

BID DOCUMENTS

for the construction of the

**CAP SYSTEM, FRENCH DRAIN AND LANDFILL GAS EMISSION
CONTROL SYSTEM, OPERABLE UNIT 1**

MEYERS LANDFILL EL DORADO COUNTY, CALIFORNIA

Prepared for:



**COUNTY OF EL DORADO
ENVIRONMENTAL MANAGEMENT
DEPARTMENT
2850 Fairline Court, Building C
Placerville, California 95667**

For Information Contact:

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COUNTY OF EL DORADO
ENVIRONMENTAL MANAGEMENT DEPARTMENT

BID DOCUMENTS

for the construction of
CAP SYSTEM, FRENCH DRAIN AND LANDFILL GAS EMISSION CONTROL SYSTEM

MEYERS LANDFILL
BID PACKAGE 1

CONSISTING OF:
BIDDING REQUIREMENTS
CONTRACT FORMS
CONDITIONS OF THE CONTRACT
SPECIFICATIONS
DRAWINGS

Design Engineer
ENGINEERING/REMEDIAION RESOURCES GROUP, INC.
115 Sansome Street, Suite 200
San Francisco, CA 94104

####, 2009

Contract # @@@@ @@@@ @@@@ @@@@ @@@@ @@@@ @@@@ @@@@ Copy No. _____

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PART 1

CONTRACT FORMS

NOTICE TO BIDDER: Use preferably BLACK ink for completing this proposal form.

PROPOSAL

NOTICE TO BIDDERS

NOTICE IS HEREBY GIVEN that the Board of Supervisors of the County of El Dorado will receive sealed Bids in accordance with the provisions of the Public Contract Code from contractors licensed for the furnishing of all labor, materials, equipment, transportation and services for the performance of the following Work:

for the construction of

**Cap & Drainage System, French Drain and Landfill Gas Emission Control System
Operable Unit 1, Meyers Landfill
El Dorado County, California
Project # @@@@ @@@@**

in accordance with the Contract, Plans, and Specifications (Bid Documents) therefor on file in the office of the Environmental Management Department, located at 2850 Fairlane Court, Building C Placerville, CA 95667.

The Work the Contractor agrees to furnish at his own cost and expense, all tools, equipment, apparatus, labor, materials, and mechanical workmanship, transportation, and services necessary to construct a new cap system, a new French drain and a landfill gas control system for the Operable Unit (OU) -1 of the Meyers Landfill in El Dorado County, California and in strict accordance with the Bid Documents. All such Work shall be completed in a good and workmanlike manner.

The Bid Documents for the Work may be examined, and may be obtained at the office of the Environmental Management Department, or they will be mailed upon request by calling Kevin Gilliland at (530) 621-6664. A \$30.00 fee will be charged for each set of Bid Documents obtained, and is **non-refundable. Bid books will not be returned to the contractors, but will remain on file with the Environmental Management Department.**

SITE INFORMATION:

The Meyers Landfill Site (Site) is located northeast of the town of Meyers on National Forest System lands within the United States Department of Agriculture Forest Service (Forest Service) Lake Tahoe Basin Management Unit (LTBMU), El Dorado County, California (Figure 1). The Forest Service is the lead agency pursuant to its delegated authorities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and Executive Order 12580. This project will follow the Record of Decision (ROD), the 100% design documents, the Remedial Action Workplan (RAWP) Exhibit B, and a Consent Decree (CD) Exhibit C once it is finalized and signed. A model CD has been provided as an attachment as a guide. Because this is a

CERCLA site, all on-site personnel must be OSHA 40 hour HAZWOPER trained, with a current 8-hour refresher. This is a CERCLA site, and health and safety training requirements will be enforced.

To obtain more specific information about this project, the 100% design documents and the ROD can be downloaded from the following web link:

<http://www.fs.fed.us/r5/lbmu/projects/meyers/index.shtml>

STATEMENT OF BASIS AND PURPOSE:

This decision document presents the selected remedial action for Operable Unit 1 at the Meyers Landfill Site located on National Forest System lands within the LTBMU, El Dorado County, California. On January 14, 2002, the Forest Service issued a Proposed Plan for the Site for public comment. The 2002 Proposed Plan called for capping the waste mass with an impermeable cover system and remediating the contaminated groundwater plume by installing a “pump and treat” system. Upon review of public comments, and discussions with potentially responsible parties, the Forest Service determined that additional site investigation work should be performed to fill identified data gaps and to refine the remedy selection. In 2006, the Forest Service made a determination to separate the Site into two Operable Units (OUs), OU-1, the landfill waste mass, and OU-2, the groundwater plume, to allow for the acceleration of the selection and implementation of a containment remedy for the landfill waste mass. A Supplemental Remedial Investigation/Feasibility Study (RI/FS) for OU-1 was completed in May 2007 and forms the basis of this Record of Decision (ROD).

The remedy was selected by the Forest service in accordance with CERCLA, 42 USC §9601 et seq., as amended, and the National Oil and Hazardous Substance Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 300. The Forest Service supported its selection with information in the administrative record for the Meyers Landfill. The remedy is consistent with the U.S. Environmental Protection Agency (EPA) presumptive remedy guidance for CERCLA municipal landfill sites (EPA 1993, 1996) and the NCP. This decision document satisfies requirements for the ROD under CERCLA. The signatures in Section 1.7 indicate approval of this ROD by the Forest Service. Due to the regulatory authority the Forest Service has with respect to this site, all work completed by the Contractor is subject to Forest Service review and approval.

SEALED BIDS:

Sealed Bids on the above project shall be filed with the Purchasing Department, located at 330 Fairlane, Placerville, CA 95667, **on or before 3:00 p.m. on December 15, 2009. All Bids must be marked clearly on the envelope: "Proposal to construct the Cap System, French Drain and Landfill Gas Emission Control System, to be opened at 3:00 p.m., December 15, 2009.** Said **Bids** will be opened in public after 3:00 p.m. of said day in the Purchasing Department, 330 Fairlane, Placerville, CA. **Bids** shall be submitted only on forms provided therefore in the Bid Documents, and shall be accompanied by all documents and information required to be submitted by the Instructions to Bidders and by law. No **Bid** may be withdrawn after the time established for receiving **Bids** or before the award and execution of the Contract, unless the award is delayed for a period exceeding forty-five (45) calendar days.

CONTRACTOR'S LICENSE REQUIRED:

The Board will not consider or accept any **Bids** from contractors who are not licensed to do business in the State of California. Contractor warrants and represents that he/she holds a valid California license pursuant to the State Contractors License Act [Business and Professions Code Section 7000, et seq.], that his/her license is in good standing and that he/she possess a Class A License as required by the categories and type of Work.

REQUIRED LISTING OF PROPOSED SUBCONTRACTORS:

Each Proposal shall have listed therein the name and address of each subcontractor to whom the Bidder proposes to subcontract portions of the Work in an amount in excess of ½ of one percent of his total Bid or \$10,000, whichever is greater in accordance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100, through 4113 inclusive of the Public Contract Code. The Bidder's attention is invited to other provisions of said Act related to the imposition of penalties for a failure to observe its provisions by using unauthorized subcontractors or by making unauthorized substitutions.

BID EXAMINATION AND PREPARATION:

The Bidder shall carefully examine the Bid Documents, (including the Plans and Specifications) and satisfy the Bidder as to their sufficiency, and shall not at any time after submission of the Bid, dispute or complain of such Plans or Specifications nor assert that there is any misunderstanding in regard to the location, extent or nature or amount of Work to be performed in accordance thereto. Should a Bidder find discrepancies or omissions in the Plans and Specifications, the Bidder shall notify the Project Administrator in writing, prior to the **Bid** deadline.

The Bid shall have all items filled in and the signatures of all persons signing the Bid shall be in longhand. Mistakes must be corrected and the correction inserted and initialed in ink by the person signing the Bid. Erasures and/or correction fluid are NOT acceptable. Changes must be lined out and corrections inserted adjacent and initialed by the Bidder's authorized representative. No **Bid** will be considered that makes exceptions, changes or reservations to the Bid Documents.

NON-COLLUSION AFFIDAVIT:

Bidders shall include with their Bids a signed affidavit stating that their Bid is not a sham or a collusive Bid. The affidavit is to be signed exactly as worded; no alternate wording will be accepted. The affidavit is included with the Proposal.

BONDS AND INSURANCE REQUIRED:

A Bid security shall be provided with each Bid. Bid security shall be in an amount of not less than ten percent of the total amount of the Bid and shall be cash, a certified check or cashier's check drawn to the order of the County of El Dorado or a Bidder's Bond executed by a surety satisfactory to the County of El Dorado in the form provided in the Proposal section of these Bid Documents. The Bidder to whom award is made shall provide Certificates of Insurance as required in Article 8 of the General Conditions, and shall complete and submit the Performance Bond and Payment Bond forms contained in the Bid Documents.

SUBSTITUTION OF SECURITIES:

Bidders are hereby put on notice that the successful Bidder may substitute securities for any monies withheld by County of El Dorado to insure performance of the Contract pursuant to Public Contracts Section 22300. This section provides that the Contractor may elect to receive 100 percent of payments due under the Bid Documents from time to time, without retention from any portion of the payment by the County of El Dorado, by depositing eligible securities of equivalent value with the County of El Dorado or qualified escrow agent in accordance with the provisions of Public Contract Code Section 22300. Eligible securities shall be limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit from a qualified institution. Any such escrow Contract shall follow the form set forth in Public Contract Code Section 22300(f).

(DBE) PARTICIPATION:

The Disadvantaged Business Enterprise (DBE) participation is not required for this Project.

NON-DISCRIMINATION:

This Contract is subject to Contract non-discrimination and compliance requirements pursuant to Government Code, Section 12990 and shall be construed and interpreted in compliance with said provisions.

The Environmental Management Department hereby notifies all Bidders that it will affirmatively insure that in any Contract entered into pursuant to this advertisement, disadvantaged business enterprise will be afforded full opportunity to submit Bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for the award.

PREVAILING WAGE PROVISION:

- a. Pursuant to Labor Code Section 1770 et seq., 1773, 1773.1, 1773.2, 1773.6, 1773.7, and 1720 each laborer or mechanic of contractor or any subcontractor engaged in Work on the project under this Contract shall be paid not less than the hourly wage rate of per diem wages set forth in the prevailing wage rate schedule published by the Director of Industrial Relations regardless of any contractual relationship which may be alleged to exist between contractor or any subcontractor and such laborers and mechanics. Interested parties may obtain the current wage information by submitting their requests to the Department of Industrial Relations, Division of Labor Statistics and Research, P.O. Box 603, San Francisco, CA 94101 or visit their Internet web site @ <http://www.dir.ca.gov>.
- b. Any laborer or mechanic employed to perform Work on the project under this Contract, which Work is not covered by any of the foregoing classifications, shall be paid not less than the prevailing rate of per diem wages specified herein for the classification which most nearly corresponds to the Work to be performed by him.
- c. The foregoing specified prevailing wage rates are minimum rates only, and the contractor may pay any wage rate in excess of the applicable rate contained in this Contract.

- d. Pursuant to Labor Code Section 1775, the contractor as a penalty to the County shall forfeit \$50.00 for each calendar day, or portion thereof for each worker paid less than the prevailing rate established by the Department of Industrial Relations for such Work or craft in which such worker is employed. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which the worker was paid less than the prevailing wage rate shall be paid to each worker by the contractor. NOTE: An error on the part of an awarding body does not relieve the contractor from responsibility for payment of the prevailing rate of per diem wages and penalties pursuant to Labor Code Sections 1770-1775.
- e. Copies of the applicable prevailing wage rates are on file with the County of El Dorado, Director of General Services, in the Facilities Division at 3000 Fairlane Court, Suite 2, Placerville, CA, 95667, and shall be available upon request.

All contractors and subcontractors are subject to the provisions of Sections 1810 through 1814 of the California Labor Code which provide for the maximum hours a worker is to be employed and the amount and rate of overtime compensation.

AWARD OF CONTRACT:

Bids will be considered for award by the Board of Supervisors. The County of El Dorado reserves the right after opening Bids to reject any or all Bids, or to waive any informality (non-responsiveness) in any Bid, or to make award to the lowest responsive, responsible Bidder and reject all other Bids, as it may best serve the interests of the County.

As a condition of award, the successful Bidder will be required to submit bonds and evidence of insurance prior to execution of the Contract by the County. Failure to meet this requirement shall constitute abandonment of the Bid by the Bidder and forfeiture of the Bid Bond. Award will then be considered to the next lowest responsible Bidder.

PRE-BID CONFERENCE:

Pre-Bid Conference was completed on September 3, 2009 at 1:00 pm at the Meyers Landfill Site, El Dorado County, California. Questions should be forwarded to the Project Administrator and will be addressed, if necessary, by addendum. Submission of a Bid shall be considered an acknowledgment of familiarity with the Bid Documents, and conditions at the site.

PROJECT ADMINISTRATOR:

The County's Project Administrator for this project is Gerri Silva, or her successor. All communications relative to the Bid Documents shall be in writing and directed to: County of El Dorado, Environmental Management Department, 2850 Fairlane Court, Placerville, CA 95667, (530) 621-5300. No oral responses to any questions concerning the contents of the Bid Documents will be given. Responses, if any, will be in the form of a written addendum to the Bid Documents.

NOTICE OF DISCOVERY OF HAZARDOUS WASTE OR UNUSUAL CONDITIONS:

The Contractor shall promptly, and before the following conditions are disturbed, notify the County in writing, in the event the Contractor encounters, any of the following:

1. Material that the Contractor believes may be hazardous waste, as defined in section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.
2. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in the Work of the character provided for in the contract.

The County shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work shall issue a change order under the procedures described herein.

In the event a dispute arises between the County and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for in the contract, but shall proceed with all Work to be performed under the Contract. The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the Contractor and the County.

To: County of El Dorado Purchasing Department

Address: 330 Fairlane
Placerville, California 95667

Project Title: **Cap System, French Drain and Landfill Gas Emission Control System
Operable Unit 1, Meyers Landfill
El Dorado County, California**

Bids Due: @: @@ p.m., Day: @@@@ Date: @@@@, 2009

Bidder's person to contact for additional information of this Proposal:

Name: _____

Telephone: _____

BIDDER'S DECLARATION AND UNDERSTANDING

This undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Proposal are those named herein, that this Proposal is, in all respects, fair and without fraud, that

it is made without collusion with any official of the County, and that the Proposal is made without any connection of collusion with any person submitting another Proposal on this Contract.

The Bidder further declares that he/she has carefully examined the Bid Documents for the construction of the project, that he/she has personally inspected the site, that he/she has satisfied himself as to the quantities involved, including materials and equipment, and conditions of work involved, including the fact that the description of the quantities of work and materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the Bid documents, and that this Proposal is made according to the provisions under the terms of the Bid Documents, which Documents are hereby made a part of this Proposal.

The Bidder further agrees that he/she has exercised his/her own judgment regarding the interpretation of subsurface information and has utilized all data which he/she believes pertinent from the Engineer, County, and other sources in arriving at his/her conclusions.

(NOTICE: Bidder's failure to execute the questionnaires and statements contained in this Proposal as required by applicable laws and regulations, or the determinations by County of El Dorado based upon those questionnaires and statements may prohibit award of the subject contract to the bidder.)

The Bidder agrees that if this Proposal is accepted, he will, within 10 working days after receiving the notice of award, sign the Contract in the form annexed hereto, and will at that time, deliver to the County the Performance Bond and Payment Bond required herein, and will, to the extent of his Proposal, furnish all machinery, tools, apparatus, and other means of construction and do the work and furnish all the materials necessary to complete all work as specified or indicated in the Bid Documents.

CERTIFICATES OF INSURANCE

The Bidder further agrees to furnish the County, before commencing the work under this Contract, the certificates of insurance as specified in these Documents.

Bidder further agrees that the total amount stated herein includes specific consideration for the insurance coverages, including contractual liability, specified in the Bid Documents.

START OF CONSTRUCTION AND CONTRACT COMPLETION TIME

The Bidder further agrees to begin work within 10 working days after the date of the Notice to Proceed and to complete the construction, in all respects, within 120 calendar days after the date of the Notice to Proceed. The field season for this project is June 15, 2010 to October 15, 2010. All work is to be completed and wrapped up by October 15, 2010.

LIQUIDATED DAMAGES

In the event the Bidder is awarded the Contract and shall fail to complete the work within the time limit or extended time limit agreed upon, as more particularly set forth in the Bid Documents, liquidated damages shall be paid to the County at the rate of \$1000 per day for all work awarded

under one contract until the work shall have been satisfactorily completed as provided by the Bid Documents.

ADDENDUM ACKNOWLEDGMENT: Addendum No. _____ dated _____
Addendum No. _____ dated _____
Addendum No. _____ dated _____
Addendum No. _____ dated _____
Addendum No. _____ dated _____

(Bidder shall insert No. of each Addendum received) and agrees that all addenda issued are hereby made part of the Bid Documents, and the Bidder further agrees that his/her Proposal(s) includes all impacts resulting from said addenda.

SALES AND USE TAXES

The Bidder agrees that all federal, state, and local sales and use taxes are included in the stated bid prices for the work.

PROPOSAL REQUIREMENTS

This proposal is for the construction of the Work in accordance with the Bid Documents (including the payment of not less than the minimum wage rates set forth in the Bid Documents), including the Contract annexed hereto, the project Plans, the current California Department of Transportation Standard Plans and Standard Specifications, the Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished, and in accordance with the current “General Prevailing Wage Rates” published by the California Department of Transportation.

Bids are required for the entire work. The amount of the bid for comparison purposes will be the additive total of all extended item unit prices.

The Bidder shall set forth for each item of work, in clearly legible figures, a unit price and a total in the respective spaces provided for this purpose.

In case of discrepancy between the unit price and the total set forth for the item, the unit price shall prevail; except, however, that for lump sum items, the sum set forth in the “Amount” column shall prevail.

BID SECURITY

Accompanying this Proposal is _____ in an amount of at least ten (10) percent of the total Base Bid Price. (In the blank space insert “bidder’s bond”, “certified check”, or “cashier’s check”, as the case may be.)

BID SCHEDULE CAP SYSTEM, FRENCH DRAIN AND LANDFILL GAS EMISSION CONTROL SYSTEM OPERABLE UNIT 1 MEYERS LANDFILL EL DORADO COUNTY					
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BID NO.	BID ITEM	QUANTITY	UNITS	UNIT COST	SUBTOTAL COST
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GENERAL					
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1	Surveying	1	L.S.		
1A	Mobilization Demobilization	1	L.S.		
1B	Construction support facilities & services	1	L.S.		
SITE WORK					

2	Clearing and grubbing	11 landfill acres plus trees/plants around the landfill (see grading plan)	ACRE		
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2A	Grading of Sedimentation Ponds & Site Access	1	L.S.		
2B	Installation of site BMPs including stabilized exits, straw waffles, etc.	1	L.S.		
2C	Demolition of portions of the existing storm drain system	1	L.S.		

3	Removal & stockpile of top 2 feet of existing cover soil in area east and west of sewer	33,400	C.Y.
4	Installation of filter fabric fence	1,500	L.F.
5	Replacement of cover materials as foundation layer west of the sewer	35,500	C.Y.
6	Backfilling and grading in area east of sewer	1	L.S.

7	Hydroseeding (grass) of area located now beneath relocated waste & other areas outside LF Cap	16	ACRE		
8	Infiltration swale	1	L.S.		
REPLACE ACCESS ROAD					
9	Fill and grade access road	1	L.S.		

10	Installation of 12-inch road base	1,300	TON
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ABANDON EXISTING MONITORING WELLS					
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11	Abandonment of Existing Monitoring Wells & piezometers	1	L.S.
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BID SCHEDULE CAP SYSTEM, FRENCH DRAIN AND LANDFILL GAS EMISSION CONTROL SYSTEM OPERABLE UNIT 1 MEYERS LANDFILL EL DORADO COUNTY					
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BID NO.	BID ITEM	QUANTITY	UNITS	UNIT COST	SUBTOTAL COST
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WASTE RELOCATION					
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12	Waste Relocation	33,900	C.Y.
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MONITORING, SAMPLING, TESTING, AND ANALYSES					
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13	Confirmation Sample collection and Laboratory analyses	92	EA
14	Technical memorandum or letter	1	EA

CAPPING					
15	Subgrade preparation	479,000	S.F.		

15A 2' thick
Foundation
layer
placement
grading

16	Installation of 60-mil LLDPE geomembrane	479,000	S.F.		
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16A	Anchor Trenches for tasks 16 & 18	1	L.S.		
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17	Installation of 12-inch drainage sand layer on 25% slopes (screening on- site material)	3,500	C.Y.		
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18 Installation of
geocomposite
layer

19 Installation of
24-inch cover
soil layer

20 Installation of
(2) geogrid
layers

20A	Installation of 12" vegetation layer	479,000	S.F.		
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21 Hydromulch
seeding 15 ACRE

BID SCHEDULE CAP SYSTEM, FRENCH DRAIN AND LANDFILL GAS EMISSION CONTROL SYSTEM OPERABLE UNIT 1 MEYERS LANDFILL EL DORADO COUNTY

BID NO.	BID ITEM	QUANTITY	UNITS	UNIT COST	SUBTOTAL COST
Perimeter LFG Monitoring Probes					
22	Installation of LFG monitoring probes	1	L.S.		
Passive LFG Venting					
23	Installation of passive gas vent system	1	L.S.		
French Drain Expansion					
24	French Drain Expansion	1	L.S.		
Concrete-Lined Channels					
25	Concrete-lined channels	1	L.S.		
26	Construct Drainage culverts, energy dissipation bars, rock lined channels	1	L.S.		

TOTAL COST	
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UNIT ABBREVIATIONS

- L.S. = Lump Sum
- C.Y. = Cubic Yard
- L.F. = Linear Foot
- S.F. = Square Feet
- E.A. = Each

1. That if conflicts exist between the County's Specifications and the Bidder's Bid, the County's Specifications shall control.
2. That this Bid is based upon using qualified labor for all field work done under the Contract.
3. That it has made a careful examination of the location and the Work, and determined the amount and character of the Work and the equipment and materials necessary to complete the same in compliance with the Bid Documents, and has become acquainted with labor conditions and all other conditions which would affect the Work and shall complete the Work in and under conditions it may encounter or create, without delay or extra cost to the Company.

4. That this Bid is in all respects fair and is made in good faith, without collusion or fraud.
5. That if written notice of the acceptance of this Bid is mailed, telegraphed, or delivered to the Bidder within ten days after the Bid Date, Bidder will, within ten days after the date of such mailing, telegraphing, or delivering of such notice, execute and deliver the Contractor Agreement together with the required Performance and Payment Bond.
6. That it has been regularly engaged in work of the type required by the Bid Documents for 5 years.
7. Notwithstanding any entireties or similar clauses contained in any of the Bid Documents, upon Company's acceptance of the Bid and the execution of the Contractor Agreement by the Company and the Bidder, the Contractor shall be bound by all terms and conditions contained in the Bid Documents.

BIDDER INFORMATION

Bidder must check one of the following classifications which fits its type of business organization and furnish all information required under that classification.

- () BIDDER IS AN INDIVIDUAL: Bidder's name as it appears on State Contractor's License is:

- () BIDDER IS A PARTNERSHIP: Bidder's firm name, individual or partnership, as it appears on State Contractor's License is:

The full names of all partners as they appear on State Contractor's License are:

County in which any Certificate of Doing business Under Fictitious Name is filed - (if none, so state):

- () BIDDER IS A CORPORATION: The full name of the corporation as it appears on the State Contractor's License is:

Corporation is incorporated in the State of:

BIDDER'S LICENSE

By my signature as a bidder on this proposal, I certify, under penalty of perjury under the laws of the State of California, that, the undersigned is licensed in the State of California in accordance with the Contractor's License Law, Business and Professional Code:

License Number: _____ Classification(s) _____

Expiration Date _____ Signature _____

COUNTY OF EL DORADO

BIDDER'S BOND

KNOW ALL MEN BY THESE PRESENTS, THAT (WE)

_____, as PRINCIPAL, and

as SURETY, are held and firmly bound unto the County of El Dorado in the penal sum of TEN (10) PERCENT OF THE AMOUNT OF THE TOTAL BASE BID PRICE of the Principal above named, submitted by said Principal to the County acting by and through the Environmental Management Department for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made to the County of El Dorado, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents. In no case shall the liability of the surety hereunder exceed the sum of

\$ _____

THE CONDITION OF THIS OBLIGATION IS SUCH:

That whereas the Principal has submitted the above-mentioned bid to the County of El Dorado, as aforesaid, for certain construction specifically described as follows, for which bids are to be opened at Placerville, El Dorado County, California, on _____, 2009, for the installation of the **Cap System, French Drain and Landfill Gas Emission Control System for Operable Unit 1 of the Meyers Landfill, El Dorado County, California.**

NOW, THEREFORE, if the aforesaid Principal is awarded the contract and, within the time and manner required under the Specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files two bonds with County of El Dorado, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by law, then this obligation shall be null and void; otherwise, it shall remain in full force and virtue.

In the event suit is brought upon this bond by the Obligee and judgement is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the court.

IN WITNESS WHEREOF, we have set our hands and seals on this

_____ day of _____, 2009.

(seal)

Principal

(seal)

Surety

Address: _____

(NOTE: Signature of those executing for the Surety shall be properly acknowledged.)

SUBCONTRACTORS LISTING
(Public Contract Code Section 4104)

The name and location of the place of business of subcontractors who will perform work or render service to the Contractor in or about the construction of the work in an amount in excess of one-half of one (0.5) percent of Contractor's total bid, and the portions of the work which will be done by each subcontractor is set forth herein.

Name

Location of Business
Portion or Type of Work

**NONCOLLUSION AFFIDAVIT
(Public Contract Case Section 7106)**

NONCOLLUSION AFFIDAVIT TO BE EXECUTED
BY BIDDER AND SUBMITTED WITH BID

State of California

County of El Dorado

" _____, being first duly sworn, deposes and says that he or she is
_____ of

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any depository, or to any member or agent thereof to effectuate a collusive or sham bid."

Company Name

Company Address

Signature of Officer

Printed Title and Name of

COUNTY OF EL DORADO PAYMENT BOND

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS, that _____

_____ of herein after called the CONTRACTOR (Principal), and _____, a corporation duly organized and existing under and by virtue of the laws of the State of _____, hereinafter called the SURETY, and authorized to transact business within the State of California, as SURETY, are held and firmly bound unto the County of El Dorado (Obligee), in the sum of: _____ DOLLARS (\$_____), lawful money of the United States of America, for the payment of which, well and truly be made to the COUNTY, the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these present as follows:

THE CONDITION OF THE ABOVE OBLIGED IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract here to attached, with the COUNTY, dated #####, 2009, for the Construction of the Cap System, French Drain, and Landfill Gas Emission Control System for the Operable Unit 1 of the Meyers Landfill, El Dorado County, California, Contract # @@@@ @@@@.

That if said Contractor, his or its heir, executors, administrators, successors or assigns, or subcontractors, shall fail to pay any of the persons names in Civil Code Section 3181, or amounts due under the Unemployment Insurance Code with respect to work or labor performed by any such claimant, or for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the Contractor and his subcontractors pursuant to Section 18806 of the Revenue and Taxation Code, with respect to such work and labor that the Surety or Sureties will pay for the same, in an amount not exceeding the sum specified in the bond.

That, this bond shall inure to the benefit of any of the persons named in Civil Code Section 3181 as to give right of action to such persons or their assigns in any suit brought upon this bond.

NOW THEREFORE, if the CONTRACTOR shall promptly make payment to all persons who supply labor and materials in the prosecution of the work provided for in said Contract, and

any and all duly authorized modifications of said Contract that may hereinafter be made, without notice to the Surety, then this obligation shall be void; otherwise the same shall remain in full force and virtue.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument this day of , 2009, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By (Seal)

ATTEST

SURETY

By (Seal)

ATTEST

APPROVED AS TO FORM: , 2009
, COUNTY

ADDRESS OF SURETY FOR SERVICE OF NOTICE:

COUNTY OF EL DORADO PERFORMANCE BOND

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS, that _____

_____ of _____

hereinafter called the CONTRACTOR (Principal), and _____, a

corporation duly organized and existing under and by virtue of the laws of the State of _____,

hereinafter called the SURETY, and authorized to transact business within the State of California,

as SURETY, are held and firmly bound unto the County of El Dorado as Obligee, in the sum of:

DOLLARS (\$), lawful money of the United States of America, for the payment of which, well and

truly be made to the COUNTY, the CONTRACTOR and the SURETY bind themselves and each of

their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these

presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract hereto attached, with the COUNTY, dated #####, 2009 for the for the Construction of the Cap System, French Drain, and Landfill Gas Emission Control System for the Operable Unit 1 of the Meyers Landfill, El Dorado County, California, Contract # @@@@ @@@@.

NOW THEREFORE, if the CONTRACTOR shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreement of said Contract during the original term of said Contract and any extensions thereof that may be granted by the County, with or without notice to the Surety, and during the life of any guaranty required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may thereafter be made, then this obligation shall be void, otherwise the same shall remain in full force and virtue for one (1) year after filing of the Notice of Completion.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the court.

No right or action shall accrue on this Bond to or for the use of any person or corporation other than the County named herein or the heirs, executors, administrators or successors of County.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument this day of , 2009, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By (Seal)

ATTEST

SURETY

By (Seal)

ATTEST

APPROVED AS TO FORM: , 2009

, County

ADDRESS OF SURETY FOR SERVICE OF NOTICE:

EL DORADO COUNTY WEB SITE REQUIREMENTS:

Vendors are responsible for checking the County's web site up to the Bid due date for any Addenda issued. Addenda issued are required to be acknowledged and returned by participating Bidders in order to be considered further in the evaluation process. Those Bidders not

acknowledging and returning Addenda will not be considered for and will be rejected as "non-responsive."

<http://www.co.el-dorado.ca.us/emd>

BY ORDER OF the Environmental Management Department, County of El Dorado, State of California. Executed on, _____, 2009 at Placerville, California.

By: _____
Gerri Silva, M.S., REHS
Director of Environmental Management
County of El Dorado

NOTICE: Bidder's failure to fully complete and execute the questions and statements required by these Bid Documents, and/or as required by applicable law and regulations may prohibit award of the subject Contract to the Bidder. El Dorado County may make a determination based upon Bidder's responses to the questions and statements required by these Bid Documents that may prohibit the award of the Contract to Bidder.

CONSTRUCTION AGREEMENT

Construction of

A CAP SYSTEM, FRENCH DRAIN, AND PASSIVE LANDFILL GAS EMISSION SYSTEM OPERABLE UNIT -1 MEYERS LANDFILL EL DORADO COUNTY, CALIFORNIA

This Public Works Contract # @@@@, made and entered into this _____ day of _____, 2010, by and between the County of El Dorado, a political subdivision of the State of California, hereinafter referred to as "County", acting by and through County Service Area , as defined by Government Code Sections 25210 et seq., and _____ (hereinafter referred to as "Contractor").

That the parties hereto, for and in consideration of the covenants, promises, and agreements to be made, kept, and performed as hereinafter set forth, do agree as follows:

Article 1 THE CONTRACT DOCUMENTS

The complete Contract between the County and the Contractor shall consist of the following Contract Documents: The Notice to Bidders, the Bonds, the Accepted Bid Proposal, all Addenda, this Construction Contract, the General Conditions, Supplementary Conditions, the Drawings and Specifications, Notice of Award, Notice to Proceed, Change Orders, Notice of Substantial Completion, Notice of Completion and modifications incorporated in those documents: Bidder's Bond; Withholding Exemption Certificate 590; Form W-9; Certificate of Insurance; Performance Bond; Payment Bond and Contractor's Guarantee. The Contract, Drawings, and Specifications are intended to supplement one another.

Article 2
THE WORK

The Contractor agrees to furnish at his own cost and expense, all tools, equipment, apparatus, labor, materials, and mechanical workmanship, transportation, and services necessary to construct the cap system, the French drain and the passive landfill gas emissions control system for Operable Unit-1 of the Meyers Landfill site located in El Dorado County in strict accordance with the Contract Documents. All such Work shall be completed in a good and workmanlike manner and in accordance with the NCP, the ROD, and the approved CERCLA plans and specifications.

Article 3
TIME FOR COMPLETION

3.1 For the purpose of determining the Contract completion date, the date of commencement shall be on or about June 15, 2010, no more than 10 calendar days after the date of the written Notice to Proceed (I think we need more notice to proceed than 10 days so they can gear up and plan for the June 15th start date- Greg Stanton please check on this), or if no such written Notice to Proceed is issued, it shall be 10 calendar days from the date of this Agreement.

3.2 The Work shall be commenced on the date provided for in Paragraph 3.1 and shall be diligently pursued by the Contractor and completed not later than 120 calendar days from the date of commencement.

Need to fix this: Definitive contract end date needs to be stated- Mike Ciccozzi – We need language that defines the end of the field season (2010) and emphasizes the importance of completing this project in 2010. However, additional language for the same contractor to finish (mop up) work in 2011 might be to the county's advantage. Any suggestions?

Article 4
THE CONTRACT PAYMENT

4.1 In consideration of the covenants, agreements, and promises on the part of the Contractor contained in the Contract Documents, and the strict and literal fulfillment of each and every such covenant, agreement, and promise, and as compensation agreed upon for the erection, construction, and completion of the said Work described in Article 1 hereof in strict accordance with the Plans and Specifications therefore, the County agrees to pay and cause to be paid to the Contractor _____ the _____ Contract _____ Sums: _____, lawful money of the United States, subject to additions and deductions as provided in the Contract Documents.

Article 5
PROGRESS PAYMENTS

5.1 Applications for Payment shall be submitted monthly in a timely manner by the Contractor on or before the date mutually agreed upon by the County and the Contractor. The form shall be approved by the County.

5.2 Progress Payments shall be made once each month, on or about a date to be determined by the County. The amount shall be based on the percent completion of each portion of Work completed at the end of the month covered by the Application of Payment. Payment of undisputed Contract amounts (progress payments) is contingent upon the Contractor furnishing the County with a release of all claims against the County arising by virtue of the Work relating to the amount so paid. The release may be on the form used for computing monthly progress payment.

5.3 The progress payment amount shall be adjusted as set forth in Article 6 of the General Conditions.

Article 6
FINAL PAYMENT

Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the County to the Contractor when (1) the Contract has been fully performed by the Contractor except for the Contractor's responsibility to correct nonconforming work as provided in Article 9 of the General Conditions and to satisfy other requirements, if any, which necessarily survive final payment; and (2) a final Certificate for Payment has been issued by the CQA Consultant (Inspector); such final payment shall be made by the County not more than ## days after the recording of the Notice of Completion; and (3) after the Forest Service approves the Completion Report.

Article for Retention Payment? Mike C. – Is there standard language for this?

Article 7
MISCELLANEOUS

7.1 Liquidated Damages shall be imposed upon the Contractor should the Contractor fail to complete this Contract, and the work provided herein within the time fixed for such completion, the Contractor shall become liable to the County for all loss and damage which the latter may suffer on account thereof, and

7.2 IT IS HEREBY FURTHER AGREED, that in case the Contractor does not complete the work within the 120 days as herein provided, for reasons or causes other than those provided for in the Contract Documents hereof, the County will be damaged. After considering such a breach and all aspects of the Work including, but not limited to, the type of installation, the current and

future uses of facilities and premises, the disarrangement of the premises and facilities thereof during the Work, and the additional cost and difficulty of using the disarranged facilities during the Work, the parties agree that a reasonable daily damage for such a breach, if any, will be \$1,000 per work-day, and the payment of the same, if any, is payment of liquidating damages and not a penalty. It is understood that this Agreement for liquidated damages is entered into because the amount is manifestly reasonable under the circumstances existing at the time of this Agreement, and it would be extremely difficult or impossible to determine with any degree of accuracy the actual damages in case of any such breach. In case of such breach, it is agreed that the County may deduct the amount thereof from any money due or to become due said Contractor under this Contract.

