense to the American Rivers. Do not fasten ropes, cables, or guys to existing features. All equipment shall be thoroughly pressure washed prior to transport to the project to prevent unintentional importation of seed or soil materials. Contractor shall allow for Engineer's Representative to inspect equipment to assure that it is clean prior to entering project site... Equipment containing seed or soil materials may be turned around to be re-cleaned at Contractor's expense.

1.7 HAULING RESTRICTIONS

- A. Comply with all legal load restrictions in the hauling of materials. Load restrictions on park roads are identical to the state load restrictions with such additional regulations as may be imposed by the Park Superintendent or Forest Supervisor.

1.8 EXPLOSIVES

- A. The use of explosives will not be permitted on this project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CONTROL OF WATER

- A. The Contractor shall be responsible for furnishing temporary drainage facilities to convey or dispose of groundwater and surface water falling on or passing over the site. There is typically a base flow of no more than 1 cubic foot per second (CFS) in Ackerson Creek and tributaries through the erosion gully to be filled during the August 15 to November 1 construction window. If any surface water flow is present at the time of in-stream work, base flow must be captured upstream of the fill limits, diverted, and returned to Ackerson Creek below the fill limits but within the channel. Diversion of base flow must begin prior to any operations within the fill limits and must continue until all fill area operations are complete. Diversion of base flow must cease prior to planting live nursery stock. Diversion of base flow during Phase 2 operations shall discharge onto the meadow to provide water to the completed Phase 1. Discharged water must not cause erosion of meadow soil at pipe outlet. Disperse flow energy using temporary materials, as approved by the Engineer's Representative.
- B. Minimal amounts of water shall be used during construction activities in order to not cause erosion of surrounding natural terrain surfaces adjacent to work.
- C. Contractor will be expected to completely capture and divert base flows from the creek. In addition, Contractor must remove nuisance water from work areas. Ackerson Creek storm flow within the gully fill area and all project work areas must be managed and erosion minimized within the Storm Water Pollution Prevent Plan (Section 01 57 23).
- D. Contractor shall submit a Dewatering Plan within 10 days after the Pre-Construction Conference.

3.2 GENERAL CONSTRUCTION REQUIREMENTS

- A. Site Access: Access to the site will be from Evergreen Road. Exercise care in the use of this road and repair at own expense any damage thereto caused by Contractor's operations. Such repair shall be to the satisfaction of the American Rivers as determined by the Engineer's Representative. The Contractor is to take whatever means are necessary to prevent tracking of mud onto existing roads and shall keep roads free of debris.
- B. Traffic Regulation: Provide traffic control devices as may be required for control of traffic Adjacent to all areas of work. Traffic on Evergreen Road shall not be delayed by more than 10 minutes in either direction.
- C. Barriers: Barriers to include fencing shall be placed at the beginning of the construction area(s) and at each end of all excavations and at such places along excavation as may be necessary to warn all pedestrian and vehicular traffic of such excavations. No night lighting will be allowed.
- D. Dust Control: Take proper and efficient steps to control dust.
- E. Storage of Materials: Excavated material unsuitable for gully fill or rock work shall be stockpiled for replacement in the borrow sites at the completion of excavation. Neatly place excavated materials far enough from the excavation to prevent stability problems. Keep the material shaped so as to cause the least possible interference with drainage of the normal use of park improvements or roadways.

3.3 EXCAVATION

- A. Prior to excavation, borrow sites must be Grubbed and Cleared (Section 31 11 11).
- B. Excavated material must pass a 6 inch screen prior to Soil Amendment (Section 32 92 00) and then Fill and Compaction (this section, Part 3.4).
- C. Boulders too large to be removed may be broken by mechanical means into smaller fragments for removal or treated as bedrock as described elsewhere in this Section.
- D. Bedrock encountered during excavation and that interferes with trenching for buried or partially buried structures shall be the lower limit of excavation. In this circumstance, depths of bedding layers or the number of vertically stacked boulders may be adjusted per the discretion of the Engineer's Representative to achieve the finished grade specified in the Drawings. If a structure is unable to be installed within the specified tolerances and using bedrock as the lower limit of excavation it shall be brought to the immediate attention of the Engineer's Representative.
- E. Backfill all holes or trenches daily. If they must be left open, maintain animal escape routes, such as a ramp or incline, from excavated pits and trenches. Each morning prior to commencing work activities, inspect the site for trapped wildlife in excavation pits and carefully remove, except for California red-legged frog (*Rana aurora draytonii*), the foothill yellow-legged frog (*Rana boylei*), Northwestern Pond Turtle (*Actinemys marmorata*) or any other State or Federally listed animal, which would not be captured or handled. Although neither frog species is believed to be on site, if found, immediately contact the Engineer's Representative. Only certified biologists can handle these species.

3.4 FILL AND COMPACTION

- A. Place fill materials in horizontal lifts in thickness measured before compaction. Compact each layer to the required maximum density, at a moisture content determined to be suitable for such density. Required densities area as follows:
 - 1. Under the Rock Arch Rapids: 95% Proctor (testing required). Place in 6-inch lifts
 - 2. Gully and Channel Fill:

- a. Subgrade (all fill 2 feet or more below the finished grade elevation per Drawings): 90% Proctor (no testing required). Lift thickness may vary. Method compaction only.
 - b. Final grade (the upper 2 feet of fill up to finished grade elevation per Drawings): 80% Proctor. Where the finish grade exceeds these compaction specifications, ripping, tilling, or similar loosening of the soil will be required to provide adequate conditions for revegetation.
- B. Ensure complete contact between fill and natural soil with no obstacles between fill and gully margin and no voids in the fill created by irregularities in the gully margin or by "bridging" of large material within the fill.
- C. Add water to the fill material or dry the material as necessary to obtain the optimum moisture content for the compaction as specified or shown on the Drawings. Employ such means as may be necessary to secure uniform moisture content throughout the material of each layer being compacted. After the material has been moisture conditioned, compact it to achieve specified compaction. The Contractor shall be responsible for obtaining the densities specified. Should the Contractor fail, through negligence or otherwise, to compact to specified density, or to backfill and compact to surface grade, thus permitting saturation of the backfill material from rains or from any other source, the faulty material shall be removed and replaced with approved material which shall be compacted to the specified density at optimum moisture content, and no additional payment shall be made for doing such work or removal and replacement. It is expected that most compaction will be achieved by vehicle traffic on the subgrade fill. However, specific compaction effort may be required for areas near the gully edge or other locations that do not receive significant traffic. Compaction by flooding, ponding or jetting will not be permitted.

3.5 SUPPORT OF EXCAVATIONS

- A. Adequately support excavation to meet all applicable requirements in the current rules, orders and regulations. Excavation shall be adequately shored, braced and sheeted so that the earth will not slide or settle and structures will be fully protected from damage. Keep vehicles, equipment, and material far enough from the excavation to prevent instability.
- B. Take all necessary measures to protect excavations and adjacent improvements from caving, settling, or sliding soil resulting from the soil excavated.

3.6 FINISH GRADING

- A. See Topsoiling and Grading Section 31 22 00.
- B. Except where directed otherwise by Engineer's Representative , provide finish grade to the contours shown on the Drawings.
- C. Finished grade machine files (.xml) will be made available conditioned upon release agreement.

3.7 DISPOSAL OF EXCAVATED MATERIAL

- A. Dispose of unsuitable material or excavated material in excess of that needed for backfill by spreading and grading within the borrow sites.

3.8 REJECTION OF WORK AND MATERIALS:

- A. Engineer's Representative will require compaction or decompaction effort at the Contractor's expense for gully fill that does not meet compaction specifications. In particular, the upper 2 feet of gully or channel fill and Final Grade, must not be over compacted.

SECTION 31 25 00 – EROSION CONTROL PRODUCTS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This work shall consist of the permanent installation of rolled erosion control blanket at the locations shown in the plan or as directed by the Engineer’s Representative.
- B. Note that temporary erosion control requirements are addressed in Section 01 57 23 Stormwater Pollution Prevention Plan.

1.2 SUBMITTALS

- A. Provide a submittal for each erosion control product utilized

PART 2 – PRODUCTS

2.2 MATERIALS

A. ROLLED EROSION CONTROL PRODUCT (RECP)

- 1. RECP shall meet or exceed the specifications of Rolanka BioD-Mat 40, shown below.

