

CONSTRUCTION AGREEMENT

for construction of

FINAL COVER 13.6-ACRE CLASS III OLD LANDFILL AREA UNION MINE DISPOSAL SITE

This Public Works Contract #032-PW-06/07-BOS, made and entered into this 22nd day of May, 2007, by and between the County of El Dorado, a political subdivision of the State of California, hereinafter referred to as "Owner" or "County" acting by and through County Service Area as defined by Government Code Sections 25210 et seq., and RJ Gordon Construction, Incorporated, a corporation duly qualified to conduct business in the State of California, whose principal place of business is 2086 Monument Blvd., Pleasant Hill, California 94523, 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 Owner and the Contractor shall consist of the following Contract 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. 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 complete the construction of the Final Cover of the 13.6-Acre Class III Old Landfill Area at Union Mine Disposal Site and in strict accordance with the Contract Documents. The Work does not include the purchase and installation of the linear low density polyethylene (LLDPE) and the geocomposite drainage net and does not include supplying 22,000 yards of vegetative cover (dirt), which are under separate Contracts. All such Work shall be completed in a good and workmanlike manner.

Article 3

TIME FOR COMPLETION

3.1 For the purpose of determining the Contract completion date, the date of commencement shall be 5 calendar days after the date of written Notice to Proceed, 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 60 calendar days from the date of commencement.

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 therefor, the Owner agrees to pay and cause to be paid to the Contractor the Contract Sums: Three Hundred Ninety Nine Thousand Six Hundred Seventy Five Dollars and No/100 (\$399,675.00), 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 Owner and the Contractor. The form shall be approved by the Owner.

5.2 Progress Payments shall be made once each month, on or about a date to be determined by the Owner. 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 Owner with a release of all claims against the Owner 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 Owner 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 Inspector; such final payment shall be made by the Owner not more than 35 days after the recording of the Notice of Completion.

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 Owner 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 60 days as herein provided, for reasons or causes other than

those provided for in the Contract Documents hereof, the Owner 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 Owner 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 Owner or the Contractor as provided in Article 10 of the General Conditions.

8.2 The Work may be suspended by the Owner 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, Interim 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 Owner 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 _____
Helen Baumann, Chairman
Board of Supervisors

By _____
CONTRACTOR

ATTEST:

Cindy Keck, 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.

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GENERAL CONDITIONS

Article 1 GENERAL PROVISIONS

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1.1.1 Owner: The County of El Dorado is the Owner 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 County of El Dorado acting by and through its designated representative.

1.1.2 Owner'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 what ever 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 Owner 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 Owner directing a change in the Work and stating a proposed basis for adjustment, if any, of Contract Time or Sum. The Owner 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 Owner and Contractor.

1.1.11 Change Order: A Change Directive prepared by the Inspector and signed by the Owner 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 Owner 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 Owner'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 Owner 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 Owner.

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 Owner 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 Owner tenders Final Payment to the Contractor, without further acknowledgment by the parties.
2. In submitting a bid to Owner the bidder offers and agrees that if bid is accepted, it will assign to Owner 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 Owner pursuant to the bid. Such assignment

shall be made and become effective at the time the Owner 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 Owner, 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 Owner, after notice, such Contractor shall be responsible for cost attributable to his methods and techniques.

Article 2 OWNER

2.1 OWNER'S REPRESENTATIVE

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

2.1.2 Owner May Appoint Inspector: Owner 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 Owner.

2.1.3 Communication: In order that the Owner may act upon expert advice and upon good procedure, all communications from the Contractor will be through said Owner's Representative, or Inspector if one is appointed, and all communications and instructions from the Owner to the Contractor will be so routed. The Owner 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 Owner.

2.2 RIGHTS OF OWNER

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 Owner 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 Owner to be not of sufficient magnitude or importance so as to make the Work unacceptable, then Owner 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, Owner does not by this section, waive any other rights provided for herein.

2.2.3 Right to do Adjacent Work: The Owner reserves the right to perform construction or operations on the site of the Work. In doing this Owner 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 Owner has the right, exercisable solely at Owner's discretion, to commence and continue completion of the Work with diligence and promptness.

2.2.5 Right of Partial Use of Project: The Owner may occupy or use any completed or partially completed portion of the Work at any stage, upon agreement of Owner and Contractor.

1. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents.
2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld.
3. Immediately prior to such partial occupancy or use, the Owner and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.
4. Unless otherwise agreed upon in writing, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of work not complying with the requirements of the Contract Documents.
5. No claim for acceleration, delay, or hinderance, may be made by Contractor on his own behalf or that of any of his subcontractors, for any delays, accelerations, or hindrances that may arise out of Owner's partial occupancy of the Project.