7.3 Other Applicable Conditions: None

7.4 Terms used in the Agreement that are defined in the General Conditions of the Contract shall have the meanings designated in those Conditions.

Article 8 TERMINATION OR SUSPENSION

8.1 The Contract may be terminated by the County or the Contractor as provided in Article 10 of the General Conditions.

8.2 The Work may be suspended by the County as provided in Article 10 of the General Conditions.

Article 9 ADMINISTRATOR

9.1 The County Officer or employee with responsibility for administering this Contract is Gerri Silva, Director of Environmental Management, or her successor.

Article 10 CONTRACTOR'S GUARANTEE

10.1 Notwithstanding the required executed certifications and warranties included with the Contract Documents, as Contractor for the above project, we hereby agree to repair or replace any or all work provided hereunder which is defective due to faulty materials, poor workmanship, or defective equipment at no expense to the County, ordinary wear or tear and unusual abuse or neglect expected, during the term of the Contract and for a period of one (1) year from the date of final acceptance of the work.

We further agree to repair or replace any and all adjacent facilities or areas which have been damaged or displaced due to our work performed under this Contract at no expense to the County during the term of this Contract and for a period of one (1) year from the date of final acceptance of the work.

We agree that this guarantee and the rights and obligations accruing therefrom shall be in addition and not be way of limitation in any manner whatsoever to the rights, obligations, warranties or remedies otherwise provided for by law.

In the event of our failure to comply with the mentioned conditions within ten (10) days after being notified in writing by the County, we hereby authorize County to proceed to have said defects and made good at our expense and we will honor and pay all costs and charges therefore upon written demand.

IN WITNESS WHEREOF, the County has caused this Agreement to be executed by the Chairman of the Board of Supervisors, and the Contractor has executed this Agreement on the day and year first above written.

COUNTY OF EL DORADO

CONTRACTOR

Dated: _____

Dated: _____

By By _____
 Chairman
 Board of Supervisors

CONTRACTOR

ATTEST:

Suzanne Allen de Sanchez, Clerk,
Board of Supervisors

By _____

NOTE: If the Contractor executing this Contract is a corporation, a certified copy of the By-Laws, or of the Resolution of the Board of Directors, authorizing the officers of said corporation to execute this Contract and the bonds required thereby must be annexed thereto.

Part 2

CONDITIONS OF THE CONTRACT

ARTICLE I - GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

- 1.1.1 Owner
- 1.1.2 Owner's Representative
- 1.1.3 Administrator
- 1.1.4 Contractor
- 1.1.5 Inspector
- 1.1.6 Subcontractor
- 1.1.7 Substantial Completion
- 1.1.8 Final Payment
- 1.1.9 Field Order
- 1.1.10 Construction Change Directive
- 1.1.11 Change Order
- 1.1.12 Contract Documents
- 1.1.13 Work
- 1.1.14 Project
- 1.1.15 Plans or Drawings
- 1.1.16 Specifications
- 1.1.17 Claim

1.2 CONTRACT DOCUMENTS

- 1.2.1 One Document
- 1.2.2 Misuse of Words or Punctuation
- 1.2.3 Precedence, Discrepancies and Omissions

1.3 ASSIGNMENT OF CONTRACT

- 1.3.1 Mutual Consent
- 1.3.2 Assignment of Anti-Trust Claims

1.4 WAIVER OF "COMMON PRACTICE"

- 1.4.1 Waiver of "Common Practice" as Construction Criteria

1.5 EXCESSIVE COSTS

- 1.5.1 Failure to Comply with Contract
- 1.5.2 Construction Methods

ARTICLE 2 - COUNTY

- 2.1 COUNTY'S REPRESENTATIVE
 - 2.1.1 County Representative
 - 2.1.2 County May Appoint Inspector
 - 2.1.3 Communication
- 2.2 RIGHTS OF COUNTY
 - 2.2.1 Right to Clean Up
 - 2.2.2 Right to Accept Imperfect Work
 - 2.2.3 Right to do Adjacent Work
 - 2.2.4 Right to Finish Contractor's Work
 - 2.2.5 Right of Partial Use of Project
 - 2.2.6 Right to Audit

ARTICLE 3 - CONTRACTOR'S RESPONSIBILITIES

- 3.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS
 - 3.1.1 Reporting Errors in Contract Documents
 - 3.1.2 Reporting Errors in Field Conditions
 - 3.1.3 No Implied Warranty
- 3.2 SUPERVISION AND CONSTRUCTION PROCEDURES
 - 3.2.1 Supervision of Work
 - 3.2.2 Acts of Employees and Agents
 - 3.2.3 Acts Do Not Waive Contractor's Obligation
- 3.3 PROSECUTION OF WORK
 - 3.3.1 Time of the Essence
 - 3.3.2 Construction Schedule
- 3.4 SUBMITTALS
 - 3.4.1 Review of "Or Equals"
 - 3.4.2 Excessive Submittal Reviews

- 3.5 STATE LABOR REQUIREMENTS
 - 3.5.1 Hours of Work
 - 3.5.2 Travel and Subsistence Pay
 - 3.5.3 Apprentice Employment
 - 3.5.4 Prevailing Wage Rates
 - 3.5.5 Certified Payroll
 - 3.5.6 Discrimination in Employment
 - 3.5.7 Convict-Made Materials
 - 3.5.8 Worker's Compensation Certification
- 3.6 TAXES
 - 3.6.1 Contractor Pays Taxes
- 3.7 COMPLIANCE WITH LAW AND LOCAL REQUIREMENTS
 - 3.7.1 Regulations
 - 3.7.2 Permits, Licenses and Fees
 - 3.7.3 County Business License
 - 3.7.4 Patent Rights, Copyrights, Trade Names and Royalties
- 3.8 GUARANTEE
 - 3.8.1 Final Guarantee
 - 3.8.2 Extended Guarantees
- 3.9 WARRANTY
 - 3.9.1 Contract Warranty
- 3.10 INDEMNIFICATION
 - 3.10.1 County Not Liable for Damages
 - 3.10.2 County Not Liable for Debts
 - 3.10.3 Contractor Responsible for His Work
 - 3.10.4 Contractor Indemnifies County
 - 3.10.5 Environmental Indemnification
- 3.11 WORK REQUIREMENTS
 - 3.11.1 Conduct of Work
 - 3.11.2 Maintenance of Site
 - 3.11.3 Clean Up of Site

- 3.11.4 Cutting and Patching
- 3.12 SUBCONTRACTORS
 - 3.12.1 Contractor Responsible for Subcontractor's Acts
 - 3.12.2 Contractor's Subcontract
- 3.13 SUPERINTENDENT
 - 3.13.1 Work Superintendent
- 3.14 LABOR AND MATERIALS
 - 3.14.1 Skilled Labor
 - 3.14.2 Quality of Materials
- 3.15 CONTRACTOR'S CONSTRUCTION SCHEDULES
 - 3.15.1 Prepare and Submit Construction Schedule
 - 3.15.2 Keep Schedule Current
 - 3.15.3 Schedule for Information Only
- 3.16 SURVEYS AND STAKING
 - 3.16.1 Preservation of Survey Control Points
- 3.17 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES
 - 3.17.1 Submittal Definition
 - 3.17.2 Purpose of Submittals
 - 3.17.3 Submittal
 - 3.17.4 Review of Submittals
 - 3.17.5 Approval of Submittals
- 3.18 USE OF SITE
 - 3.18.1 Site Usage
 - 3.18.2 Sanitary Facilities
- 3.19 COORDINATION OF WORK
 - 3.19.1 Material and Equipment Storage
 - 3.19.2 Discrepancies or Defects
 - 3.19.3 Remedy of Damages
 - 3.19.4 Cutting and Patching

- 3.20 TRAFFIC CONTROL
 - 3.20.1 Traffic Control Set Up
 - 3.20.2 Payment for Traffic Control
- 3.21 MOBILIZATION
 - 3.21.1 Mobilization Details
 - 3.21.2 Payment for Mobilization
- 3.22 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES
 - 3.22.1 Storm Water Erosion and Sediment Control
 - 3.22.2 Air Pollution Prevention Plan
 - 3.22.3 Decontamination Plan
 - 3.22.4 Noise Control Plan
 - 3.22.5 Spill Control Plan
 - 3.22.6 Contaminant Prevention Plan
 - 3.22.7 Resource Protection Plan
 - 3.22.8 Contingency Plan
 - 3.22.9 Waste Management Plan
 - 3.22.10 Migratory Bird Protection
 - 3.22.11 Payment for Mitigation of Potential Environmental Impacts
- 3.23 NOTICE OF DISCOVERY OF HAZARDOUS WASTE OR UNUSUAL CONDITIONS
 - 3.23.1 Hazardous Waste
 - 3.23.2 Unknown Physical Conditions

ARTICLE 4 - ADMINISTRATION OF CONTRACT

- 4.1 ADMINISTRATION OF CONTRACT
 - 4.1.1 Contract Communications
 - 4.1.2 Control of Work
 - 4.1.3 Recommendation for Payments
 - 4.1.4 Inspector's Authority
- 4.2 INSPECTION AND TESTING
 - 4.2.1 Advance Notice
 - 4.2.2 Access to Work

- 4.2.3 Costs of Tests
- 4.2.4 Preparation of Change Directives/Orders

4.3 CLAIMS

- 4.3.1 Time Limits on Claims
- 4.3.2 Claims for Additional Costs
- 4.3.3 Claims for Additional Time
- 4.3.4 Submittal of Claims
- 4.3.5 Submission Under Penalty of Perjury

4.4 DISPUTES RESOLUTION

- 4.4.1 Continue Work During Dispute
- 4.4.2 County's Review of Claim
- 4.4.3 Requirements for Filing a Claim
- 4.4.4 Claims Exempt from Review
- 4.4.5 Procedure to Resolve Civil Claims
- 4.4.6 Payment of Undisputed Portion of Claim
- 4.4.7 Suit in El Dorado County Only

ARTICLE 5 - CHANGES IN WORK

5.1 WAIVER

- 5.1.1 Waivers of Contract Provisions

5.2 CHANGES

- 5.2.1 County May Order Changes in Work
- 5.2.2 Cost Proposals
- 5.2.3 Contract Change Instrument
- 5.2.4 Changes Shall Conform to Contract

5.3 CONTRACT CHANGE INSTRUMENTS

- 5.3.1 Field Order
- 5.3.2 Change Order
- 5.3.3 Change Directive

5.4 BASIS OF ADJUSTMENT

- 5.4.1 Methods of Adjustment

5.5 EXTENSION OF TIME FOR COMPLETION

- 5.5.1 Contractor Delayed or Hindered
- 5.5.2 Agreement on Time Extension
- 5.5.3 Time Extension Not Waiver

ARTICLE 6 - PAYMENTS AND COMPLETION

6.1 GENERAL

- 6.1.1 Contract Price
- 6.1.2 Waiver
- 6.1.3 Manner of Paying Warrants

6.2 APPLICATIONS FOR PAYMENT

- 6.2.1 Submittal of Applications
- 6.2.2 Basis for Payment
- 6.2.3 Work Free of Liens

6.3 CERTIFICATION FOR PAYMENT

- 6.3.1 Certification Determination

6.4 WITHHOLDING FROM PAYMENTS

- 6.4.1 Reasons for Withholding
- 6.4.2 Release of Payment

6.5 SUBSTITUTE SECURITIES FOR 10 PERCENT RETENTION

- 6.5.1 Escrow Account Requirements

6.6 FINAL COMPLETION AND PAYMENT OF RETAINAGE

- 6.6.1 Affidavit of Payment
- 6.6.2 Final Inspection
- 6.6.3 Final Certification
- 6.6.4 Payment of Retention
- 6.6.5 Notice of Completion

ARTICLE 7 - PROTECTION OF PERSONS AND PROPERTY

7.1 PROTECTION OF WORK, PROPERTY AND PERSONS

- 7.1.1 Responsible for Damage to County's Property
- 7.1.2 Responsible for Safety
- 7.1.3 Safety and Convenience
- 7.1.4 Remedy Damages
- 7.1.5 Protection of Workers in Trenches
- 7.1.6 Relocation of Utilities

ARTICLE 8 - INSURANCE AND BONDS

8.1 INSURANCE

- 8.1.1 Copies of Insurance Policies
- 8.1.2 Co-Insured
- 8.1.3 Types of Coverage

8.2 BONDS

- 8.2.1 General Requirements for Bonds
- 8.2.2 Performance Bond
- 8.2.3 Payment Bond
- 8.2.4 Change of Surety

ARTICLE 9 - UNCOVERING AND CORRECTION OF WORK

9.1 DEVIATION FROM SPECIFICATIONS

- 9.1.1 Improper Work

9.2 CORRECTION OF WORK

- 9.2.1 Covered or Completed Work
- 9.2.2 Inspection of Covered Work
- 9.2.3 Rejected Work
- 9.2.4 Cost of Correction
- 9.2.5 Correction During Guarantee Period

ARTICLE 10 - TERMINATION OR SUSPENSION OF CONTRACT

10.1 TERMINATION BY COUNTY FOR CONVENIENCE

- 10.1.1 Right to Terminate

10.1.2 Contractor's Duties

10.1.3 Payment for Work

10.2 TERMINATION BY COUNTY FOR CAUSE

10.2.1 Written Termination Notice

10.2.2 Notice to Work or Quit

10.2.3 County's Rights After Termination

10.2.4 Rights and Obligations of Parties

10.2.5 Fiscal Considerations

10.3 SUSPENSION OF WORK

10.3.1 County May Suspend

10.3.2 Resumption of Work

* * * * *

GENERAL CONDITIONS

Article 1 GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 Owner: The United States Forest Service is the Owner of the Site and is identified as the Owner in the Agreement and these General Conditions. The term Owner, and pronouns in place of the same shall mean the United States Forest Service acting by and through its designated representative.

1.1.2 County's Representative: This term shall refer to the Director of Environmental Management or his or her designated representative.

1.1.3 Administrator: The County Officer or employee with responsibility for administering this Contract is Gerri Silva, or her successor.

1.1.4 Contractor: The person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term Contractor means the Contractor or the Contractor's authorized representative.

1.1.5 Inspector: The Director of Environmental Management, or his agent employed as the Inspector on the Work as set forth in Paragraph 2.1.2.

1.1.6 Subcontractor: Those contractors, of whatever tier, furnishing labor or material, or both, for the Work under the Contract with the Contractor.

1.1.7 Substantial Completion: The stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the County can occupy or utilize the Work for its intended use.

1.1.8 Final Payment: The Final Payment shall be the last Progress Payment made to Contractor and shall not be considered to be the payment of any or all of the 10 percent retention.

1.1.9 Field Order: A written order of the Inspector directing the Contractor to conduct minor changes in work involving neither extra cost nor extra time and being consistent with the scope and functioning of the project.

1.1.10 Construction Change Directive: A written order prepared by the Inspector and signed by the County directing a change in the Work and stating a proposed basis for adjustment, if any, of Contract Time or Sum. The County may by Change Directive, without invalidating the Contract and without Contractor's agreement, order changes in the Work. This procedure will be used in the absence of agreement between County and Contractor.

1.1.11 Change Order: A Change Directive prepared by the Inspector and signed by the County and Contractor stating their agreement upon all of the following: 1) a change in the Work, 2) the amount of the adjustment in the Contract Price, if any, and 3) the extent of the adjustment in the Contract Time, if any.

1.1.12 Contract Documents: The Contract Documents shall include the following Documents: The Notice to Bidders, the Bonds, the Accepted Bid Proposal, all Addenda, this Construction Agreement, the General Conditions, Supplementary Conditions, the Drawings and Specifications, Notice of Award, Notice to Proceed, Change Orders, Notice of Substantial Completion, Notice of Completion and modifications incorporated in those documents: Bidder's bond; Withholding Exemption Certificate 590; Form W-9; Certificate of Insurance; Performance Bond; Payment Bond; Contractor's Guarantee.

1.1.13 Work: The construction and services required by the Contract Documents, including all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations.

1.1.14 Project: The total construction, including construction site, of which the Work performed under the Contract Documents may be the whole or part and which may include construction by the County or by separate contractors.

1.1.15 Plans or Drawings: The graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

1.1.16 Specifications: That portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.

1.1.17 Claim: A demand or assertion by the Contractor seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract. Claims must be made by written notice and shall include a demand for the County's decision. The responsibility to substantiate claims and to resolve the claims of subcontractors of whatever tier shall rest with the Contractor.

1.2 CONTRACT DOCUMENTS

1.2.1 One Document: The Contract Documents are one document and any work shown or mentioned shall be performed or furnished. The Contractor admits and agrees that the Specifications exhibit the intent and purpose of the County in regard to the Work, and that they are not complete in every detail and are to be considered as showing the purpose and intent only; and he further agrees to furnish all labor or material for any detail that is necessary to carry out the intent and purpose of the Specifications without extra charge.

1.2.2 Misuse of Words or Punctuation: The misplacement, addition, or omission of any word, letter, or punctuation mark will not in any way change the intent or meaning of the Specifications. Any part of the Work, or any article pertaining thereto which is not specifically set forth in these Specifications, but which is necessary for the proper completion of the Work, is to be supplied and set in place at the Contractor's expense, the same as if it had been mentioned in these Specifications. The Contractor shall furnish all things necessary to make a good and workmanlike job in accordance with the intent and purpose of the Specifications.

1.2.3 Precedence, Discrepancies, and Omissions: In resolving inconsistencies that may exist between any of the Contract Documents, precedence shall be given in the following order: 1) Construction Agreement, 2) Proposal, 3) Notice to Bidders, 4) General Conditions, 5) Supplementary Conditions, 6) Specifications, and 7) Drawings. Addenda, Field Orders, Change Directives and Change Orders shall take precedence over all sections referenced therein. Figure dimensions on drawings shall take precedence over scale dimensions and detail drawings shall take precedence over general drawings.

1.3 ASSIGNMENT OF CONTRACT

1.3.1 Mutual Consent: Neither party to the Contract shall assign the Contract without the written consent of the other party, nor shall the Contractor assign any moneys due or to become due to him hereunder without the written consent of the County.

1.3.2 Assignment Of Anti-Trust Claims: In accordance with Section 4552 of the California Government Code, and Section 7103 of the Public Contract Code, Contractor and subcontractors shall conform to the following requirements:

1. In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, Contractor or subcontractors offers and agrees to assign to the County all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C Section 15) or under the Cartwright Act, [Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code], arising

from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the County tenders Final Payment to the Contractor, without further acknowledgment by the parties.

2. In submitting a bid to County the bidder offers and agrees that if bid is accepted, it will assign to County all rights, title, and interest in and to all causes of action it may have under Section 4 of the [Clayton Act (15 U.S.C Section 15) or under the Cartwright Act, Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code], arising from purchases of goods, services, or materials by the bidder for sale to the County pursuant to the bid. Such assignment shall be made and become effective at the time the County tenders Final Payment to the bidder.

1.4 WAIVER OF "COMMON PRACTICE"

1.4.1 Waiver of "Common Practice" as Construction Criteria: The Contractor shall waive "common practice" and "common usage" as construction criteria wherever the Contract Documents details, plans, specifications, governing codes, or ordinances require greater quantity or better quality than common practice or common usage would require.

1.5 EXCESSIVE COSTS

1.5.1 Failure to Comply with Contract: If Contractor fails to comply with any Contract requirements, including any required coordination with other contractors, and that failure results in additional costs to County, then Contractor shall be liable for such additional costs.

1.5.2 Construction Methods: If Contractor's construction methods and techniques result in additional costs to County, after notice, such Contractor shall be responsible for cost attributable to his methods and techniques.

Article 2 COUNTY

2.1 COUNTY'S REPRESENTATIVE

2.1.1 County Representative: The County will be represented by the County's Representative who shall see that the performance of the Work is in strict accordance with the Contract Specifications on behalf of the County.

2.1.2 County May Appoint Inspector: County shall be entitled to appoint such other agent, as Inspector who shall see that the performance of the work is in strict accordance with the Contract Specifications on behalf of the County.

2.1.3 Communication: In order that the County may act upon expert advice and upon good procedure, all communications from the Contractor will be through said County's Representative, or Inspector if one is appointed, and all communications and instructions from the County to the Contractor will be so routed. The County reserves the right to alter this procedure without the consent of the Contractor. All communications not in compliance herewith, shall be considered non-binding on the County.

2.2 RIGHTS OF COUNTY

2.2.1 Right to Clean Up: Subject to the strict prohibition against maintaining a nuisance, if a dispute arises between the Contractor and Subcontractors as to the responsibility under their respective Contracts for maintaining the premises and surrounding area free from waste materials and rubbish the County may, but need not, clean up and allocate the cost among those responsible as the Inspector determines to be just.

2.2.2 Right to Accept Imperfect Work: If any part or portion of the Work completed under this Contract is defective and not in accordance with the Plans or Specifications, and if the imperfection is judged by County to be not of sufficient magnitude or importance so as to make the Work unacceptable, then County shall have the right and authority to retain such Work but will make such deductions in Contract Price as may be equitable and reasonable. However, County does not by this section, waive any other rights provided for herein.

2.2.3 Right to do Adjacent Work: The County reserves the right to perform construction or operations on the site of the Work. In doing this County may use its own forces or award separate contracts in connection with other construction or operations on the site but not covered by the Contract Documents.

2.2.4 Right to Finish Contractor's Work: If the Contractor defaults or neglects to carry out all or any part of the Work in accordance with the Contract Documents, the County has the right, exercisable solely at County's discretion, to commence and continue completion of the Work with diligence and promptness.

2.2.6 Right to Audit: The Contractor shall maintain and make available to County all books, papers, job cost records, detailed cost estimates, claims, and accounts, including payment, property, payroll, personnel, subcontractors, and financial records related to or which arise out of

the Work or under terms of the Contract. The form of record keeping shall be subject to approval by the County. These books, papers, records, claims, and accounts shall be made available for examination during normal business hours by County and County's representative and shall be retained at Contractors principal place of business in California, for audit during normal business hours at such place of business for 4 years after recording of the notice of completion of the project. Contractor shall provide an office to enable County and County's representative to conduct such audit. The Forest Service also has the right to audit all costs associated with the CERCLA remedial action.

Article 3 CONTRACTOR'S RESPONSIBILITIES

3.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS

3.1.1 Reporting Errors in Contract Documents: The Contractor shall carefully study and compare the Contract Documents with each other and shall at once report to the Inspector errors, inconsistencies, or omissions discovered. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency, or omission in the Contract Documents without such notice to the County, the Contractor shall assume responsibility for such performance and shall bear all costs for correction.

3.1.2 Reporting Errors in Field Conditions: The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies, or omissions discovered shall be reported to the County at once.

3.1.3 No Implied Warranty: No warranty is to be implied nor shall any warranty arise by operation of law, or by interpretation of this Contract, that the Plans and Specifications are adequate and sufficient to construct the Project.

3.2 SUPERVISION AND CONSTRUCTION PROCEDURES

3.2.1 Supervision of Work: The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.

3.2.2 Acts of Employees and Agents: The Contractor shall be responsible to the County for acts and omissions of the Contractor's employees, subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.

3.2.3 Acts Do Not Waive Contractor's Obligation: The Contractor shall not be relieved of obligations to perform the Work in strict accordance with the Contract Documents either by activities or duties of the County's Representative or the Inspector in the administration of the Contract, or by tests, inspections, or approvals required or performed by persons other than the Contractor.

3.3 PROSECUTION OF WORK

3.3.1 Time of the Essence: It is expressly understood and agreed that the time of beginning, rate of progress, and time of completion of the Work are of the essence. The Work shall be prosecuted at such time, and in or on such part or parts of the Work as may be required to complete the Work as set forth in the Contract Documents.

3.3.2 Construction Schedule: A construction schedule is required to be submitted. The schedule will be for County's information only. Silence or inaction with regard to Contractor's Schedule shall not be construed as acquiescence or acceptance of the Schedule as being binding on County. Unless specifically adopted by resolution or minute order of the El Dorado County Board of Supervisors, such schedule shall not be binding on the County of El Dorado. Contractor's schedule shall provide for the completion date not to exceed nor shall he provide for the completion date earlier than the time limits for completion set forth in the Contract Documents. Note that the schedule must take into consideration the CERCLA aspects of this project and also be provided to the Forest Service for review and comment on any changes.

3.4 SUBMITTALS

3.4.1 Review of "Or Equals": In accordance with the provisions of Section 3400 of the California Public Contracts Code, but subject to Subsection (b) thereof, Contractor shall within 30 calendar days (Not sure how many days we should give them for this- Greg?) after Award of the Contract submit all substitution requests and shall submit data substantiating a request for a substitution of an "or equal" item. Failure to submit such substitution requests and substantiating data within 30days shall subject such request for substitution to automatic denial. All substitutions will be compliant with the NCP, the ROD, and the RD. The planned award date of the contract is January 15, 2010, and the Forest Service will review and approve these submittals by March 15, 2010.

3.4.2 Excessive Submittal Reviews: The cost of reviewing submittals shall be the County's responsibility, except that Contractor shall be responsible for the cost of the third and subsequent review of any one submittal.

3.5 STATE LABOR REQUIREMENTS

3.5.1 Hours of Work

1. Eight hours of labor shall constitute a legal day's work upon all work done hereunder, and it is expressly stipulated that no workman employed at any time by the Contractor, or by any subcontractor under this Contract, upon the Work, shall be required or permitted to work thereon more than 8 hours in any 1 calendar day and/or more than 40 hours in any 1 calendar week except as provided in Section 1815 of the Labor Code of California, and it is further expressly stipulated that for each and every violation of said last named stipulation, said Contractor shall forfeit, as penalty to the said County, \$50.00 for each workman employed in the execution of this Contract, or by any subcontractor under this Contract, for each calendar day during which said workman is required or permitted to labor more than 8 hours in any 1 calendar day or more than 40 hours in any 1 calendar week in violation of the provisions of said Labor Code.
2. In accordance with the provisions of the Labor Code of the State of California, the Contractor, and each subcontractor, shall also keep an accurate record showing the names and actual hours worked for all workers employed by him in connection with the Work contemplated by the Agreement, which record shall be open at all reasonable hours to the inspection of the County or its officers or agents, and to the Chief of the Division of Labor Statistics and Law Enforcement or the Department of Industrial Relations, his deputies or agents.

3.5.2 Travel and Subsistence Pay: Pursuant to the provisions of Section 1773.8 of the Labor Code of the State of California, the Contractor shall pay travel and subsistence payments to each workman needed to execute the work, as such Travel and Subsistence payments are defined in the applicable collective bargaining agreements filed with the Department of Industrial Relations in accordance with said Section 1773.8.

3.5.3 Apprentice Employment:

1. Pursuant to the provisions of Section 1777.5 as amended, the Contractor or subcontractor employing tradesmen in any apprenticeable occupation shall apply to the joint apprenticeship committee nearest the site of the public works project and which administers the apprenticeship program in that trade for a Certificate of Approval. The certificate will also fix the ratio of apprentices to journeymen that will be used in the performance of the Contract. All requirements and exceptions to those requirements set forth herein for Apprenticeship Employment are

contained in Labor Code Section 1777.5 and are available from the applicable Joint Apprenticeship Committee.

2. The administration of the apprenticeship programs if he employs registered apprentices or journeymen in any apprenticeable trade on such Contracts and if other Contractors on the public works site are making such contributions.
3. The Contractor and any subcontractor under him shall comply with the requirements of Sections 1777.5 and 1777.6 in the employment of apprentices. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

3.5.4 Prevailing Wage Rates:

1. Pursuant to Labor Code Section 1770 et seq., 1773, 1773.1, 1773.2, 1773.6, 1773.7, and 1720 each laborer or mechanic of Contractor or any subcontractor engaged in Work on the project under this Contract shall be paid not less than the hourly wage rate of per diem wages set forth in the prevailing wage rate schedule published by the Director of Industrial Relations regardless of any contractual relationship which may be alleged to exist between Contractor or any subcontractor and such laborers and mechanics. Interested parties may obtain the current wage information by submitting their requests to the Department of Industrial Relations, Division of Labor Statistics and Research, P.O. Box 420603, San Francisco, CA 94142-0603 or visit their Internet web site @ <http://www.dir.ca.gov>.
2. Any laborer or mechanic employed to perform Work on the project under this Contract, which Work is not covered by any of the foregoing classifications, shall be paid not less than the prevailing rate of per diem wages specified herein for the classification which most nearly corresponds to the Work to be performed by him.
3. The foregoing specified prevailing wage rates are minimum rates only, and the Contractor may pay any wage rate in excess of the applicable rate contained in this Contract.
4. Pursuant to Labor Code Section 1775, the Contractor as a penalty to the owner shall forfeit \$50.00 for each calendar day, or portion thereof for each worker paid less than the prevailing rate established by the Department of Industrial Relations for such Work or craft in which such worker is employed. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which the worker was paid less than the prevailing wage rate shall be paid to each worker by the Contractor. NOTE: An

error on the part of an awarding body does not relieve the Contractor from responsibility for payment of the prevailing rate of per diem wages and penalties pursuant to Labor Code Sections 1770-1775.

All Contractors and subcontractors are subject to the provisions of Sections 1810 through 1814 of the California Labor Code which provide for the maximum hours a worker is to be employed and the amount and rate of overtime compensation.

3.5.5 Certified Payroll: As required under the provisions of Labor Code Section 1776 Contractor and subcontractors shall keep accurate payroll records:

1. The payroll records shall show the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee by him or her in connection with the Project.
2. A certified copy of all payroll records enumerated above shall be available for inspection at all reasonable hours at the principal office of the Contractor as follows:
 - a. Make available or furnish to the employee or his or her authorized representative on request.
 - b. Make available for inspection or furnished upon request to a representative of the County, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.
 - c. Make available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the County, the Division of Labor Standards Enforcement, or the Division of Apprenticeship Standards. The requesting party shall, prior to being provided the records, reimburse the costs of preparation by the Contractor, subcontractor, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the Contractor.

3.5.6 Discrimination In Employment: No discrimination shall occur in the employment of persons upon the Work because of race, color, sex, national origin, or ancestry or religion of such persons.

3.5.7 Convict-Made Materials: Except as may be provided by law, the Contractor agrees that no materials manufactured or produced in a penal or correctional institution shall be incorporated in the construction under this Contract.

3.5.8 Worker's Compensation Certification: By my signature hereunder, as Contractor, I certify that I am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the Work of this Contract.

CERTIFICATE OF KNOWLEDGE - LABOR CODE SECTION 3700

I am aware of the provisions of Section 3700 of the Labor Code, which requires every employer to be insured against liability for the worker's compensation or self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of Work of this Contract.

Signed: _____ Dated: _____

3.6 TAXES

3.6.1 Contractor Pays Taxes: The Contractor and subcontractors shall pay all local, state, and federal taxes upon labor or materials involved in their branch of the Work, cost of same to be included in the Contract price.

3.7 COMPLIANCE WITH LAW AND LOCAL REQUIREMENTS

Since this project is a CERCLA project, it will need to follow the model or final CD, the ROD, be NCP compliant, and follow the RD.

3.7.1 Regulations: The Contractor and all subcontractors shall conform to and abide by all city, county, and state laws, ordinances, rules, and regulations, as the same pertain to the Work contemplated by said Plans and Specifications.

3.7.2 Permits, Licenses, and Fees: The Contractor shall give all notices and shall procure and pay for all permits, licenses, and inspection fees that may be required to commence, carry on, and complete the Contract.

3.7.3 County Business License: It is unlawful for any person to furnish supplies or services, or transact any kind of business in the unincorporated territory of El Dorado County without possessing a County business license unless exempt under County Code Section 5.08.070.

3.7.4 Patent Rights, Copyrights, Trade Names, and Royalties: The Contractor shall indemnify and save harmless the County and all persons acting under him for all liability on account of any patent rights, copyrights, or trade names which may affect the articles or materials or their application under the specifications. The Contractor shall pay all royalties, or other charges that may arise, due to methods, types of construction, processes, materials or use of equipment, and shall hold the County harmless from any charges whatsoever which may arise, and shall furnish written assurance, satisfactory to the County, that such charges have been paid.

3.8 GUARANTEE

3.8.1 Final Guarantee: The Contractor shall guarantee all materials and equipment furnished and work performed for a period of one (1) year. Contractor warrants and guarantees for a period of one year from the date of Notice of Substantial Completion that the Work is free from all defects due to faulty materials or workmanship and Contractor shall promptly make such corrections as may be necessary, including repairs of any damage to other parts of the Work resulting from such defects. County will give notice of observed defects with reasonable promptness. In the event that Contractor should fail to make such repairs, adjustments, or other work that may be made necessary by such defects, County may do so and charge Contractor the cost thereby incurred.

3.8.2 Extended Guarantees: If a guaranty exceeding one year is provided by the supplier or manufacturer of any equipment used in this Project, then the guarantee for such materials shall be extended for such term. Contractor expressly agrees to act as co-guarantor of such equipment and materials, and Contractor shall supply County with all warranty and guaranty documents relative to equipment and materials incorporated in the job and guaranteed by their suppliers or manufacturers.

3.9 WARRANTY

3.9.1 Contract Warranty: The Contractor warrants to the County that materials and equipment furnished under the Contract will be of good quality and new, unless otherwise required or permitted by the Contract, that the Work will be free from defects or flaws and is of the highest quality of workmanship and that the Work will conform with the requirements of the Contract. Work not conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective.

3.10 INDEMNIFICATION

3.10.1 County Not Liable for Damages: The County or its authorized representative shall not in any way or manner be answerable or suffer loss, damage, expense, or liability for any loss or damage that may happen to said Work, or part thereof, or in or about the same during its construction and before acceptance and the said Contractor shall assume all liabilities of every kind or nature arising from said Work, either by accident, negligence, theft, vandalism, or any cause whatever; and shall hold the County and its authorized representatives harmless from all liability of every kind and nature arising from accident, negligence, or any cause whatever, other than for the active negligence of the County, its officers, agents and employees.

3.10.2 County Not Liable for Debts: Indebtedness incurred for any cause in connection with this Work must be paid by the Contractor, and the County is hereby relieved at all times from any indebtedness or claim other than the Contract price.

3.10.3 Contractor Responsible for His Work: Responsibility for Accident, Damage, etc.: To the furthest extent permitted by law, the Contractor shall be responsible for any and all loss, accident, neglect, injury, or damage to person, life, or property which may be the result of, may be caused by, or arise out of his performance of Work as contemplated by said Specifications or the execution of the Contract for performance of said Work, and for which the County might be held liable.

3.10.4 Contractor Indemnifies the County: To the fullest extent allowed by law, Contractor shall defend, indemnify, and hold harmless the COUNTY and its officers, agents, employees and representatives from and against any and all claims, actions, losses, injuries, damages or expenses of every name, kind, and description, including litigation costs and reasonable attorney's fees incurred, brought for or on account of, injury to or death of any person, including but not limited to workers, County employees, and the public, or damage to property, which arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of Contractor, its officers, agents, employees, volunteers, representatives, contractors and subcontractors. This duty of Contractor includes the duty of defense, inclusive of that set forth in California Civil Code Section 2778. Each party shall notify the other party immediately in writing of any claim or damage related to activities performed under this Agreement. The parties shall cooperate with each other in the investigation and disposition of any claim arising out of the activities under this Agreement.