Property	Test Method	BioD-Mat® 40
Weight	ASTM D 3776	13.6 oz/SY (460g/sq.m)
Dry tensile strength		
Machine direction	ASTM D 4595	780 lbs/ft (11.4 kN/m)
Cross direction		744 lbs/ft (10.9 kN/m)
Wet tensile strength		
Machine direction	ASTM D 4595	672 lbs/ft (9.8 kN/m)
Cross direction		648 lbs/ft (9.5 kN/m)
Elongation at failure Wet		
Machine direction	ASTM D 4595	30%
Cross direction		28%
Open area	Calculated	65%
Thickness	ASTM D 1777	0.35 in (9 mm)
Minimum Twine Count		
MD x CD (per foot)		15 x 14
Recommended slope		2:1
Recommended flow		8 fps (2.4 m/s)
Recommended shear stress		3 lbs/sq.ft (145N/sq.m)

2. The blankets shall consist of 100% weed-free natural (non-synthetic) fibers, with independently mobile twines to prevent wildlife entrapment, and shall have a minimum field longevity 4 years.
3. Pins shall be metal staple-style.
4. Submit specifications sheets and a sample of the material to the Engineer's Representative for approval.

B. TEMPORARY FIBER ROLLS

1. Netting: Open weave, natural fiber, degradable netting. Nominal diameter of 9 inches, or as specified.
2. Fill Material: wood excelsior or coir. No straw shall be allowed. o.
3. Stakes: 1 inch by 1 inch (minimum) wooden stakes, or stakes of equivalent strength.

C. TEMPORARY SILT FENCE

1. Silt fence fabric shall be woven polypropylene with a minimum width of 900 mm (36 inches) and a minimum tensile strength of 0.45-kN. The fabric shall conform to the requirements in ASTM designation D4632 and shall have an integral reinforcement layer. The reinforcement layer shall be a polypropylene, or equivalent, net provided by the manufacturer. The permittivity of the fabric shall be between 0.1 sec-1 and 0.15 sec-1 in conformance with the requirements in ASTM designation D4491.
2. Posts: 4 foot minimum steel (T-section) weighing at least 1.25 pounds per foot, exclusive of anchor plate. Painted posts are not required.
3. Fastener: Wire or plastic ties with a minimum tensile strength of 50 pounds

D. TEMPORARY DEWATERING PLUGS

1. Crushed Stone of various gradations or sandbags adequate to divert water. Add plastic liner.

E. TEMPORARY CONTRUCTION ENTRANCE

1. Crushed Stone with a nominal maximum size of 3 inches. Screen over a 3/4 inch screen.

F. WOOD MULCH

1. Wood mulch shall consist of ground trees, stumps, and brush. Contractor shall generate wood mulch on-site according to specification 329213 (Wood Chips and Organic Matter).

G. MEADOW MATS

1. Meadow mats (also referred to as track mats, construction mats, or heavy equipment mats) may be made of a variety of material, but shall be designed specifically for the purpose of protecting the underlying soil from high traffic use and heavy construction equipment.

PART 3 – EXECUTION

3.1 RECP

- A. Prior to placing erosion control blankets all applicable Fill operations (31 23 00), Finish Grading (31 22 00), and seeding (32 92 19) must be complete.
- B. The areas upon which the erosion control blanket is placed shall be level, smooth, and free of projections or depressions that will prevent contact between the blanket and the ground surface. Bridging is not acceptable.
- C. The erosion control blankets shall be placed in the manner and at the locations shown on the drawings or as directed by the Engineer's Representative.
- D. The blankets shall be rolled out evenly and smoothly without stretching, to achieve maximum blanket-to-soil contact.
- E. The uphill edge of each blanket will be placed in a 8- to 12- inch anchor trench, stapled, backfilled, and compacted.
- F. Uphill blankets shall lie on top of and overlap by 8-12 inches adjacent edges of downhill blankets
- G. Lateral edges of adjacent blankets shall be overlapped by 6 inches.
- F. The blankets shall be stapled to the ground using eight (8) inch metal staples driven vertically through the blankets at the intervals as shown on the drawings. The staples shall be common to both blankets at overlapped edges and ends.

3.2 TEMPORARY FIBER ROLLS

- A. Construct a shallow trench, 2 to 4 inches deep, matching the width and contour of the fiber roll.
- B. Install fiber roll along contour of slope.
- C. Turn ends of fiber roll uphill to prevent water from flowing around ends.
- D. Place and compact excavated soil against the fiber roll, on the uphill side.
- E. Drive stakes through the center of the fiber roll, into the ground at a maximum spacing of 4 feet along the length of the roll, and as needed to secure the wattle and prevent movement.
- F. Abut ends of adjacent wattles tightly. Wrap joint with a 36 inch wide section of silt fence and secure with stakes.
- G. Removal: Remove the fiber roll upon completion of the project, and after final stabilization is achieved; or as indicated in the SWPPP, if applicable. Completely remove the fiber roll netting, filler material, and stakes. Spread the accumulated sediment to match finished grade and to ensure proper drainage. When allowed by the Engineer's Representative, the fiber roll netting may be sliced open and the filler material spread out over the ground. Removal of netting and stakes and spreading of sediment is still required.
- H. Replacement: When accumulated sediment reaches a level one-half the height of the fiber roll, or when the fiber roll becomes clogged with sediment and no longer allows runoff to flow through, remove as described above, and replace according to the installation instructions above. At the Engineer's Representative's option, the existing fiber roll and

accumulated sediment may be left in place, and a new fiber roll installed up-slope from the existing fiber roll.

3.3 TEMPORARY SILT FENCE

- A. Install material along the contour of the ground, as specified in the contract documents, or as directed by the Engineer.
- B. Install silt fence with a mechanical soil slicing machine that creates a slit in the ground while simultaneously installing the fabric. The trenching method may be used when situations will not allow soil slicing, as determined by the Engineer's Representative.
- C. Construct a "J-hook" at each end of a continuous run of silt fence, by turning the end of the silt fence uphill, as necessary to prevent runoff from flowing around ends when water behind the fence ponds to a level even with the top of the fence.
- D. Insert 12 inches of fabric to a minimum depth of 6 inches (fabric may be folded below the ground line).
- E. Compact installation by driving along each side of the silt fence, or by other means, as necessary to adequately secure the fabric in the ground, to prevent pullout and water flow under the fence.
- F. Drive steel posts into the ground alongside the silt fence, to a minimum depth of 20 inches, unless otherwise specified by the Engineer. Space posts as required to adequately support silt fence.
- G. Maintenance: Repair or replace non-functioning silt fence that allows water to flow under the fence, is torn, or is otherwise damaged, due to inadequate installation, at no additional cost.
- H. Removal: Remove the silt fence upon final stabilization of the project area, or according to the staging indicated in the SWPPP. Remove and dispose of silt fence and posts. Remove sediment or spread to match finished grade; ensure proper drainage. Stabilize the area disturbed by removal operations.

3.4 WOOD MULCH

- A. Spread wood mulch evenly on areas of bare ground at a target depth of 1 inch and not more than 2 inches unless approved by the Engineer's representative, to cover no less than 70% of the surface area.

3.5 MEADOW MATS

- A. Mats must be clean and free of dirt prior to being installed.
- B. Install according to manufacturer's recommendations.
- C. Remove mats by backing out of the site.
- D. Mats that do no function for the intended purpose, or those that become deteriorated shall be rejected and must be replaced.

3.6 REJECTION OF WORK

- A. Erosion control blanket placed in the wrong location or by the wrong methods or of poor material or installation quality will be rejected by the Engineer's Representative.

- B. Removal, replacement, and reinstallation of rejected material will be at the Contractor's expense.

SECTION 31 37 00 - RIPRAP, BOULDERS, AND STONE

PART 1 - GENERAL

1.1 SUMMARY

- A. The work includes furnishing and installation of riprap (erosion stone), boulders, base stone and other stones and stone fills at the locations shown on the Drawings. The materials to be used and the construction of such structures shall be as specified herein.

1.2 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. American Association of State Highway and Transportation Officials (AASHTO):
 - a. T85, Standard Method of Test for Specific Gravity and Absorption of Coarse Aggregate.
 - b. T96, Standard Method of Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
 - c. T103, Standard Method of Test for Soundness of Aggregates by Freezing and Thawing.
 - d. T104, Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.
 - e. T248, Reducing Field Samples of Aggregate Test Size.
 - 2. ASTM International (ASTM): D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³)).