2.2.6 Right to Audit: The Contractor shall maintain and make available to Owner 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 Owner. These books, papers, records, claims, and accounts shall be made available for examination during normal business hours by Owner and Owner's representative and shall be retained at Contractor's 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 Owner and Owner's representative to conduct such audit.

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 Owner, 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 Owner 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 Owner 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 Owner'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 Owner'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 Owner. 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.

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 50 calendar days 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 50 days shall subject such request for substitution to automatic denial.

3.4.2 Excessive Submittal Reviews: The cost of reviewing submittals shall be the Owner'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 Owner, \$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 Owner 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 603, San Francisco, CA 94101 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.
5. 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.

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 Owner, 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 Owner, 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

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 Owner 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 Owner harmless from any charges whatsoever which may arise, and shall furnish written assurance, satisfactory to the Owner, 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. Owner 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, Owner 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 coguarantor of such equipment and materials, and Contractor shall supply Owner 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 Owner 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 Owner Not Liable for Damages: The Owner 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 Owner 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 Owner, its officers, agents and employees.

3.10.2 Owner Not Liable for Debts: Indebtedness incurred for any cause in connection with this Work must be paid by the Contractor, and the Owner 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 Owner might be held liable.

3.10.4 Indemnity: 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 Owner 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 Owner, 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 Owner or the Owner'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 Owner 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 its 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 Owner 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 Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner 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 Owner 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 Owner 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 Owner 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.

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 Owner's Representative or the Inspector, if one is appointed. 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 Owner's Representative or the Inspector, if one is appointed.

4.1.2 Control of Work: The Owner'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 Owner'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 Owner'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 his or her observations and evaluations of the Contractor's Applications for Payment, the Owner's Representative or the Inspector, if one is appointed, will review amounts due the Contractor and will recommend to Owner, payments to Contractor as set forth in the section 6.4.

4.1.4 Inspector's Authority: The 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

4.2.1 Advance Notice: Contractor shall notify Owner'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 Owner, or Inspector.

4.2.2 Access to Work: The Owner'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 Owner 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.

4.2.4 Preparation of Change Directives/Orders: The Owner'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.

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 Owner 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 Owner 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 Owner 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 Owner shall not be liable for any damages on account of any reasonable delay or hinderance of the Owner. However, Contractor shall be entitled to an extension of time for any delay or hinderance caused by the Owner. Any delay or hinderance by Owner which is unreasonable and not within the contemplation of the parties may subject Owner 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 hinderance caused by Owner, 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 Owner's Representative who shall issue a written decision on the dispute. Claims shall be submitted by the Contractor to the Owner's Representative with adequate supporting data and include a demand for the Owner'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 Owner 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 Owner and the Contractor, the Contractor will not stop Work but will prosecute the work diligently to

completion in the manner directed by the Owner, 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 Owner's Review of Claim: The Owner'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 Owner'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 Owner 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 Owner 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 Owner and claimant. The Owner'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 Owner 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 Owner 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 Owner and the claimant. The Owner'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 Owner's written response, or the Owner fails to respond within the time prescribed, the claimant may so notify the Owner, in writing, either within 15 days of receipt of the Owner's response or within 15 days of the Owner'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 Owner 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 Owner.
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 Owner 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 Owner of undisputed portion of claim; interest on arbitration award or judgment.

1. Owner 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 Owner 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 Owner 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

5.2.1 Owner May Order Changes in Work: The Contractor agrees that the Owner, 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 Owner for a quotation on the change to the Work, the Contractor shall promptly submit to Owner'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 Owner'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, Owner may prepare the Cost Proposal based on estimates of labor, materials, and equipment. This proposal, prepared by Owner, shall be binding on the Contractor, will become the basis for Contract Price adjustment, and shall not be subject to dispute or claim.

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 Owner'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 Owner 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 Owner 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 Owner 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 Owner.

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 Owner 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 Owner. 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

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 Owner, 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 Owner 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 Owner for performance by the Contractor shall not operate as a waiver or stop the Owner from claiming damages due to any other delays, prior or subsequent, which were not approved by the Inspector and the Owner 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 Owner to the Contractor for performance of the Work under the Contract Documents.

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

6.1.3 Manner of Paying Warrants: Payment 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 Owner, 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 Owner business.