To the fullest extent allowed by law, Contractor shall indemnify and defend the Engineer against and hold it harmless from any and all claims, demands, suits, actions and liabilities for any and all loss, damage and liability for damages, including attorneys' fees and other costs of defense incurred by Engineer, whether for damage to or loss of property, or injury to or death of person, including the property of and/or injury to or death of Engineer's officers, agents and employees, or economic or consequential loss which shall in any way arise out of or be connected with Contractor's operations hereunder, unless such damage, loss, injury or death shall be caused by the sole, or active

negligence of Engineer, or willful misconduct of Engineer, where expressly provided by statute. Indemnity of the Engineer DOES NOT include indemnification for defects in design furnished by the Engineer.

3.10.5 Environmental Indemnification: To the fullest extent allowed by law, from and after recording of Notice of Completion, Contractor shall indemnify, defend, and save harmless County from all losses or damages resulting from injury to or death of any person and damage to property, and any fine, which is occasioned by or arises out of any breach of Environmental and Toxics Warranty, representations, or covenants of Contractor under this Contract. Contractor further agrees to indemnify and hold harmless County, its officers, employees, and agents, from and against any and all liability as follows:

1. Including all foreseeable and all unforeseeable consequential damages, directly or indirectly arising out of the use, generation, storage, or disposal of hazardous materials by Contractor, and
2. Including, without limitation, the cost of any required or necessary repair, cleanup, or detoxification and the preparation of any closure or other required plans, whether such action is required or necessary prior to or following filing of the Notice of Substantial Completion to the full extent that such action is attributable, directly or indirectly, to the presence or use, generation, storage, release, threatened release, or disposal of hazardous materials by any person on the Project prior to filing of the Notice of Substantial Completion. Contractor's obligations pursuant to the foregoing indemnity shall survive the filing of Notice of Completion of the Project.
3. This Contract as to indemnity and reimbursement as above set forth to be undertaken by the Contractor shall survive the performance of the remainder of said Contract and shall remain in full force and effect notwithstanding such performance.
4. The foregoing duties of indemnity shall not apply to loss, damage, expense, or liability caused solely by the active negligence of the County or the County's agents, servants or independent contractors.

3.11 WORK REQUIREMENTS

3.11.1 Conduct of Work: The Contractor shall confine the storage of his equipment and materials to limits as designated. He shall at all times exercise due caution and

provide all necessary barricades and other safety equipment around the Work to protect the general public from injury to person and property during the entire time of performance of the Work. The Contractor shall not create excessive dust or noise.

3.11.2 Maintenance of Site: Strict prohibition against committing nuisances in or about the Work shall be maintained, and the Contractor shall not in any way obstruct or interfere with movements of traffic on any public highway or public right of way without first obtaining the necessary approval of the proper public agency.

3.11.3 Clean Up of Site: The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials. If the Contractor fails to clean up as provided in the Contract Documents, the County may do so and the cost thereof shall be charged to the Contractor.

3.11.4 Cutting and Patching:

1. The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make parts fit together properly.
2. The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the County or separate contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the County or a separate contractor except with written consent of the County and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the County or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.12 SUBCONTRACTORS

3.12.1 Contractor Responsible for Subcontractor's Acts: Contractor shall be fully responsible to County for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

3.12.2 Contractor's Subcontract: Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind subcontractors to Contractor by the terms of the Contract Documents insofar as applicable to the Work of subcontractors

and to give Contractor the same power as regards terminating any subcontract that County may exercise over Contractor under any provisions of the Contract Documents.

3.13 SUPERINTENDENT

3.13.1 Work Superintendent: The Contractor will employ and maintain on the worksite a qualified supervisor or Superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site. The Superintendent shall have full authority to act on behalf of the Contractor, and all communications given to the Superintendent shall be as binding as if given to the Contractor. The Superintendent shall be present on the site at all times as required to perform adequate supervision and coordination of the Work.

3.14 LABOR AND MATERIALS

3.14.1 Skilled Labor: All labor must be especially skilled for each kind of work, and must be thorough and first class in all respects. Any person whom the Inspector or County may deem incompetent or disorderly shall be promptly discharged and not re-employed.

3.14.2 Quality of Materials: All materials used on this Contract shall be new and the best market quality, unless specified or shown otherwise. All Work executed under this Contract shall be done in the best, most thorough, substantial and workmanlike manner and without flaws. All materials and labor shall be subject to the approval of the Inspector as to its quality and fitness, and shall be immediately removed if it does not meet with his approval. The Inspector may refuse to issue the certificate or payment until all defective materials or work have been removed and other material of proper quality substituted therefor. All removal and replacement with same shall be done at the Contractor's expense. Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer.

3.15 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.15.1 Prepare and Submit Construction Schedule: The Contractor, promptly after being awarded the Contract, shall prepare and submit for the County's information a Contractor's construction schedule for the Work. The Schedule completion date shall not exceed the time limits for completion set forth in the Contract Documents. The Schedule shall be revised at appropriate intervals, as determined by the Engineer, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

3.15.2 Keep Schedule Current: The Contractor shall prepare and keep current, for the Engineer's approval, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Engineer reasonable time to review submittals.

3.15.3 Schedule for Information Only: The Construction Schedule is for the County's information only and such Schedule shall not be considered to be binding on the County of El Dorado for the purpose of establishing damages for delay that occur prior to the Time for Completion set forth in the Construction Agreement. Silence or inaction with regard to Contractor's Schedule shall not be construed as acquiescence or acceptance of the Schedule as being binding on County. Float, of all types whether for the entire Project or for specific tasks, is for the benefit of County and may be used by County without penalty.

3.16 SURVEYS AND STAKING

3.16.1 Preservation of Survey Control Points: Contractor shall preserve all bench marks, monuments, and other survey control reference points. If displaced or lost, they shall immediately be replaced by a Licensed Surveyor or Registered Civil Engineer at no additional cost to County. The Contractor is directed to Section 01050, Field Surveys and Control of the Specifications for detailed project requirements.

3.17 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.17.1 Submittal Definition: The term Submittal shall include all of the following:

1. Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.
2. Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.
3. Samples are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

3.17.2 Purpose of Submittals: Submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

3.17.3 Submittal: The Contractor shall review, approve, and submit to the Engineer, Submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the County or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

3.17.4 Review of Submittals: The Contractor shall perform no portion of the Work requiring Submittals and review until the respective Submittal has been approved by the Engineer. Such

Work shall be in accordance with approved submittals. By approving and submitting Submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

3.17.5 Approval of Submittals: The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Engineer's approval of Submittals unless the Contractor has specifically informed the Engineer in writing of such deviation at the time of submittal and the Engineer has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Submittals by the Engineer's approval thereof.

3.18 USE OF SITE

3.18.1 Site Usage: The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

3.18.2 Sanitary Facilities: Contractor shall furnish adequate toilet facilities at the site of the work. Such facilities shall be subject to the concurrence of the County as to location and type. Contractor shall maintain the facilities in sanitary condition from the beginning of the work until completion and shall then remove the facilities and disinfect the premises. All portions of the work shall be maintained at all times in a neat, clean and sanitary condition.

3.19 COORDINATION OF WORK

3.19.1 Material and Equipment Storage: The Contractor shall afford the County and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

3.19.2 Discrepancies or Defects: If part of the Contractor's Work depends for proper execution or results upon construction or operations by the County or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Engineer apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the County's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

3.19.3 Remedy of Damages: The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the County or separate contractors as provided in the Contract Drawings.

3.19.4 Cutting and Patching: The County and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Paragraph 3.11.4 of the General Conditions.

3.20 MOBILIZATION

3.20.1 Mobilization Details: Mobilization shall consist of all preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site.

3.20.2 Payment for Mobilization: Payment for mobilization shall be considered as included in the various items of work and no separate compensation will be allowed therefore. This shall include, but not be limited to, all equipment, labor, materials and incidentals associated with this activity.

3.21 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Here is where we will insert the various plans for the RAWP that Bryan A. Stirrut is working on. Agreed?

3.21.1 Storm Water Erosion and Sediment Control: The contractor shall prepare an Environmental Protection Plan that defines the Best Management Practices (BMP) to be implemented during construction. The contractor shall be responsible for responding to any violations noted during inspections by the Lahontan Regional Water Quality Control Board Inspection Monitor and shall also pay any fines if any violations are identified.

Prior to the start of construction activities, the contractor shall prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) for review by the Forest Service, El Dorado County, California.

The SWPPP shall include a description of the BMPs and control practices to be used for both temporary and permanent erosion control measures. BMPs will included, but not be limited to, silt fence, straw wattle, and temporary sediment retention ponds, as needed. The SWPPP will also include a list of native species appropriate for revegetation (Greg- have you seen this in the 100% design?) and shall reference the decontamination plan to ensure that noxious weeds or non-native invasive species (NNIS) are not introduced or spread during construction activities.

Article 4

ADMINISTRATION OF CONTRACT

4.1 ADMINISTRATION OF CONTRACT

4.1.1 Contract Communications: Unless otherwise provided in the Contract or when direct communications have specifically been authorized, all parties shall communicate through the County's Representative or the Inspector, if one is appointed. Communications shall also include the Engineer of the project and the CQA consultant. Because the Forest Service will be involved with the final approval of plans, documents, and approaches, etc., they should be included in all communications. Communications by and with the subcontractors and material suppliers shall be through the Contractor. Communications by Contractor to separate contractors, architect, or engineer shall be through the County's Representative or the Inspector, if one is appointed. The Forest Service Remedial Project Manager retains the authority to stop work or inform the Contractor of such.

4.1.2 Control of Work: The County's Representative or the Inspector will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The County's Representative or the Inspector will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The County's Representative or the Inspector will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

4.1.3 Recommendation for Payments: Based on the observations and evaluations of the Contractor's Applications for Payment, the County's Representative or the Inspector, if one is appointed, will review amounts due the Contractor and will recommend to County, payments to Contractor as set forth in the section 6.4.

4.1.4 Inspector's Authority: The CQA Inspector will have the authority to stop work whenever necessary to ensure a proper execution of the Work. The Inspector will also have authority to reject Work which does not conform to the Contract Documents. Whenever the Inspector considers it necessary or advisable for implementation of the intent of the Contract Documents, the Inspector will have authority to require additional inspection or testing of the Work in accordance with the following section whether or not such Work is fabricated, installed, or completed. However, neither this authority of the Inspector nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Inspector to the Contractor, subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.2 INSPECTION AND TESTING

The Forest Service retains the authority for inspection, testing, and split samples or to inform the contractor of such.

4.2.1 Advance Notice: Contractor shall notify County's Representative and Inspector 24 hours prior to any day in which Contractor will 1) require an inspection of any portion of the Work, and 2) work in excess of 8 hours or any time Contractor intends to work weekends. Any work not performed subject to inspection will not be accepted and will be rejected and/ or ordered removed by County, or Inspector.

4.2.2 Access to Work: The County's Representative and the Inspector will at all times have access to the Work. In addition, authorized representatives and agents of any participating Federal or State Agency shall be permitted to inspect all Work, materials, payrolls, records on personnel, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the Work and also for any inspection or testing thereof.

4.2.3 Costs of Tests: The County shall bear all costs related to testing for conformance of the Work to the Contract requirements. However, if the Contractor has called for any testing, and that test fails, subsequent tests, and all related costs, shall be borne by the Contractor. CQA Contractor bears all costs.

4.2.4 Preparation of Change Directives/Orders: The County's Representative or the Inspector, if one is appointed, will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in the article entitled CHANGES IN WORK. The Forest Service will review and approve all Change Orders and Construction Change Directives. Minor changes are considered to be less than \$50,000. (Is everyone good with this?)

4.3 CLAIMS

4.3.1 Time Limits on Claims: Claims by Contractor must be made within 21 days after occurrence of the event giving rise to such Claim, except that claims made due to delay or hindrances which Contractor claims was caused by County shall be made within 10 days after occurrence of the event giving rise to such Claim. Claims must be made by written notice. Failure to make such claim in writing in the time set forth herein shall bar Contractor from recourse for such claim. All claims must be filed on or before the payment date of Final Payment.

4.3.2 Claims for Additional Costs:

1. If Contractor wishes to make a Claim for an increase in the Contract Price, he shall give the County written notice thereof within the time set forth in Paragraph 4.3.2. This notice shall be given by the Contractor before proceeding to execute the work, except in an emergency endangering life or property in which case the Contractor shall, as soon as possible, advise County of his intent to do the Work.
2. Increases in Contract Price due to Claims shall be calculated based on the Cost Reimbursement method detailed in Paragraph 5.4.1.3.
3. Under no circumstances shall Contractor recover any administrative overhead costs or recover on the basis of any "Home Office" damages formula, "Total Cost" recovery formula, or any other such formula.

4.3.3 Claims for Additional Time:

1. If the Contractor wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.
2. If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the scheduled construction.
3. The County shall not be liable for any damages on account of any reasonable delay or hindrance of the County. However, Contractor shall be entitled to an extension of time for any delay or hindrance caused by the County. Any delay or hindrance by County which is unreasonable and not within the contemplation of the parties may subject County to a claim for damages. Contractor shall make any claims in writing within the time set forth in Paragraph 4.3.2., for any unreasonable delay or hindrance caused by County, and specifying the cause thereof as required in paragraph "Submittal of Claims".

4.3.4 Submittal of Claims: Any disputes relating to this Contract, or its breach, which is not disposed of by agreement shall be promptly submitted as a claim to and decided by the County's Representative who shall issue a written decision on the dispute. Claims shall be submitted by the Contractor to the County's Representative with adequate supporting data and include a demand for the County's Representative's decision. Adequate supporting data shall include, but is not limited to, a statement of the reasons for the asserted entitlement, the certified payroll, invoice for material and equipment rental, and an itemized breakdown of any adjustment sought.

4.3.5 Submission Under Penalty of Perjury: The Contractor shall certify, at the time of submission of a claim, as follows:

"I certify under penalty of perjury under the laws of the State of California, that the claim is made in good faith, that the supporting data are accurate and complete, and that the amount requested accurately reflects the contract adjustment for which the County is liable.

By: _____

—

(Contractor's signature)"

4.4 DISPUTES RESOLUTION

4.4.1 Continue Work During Dispute: In the event of any dispute between the County and the Contractor, the Contractor will not stop Work but will prosecute the work diligently to completion in the manner directed by the County, and the dispute shall be resolved by a court of law after completion of the Work. However, all disputes must be submitted by Contractor in accordance with the subsequent provisions of this section.

4.4.2 County's Review of Claim: The County's Representative shall review the facts pertinent to the claim, secure assistance from legal and other advisors, coordinate with the contract administrators, and within the time stipulated in Paragraph 4.4.3., render a written decision on the claim. A copy of the decision shall be furnished to the Contractor by certified mail, return receipt requested, or any other method that provides evidence of receipt. The decision of the County's Representative shall be final and conclusive except as is otherwise provided herein.

4.4.3 Requirements for Filing a Claim: For any Claim Subject to this article, the following requirements apply: The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

1. For claims of less than fifty thousand dollars (\$50,000), the County shall respond in writing to any written claim within 45 days of receipt of the claim or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the County may have against the claimant. If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the County and claimant. The County's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after

receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

2. For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the County shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the County may have against the claimant. If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the County and the claimant. The County's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.
3. If the claimant disputes the County's written response, or the County fails to respond within the time prescribed, the claimant may so notify the County, in writing, either within 15 days of receipt of the County's response or within 15 days of the County's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the County shall schedule a meet and confer conference within 30 days for settlement of the dispute.
4. If following the meet and confer conference the claim or any portion remains in dispute, the claimant may file a claim pursuant to Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time the claim is denied, including any period of time utilized by the meet and confer conference.

4.4.4 Claims Exempt from Review: The procedures and remedies provided in this Section 4.4 do not apply to:

1. Any claims by the County.
2. Any claim for or respecting personal injury or death or reimbursement or other compensation arising out of or resulting from liability for personal injury or death.

3. Any claim or dispute relating to stop payment requests or stop notices.
4. Any claim related to the approval, refusal to approve, or substitution of subcontractors, regardless of tier, and suppliers.

4.4.5 Procedure to Resolve Civil Claims: The County and claimant shall follow procedures established for all civil actions filed to resolve claims pursuant to Section 20104.4 of the Public Contract Code.

4.4.6 Payment of Undisputed Portion of Claim: Payment by County of undisputed portion of claim; interest on arbitration award or judgment.

1. County shall pay claimant such portion of a claim which is undisputed except as otherwise provided in the Contract.
2. In any suit filed under Section 20104.4, of the Public Contract Code, the County shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

4.4.7 Suit in El Dorado County Only: Any litigation arising out of this Contract shall be brought in El Dorado County and Contractor hereby waives the removal provisions of California Code of Civil Procedure Section 394.

Article 5 CHANGES IN WORK

5.1 WAIVER

5.1.1 Waivers of Contract Provisions: It is expressly understood and agreed that no waiver granted by the Inspector or the County of any term, provision, or covenant of this Contract shall constitute a precedent for breach of the same or any other terms, provisions, or covenants of this Contract.

5.2 CHANGES

The Forest Service retains the authority to review and approve any changes that deviate from the approved Remedial Design, Remedial Action Work Plan, and the Construction Work Plan.

5.2.1 County May Order Changes in Work: The Contractor agrees that the County, without invalidating the Contract, may order changes in Work by altering, adding to, or deducting from the Work, the Contract Amount being adjusted according to the provisions of Section 5.4. Contractor agrees to enter into a modification of his original Contract for such changes.

5.2.2 Cost Proposals: Upon request of the County for a quotation on the change to the Work, the Contractor shall promptly submit to County's Representative or the Inspector, if one is appointed, in writing a detailed breakdown of the work and of the amount of deduction or addition claimed. In no case shall Cost Proposals be provided later than 30 calendar days from the date requested. The County's request for quotations on alterations to the Work shall not be considered authorization to proceed with the work prior to issuance of a Change Order, nor shall such request justify any delay in existing work. If Contractor fails to provide Cost Proposals within 30 calendar days, County may prepare the Cost Proposal based on estimates of labor, materials, and equipment. This proposal, prepared by County, shall be binding on the Contractor, will become the basis for Contract Price adjustment, and shall not be subject to dispute or claim. The Forest Service will review and approve any changes in Scope.

5.2.3 Contract Change Instrument: Changes in work involving a change in Contract Price or Contract Time shall be done only pursuant to a written Field Order, written Change Order, or written Construction Change Directive as set forth below in this article.

5.2.4 Changes Shall Conform to Contract: Changes in work shall be performed in conformance with applicable provisions of the Contract Documents, and the Contractor shall proceed promptly unless otherwise provided in the Field Order, Change Order, or Change Directive.

5.3 CONTRACT CHANGE INSTRUMENTS

5.3.1 Field Order: The County's Representative or the Inspector may order minor changes in work by use of a Field Order. These minor changes will involve neither changes in the Contract Price or Contract Time. If the Contractor disagrees that the change does not involve a change in cost or time, then a Change Order or Change Directive shall be used.

5.3.2 Change Order: The Change Order shall be used in cases where County and Contractor agree on the change in work, the amount of or method of computing the Contract Amount, and the amount of adjustment in Contract Time.

5.3.3 Change Directive: In the event that the County and Contractor do not agree on the proposed change in work, and/or the proposed adjustment of Contract Price and Time, or in the event it is essential that the Contractor proceed expeditiously and without delay, then County may, by issuance of a Construction Change Directive, order changes in work, and the Contractor shall promptly proceed with the change in work involved.

1. Acceptance of Change Directive: If Contractor agrees with the Change Directive, the Contractor shall by his signature thereon, indicate his acceptance of the terms of the Directive, including adjustments to price and time, and the Change Directive shall then be followed by a Change Order.
2. Non-Acceptance of Change Directive: If the Contractor disagrees with the method of computing an increase in Contract Price, then the amount of adjustment shall be computed by the Cost Reimbursement method detailed in Basis for Adjustment. Disagreements with amounts or credits, under the Cost Reimbursement method, or time, shall be considered a dispute, and processed under the section on Disputes Resolution.

5.4 BASIS OF ADJUSTMENT

5.4.1 Methods of Adjustment: The amount of adjustments to Contract Price, whether a credit or payment, shall be computed by one of the methods detailed below. The method used shall be at the sole determination of the County.

1. Unit Prices: Those prices stipulated in the Bid Proposal shall be utilized where they are applicable. In the event the change in original quantity is in excess of 25 percent of the original bid quantity, and the total dollar value of that bid is significant, the County shall review the unit price to determine if a new unit price shall be renegotiated. Unit prices for new items shall be negotiated and mutually agreed upon.
2. Lump Sum: A total lump sum for the Work negotiated and mutually acceptable to the Contractor and County. Lump sum quotations for modifications to the Work shall include substantiating documentation with an itemized breakdown of Contractor's and subcontractor's costs, including labor, materials, rentals, approved services, overhead, and profit all calculated as specified in the Cost Reimbursement method which follows.
3. Cost Reimbursement (Extra Work): In this method, the payment for Extra Work shall be made on a time and expense basis that is on an accounting of the Contractor's forces, materials, equipment, and other items of cost as required and used to do the Work. Payment will be made for the documented actual cost of the following:
 - a. Costs of labor, excluding supervisory personnel, including social security, old age and unemployment insurance, fringe benefits required by agreement, labor insurance and labor taxes established by law,

- b. Costs of materials, supplies, and equipment, including cost of transportation and sales tax, whether incorporated if paid for by the Contractor or his subcontractor,
- c. Rental costs, prevailing in the area, of machinery and equipment for the actual time used, and including transportation costs for items having value in excess of \$100,
- d. Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work,

To the above cost the Contractor shall be allowed a markup of 20 percent on direct labor charges and 15 percent for all other cost items. When any or all of the Extra Work is done by one of the Contractor's subcontractors, the markups set forth above shall be applied to the subcontractor's actual costs to which a 5 percent markup shall be allowed the Contractor. These markups shall be considered to be full compensation, covering the cost of general supervision, administration, overhead, profit, and any and all other general expenses, including, but not limited to, uniforms, hand tools, safety equipment, travel and lodging.

5.5 EXTENSION OF TIME FOR COMPLETION

The Forest Service has a regulatory role in the approval of Remedial Action schedule changes, and has the authority to notify the contractor of such.

5.5.1 Contractor Delayed or Hindered: Should the Contractor be delayed or hindered in the completion of the Work by the neglect of the County, or by fire, by strikes, lockouts, embargoes or earthquakes, and any other causes the Inspector approves as not having been reasonably foreseeable at the time of execution of the Contract Documents, then the time allowance herein fixed for the completion of the Work shall be extended for a period equivalent to the time lost by reason of any or all of the causes aforesaid. Time extensions must be requested in accordance with Section 4.3.

5.5.2 Agreement on Time Extension: In addition, the Contractor and the County reserve the right to mutually agree in writing upon an extension of time for completion for causes other than enumerated above; the Inspector must recommend, and the additional time so allowed must be by Change Order.

5.5.3 Time Extension Not Waiver: The granting of an extension of time by the County for performance by the Contractor shall not operate as a waiver or stop the County from claiming damages due to any other delays, prior or subsequent, which were not approved by the Inspector and the County as provided herein.

Article 6

PAYMENTS AND COMPLETION

6.1 GENERAL

6.1.1 Contract Price: The Contract Price is stated in the Agreement is the total amount payable by the County to the Contractor for performance of the Work under the Contract Documents.

6.1.2 Waiver: Neither the acceptance of the Work by the County nor the payment any part or all of the sum due the Contractor hereunder shall constitute a waiver by the County of any claim which the County may have against the Contractor or Surety under this Contract or otherwise.

6.1.3 Manner of Paying Warrants: Payments become due under the terms of this Contract in the manner prescribed by law. The Auditor shall cause a warrant for the Certified amount to be drawn upon the proper fund of the Treasurer of the County, which warrant shall be approved and issued to Contractor within that period of time customarily required to process said warrants in the ordinary course of County business.

6.2 APPLICATIONS FOR PAYMENT

6.2.1 Submittal of Applications: Every 30 days, the Contractor may submit to the County's Representative, or the Inspector, if one is appointed, an itemized Application for Payment for work completed to date. Such application shall be supported by such data substantiation the Contractor's right to payment as the County may require, such as copies of requisitions from subcontractors and material suppliers.

6.2.2 Basis for Payment: Each Application for Payment shall be based upon the Contract Unit Prices as applicable. Applications shall indicate the percentage of completion of each item of the Work as bid as of the end of the month covered by the Application.

6.2.3 Work Free of Liens: The Contractor warrants that upon submittal of an Application for Payment, all work for which Certificates for Payment have been previously issued and payments received from the County shall be free and clear of liens, claims, security interests, or encumbrances against Contractor by subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment in relation to the Work.

6.3 CERTIFICATION FOR PAYMENT

6.3.1 Certification Determination: The County's Representative, or the Inspector, if one is appointed, will, within 7 days after receipt of the Contractor's Application for Payment, either issue to the County a Certification for Payment, with a copy to the Contractor, for such amount as determined to be properly due, or notify the Contractor and County of the reasons for withholding certification in whole or in part as provided in the following paragraph.

6.4 WITHHOLDING FROM PAYMENTS

6.4.1 Reasons for Withholding: The County, upon recommendation of the Inspector, may withhold payments, or on account of subsequently discovered evidence nullify the whole or a part of any progress or retention payments to such extent as may be necessary to protect the County from loss on account of:

1. Defective work or material not remedied or replaced.
2. The filing of claims or Stop Notices to withhold, or reasonable evidence indicating probable filing of such claims or notices.
3. Failure of the Contractor to make payments properly to subcontractors, or for materials or labor.
4. Failure to make payments to any person or entity for financial obligations of the Contractor under terms of this Contract.
5. A reasonable doubt that the Contract can be completed for the balance then unpaid.
6. Damage to another contractor.
7. Performance of work in violation of the terms of the Contract Documents.
8. Excessive costs to the County.
9. Failure of Contractor to comply with requirements for timely submittal of specified documentation, including but not limited to construction schedules, cost proposals, and submittals.

6.4.2 Release of Payment: When the above grounds for withholding are removed, payment shall be made for amounts withheld because of them.

6.5 SUBSTITUTE SECURITIES FOR 10 PERCENT RETENTION

6.5.1 Escrow Account Requirements: The Contractor may at his request and expense, in lieu of the monies withheld by the County as provided herein, deposit securities equivalent to the amount withheld with a State or Federally chartered bank as an escrow agent. Securities eligible are those listed in California Government Code Section 16430, or bank or savings and loan certificates of deposit. The terms and conditions of the escrow shall be as set forth in Government Code Section 22300.

6.6 FINAL COMPLETION AND PAYMENT OF RETAINAGE

To complete the Remedial Action and follow NCP guidelines, as specified in the RD, the Contractor will be required to complete a pre-certification inspection and a final certification inspection.

6.6.1 Affidavit of Payment: After the date of Substantial Completion of the Work, and before final acceptance of the Work, the Contractor shall file with the County his affidavit, sworn to before a Notary Public, stating that all workmen and persons employed, all firms supplying materials, and all subcontractors upon the project for either labor or material have been paid in full, except certain items, if any, to be set forth in such affidavit covering disputed claims, including claims for acceleration, disruption, delays, inefficiencies, and hindrance, or items in connection with which Stop Notices have been filed under the provisions of the Statutes of the State of California. The filing of such affidavit by the Contractor shall be one of the prerequisites to the making, by the County, of the 10 percent retainage payment on the Contract.

6.6.2 Final Inspection: Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the County will promptly make such inspection and, when the County's Representative, or the Inspector, if one is appointed, finds the work acceptable under the Contract Documents and the Contract fully performed, the County's Representative, or the County's Representative or Inspector, if one is appointed, will promptly recommend to County that County may consider the Project complete and that Payment of Retainage may be made.

6.6.3 Final Certification: Before issuance of final payment, Contractor shall file, with County, a certificate in which he certifies that to the best of the Contractor's knowledge, information, and belief, and on the basis of observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents.

6.6.4 Payment of Retention: Thirty-five days after the notice of completion has been filed, provided the Work be fully completed and the Contract fully performed, the balance due under the Contract shall be paid, less any monies held for stop notices. These payments shall not be construed as an absolute acceptance of the work done up to

the time of such payments. The Contractor, if requested by the County, shall furnish receipts or other vouchers showing his payments for materials and labor.

6.6.5 Notice of Completion: The Work shall be accepted in writing in the form of a Notice of Completion when the whole shall have been completed satisfactorily to the County. In judging the Work, no allowance for deviations from the original Specifications will be made unless already approved in writing at the proper times and in the manner as called for herein. The Notice of Completion shall be recorded.

Article 7

PROTECTION OF PERSONS AND PROPERTY

7.1 PROTECTION OF WORK, PROPERTY, AND PERSONS

7.1.1 Responsible for Damage to the County's Property: The Contractor shall be entirely responsible for any damage to the property of the County due to careless handling of tools and/or materials or other causes attributed to the Contractor's Work in performing this Contract.

7.1.2 Responsible for Safety: The Contractor will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury, or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

7.1.3 Safety and Convenience: The Contractor will comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction. The Contractor will erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. The Contractor will notify owners of adjacent utilities when prosecution of the Work may affect them.

7.1.4 Remedy Damages: The Contractor will remedy all damage, injury, or loss to any property caused, directly or indirectly, in whole or part, by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them or anyone of whose acts any of them would be liable, except damage or loss attributable to the sole fault or to the acts or omissions of the County or the Inspector or anyone employed by

them and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor.

7.1.5 Protection of Workers in Trenches: As required by Section 6705 of the California Labor Code, and in addition thereto, whenever work under the Contract involves the excavation of any trench or trenches 5 feet or more in depth, Contractor shall submit for acceptance by the County or by a registered civil or structural engineer, employed by the County, to whom authority to accept has been delegated, in advance of excavation, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation, or such trench or trenches. If such plan varies from the shoring system standards established by the Construction Safety Orders of the Division of Industrial Safety, the plan shall be prepared by a registered civil or structural engineer employed by the Contractor, and all costs therefor shall be included in the price named in the Contract for completion of the work as set forth in the Contract Documents. Nothing in this section shall be deemed to allow the use of a shoring, sloping, or other protective system less effective than that required by the Construction Safety Orders. Nothing in this section shall be construed to impose tort liability on the County, the Engineer, nor any of their officers, agents, representatives, or employees.

7.1.6 Relocation of Utilities: As required by Section 4215 of the California Government Code, the County will assume responsibility for the removal, relocation, and protection of main or trunk-line utility facilities existing on the construction site, if such facilities are not shown to the Contractor and/or as not identified on any plans and specifications and the County shall compensate the Contractor for the costs of locating and repairing damage to such facilities not due to the failure of the Contractor to exercise reasonable care.

In accordance with the provisions of Section 4215 of the California Government Code, Contractor shall not be assessed liquidated damages for delay in completion of the project, when such delay was caused by the failure of the County or owner of the utility to provide for the removal or relocation of such utility facilities.

Nothing herein shall be deemed to require the County to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the site of the construction project can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of the construction.

If the Contractor, while performing work under this Contract, discovers utility facilities not identified in the contract plans or specifications, he shall immediately notify the Project Manager. The County shall not be liable for the Contractor's performance of unauthorized work.

Article 8

INSURANCE AND BONDS

8.1 INSURANCE

8.1.1 Copies of Insurance Policies: Before commencing any work under the Contract, the Contractor shall obtain insurance policies, as specified below. Each of the insurance policies shall be issued by a company or companies duly and legally licensed to transact business in the State of California. They shall be issued at the expense of the Contractor and shall be maintained by him and at his expense during the entire life of the Contract.

8.1.2 Co-Insured: The Contractor and all subcontractors shall be named or designated in such capacity as insured jointly, or additionally, with the County in all policies, all of which shall be open to the County's inspection. Certificates of such insurance shall be filed with the County. If the Contractor fails to effect or maintain insurance as above and so notifies the County, the County may insure its own interest and that of the subcontractors and charge the cost thereof to the Contractor. If the County is damaged by failure of the Contractor to maintain such insurance or to so notify the County, the County may recover such damages.

8.1.3 Types of Coverage: The Contractor shall provide proof of a policy of insurance satisfactory to El Dorado County Risk Management and documentation evidencing that the Contractor maintains insurance that meets the following requirements:

1. Full Workers' Compensation and Employers' Liability Insurance covering all employees of the Contractor as required by law in the State of California.
2. Commercial General Liability Insurance of not less than One Million Dollars (\$1,000,000) combined single limit per occurrence for bodily injury and property damage, including but not limited to endorsements for the following coverage: Premises, personal injury, operations, products and completed operations, blanket contractual, and independent contractors liability.
3. Automobile Liability Insurance of not less than One Million Dollars (\$1,000,000.00) is required in the event motor vehicles are used by the Contractor in performance of the Contract.
4. In the event Contractor is a licensed professional and is performing professional services under this Contract, professional liability is required with a limit of liability of not less than One Million Dollars (\$1,000,000) per occurrence. For the purposes of this Contract professional liability insurance is not required.

5. Explosion, Collapse and Underground coverage is required when the scope of Work includes XCU exposures. For the purposes of this Contract, XCU coverage is not required.
6. Any Environmental Hazards encountered by the Contractor at the project site shall be covered by the Commercial General Liability Insurance policy and the County of El Dorado shall be named as an additional insured.
7. Contractors Pollution Liability of not less than One Million Dollars (\$1,000,000) each occurrence and Two Million Dollars (\$2,000,000) aggregate. Coverage should be maintained for a minimum of five (5) years after contract completion.

PROOF OF INSURANCE REQUIREMENTS:

- A. Contractor shall furnish proof of coverage satisfactory to the El Dorado County Risk Manager as evidence that the insurance required herein is being maintained. The insurance will be issued by an insurance company acceptable to the Risk Manager, or be provided through partial or total self-insurance likewise acceptable to the Risk Manager, on Forms acceptable to the County Risk Manager.
- B. The County of El Dorado and the Engineer, its officers, officials, employees, and volunteers are included as additional insured, but only insofar as the operations under this Contract are concerned. This provision shall apply to all liability policies except Workers' Compensation and professional liability insurance policies. Proof that the County and Engineer are named additional insured shall be made by providing the Risk Manager with a certified copy, or other acceptable evidence, of an endorsement to Contractor's insurance policy naming the County and Engineer additional insured.
- C. In the event Contractor cannot provide an occurrence policy, Contractor shall provide insurance covering claims made as a result of performance of this Contract for not less than three (3) years following completion of performance of this Contract.
- D. Any deductibles or self-insured retentions must be declared to and approved by the County. At the option of the County, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects to the County, its officers, officials, employees and volunteers; or the Contractor shall procure a bond

guaranteeing payment of losses and related investigations, claim administration and defense expenses.

INSURANCE NOTIFICATION REQUIREMENTS

- A. The insurance required herein shall provide that no cancellation or material change in any policy shall become effective except upon thirty (30) days prior written notice to the County of El Dorado at the office of the Environmental Management Department, 360 Fairlane, Placerville, CA 95667.
- B. Contractor agrees that the insurance required herein shall be in effect at all times during the term of this Contract. In the event said insurance coverage expires at any time or times during the term of this Contract, Contractor agrees to provide at least thirty (30) days prior to said expiration date, a new certificate of insurance evidencing insurance coverage as provided for herein for not less than the remainder of the term of the Contract, or for a period of not less than one (1) year (for an occurrence policy) or three (3) years (for a claims made policy). New certificates of insurance are subject to the approval of the Risk Manager.