1.3 SUBMITTALS

- A. Contractor shall cooperate with Engineer's Representative in obtaining and providing samples of all specified materials.
- B. Contractor shall submit certified laboratory test certificates for all items required in this section.

PART 2 PRODUCTS

2.1 MATERIALS

A. RIPRAP/EROSION STONE

- 1. Riprap used shall be the type designated on the Drawings and shall conform to Table 1.

Table 1: Riprap/Erosion Stone Gradation

Riprap Designation	% Smaller Than Given Size By Weight	Intermediate Rock Dimension (inches)	d ₅₀ * (inches)
Caltrans	70 - 100	30	15*
	50 - 70	17.5	
	35 - 50	14.5	
Type IV	10-35	13.0	
	2 - 10	9.2	
*d ₅₀ = Mean Particle Size			

2. The riprap designation and total thickness of riprap shall be as shown on the Drawings. The maximum stone size shall not be larger than the thickness of the riprap.
3. Neither width nor thickness of a single stone of riprap shall be less than one-third (1/3) of its length.
4. The specific gravity of the riprap shall be two and one-half (2.5) or greater.
5. Riprap specific gravity shall be according to the bulk-saturated, surface-dry basis, in accordance with AASHTO T85.
6. The bulk density for the riprap shall be 1.3 ton/cy or greater.
7. The riprap shall have a percentage loss of not more than forty percent (40%) after five hundred (500) revolutions when tested in accordance with AASHTO T96.
8. The riprap shall have a percentage loss of not more than ten percent (10%) after five (5) cycles when tested in accordance with AASHTO T104 for ledge rock using sodium sulfate.
9. The riprap shall have a percentage loss of not more than ten percent (10%) after twelve (12) cycles of freezing and thawing when tested in accordance with AASHTO T103 for ledge rock, procedure A.
10. Rock shall be free of calcite intrusions.
11. Gradation:
 - a. Each load of riprap shall be reasonably well graded from the smallest to the largest size specified.
 - b. Stones smaller than the two to ten percent (2 to 10%) size will not be permitted in an amount exceeding ten percent (10%) by weight of each load.
 - c. Control of gradation shall be by visual inspection. However, in the event Engineer's Representative determines the riprap to be unacceptable, Engineer's Representative shall pick two (2) random truckloads to be dumped and checked for gradation.
 - d. Mechanical equipment and labor needed to assist in checking gradation shall be provided by Contractor at no additional cost.
12. Color:
 - a. The color of the riprap shall be approved by the Engineer's Representative prior to delivery to the project site.

- b. Color shall be consistent on the entire project and shall match the color of rock to be used for all other portions of the work.
- 13. Broken concrete or asphalt pavement shall not be acceptable for use in the work.
- 14. Rounded riprap (river rock) is not acceptable, unless specifically designated on the Drawings.

B. BOULDERS

- 1. Boulders used shall be the type designated on the Drawings and shall conform to Table 2.

Table 2: Boulder Properties

Boulder Classification	Nominal Size (inches)	Range in Smallest Dimension of Individual Rock Boulders (inches)	Maximum Ratio of Largest to Smallest Rock Dimension of Individual Boulders
Weir Stone	48x36x24	± 12	1.50
Random Boulder	30	26 - 34	2

- 2. The specific gravity of the boulders shall be two and one-half (2.5) or greater.
- 3. Boulder specific gravity shall be according to the bulk-saturated, surface-dry basis, in accordance with AASHTO T85.
- 4. The bulk density for the boulder shall be 1.3 ton/cy or greater.
- 5. The boulders shall have a percentage loss of not more than forty percent (40%) after five hundred (500) revolutions when tested in accordance with AASHTO T96.
- 6. The boulders shall have a percentage loss of not more than ten percent (10%) after five (5) cycles when tested in accordance with AASHTO T104 for ledge rock using sodium sulfate.
- 7. The boulders shall have a percentage loss of not more than ten percent (10%) after twelve (12) cycles of freezing and thawing when tested in accordance with AASHTO T103 for ledge rock, procedure A.
- 8. Rock shall be free of calcite intrusions.
- 9. Color:
 - a. The color of the boulders shall approved by Engineer’s Representative prior to delivery to the project site.
 - b. Color shall be consistent on the entire project and shall match the color of rock to be used for all other portions of the work.

C. VOID-FILLED RIPRAP/EROSION STONE

- 1. Rock requirements are to comply with riprap material specifications in Paragraph A.
- 2. Samples of riprap and void-fill materials shall be submitted for the review and approval of the Engineer’s Representative prior to construction.

3. Where “Void-Filled Riprap” is designated on the Drawings, riprap shall be mixed with the materials and associated proportions listed in Table 3.
4. Mix proportions and material gradations in Tables 3 are approximate and are subject to adjustment by the Engineer’s Representative. No adjustment in unit price for void-filled riprap will be allowed based on modifications to the mix proportions.

Table 3: Mix Requirements for Void-Filled Riprap

Approximate Proportions (loader buckets)	Material Type	Material Description
6	Riprap	Riprap
2	Void-fill material	Crushed rock with 100% passing 4-inch sieve, 50-70% passing 3-inch sieve, 0-10% passing 2-inch sieve)
1	Void-fill material	Type II Filter Blanket Material (See Table 4)

Note: Mix proportions and material gradations are approximate and are subject to adjustment by the Engineer’s Representative.

D. FILTER BLANKET:

1. Gradation for filter blanket shall conform to Table 4.
2. Granular filter blanket designation and total thickness of bedding shall be as shown on the Drawings.
3. Granular filter blanket shall meet the same requirements for specific gravity, absorption, abrasion, sodium sulfate soundness, calcite intrusion, and freeze-thaw durability as required for riprap.
 - a. Broken concrete asphalt pavement or sledge, shall not be acceptable for use in the work. Rounded river rock is not acceptable unless specifically designated on the Drawings.
 - b. The requirements for the wear test in AASHTO T96 shall not apply.

Table 4: Filter Blanket Gradation

U.S. Standard Sieve Size	Percent by Weight Passing Square-Mesh Sieves	
	Type I	Type II (Caltrans Aggregate Base)
2 inches	-	100
1½ inches	-	90-100
¾ inch	-	50-85
⅜ inch	100	-
No. 4	95 - 100	25-45
No. 16	45 - 80	-
No. 30	10 - 30	10-25
No. 100	2 - 10	-
No. 200	0 - 2	9 - 9

E. BASE STONE:

1. Base Stone shall meet the same material requirements as Riprap/Erosion Stone as described in Part A.
2. Base Stone Gradation shall conform to Table 5.

Table 5: Base Stone Gradation

Sieve size	Percentage passing
4 inch	100
3 inch	90-100
2 inch	25-40
1 inch	0-1

PART 3 EXECUTION

3.1 PREPARATION

- A. Channel slope, bottom, or other areas that are to be protected with riprap, boulders, or void-filled riprap shall be free of brush, trees, stumps, and other objectionable material and be graded to a smooth compacted surface as shown on the Drawings.
- B. Contractor shall excavate areas to receive riprap to the subgrade as shown on the Drawings accounting for filter blanket.
- C. Subgrade Materials:
 1. The subgrade materials shall be stable.

2. If unsuitable materials are encountered, they shall be removed and replaced as Excavation and Fill, for subgrade that has been excavated in undisturbed soil.

D. Additional Compaction:

1. Additional compaction shall not be required unless specified by Engineer's Representative.
2. When subgrade is built up with embankment material it shall be compacted to ninety five percent (95%) maximum density (ASTM D698).

E. Filter Blanket:

1. After an acceptable subgrade is established, filter shall be immediately placed and leveled to the specified elevation on the Drawings.
2. Immediately following the placement of the filter blanket material, the riprap shall be placed.
3. If filter blanket material is disturbed for any reason, it shall be replaced and graded at Contractor's expense.
4. Contamination:
 - a. In-place filter materials shall not be contaminated with soils, debris or vegetation before the riprap is placed.
 - b. If contaminated, the filter blanket material shall be removed and replaced at Contractor's expense.