6.2 APPLICATIONS FOR PAYMENT

6.2.1 Submittal of Applications: Every seven (7) days, the Contractor shall submit to the Owner'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 Owner 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 set forth on Exhibits A and B. 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 Owner 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 Owner'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 Owner a Certification for Payment, with a copy to the Contractor, for such amount as determined to be properly due, or notify the Contractor and Owner 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 Owner, 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 Owner 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 Owner.
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 Owner 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

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 Owner 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 Owner, 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 Owner will promptly make such inspection and, when the Owner's Representative, or the Inspector, if one is appointed, finds the work acceptable under the Contract Documents and the Contract fully performed, the Owner's Representative, or the Owner's Representative or Inspector, if one is appointed, will promptly recommend to Owner that Owner 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 Owner, 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 Owner, 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 Owner. 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 Owner's Property: The Contractor shall be entirely responsible for any damage to the property of the Owner 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 Owner 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 Owner or by a registered civil or structural engineer, employed by the Owner, 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 Owner, 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 Owner 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 Owner in all policies, all of which shall be open to the Owner's inspection. Certificates of such insurance shall be filed with the Owner. If the Contractor fails to effect or maintain insurance as above and so notifies the

Owner, the Owner may insure its own interest and that of the subcontractors and charge the cost thereof to the Contractor. If the Owner is damaged by failure of the Contractor to maintain such insurance or to so notify the Owner, the Owner 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.
- 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 Owner. 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 Owner 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 Owner 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 Owner.

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 Owner 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 Owner'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 Owner'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 Owner 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 Owner 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 Owner may remove such Work and store the materials at the expense of the Contractor. Owner 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 Owner 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 Owner shall give such notice promptly after discovery of the condition.

Article 10

TERMINATION OR SUSPENSION OF CONTRACT

10.1 TERMINATION BY OWNER FOR CONVENIENCE

10.1.1 Right to Terminate: The Owner reserves the right to terminate the Contract at any time upon determination by the Owner's Representative that termination of the Contract is in the best interest of the Owner. Owner 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 Owner, and clean up the site.

10.1.3 Payment for Work: If the Contract is terminated for Owner's convenience as provided herein, all finished or unfinished work and materials previously paid for shall, at the option of Owner, 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 Owner, and without profit, for all work performed to secure the project for termination.

10.2 TERMINATION BY OWNER 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 Owner's Representative, or the Inspector, if one is appointed, or otherwise violates any provision of the Contract Documents, then the Owner 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 Owner 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 Owner 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 Owner'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 Owner may exclude it from the premises and take possession of all material and equipment, and complete the Work by Owner's forces, by letting the unfinished Work to another Contractor, or by a combination of such methods.

10.2.3 Owner's Rights After Termination: Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any right of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies by the Owner 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 Owner 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 Owner.
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 Owner 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 Owner 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 Owner 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 Owner May Suspend: The Owner 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.

* * * * *

SUPPLEMENTARY CONDITIONS

January 27, 2007

Article 1 GENERAL PROVISIONS

No changes to the General Conditions in this Article.

Article 2 OWNER

No changes to the General Conditions in this article.

Article 3 CONTRACTOR'S RESPONSIBILITIES

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 Owner'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 Owner'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 Owner. Float, of all types whether for the entire Project or for specific tasks, is for the benefit of Owner and may be used by Owner without penalty.

3.16 SURVEYS AND STAKING

3.16.1 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 Owner. 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 Owner 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 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 Owner 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 The Contractor shall afford the Owner 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 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner 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 Owner'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 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors as provided in the Contract Drawings.

3.19.4 The Owner 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 TRAFFIC CONTROL

3.20.1 The west side of the project is bounded by Union Mine Road. It is not anticipated that the work activities associated with this project will result in the need for traffic controls along this or any other segment of roadway. It is the responsibility of the Contractor to assure that both lanes of Union Mine Road are kept open and free of mud, soil or blowing dust particles caused by their construction activities. The Contractor will be required to place construction zone signs along this segment of Union Mine Road.

At a minimum, these signs shall consist of a sign that identifies the beginning and the end of construction. The sign configuration and standards shall conform to the State of California Standard Specifications and shall be placed in those locations as identified by the Engineer.

Payment for Traffic Control shall be considered as included in the various items of work and no additional compensation will be allowed therefor. This shall include, but not be limited to, all equipment, labor, materials and incidentals associated with this item of work.

3.21 MOBILIZATION

3.21.1 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.