ADDITIONAL STANDARDS: Certificate shall meet such additional standards as may be determined by the Contracting County Department either independently or in consultation with the Risk Manager, as essential for protection of the County.

COMMENCEMENT OF PERFORMANCE: Contractor shall not commence performance of this Contract unless and until compliance with each and every requirement of the insurance provisions is achieved.

MATERIAL BREACH: Failure of Contractor to maintain the insurance required herein, or to comply with any of the requirements of the insurance provisions, shall constitute a material breach of the entire Contract.

REPORTING PROVISIONS: Any failure to comply with the reporting provisions of the policies shall not affect coverage provided to the County, its officers, officials, employees or volunteers.

PRIMARY COVERAGE: The Contractor's insurance coverage shall be primary insurance as respects the County, its officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the County, its officers, officials,

employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

PREMIUM PAYMENTS: The insurance companies shall have no recourse against the County of El Dorado its officers, agents, employees or any of them for payment of any premiums or assessments under any policy issued by any insurance company.

CONTRACTOR'S OBLIGATIONS: Contractor's indemnity and other obligations shall not be limited by the insurance required herein and shall survive the expiration of this Contract.

8.2 BONDS

8.2.1 General Requirements for Bonds: Before commencing any Work under the Contract, the Contractor shall file two of each bond with the County. These bonds shall be in the amounts and for the purposes specified below. They shall be Surety bonds and shall be issued by corporations duly and legally licensed to transact business in the State of California. They shall be maintained by him and at his expense during the entire life of the Contract or later as provided.

8.2.2 Performance Bond: One bond shall be in the amount of 100 percent of the Contract price, and shall guarantee the faithful performance of the Contract and shall insure the County during the life of the Contract.

8.2.3 Payment Bond: One bond shall be in the amount of 100 percent of the Contract price, and shall guarantee the payment in full of all claims for labor and materials in accordance with the provisions of the laws of the State of California.

8.2.4 Change of Surety: If, at any time a Surety on such bonds becomes irresponsible or loses its right to do business in the State of California, the County may require another Surety which the Contractor shall furnish within 10 calendar days after receipt of written notice to do so. Evidence of authority of an attorney-in-fact acting for the corporate Surety must be provided in the form of a certificate as to his power of attorney and to the effect that it is not terminated and remains in full force and effect on the date of the bonds. The form of the bonds shall be subject to approval by the County.

Article 9 UNCOVERING AND CORRECTION OF WORK

9.1 DEVIATION FROM SPECIFICATIONS

9.1.1 Improper Work: If the Contractor shall vary from the Specifications in the form or quality of the Work, or the amount or value of the materials herein provided for, the County shall have the right to order such improper work or materials removed, remade, or replaced. In the event that the Work is ordered changed, any other work disturbed or damaged by such alteration shall be made good at the Contractor's expense.

9.2 CORRECTION OF WORK

9.2.1 Covered or Completed Work: If any work is covered contrary to the written instructions of the County's Representative, or the Inspector, if one is appointed, it must, if requested, be uncovered for observation and replaced at the Contractor's expense.

9.2.2 Inspection of Covered Work: If the County's Representative or the Inspector, if one is appointed, considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, upon request, will uncover, expose, or otherwise make available for observation, inspection, or testing as the Inspector may require, that portion of the Work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such Work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction; if, however, such Work is not found to be defective, the Contractor will be allowed an increase in the Contract price or an extension of the Contract time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and construction, and an appropriate Change Order shall be issued.

9.2.3 Rejected Work: The Contractor shall promptly remove from the premises all Work rejected by County for failure to comply with the Contract Documents, whether incorporated in the construction or not, and the Contractor shall promptly replace and reexecute the work either during the term of the Contract or during the warranty period, in accordance with the Contract Documents and without expense to the County and shall bear the expense of making good all Work of other contractors destroyed or damaged by such removal or replacement.

9.2.4 Cost of Correction: All removal and replacement Work shall be done at the Contractor's expense. If the Contractor does not take action to remove such rejected Work within 10 days after receipt of written notice, the County may remove such Work and store the materials at the expense of the Contractor. County also may perform such Work or repairs itself and charge the expense to the Contractor.

9.2.5 Correction During Guarantee Period: If, within 1 year after the date of substantial completion of the Work or designated portion thereof, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the County to do

so. This period of 1 year shall be extended with respect to portions of Work first performed after substantial completion by the period of time between substantial completion and the actual performance of the Work. This obligation under this subparagraph shall survive acceptance of the Work under the Contract and termination of the Contract. The County shall give such notice promptly after discovery of the condition.

Article 10

TERMINATION OR SUSPENSION OF CONTRACT

10.1 TERMINATION BY THE COUNTY FOR CONVENIENCE

10.1.1 Right to Terminate: The County reserves the right to terminate the Contract at any time upon determination by the County's Representative that termination of the Contract is in the best interest of the County. County shall issue the Contractor a written notice specifying that the Contract is to be terminated.

10.1.2 Contractor's Duties: Upon receipt of said written notice, Contractor shall stop all work under the Contract except that specifically directed to be completed prior to acceptance, perform Work the Inspector deems necessary to secure the project for termination, remove equipment and plant from the site of work, take such action as is necessary to protect materials from damage, dispose of materials not yet used in the Work as directed by the County, and clean up the site.

10.1.3 Payment for Work: If the Contract is terminated for County's convenience as provided herein, all finished or unfinished work and materials previously paid for shall, at the option of County, become its property. Contractor shall be paid an amount which reflects costs incurred for work provided to the date of notification of termination. In addition, Contractor shall be paid the reasonable cost, as solely judged by County, and without profit, for all work performed to secure the project for termination.

10.2 TERMINATION BY THE COUNTY FOR CAUSE

10.2.1 Written Termination Notice: If the Contractor is adjudged as bankrupt or insolvent, or makes a general assignment for the benefit of its creditors or if a trustee or receiver is appointed for the Contractor or for any of its property, or if Contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or on more than one occasion fails to supply sufficient skilled workmen or suitable material or equipment, or on more than one occasion fails to make prompt

payments to subcontractors or for labor, materials, or equipment, or disregards the authority of the County's Representative, or the Inspector, if one is appointed, or otherwise violates any provision of the Contract Documents, then the County may, without prejudice to any other right or remedy and after giving the Contractor and its Surety a minimum of 10 days from delivery of a written termination notice, terminate the services of the Contractor and take equipment and machinery thereon owned by the Contractor and finish the Work by whatever method the County may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Work is finished.

10.2.2 Notice to Work or Quit: Without prejudice to other rights or remedies the County may have, if the Contractor fails to begin delivery of materials and equipment, to commence Work within the time specified, to maintain the rate of delivery of material, to execute the Work in the manner and at such locations as specified, or fails to maintain a work program which will ensure the County's interest, or, if the Contractor is not carrying out the intent of the Contract, an Inspector's written notice may be served upon the Contractor and the Surety on its faithful performance bond demanding satisfactory compliance with the Contract.

1. If the Contractor or its Surety does not comply with such notice within 5 days after receiving it, or after starting to comply, fails to continue, the County may exclude it from the premises and take possession of all material and equipment, and complete the Work by County's forces, by letting the unfinished Work to another Contractor, or by a combination of such methods.

10.2.3 County's Rights After Termination: Where the Contractor's services have been so terminated by the County, said termination shall not affect any right of the County against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies by the County due the Contractor will not release the Contractor from compliance with the Contract Documents.

1. If the unpaid balance of the Contract price exceeds the direct and indirect costs of completing the Work, including compensation for additional professional services, such excess shall be paid to the Contractor. If the sums under the Contract are insufficient for completion, the Contractor or Surety shall pay to the County within 5 days after the completion, all costs in excess of the Contract price. In any event, the cost of completing the Work shall be charged against the Contractor and its Surety and may be deducted from any money due or becoming due from the County.
2. If the Surety assumes any part of the Work, it shall take the Contractor's place in all respect for that part and shall be paid by the County for all Work performed by it in accordance with the Contract. If the Surety assumes the entire Contract, all money due the Contractor at the time of its

default shall be payable to the Surety as the work progressed, subject to the terms of the Contract.

3. The provisions of the section shall be in addition to all other rights and remedies available to the County under law.

10.2.4 Rights and Obligations of Parties: If after notice of termination under Paragraph 10.2.2, it is determined for any reason that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to the provisions of Section 10.1, Termination by County for Convenience. The Contract shall be equitably adjusted to compensate for such termination in accordance with Section 10.1.

10.2.5 Fiscal Considerations: The parties to this Contract recognize and acknowledge that County is a political subdivision of the State of California. As such, El Dorado County is subject to the provisions of Article XVI, Section 18 of the California Constitution and other similar fiscal and procurement laws and regulations and may not expend funds for products; equipment or services not budgeted in a given fiscal year. It is further understood that in the normal course of County business, County will adopt a proposed budget prior to a given fiscal year, but that the final adoption of a budget does not occur until after the beginning of the fiscal year.

Notwithstanding any other provision of this Contract to the contrary, County shall give notice of cancellation of this Contract in the event of adoption of a proposed budget that does not provide for funds for the services, products, or equipment subject herein. Such notice shall become effective upon the adoption of a final budget, which does not provide funding for this Contract. Upon the effective date of such notice, this Contract shall be automatically terminated and County released from any further liability hereunder.

In addition to the above, should the Board of Supervisors during the course of a given year for financial reasons reduce, or order a reduction, in the budget for any County department for which services were agreed to be performed, pursuant to this paragraph in the sole discretion of the County, this Contract may be deemed to be canceled in its entirety subject to payment for services performed prior to cancellation.

10.3 SUSPENSION OF WORK

10.3.1 County May Suspend: The County may suspend the Work or any portion thereof for a period of not more than 90 days or such further time as agreed upon by the Contractor, by written notice to the Contractor and the Inspector which shall fix the date on which work shall be resumed.

10.3.2 Resumption of Work: The Contractor shall resume that Work on the dates so fixed. The Contractor shall be allowed an increase in the Contract price or an extension of the Contract time, or both, directly attributed to any suspension.

* * * * *

Request for Taxpayer Identification Number and Certification

**Give form to the
 requester. Do not
 send to the IRS.**

Print or type
 See Specific Instructions on page 2.

Name (as shown on your income tax return)	
Business name, if different from above	
Check appropriate box: <input type="checkbox"/> Individual/Sole proprietor <input type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Limited liability company. Enter the tax classification (D=disregarded entity, C=corporation, P=partnership) ▶ ----- <input type="checkbox"/> Exempt payee <input type="checkbox"/> Other (see instructions) ▶	
Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
City, state, and ZIP code	
List account number(s) here (optional)	

Part I Taxpayer Identification Number (TIN)

Social security number
_____ _____
Employer identification number
_____ _____

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Part II Certification Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is **or** your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Certification

Under penalties of perjury, I certify that:

- 1 The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- 2 I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- 3 I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. See the instructions on page 4.

Sign
 Here Signature of

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a

U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

The person who gives Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States is in the following cases:

- The U.S. owner of a disregarded entity and not the entity,

Cat. No. 10231X Form **W-9** (Rev. 10-2007)

- The U.S. grantor or other owner of a grantor trust and not the trust, and
- The U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person, do not use Form W-9. Instead, use the appropriate Form W-8 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a “saving clause.” Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity not subject to backup withholding, give the requester the appropriate completed Form W-8.

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called “backup withholding.” Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
1. You do not certify your TIN when required (see the Part II instructions on page 3 for details),
2. The IRS tells the requester that you furnished an incorrect TIN,
1. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
2. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See the instructions below and the separate Instructions for the Requester of Form W-9.

Also see *Special rules for partnerships* on page 1.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions Name

If you are an individual, you must generally enter the name shown on your income tax return. However, if you have changed your last name, for instance, due to marriage without informing the Social Security Administration of the name change, enter your first name, the last name shown on your social security card, and your new last name.

If the account is in joint names, list first, and then circle, the name of the person or entity whose number you entered in Part I of the form.

Sole proprietor. Enter your individual name as shown on your income tax return on the “Name” line. You may enter your business, trade, or “doing business as (DBA)” name on the “Business name” line.

Limited liability company (LLC). Check the “Limited liability company” box only and enter the appropriate code for the tax classification (“D” for disregarded entity, “C” for corporation, “P” for partnership) in the space provided.

For a single-member LLC (including a foreign LLC with a domestic owner) that is disregarded as an entity separate from its owner under Regulations section 301.7701-3, enter the owner's name on the "Name" line. Enter the LLC's name on the "Business name" line.

For an LLC classified as a partnership or a corporation, enter the LLC's name on the "Name" line and any business, trade, or DBA name on the "Business name" line.

Other entities. Enter your business name as shown on required federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name" line.

Note. You are requested to check the appropriate box for your status (individual/sole proprietor, corporation, etc.).

Exempt Payee

If you are exempt from backup withholding, enter your name as described above and check the appropriate box for your status, then check the "Exempt payee" box in the line following the business name, sign and date the form.

Generally, individuals (including sole proprietors) are not exempt from backup withholding. Corporations are exempt from backup withholding for certain payments, such as interest and dividends.

Note. If you are exempt from backup withholding, you should still complete this form to avoid possible erroneous backup withholding.

The following payees are exempt from backup withholding:

1. An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2),
2. The United States or any of its agencies or instrumentalities,
3. A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities,
4. A foreign government or any of its political subdivisions, agencies, or instrumentalities, or
5. An international organization or any of its agencies or instrumentalities.

Other payees that may be exempt from backup withholding include:

1. A corporation,
2. A foreign central bank of issue,
1. A dealer in securities or commodities required to register in the United States, the District of Columbia, or a possession of the United States,
2. A futures commission merchant registered with the Commodity Futures Trading Commission,
10. A real estate investment trust,
1. An entity registered at all times during the tax year under the Investment Company Act of 1940,
2. A common trust fund operated by a bank under section 584(a),
13. A financial institution,
1. A middleman known in the investment community as a nominee or custodian, or
2. A trust exempt from tax under section 664 or described in section 4947.

The chart below shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 15.

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.
²

However, the following payments made to a corporation (including gross proceeds paid to an attorney under section 6045(f), even if the attorney is a corporation) and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, and payments for services paid by a federal executive agency.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate

from its owner (see *Limited liability company (LLC)* on page 2), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations. **How to get a TIN.** If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local Social Security Administration office or get this form online at www.ssa.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/businesses and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting www.irs.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded domestic entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, and 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). Exempt payees, see *Exempt Payee* on page 2.

Signature requirements. Complete the certification as indicated in 1 through 5 below.

1. **Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.** You must give your correct TIN, but you do not have to sign the certification.
2. **Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983.** You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

File this form with your withholding agent. (Please type or print)

1. **Real estate transactions.** You must sign the certification. You may cross out item 2 of the certification.
2. **Other payments.** You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).
3. **Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions.** You must give your correct TIN, but you do not have to sign the certification.

- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

Call the IRS at 1-800-829-1040 if you think your identity has been used inappropriately for tax purposes.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS personal property to the Treasury Inspector General for Tax Administration at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: spam@uce.gov or contact them at www.consumer.gov/idtheft or 1-877-IDTHEFT(438-4338).

Visit the IRS website at www.irs.gov to learn more about identity theft and how to reduce your risk.

What Name and Number To Give the Requester

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, social security number (SSN), or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or "DBA" name on the second name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 1.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons who must file information returns with the IRS to report interest, dividends, and certain other income paid to you, mortgage interest you paid, the acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA, or Archer MSA or HSA. The IRS uses the numbers for identification purposes and to help verify the accuracy of your tax return. The IRS may also provide this information to the Department of Justice for civil and criminal litigation, and to cities, states, the District of Columbia, and U.S. possessions to carry out their tax laws. We may also disclose this information to other countries under a tax treaty, to federal and state agencies to enforce federal nontax criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism.

You must provide your TIN whether or not you are required to file a tax return. Payers must generally withhold 28% of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to a payer. Certain penalties may also apply.

Read the following carefully and check the box that applies to the vendor/payee.

Withholding agent's name

Vendor/Payee's name		Vendor/Payee's <input type="checkbox"/> SOS file no.	<input type="checkbox"/> SSN or ITIN <input type="checkbox"/> CA corp. no.	<input type="checkbox"/> FEIN
Address (including number and street, PO Box, or PMB no.)			Apt. no./ Ste. no.	
City	State	ZIP Code		

I certify that for the reasons checked below, the entity or individual named on this form is exempt from the California income tax withholding requirement on payment(s) made to the entity or individual.

Individuals — Certification of Residency: I am a resident of California and I reside at the address shown above. If I become a

nonresident at any time, I will promptly notify the withholding agent. See instructions for General Information D, Who is a Resident, for the definition of a resident.

Corporations: The above-named corporation has a permanent place of business in California at the address shown above or is qualified

through the California Secretary of State (SOS) to do business in California. The corporation will file a California tax return and withhold on payments of California source income to nonresidents when required. If this corporation ceases to have a permanent place of business in California or ceases to do any of the above, I will promptly notify the withholding agent. See instructions for General Information E, What is a Permanent Place of Business, for the definition of permanent place of business.

Partnerships: The above-named partnership has a permanent place of business in California at the address shown above or is registered

with the California SOS, and is subject to the laws of California. The partnership will file a California tax return and will withhold on foreign and domestic nonresident partners when required. If the partnership ceases to do any of the above, I will promptly inform the withholding agent. For withholding purposes, a Limited Liability Partnership (LLP) is treated like any other partnership.

Limited Liability Companies (LLC): The above-named LLC has a permanent place of business in California at the address shown above

or is registered with the California SOS, and is subject to the laws of California. The LLC will file a California tax return and will withhold on foreign and domestic nonresident members when required. If the LLC ceases to do any of the above, I will promptly notify the withholding agent.

Tax-Exempt Entities: The above-named entity is exempt from tax under California R&TC Section 23701 _____ (insert letter) or Internal

Revenue Code Section 501(c) _____ (insert number). The tax-exempt entity will withhold on payments of California source income to nonresidents when required. If this entity ceases to be exempt from tax, I will promptly notify the withholding agent. Individuals cannot be tax-exempt entities.

☑ Insurance Companies, IRAs, or Qualified Pension/Profit Sharing Plans:

The above-named entity is an insurance company, IRA, or a federally qualified pension or profit-sharing plan.

☑ California Trusts: At least one trustee of the above-named trust is a California resident. The trust will file a California fiduciary tax return

and will withhold on foreign and domestic nonresident beneficiaries when required. If the trustee becomes a nonresident at any time, I will promptly notify the withholding agent.

☑ Estates — Certification of Residency of Deceased Person: I am the executor of the above-named person’s estate. The decedent was a

California resident at the time of death. The estate will file a California fiduciary tax return and will withhold on foreign and domestic nonresident beneficiaries when required.

CERTIFICATE: Please complete and sign below. Under penalties of perjury, I hereby certify that the information provided in this document is, to the best of my knowledge, true and correct. If conditions change, I will promptly notify the withholding agent. Vendor/Payee’s name and

title (type or print) _____ Daytime telephone no. _____ Vendor/Payee’s signature ☑

_____ Date _____

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For Privacy Notice, get form FTB 1131.

Form 590 C2

Instructions for Form 590

Withholding Exemption Certificate

References in these instructions are to the California Revenue and Taxation Code (R&TC).

General Information

For purposes of California income tax, references to a spouse, a husband, or wife also refer to a Registered Domestic Partner (RDP) unless otherwise specified. For more information on RDPs, get FTB Pub. 737, Tax Information for Registered Domestic Partners.

Private Mail Box. Include the Private Mail Box (PMB) in the address field. Write “PMB” first, then the box number. Example: 111 Main Street PMB 123.

A Purpose

Use Form 590, Withholding Exemption Certificate, to certify an exemption from nonresident withholding. California residents or entities should complete and present Form 590 to the withholding agent. The withholding agent is then relieved of the withholding requirements if the agent relies in good faith on a completed and signed Form 590 unless told by the Franchise Tax Board (FTB) that the form should not be relied upon.

Important – This form cannot be used for exemption from wage withholding. If you are an employee, any wage withholding questions should be directed to the FTB General Information number, 800.852.5711. Employers should direct their calls to the California Employment Development Department (EDD) at 888.745.3886 or go to their website at www.edd.ca.gov.

Sellers of California real estate use Form 593-C, Real Estate Withholding Certificate, not Form 590.

B Requirement

R&TC Section 18662 requires withholding of income or franchise tax on payments of California source income made to nonresidents of California.

Withholding is required on the following, but is not limited to:

- Payments to nonresidents for services rendered in California.
- Distributions of California source income made to domestic nonresident S corporation shareholders, partners and members and allocations of California source income made to foreign partners and members.
- Payments to nonresidents for rents if the payments are made in the course of the withholding agent’s business.
- Payments to nonresidents for royalties for the right to use natural resources located in California.
- Distributions of California source

income to nonresident beneficiaries from an estate or trust.

- Prizes and winnings received by nonresidents

for contests in California. For more information on withholding and waiver requests, get FTB Pub. 1017, Resident and Nonresident Withholding Guidelines. To get a withholding publication see General Information G, Where to Get Publications, Forms, and Additional Information.

C Who can Execute this Form

Form 590 can be executed by the entities listed on this form. For payments made for services of a performing entity, the performing entity or the performing entity’s partnership or corporation should complete this form. The performing entity’s agent or other third party cannot complete this form.

The grantor of a grantor trust shall be treated as the vendor/payee for withholding purposes. Therefore, if the vendor/payee is a grantor trust and one or more of the grantors is a nonresident, withholding is required. If all of the grantors on the trust are residents, no withholding is required. Resident grantors can check the box on Form 590 labeled “Individuals — Certification of Residency.”

D Who is a Resident

A California resident is any individual who is in California for other than a temporary or transitory purpose or any individual domiciled in California who is absent for a temporary or transitory purpose.

An individual domiciled in California who is absent from California for an uninterrupted period of at least 546 consecutive days under an employment-related contract is considered outside California for other than a temporary or transitory purpose.

An individual is still considered outside California for other than a temporary or transitory purpose if return visits to California do not total more than 45 days during any taxable year covered by an employment contract.

This provision does not apply if an individual has income from stocks, bonds, notes, or other intangible personal property in excess of \$200,000 in any taxable year in which the employment-related contract is in effect.

A spouse/RDP absent from California for an uninterrupted period of at least 546 days to

accompany a spouse/RDP under an employment-related contract is considered outside of California for other than a temporary or transitory purpose.

Generally, an individual who comes to California for a purpose which will extend over a long or indefinite period will be considered a resident. However, an individual who comes to perform a particular contract of short duration will be considered a nonresident. For assistance in determining resident status, get FTB Pub. 1031, Guidelines for Determining Resident Status, or call the FTB at 800.852.5711 or 916.845.6500 (not toll-free).

E What is a Permanent Place of Business

A corporation has a permanent place of business in California if it is organized and existing under the laws of California or if it is a foreign corporation qualified to transact intrastate business by the California SOS. A corporation that has not qualified to transact intrastate business (e.g. a corporation engaged exclusively in interstate commerce) will be considered as having a permanent place of business in California only if it maintains a permanent office in California that is permanently staffed by its employees.

F Withholding Agent

Keep Form 590 for your records. Do **not** send this form to the FTB unless it has been specifically requested.

For more information, contact Withholding Services and Compliance, see General Information G.

The vendor/payee must notify the withholding agent if any of the following situations occur:

- The individual vendor/payee becomes a nonresident.
- The corporation ceases to have a permanent place of business in California or ceases to be qualified to do business in California.
- The partnership ceases to have a permanent place of business in California.
- The LLC ceases to have a permanent place of business in California.
- The tax-exempt entity loses its tax-exempt

status. The withholding agent must then withhold and remit the withholding using Form 592-A, Foreign Partner or Member Quarterly Withholding Remittance Statement. Form 592,

Quarterly Resident and Nonresident Withholding Statement, and Form 592-B, Resident and Nonresident Withholding Tax Statement, is retained by the withholding agent and a copy is given to the payee.

G Where to Get Publications, Forms, and Additional

Information You can download, view, and print California tax forms and publications from our website at ftb.ca.gov.

To have publications or forms mailed to you or to get additional nonresident withholding information, contact the Withholding Services and Compliance.

WITHHOLDING SERVICES AND
COMPLIANCE MS F182
FRANCHISE TAX BOARD
PO BOX 942867
SACRAMENTO CA 94267-0651

Telephone:
888.792.4900
916.845.4900
(not toll-free)
Fax:
916.845.9512

Assistance for persons with disabilities:

We comply with the Americans with Disabilities Act. Persons with hearing or speech impairments call TTY/TDD 800.822.6268.

Asistencia para personas discapacitadas.

Nosotros estamos en conformidad con el Acta de Americanos Discapacitados. Personas con problemas auditivos pueden llamar al TTY/TDD 800.822.6268.

PART 3
SPECIFICATIONS

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**SECTION 00 01 15 LIST
OF DRAWINGS**

PART 1 GENERAL

1.1 SUMMARY This section lists the design drawings for the project.

1.2 CONTRACT DRAWINGS Contract

Drawings are as follows:

Drawing No.	Revision No.	Title
1	0	Title Sheet
2	0	Work Area Location Map
3	0	Well Abandonment Plan and Details
4	0	Waste Removal Area Plan and Sections A and B
5	0	Waste Consolidation Plan and Sections C and D
6	0	Final Grading Plan and Sections E and F
7	0	Landfill Cover Design Details
8	0	Surface Water Control System Plan and Details
9	0	Landfill Gas Collection System Plan and Details
10	0	Perimeter Gas Monitoring Network Plan and Details
11	0	French Drain Layout Plan and Details

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

**SECTION 01 11 00
SUMMARY OF WORK**

PART 1 GENERAL

1.1 PROJECT DESCRIPTION

The work includes site preparation, excavation of waste above the sewer line, excavation of the top layer of the existing cover, waste consolidation, placement and compaction of a foundation layer, installation of a geomembrane liner, excavation and placement of native soil in a drainage layer, installation of a geocomposite layer, excavation and placement of native soil in a vegetative layer, final grading and construction of stormwater drainage and infiltration systems, installation of a French drain, installation of gas vents and protective structures, installation of a perimeter landfill gas monitoring network, revegetation of the final cover, and incidental related work.

The work is being performed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

This contract implements the selected remedial action documented in the Record of Decision (ROD) issued by the U.S. Department of Agriculture Forest Service (Forest Service) in November 2007.

1.2 LOCATION

The work will be located at Meyers Landfill, El Dorado County, California, as shown on the drawings.

1.3 SUBMITTALS

1.3.1 SD-01 Preconstruction Submittals

Bryan A. Stirrat (Engineer) will submit the RAWP; G
Which has been included in this bid document and contains:

- a. Site history, project scope, key personnel, remedial activities and work requirements.
- b. Detailed Construction Schedule, including sequence of construction
- c. Site Health and Safety Plan
- d. Stormwater Pollution Prevention Plan
- e. Air Pollution Prevention Plan
- f. Traffic Control Plan
- g. Decontamination Plan
- h. Noise Control Plan
- i. Spill Control Plan
- j. Waste Management Plan
- k. Contaminant Prevention Plan
- l. Resource Protection Plan
- m. Contingency Plan
- n. Quality Control (QC) Plan

- o. Winterization Plan
- p. Sewer Line Damage Contingency Plan
- q. Excavation Protection Plan
- r. Dewatering Plan 1.3.2 SD-11 Closeout Submittals

Submit the After Action Report; G

- a. As-built drawings
- b. As-built Operations Monitoring and Maintenance Plan

1.4 CONTRACTOR ACCESS AND USE OF PREMISES

1.4.1 Working Hours

Regular working hours shall consist of a period established by the Forest Service between 6:00 a.m. and 6:00 p.m., Monday through Saturday.

1.4.2 Work Outside Regular Hours

Work outside regular working hours requires Government approval. During periods of darkness, work shall be lighted in a manner approved by the Government.

1.4.3 Unauthorized Access

Ensure that unauthorized personnel do not have access to the area during the construction period.

1.5 UNDERGROUND FACILITIES

Contact Underground Service Alert 48-hours prior to performing any excavation work. Through a private utility locating service, verify the locations of all utilities that may be present. Scan the construction site boundaries with electromagnetic or sonic equipment and determine where utilities enter areas of proposed construction. Mark the surface of the ground where existing underground utilities are discovered. Verify the location and elevation of existing piping, utilities, and other types of underground obstructions not indicated but discovered during scanning. Protect all utilities encountered during construction.

1.6 SCHEDULE

Contractor shall anticipate suspending all construction activities between approximately October 15 and April 15 due to wet weather conditions.

1.7 DELAYS

Notify the Client of delays or changes in construction schedule within 48 hours. Cessation of construction activities resulting from delays shall not constitute the release of Contractor's responsibility to maintain a tidy, secured, and protected site. In such cases, Contractor shall protect all surfaces from erosion and all materials from degradation. When construction activities resume, Contractor shall return grades and installed items to their condition before construction ceased.

1.8 REMEDIAL ACTION WORK PLAN

Engineer has prepared a RAWP describing the proposed implementation of construction in accordance with the requirements contained in the Remedial Design and include the items listed in paragraph 1.3.1.

1.9 AFTER ACTION REPORT

Contractor shall prepare an After Action Report, including as-built drawings, construction QC documentation, and an as-built Operations Monitoring and Maintenance Plan.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION Not

used.

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Submittal

Shop Drawings, product data, samples, and administrative submittals presented for review and approval. Contract Clauses “FAR 52.236-5, Material and Workmanship,” paragraph (b) and “FAR 52.236-21, Specifications and Drawings for Construction,” paragraphs (d), (e), and (f) apply to all “submittals.”

1.1.2 Types of Submittals

All submittals are classified as indicated in paragraph 1.2, Schedule of Submittal Descriptions. The submittals also are grouped as follows:

- a. Shop Drawings: As used in this section, Drawings, schedules, diagrams, and other data prepared specifically for this Contract, by the Contractor, or through the Contractor by way of a subcontractor, manufacturer, supplier, distributor, or other lower-tier contractor, to illustrate a portion of the work.
- b. Product data: Preprinted material such as illustrations, standard schedules, performance charts, instructions, brochures, diagrams, manufacturer’s descriptive literature, catalog data, and other data to illustrate a portion of the work, but not prepared exclusively for this Contract.
- c. Samples: Physical examples of products, materials, equipment, assemblies, or workmanship that are physically identical to a portion of the work illustrate a portion of the work, or establish standards for evaluating the appearance of the finished work or both.
- d. Administrative submittals: Data presented for review and approval to ensure that the administrative requirements of the project are adequately met but not to ensure directly that the work is in accordance with the design concept and in compliance with the Contract documents.

1.2 SCHEDULE OF SUBMITTAL DESCRIPTIONS (SD)

1.2.1 SD-01, Preconstruction Submittals

- a. Certificates of insurance
- b. Surety bonds
- c. List of proposed products
- e. RAWP, including the following
 1. Work Plan

2. Health and Safety Plan
3. Site Health and Safety Plan
4. Stormwater Pollution Protection Plan
5. Air Pollution Prevention Plan
6. Traffic Control Plan
7. Decontamination Plan
8. Noise Control Plan
9. Spill Control Plan
10. Waste Management Plan
11. Contaminant Prevention Plan
12. Resource Protection Plan
13. Contingency Plan
14. Quality Control (QC) Plan
15. Winterization Plan
16. Sewer Line Damage Contingency Plan
17. Excavation Protection Plan
18. Dewatering Plan

1.2.2 SD-02, Shop Drawings

Drawings, diagrams, and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the contractor for integrating the product or system into the project.

Drawings prepared by or for the contractor to show how multiple systems and interdisciplinary work will be coordinated.

1.2.3 SD-03, Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions, and brochures illustrating size, physical appearance, and other characteristics of materials or equipment for some portion of the work.

Sample of warranty language when the contract requires extended product warranties.

1.2.4 SD-04, Samples

Physical examples of materials, equipment, or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards that can be used to judge the work.

1.2.5 SD-05, Design Data

Calculations, mix designs, analyses, or other data pertaining to a part of the work.

1.2.6 SD-06, Test Reports

Report signed by authorized official of testing laboratory that a material, product, or system identical to the material, product, or system to be provided has been tested in accord with specified requirements. (Testing must have occurred within 3 years of the date of contract award for the project.)

Report that includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to the job site.

Report that includes finding of a test made at the job site or on a sample taken from the job site, on a portion of work during or after installation.

- Investigation reports
- Daily checklists

1.2.7 SD-07, Certificates

Statements signed by responsible officials of the manufacturer of the product, system, or material attesting that the product, system, or material meets the specification requirements. Must be dated after award of the project contract and clearly name the project.

Document required of the Contractor, or of a supplier, installer, or subcontractor through the Contractor, the purpose of which is to further the quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods, or personnel qualifications.

Confined space entry permits.

1.2.8 SD-08, Manufacturer's Instructions

Preprinted material describing the installation of a product, system, or material, including special notices and Material Safety Data Sheets concerning impedances, hazards, and safety precautions.

1.2.9 SD-09, Manufacturer's Field Reports

Documentation of the testing and verification of actions taken by the manufacturer's representative to confirm compliance with the manufacturer's standards or instructions.
Factory test reports.

1.2.10 SD-10, Operation and Maintenance Data

Data intended to be incorporated in operations and maintenance manuals.

1.2.11 SD-11, Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

- a. As-built After Action Report, including As-built drawings and As-built Operations, Maintenance and Monitoring Plan

1.2.12 Approving Authority

The person authorized to approve a submittal.

1.2.13 Work

As used in this section, on- and off-site construction required by the Contract documents, including labor necessary to produce the construction and materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.3 SUBMITTALS

Submit the following in accordance with the requirements of this section.

1.3.1 SD-11, Closeout Submittals

- a. Submittal register

1.4 USE OF SUBMITTAL REGISTER

Prepare and maintain a submittal register as work progresses. Use the submittal register provided at the end of the specification section or in any other format.

1.4.1 Submittal Register

Submit with the quality control plan and the project schedule required by [Section 01 45 00 Quality Control](#). Verify that all submittals required for the project are listed and add missing submittals.

1.5 PROCEDURES FOR SUBMITTALS

1.5.1 Reviewing, Certifying, Approving Authority

The QC Manager, in accordance with [Section 01 45 00 Quality Control](#), shall be responsible for reviewing and certifying that submittals are in compliance with contract requirements. The approving authority on submittals is the QC Manager unless otherwise specified for the specific submittal. At each “Submittal” paragraph in the individual specification sections, the notation “G” following a submittal item indicates that the Government is the approving authority.

1.5.2 Scheduling

- a. Coordinate scheduling, sequencing, preparing, and processing of submittals with performance of the work so that work will not be delayed by submittal processing. Allow for potential requirements to resubmit.
- b. Except as specified otherwise, allow a review period, beginning with receipt by the approving authority, that includes at least 15 working days for submittals for QC Manager approval and 20 working days for submittals for Government approval. The period of review for submittals with Government approval begins when the Government receives the submittal from the QC Manager. The period of review for each resubmittal is the same as for the initial submittal.

1.5.3 Variations

Variations from contract requirements require Government approval pursuant to Contract Clause “FAR 52.236-21, Specifications and Drawings for Construction,” and will be considered where advantageous to the Government.

When proposing a variation, submit a written request, with documentation of the nature and features of the variation and an explanation why the variation is desirable and beneficial to the Government. If lower cost is a benefit, also include an estimate of the cost saving. Identify the proposed variation separately and include documentation for the proposed variation along with the required submittal for the item.