3.2 PLACEMENT

A. RIPRAP

1. Following acceptable placement of filter blanket, riprap placement shall commence as follows:
 - a. Machine Placed Riprap:
 - 1) Riprap shall be placed on the prepared slope or channel bottom areas in a manner which will produce a reasonably well graded mass of stone with the minimum practicable percentage of voids.
 - 2) Riprap shall be machine placed, unless otherwise stipulated in the Drawings or Specifications.
 - 3) It is the intent of these specifications to produce a fairly compact riprap protection in which all sizes of material are placed in their proper proportions. Unless otherwise authorized by Engineer's Representative, the riprap protection shall be placed in conjunction with the construction of embankment or channel bottom with only sufficient delay in construction of the riprap protection, as may be necessary, to allow for proper construction of the portion of the embankment and channel bottom which is to be protected.
 - b. Slope Placement:
 - 1) When riprap is placed on slope, placement shall commence at the bottom of the

slope working up the slope.

- c. The entire mass of riprap shall be placed on either channel slope or bottom so as to be in conformance with the required gradation mixture and to line, grade, and thickness shown on the Drawings.
- d. Riprap shall be placed to full course thickness at one operation and in such a manner as to avoid displacing the underlying bedding material. Placing of riprap in layers, or by dumping into chutes, or by similar methods shall not be permitted.
- e. All material used for riprap protection for channel slope or bottom shall be placed and distributed such that there shall be no large accumulations of either the larger or smaller sizes of stone. Some hand placement may be required to achieve this distribution.
- f. The basic procedure shall result in larger materials flush to the top surface with faces and shapes arranged to minimize voids, and smaller material below and between larger materials.
- g. Surface grade shall be a plane or as indicated, but projections above or depressions under the finished design grade by more than ten percent (10%) of the rock layer thickness shall not be allowed.
- h. Smaller rock shall be securely locked between the larger stone. It is essential that the material between the larger stones not be loose or easily displaced by flow or by vandalism.
- i. The stone shall be consolidated by the bucket of the backhoe or other means that will cause interlocking of the material.
- j. All rock is to be placed in a dewatered condition beginning at the toe of the slope or other lowest point.
- k. Contractor shall maintain the riprap protection until accepted. Any material displaced for any reason shall be replaced to the lines and grades shown on the Drawings at no additional cost to American Rivers. If the bedding materials are removed or disturbed, such material shall be replaced prior to replacing the displaced riprap.

2. Hand Placed Riprap:

- a. Hand placed riprap shall be performed during machine placement of riprap and shall conform to all the requirements of Part 2, above.
- b. Hand placed riprap shall also be required when the depth of riprap is less than two (2) times the nominal stone size, or when required by the Drawings or Specifications.
- c. After the riprap has been placed, hand placing or rearranging of individual stones by mechanical equipment shall be required to the extent necessary to secure a flat uniform surface and the specified depth of riprap, to the lines and grades as shown on the Drawings.

B. BOULDERS/WEIR STONES

1. Following excavation and acceptance of subgrade by Engineer's Representative, Boulder placement shall commence as follows:
 - a. Boulders shall be placed on the prepared subgrade in a manner which will minimize voids.
 - b. Voids between boulders exceeding 4" shall be chinked.

C. VOID-FILLED RIPRAP

1. The Engineer's Representative shall observe mixing and placing of the material.
2. Approved individual component materials of void-filled riprap mix shall be delivered to site in separate marked stockpiles. Mixing shall be accomplished using a front end loader or other approved means to add the specified number of "loader buckets" of each material to a mixing stockpile. Ensure that each loader bucket comprises an approximately equal volume. If the loader operator is only able to fill the bucket partially full with large riprap (due to the force required to push the bucket into the pile), but uses full buckets of finer material, the mix proportions will not be correct. Avoid picking up excessive amounts of native soil from the subgrade under the stockpiled materials during the loader bucket mixing operations. The Engineer's Representative may reduce or eliminate the volume of topsoil added to the mixture based on the amount of native soil was incorporated during the bucket mixing operation.
3. Once all the materials have been added to the mixing stockpile in the specified proportions, thoroughly mix the pile using a loader, large track- hoe excavator, or other approved means to fill the voids of the riprap without displacing the riprap or creating pockets of finer material absent of riprap.
4. Segregation of materials shall be minimized when hauling from the stockpile to the installation location. Remixing shall occur as necessary to correct for any segregation as the material is placed.
5. The loose material shall be placed in a single lift of sufficient height such that final grade will be achieved upon compaction. Additional mixing with a track excavator shall be required after initial placement to ensure that the void-filled riprap is thoroughly mixed and no segregation or excessive amount of smaller void-fill material is present on the surface. The mixing and placement process shall result in larger riprap (D_{50} size or larger) flush to the top surface with faces and shapes arranged to minimize voids, and smaller material between and below larger materials.
6. If the top of the compacted material is below final grade, placement of only the smaller void-fill materials to achieve final grade will not be permitted. Additional void-filled riprap shall be added and the entire section mixed with a track excavator to eliminate the presence of smaller void-fill material on the surface.
7. Avoid segregation of materials and remix any section where the combined material consists primarily of the void-fill materials. The density and interlocking nature of riprap in the mixed material shall essentially be the same as if the riprap was placed without filling the voids. This requires care and persistence on the part of the Contractor to install the work and on the part of the Engineer's Representative to assure that the work is installed correctly.
8. At the direction of the Engineer's Representative, a 50:50 mixture of pit run and filter blanket material shall be sprinkled on the surface of the void-filled riprap and washed-in with water using a high pressure hose to fill-in small voids. This shall be done just prior to compaction of the void-filled riprap.
9. Compaction of the void-filled riprap shall be performed by running over the void-filled riprap with a large, heavy duty track excavator or dozer. The moisture content of the mixture shall be at optimum conditions prior to compaction and water shall be added, as necessary, at the direction of the Engineer's Representative. Compaction of void-filled riprap shall be reviewed and approved by the Engineer's Representative.
10. Where indicated on the Drawings, a surface layer of 4 to 6 inches moist topsoil shall

be placed over the void-filled riprap. The topsoil surface layer shall be compacted to approximately 85% of maximum density and within two percentage points of optimum moisture in accordance with ASTM D698. Topsoil shall be added to any areas that settle.

11. Contractor shall install a test section of at least 100 square feet of void-filled riprap for the review and approval of the Engineer's Representative prior to installation of the remaining void filled-riprap.
12. Elevation tolerance for the void-filled riprap shall be 0.10 feet. Thickness of void-filled riprap shall be no less than thickness shown and no more than 2-inches greater than the thickness shown.

D. RANDOM BOULDERS

1. Random Boulders serve an aesthetic function and as such shall be placed and rotated into final position as directed by Engineer's Representative in order to achieve the desired result.

3.3 REJECTION OF WORK AND MATERIALS:

- A. Engineer's Representative will reject placed riprap, boulders, soil riprap and bedding that do not conform to this section. Contractor shall immediately remove and re-lay the riprap, boulders, void-filled riprap, and filter blanket to conform to specifications.
- B. Riprap, boulders, void-filled riprap and bedding that do not conform to this section shall be rejected, whether delivered to the job site or placed.
- C. Rejected riprap, boulders, soil riprap and bedding shall be removed from the project site by Contractor at Contractor's expense.

END OF SECTION

SECTION 32 11 23 - AGGREGATE BASE & SUBBASE

PART 1 – GENERAL

1.1 SUMMARY

- A. Scope: Provide and install aggregate materials of the types and sizes noted in this section where required by applicable codes, good standard engineering practice, and the approved site design.
- B. Section Includes:
 - 1. Aggregate materials for use throughout the site as indicated on Drawings.

1.2 REFERENCES

- A. American Society for Testing and Materials:
 - 1. ASTM C 88-13 - A Standard Test method for soundness of aggregates by use of sodium sulfate or magnesium sulfate.
 - 2. ASTM D422-63(2007) - A Standard Test method used for gradation analysis.
 - 3. ASTM D4318-10e1 – A Standard Test method used for determination of plasticity index.

1.3 SUBMITTALS

- A. Submittals shall meet the requirements under Section 01 33 23 – “Submittal Procedures.”
- B. Quality Control Submittals:
 - 1. Aggregate Base Materials: Name and location of source, stockpile number, and sieve test
 - 2. Aggregate Subbase Materials: Name and location of source, stockpile number, and sieve test.

1.4 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All aggregate and backfill material shall be approved and certified weed free, before use and be free of cinders, ashes, ice, frozen soil, large hard clods, organic debris, or other deleterious items.
- B. Aggregate must be clean and consist of any combination of the following: 1. Broken stone 2. Crushed gravel 3. Natural rough-surfaced gravel 4. Sand. Recycled asphalt and concrete shall not be allowed.

2.2 AGGREGATE MATERIALS

- A. Aggregate Base: (Caltrans ¾" Class 2) Aggregate gradation must be within the percentage passing limits for the sieve sizes shown in the following table:

Sieve Size	Percent Passing
1"	100
¾"	90-100
No. 4	35-60
No. 30	10-30
No. 200	2-9

All percentages are by weight.

Gravel base material retained on a No. 4 sieve shall contain not more than 0.20 percent by weight of wood waste.

- B. Aggregate SubBase: (Caltrans Class 1) Aggregate gradation must be within the percentage passing limits for the sieve sizes shown in the following table:

Sieve Size	Percent Passing
3"	100
2.5"	90-100
No. 4	35-70
No. 200	0-20

All percentages are by weight.

Gravel base material retained on a No. 4 sieve shall contain not more than 0.20 percent by weight of wood waste.

- C. Do not change aggregate grading without authorization.
- D. Aggregate samples must not be treated with lime, cement, or chemicals before testing for durability index.
- E. Geotextile (where called for) shall be according to Caltrans Standard Specification Section 96 Subgrade Enhancement Geotextile Class B1.

2.3 SOURCE QUALITY CONTROL

- A. All Aggregates shall be from a borrow pit approved by the Engineer's Representative.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. Stockpile excavated material meeting requirements for aggregate materials.
- B. Remove excess excavated materials not intended for reuse from site.
- C. Place aggregate at locations as described on the Drawings.

3.2 STOCKPILING

- A. Stockpile materials at locations designated by Engineer's Representative.
- 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. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.3 STOCKPILE CLEANUP

- A. Remove stockpile; leave area in clean and neat condition. Grade site surface to prevent free-standing surface water.

END OF SECTION

SECTION 32 31 26 – WIRE FENCES & GATES

PART 1 - GENERAL

1.1 SUMMARY

- A. The work includes furnishing and installing fence and fence gates of various types as shown in the Drawings.

1.2 REFERENCES

A. AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)

- 1. AWPA U1 (2021) Use Category System: User Specification for Treated Wood

B. ASTM INTERNATIONAL (ASTM)

- 1. ASTM A153/A153M (2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- 2. ASTM A702 (2013; R 2018) Standard Specification for Steel Fence Posts, Hot Wrought
- 3. ASTM A780/A780M (2020) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
- 4. ASTM C94/C94M (2021b) Standard Specification for Ready-Mixed Concrete
- 5. ASTM D4541 (2017) Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
- 6. ASTM F626 (2014; R 2019) Standard Specification for Fence Fittings
- 7. ASTM F900 (2011; R 2017) Standard Specification for Industrial and Commercial Swing Gates
- 8. ASTM F1043 (2018) Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework
- 9. ASTM F1083 (2018) Standard Specification for Pipe, Steel, Hot-Dipped Zinc Coated (Galvanized) Welded, for Fence Structures

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in an undamaged condition. Store materials off the ground to provide protection against oxidation caused by ground contact.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. Provide a fencing system as described herein.
- B. Submit Installation Drawings clearly indicating fence installation, location of gates, corners, ends, and pull posts; gate assembly, gate hardware, catalog data and accessories.

2.2 COMPONENTS

- A. Fence Fabric: Provide fence fabric conforming to the following requirements.
- B. Smooth Wire: Smooth wire must comply with ASTM A121 and be 12-1/2 gauge (min),

- C. Barbed Wire: Barbed wire must comply with ASTM A121, have 2 point barbs, and be 12-1/2 gauge (min).
- D. Vertical Stays: As shown in Drawings
- E. Gates
 - 1. Provide gate type, size, and swing as shown in the Drawings.
 - 2. For steel frame gates, provide gate frames conforming to strength and coating requirements of ASTM F1083 for Group IA, steel pipe, nominal pipe size (NPS) 1-1/2". Gates shall have 6 rails. Gates shall be powder coated and factory painted (green). Provide gate leaves more than 8 feet wide with either intermediate members and diagonal truss rods or tubular members as necessary to provide rigid construction, free from sag or twist. Welding is not permitted. Furnish latches, hinges, stops, keepers, rollers, and other hardware items as required for the operation of the gate. Arrange latches for padlocking so the padlock is accessible from both sides of the gate. Provide stops for holding the gates in the open position.
- F. Metal Posts and Braces
 - 1. Provide metal line posts conforming to ASTM A702 enamel paint finish, T-section, length as indicated, and accessories conforming to ASTM A702.
 - 2. Provide metal corner and brace posts. Posts shall be 2"-3" used "Oil Pipe" or equal.
 - 3. Each end, latch, pull, and corner post must have a minimum resisting section modulus of 0.32 cubic inch in any direction, length as indicated in the Drawings, and have a weight of at least 3.1 lb/ft. Each brace and brace post must have a weight of at least 1.93 lb/ft.
- G. Pressure Treated Wood Posts and Braces
 - 1. REMOVED
- H. Concrete: ASTM C94/C94M, using 3/4 inch maximum size aggregate, and having minimum compressive strength of 3000 psi at 28 days. Provide grout consisting of one part portland cement to three parts clean, well-graded sand and the minimum amount of water to produce a workable mix.
- I. Clip-Type Wire Fastener: Galvanized wire, 8-gauge.
- J. E. Brace Panels: Easy-Fence (<http://www.easy-fence.com/fence-panels>) brace panels for straight lines and corners, or approved equal.
- K. Visibility Markers <http://www.easy-fence.com/fence-markers>, UV resistant plastic or vinyl, white.
- L. Miscellaneous Wire: Wire for ties, gate loops and fastening wood stays shall be 9 or 12-1/2 gauge galvanized wire.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clear the area 6 feet on each side of the fence as indicated in the Drawings.

- B. Line and Grade: Install fence to the lines and grades indicated. Space line posts equidistant at intervals not exceeding 10 feet or as shown in the Drawings. Set terminal (corner, gate, and pull) posts at abrupt changes in vertical and horizontal alignment. Provide continuous fabric between terminal posts; however, ensure runs between terminal posts do not exceed 500 feet. Repair any damage to galvanized surfaces, including welding, with paint containing zinc dust in accordance with ASTM A780/A780M.
- C. Clear loose material from all post holes. Spread waste material where directed. Eliminate ground surface irregularities along the fence line to the extent necessary to maintain adequate clearance between the bottom of the fabric and finish grade.

3.2 INSTALLATION

- A. Install fence system per approved installation drawings.
- B. For wood posts (use of wood posts generally limited, but may be required in select areas), excavate to depth indicated and brace post until backfill is completed. Place backfill in layers of 9 inches or less, moistened to optimum condition, and compacted with hand tampers or other approved method. Set posts plumb and in proper alignment. Drive metal posts or set in concrete as indicated.
- C. Install wire on the side of the post indicated. Pull wire taut to provide a smooth uniform appearance, free from sag. Fasten wire to line posts at approximately 15-inch intervals unless indicated otherwise.
- D. Provide standard metal gate assemblies with frame and fittings necessary for complete installation or wood gates as shown.

3.3 CLEAN UP

- A. Remove waste fencing materials and other debris from work site daily.

-- END OF SECTION --

SECTION 32 92 00 – CONTAINER PLANTINGS

PART 1 - GENERAL

1.1 SUMMARY

The work includes receiving and storing nursery plants and then planting the plants into bare or disturbed soil from gully fill operations and access routes within the meadow, as shown on the Drawings. This will not include planting upland areas such as borrow sites, staging area, and hillside roads/routes. The materials to be used and their proper application shall be as specified herein.