1.5.4 Contractor’s Responsibilities

- a. Determine and verify field measurements, materials, field construction criteria; review each submittal; and check and coordinate each submittal with requirements of the work and Contract documents.
- b. Transmit submittals to the QC Manager in orderly sequence; in accordance with the approved submittal register; and to prevent delays in the work, delays to the Government, or delays to separate contractors.
- c. Advise the Government of variations, as required by paragraph 1.5.3, Variations.

- d. Correct and resubmit submittal as directed by the approving authority. When resubmitting disapproved transmittals or transmittals noted for resubmittal, the Contractor shall provide a copy of the transmittal submitted previously, including all reviewer comments, for use by the approving authority. Direct specific attention, in writing or on resubmitted submittal, to revisions not requested by the approving authority on previous submissions.
- e. Complete work that must be accomplished as a basis of a submittal in time to allow the submittal to occur as scheduled.
- f. Ensure no work has begun until submittals for that work have been returned as “approved,” or “approved as noted” or “approved except as noted; resubmission not required,” except to the extent that a portion of the work must be accomplished as a basis for the submittal.

1.6 FORMAT OF SUBMITTALS

1.6.1 Transmittal Form

Each submittal must be accompanied by a transmittal form that includes signed certifications by the QC Manager confirming that the submittal meets project drawings and specifications and whether it is approved for use or rejected.

1.6.2 Identifying Submittals

Identify submittals, except sample panel and sample installation, with the following information permanently adhered to or noted on each separate component of each submittal and noted on the transmittal form. Mark each copy of each submittal identically, with the following:

- a. Project title and location.
- b. Construction Contract number.
- c. The section number of the specification section by which the submittal is required.
- d. The name, address, and telephone number of the subcontractor, supplier, manufacturer, and any other second-tier contractor associated with the submittal.
- e. Product identification and location in project.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

SUBMITTAL REGISTER (PART A)

CONTRACT NO: _____ PROJECT TITLE: Meyers Landfill Operable Unit 1

SPEC SECTION NO. (a)	SD NO & TYPE OF SUBMITTAL-MATL OR PRODUCT (b)	SPEC PARAGRAPH (c)	APPROVAL REQUIRED (d)
01 11 00	SD-01, PRECONSTRUCTION SUBMITTAL a. Remedial Action Work Plan (RAWP)	SPEC PARAGRAPH (c)	G
01 11 00	SD-11, CLOSEOUT SUBMITTALS a. After Action Report	1.8	G
01 33 00	SD-11, CLOSEOUT SUBMITTALS a. Submittal register	1.9	
01 35 29	SD-01, PRECONSTRUCTION SUBMITTALS a. Site Health and Safety Plan (included in RAWP)	1.4.1	
01 35 29	SD-06 REPORTS a. Accident Reports	1.7	
01 35 29	SD-07 CERTIFICATES a. Hot work permit	1.12.1	
01 45 00	SD-01, PRECONSTRUCTION SUBMITTAL a. Quality Control (QC) Plan (included in RAWP)	1.12.2	G
01 45 00	SD-07, CERTIFICATES a. Resume of the QC Manager (included in QC Plan)	1.6	G
01 45 00	SD-07, CERTIFICATES b. Completion Certification (signed by QC Manager)	1.5.1	G
01 50 00	SD-01, PRECONSTRUCTION SUBMITTAL a. Traffic Control Plan (included in RAWP)	1.11.2	G
01 50 00	SD-02, DRAWINGS a. Construction site plan (included in RAWP)	1.3	G
01 57 19	SD-01, PRECONSTRUCTION SUBMITTALS a. Stormwater Pollution Prevention Plan (included in RAWP)	1.4	G
01 77 00	SD-03, PRODUCT DATA a. Warranty Data	1.6	
01 77 00	SD-03, PRODUCT DATA b. Spare Parts Data	1.4.1	
01 77 00	SD-10, OPERATIONS AND MAINTENANCE DATA a. Operation and Maintenance Manuals	1.3	G
01 77 00	SD-11, CLOSEOUT SUBMITTALS a. As built drawings (included in After Action Report)	1.5	G
01 77 00	SD-11, CLOSEOUT SUBMITTALS b. As built operations, maintenance, and monitoring plan (included in After Action Report)	1.2.1	G
01 77 00	SD-11, CLOSEOUT SUBMITTALS c. As built record of materials and equipment	1.2.3	
01 77 00	SD-11, CLOSEOUT SUBMITTALS d. Warranty list	1.4.1	
02 56 13	SD-02, DRAWINGS a. Installation layout drawings	1.3.1	
02 56 13	SD-03 PRODUCT DATA a. Material warranties	1.3.2	
02 56 13	SD-03 PRODUCT DATA b. Recycled polymer statement	1.3.2	

SPEC SECTION NO. (a)	SD NO & TYPE OF SUBMITTAL-MATL OR PRODUCT (b)	SPEC PARAGRAPH (c)	APPROVAL REQUIRED (d)
02 56 13	SD-03 PRODUCT DATA c. Installer's geosynthetic field installation quality assurance plan	1.3.2	
02 56 13	SD-07 CERTIFICATES a. Installer's qualifications statement	1.3.3	
02 56 13	SD-11 CLOSEOUT SUBMITTALS a. As built drawings for geomembrane placement	1.3.4	
02 56 13	SD-11 CLOSEOUT SUBMITTALS b. Geomembrane installation certificate (signed by installer and QC Manager)	1.3.4	
02 61 13	SD-01, PRECONSTRUCTION SUBMITTAL a. Remedial Action Work Plan (RAWP)	1.2.1	G
02 61 13	SD-06, TEST REPORTS a. Confirmation sampling and analysis	3.4	
02 61 13	SD-11, CLOSEOUT SUBMITTALS a. After Action Report	3.10	
03 37 13	SD-06, TEST REPORTS a. Mixture proportions	1.4	G
03 37 13	SD-06, TEST REPORTS b. Aggregates	2.1.2, 3.7.2	G
03 37 13	SD-06, TEST REPORTS c. Strength tests	1.51, 3.72	G
03 37 13	SD-07, CERTIFICATES a. Synthetic (Polypropylene) Fiber Reinforcement	2.1.6.1	G
31 00 00	SD-06, FIELD TEST REPORTS a. Soil cover and foundation layer material tests	3.14	
31 00 00	SD-09, MANUFACTURER'S TEST REPORT a. Top soil analysis	3.12.2.1	G
31 00 00	SD-11, CLOSEOUT SUBMITTALS a. Final soil cover survey with As-Built Drawings	3.1.5.1	
31 00 00	SD-11, CLOSEOUT SUBMITTALS b. Survey information on permanent local site monuments	3.1.5.2	
31 05 20	SD-03, PRODUCT DATA a. Geocomposite drainage layer properties	2.1	
31 05 20	SD-03, PRODUCT DATA b. Manufacturer's quality control manual	1.2.1	
31 05 20	SD-06, TEST REPORTS a. Manufacturing QC test results	2.2.1	
31 05 20	SD-07, CERTIFICATES a. Geocomposite certification	1.2.3, 2.1	
31 05 21	SD-02, SHOP DRAWINGS a. Installation drawings and instructions	3.1	
31 05 21	SD-02, SHOP DRAWINGS b. Sequencing and construction procedures	3.1, 3.2	
32 31 00	SD-02, DRAWINGS a. Warning sign b. Site Closure sign	2.1	G
32 31 13	SD-02, SHOP DRAWINGS a. Shop drawings for all chain link fence	1.2.1	
32 31 13	SD-03, PRODUCT DATA a. Manufactures catalog data for fence and gate hardware and accessories	2.0	
32 92 00	SD-01, PRECONSTRUCTION SUBMITTAL a. Vegetation Establishment Plan	1.2.1	
32 92 00	SD-07, CERTIFICATES a. Seed	2.1	G
32 92 00	SD-07, CERTIFICATES b. Mulch	2.2	G

SPEC SECTION NO. (a)	SD NO & TYPE OF SUBMITTAL-MATL OR PRODUCT (b)	SPEC PARAGRAPH (c)	APPROVAL REQUIRED (d)
32 92 00	SD-07, CERTIFICATES c. Binder	2.3	G
32 92 00	SD-07, CERTIFICATES d. Fertilizer	2.7.1	G
33 23 00	SD-03, MANUFACTURER'S CATALOGUE DATA a. Pipe	2.1, 2.2, 2.3	
33 23 00	SD-03, PRODUCT DATA b. Fittings	2.1, 2.2, 2.3	
33 23 00	SD-03, PRODUCT DATA c. Filter-pack	2.4	
33 23 00	SD-06, FIELD TEST REPORTS a. Post construction methane tests	3.6	
33 40 00	SD-03, PRODUCT DATA a. Manufacturer's product data and installation instructions for pipe and geotextile	2.1, 2.2, 2.5	
33 40 00	SD-06, TEST REPORTS a. Soil density tests	3.4.4, 3.4.5	
33 40 00	SD-07, CERTIFICATES a. Resin Certification	2.1.1	
33 40 01	SD-03, PRODUCT DATA a. Silt Fence Filter Fabric	2.1	
33 40 01	SD-03, PRODUCT DATA b. Erosion Control Wattles	2.2	
33 40 01	SD-07, Certificates a. Erosion Control Wattles	2.2	

G = Government Approval Required

END OF SECTION

SECTION 01 35 29
SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

PART 1 GENERAL

1.1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10 (2002)	Portable Fire Extinguishers
NFPA 51B (2003)	Fire Prevention during Welding, Cutting, and Other Hot Work

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1926	Safety and Health Regulations for Construction

1.2 SUBMITTALS

1.2.1 SD-01 Preconstruction Submittals

Site Health and Safety Plan (HASP shall be included as part of the RAWP submittal; also see [Section 01 11 00 Summary of Work](#)).

1.2.2 SD-06 Reports

a. Accident Reports

1.2.3 SD-07 Certificates

a. Hot work permit

1.3 DEFINITIONS

High Visibility Accident: Any mishap which may generate publicity and/or high visibility.

Medical Treatment: Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

Recordable Injuries or Illnesses: Any work-related injury or illness that results in:

1. Death, regardless of the time between the injury and death, or the length of the illness;
2. Days away from work (any time lost after day of injury/illness onset);
3. Restricted work;
4. Transfer to another job;
5. Medical treatment beyond first aid;
6. Loss of consciousness; or
7. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in 1 through 6 above.

1.4 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, work performed shall comply with the federal, state, and local laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

1.5 SITE QUALIFICATIONS, DUTIES AND MEETINGS

1.5.1 Personnel Qualifications

Site Safety and Health Officer (SSHO) shall be provided at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The SSHO shall have a minimum of 3 years safety work and at least 5 years of experience on similar projects.

1.5.2 Site Safety and Health Officer (SSHO)

- a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections.
- b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors.
- c. Maintain applicable safety reference material on the job site.

- d. Attend periodic in-progress meetings.
- e. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. A list of unresolved safety and health deficiencies shall be posted in the job trailer.
- f. Ensure compliance with safety and health requirements.
- g. Failure to perform the above duties will result in dismissal of the superintendent and SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

1.5.3 Safety Meetings

Minutes showing contract title, signatures of attendees and a list of topics discussed shall be attached to the Contractors' daily quality control report.

1.6 SITE SPECIFIC HEALTH AND SAFETY PLAN (HASP)

The Contractor shall use a qualified person to prepare the written site-specific HASP. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out.

Once work begins, changes to the accepted HASP shall be made with the knowledge and concurrence of the Government, project superintendent, SSHO and quality control manager. Should any hazard become evident, stop work in the area, secure the area, and develop a plan to remove the hazard. Notify the Government within 24 hours of discovery. Eliminate and remove the hazard. In the interim, all necessary action shall be taken to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ANSI/ASSE A10.34,) and the environment.

The HASP shall be continuously reviewed and amended, as necessary, throughout the life of the project. Unusual or high-hazard activities not identified in the original HASP shall be incorporated in the plan as they are discovered.

The following shall be included in the HASP:

- a. Names and qualifications of all site safety and health personnel designated to perform work on this project to include the designated site safety and health officer and other competent and qualified personnel to be used. The duties of each position shall be specified.

b. Qualifications of excavation competent persons.

1.7 ACTIVITY HAZARD ANALYSIS (AHA)

The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.

The AHA list will be reviewed monthly at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

The activity hazard analyses shall be developed using the project schedule as the basis for the activities performed. Any activities listed on the project schedule will require an AHA. The AHAs will be developed by the Contractor, supplier or subcontractor and provided to the prime contractor for inclusion in the HASP.

1.8 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.9 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.10 REPORTS

1.10.1 Accident Reports and Notification

For recordable injuries and illnesses, and property damage accidents resulting in at least \$2,000 in damages, the Contractor shall conduct an accident investigation to establish the root cause(s) of the accident and complete an accident report within 5 calendar day(s) of the accident.

Notify the Government as soon as practical, but not later than four hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than \$2,000, or any weight handling equipment accident. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.

1.10.2 Hot Work

Prior to performing any “Hot Work” (welding, cutting, etc.) or operating other flameproducing and spark-producing devices, a written permit shall be requested from the South Lake Tahoe Fire Department. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) twenty (20) pound 4A:20 BC rated extinguishers for normal “Hot Work”. All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any “Hot Work” done at this activity. The Fire Watch shall be trained in accordance with NFPA 51B and remain on-site for a minimum of 30 minutes after completion of the task or as specified on the hot work permit.

PART 1 GENERAL

1.1.1 REFERENCES

When starting work at the site, Contractors shall require their personnel to place in memory the emergency Fire Department phone number. ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE RESPONSIBLE SOUTH LAKE TAHOE FIRE DEPARTMENT AND TO THE GOVERNMENT IMMEDIATELY.

1.11 Air Monitoring

California Clean Air Act (Title 17 CCR, El Dorado County Air Quality Management District Rule 223.1) specifies that grading and earthmoving activities shall not cause or allow the emissions of fugitive dust such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow PM10 levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples. The Contractor will conduct upwind and downwind air monitoring throughout construction measure fugitive dust. If the regulatory standard is exceeded, the contractor must implement additional dust control measures prior to continuing work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CONSTRUCTION AND/OR OTHER WORK

The Contractor shall comply with the Forest Service Fire Plan, NFPA 241, the HASP, the AHA, Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard shall prevail.

END OF SECTION

SECTION 01 45 00 QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

- | | |
|-------------|--------------------------------------------------------------------------------------------------------------------------|
| ASTM D 3740 | (2001) Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction |
| ASTM E 329 | (2000) Agencies Engaged in the Testing and/or Inspection of Materials used on Construction |

1.2 SUBMITTALS

Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#).

1.2.1 SD-01, Preconstruction Submittal

- a. Quality Control (QC) plan (QC Plan shall be included as part of the RAWP submittal; also see [Section 01 11 00 Summary of Work](#)); G

1.2.2 SD-07, Certificates

- a. Resume of the QC Manager (to be included in the QC plan); G
- b. Certificate to the Government attesting that “the work has been completed, inspected, tested, and is in compliance with the Contract” (to be signed by the QC Manager)

1.3 INFORMATION FOR THE GOVERNMENT

Deliver the following to the Government:

- a. Contractor Quality Control Report for each day that work is performed;
- b. Field Test Reports: within 2 working days after the test is performed;
- c. Monthly Summary Report of Tests;
- d. QC Certifications: As required by the paragraph titled “QC Certifications.”

1.4 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. The QC program consists of a QC Organization, QC Plan, QC Meeting, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations that comply with the requirements of the remedial design (RD).

1.4.1 Acceptance of the Construction QC Plan

Acceptance of the QC Plan is required prior to the start of construction. The Government reserves the right to require changes in the QC Plan and operations as necessary, including removal of personnel, to ensure the specified quality of work. The Government reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications. All QC organization personnel are subject to acceptance by the Government. The Government may require the removal of any individual for noncompliance with quality requirements specified in the Contract

1.4.2 Preliminary Construction Work Authorized Prior to Acceptance

The only construction work that is authorized to proceed prior to the acceptance of the QC Plan is mobilization of storage and office trailers, temporary utilities, and surveying.

1.5 QC ORGANIZATION

1.5.1 QC Manager

1.5.1.1 Duties

Contractor shall provide a QC Manager at the work site to implement and manage the QC program. In addition to implementing and managing the QC program, the QC Manager may perform the duties of project superintendent.

The QC Manager is required to conduct the QC meetings, perform submittal review, perform submittal approval, ensure testing is performed, and provide QC certifications and documentation required in this Contract. The QC Manager is responsible for managing and coordinating the documentation performed by Testing Laboratory personnel and any other inspection and testing personnel required by this contract.

1.5.1.2 Qualifications

An individual with a minimum of 3 years experience as a superintendent, inspector, QC Manager, project manager, or construction manager on similar size and type construction contract. The QC Manager shall be a registered engineer or geologist, or work under the direct supervision of one.

1.6 QUALITY CONTROL PLAN

1.6.1 Requirements

Provide for approval by the Government, a QC plan prepared by a registered professional engineer or certified engineering geologist. For the final landfill cover, the QC plan shall be in conformance with the requirements of the California Integrated Waste Management Board (CIWMB) for landfill covers (27 CCR § 20324).

- a. QC ORGANIZATION: A chart showing the QC organizational structure
- b. NAMES AND QUALIFICATIONS: Names and qualifications, in resume format, for each person in the QC organization.
- c. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL: Duties, responsibilities, and authorities of each person in the QC organization
- d. OUTSIDE ORGANIZATIONS: A listing of outside organizations, such as architectural and consulting engineering firms, that will be employed by the Contractor and a description of the services these firms will provide
- e. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER: Procedures for reviewing, approving, and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval. Provide the initial submittal of the Submittal Register as specified in [Section 01 33 00 Submittal Procedures](#).
- g. TESTING LABORATORY INFORMATION: Testing laboratory information required by the paragraphs entitled “Accreditation Requirements”, as applicable
- i. PROCEDURES TO COMPLETE REWORK ITEMS: Procedures to identify, record, track, and complete rework items

1.7 QC MEETINGS

After the start of construction, the QC Manager shall conduct weekly QC meetings at the work site with the project superintendent. The QC Manager shall prepare the minutes of the meeting within 2 working days after the meeting. The Government may attend these meetings. As a minimum, the following shall be accomplished at each meeting:

- a. Review the minutes of the previous meeting
- b. Review the schedule and the status of work:
 1. Work or testing accomplished since last meeting;
 2. Rework items identified since last meeting;
 3. Rework items completed since last meeting
- c. Review the status of submittals:

1. Submittals reviewed and approved since last meeting;
 2. Submittals required in the near future;
- d. Review the work to be accomplished in the next 2 weeks and the documentation required:
1. Establish completion dates for rework items
 2. Discuss construction methods and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each feature of work
 3. Discuss status of off-site work or testing
 4. Documentation required;
 5. Resolve QC and production problems; and
- f. Address items that may require revising the QC plan:
1. Changes in QC organization personnel
 2. Changes in procedures.

1.8 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review, and approval of submittals are described in [Section 01 33 00 Submittal Procedures](#).

1.9 MATERIALS TESTING Perform all required sampling and testing.

1.9.1 Materials Testing Laboratory Requirements

Provide an independent, appropriately certified testing laboratory qualified to perform sampling and tests required.

1.9.2 Materials Testing Laboratories Capability Check

The Government retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this specification.

1.9.3 Materials Testing Laboratories Test Results

Cite applicable Contract requirements, tests, or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails

to conform to specified requirements. If item fails to conform, notify the Government immediately. Test results shall be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the Government via the QC Manager. Furnish a summary report of field tests at the end of each month. Attach a copy of the summary report to the last daily Contractor QC Report of each month.

1.9.4 Material Testing Laboratories Test Reports and Monthly Summary Report of Tests

The QC Manager shall furnish the signed reports, certifications, and a field tests summary report at the end of each month to the Government. Attach a copy of the summary report to the last daily Contractor QC Report of each month.

1.10 ANALYTICAL LABORATORY

Soil samples submitted for chemical analysis to verify clean source materials shall be analyzed using EPA SW-846 methods. Analytical laboratory testing shall be performed by state of California-certified analytical laboratories.

1.11 QC CERTIFICATIONS

1.11.1 Contractor Quality Control Report Certification

Each Contractor QC Report shall contain the following statement: “On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract Drawings and specifications to the best of my knowledge, except as noted in this report.”

1.11.2 Completion Certification

Upon completion of work under this Contract, the QC Manager shall furnish a certificate to the Government attesting that “the work has been completed, inspected, tested, and is in compliance with the Contract.”

1.12 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities.

1.12.1 Contractor Production Report

Reports are required for each day that work is performed and shall accompany the submission of the Contractor Quality Control Report prepared for the same day. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Contractor Production Reports are to be prepared, signed, and dated by the project superintendent and shall contain the following information:

- a. Date of report, report number, name of contractor, title and location of project, and superintendent present.
- b. Weather conditions in the morning and in the afternoon.
- c. A list of Contractor and subcontractor personnel on the work site, their trades, employer, work location, description of work performed, and hours worked.
- d. A list of job safety actions taken and safety inspections conducted. Indicate that safety requirements have been met including the results on the following:
 1. Attach a copy of the meeting minutes from the daily job safety meeting.
 2. Were there any lost time accidents? (If YES, attach a copy of the completed Occupational Safety and Health Administration report.)
 3. Was crane/trenching/scaffold/high voltage electrical/high work done? (If YES, attach a statement or checklist showing inspection performed.)
 4. Was hazardous material/waste released into the environment? (If YES, attach a description of meetings held and accidents that happened.)
- e. A list of equipment/material received each day that is incorporated into the job.
- f. A list of construction and plant equipment on the work site including the number of hours used, idle, and down for repair.
- g. Include a “remarks” section in this report which will contain pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the Drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered, and a record of visitors to the work site.

1.12.2 Contractor Quality Control Report

Reports are required for each day that work is performed and for every 7 consecutive calendar days of no work and on the last day of a no-work period. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Contractor Quality Control Reports are to be prepared, signed, and dated by the QC Manager, and shall contain the following information:

- a. List of QC tests performed.
- b. List the rework items identified, but not corrected, by close of business.
- c. List the rework items corrected from the rework items list along with the corrective action

taken.

d. Include a “remarks” section in this report that will contain pertinent information including directions received, quality control problem areas, deviations from the QC plan, construction deficiencies encountered, QC meetings held, acknowledgment that as-built Drawings have been updated, corrective direction given by the QC Organization, and corrective action taken by the Contractor.

e. Contractor Quality Control Report certification.

1.12.3 Testing Plan and Log

As tests are performed, the QC Manager shall record on the “Testing Plan and Log” the date the test was conducted, the date the test results were forwarded to the Government, remarks, and acknowledgment that an accredited or Government-approved testing laboratory was used. Attach a copy of the updated “Testing Plan and Log” to the last daily Contractor QC Report of each month.

1.12.4 Rework Items List

The QC Manager shall maintain a list of work that does not comply with the Contract, identifying what items need to be reworked, the date the item was originally discovered, and the date the item was corrected. There is no requirement to report a rework item that is corrected the same day it is discovered. Attach a copy of the “Contractor Rework Items List” to the last daily Contractor QC Report of each month. The Contractor shall be responsible for including on this list items needing rework, including those identified by the Government.

1.12.5 As-Built Drawings

The QC Manager is required to review the as-built Drawings to ensure that as-built Drawings are kept current on a daily basis and marked to show deviations that have been made from the Contract Drawings. The QC Manager shall initial each deviation and each revision. Upon completion of work, the QC Manager shall furnish a certificate attesting to the accuracy of the as-built Drawings.

1.12.6 Report Forms

The following forms, which are attached at the end of this section, are acceptable for providing the information required by the paragraph titled “Documentation.” While use of these specific formats is not required, any other format used shall contain the same information:

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 REFERENCES

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

FHWA MUTCD Manual on Uniform Traffic Control Devices (1988)

1.2 SUBMITTALS

Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#).

1.2.1 SD-01 Preconstruction Submittals

a. Traffic control plan (to be included in the RAWP); G

1.2.2 SD-02 Drawings

a. Construction site plan (to be included in the RAWP); G

1.3 TRAFFIC CONTROL PLAN

Prior to the start of work, submit a traffic control plan describing traffic control procedures, access and haul routes, avenues of ingress and egress to the work area, and vehicle parking and staging areas.

1.4 CONSTRUCTION SITE PLAN

Prior to the start of work, submit a site plan showing the locations and dimensions of temporary facilities, including layouts and details, equipment and material storage area (on site and off site), and access and haul routes, avenues of ingress and egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

PART 2 PRODUCTS

2.1 TEMPORARY BUILDINGS AND CONSTRUCTION EQUIPMENT

Locations of the Contractor staging area shall be approved by the Government. The trailers or storage buildings shall be suitably painted and kept in a good state of repair. A sign not smaller than 24 inches by 24 inches shall be conspicuously placed on the trailer depicting the company name, business phone number, and emergency phone number.

PART 3 EXECUTION

3.1 TEMPORARY UTILITIES

The Contractor shall coordinate any utility hookups that may be needed for the project, including water, electricity, and telephone services.

3.2 TEMPORARY SANITARY FACILITIES

Provide adequate sanitary conveniences of a type approved for the use of persons employed on the work, properly secluded from public observation, and maintained in such a manner as required or approved by the Government. Maintain these conveniences at all times without nuisance. Upon completion of the work, remove the conveniences from the premises, leaving the premises clean and free from nuisance.

3.3 UNAUTHORIZED ACCESS

Ensure that the public and other unauthorized personnel do not have access to the area during the construction period.

END OF SECTION

SECTION 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910	Occupational Safety and Health Administration Standards
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Generators of Hazardous Waste
40 CFR 263	Transporters of Hazardous Waste
40 CFR 264	Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials, Tables, and Hazardous Materials Communications Regulations

CALIFORNIA CODE OF REGULATIONS (CCR)

CCR Title 22, Division 4.5, Chapter 11, Identification and Listing of Hazardous Waste

1.2 CONTRACTOR LIABILITIES FOR ENVIRONMENTAL PROTECTION

Contractors shall complete and provide documentation of environmental training for training required by Federal, State, and local regulations.

1.3 DEFINITIONS

Sediment: Soil and other debris that has eroded and has been transported by runoff water or wind.

Solid Waste: Rubbish, debris, garbage, and other discarded solid materials, except

hazardous waste as defined below.

Sanitary Wastes: Wastes characterized as domestic sanitary sewage.

Rubbish: Combustible and noncombustible wastes such as paper, boxes, glass, crockery, metal, lumber, cans, and bones.

Debris: Combustible and noncombustible wastes such as ashes and waste materials resulting from construction or maintenance and repair work, leaves, and tree trimmings.

Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

Hazardous Waste: Hazardous substances as defined in 40 CFR 261 or as defined by CCR Title 22.

Hazardous Materials: Hazardous materials as defined in 49 CFR 171 and listed in 49 CFR 172 and listed CCR Title 22.

Oily Waste: Petroleum products and bituminous materials.

1.4 SUBMITTALS

Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#).

1.4.1 SD-01, Preconstruction Submittals

- a. Stormwater Pollution Prevention Plan (SWPP shall be included as part of the RAWP submittal; see [Section 01 11 00](#)); G

1.5 ENVIRONMENTAL PROTECTION REGULATORY REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined in this Section. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with Federal, State, and local regulations pertaining to the environment, including but not limited to water, air, solid waste, and noise pollution.

1.6 STORMWATER POLLUTION PREVENTION PLAN

The contractor shall prepare and implement a SWPPP.

The SWPPP shall include: (1) an outline of the areas of vegetative soil cover or native vegetation on site that will remain undisturbed during the construction project; (2) an outline of all areas of soil disturbance, including cut or fill areas, that will be stabilized during the rainy season by temporary or permanent erosion control measures, such as seeding, mulch,

or blankets, etc.; (3) an outline of the areas of soil disturbance, cut, or fill that will be left exposed during any part of the rainy season, representing areas of potential soil erosion where sediment control BMPs are required to be used during construction; and (4) a proposed schedule for the implementation of erosion control measures.

The SWPPP shall also include a description of the BMPs and control practices to be used for both temporary and permanent erosion control measures. BMPs will include, but not be limited to, silt fence, straw wattle, and temporary sediment retention ponds, as needed. The SWPP shall also include a list of native species appropriate for revegetation and will reference the decontamination plan to ensure that noxious weeds or non-native invasive species (NNIS) are not introduced or spread during construction activities.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PROTECTION OF NATURAL RESOURCES

Preserve the natural resources outside the limits of permanent work. Confine construction activities to within the limits of the work indicated or specified. Do not disturb any wetland area.

3.1.1 Water Resources

Prevent oily or other hazardous substances from entering the ground, drainage areas, wetlands or local bodies of water. Surround all temporary fuel oil or petroleum storage tanks with a temporary earthen berm of sufficient size and strength to contain the contents of the tanks in the event of leakage or spillage.

3.1.2 Fish and Wildlife Resources

Do not unnecessarily disturb fish or wildlife. Do not alter water flows or otherwise disturb the native habitat adjacent to the project, except as indicated or specified.

3.2 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Carefully protect in-place and report immediately to the Government historical and archaeological items or human skeletal remains discovered in the course of work. Stop work in the immediate area of the discovery until directed by the Government to resume work. The Government retains ownership and control over historical and archaeological resources.

3.3 NOISE

Make the maximum use of low-noise emission products, as certified by the U.S. Environmental Protection Agency (EPA). Blasting or use of explosives will not be permitted without written permission from the Government, and then only during designated times.

3.4 EROSION AND SEDIMENT CONTROL MEASURES

3.4.1 Burnoff

Burnoff of the ground cover is not permitted.

3.4.2 Protection of Erodible Soils

Plan and conduct earthwork to minimize the duration of exposure of unprotected soils in accordance with the approved Stormwater Pollution Prevention Plan (SWPP).

3.4.3 Temporary Protection of Erodible Soils

Mechanically retard and control the rate of runoff in areas where erosion is observed during construction. Controls include construction of diversion ditches, benches, berms, and use of silt fences, straw wattle, and straw bales to retard and divert runoff to protected drainage courses.

3.5 CONTROL AND DISPOSAL OF CONTRACTOR-GENERATED SOLID WASTES

Pick up solid wastes and place them in covered containers that are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean.

3.5.1 Disposal of Rubbish and Debris Dispose of rubbish and debris in accordance with the requirements specified below:

3.5.1.1 Removal from Government Property Remove and dispose of rubbish and debris from Government property.

3.5.2 Garbage Disposal

Place garbage in approved containers, and move to a pickup point or disposal area, where directed.

3.6 CONTROL AND DISPOSAL OF HAZARDOUS WASTE

3.6.1 Hazardous Waste Generation

Handle generated hazardous waste in accordance with 40 CFR 262.

3.6.2 Hazardous Waste Disposal

Dispose of hazardous waste in accordance with Federal, State, and local regulations, especially 40 CFR 263, 40 CFR 264, 40 CFR 265, and CCR Title 22, Division 4.5, Chapter 11. Removal of hazardous waste from Government property shall not occur without prior notification and coordination with the Government. Transport hazardous waste by a permitted, licensed, or registered hazardous waste transporter to a treatment, storage, and disposal (TSD) facility. Hazardous waste shall be properly identified, packaged, and labeled in accordance with 49 CFR 172. Provide completed manifests for hazardous waste disposed of off-site to the Government within 7 days of disposal. Hazardous waste shall not be brought onto the base.

3.6.3 Hazardous Waste Storage

Store hazardous waste in containers in accordance with 49 CFR 178. Identify hazardous waste in accordance with 40 CFR 261 and 40 CFR 262. Identify hazardous waste generated within the confines of the station by the station's EPA generator identification number.

3.6.4 Spills of Oil and Hazardous Materials

Take precautions to prevent spills of oil and hazardous material. In the event of a spill, immediately notify the Government. Spill response shall be in accordance with 40 CFR 300 and applicable State regulations.

3.6.5 Petroleum Products

Protect against spills and evaporation during fueling and lubrication of equipment and motor vehicles. Properly dispose of lubricants and excess oil.

3.7 DUST CONTROL

Control dust at all times, including during nonworking periods. Sprinkle or treat, with approved dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations.

3.8 METHANE GAS

Take precautions to avoid all ignition sources on the site during construction due to potentially explosive concentrations of methane gas.

3.9 WATER GENERATED DURING CONSTRUCTION

Water generated by dewatering areas below the ground surface or any other water that may have contacted waste or contaminated soil shall not be discharged from the site. This water will be collected, stored and used for moisture conditioning of the foundation layer or for dust control within the footprint of the landfill, prior to installation of the geosynthetic layers. This water shall not be used for moisture

conditioning of any fill layers above the geosynthetic layers. Water that is not used for dust control or moisture conditioning shall be containerized, analyzed for chemical constituents, and subsequently disposed at an appropriate facility based on chemical characterization.

END OF SECTION

SECTION 01 77 00 CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUBMITTALS Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#).

1.1.1 SD-03 Product Data

- a. Warranty Data: Copies of warranty documents associated with products installed at the site.
- b. Spare Parts Data: Copies of list that indicates manufacturer's name, part number, nomenclature, and stock level recommended for maintenance and repair. List those items that may be standard to the normal maintenance of the system.

1.1.2 SD-10 Operation and Maintenance Data

Submit Operation and Maintenance Manuals in accordance with paragraph entitled, "Operation and Maintenance," of this section; G

1.1.3 SD-11 Closeout Submittals

- a. As-built drawings (included in the After Action Report); G
- b. As-built Operations Maintenance and Monitoring Plan (included in the After Action Report); G
- c. As-built record of materials and equipment
- d. Warranty list

1.2 PROJECT RECORD DOCUMENTS

1.2.1 As-Built Drawings

This paragraph covers record drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working record drawings" and "final record drawings" refer to contract drawings which are revised to be used for final record drawings showing as-built conditions.

Show on the as-built drawings, but not limited to, the following information:

- a. The actual location, kinds and sizes of all subsurface utility lines. Also record the average depth below the surface of each run.
- b. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities, noting any changes were made from contract plans.
- c. Changes in details of design or additional information obtained from working drawings

specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, dimensions, etc.

d. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

e. Furnish a contour map of the area elevations.

1.2.2 As-Built Operations Maintenance and Monitoring Plan

The draft OM&M plan will be updated by the contractor upon completion of construction to produce the As-Built OM&M plan.

1.2.3 As-Built Record of Materials and Equipment

Furnish one copy of preliminary record of equipment and materials used on the project prior to final inspection. This preliminary submittal will be reviewed and returned after final inspection with Government comments. Submit final record of equipment and materials 10 days after final inspection and receipt of Government comments. Key the designations to the related area depicted on the contract drawings. List the following data:

TABLE 1. RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA

Description	Specification Section	Manufacturer and Catalog Model, and Serial Number	Composition and Size	Where Used

1.3 SPARE PARTS DATA

Indicate manufacturer’s name, part number, nomenclature, and stock level required for maintenance and repair. List those items that may be standard to the normal maintenance of the system.

1.4 WARRANTY MANAGEMENT

1.4.1 Equipment/Product Warranty Data and Warranty List

Assemble approved information in a binder and turn over to the Government upon acceptance of the work. The construction warranty period will begin on the date of project acceptance and continue for the full product warranty period. Include within the warranty list, but not limited to, the following:

a. Listing and status of delivery of all Certificates of Warranty for extended warranty items.

b. A list for each warranted equipment, item, feature of construction, or system indicating:

1. Name of item.
2. Model and serial numbers.
3. Location where installed.
4. Name and phone numbers of manufacturers or suppliers and sources of spare parts.
5. Terms of warranty.
6. Cross-reference to warranty certificates as applicable.
7. Starting point and duration of warranty period.
8. Summary of maintenance procedures required to continue the warranty in force.
9. Organization, names and phone numbers of persons to call for warranty service.