1.2 SUBMITTALS

- A. Tracking sheets will accompany each plant delivery specifying the quantity by species of live plants provided. Quality and quantity of plants shall be verified by the Engineer's Representative and Contractor and tracking sheets shall be signed by the Contractor recipient upon delivery of the plants.
- B. Contractor shall provide a copy of each signed delivery invoice to the Engineer's Representative.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Nursery plants
 1. A contracted commercial plant nursery (via a separate contract) will grow, furnish, and deliver the plants. The Contractor will install. Exact quantities may vary from, but shall not exceed the specified amounts, and are dependent upon success of separate commercial plant propagation contracts which include delivery to the project.
 2. The contracted commercial nursery shall arrange delivery of wetland container plantings needed for each construction Phase to an Engineer's Representative specified location within 10 miles of the project site (e.g., Staging Area, Hodgdon Meadow Work Area) roughly in March each year according to need. Delivery shall be in accordance with specifications included in the plant propagation contract.
 3. Plantings will be supplied in 8-inch-long, 10-cubic-inch SC10 Ray Leach Containers, in racks (RL98) of 98 plants, or equivalent. Each rack is 1 foot by 2 feet in area and cannot be stacked on top of other racks containing live plants.
 4. Plantings will be from Yosemite National Park collected native seed that were propagated by a contracted commercial nursery, from four species of plants. Each will be provided and labeled. Plants must be kept labeled and may not be mixed in racks with other species. The four species are:
 - Scirpus microcarpus, (Small Fruited Bulrush)

- Carex nebrascensis, (Nebraska Sedge)
 - Juncus balticus or J. dubius, (Baltic Rush, or Dubius Rush)
 - Carex athrostachya (slender beak sedge)
5. Nursery delivered plantings shall be in accordance with good horticultural practices. Delivered plants shall be sound, healthy, vigorous, and free of disease, insect pests, eggs, or larvae, and comprise healthy, well-developed root systems. Plants shall be free from physical damage or adverse conditions that would prevent thriving growth.
 6. For each load of plants delivered to the site, the Contractor shall furnish to the Engineer's Representative (at the time of delivery) a letter of certification containing the following:
 - Name and location of supplier;
 - Plant numbers and species delivered; and
 - Signature of Contractor's key official.
 - All plants will be clearly labeled as to the species throughout maintenance & care, transport and planting phases.
- B. Wetland container plants are of extremely high value to the project and cannot be easily replaced; when in their care, the Contractor shall perform high-quality handling. Plants must be stored in a shaded location protected from herbivore (deer, cattle, rodents, etc.) consumption and trampling. The plants must be kept moist and in good condition: sound, healthy, vigorous, and free of disease, insect pests, eggs, or larvae, and comprise healthy, well-developed root systems. Plants shall be maintained free from physical damage or adverse conditions that would prevent thriving growth.
1. The Engineer's Representative and Contractor will coordinate to identify a location for temporary storage (Staging Area, Hodgdon Meadow Work Area) or other location mutually agreed upon for delivery and storage of nursery plants, as needed.
 2. The Contractor shall provide any necessary fencing, shade cloth, a portable irrigation system or similar means to sustain plant moisture and health during onsite storage, and all equipment needed for storage, such as shelving, racks, or tables if needed.
 - Wetland container plants may require daily watering to maintain vigor and viability at the temporary storage facility.
 - If on-site water is not available, water shall be sourced from off-site by the contractor, and may require purchase, which may or may not be NPS. For instance, the contractor may be able to source from USFS Peach Grower picnic area, or from the dewatering at Project Area.
 - On-site water storage shall be the responsibility of the Contractor as required.
 3. All delivered plantings will be maintained in healthy condition and allowed 2 weeks to adapt to local conditions at the temporary storage area, before transplanting at the project site.
 4. The Contractor shall transport the plants from any remote temporary storage location to the project site.

5. If requested by the Contractor and depending on water availability or other conditions the Engineer's Representative may approve a secondary fenced temporary storage area to be established by the Contractor for a small volume of container plant to be temporarily stored at the project site.

PART 3 EXECUTION

3.1 PREPARATION

A. Timing and access

1. Planting must occur after the Gully Fill and Access Route soil surfaces are at finish grade, decompacted, smoothed, and with the erosion blanket already installed and treated with Seeding as described in Section 31 22 00, Section 32 16 00, Section 32 92 19, and Section 31 25 00.
3. Planting will be placed into saturated soil conditions as early in the season as possible following snow melt and peak runoff, typically in (but not limited to) March through May each year depending on annual conditions.
4. Planting shall not occur within 2 days of forecasted frost or freezing conditions to avoid frost heave of recently planted container plants.
5. No vehicle traffic will be allowed across finish grade and/or erosion blanketed surfaces.
6. Access across meadow surfaces outside of work limits will not be allowed unless approved by the Engineer's Representative.

3.2 PLACEMENT

A. Location and distribution

1. Plants shall be installed within finish grade topsoil of the filled gully, meadow access routes, other disturbed meadow locations.
2. The entire quantity of plants provided shall be planted at 18 inches on-center distances, in the locations indicated on the plans.
3. Boundaries of the planting area will be marked by the Contractor for review and approval by the Engineer's Representative prior to initiation of planting.
4. Plants shall be installed along planting lines oriented perpendicular to flow direction (e.g., generally across the width of the meadow).
5. Planting conditions: most plants will be installed in mixed soil and wood chips that have been placed by heavy equipment, decompacted (e.g, ripped in a direction perpendicular to the flow of water) to loosen the planting zone, and covered with erosion control blanket. Container plants will not be installed where salvaged sod is placed. The Engineer's Representative will determine if buffers of no planting areas may also be applied around salvaged willow rootwads.

B. Handling and planting

1. All plantings shall be in healthy condition. Upon removal of the plastic cone, prior to planting, root systems of each planting shall be visually inspected. Root systems must be completely free of circling or kinks. Plants found to contain kinked, circling, or girdling roots will be rejected and returned to temporary storage facility (e.g., Hodgdon Work area), and coordinated through the Engineer's Representative for return to Park staff.
2. Planting size including height and widths shall be typical for these species. Root to shoot ratio shall be ~1:1.
3. Each individual plant shall be removed from its plastic cone prior to planting and handled carefully to ensure the soil and roots remain as a cohesive cone.
4. Each individual plant shall be installed into a hole equal to the size of the container. Planting holes shall be of sufficient depth, not too deep and such that the planting surface matches the surrounding soil/fill grade. Holes will be made by hand using a properly sized tool such as a planting dibble.
5. The plant shall then be removed from the container with as little disturbance to roots as possible, the plant placed in the hole, and soil packed firmly around the roots.
6. Plants will be installed through erosion blanket (see Erosion Control Products 31 25 00) and into the underlying soil. The weave of the erosion blanket should allow direct planting through the blanket with no need to cut the blanket.
7. Plants shall be installed vertically, with complete contact between the plant cone and fill soil, and shall not have the roots folded or "j-rooted" into the holes (i.e., bottom of root structure shall be in contact with the bottom of the hole and not forced in and bent sideways or upward).
8. Plants shall be installed immediately after being removed from the tubes (i.e., plants shall not be removed from tubes and staged beforehand, leaving them exposed to drying conditions).
9. Plastic plant tubes and racks must be removed from the site and returned to the Park staff.
10. Contractor will not stack plant tubes but will return them to the planting racks to avoid broken planting tubes. Contractor will be responsible for any fees from damage to container plant tubes.
10. Contractor is responsible for any damage to the container plant racks used for delivery. Any broken racks will be charged a fee of \$13/rack. Any fees for broken materials will be covered by the Contractor.

C. Disturbance

1. The processes of planting must not significantly alter the Finish Grade, Compaction, or Erosion Protection of the gully fill or access route areas being planted.
2. No vehicle or equipment traffic is permitted to drive over an area during or after planting. Foot traffic should be kept to a minimum and distributed to avoid concentrated areas of compaction and soil disturbance, and the formation of trails, linear flow paths, or erosion features.
3. At the time of planting, the site may be very wet in most or all areas, including areas of shallow sheetflow. Therefore, motorized vehicle access (i.e., cars, pick-

ups, vans, etc.) will be restricted to paved roadside areas and available project access routes. Plants shall be transported to the planting locations by hand or other approved non-impactive method. Planting personnel traveling on foot will also take special care during the planting process to not disturb the existing grades, plantings, and erosion control blanket, or produce trailing in the meadow or restoration area to the maximum extent possible.