1.5 OPERATION AND MAINTENANCE MANUALS

Operation and Maintenance Manuals must be consistent with the manufacturer's standard brochures, schematics, printed instructions, general operating procedures, and safety precautions. Bind information in manual format and grouped by technical sections. Test data must be legible and of good quality. Light-sensitive reproduction techniques are acceptable provided finished pages are clear, legible, and not subject to fading. Caution and warning indications must be clearly labeled.

1.6 CLEANUP

Leave premises "broom clean." Clean debris from drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site. Promptly and legally transport and dispose of any trash. Do not burn, bury, or otherwise dispose of trash on the project site.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

END OF SECTION

**SECTION 02 41 00 SITE
DEMOLITION**

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

Remove rubbish and debris resulting from construction activities from the project site; do not allow accumulations. Existing fill materials at the site are to be incorporated into the foundation grading shown in the Drawings. Oversize material or highly compressible material shall be removed from the site for off-site disposal or shall be pulverized, chipped or shredded as necessary for proper disposal.

1.2 SUBMITTALS

None Required

1.3 DUST AND DEBRIS CONTROL

Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to flooding or pollution.

1.4 PROTECTION

Protect existing features that are to remain in place. Repair items that are to remain and that are damaged during performance of the work to their original condition, or replace with new.

1.5 BURNING

Burning will not be permitted.

PART 2 PRODUCTS

Not used. PART

3 EXECUTION

3.1 REFUSE DISPOSAL

All refuse generated by construction will be controlled such that it is not carried off site by wind or water and does not constitute a hazard to worker safety or construction equipment. Refuse may be collected in construction dumpsters contracted through a local municipal waste hauler.

Remove and transport refuse in a manner that will prevent spillage on pavements, streets, or adjacent areas. Clean up spillage from pavements, streets, and adjacent areas to prevent potential damage by foreign objects. 3.2 CLEARING AND GRUBBING

Clear and grub surface vegetation and roots prior to grading per [Section 31 11 00, Clearing and Grubbing](#).

END OF SECTION

SECTION 02 56 13
POLYETHYLENE GEOMEMBRANE LINER

PART 1 GENERAL

1.1 REFERENCES

ASTM INTERNATIONAL (ASTM)

ASTM D 1004	Test Method for Initial Tear Resistance of Plastic Film and Sheeting
ASTM D 1238	Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer
ASTM D 1505	Test Method for Density of Plastics by the Density-Gradient Technique
ASTM D 1603	Test Method for Carbon Black in Olefin Plastics
ASTM D 3895	Standard Test Method for Oxidative-Induction Time of Polyolefins by Differential Scanning Calorimetry
ASTM D 4833	Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 5199	Standard Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes
ASTM D 5321	Standard Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method
ASTM D 5397	Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test
ASTM D 5596	Standard Test Method for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics
ASTM D 5994	Standard Test Method for Measuring Core Thickness of Textured

Geomembranes

ASTM D 6392 Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods

ASTM D 6693 Standard Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes

GEOSYNTHETIC RESEARCH INSTITUTE (GRI)

GRI GM 14 Selecting Variable Intervals for Taking Geomembrane Destructive Seam Samples Using the Method of Attributes

1.2 DEFINITIONS

Lot: A quantity of resin (usually the capacity of one rail car) used in the manufacture of geomembranes. Finished roll will be identified by a roll number traceable to the resin lot used.

Manufacturer: The party responsible for manufacturing the geomembrane rolls.

Laboratory: Party, independent from the Contractor and Manufacturer, responsible for conducting laboratory tests on samples of geosynthetics obtained at the site or during manufacturing.

Panel: Unit area of a geomembrane that will be seamed in the field that is larger than 100 ft².

Patch: Unit area of a geomembrane that will be seamed in the field that is equal to or less than 100 ft².

Subgrade: Soil layer surface which immediately underlies the geosynthetic material(s).

1.3 SUBMITTALS

1.3.1 SD-02 Shop Drawings:

a. Installation layout drawings illustrating proposed panel layout, including field seams and details. Approved shop drawings will be for concept only and actual panel placement will be determined by site conditions.

1.3.2 SD-03 Product Data:

a. Material warranties

- b. Product data indicating that no recycled polymer and no more than 10 percent rework of the same type of material (recycled product run) is added to the resin
- c. Installer's Geosynthetic Field Installation QC Plan

1.3.3 SD-07 Certificates:

- a. Installer's qualification statement including resumes of key personnel involved in the project

1.3.4 SD-11 Closeout submittals.

- a. As-built drawings showing actual geomembrane placement and seams, including typical anchor trench detail.
- b. Certificate stating the geomembrane has been installed in accordance with the Contract Documents.

1.4 QUALITY ASSURANCE The Contractor's QC Officer will assure compliance with the project specifications.

1.5 QUALIFICATIONS

1.5.1 MANUFACTURER

- a. Geomembrane shall be Ultraflex 60-mil double-sided textured linear low-density polyethylene (LLDPE) manufactured by GSE Lining Technology, Inc., or equivalent.

1.5.2. INSTALLER

- a. The Contractor's installation shall be performed by a specialty subcontractor experienced in the installation and seam welding of 60-mil LLDPE geomembranes. The subcontractor's installation experience shall be recent (within the last 2 years).
- b. The subcontractor's supervisor shall have worked in a similar capacity on projects similar in size and complexity to the project described in these Contract Documents.
- c. The subcontractor shall provide a minimum of one Master Seamer for work on the project. The Master Seamer must have completed a minimum of 1,000,000 square feet of geomembrane seaming work using the type of seaming apparatus proposed for the use on this Project.
- d. Subcontractor qualifications shall be submitted to QC Manager for approval

PART 2 PRODUCTS

2.1 MATERIAL LABELING, DELIVERY, STORAGE AND HANDLING

- a. Labeling - Each roll of geomembrane delivered to the site shall be labeled by the manufacturer. The label shall identify the manufacturer's name, product identification, and

product thickness

- b. Delivery - Rolls of liner will be prepared to ship by appropriate means to prevent damage to the material and to facilitate off-loading.
- c. Storage - The on-site storage location for geomembrane material, provided by the Contractor to protect the geomembrane from punctures, abrasions and excessive dirt, and moisture. The storage location shall be level (no wooden pallets), smooth, dry, protected from theft and vandalism, and be adjacent to the area being lined
- d. Handling - Materials are to be handled so as to prevent damage.

2.2 GEOMEMBRANE

- a. Material shall be textured polyethylene geomembrane as shown on the Drawings.
- b. Resin shall be new, first quality, compounded and manufactured specifically for producing geomembrane. Natural resin (without carbon black) shall meet the minimum requirements presented in Table 1.

TABLE 1. MINIMUM VALUES FOR NATURAL RESINS

Property	Test Method	Minimum Required Value
Density	ASTM D 5199	0.915g/cm ³
Melt Flow Index	ASTM D 1238	<1.0 g/10 min
Oxidative Induction Time	ASTM D 3895	100 minutes

c. Geomembrane Rolls

- 1 Do not exceed a combined maximum total of 1 percent by weight of additives other than carbon black.
- 2 Geomembrane shall be free of holes, pinholes as verified by visual inspection for bubbles, blisters, excessive contamination by foreign matter, and nicks and cuts on roll edges.
- 3 All liner sheets produced at the factory shall be inspected prior to shipment for compliance with the physical property requirements listed in this specification section and be tested by an acceptable method of inspecting for pinholes. If pinholes are located, identified and indicated during manufacturing, these pinholes may be corrected during installation.
4. The geomembrane manufacturer shall sample and test the geomembrane, at a minimum, once every 50,000 square feet to demonstrate that its properties conform to the values specified in Table 2.

TABLE 2: MINIMUM VALUES FOR TEXTURED BLACK-SURFACED LLDPE GEOMEMBRANES

Property	Test Method⁽¹⁾	Units	Minimum Value
Thickness: Minimum Average	ASTM D 5199	mil (mm)	54 (1.40)
Thickness: Lowest Individual Reading for 8 out of 10 Values	ASTM D 5199	mil (mm)	51 (1.30)
Density	ASTM D 1505	g/cm ³	0.92
Carbon Black Content	ASTM D 1603, mod.	Percent	2.0
Carbon Black Dispersion	ASTM D 5596		Note 2
Tensile Properties: Strength at Break (each direction)	ASTM D 6693	lb/in (kN/m)	90 (16)
Tensile Properties: Elongation at Break (each direction) ³	ASTM D 6693	Percent	250
Tear Resistance	ASTM D 1004	lb (N)	33 (147)
Puncture Resistance	ASTM D 4833	lb (N)	66 (300)
Oxidative Induction Time	ASTM D 3895	Min	100

Notes:

- 1 Some test procedures have been modified for application to geosynthetics. All procedures and values are subject to change without prior notification.
- 2 Only near spherical agglomerates are considered. 9 of 10 views shall be Category 1 or 2. No more than one view Category 3.
- 3 For 2.0" gauge length.

d. Extrudate Rod or Bead

- 1 Extrudate material shall be made from same type resin as the geomembrane.
- 2 Additives shall be thoroughly dispersed.
- 3 Materials shall be free of contamination by moisture or foreign matter.

PART 3 EXECUTION

3.1 EQUIPMENT

- a. Welding equipment and accessories shall meet the following requirements:

1. Gauges showing temperatures in apparatus (extrusion welder) or wedge (wedge welder) shall be present.
2. An adequate number of welding apparatus shall be available to avoid delaying work.
3. Power source must be capable of providing constant voltage under combined line load.

3.2 CONFORMANCE TESTING

- a. Samples of the geomembrane will be removed and sent to a geosynthetics QA laboratory for testing to ensure conformance with the requirements of Table 2. The appropriate test methods are summarized in Table 2. The Contractor shall account for this testing in the installation schedule. Only material, which meets the requirements of Paragraph 2.2 shall be installed.
- b. Samples of the geomembrane will be removed and sent to a geosynthetics QA laboratory for three-point direct shear testing to ensure conformance with the requirements of Table 3. A minimum of one test per project or material type will be performed.
- b. Samples will be selected by the QA Representative in accordance with this Section and with the procedures outlined in the CQA Plan.
- c. Samples will be taken at a minimum frequency of one sample per 100,000 square feet with a minimum of one sample per lot.
- d. The QA Representative may increase the frequency of sampling in the event that test results do not comply with the requirements of Paragraph 2.2. The additional testing shall be performed at the expense of the Geomembrane Manufacturer.
- e. Any geomembranes that conformance testing indicates do not comply with Paragraph 2.2, will be rejected by the QA Representative. The Geomembrane Manufacturer shall replace the rejected material with new material.

TABLE 3: MINIMUM WELD VALUES FOR LLDPE GEOMEMBRANES

Materials	Test Method	Frequency	Minimum Value
Geomembrane against Geocomposite	ASTM D 5321	One 3-point direct shear, vertical stress no more than 1,000 psf	Friction angle <u>greater than</u> 20 degrees
Geomembrane against Drainage Sand (90% compaction and 2% over opt. moisture content)	ASTM D 5321	One 3-point direct shear, vertical stress no more than 1,000 psf	Friction angle <u>greater than</u> 30 degrees

3.3 DEPLOYMENT

- a. Assign each panel a simple and logical identifying code. The coding system shall be subject to approval and shall be determined at the job site.
- b. Visually inspect the geomembrane during deployment for imperfections and mark faulty or suspect areas.
- c. Deployment of geomembrane panels shall be performed in a manner that will comply with the following guidelines:
 1. Unroll geomembrane using methods that will not damage geomembrane and will protect underlying surface from damage (spreader bar, protected equipment bucket).
 2. Place ballast (commonly sandbags) on geomembrane which will not damage geomembrane to prevent wind uplift.
 3. Personnel walking on geomembrane shall not engage in activities or wear shoes that could damage it. Smoking will not be permitted on the geomembrane.
 4. Do not allow heavy vehicular traffic directly on geomembrane. Rubber-tired ATV's and trucks are acceptable if wheel contact is less than 6 psi.
 5. Protect geomembrane in areas of heavy traffic by placing protective cover over the geomembrane.
- d. Sufficient material (slack) shall be provided to allow for thermal expansion and contraction of the material.

3.4 FIELD SEAMING

- a. Seams shall meet the following requirements:
 1. To the maximum extent possible, orient seams parallel to line of slope, i.e., down and not across slope.
 2. Minimize number of field seams in corners, odd-shaped geometric locations and outside corners.
 3. Slope seams (panels) shall extend a minimum of 5 feet beyond the grade break into the flat area.
 4. Use a sequential seam numbering system compatible with panel numbering system.
 5. Align seam overlaps consistent with the requirements of the welding equipment being used. A 6-inch overlap is commonly suggested.
- b. During Welding Operations

1. Provide at least one Master Seamer who shall provide direct supervision over other welders as necessary.

c. Extrusion Welding

1. Hot-air tack adjacent pieces together using procedures that do not damage the geomembrane.
2. Clean geomembrane surfaces by disc grinder or equivalent.
3. Purge welding apparatus of heat-degraded extrudate before welding.

d. Hot Wedge Welding

1. Welding apparatus shall be a self-propelled device equipped with an electronic controller which displays applicable temperatures.
2. Clean seam area of dust, mud, moisture and debris immediately ahead of hot wedge welder.
3. Protect against moisture build-up between sheets.

e. Trial Welds

1. Perform trial welds on geomembrane samples to verify welding equipment is operating properly.
2. Make trial welds under the same surface and environmental conditions as the production welds, i.e., in contact with subgrade and similar ambient temperature.
3. Minimum of two trial welds per day, per welding apparatus, one made prior to the start of work and one completed at mid shift.
4. Cut four, 1-inch-wide by 6-inch-long test strips from the trial weld.
5. Quantitatively test specimens for peel adhesion, and then for shear strength.
6. Trial weld specimens shall pass when the results shown in Table 4 are achieved in both peel and shear test.
 - a. The break, when peel testing, occurs in the liner material itself, not through peel separation (FTB).
 - b. The break is ductile.
7. Repeat the trial weld, in its entirety, when any of the trial weld samples fail in either peel or shear.

8. No welding equipment or welder shall be allowed to perform production welds until equipment and welders have successfully completed trial weld.

TABLE 4: MINIMUM WELD VALUES FOR LLDPE GEOMEMBRANES

Property	Test Method	Units	Minimum Value
Peel Strength (extrusion)	ASTM D 6392	ppi (kN/m)	72 (12.6)
Peel Strength (fusion)	ASTM D 6392	ppi (kN/m)	75 (13.1)
Shear Strength (fusion & ext.)	ASTM D 6392	ppi (kN/m)	90 (15.8)

f. Seaming shall not proceed when ambient air temperature or adverse weather conditions jeopardize the integrity of the liner installation. Contractor shall demonstrate that acceptable seaming can be performed by completing acceptable trial welds.

g. Defects and Repairs

Examine all seams and non-seam areas of the geomembrane for defects, holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter.

Repair and nondestructively test each suspect location in both seam and nonseam areas. Do not cover geomembrane at locations that have been repaired until test results with passing values are available.

3.5 FIELD QUALITY ASSURANCE

3.5.1 Nondestructive Field Testing

Nondestructive testing may be carried out as the seaming progresses or at completion of all field seaming.

3.5.1.1. Vacuum Testing

a. The equipment shall comprise the following:

1. A vacuum box assembly consisting of a stiff housing, a transparent viewing window, a soft neoprene gasket attached to the bottom, port hole or valve assembly, and a vacuum gauge.
2. A system for applying 5 psi (34 kPa) gauge to the box.
3. A bucket of soapy solution and applicator.

b. The following procedure shall be followed:

1. Energize the vacuum pump and reduce the tank pressure to approximately 5 psi (34 kPa)

gauge.

2. Wet an area of the geomembrane seam larger than the vacuum box with the soapy solution.
3. Place the box over the wetted area.
4. Close the bleed valve and open the vacuum valve.
5. Ensure that a leak tight seal is created.
6. Examine the geomembrane through the viewing window for the presence of soap bubbles for not less than 30 seconds.
7. In no bubbles appear after 30 seconds, close the vacuum valve and open the bleed valve, move the box over the next adjoining area with a minimum 3 inches overlap, and repeat the process.
8. All areas where soap bubbles appear shall be marked with a marker that will not damage the geomembrane and be repaired in accordance with Paragraph 3.4.

3.5.1.2. Air Pressure Testing (For Double Fusion Seams Only).

- a. The following procedures are applicable to those processes which produce a double seam with an enclosed space.
- b. The equipment shall comprise the following:
 1. An air pump (manual or motor driven) or air reservoir, equipped with a pressure gauge, capable of generating and sustaining a minimum pressure of 30 psi, mounted on a cushion to protect the geomembrane.
 2. A rubber hose with fittings and connections.
 3. A hollow needle, or other approved pressure feed device.
- c. The following procedures shall be followed:
 1. Seal both ends of the seam to be tested.
 2. Insert needle, or other approved pressure feed device, into the tunnel created by the fusion weld.
 3. Insert a protective cushion between the air pump and the geomembrane.
 4. Energize the air pump to a minimum pressure of 30 psi, close the valve, and sustain the pressure for not less than 5 minutes.
 5. If loss of pressure exceeds 3 psi, or does not stabilize, locate faulty area and repair in accordance with Paragraph 3.4.

6. Cut opposite end of air channel from the pressure gauge and observe release of pressure to ensure air channel is not blocked.
7. Remove needle, or other approved pressure feed device, and seal repair in accordance with Paragraph 3.4.

3.5.2 Destructive Field Testing

a. Location and Frequency of Testing

1. Collect destructive test samples at a frequency of one per every 1,500 lineal feet of seam length.
2. Test locations will be determined after seaming.
3. Exercise Method of Attributes as described by GRI GM-14 (Geosynthetic Research Institute, <http://www.geosynthetic-institute.org>) to minimize test samples taken.

b. Sampling Procedures are performed as follows:

1. Contractor shall cut samples as the seaming progresses in order to obtain field laboratory test results before the geomembrane is covered.
2. Contractor shall number each sample, and the location will be noted on the installation as-built.
3. Samples shall be twelve (12) inches wide by minimal length with the seam centered lengthwise.
4. Cut a 2-inch wide strip from each end of the sample for field-testing.
5. Destructive testing shall be performed in accordance with ASTM D 6392, "Standard Test Method for Determining the Integrity of Non-Reinforced Geomembrane Seams Produced Using Thermo-Fusion Methods."
6. Contractor shall repair all holes in the geomembrane resulting from destructive sampling.
7. Repair and test the continuity of the repair in accordance with these Specifications.

3.5.3 Failed Seam Procedures

- a. If the seam fails, Contractor shall follow one of two options:
 1. Reconstruct the seam between any two passed test locations.
 2. Trace the weld to intermediate location at least 10 feet minimum or where the seam ends in both directions from the location of the failed test.
- b. The next seam welded using the same welding device is required to obtain an additional sample, i.e., if one side of the seam is less than 10 feet long.
- c. If sample passes, then the seam shall be reconstructed or capped between the test sample locations.
- d. If any sample fails, the process shall be repeated to establish the zone in which the seam shall be reconstructed.

3.6 REPAIR PROCEDURES

- a. Remove damaged geomembrane and replace with acceptable geomembrane materials if damage cannot be satisfactorily repaired.
- b. Repair any portion of unsatisfactory geomembrane or seam area failing a destructive or nondestructive test.
- c. Contractor shall be responsible for repair of defective areas.
- d. Agreement upon the appropriate repair method shall be decided between Contractor and the Government by using one of the following repair methods:
 1. Patching - Used to repair large holes, tears, undispersed raw materials and contamination by foreign matter.
 2. Abrading and Rewelding - Used to repair short section of a seam.
 3. Spot Welding - Used to repair pinholes or other minor, localized flaws or where geomembrane thickness has been reduced.
 4. Capping - Used to repair long lengths of failed seams.
 5. Flap Welding - Used to extrusion weld the flap (excess outer portion) of a fusion weld instead of a full cap.
 6. Remove the unacceptable seam and replace with new material.
- e. The following procedures shall be observed when a repair method is used:
 1. All geomembrane surfaces shall be clean and dry at the time of repair.

2. Surfaces of the polyethylene that are to be repaired by extrusion welds shall be lightly abraded to assure cleanliness.
3. Extend patches or caps at least 6 inches for extrusion welds and 4 inches for wedge welds beyond the edge of the defect, and around all corners of patch material.

f. Repair Verification

1. Number and log each patch repair.
2. Nondestructively test each repair using methods specified in this Specification.

END OF SECTION

SECTION 02 61 13
EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

- | | |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ASTM D 1557 | (2007) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³) (2700 kN-m/m ³) |
| ASTM D 2487 | (2006) Soils for Engineering Purposes (Unified Soil Classification System) |
| ASTM D 422 | (1963; R 2007) Particle-Size Analysis of Soils |
| ASTM D 6938 | (2007a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth) |

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

- | | |
|-------------|------------------------------------------------------|
| 29 CFR 1926 | Safety and Health Regulations for Construction |
| 40 CFR 302 | Designation, Reportable Quantities, and Notification |

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA)

- | | |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPA 6010B | Metals by Inductively Coupled Plasma-Atomic Emission Spectrometry |
| EPA 8015 | Nonhalogenated Organics Using GC/FID |
| EPA 8081A | Organochlorine pesticides by Gas Chromatography |
| EPA 8260B | Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry |
| EPA 8270C | Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) |
| EPA 8290 | Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) |

1.2 SUBMITTALS

The following shall be submitted in accordance with [Section 01 33 00 Submittal Procedures](#).

1.2.1 SD-01 Preconstruction Submittals

Remedial Action Work Plan (RAWP); G

The RAWP shall be submitted within 30 calendar days of receiving notice to proceed. No work at the site, with the exception of site inspections and surveys, shall be performed until the RAWP is approved by the government. At a minimum, the RAWP shall include:

- a. Site history, project scope, key personnel, remedial activities and work requirements.
- b. Detailed Construction Schedule, including sequence of construction
- c. Site Health and Safety Plan
- d. Stormwater Pollution Prevention Plan
- e. Air Pollution Prevention Plan
- f. Traffic Control Plan
- g. Decontamination Plan
- h. Noise Control Plan
- i. Spill Control Plan
- j. Waste Management Plan
- k. Contaminant Prevention Plan
- l. Resource Protection Plan
- m. Contingency Plan
- n. Quality Control (QC) Plan
- o. Winterization Plan
- p. Sewer Line Damage Contingency Plan
- q. Excavation Protection Plan
- r. Dewatering Plan

1.2.2 SD-06 Test Reports

a. Confirmation Sampling and Analysis Reports

1.2.3 SD-11 Closeout Submittals

a. After Action Report (within 30 calendar days of work completion at the site).

1.3 SURVEYS

Surveys shall be performed immediately prior to and after excavation of contaminated material to determine the volume of contaminated material removed. Surveys shall also be performed immediately after completion of waste placement. Locations of confirmation samples shall be shown on the drawings.

1.4 REGULATORY REQUIREMENTS

1.4.1 Permits and Licenses

The Contractor shall obtain any required federal, state, and local permits for excavation.

1.4.2 Air Emissions

Air emissions shall be monitored and controlled in accordance with all applicable local, state, and federal regulations.

1.5 DESCRIPTION OF WORK

The work shall consist of excavation and temporary stockpiling of the top 2 feet of clean cover soil and the excavation and placement of contaminated material (municipal waste). Approximate locations of contaminated material are shown on the RD drawings. The Contractor shall submit a RAWP as specified in the Submittals paragraph. The Government shall be notified within 24 hours, and before excavation, if contaminated material is discovered that has not been previously identified or if other discrepancies between data provided and actual field conditions are discovered. To ensure protection of the STPUD sewer line, a contingency plan will be in place prior to the start of work. All waste relocation in the vicinity of the sewer line will be coordinated with the STPUD well in advance of construction to ensure that an on-site STPUD representative can be present for the work. Groundwater is approximately 60 feet below pre-excavation ground surface and is estimated at approximately 6,320 feet above mean sea level.

1.6 SCHEDULING

The Contractor shall be responsible for contacting appropriate government and regulatory agencies in accordance with the applicable reporting requirements.

PART 2 PRODUCTS

2.1 SPILL RESPONSE MATERIALS

The Contractor shall provide appropriate spill response materials including, but not limited to the following: containers, adsorbents, shovels, and personal protective equipment. Spill response materials shall be available at all times when contaminated materials/wastes are being handled or transported. Spill response materials shall be compatible with the type of materials and contaminants being handled.

PART 3 EXECUTION

3.1 EXISTING STRUCTURES AND UTILITIES

No excavation shall be performed until site utilities have been field located. The Contractor shall take the necessary precautions to ensure no damage occurs to existing structures and utilities. Damage to existing structures and utilities resulting from the Contractor's operations shall be repaired. Utilities encountered that were not previously shown or otherwise located shall not be disturbed without approval from the Government.

3.2 CLEARING

Clearing shall be performed to the limits shown on the drawings in accordance with [Section 31 11 00 Clearing and Grubbing](#).

3.3 CONTAMINATED MATERIAL REMOVAL

3.3.1 Excavation

Areas of contamination shall be excavated to the depth and extent shown on the drawings and not more than 0.5 feet beyond the depth and extent shown on the drawings unless directed by the Government. Excavation shall be performed in a manner that will limit spills and the potential for contaminated material to be mixed with uncontaminated material. An excavation log describing visible signs of contamination encountered shall be maintained for each area of excavation.

Inspect waste to ensure that it does not contain oversized materials (such as appliances, automobiles, large rocks, concrete, etc.) or materials that cannot be disposed of on site (such as batteries, hazardous chemicals, tires, etc.). Any unsuitable materials will be segregated, characterized, profiled, transported, and disposed of at an appropriately permitted recycling or disposal facility.

3.3.2 Shoring

If workers must enter the excavation, it shall be evaluated, shored, sloped or braced as required by 29 CFR 1926 § 650.

3.3.3 Dewatering

Surface water shall be diverted to prevent entry into the excavation. Dewatering shall be limited to that necessary to assure adequate access, a safe excavation, prevent the spread of contamination, and to ensure that compaction requirements can be met.

3.4 CONFIRMATION SAMPLING AND ANALYSIS

After all material suspected of being contaminated has been removed, the excavation shall be examined for evidence of contamination. If the excavation appears to be free of contamination, field analysis shall be used to determine the presence of volatile organic compounds (VOCs) contamination using a real time vapor monitoring instrument. Field analysis of metals may be conducted using a hand-held x-ray fluorescence (XRF) spectrometer. Excavation of additional material shall be as directed by the Government. After all suspected contaminated material is removed, confirmation samples shall be collected and analyzed for the following contaminants:

- CAM 17 metals, by EPA Methods 6010B and 7470A/7471A
- VOCs, by EPA Method 8260B
- Polycyclic aromatic hydrocarbons (PAHs), by EPA Method 8270C
- Organochlorine pesticides, by EPA Method 8081A
- Dioxins and furans by EPA Method 8290
- Total petroleum hydrocarbons (TPH) quantified as gasoline, by EPA Method 8260B
- Extractable TPH quantified as diesel, by EPA Method 8015 with silica gel cleanup

Confirmation sample results will be compared with the lower of EPA regional screening levels (RSLs) for industrial reuse, California human health screening levels, unless background levels exceed these screening levels, in which case background levels will be used. During evaluation of confirmation samples, leachability testing may also be conducted, if appropriate.

Samples shall be collected at a frequency of at least one per 1,000 square feet. Based on test results, the Contractor shall propose any additional excavation which may be required to remove material which is contaminated above screening levels. Additional excavation shall be subject to approval by the Government. Locations of samples shall be marked in the field and documented on the as-built drawings.

3.5 PLACEMENT OF WASTE

3.5.1 Compaction

Excavated waste shall be placed in lifts with a maximum loose thickness of 12 inches. Waste material shall be mechanically compacted with specialized construction equipment for the compaction of landfill waste.

3.6 AFTER ACTION REPORT

An After Action Report shall be prepared and submitted within 30 calendar days of completing work at the site. The report shall be labeled with the contract number, project name, location, date, name of Contractor. The After Action Report shall include the following information as a minimum:

- a. A cover letter signed by a Professional Engineer registered in the State of California certifying that all services involved have been performed in accordance with the terms and conditions of the contract documents and regulatory requirements.
- b. A narrative report including, but not limited to, the following:
 1. site conditions, groundwater elevation, and cleanup criteria
 2. excavation logs
 3. field screening readings
 4. quantity of materials removed from each area of contamination
 5. sampling locations and sampling methods
 6. sample collection data such as time of collection and method of preservation
 7. sample chain-of-custody forms
- c. Copies of all chemical and physical test results.
- d. Scale drawings showing limits of each excavation, limits of contamination, known underground utilities within 15 m (50 feet) of excavation, sample locations, and sample identification numbers. On-site stockpile, storage, treatment, loading, and disposal areas shall also be shown on the drawings.
- e. Progress Photographs. Color photographs shall be used to document progress of the work and shall include:
 1. Soil removal and sampling.
 2. Unanticipated events such as spills and the discovery of additional contaminated material.
 3. Contaminated material, handling, and transport.
 4. Waste placement and grading.

END OF SECTION

SECTION 03 37 13
FIBER REINFORCED CONCRETE

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM A 820/A 820M	Standard Specification for Steel Fibers for Fiber-Reinforced Concrete
ASTM C 1077	Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM C 1116/C 1116M	Standard Specification for Fiber-Reinforced Concrete
ASTM C 136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 150	Standard Specification for Portland Cement
ASTM C 171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C 143	Standard Test Method for Slump of Hydraulic Cement Concrete
ASTM C 172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C 231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure method
ASTM C 309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 33	Standard Specification for Concrete Aggregates
ASTM C 31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C 618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C 685/C 685M	Concrete Made by Volumetric Batching and Continuous Mixing

ASTM C 881/C 881M	Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
ASTM C 94/C 94M	Standard Specification for Ready-Mixed Concrete
COE CRD-C 400	(1963) Requirements for Water for Use in Mixing or Curing Concrete

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with [Section 01 33 00 Submittal Procedures](#).

1.2.1 SD-06 Test Reports

a. Mixture Proportions; G

The recommended mixture proportions, sources of materials, and all test results shall be submitted for approval.

b. Aggregates; G

Supplier's test reports for aggregates showing the materials meet the requirements of this specification.

c. Strength Tests

Contractor shall provide mix tests exhibiting the 28-day compressive strength of 3,000 psi per the specifications herein.

1.2.2 SD-07 Certificates

a. Synthetic (Polypropylene) Fiber Reinforcement Fiber reinforcement shall be certified for compliance with ASTM A 820/A 820M.

1.3 QUALITY ASSURANCE

The Contractor shall provide facilities and labor as may be necessary for obtaining and testing representative test samples.

1.4 MIXTURE PROPORTIONS

Mixture proportions and test data from prior experience within 3 years, if available, may be submitted for approval. If test data from experience are not available or accepted, specimens shall be made and tested from mixtures having three or more different proportions. The recommended mixture proportions, sources of materials, and all test results shall be submitted for acceptance.

1.5 EVALUATION AND ACCEPTANCE

1.5.1 Strength

Final acceptance of the fiber reinforced concrete will be based on conformance to ASTM A 820/A 820M. Contractor shall provide mix exhibiting the 28-day compressive strength of 3,000 psi.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Cementitious Materials

Cementitious materials shall be Portland cement or Portland cement in combination with pozzolan, and shall conform to appropriate specifications listed below.

2.1.1.1 Portland Cement

Portland cement shall meet the requirements of ASTM C 150 Type I, II, III, V with tricalcium aluminate limited to 5 percent if Type III is used.

2.1.1.2 Pozzolan Other Than Silica Fume

Pozzolans shall conform to ASTM C 618, Class C, with the optional requirements for available alkalis from Table 1A multiple factor, drying shrinkage, and uniformity of Table 2A.

2.1.2 Reinforcing Materials

Cementitious materials shall be Portland cement or Portland cement, in combination with pozzolan, and shall conform to appropriate specifications listed below.

2.1.3 Aggregates

Aggregates shall conform to ASTM C 33 with the combined grading of coarse and fine aggregates conforming to the grading shown below

SIEVE SIZE	PERCENT BY MASS PASSING INDIVIDUAL SIEVES		
	GRADING NO. 1	GRADING NO. 2	GRADING NO. 3*
19.0 mm (3/4 in.)	--	--	100
12.5 mm (1/2 in.)	--	100	80-95
9.5 mm (3/8 in.)	100	90-100	70-90
4.75 mm (No. 4)	95-100	75-85	50-70
2.36 mm (No. 8)	80-100	50-70	35-55
1.18 mm (No. 16)	50-85	35-55	20-40
600 µm (No. 30)	25-60	20-35	10-30
300 µm (No. 50)	10-30	10-30	5-17
150 µm (No. 100)	2-10	2-10	2-10
*Fine and coarse aggregates shall be batched separately to avoid segregation.			

2.1.4 Water

Fresh, clean, potable mixing water or nonpotable water which meets the requirements of COE CRD-C 400 shall be used.

2.1.5 Admixtures

Admixtures shall be dissolved in water before introduction into the concrete mixture.

2.1.6 Curing Materials Curing materials shall meet the following requirements.

2.1.6.1 Impervious Sheet Materials

ASTM C 171, type optional except polyethylene film, if used, shall be white opaque.

2.1.6.2 Membrane-Forming Curing Compound

ASTM C 309, Type 1-D or Type 2.

2.1.7 Reinforcement

2.1.7.1 Synthetic (Polypropylene) Fiber Reinforcement Synthetic (polypropylene) fiber reinforcement shall meet the requirements of ASTM C 1116/C 1116M.

PART 3 EXECUTION

3.1 PRODUCTION OF FIBER REINFORCED CONCRETE The fiber reinforced concrete shall be produced by wet-mix process.

3.1.1 Wet Mix Process

3.1.1.1 Batching and Mixing

Batching and mixing shall be accomplished in accordance with the applicable provisions of ASTM C 94/C 94M. If volumetric batching and mixing are used, the materials shall be batched

and mixed in accordance with the applicable provisions of ASTM C 685/C 685M. The mixing equipment shall be capable of thoroughly mixing the specified materials in sufficient quantity to maintain continuous placing. Ready-mix concrete complying with ASTM C 94/C 94M may be used.

3.1.1.2 Delivery Equipment

The equipment shall be capable of delivering the premixed materials accurately, uniformly, and continuously through the delivery hose.

Recommendations of the equipment manufacturer shall be followed for cleaning, inspection, and maintenance of the equipment.

3.1.1.3 Air Content

Air-entraining admixture shall be used in such proportion that the air content of the concrete prior to pouring shall be 6 plus or minus (\pm) 1.0percent as determined by ASTM C 231.

3.2 PREPARATION OF SURFACES

Earth shall be compacted and trimmed to line and graded before placement of concrete. Surfaces to receive concrete shall be dampened.

3.3 PLACEMENT OF CONCRETE

Concrete shall be placed using suitable delivery equipment and procedures. The area to which concrete is to be applied shall be clean and free of debris.

3.4 REPAIR OF DEFECTS

3.4.1 Defects

Defective areas larger than 48 square inches or 2 inches deep shall be removed and replaced with fresh concrete. These defects include honeycombing, lamination, dry patches, voids, or sand pockets.