3.3 REJECTION OF WORK AND MATERIALS:

- A. Delivered Plant Materials for this project are of high value and cannot be easily replaced within the project timeframe. Handle with care. Replacement for losses or unapproved use of Delivered Plant Materials will be sole cost to the Contractor
- B. Engineer's Representative will reject planting efforts that do not conform to this section. Contractor shall immediately coordinate with the Engineer's Representative to obtain replacement plants to conform to specifications at Contractor's expense.
- C. Any plants that have been allowed to dry out or have been damaged by herbivory, high temperatures, crushing or trampling, improper handling or planting, or undue stress during storage or delivery will be rejected by the Engineer's Representative at the job site. Replacement of rejected plant material will be at the Contractor's sole expense and at no cost to the American Rivers.
- D. Any plant material that is supplied by the Contractor must be thoroughly inspected and approved for use by the Engineer's Representative prior to that material entering the Park or Forest.
- E. Acquisition or application of unapproved seed or plant material shall be removed from the project site by Contractor at Contractor's sole expense.

END OF SECTION

SECTION 32 92 13 SOIL AMENDMENT

PART 1 - GENERAL

1.1 SUMMARY

This section includes

- A. Stockpiling and staging of logs and brush that were cleared and grubbed from the Borrow and Fill Areas, as well as YNP-supplied logs.
- B. Grinding stockpiled and staged logs and brush into wood chips
- C. Mixing mineral soil excavated from Borrow Areas (see Excavation and Fill 31 23 00) with wood chips and organic material to create an amended soil composed of a 70% (by volume) mixture of soil and 30% (by volume) wood chips prior to placement as fill in the gully.

1.2 FIELD MEASUREMENTS

Verify control monuments and intended elevations for Work as shown on Drawings.

1.3 COORDINATION

Coordinate work with others performing work at project site. Do not perform soil preparation work in areas subject to subsequent work of other sections unless approved by the Engineer's Representative. Perform work in accordance with approved schedule. Immediately notify Engineer's Representative of any scheduling delays or problems.

1.4 PROJECT CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by American Rivers, YNP, and STF as far as practical.
- B. Notify Engineer's Representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify the Engineer's Representative. American Rivers will remove hazardous materials under a separate contract or work with the Contractor to legally dispose of the material.

PART 2 - PRODUCTS

2.1 SOIL

All soil will be on-site borrow taken from designated areas as shown in the Drawings.

2.2 WOOD CHIPS & ORGANIC MATTER

Wood chips and organic matter shall consist of primarily of ground or chipped trees and limbs, but may also include grubbed and cleared stumps, shrubs, and brush. Wood chips and organic material must pass through a 4-inch screen. Material shall be free of debris.

2.3 AMENDED SOIL

Amended soil shall consist of homogeneous blended mixture of 70 percent mineral soil and 30 percent wood chips by volume.

2.4 YNP-SUPPLIED PRODUCTS

- A. YNP shall deliver logs to the project staging area for grinding into wood chips and mixing with excavated mineral soil to create amended soil.
- B. In addition to logs, YNP may supply mineral soil to the staging area.

PART 3 - EXECUTION

3.1 SUPPLY OF WOOD AND ORGANIC MATERIALS

- A. Contractor shall stockpile all trees, brush, and organic materials from clearing and grubbing operations. Exceptions shall include willows and wetland sod identified as salvage for replanting. See Sodding 32 92 26 and Clearing and Grubbing 31 11 11.
- B. There is not adequate woody material on site to meet the project requirements for wood chips. YNP shall provide the Contractor with logs to be chipped by the Contractor for Soil Amendment.
 - 1. Wood material shall be provided in the form of cleared trees delivered to the site.
 - 2. Contractor will need to process the delivered wood into chips.
 - 3. See Drawings for estimated quantities.

3.2 STAGING & DELIVERY

- A. The Contractor shall coordinate with the Engineer's Representative to select one or more delivery sites for receiving and stockpiling trees.
- B. Delivered trees shall be unloaded into a stockpile by YNP.
- C. Log delivery may occur before the contractor mobilizes in for each phase. Contractor shall be required to coordinate with American Rivers and YNP for delivery even if work has not substantially begun.

3.3 SHREDDING & GRINDING

- A. The Contractor shall be responsible for shredding and grinding of trees and organic materials as required to produce material that can pass through a 4-inch screen.
- B. Grinding equipment shall be a tub grinder, minimum 750 horsepower.

3.4 BLENDING & TRANSPORT

The Contractor shall be responsible for blending borrowed mineral soil with wood chips to produce amended soil as specified. Various options of blending the materials exists, including options that blend prior to the placement of fill, and options that blend the material as part of the placement process. Prior to the start of the fill operation the Contractor shall submit a plan that describes the proposed blending process. The end product shall be a relatively homogenous mixture of mineral soil and organic matter. Fill material with observable layering of materials will be rejected.

3.5 FIELD QUALITY CONTROL

- A. American Rivers reserves the right to take and have a Soils Testing Laboratory analyze soil at the site.
- B. Immediately remove rejected materials from site. Replacements are subject to all specified requirements.

END SECTION

SECTION 32 92 19 – SEEDING

PART 1 - GENERAL

1.1 SUMMARY

- A. The work includes receiving and storing seed and then spreading the seed on bare or disturbed soil from gully fill operations and access routes within the meadow, as shown on the Drawings.
- B. This will not include seeding upland areas such as borrow sites, staging area, and hillside roads/routes. Upland areas will be seeded separately by the YNP, not as part of this Agreement. The materials to be used and their proper application shall be as specified herein.

1.2 SUBMITTALS

- A. Tracking sheets will accompany each seed delivery specifying weight of seed provided (in pounds). Tracking sheets shall be signed by the Contractor recipient upon delivery of the seed and provided to the Engineer's Representative.
- B. The Contractor shall provide notification to the Engineer's Representative one week before the seed is needed for placement; notification shall include written calculation of amount of seed needed for placement. Contractor shall maintain written log and progress plan of NPS delivered seed quantities and cumulative running totals by species, and schedule of anticipated seed needs; and submit weekly for Engineer's Representative review and approval.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Seed mixture
 - 1. The YNP will provide collected native seed from the project site for sowing by the Contractor.
 - a. Exact quantities may vary from, but shall not exceed the specified amounts, and are dependent upon success of separate commercial seed increase and plant propagation contracts which include delivery to the project.
 - b. Native seed is costly and often cannot be easily replaced. When in their care, the Contractor shall perform high-quality handling of native seed. Equipment and facilities used by Contractor for transporting, handling, and storing of seed must be as free as possible of other non-target seed and may be inspected by Engineer's Representative. Contractor handling

- and storage methods shall be reviewed and approved by Engineer's Representative.
- c. Contractor shall maintain labeled identity and bag weights. Purity and viability of seed must be maintained at all times during storage and handling.
 - d. Seed tags shall show the following information:
 - Scientific name
 - Common name
 - Delivery date.
 - Delivery lot/tracking number
 - Percent purity
 - Weight in grams and pounds.
2. Provided seed shall be temporary stored by the Contractor until placement. Seed must be stored in a cool, dry location protected from pests such as insects and rodents, and inaccessible to bears.
- a. The Engineer's Representative and Contractor will coordinate to identify a location for temporary storage at Hodgdon Meadow Work Area or other location mutually agreed upon for delivery and storage of native seed as needed.
 - b. Daily seed storage (e.g., within week of planned use) by the Contractor shall occur in a cool (e.g., less than 74 degrees F), dry, well-aerated, or refrigerated location that is free from pests such as insects and rodents, and is also bear-proof. Storage facility shall allow for air circulation and is protected from rain, moisture, temperature extremes or other conditions that would reduce the viability of the seed.
 - c. Inspections: The Engineer's Representative may inspect native plant material storage facilities at any time.
 - d. If seed will remain unused for more than one week, the Contractor shall arrange for return to the YNP for storage.
3. Seed Transport: Seed shall be transported from the approved temporary storage facility to the project site in a manner that will prevent damage to the seed and arrive expeditiously for efficient use (e.g., sowing) at the project site.

PART 3 EXECUTION

3.1 PREPARATION

A. Soil surface

1. Seeding must occur after the Gully Fill and Access Route soil surfaces are at finish grade, decompacted, and smoothed as described in Section 31 22 00.

B. Erosion blanket

1. Seeding should occur as close to the date of RECP installation as practicable, to minimize the amount of time the seeded ground is unprotected by RECP material.
 - a. If rain is predicted, seeding should only occur if the Contractor is confident that both seeding and installation of RECP can be completed prior to the start of rainfall.
 - b. If rain is predicted before RECP can be installed, seeding should be delayed until after the rain event.