3.4.1.1 Repairs

All repairs shall be made within 1 week of the time the deficiency is discovered. All unacceptable materials shall be removed and repaired by the procedures described in the following two paragraphs.

3.4.1.2 Minor Patching

Minor patching may be accomplished with a dry-pack mixture. Patches that exceed 0.1 cubic foot in volume shall receive a brush coat of approved epoxy resin meeting ASTM C 881/C 881M, Type II, as a prime coat. Care shall be taken not to spill epoxy or overcoat the repair surface so that the epoxy runs or is squeezed out onto the surface which will remain exposed to

view. Epoxy resin shall be used in strict conformance with manufacturer's recommendations with special attention paid to pot life, safety, and thin film tack time.

3.5 QC TESTING

3.5.1 Strength Testing

a. Take concrete samples during placement in accordance with ASTM C 172. All concrete shall have a maximum slump of 4 in. as measured in accordance with ASTM C 143. Perform slump tests at commencement of concrete placement, and as a minimum, each batch and every 10 cubic yards of concrete, whichever is greater.

b. Make three (3) test cylinders for each set of tests in accordance with ASTM C 31. Precautions shall be taken to prevent evaporation and loss of water from the specimen. Test one cylinder at 7 days and two cylinders at 28 days. Samples for strength tests shall be taken at the commencement of concrete placement and not less than once for each 100 cubic yards of concrete. For the entire project, take no less than one set of samples and perform strength tests. Each strength test result shall be the average of two cylinders from the same concrete sample tested at 28 days.

3.5.2 Grading

The grading of the coarse and fine aggregate shall be determined in accordance with ASTM C 136. The fine and coarse aggregate grading shall be determined prior to batching the concrete and at least once during a shift in which concrete is being batched. The Contracting Officer will have the option to require one additional sieve analysis test for aggregate type.

END OF SECTION

**SECTION 31 00 00
EARTHENWORK**

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced.

The publications are referenced in the text by the basic designation only.

ASTM INTERNATIONAL

- ASTM D 422 (1963; R 2007) Particle-Size Analysis of Soils
- ASTM D 1557 (2000) Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³)
- ASTM D 2216 (1998) Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D 2487 (2000) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
- ASTM D 2488 (2000) Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)
- ASTM D 6938 (2008) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Public Works Standards, Inc.

Greenbook (2006) Standard Specifications for Public Works Construction

SOIL SCIENCE SOCIETY OF AMERICA (SSSA)

SSSA and ASA A. Klute, editor. Number 5 in the Soil Science Society of America Book Series. "Methods of Soil Analysis: Part 1-Physical and Mineralogical Methods." 1986.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA)

SW 846 (May 1997) Test Methods for Evaluating Solid Waste

1.2 DEFINITIONS

Solid Waste: Rubbish, debris, garbage, and other discarded solid non-inert materials resulting from industrial, commercial, and agricultural operations and from community activities.

Foundation Layer: The foundation layer consists of a 2-foot-thick layer of compacted soil. The foundation layer supports the geosynthetic layers indicated on the project plans. The foundation layer consists predominantly of existing cover materials with the addition of native material as needed.

Low Permeability Geomembrane: The low permeability geomembrane is a 60-mil double-sided textured linear low-density polyethylene (LLDPE) liner that forms a hydraulic barrier in the landfill cap. The LLDPE liner is constructed on the foundation layer. The geomembrane liner is specified in [Section 02 56 13, Polyethylene Geomembrane Liner](#).

Drainage Layer: The drainage layer consists of a one-foot thick layer of sand with a medium to high permeability to promote drainage off the geomembrane on steep cover slopes.

Geocomposite Layer: The geocomposite layer lies above the low-permeability geomembrane. Except on steep slopes, where overlies the drainage layer. The geocomposite drainage layer is specified in [Section 31 05 20, Geocomposite Drainage Layer](#).

Cover Layer: The cover layer consists of a 2-foot thick layer of compacted soil. The cover layer is constructed using native material from the borrow area,

Geogrid Layers: Two layers of geogrid are placed within the cap at 6 and 12 inches below final ground surface within the vegetative layer. The geogrid is specified in [Section 31 05 21, Geogrid Soil Reinforcement](#).

Vegetative Layer: The top layer of the cover (vegetative layer) shall consist of soil that is capable of supporting plant growth. The top soil cover shall have a minimum compacted thickness of 12 inches.

Access Road: The access road shall consist of native material and shall follow the alignment specified on the design drawings.

Drainage Channel: The drainage channel shall consist of compacted native material and shall follow the alignments specified on the design drawings.

1.3 SUBMITTALS

Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#).

1.3.1 SD-06 Field Test Reports

a. Soil cover, foundation layer, and access road material tests

See Table 3 for testing frequency and type. Submit raw data as available.

1.3.2 SD-09 Manufacturer's Test Reports

a. Top soil analysis; G

The results of the top soil analysis and laboratory's recommendations for plant growth shall be supplied to the Government for approval prior to revegetation with approved seed mix.

1.3.3 SD-11 Closeout Submittals

a. Final soil cover survey with As-Built Drawings

b. Survey information for permanent local site monuments

1.4 DELIVERY, STORAGE, AND HANDLING

Perform in a manner to prevent contamination or segregation of materials.

PART 2 PRODUCTS

2.1 FOUNDATION LAYER MATERIAL

Foundation layer material shall consist of onsite native soil.

2.2 DRAINAGE LAYER MATERIAL

Drainage layer material (for steep cover slopes) shall consist of natural or manufactured granular material, or a combination thereof, free of soil particles larger than 0.5-inch diameter, brush, weeds, toxic substances, and other deleterious material. Drainage layer materials will conform to the gradation presented in Table 1.

TABLE 1. DRAINAGE LAYER SAND GRADATION

Sieve Size	Percentage Passing Sieve
12.7 mm (1/2 in.)	100
4.75 mm (No. 4)	95-100
2.36 mm (No. 8)	75-95
600 µm (No. 30)	30-50
300 µm (No. 50)	10-25
150 µm (No. 100)	2-10
75 µm (No. 200)	0-8

2.3 COVER LAYER

Cover material shall consist of natural, clean, well-drained soils capable of being compacted to at least 90 percent of the maximum dry density. General fill shall be free of sub-soil, stumps, rock larger than 6-inch diameter, brush, weeds, toxic substances, and other harmful material.

2.4 VEGETATIVE LAYER

Natural, clean, friable soil representative of productive, well-drained soils. Vegetative soils shall be free of sub-soil, stumps, rock larger than 2-inch diameter, brush, weeds, toxic substances, and other material detrimental to plant growth.

2.5 ACCESS ROAD

Native material.

2.5 DRAINAGE CHANNEL

Base Material: Native material.

Rock protection: 8-15-inch diameter rock

Concrete: Fiber-reinforced 3,000 psi concrete as described in [Section 03 37 13](#).

PART 3 EXECUTION

3.1 SCHEDULE

Contractor shall schedule earthwork such that hydroseeding occurs in the months specified (see [Section 32 92 00 Landscaping](#), Part 3.1.1). Contractor is responsible for maintaining completed work and environmental controls (see [Section 01 57 19 Temporary Environmental Controls](#)) at all times, including gaps in construction activity.

All mass grading at the site shall be conducted exclusively during the dry season from April 15 to October 15. If unavoidable delays require earthwork following the dry season, an erosion and sedimentation control program plan shall be prepared and submitted prior to the start of work in October. The erosion and sedimentation control plan shall detail erosion control measures to minimize erosion during the rainy season and shall be made available for review and comment by the Lahontan Regional Water Quality Control Board in advance of rainy season work.

3.2 STORMWATER BEST MANAGEMENT PRACTICES

During initial site preparation and throughout construction, maintain stormwater best management practices specified in approved SWPPP. Perform stormwater discharge monitoring. Stormwater management and erosion control must conform to the requirements of local, county, and state regulatory requirements, including:

- State Water Resources Control Board Order No. R6T-2005-0007 (Updated Waste Discharge Requirements And National Pollutant Discharge Elimination System General Permit No. CAG616002-Discharges of Storm Water Runoff Associated With Construction Activity Involving Land Disturbance In The Lake Tahoe Hydrologic Unit, El Dorado, Placer, And Alpine Counties)
- State Water Resources Control Board Order No. 97-03-DWQ (Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities)

3.3 PROTECTION

3.3.1 Drainage and Dewatering

Provide for the collection and reuse or disposal of potentially contaminated surface and subsurface water encountered during construction.

3.3.1.1 Drainage

So that construction operations progress successfully, drain the site during periods of construction to keep soil materials sufficiently dry. The Contractor shall establish storm drainage features at the earliest stages of site development. Throughout construction, grade the construction area to provide positive surface water runoff away from the construction activity or provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein. The Contractor is responsible for assessing the conditions of soil and groundwater presented by the design and to employ necessary measures to permit construction to proceed.

3.3.1.2 Dewatering

Water generated by dewatering areas adjacent to the landfill or any other water that may have contacted waste or contaminated soil shall not be discharged from the site. This water will be collected, stored and used for moisture conditioning of the foundation layer or for dust control within the footprint of the landfill, prior to installation of the geosynthetic layers. This water shall not be used for moisture conditioning of any layer located above the geosynthetic layers. Water that is not used for dust control or moisture conditioning shall be containerized, analyzed for chemical constituents, and subsequently disposed at an appropriate facility based on chemical characterization.

3.4 EXCAVATION OF EXISTING CAP

The top two feet of the existing cap shall be excavated from both the waste removal and waste consolidation areas. Excavated cap soils shall be stockpiled and reused as foundation soil.

3.5 WASTE EXCAVATION AND CONSOLIDATION

Waste shall be excavated and regraded on the north and east portions of the landfill footprint in accordance with the RD. Waste located above the sewer line shall be excavated in a manner that minimizes the risk of damage to the sewer line.

Excavated waste shall be direct loaded and hauled to the waste consolidation area. Prior to placement, waste shall be visually inspected to ensure that only acceptable wastes are consolidated on site. Any oversized or non-compactable waste (such as household appliances, automobiles, etc.) or materials that cannot be disposed of on site (such as car batteries, tires, etc.) shall be segregated, characterized, profiled, transported, and disposed of at an appropriately permitted recycling or disposal facility. The waste shall be placed in 12-inch-thick loose lifts and mechanically compacted using specialized construction equipment for compaction of landfill waste.

3.6 FOUNDATION LAYER

The stockpiled existing cap material shall be used to construct the 2-foot-thick foundation layer. If additional material is required, native material from the borrow area shall be used to complete the layer. The foundation layer shall be constructed in 8-inch loose lifts and compacted to an average of 90 percent of the maximum dry density, but no less than 85 percent at any location. The foundation layer will be inspected immediately prior to placing the geosynthetic layers to ensure that there are no sharp objects or rocks larger than 0.5 inch protruding at the surface that may damage the liner.

3.7 GEOMEMBRANE LAYER

The foundation layer will be covered with a LLDPE geomembrane. The geomembrane will be covered with a drainage layer. The placement of these layers is also illustrated on the project drawings.

3.8 DRAINAGE LAYER

A 1-foot-thick drainage layer shall be placed above the geomembrane. The drainage layer shall be placed in 12-inch lifts compacted to 85 percent of the maximum dry density.

3.9 GEOCOMPOSITE LAYER

The drainage layer will be covered with a geocomposite to further promote drainage off the geomembrane. The geocomposite will be covered with cover material. The placement of these layers is also illustrated on the project drawings.

3.10 COVER AND VEGETATIVE LAYERS

The 24-inch-thick cover layer shall be placed in 12-inch lifts and compacted to 85 percent of the maximum dry density in the first lift where the cover soil is in contact with the

geocomposite and 90 percent in the subsequent lifts. The first lift may not contain sharp objects or rocks larger than 0.5 inch protruding that may damage the liner. The material required to construct the cover layer shall be acquired from the on-site borrow area.

The 12-inch-thick vegetative layer shall consist of the native material amended with a high-organic content topsoil to promote vegetative growth. The vegetative layer shall be placed in a single 12-inch lift and compacted to 85 to 90 percent of maximum density. Over the 12-inch corrugated drainage pipe, the road thickness shall be increased to 24 inches for a span of 5 feet on either side of the pipe. The road shall gradually transition from one thickness to another in this area.

3.11 GEOCOMPOSITE LAYER

The drainage layer will be covered with a geocomposite to further promote drainage off the geomembrane. The geocomposite will be covered with cover material. The placement of these layers is also illustrated on the project drawings.

3.12 FINISHING OPERATIONS

3.12.1 Grading

Finish grades as indicated within plus or minus one tenth of one foot (0.1 feet). Grade smooth existing surfaces that are to remain but have been disturbed by the Contractor's operations.

3.12.2 Vegetative Layer

The vegetative layer shall be graded to the slopes shown on the Drawings.

3.12.2.1 Topsoil Test

A soil test shall be performed for every acre of applied vegetative material. The soil test shall be performed to assess the suitability of soil to support the native plant species approved by the Government for use in revegetation and shall identify type and quantity of soil amendments. The soil test laboratory shall be located in California and shall analyze soils according to University of California soil testing procedures, American Society of Agronomy chemical and microbiological analyses, or the equivalent.

Soils shall be tested for the following constituents:

Nitrate-Nitrogen	Calcium	Sodium Adsorption Ratio
Phosphorus	Magnesium	Boron
Potassium	Sodium	Chloride
Sulfate	Zinc	Manganese
Iron	Copper	Cation Exchange Capacity
Percent Base Saturation	Limestone	pH
Salinity	Organic Matter	Gypsum Requirement

The soil test laboratory shall recommend type and application rate of soil amendments based on soil test results. Top soil testing shall be performed using the analytical methods presented in Table 2.

TABLE 2. ANALYTICAL METHODS FOR DETERMINING TOP SOIL PROPERTIES

Analysis Package	Analyte	Method
Complete Argonomic	pH (saturated paste)	SSSA 1986, Method 10.3.1
	Organic matter %	SSSA 1986, Method 29-3.5.2
	Nitrate-nitrogen	SSSA 1986, Method 33-8.1
	Available phosphorus (Olsen or Bray)	SSSA 1986, Method 24-5.4 SSSA 1986, Method 24-5.1
	Potassium (ammonium acetate extractable)	SSSA 1986, Method 13-3.5
	Sodium	SSSA 1986, Method 13-4
	Sulfate	SSSA 1986, Method 10-3.7
	Lime requirement	SSSA 1986, Method 12-3
	Electrical conductivity	SSSA 1986, Method 10-3.3
	Texture	SSSA 1986, Method 15-5

Note:
SSSA SOIL SCIENCE SOCIETY OF AMERICA A. Klute, editor. Number 5 in the Soil Science Society of America Book Series. "Methods of Soil Analysis: Part 1-Physical and Mineralogical Methods." 1986.

3.12.3 Hydroseed

Provide as specified by the Government (see [Section 32 92 00 Landscaping](#)).

3.12.4 Access Road

Access road shall comprise 12 inches of native material compacted to 95 percent of the maximum density.

3.12.5 Access Road

Drainage channel base material shall comprise native material compacted to 90 percent of the maximum density.

3.12.6 Protection of Surfaces

Protect newly graded areas from erosion (see [Section 01 57 19 Temporary Environmental Controls](#)), and settlement that may occur. Repair or reestablish damaged grades, elevations, or slopes.

3.13 DISPOSAL OF SURPLUS MATERIAL

Contractor shall minimize the generation of waste, inorganic trash, or debris whenever possible, recycle as much material as possible, and utilize local waste recovery sites available in the area.

3.14 FIELD QUALITY CONTROL

3.14.1 Sampling

Collect the number and size of samples required to perform the specified tests of source materials.

3.14.2 Source Testing

Determine laboratory compaction characteristics and soil classification for soil materials used. See Table 3.

TABLE 3. FOUNDATION LAYER AND SOIL COVER TESTING REQUIREMENTS AND FREQUENCY

Material	Test	ASTM Method	Frequency	Required Minimum Criteria
All Foundation and Cover Soils	Density and Moisture	Nuclear gauge D 6938	One per 10,000 s.f. per lift of compacted fill	See Table 4
All Foundation and Cover Soils	Oven Moisture Content	ASTM D 2216	As necessary to check nuclear method	n/a
All Foundation and Cover Soils	Compaction Curves	Mod. Proctor D 1557	Every 5,000 CY	n/a
All Foundation and Cover Soils	Identification of Soils (Unified Soil Classification System)	D 2487	Every 5,000 CY or one per change in material, whichever occurs first	n/a
All Foundation and Cover Soils	Description and Identification of Soils (Visual- Manual) Procedure)	D 2488	As needed to identify change in material	n/a
Top Lift of Foundation Soil	Sieve Analysis	ASTM D 422	One per 5,000 CY	1) No particle larger than 1/2"
Sand Drainage Layer	Sieve Analysis	ASTM D 422	One per 5,000 CY	1) No particle larger than 1/2" 2) No more than 8% passing #200
First Lift of Cover Soil	Sieve Analysis	ASTM D 422	One per 5,000 CY	1) No particle larger than 1/2" 2) No more than 15% passing #200
Access Road	Density and Moisture	Nuclear gauge D 6938	One per 500 LF. per lift of compacted material	See Table 4

3.14.3 Field Density Tests

See Tables 3 and 4. If a test location fails, the surrounding area shall be reworked up to at least half the distance to all nearby test locations that passed. Then, a new location within 10 feet of the previous test location shall be retested. Repeat until test location area passes.

TABLE 4. FOUNDATION LAYER AND SOIL COVER COMPACTION REQUIREMENTS

Fill Type	Maximum Loose Lift Thickness	Moisture Content	Minimum Density	Method of Test
Foundation Layer	8 inches	± 3% of optimum	Average of 90% but no less than 85%	ASTM D 1557
Drainage Layer	12 inches	± 3% of optimum	85% min	ASTM D 1557
First Lift of Cover Layer	12 inches	± 3% of optimum	85% min	ASTM D 1557
Subsequent Lifts of Cover Layer	12 inches	± 3% of optimum	90% min	ASTM D 1557
Vegetative layer	8 inches	± 3% of optimum	85% to 90% max	ASTM D 1557
Access Road	6 inches	± 3% of optimum	95% min	ASTM D 1557

3.15 SURVEY

3.15.1 Final Cover Survey

Perform a final cover survey of the cover once construction is complete. Include the final survey information with the As-Built Drawings.

3.15.2 Permanent Local Monuments

Install two permanent monuments (settlement markers) on the final cover. Monuments shall be installed by a licensed Land Surveyor, from which the location and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.

END OF SECTION

SECTION 31 05 20
GEOCOMPOSITE DRAINAGE LAYER

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 1505	(2003) Density of Plastics by the Density-Gradient Technique
ASTM D 1603	(2006) Carbon Black Content in Olefin Plastics
ASTM D 4218	(1996; R 2001) Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique
ASTM D 4355	(2007) Deterioration of Geotextiles from Exposure to Light, Moisture and Heat in a Xenon-Arc Type Apparatus
ASTM D 4491	(1999a; R 2004e1) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(2004) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 2003) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4716	(2007) Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
ASTM D 4751	(2004) Determining Apparent Opening Size of a Geotextile
ASTM D 4833	(2007) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 5035	(2006) Breaking Force and Elongation of Textile Fabrics (Strip Method)
ASTM D 5199	(2001; R 2006) Measuring Nominal Thickness of Geosynthetics
ASTM D 5261	(1992; R 2003) Measuring Mass Per Unit Area of Geotextiles

GEOSYNTHETIC INSTITUTE (GSI)

GSI GRI GC7	(1997) Determination of Adhesion and Bond Strength of Geocomposites
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1.2 SUBMITTALS

Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#).

1.2.1 SD-03 Product Data

- a. Geocomposite drainage layer properties
- b. Manufacturer's QC manual

1.2.2 SD-06 Test Reports

- a. Manufacturing QC test results

1.2.3 SD-07 Certificates

Written certification or manufacturers quality control data which displays that the geocomposite meets or exceeds minimum average roll values (MARV) specified herein.

1.3 DELIVERY, STORAGE, AND HANDLING

The QC inspector shall be present during delivery and unloading of the geosynthetic drainage layer. Ensure the drainage layer material has not been damaged during shipping, storage, or handling. Any drainage layer material found to be damaged shall be repaired or replaced. Accept delivery of material only after the required submittals have been approved. Each roll shall be labeled with the manufacturer's name, product identification, lot number, roll number, and roll dimensions. Rolls that have attached geotextiles shall be individually wrapped in plastic. Store the rolls in a level and dry area.

PART 2 PRODUCTS

2.1 GEOCOMPOSITE DRAINAGE LAYER

The geocomposite shall be GSE PermaNet UL double-sided 6 oz/yd² geocomposite, or equivalent. The polymer used to manufacture the geonet component of the geocomposite drainage layer shall be polyethylene which is clean and free of any foreign contaminants. Regrind material which consists of edge trimmings and other scraps may be used to manufacture the geonet; however, post-consumer recycled materials shall not be used. Conform the geocomposite drainage layer to the property requirements listed in Table 1. Component criteria for the geonet alone and geotextile alone are also listed in Table 1. The manufacturer shall sample and test the geocomposite, at a minimum, once every 100,000 square feet to demonstrate that its properties conform to the values specified in Table 1. The geonet shall be covered on both sides with nonwoven geotextile. Create geocomposite by heat bonding geotextile to the geonet. The geotextile shall not be bonded to the drainage net within 6 inches of the edges of the rolls. Where applicable, Table 1 property values represent MARVs. The value for AOS represents the maximum average roll value (MaxARV).

TABLE 1 - GEOCOMPOSITE DRAINAGE LAYER PROPERTIES

Property	Test Method	Units	Minimum Required Value
GEONET			
Thickness ¹	ASTM D 5199	mil (mm)	300 (7.6)
Polymer Density, minimum average	ASTM D 1505	g/cm ³	0.940
Tensile Strength minimum average (machine direction) ²	ASTM D 5035	lb/in (N/mm)	100 (17)
Carbon Black Content	ASTM D 1603/ ASTM D 4218	percent	2.0
NONWOVEN GEOTEXTILE			
Mass/Unit Area, MARV	ASTM D 5261	oz/yd ²	6.0
Grab Tensile Strength, MARV	ASTM D 4632	lbs	170
Puncture Strength, MARV	ASTM D 4833	lbs	90
Permittivity, MARV	ASTM D 4491	sec-1	1.5
AOS(O95), MaxARV	ASTM D 4751	US sieve (mm)	70 (0.21)
UV Stability, percent retained (500 hrs) ³	ASTM D 4355	Percent	70
GEOCOMPOSITE			
Transmissivity, minimum, including attached geotextiles ⁴	ASTM D 4716	gal/min-foot (m ² /sec)	
Geonet/Geotextile Adhesion, minimum average ⁵	GSI GRI GC7	lb/in (g/cm)	1.0 (178)

Note 1: The diameter of the presser foot shall be 2.22 inches and the pressure shall be 2.9 psi. For other thickness options, see manufacturer's literature.

Note 2: This is the average peak value for five equally spaced machine direction tests across the roll width.

Note 3: Use manufacturer's historical data. Does not need to be tested 1 every 100,000 ft².

Note 4: Measure manufacturing quality control transmissivity tests using a gradient of 0.1 under a normal pressure of 25,000 psf. Use a minimum seating period of 15 minutes. Perform the test between rigid end platens.

Note 5: Average of five tests across the roll width. Discounting the outer 305 mm of each side of the roll, collect samples at the 10, 30, 50, 70, and 90 percent positions across the roll width. Test both sides for double sided geocomposites.)

2.2 SAMPLING AND TESTING

2.2.1 Manufacturing Quality Control Testing

Manufacturing quality control test methods shall be in accordance with Table 1 and shall be performed at a minimum, 1 per every 100,000 square feet, unless otherwise approved.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Surface Preparation

Prior to placement of the geosynthetic drainage layer, the subgrade shall be smooth and free of all materials which could damage the drainage layer.

3.1.2 Placement

The geosynthetic drainage layer shall not be damaged during placement. Unroll the drainage layer in the direction of maximum slope, keeping the net flat against the subgrade to minimize wrinkles and folds. The drainage layer shall not be dragged across textured geomembrane if a geotextile is attached to the surface facing the geomembrane. Place adequate ballast (e.g. sandbags) to prevent uplift by wind prior to covering.

3.1.3 Seams and Overlaps

a. The components of the geocomposite (e.g., geonet-geotextile) are not bonded together at the ends and edges of the rolls. Each component will be secured or seamed to the like component at overlaps.

b. Geonet Components:

1. The geonet components shall be overlapped by at least 4 inches. These overlaps shall be secured by tying.
2. Tying shall be achieved by nylon cable ties. Tying devices shall be white or yellow for easy inspection. Metallic devices shall not be used.
3. Tying shall be at a minimum of every 5 feet along the slope, every 1 foot across the slope, every 6 inches in any anchor trench and every 10 feet on horizontal surfaces.

c. Geotextile Component:

1. The bottom layers of geotextile shall be overlapped. The top layers of geotextiles shall be continuously sewn (spot sewing is not allowed). Geotextiles shall be overlapped a minimum of 6 inches prior to sewing.
2. Polymeric thread, with chemical resistance properties equal to or exceeding those of the geotextile component, shall be used for all sewing. The seams shall be sewn using Stitch Type 401. The seam type shall be Federal Standard Type Ssa-1.
3. Horizontal seams on slopes steeper than 100 horizontal to 1 vertical shall be sewn twice as specified above.

3.2 REPAIRS

3.2.1 Geonet Damage

Make repairs by placing a patch of the geosynthetic drainage layer over the damaged area. Extend the patch a minimum of 2 feet beyond the edge of the damage. Use approved fasteners, spaced every 6 inches around the patch, to hold the patch in place. If more than 25 percent of the roll width is damaged, approval must be obtained to repair or replace the damaged roll.

3.2.2 Geotextile Damage

Repair damaged geotextile by placing a patch of geotextile over the damaged area with a minimum of 12 inches of overlap in all directions. The geotextile patch shall be thermally bonded in place.

3.3 PROTECTION AND BACKFILLING

Cover the geosynthetic drainage layer with the specified materials within 14 days of acceptance. Place cover soil from the bottom of the slope upward and shall not be dropped directly onto the drainage layer from a height greater than 3 feet. The cover soil shall be pushed out over the geosynthetic drainage layer in an upward tumbling motion so that wrinkles in the drainage layer do not fold over. No equipment shall be operated on the top surface of the geosynthetic drainage layer without permission from the Government. The initial loose soil lift thickness shall be 8 inches. Use equipment with ground pressures no greater than 5 psi to place the first lift of soil. A minimum of 12 inches of soil shall be maintained between construction equipment with a ground pressure greater than 5 psi and the drainage layer.

END OF SECTION

SECTION 31 05 21
GEORIGID SOIL REINFORCEMENT

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM D 4355	ASTM INTERNATIONAL (ASTM) (2007) Deterioration of Geotextiles from Exposure to Light, Moisture and Heat in a Xenon-Arc Type Apparatus
ASTM D 4595	(2005) Tensile Properties of Geotextiles by the Wide-Width Strip Method
ASTM D 4873	(2002) Identification, Storage, and Handling of Geosynthetic Rolls and Samples
ASTM D 5262	(2007) Evaluating the Unconfined Tension Creep Behavior of Geosynthetics
ASTM D 5321	(2002) Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method

1.2 SUBMITTALS

Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#):

SD-02 Shop Drawings

- a. Installation Drawings and Instructions, including geogrid layout plan along with anchorage and joint details.
- b. Sequencing and construction procedures.

1.3 DELIVERY, STORAGE, AND HANDLING

Check products upon delivery to ensure that the proper material has been received and is dry and undamaged. Protect the materials from damage and exposure following the guidelines presented in ASTM D 4873.

1.3.1 Labeling

Label each roll with the manufacturer's name, product identification, roll dimensions, lot number, and date manufactured.

1.3.2 Handling

Handle and unload geogrid rolls by hand, or with load carrying straps, a fork lift with a stinger bar, or an axial bar assembly. Geosynthetic rolls shall not be dragged, lifted by one end, lifted by cables or chains, or dropped to the ground.

1.3.3 Storage

Protect geogrid from deleterious materials, chemicals, sparks and flames, temperatures in excess of 160 °F, and any other environmental condition that may degrade the physical properties. If stored outdoors, the rolls shall be elevated from the ground surface. Protect geogrids, except for extruded grids, with an opaque waterproof cover.

PART 2 PRODUCTS

2.1 GEOGRID REINFORCEMENT

Provide two layers of Mirafi® BXG11 geogrid (or equivalent) to reinforce the cover slopes against seismic deformation. The geogrid is a geosynthetic manufactured for reinforcement applications and a regular network of integrally connected polymer tensile elements with aperture geometry sufficient to permit significant mechanical interlock with the surrounding soil, aggregate, or other fill materials. The geogrid structure shall be dimensionally stable and able to retain its geometry under manufacture, transport and installation. The geogrid shall be manufactured with 100 percent virgin resin consisting of polyethylene, polypropylene, polyester, or other approved material and with a maximum of 5 percent in-plant regrind material. Polyester resin shall have a minimum molecular weight of 25,000 and a carboxyl end group number less than 30. Polyethylene and polypropylene shall be stabilized with long term antioxidants. Submit Certificates of Compliance for the materials provided as specified in the Submittals paragraph.

2.1.1 Geogrid Reinforcement Properties

The reinforcement shown on the contract drawings shall meet the property requirements listed in Table 1. Reinforcement strength requirements represent minimum average roll values in the machine direction.

TABLE 1 GEOGRID PROPERTY REQUIREMENTS:

Property	Test Method	Required Value	
		Machine Direction	Cross Machine Direction
Tensile Strength @ 1% Strain	ASTM D 6637	300 lb/ft	300 lb/ft
Tensile Strength @ 2% Strain	ASTM D 6637	500 lb/ft	500 lb/ft
Tensile Strength @ 5% Strain	ASTM D 6637	920 lb/ft	920 lb/ft
Tensile Modulus @ 5% Strain	ASTM D 6637	30,000 lb/ft	30,000 lb/ft
Ultimate Tensile Strength	ASTM D 6637	2,000 lb/ft	2,000 lb/ft

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Subgrade Preparation

Immediately prior to placement of the geogrid, the surface on which the geogrid will be placed shall be free of rock and other material that could damage the geogrid or the underlying geosynthetics.

3.1.2 Placement

Install the geogrid in accordance with the Manufacturer's recommendations. Unroll the geogrid in the direction of reinforcement. After a layer of geogrid has been placed, use suitable means that do not damage the underlying geosynthetics to hold the geogrid flat and in place until cover soil can be placed. Geogrid damaged during placement and covering shall be removed and replaced.

3.1.3 Overlaps and Fasteners

Adjacent rolls of geogrid shall be positioned edge-to-edge and loosely fastened to maintain alignment during fill placement. Adjacent rolls shall not be overlapped. Use fastener type and spacing as recommended by the manufacturer. Metallic fasteners will not be allowed.

3.1.4 Penetrations

For small penetrations through geogrids, only transverse members of the geogrid shall be cut. The load-carrying longitudinal (machine direction) members shall be spread around the penetration. For larger penetrations, additional geogrid shall be placed on each side of the penetration and spliced to the adjacent geogrid to compensate for any longitudinal tensile members that must be cut.

3.2 COVER SOIL PLACEMENT

Cover geogrid with soil within 5 calendar days of acceptance. Keep the geogrid smooth and taut during placement of cover materials. Cover soil shall not be dropped onto the geogrid from a height greater than 3 feet. The soil shall be pushed out over the geogrid in an upward tumbling motion. Place soil from the bottom of the slope upward. The initial loose soil lift thickness shall be 8 inches). Use equipment with ground pressures less than 5 psi to place the first lift over the geogrid. A minimum of 6 inches of soil shall be maintained between construction equipment with ground pressures greater than 5 psi and the geogrid. Equipment placing cover soil shall not stop abruptly, make sharp turns, spin their wheels, or travel at speeds exceeding 5 mph). Additional cover soil material and placement requirements are described in [Section 31 00 00 Earthwork](#).

3.3 OVERSIGHT

Keep a QC Representative present at all times during geogrid installation.

END OF SECTION

**SECTION 31 11 00
CLEARING AND GRUBBING**

PART 1 GENERAL

1.1 DELIVERY, STORAGE, AND HANDLING

Deliver materials to store at the site, and handle in a manner which will maintain the materials in their original manufactured or fabricated condition until ready for use.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PROTECTION

3.1.1 Roads and Walks Keep roads and walks free of dirt and debris at all times.

3.1.2 Trees, Shrubs, and Existing Facilities

Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require.

3.1.3 Utility Lines

Protect existing utility lines that are indicated to remain from damage. The Contractor shall be responsible for the repairs or damage to existing utility lines that are indicated or made known to the Contractor prior to start of clearing and grubbing operations.

3.2 CLEARING

Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within the areas to be cleared. Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing.

3.3 GRUBBING

Grubbing shall consist of the removal and disposal of stumps, roots larger than 3 inches in diameter, and matted roots from the designated grubbing areas.

3.4 DISPOSAL OF MATERIALS

Logs, stumps, roots, brush, rotten wood, and other refuse from the clearing and grubbing operations, shall be disposed of outside the limits of Government-controlled land at the

Contractor's responsibility except when otherwise directed in writing. Such directive will state the conditions covering the disposal of such products and will also state the areas in which they may be placed.

END OF SECTION

SECTION 32 31 00
SIGNS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

AMERICAN NATIONAL STANDARD (ANS)

ANS 253.1 (1967) Fundamental Specification of Safety Colors

ASTM INTERNATIONAL (ASTM)

ASTM B 209 (2000) Specification for Aluminum and Aluminum-Alloy Sheet and Plate

1.2 SUBMITTALS

Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#).

1.2.1 SD-02, Drawings

- a. Warning sign; G
- b. Closure sign; G

PART 2 PRODUCTS

2.1 SIGNS

2.1.1 Substrate

Conform to ASTM B 209 for aluminum sheet plate requirements. Provide caution or warning signs from aluminum plate with the thickness of at least 1.3 mm. Appropriate sign mounting hardware shall be fastened to back of substrate by rivets or welding to allow mounting of sign on post.

2.1.2 Paint

Use the opaque glossy sample colors as specified in Table 1 of Fundamental Specification of Safety Colors for Commercial Item Description, Standard Source "C" ANS 253.1-1967. Unless directed by the Government, standard color of the background shall be yellow with black letters.

2.1.3 Posts

Signposts shall be of the U-channel type, 3 lbs/ft nominal, fabricated of hot rolled carbon steel bars. Finish shall be galvanized. Posts shall have a uniform hole pattern.

The post shall consist of two parts, a signpost and a base post. The base post shall be identical to the signpost except having a pointed and sharpened-edge end for post driving. Holes between the base post and signpost shall be of identical pattern.

2.1.4 Signs

Signage will be required to meet the following requirements:

- b. Lettering shall be legible from a distance of at least 25 feet
- c. Signs shall contain contact information for US Forest Service personnel responsible for long-term landfill oversight
- d. Signs shall be visible from surrounding areas and at potential routes of entry
- e. Signs shall be of a material able to withstand the elements
- f. Language for the warning signs will be:

***“Former Meyers Landfill
Digging is Prohibited
Disturbance of Soil May be a Hazard
Call (530) 543-2600 for more information”***

- g. Language for the closure signs will be:

***“Site Closed
No Trespassing”***

PART 3 EXECUTION

3.1 SIGN INSTALLATION

Place signs at regular intervals along the perimeter of the area requiring land use controls (see Land Use Control Remedial Design, included as an appendix to the RD). Embedded metals shall be given a primer coat of the required paint on all surfaces prior to installation. Install posts to dimensions as designated on the Drawings. Do not damage coating before or during installation.