3.2 PLACEMENT

- A. Contractor shall notify the Engineer's Representative at least 72 hours in advance of any seed placement.
- B. Distribution:
 1. The entire quantity of seed provided should be evenly broadcast and distributed across the entire prepared bare meadow soil area prior to the installation of Erosion Blanket and immediately preceding or concurrent with installation of Container Plantings.
 - a. If the full estimated quantity of seed is delivered by YNP, the total seeding rate will equate to 40 seeds per square foot.
 - b. Placement: Manual hand-sowing (e.g., rotational hand seeders with mixed sand) is the preferred placement method, and no mechanical drilling or other vehicle-based application method is permitted unless approved by the Engineer's Representative.
- C. Seeding Placement application steps.
 1. The Contractor shall accurately calculate, weigh, and thoroughly mix seed required for the daily work area based on the specified seeding rate(s).
 2. The Contractor shall demarcate, using pin flags or other suitable temporary markers, the area to be seeded.
 3. The Contractor shall hand sow the weighed and mixed seed amount appropriately and equally across each demarcated area, using smaller proportioned areas to calibrate seed sowing application.
- D. Conduct QA/QC roughly halfway through the sowing effort to ensure the amount of remaining seed is a sufficient amount for the remaining area.
- E. The Contractor shall hand or mechanically rake the area with sown seed to maximize seed to soil contact. Then complete installation of erosion control blankets according to Specifications.
- F. Incorporation into soil

1. The entire seeded area will be raked or dragged to no greater than ¼ inch depth following seed distribution to mix seed into the surface of the soil before placement of the rolled erosion control blanket.

G. Disturbance

2. The processes of seed distribution and post-seeding incorporation must not significantly alter the finish grade or compaction of the gully fill or access route areas being seeded.
3. No vehicle or equipment traffic is permitted to drive over an area once it has been seeded. Foot traffic, necessary for raking, and installation of Erosion and Sediment Control, should be kept to a minimum and distributed to avoid concentrated areas of compaction and soil disturbance, and avoid creation of linear depressions that could concentrate runoff and initiate soil erosion.

4.2 REJECTION OF WORK AND MATERIALS:

- A. Delivered native seed materials for this project are of high value and cannot be easily replaced within the project timeframe. Handle with care. Replacement for losses or unapproved use of native seed materials will be sole cost of the Contractor.
- B. Engineer's Representative will reject seeding efforts that do not conform to this section. Acceptance will be determined by meeting all application, inspection and seed quality standards required herein. Contractor shall immediately coordinate with the Engineer's Representative and the YNP to obtain replacement native seed to conform to specifications at the sole expense of the Contractor and at no additional cost to American Rivers.
- C. Any seed or plant material that is supplied by the Contractor must be thoroughly inspected and approved for use by the Engineer's Representative prior to that material entering the Park or Forest. Materials must be free of invasive and noxious species and documented in the Seed Viability and Weed tests.
- D. Acquisition or application of unapproved seed or plant material shall be removed from the project site by Contractor at Contractor's expense.

END OF SECTION

SECTION 32 92 26 – SODDING AND WILLOW SALVAGE

PART 1 - GENERAL

1.1 SUMMARY

The work includes salvaging wetland sod blocks and willow shrubs clumps from within the gully fill zone and storing, transporting, and re-installing the sod blocks and willow clumps at finish grade in designated locations, as shown on the Drawings. The materials to be used and their proper application shall be as specified herein.

PART 2 PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PREPARATION

A. Sod and willow salvage:

1. All wetland vegetated areas 1 square yard in size or larger within the project fill limits shall be salvaged as sods.
 - b. All sod and willow salvage will occur within the gully fill zone or on access routes.
 - c. The Engineer's Representative may designate additional on-site areas outside of mapped work zones for salvage of additional sod, if necessary, up to the quantity specified.
2. Whole willow plants within the fill limits shall be salvaged. The intent is to salvage as many live willow trees as possible and transplant the salvaged willows on site. Willows less than 4 feet tall shall be salvaged as entire plants with intact root ball and stems. Willows 4 feet or taller shall first be coppiced (cut) so that stems are no less than 2 feet tall, and no more than 4 feet tall. The stems cut from 4+ feet tall willows will be treated as cleared material and chipped, or they may be collected by NPS staff and used elsewhere.
3. Sod and willow salvage at a particular area within the gully must occur prior to or concurrent with Clearing and Grubbing (section 31 11 11).
4. Sod and willows must be harvested before being tracked over by Clearing and Grubbing equipment or buried by fill operations.
5. Sod shall be harvested as intact vegetated soil blocks not less than 2 feet long, 2 feet wide, 1 foot thick, but not more than 2 feet thick.
6. Whole willow plants shall be extracted as a single unit (clump) without damaging the central root ball(s). Willows taller than 4 feet will have their branches trimmed down to 2 feet prior to salvage. Willows shorter than 4 feet do not need to be trimmed. Attached roots and/or soil are not required.

B. Loss:

1. A certain amount of loss of salvageable sods and willows is anticipated. Some sod blocks and clumps will fall apart to the point where handling will no longer be possible.
2. Material lost in the salvage process shall be incorporated into the fill material and evenly spread over the final grade surface. Volunteer revegetation may still occur from seeds and root stock within the loss material.

C. Storage:

1. Sods and willows can be stored on the meadow surface adjacent to, but outside of, the gully fill limits only if such storage will not disturb the meadow surface in the act of placing or relifting the sods and willows.
 - a. Equipment travel or excavation outside of the gully fill limits or designated access routes in order to access sod storage areas is not allowed unless specifically approved by the Engineer's Representative.
 - b. If sods and willows are stored on the meadow surface adjacent to the gully, underlayment such as cargo netting will be required to assist in relifting the sods for transport and placement.
 - c. Willows and sod stored longer than 8 hours shall be wetted and kept moist so as to keep the vegetation alive and viable.
2. Sods and willows should be handled and stored to keep them reasonably intact and in good condition.
 - a. Sods shall be considered reasonably intact if their final dimensions after handling and upon placement are no less than 2 feet long, 2 feet wide, and 1 foot thick.
 - b. Willows shall be considered reasonably intact if the root ball is complete and undamaged and less than 20% of stems are broken.
 - c. Sods and willows shall be considered in good condition if they are kept moist, with living plants kept green. Storage in shade may facilitate keeping sods and willows in good condition.

3.2 PLACEMENT

A. Location and grade

1. Salvaged sod turfs and willows shall be placed, green leafy side up, with the upper soil surface at finish grade within the designated salvaged sod planting zones, and/or as directed.
2. Placement of Salvaged Sod and willows shall occur concurrently with Finished Grading (Section 31 22 00, Part 3.3) unless approved by the Engineer's Representative.

B. Distribution

1. Salvaged sods shall snugly abut adjacent sods, underlying fill, and lateral fill such that there are no voids between sods or fill.
2. Willow plants shall be planted as shown on the Drawings and as directed by the Engineer's Representative.

C. Disturbance

1. While placing sods, the equipment operator may use the flat face of the bucket to press the top of the sod down, if it sits above <4 inches above grade, so long as the sod is not ruptured in the process. This compression should only be used to depress the sods up to 4 inches. The underlying fill must be lowered if the sod top is more than 4 inches above grade at initial placement before compression. This <4 inch compression can help expand sods laterally to contact neighboring sods and fill.
2. Willow plants must be placed in a properly sized hole to accommodate the root ball, leaving no part of the root ball more than 3 inches above or below the finish grade surface level. No bucket compression of the root ball into the soil is allowable for willow plants.
3. No vehicle or equipment traffic is permitted to drive over an area once it has been sodded. Foot traffic, necessary for installation of erosion control blanket, seed, and container plants, should be kept to a minimum and distributed to avoid concentrated areas of compaction and soil disturbance.

3.3 REJECTION OF WORK AND MATERIALS:

- A. Engineer's Representative will reject sod and willow preparation, storage, or placement efforts that do not conform to this section. Contractor shall immediately take steps to conform to specifications.
- B. No sod or plant material shall be brought in from outside the project area unless specially approved and inspected by the Engineer's Representative.
- C. Acquisition or application of unapproved sod or plant material shall be removed from the project site by Contractor at Contractor's expense.

END OF SECTION