END OF SECTION

SECTION 32 31 13
CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A 116	(2005) Standard Specification for Metallic-Coated, Steel Woven Wire Fence Fabric
ASTM A 702	(1989; R 2006) Standard Specification for Steel Fence Posts and Assemblies, Hot Wrought
ASTM C 94/C 94M	(2007) Standard Specification for Ready-Mixed Concrete
ASTM F 626	(1996a; R 2003) Standard Specification for Fence Fittings

1.2 SUBMITTALS

Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#).

1.2.1 SD-02 Shop Drawings

a. Submit shop drawings for all chain link fence installations specified in the RD drawings.

1.2.2 SD-03 Product Data

a. Submit Manufacturer's catalog data for all fence and gate hardware and accessories, per the requirements specified in Part 2.

1.3 DELIVERY, STORAGE, AND HANDLING

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 GENERAL

Provide fencing materials that conform to the requirements of ASTM A 116, ASTM A 702, ASTM F 626, and as specified.

2.2 ZINC COATING

Ferrous-metal components and accessories, except as otherwise specified, must be hot-dip galvanized after fabrication, but before installation.

2.3 FABRIC

Fabric must consist of galvanized No. 9-gage wires woven into a 2-inch diamond mesh.

2.4 TENSION WIRE

Wire must be galvanized, No. 7-gage, coiled spring wire, provided at the bottom of the fabric only.

2.5 STRETCHER BARS

Provide bars that have one-piece lengths equal to the full height of the fabric.

2.6 POST TOPS

Provide tops that are steel, wrought iron, or malleable iron designed as a weathertight closure cap. Provide one cap for each post, unless equal protection is provided by a combination post-cap and barbed-wire supporting arm. Caps must have an opening to permit through passage of the top rail.

2.7 GATES

Gates shall be single swing. Shape and size of gate frame, as indicated on Remedial Design drawings. Framing and bracing members, round of steel alloy. Gate fabric, as specified for fencing fabric. Coating for steel latches, stops, hinges, keepers, and accessories, galvanized. Gate latches, forktape. Attach gate fabric to gate frame in accordance with manufacturer's standards, except that welding is not permitted. Arrange padlocking latches to be accessible from both sides of gate, regardless of latching arrangement.

Provide gate frame assembly that is welded or assembled with special malleable or pressed-steel fittings and rivets to provide rigid connections. Install fabric with stretcher bars at vertical edges; stretcher bars may also be used at top and bottom edges. Attach stretcher bars and fabric to gate frames on all sides at intervals not exceeding 15 inches. Attach hardware with rivets or by other means which provides equal security against breakage or removal.

2.8 GATE HARDWARE AND ACCESSORIES

Provide latch that permits operation from either side of the gate, with a padlock eye provided as an integral part of the latch.

2.9 WIRE TIES

Wires for tying fabric to line posts must be 16-gage galvanized steel wire spaced 12 inches on center. For tying fabric to rails and braces, wire ties must be spaced 24 inches on center. For tying fabric to tension wire, 0.105-inch hog rings must be spaced 24 inches on center.

Manufacturer's standard procedure will be accepted if of equal strength and durability.

Provide wire ties constructed of the same material as the fencing fabric.

2.10 CONCRETE

Provide concrete conforming to ASTM C 94/C 94M. Concrete mix must obtain a minimum 28-day compressive strength of 3,000 psi, unless otherwise approved by the Government.

PART 3 EXECUTION

3.1 GENERAL

Final grading and established elevations must be complete prior to commencing fence installation.

3.2 EXCAVATION

Excavations for post footings must be drilled holes in compacted soil, of minimum sizes as indicated.

Bottoms of the holes must be approximately 3 inches below the bottoms of the posts. Set bottom of each post not less than 36 inches below finished grade.

3.3 SETTING POSTS

Remove loose and foreign materials from holes and the soil moistened prior to placing concrete. Provide tops of footings that are trowel finished and sloped or domed to shed water away from posts. Set hold-open devices, sleeves, and other accessories in concrete. Keep exposed concrete moist for at least 7 calendar days after placement.

3.4 CONCRETE STRENGTH

Concrete must attain at least 75 percent of its minimum 28-day compressive strength before rails, tension wire, or fabric are installed. Fabric and wires must not be stretched or gates hung until the concrete has attained its full design strength.

Samples and test concrete must be taken to determine strength as specified.

3.5 TOP RAILS

Provide top rails that run continuously through post caps or extension arms, bending to radius

for curved runs. Provide expansion couplings as recommended by the fencing manufacturer.

3.6 CENTER RAILS

Center rails must be one piece between posts set flush with posts on the fabric side, using special offset fittings where necessary.

3.7 BRACE ASSEMBLY

Contractor must provide bracing assemblies at end and gate posts and at both sides of corner and pull posts, with the horizontal brace located at mid-height of the fabric.

Install brace assemblies so posts are plumb when the diagonal rod is under proper tension.

Provide two complete brace assemblies at corner and pull posts where required for stiffness and as indicated.

3.8 TENSION WIRE INSTALLATION

Install tension wire by weaving them through the fabric and tying them to each post with not less than 7-gauge galvanized wire or by securing the wire to the fabric with 10gauge ties or clips spaced 24 inches on center.

3.9 FABRIC INSTALLATION

Provide fabric in single lengths between stretch bars with bottom barbs placed approximately 1.5 inches above the ground line. Pull fabric taut and tied to posts, rails, and tension wire with wire ties and bands. Install fabric on the security side of fence, unless otherwise directed. Fabric must remain under tension after the pulling force is released.

3.10 STRETCHER BAR INSTALLATION

Thread stretcher bars through or clamped to fabric 4 inches on center and secured to posts with metal bands spaced 15 inches on center.

3.11 GATE INSTALLATION

Install gates plumb, level, and secure, with full opening without interference. Install ground set items in concrete for anchorage as recommended by the fence manufacturer. Adjust hardware for smooth operation and lubricated where necessary.

3.12 TIE WIRES

Provide tie wires that are U-shaped to the pipe diameters to which attached. Twist ends of tie wires not less than two full turns and bent so as not to present a hazard.

3.13 FASTENERS

Install nuts for tension bands and hardware on the side of the fence opposite the fabric side. Peen ends of bolts to prevent removal of nuts.

3.14 ZINC-COATING REPAIR

Clean and repair galvanized surfaces damaged by abrasion, and cut ends of fabric, or other cut sections with specified galvanizing repair material applied in strict conformance with the manufacturer's printed instructions.

3.15 TOLERANCES

Provide posts that are straight and plumb within a vertical tolerance of 0.25 inch after the fabric has been stretched. Provide fencing and gates that are true to line with no more than 0.5-inch deviation from the established centerline between line posts. Repair defects as directed.

3.16 FENCE INSTALLATION

Install fence on prepared surfaces to line and grade indicated. Install fence in accordance with fence manufacturer's written installation instructions.

3.17 ACCESSORIES INSTALLATION

3.17.1 Post Caps

Install post caps as recommended by the manufacturer.

3.18 CLEANUP

Remove waste fencing materials and other debris from the work site.

END OF SECTION

**SECTION 32 92 00
LANDSCAPING**

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. ASTM

INTERNATIONAL (ASTM)

ASTM C 602 (1995) Specification for Agricultural Liming Materials

CALIFORNIA STATUTES FOOD AND AGRICULTURE CODE

Division 18, Chapter 2 California Seed Law

COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A (1909) Fertilizer

U. S. CODE OF FEDERAL REGULATIONS (CFR)

7 CFR 201.12a Labeling Agricultural Seeds - Lawn and Turf Seed Mixtures

1.2 SUBMITTALS

The following shall be submitted in accordance with [Section 01 33 00 Submittal Procedures](#).

1.2.1 SD-01, Preconstruction Submittal

a. Vegetation Establishment Plan

Written calendar period for the vegetation establishment period. When there is more than one vegetation establishment period, describe the boundaries of the vegetated area covered for each period.

1.2.2 SD-07, Certificates

Prior to the delivery of materials, certificates of compliance certifying that materials meet the requirements specified. Certified copies of the reports for the following materials shall be included.

a. Seed; G

Mixture, percent pure live seed, minimum percent germination and hard seed, maximum percent weed seed content, date tested, and state certification.

b. Mulch; G

Composition

c. Binder; G

U.S. Department of Agriculture (USDA) auxiliary soil chemical

d. Fertilizer; G Chemical analysis, composition percent if used.

1.3 DELIVERY, INSPECTION, STORAGE, AND HANDLING

1.3.1 Delivery of Soil Amendments

Soil amendments shall be delivered to the site in the original, unopened containers bearing the manufacturer's chemical analysis. In lieu of containers, soil amendments may be furnished in bulk. A chemical analysis shall be provided for bulk deliveries.

1.3.2 Inspection

Inspect all materials upon arrival at the job site for conformity to specifications.

1.3.3 Storage

Seed and fertilizer shall be stored in cool, dry locations away from contaminants.

1.3.4 Handling

Except for bulk deliveries, materials shall not be dropped or dumped from vehicles.

PART 2 PRODUCTS

2.1 SEED

2.1.1 Seed Mixtures

a. Seed mixture shall be as specified by the Government, prior to application. A preliminary list of approved native species for potential inclusion in the seed mix is presented in the Operations, Maintenance and Monitoring Plan, included as an appendix to the RD.

b. All seed shall be furnished in bags or containers clearly labeled to show the name and address of the supplier, the seed name, the lot number, net weight, the percent of weed seed content and the guaranteed percentage of purity and germination. All brands furnished shall be free from all noxious seeds or non-native invasive species (see Operations, Maintenance and Monitoring Plan included as an appendix to the RD). Seed that has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable.

c. Seed shall not exceed 0.5 percent weed content by weight. If seed available on the market does not meet the minimum purity and germination percentages specified, the Contractor must compensate for a lesser percentage of purity or germination by furnishing sufficient additional seed to equal the specified product. Product comparison shall be made on the basis of pure live

seed in pounds. The formula used for determining the quantity of pure live seed shall be: Pounds of seed x (Purity x Germination) = pounds of Pure Live Seed. Samples may be drawn by the Engineer for testing.

d. Final cover seed mixture shall be as determined by the Forest Service biologist.

2.2 MULCH

Mulch shall be fibrous, cellulose mulch, containing no growth or germination inhibiting substances and shall be manufactured in such a manner that, when thoroughly mixed with seed, fertilizer, organic stabilizer, and water, it will form a homogeneous slurry that is capable of being sprayed to form a porous mat. If possible, the mulch shall be green in color to allow metering during application. Biosolids may be used as part of the mulch material. Mulch shall be applied at a rate of 2,000 lbs/acre, or as specified by the Government.

2.3 BINDER

Binder shall be of organic origin and registered with the U.S. Department of Agriculture as an auxiliary soil chemical. Binder shall not be asphalt based. Binder shall be nontoxic to plant or animal life. Binder shall be applied at a rate of 120 lbs/acre, or as specified by the Government.

2.4 PREMIXED MULCH/BINDER COMBINATIONS

Where premixed combinations meet or exceed other requirements of this Specification, they may be used.

2.5 WATER

Shall not contain a total dissolved solids level of greater than that in base potable supply or exceed the salt tolerance of the plant species for any growth regime, irrigation practice used, and local climate. Water shall be applied at rate such that hydroseeding machinery operates smoothly, but that minimizes surface runoff and leaching once applied.

2.6 HYDRAULIC EQUIPMENT

Contractor shall use a commercial type mulcher for the application of slurry. Equipment shall have a built-in agitation system with an operation capacity sufficient to agitate, suspend and homogeneously mix slurry. Distribution lines shall be large enough to prevent stoppage and to provide even distribution of the slurry over the ground. The pump must be capable of exerting up to 150 psi at the nozzle. The slurry tank shall have a minimum capacity of 1,000 gallons and shall be mounted on a traveling unit that will place the slurry tank and spray nozzles within sufficient proximity to the areas to be seeded so as to provide uniform distribution without waste.

2.7 SOIL AMENDMENTS

Soil amendments shall consist of fertilizer, organic soil amendments, and soil conditioners, if appropriate. Soils used in the vegetative layer shall be amended as recommended by soil test in [Section 31 00 00, Earthwork](#).

2.7.1 Fertilizer

Fertilizer shall be commercial grade, free flowing, uniform in composition, conforming to CID A-A-1909, and meet requirements as recommended from the results of the soil test. Application rate shall be determined from the soil test.

PART 3 EXECUTION

3.1 SEEDING, TIMES AND CONDITIONS

3.1.1 Seeding Time

Seed shall be sown according to supplier instructions. If feasible, seeding shall take place as soon as final grade has been achieved and heavy equipment has been retired from the project.

3.1.2 Planting Conditions

Not used.

3.2 SITE PREPARATION

3.2.1 Finish Grading

3.2.1.1 Preparation

Drainage patterns shall be maintained as indicated on Drawings. Areas designated for hydroseed that have been compacted by construction operations shall be scarified to a depth of 1 to 2 inches. Soil used for repair of erosion or grade deficiencies shall conform to topsoil requirements specified in [Section 31 00 00, Earthwork](#).

3.3 HYDROSEEDING

3.3.1 General

Seeding operations shall not take place when the wind velocity will prevent uniform seed distribution. All slurry preparation shall take place on the job site. Operators of hydroseeding equipment shall be thoroughly experienced in this type of application.

3.3.2 Mixing

Water, mulch and binder shall be added to the mixing tank first. Fertilizer and seed shall be added at the last practical moment. The slurry must be completely homogeneous before application.

3.3.3 Application

Apply specified slurry mix in a sweeping motion to form a uniform mat at the specified rate. Limit hydroseeding to designated areas and prevent contact with other items. Slurry mixture that has not been applied within 2 hours of mixing shall be removed from the site. Total time from the addition of seed to seed discharge shall be less than 1 hour, if more than 1 hour, the remainder of the load shall be recharged with seed.

3.4 RESTORATION AND CLEANUP

3.4.1 Restoration

Existing vegetated areas, pavements, and facilities that have been damaged from the hydroseeding operation shall be restored to their original condition.

3.4.2 Cleanup

Excess and waste material shall be removed from the planting operation and shall be disposed of off the site.

3.5 PROTECTION OF SEEDED AREAS

Once hydroseeding has taken place, care shall be taken to avoid damage to the surface until soil is firm and more than 80 percent of plants have germinated. Avoid vehicular traffic, especially that which creates depressions or ruts. Keep foot traffic to a minimum and, in all cases, avoid repeat traffic over the same area.

3.6 VEGETATION ESTABLISHMENT PERIOD

3.6.1 Commencement

The Vegetation Establishment Period for establishing healthy vegetation shall begin on the first day of seeding operation or planting under this contract and shall end 6 months after the last day of seeding or planting operations required by this contract.

3.6.2 Satisfactory Stand of Vegetation

A satisfactory stand of vegetation from the seeding or planting operation is defined as a minimum of 10 plants per square foot. Cover at the end of the Establishment Period shall be 35 percent.

3.6.3 Maintenance During Establishment Period

3.6.3.1 General

Maintenance of the seeded areas shall include controlling insects, weeds, and diseases below levels that are detrimental to plant health. In addition, the Contractor shall protect embankments and ditches from erosion, maintain erosion control materials and mulch, protect vegetated areas from traffic, and water and fertilize as needed.

3.6.3.2 Watering

Watering shall be at intervals to obtain a moist soil condition to a minimum depth of 1 inch for hydroseeded areas or groundcover. Frequency of watering and quantity of water shall be adjusted in accordance with the growth of the vegetation. Runoff, runoff, puddling, and wilting shall be prevented.

3.6.3.3 Post-Fertilization

Nitrogen carrier fertilizer shall be applied at the rate of no more than 0.5 pounds per 1,000 square feet for hydroseeded areas or groundcover after the first month and again prior to the final acceptance. The application shall be timed prior to the advent of winter dormancy and shall avoid excessively high nitrogen levels.

3.6.3.4 Repair

The Contractor shall reestablish, as specified herein, eroded, damaged, or barren areas or plants, including seed and topsoil.

3.7 FINAL ACCEPTANCE OF VEGETATION

3.7.1 Preliminary Inspection

Not less than 21 days prior to the completion of the Vegetation Establishment Period, a preliminary inspection will be held by the Government. Date and time for the inspection will be established in writing and will be communicated to the Contractor 14 days prior to the inspection date. The acceptability of the vegetation in accordance with the Vegetation Establishment Period shall be determined. An unacceptable stand of vegetation shall be repaired as soon as conditions permit.

3.7.2 Final Inspection

Within 7 days of the end of the Vegetation Establishment Period, a final inspection will be held by the Government to determine that deficiencies noted in the preliminary inspection have been corrected. Date and time for the inspection will be established in writing and communicated to the Contractor 14 days prior to the inspection date.

END OF SECTION

SECTION 33 23 00
PASSIVE GAS VENTS AND PERIMETER GAS MONITORING POINTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 1785	(1999) Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120
ASTM D 2564	(1996) Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems
ASTM D 2855	(1996) Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings
ASTM D 5088	(1990) Standard Practice for Decontamination of Field Equipment Used at Nonradioactive Waste Sites
ASTM F 810	(1999) Specification for Smoothwall Polyethylene (PE) Pipe for Use in Drainage and Waste Disposal Absorption Fields
ASTM F 480	(2000) Standard Specification for Thermoplastic Probe Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80

1.2 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 Submittal Procedures.

1.2.1 SD-03, Manufacturers Catalogue Data

- a. Pipe
- b. Fittings
- c. Filter-pack

1.2.2 SD-06, Field Test Reports

- a. Post Construction Methane Tests: Submit test results of post construction methane sampling.

PART 2 PRODUCTS

2.1 GAS VENT AND GAS MONITORING CASINGS

Gas Vent Pipe: 8-inch, solvent-welded nominal diameter, schedule 80 PVC, dimensions and lengths as indicated on Drawings, manufactured to meet the requirements of ASTM F 480. Solvent cement to meet the requirements of ASTM D 2564.

Perimeter Gas Monitoring Point Pipe: 3/4-inch, nominal diameter schedule 40 PVC, dimensions and lengths as indicated on Drawings, manufactured to meet the requirements of ASTM F 480. Pipe fittings shall be flush-joint threaded with O-ring seals, equipped with sampling ports.

2.2 GAS VENT HORIZONTAL COLLECTION PIPE

Gas Vent Horizontal Collection Pipe: 8-inch, solvent-welded nominal diameter, schedule 80 PVC, dimensions and lengths as indicated on Drawings, manufactured to meet the requirements of ASTM F 480. Solvent cement to meet the requirements of ASTM D2564.

2.3 GAS VENT AND GAS MONITORING SCREEN

Gas Vent Screen: 8-inch, solvent welded nominal diameter, schedule 80 PVC, dimensions and lengths as indicated on Drawings, machine slotted 0.020 inches, manufactured to meet the requirements of ASTM F 480. Provide solvent welded PVC bottom end cap.

Perimeter Gas Monitoring Point Screen: 3/4-inch, nominal diameter, flush-joint threaded schedule 40 PVC, dimensions and lengths as indicated on Drawings, machine slotted 0.020 inches, manufactured to meet the requirements of ASTM F 480. Provide solvent welded PVC bottom end cap.

2.4 FILTER PACK

Gas Vent: Nominal 0.75-inch drain rock.

Perimeter Gas Monitoring Point: Appropriately sized gravel filter pack (#3 Monterey Sand, or equivalent)

PART 3 EXECUTION

3.1 GAS VENT BOREHOLE DRILLING

a. Drill all boreholes through foundation layer and waste to the approximate depths shown in the Drawings.

b. Drilling augers shall be nominal 24-inch outside diameter to meet the dimensions of the minimum borehole size shown on the drawing.

c. The Contractor's field geologist will be responsible for completing a log of the borehole lithology.

d. No drilling fluids shall be added to the borehole.

e. No lubricants shall be used on down-hole drilling equipment other than vegetable-based lubricants on auger flight and drill rod joints.

f. Drill cuttings shall be containerized and properly disposed of.

3.2 PERIMETER GAS MONITORING POINT BOREHOLE DRILLING

a. Drill all boreholes through native materials to the approximate depths shown in the Drawings.

b. Drilling augers shall be nominal 12-inch outside diameter to meet the dimensions of the minimum borehole size shown on the drawing.

c. The Contractor's field geologist will be responsible for completing a log of the borehole lithology.

d. No drilling fluids shall be added to the borehole.

e. No lubricants shall be used on down-hole drilling equipment other than vegetable-based lubricants on auger flight and drill rod joints.

f. Drill cuttings shall be containerized and properly disposed of.

3.3 GAS VENT AND PERIMETER GAS MONITORING POINT INSTALLATION

a. All annular materials shall be installed to the approximate depths shown on the Drawings. Construct gas vents using PVC solvent welding according to ASTM D 2855. Construct perimeter gas monitoring points using flush-joint threaded pipe with O-ring seals. The Contractor's field geologist may request minor modifications to the installation depths as necessary. Depths to the top of filter pack and cement seal materials shall be directly measured using a weighted tape measure to confirm installation to appropriate depths. Screen and blank casing lengths shall be measured to the nearest 0.01 foot.

b. The drain rock filter pack shall be added by gravity fall from the surface.

c. Gas vents shall be manifolded together as shown on the Drawings. Construct gas vents using PVC solvent welding according to ASTM D 2855.

d. Protective casings shall be installed on gas probes to protect the monitoring points. Compact cap soil to eliminate voids and finish to a slope as specified in the Drawings to divert water runoff away from the vent casing. Gas vent pipe shall be painted above grade.

3.4 DECONTAMINATION

a. Decontamination procedures shall conform to ASTM D 5088.

b. All drill rods, drill bits, augers, and other associated equipment shall be cleaned with a portable, high-pressure steam cleaner prior to drilling at each vent or probe location. Provide equipment to capture and containerize all decontamination fluids.

3.5 WASTE DISPOSAL

The Contractor will be responsible for arranging and completing appropriate final disposition of all containerized drill cuttings and decontamination water.

3.6 SURVEYING

a. Provide a California-licensed surveyor or registered Civil Engineer to survey horizontal and vertical coordinates for location (northing and easting), the top of casing (TOC) elevation, and adjacent ground surface elevation for each gas vent and gas monitoring probe constructed.

b. All northing and easting coordinates shall be based on established control points. Horizontal coordinates shall be measured within 0.1-foot accuracy.

c. All elevation measurements shall be measured within 0.01-foot accuracy. The TOC elevation shall be measured by placing the surveying rod directly on top of the north side of the probe casing. The TOC elevation measuring point shall be marked with a 1/8-inch deep sawcut, but do not puncture PVC casing.

3.7 POST-CONSTRUCTION GAS VENT TESTING

The Contractor shall collect post-construction samples from each gas vent to confirm that vent system is operational.

END OF SECTION

**SECTION 33 40 00
DRAINAGE UTILITIES**

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION
OFFICIALS (AASHTO)

AASHTO M 294 (2007) Standard Specification for Corrugated Polyethylene Pipe, 300- to 1200-mm Diameter

ASTM INTERNATIONAL (ASTM)

ASTM D 1171 (1999; R 2007) Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens)

ASTM D 1557 (2007) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³) (2700 kN-m/m³)

ASTM D 2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

ASTM D 3212 (2007) Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals

ASTM D 3350 (2006) Polyethylene Plastics Pipe and Fittings Materials

ASTM D 4491 (1999, Rev A) Standard Test Methods for Water Permeability of Geotextiles by Permittivity

ASTM D 4533 (2004) Standard Test Method for Trapezoid Tearing Strength of Geotextiles

ASTM D 4632 (2008) Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

ASTM D 4751 (2004) Standard Test Method for Determining Apparent Opening Size of a Geotextile

ASTM D 4833 (2000) Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products

ASTM D 5261 (1992) Standard Test Method for Measuring Mass per Unit Area

of Geotextiles

ASTM D 6938	(2007a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM F 1417	(1992; R 2005) Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air
ASTM F 477	(2007) Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F 714	(2008) Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter

1.2 SUBMITTALS

Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#).

1.2.1 SD-03 Product Data

Pipe and geotextile: Printed copies of the manufacturer's product data and installation procedures.

1.2.2 SD-06 Field Test Reports

a. Soil density tests

1.2.3 SD-07 Certificates

a. Resin Certification

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery and Storage

Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. Before, during, and after installation, plastic pipe and fittings shall be protected from any environment that would result in damage or deterioration to the material. Keep a copy of the manufacturer's instructions available at the construction site at all times and follow these instructions unless directed otherwise by the Government. Solvents, solvent compounds, lubricants, elastomeric gaskets, and any similar materials required to install plastic pipe shall be stored in accordance with the manufacturer's recommendations and shall be discarded if the storage period exceeds the recommended shelf life. Solvents in use shall be discarded when the recommended pot life is exceeded.

1.3.2 Handling

Materials shall be handled in a manner that ensures delivery to the trench in sound, undamaged condition. Pipe shall be carried to the trench, not dragged.

PART 2 PRODUCTS

2.1 PIPE FOR CULVERTS AND STORM DRAINS

Pipe for culverts and storm drains shall be of the sizes indicated on design drawings and shall conform to the requirements specified.

2.1.1 HDPE Pipe

The pipe manufacturer’s resin certification indicating the cell classification of PE used to manufacture the pipe shall be submitted prior to installation of the pipe. The minimum cell classification for polyethylene plastic shall apply to each of the seven primary properties of the cell classification limits in accordance with ASTM D 3350.

2.1.1.1 Smooth Wall HDPE Pipe (Solid and Perforated)

ASTM F 714, maximum DR of 21 for pipes 80 to 600 mm (3 to 24 inches) in diameter and maximum DR of 26 for pipes 650 to 1,200 mm (26 to 48 inches) in diameter. Pipe shall be produced from PE certified by the resin producer as meeting the requirements of ASTM D 3350, minimum cell class 335434C.

2.1.1.2 Corrugated HDPE Pipe

AASHTO M 294, Type S or D, for pipes 12 to 48 inches produced from PE certified by the resin producer as meeting the requirements of ASTM D 3350, minimum cell class in accordance with AASHTO M 294. Pipe walls shall have the following properties.

Nominal Size (inch)	Minimum Wall Area (square inch/feet)	Minimum Moment of Inertia of Wall Section (into the 4th/inch)
12	1.50	0.024
15	1.91	0.053
18	2.34	0.062
24	3.14	0.116
30	3.92	0.163
36	4.50	0.222
42	4.69	0.543
48	5.15	0.543

2.2 MISCELLANEOUS MATERIALS

2.2.1 Joints

2.2.1.1 Smooth Wall HDPE Plastic Pipe

Pipe shall be joined using bell ends or butt fusion method as recommended by the pipe manufacturer.

2.2.1.2 Corrugated HDPE Plastic Pipe

Water tight joints shall be made using a PE coupling and rubber gaskets as recommended by the pipe manufacturer. Rubber gaskets shall conform to ASTM F 477. Soil tight joints shall conform to the requirements in AASHTO HB-17, Division II, Section 26.4.2.4. (e) for soil tightness and shall be as recommended by the pipe manufacturer.

2.3 EROSION CONTROL RIPRAP

Provide nonerodible rock not exceeding 15 inches in its greatest dimension with a minimum diameter of 8 inches and choked with sufficient small rocks to provide a dense mass.

2.4 ROCK OUTFALL TO DRAINAGE DITCH Provide 3/4-inch rock (gravel), angular (per ASTM D 2488) for drainage channels.

2.5 ROCK-LINED DITCH

Provide non-erodible rock not exceeding 15 inches in its greatest dimension, with a minimum diameter of 8 inches for rock-lined ditches.

2.6 GEOTEXTILE

For lining drainage channels and separating soil from rock, provide an 8 oz. nonwoven polypropylene geotextile with an ultimate grab tensile strength of at least 200 pounds.

PART 3 EXECUTION

3.1 EXCAVATION FOR PIPE CULVERTS, STORM DRAINS, AND DRAINAGE STRUCTURES

Excavation of trenches, and for appurtenances and backfilling for culverts and storm drains, shall be in accordance with the applicable portions of Section 31 00 00 Earthwork and the requirements specified below.

3.2 BEDDING

The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe.

3.3 PLACING PIPE

Each pipe shall be thoroughly examined before being laid; defective or damaged pipe shall not be used. Plastic pipe shall be protected from exposure to direct sunlight prior to laying, if necessary to maintain adequate pipe stiffness and meet installation deflection requirements. Pipelines shall be laid to the grades and alignment indicated. Proper facilities shall be provided for lowering sections of pipe into trenches. Lifting lugs in vertically elongated metal pipe shall be placed in the same vertical plane as the major axis of the pipe. Pipe shall not be laid in water, and pipe shall not be laid when trench conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary.

3.3.1 Smooth HDPE Pipe

If bell-end pipe is used, laying shall proceed upgrade with spigot ends of bell-and-spigot pipe and tongue ends of tongue-and-groove pipe pointing in the direction of the flow.

3.3.2 Corrugated HDPE Pipe

Laying shall be with the separate sections joined firmly on a bed shaped to line and grade and shall follow manufacturer's recommendations.

3.4 BACKFILLING

3.4.1 Backfilling Pipe in Trenches

After the pipe has been properly bedded, selected material from excavation or borrow, at a moisture content that will facilitate compaction, shall be placed along both sides of pipe in layers not exceeding 6 inches in compacted depth. The backfill shall be brought up evenly on both sides of pipe for the full length of pipe. The fill shall be thoroughly compacted under the haunches of the pipe. Each layer shall be thoroughly compacted with mechanical tampers or rammers. This method of filling and compacting shall continue until the fill has reached an elevation of at least 12 inches above the top of the pipe. The remainder of the trench shall be backfilled and compacted by spreading and rolling or compacted by mechanical rammers or tampers in layers not exceeding 8 inches. Tests for density shall be made as necessary to ensure conformance to the compaction requirements specified below.

3.4.2 Backfilling Pipe in Fill Sections

For pipe placed in fill sections, backfill material and the placement and compaction procedures shall be as specified below. The fill material shall be uniformly spread in

layers longitudinally on both sides of the pipe, not exceeding 6 inches in compacted depth, and shall be compacted by rolling parallel with pipe or by mechanical tamping or ramming. Prior to commencing normal filling operations, the crown width of the fill at a height of 12 inches above the top of the pipe shall extend a distance of not less than twice the outside pipe diameter on each side of the pipe or 12 feet, whichever is less. After the backfill has reached at least 12 inches above the top of the pipe, the remainder of the fill shall be placed and thoroughly compacted in layers not exceeding 8 inches.

3.4.3 Backfilling Pipe in Drainage Channels

For pipe placed in drainage channels, backfill material and placement and compaction procedures shall be as specified below. The fill material shall be uniformly spread in layers longitudinally on both sides of the pipe with care, not exceeding 6 inches in compacted depth. Prior to commencing normal filling operations, the crown width of the fill at a height of 12 inches above the top of the pipe shall extend a distance of not less than twice the outside pipe diameter on each side of the pipe or 12 feet, whichever is less. After the backfill has reached at least 12 inches above the top of the pipe, the remainder of the fill shall be placed.

3.4.4 Movement of Construction Machinery

When compacting by rolling or operating heavy equipment parallel with the pipe, displacement of or injury to the pipe shall be avoided. Movement of construction machinery over a culvert or storm drain at any stage of construction shall be at the Contractor's risk. Any damaged pipe shall be repaired or replaced by the Contractor.

3.4.5 Compaction

3.4.5.1 Minimum Density

Backfill over and around the pipe and backfill around and adjacent to drainage structures shall be compacted at the approved moisture content to the following applicable minimum density, which will be determined as specified below.

- a. Under unpaved or turfed traffic areas, density shall not be less than 90 percent of maximum density as determined by ASTM D1557 for cohesive material and 95 percent of maximum density as determined by ASTM D1557 for cohesionless material.
- b. Under nontraffic areas, density shall be not less than that of the surrounding material.

3.4.6 Determination of Density

Testing is the responsibility of the Contractor. Testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. Tests shall be performed in sufficient number to ensure that specified density is being obtained. Laboratory tests for moisture-density relations shall be made in accordance

with ASTM D 1557 except that mechanical tampers may be used provided the results are correlated with those obtained with the specified hand tamper. Field density tests shall be determined in accordance with ASTM D 6938. Test results shall be furnished the Government.

3.4.7 Geotextile Installation and Testing

During installation and seaming of the geotextile, the material will be inspected for defects and damage. Depending on the extent of the defect or damage, the panel may be repaired or rejected. Repairs shall be made in accordance with manufacturer's recommended procedures. Testing is the responsibility of the Contractor. Perform a geotextile conformance test samples for every 100,000 square feet and a minimum of one per batch or lot of material delivered to the site. Conformance tests include:

- Grab strength (ASTM D 4632)
- Mass per unit area (ASTM D 5261)
- Puncture resistance (ASTM D 4833)
- Trapezoidal tear strength (ASTM D 4533)
- Permittivity (ASTM D 4491)
- Apparent opening size (ASTM D4751)

END OF SECTION

SECTION 33 40 01
CONSTRUCTION DRAINAGE AND EROSION CONTROLS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 6461 Standard Specification for Silt Fence Materials

ASTM D 6462 Standard Practice for Silt Fence Installation

1.2 SUBMITTALS

Submit the following in accordance with [Section 01 33 00 Submittal Procedures](#).

1.2.1 SD-03, Product Data

a. Silt Fence Filter Fabric

b. Erosion Control Wattles

1.2.2 SD-07, Certificates

a. Certification that Erosion Control Wattles 100 percent organic fiber and weed free.

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery and Storage

Inspect materials delivered to site for damage; store with minimum of handling. Do not store materials directly on the ground.

1.3.2 Handling

Handle materials in a manner to ensure delivery to the point of installation in sound undamaged condition.

PART 2 PRODUCTS

2.1 SILT FENCE

The silt fence materials used during construction shall conform to ASTM D 6461.

2.2 EROSION CONTROL WATTLES

The erosion control wattles used during construction are designed to filter overland runoff and capture sediment. Wattles shall be manufactured from 100 percent organic fiber and certified weed free and shall be from 8 to 12 inch in diameter and about 25 feet in length.

PART 3 EXECUTION

3.1 SEDIMENT CONTROL SYSTEM

All sediment control system components shall be placed in accordance with manufacturer's instructions. Installation of the silt fence shall conform to ASTM D 6462-99.

3.1.1 Silt Fence Installation

Extend silt fences a minimum of 16 inches above the ground surface without exceeding 34 inches above the ground surface. Provide filter fabric from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, splice together filter fabric at a support post, with a minimum 6-inch overlap, and securely sealed. Excavate trench approximately 4 inches wide and 4 inches deep on the upslope side of the location of the silt fence. The 4-by-4-inch trench shall be backfilled and the soil compacted over the filter fabric.

3.1.1 Erosion Control Wattle Installation

A small trench, 2 to 3 inches deep, shall be excavated on the slope contour and perpendicular to water flow. Wattles shall be installed in the trench, insuring that no gaps exist between the soil and the bottom of the wattle. The ends of adjacent Wattles shall be tightly abutted so that no opening exists for water or sediment to pass through. Alternately, wattles may be lapped, 6 inches minimum to prevent sediment passing through the field joint. Wooden stakes shall be used to fasten the wattles to the soil. Wooden stakes shall be placed 6 inches from the wattle end and spaced at 4 feet leaving less than 1 to 2 inches of stake exposed above the wattle.

END OF SECTION