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

3.22 NOTICE OF DISCOVERY OF HAZARDOUS WASTE OR UNUSUAL CONDITIONS

The contractor shall promptly, and before the following conditions are disturbed, notify the Owner/County, in writing, of any:

3.22.1 Material that the contractor believes may be material that is 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.

Subsurface or latent physical conditions at the site differing from those indicated by information about the site made available to bidders prior to the deadline for submitting bids.

3.22.2 Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract.

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

In the event that a dispute arises between the Owner/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 by 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 contracting parties.

Article 4
ADMINISTRATION OF CONTRACT

No changes to the General Conditions in this article.

Article 5
CHANGES IN WORK

No changes to the General Conditions in this Article.

Article 6
PAYMENT AND COMPLETION

No changes to the General Conditions in this Article.

Article 7
PROTECTION OF PERSONS AND PROPERTY

No changes to General Conditions in this Article.

Article 8
INSURANCE AND BONDS

No changes to the General Conditions in this Article.

Article 9
UNCOVERING AND CORRECTION OF WORK

No changes to the General Conditions in this article.

Article 10
MISCELLANEOUS PROVISIONS

No changes to the General Conditions in this article.

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TABLE OF CONTENTS

PART 3 - SPECIFICATIONS

- 01050 Field Surveys and Control
- 02110 Clearing, Grubbing and Stripping
- 02200 Earthwork
- 02232 Preparation of Subgrade
Legal

Please Note: The following sections have been included for informational purposes only. The work specific to the following sections will be completed under separate contract.

- 02775 LLDPE Geomembrane Liner (NOT USED)
- 02777 Geocomposite Drainage Net (NOT USED)
- 02288 Vegetative Cover Material (NOT USED)

SECTION 01050
FIELD SURVEYS AND CONTROL

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. General requirements for survey work to be performed by the Contractor for layout of work features, for performance of work, and for field measurements of work quantities for payment purposes.
- B. Separate measurement of Surveys will not be performed for Work under this Section.
- C. Separate payment will not be made for Surveys performed under this Section. All costs shall be included in the unit prices for the various items of work and no additional compensation will be allowed therefor.

1.2 RELATED SECTIONS

- A. Section 02110 - Clearing and Grubbing
- B. Section 02200 - Earthwork

1.3 SUBMITTALS

- A. Contractor shall submit name, address, telephone number, and L.S. No. of Land Surveyor before starting survey work.
- B. On request, the Contractor shall submit documentation verifying accuracy of survey work.
- C. Contractor shall submit a copy of registered site drawing, original field notebooks, and certificate signed by the Land Surveyor, that the elevations and locations of the Work are in conformance with Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 QUALITY CONTROL

- A. Contractor shall employ a Land Surveyor registered in the State of California and acceptable to County/Engineer.
- B. Contractor's instruments and other survey equipment shall be accurate, suitable for the surveys required in accordance with recognized professional standards, and in proper condition, adjustment, and calibration at all times.
- C. Control traverse field surveys and computations shall be performed to an accuracy of at least 1:25,000.
- D. The tolerances in setting survey stakes, project bench marks, construction control markers, and other survey markers shall be as specified below. Such tolerances shall not supersede stricter tolerances required by the Drawings or Specifications and shall not otherwise relieve the Contractor of responsibility for measurements in compliance therewith.

<u>Type of Line or Mark</u>	<u>Horizontal Position</u>	<u>Elevation</u>
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Project bench marks	1 in 10,000	± 0.01 ft.
Construction control markers		

Survey Stakes	1 in 2,000	± 0.1 ft.
General excavation		
All earthwork		

- E. Contractor shall record surveys in duplicate page, prenumbered field notebooks. A duplicate notebook shall be maintained by the Contractor. A copy of the pages from the original field notebook shall be provided to the County/Engineer within 2 working days after the completion of each survey. The original field notebook shall be furnished to the County/Engineer when filled and at completion of the project. The duplicate of each field notebook may be furnished to the County/Engineer or retained by the Contractor.

3.2 PROJECT RECORD DOCUMENTS

- A. Contractor shall maintain a complete and accurate log of control and survey work as it progresses.
- B. On completion of project, Contractor shall prepare a certified survey illustrating dimensions, locations, coordinates, bearings, angles and elevations of all site work.

3.3 EXAMINATION

- A. Contractor shall verify locations of construction control points prior to starting work.
- B. Contractor shall promptly notify County/Engineer of any discrepancies discovered.

3.4 SURVEY REFERENCE POINTS

- A. Contractor shall locate and protect construction control and reference points.
- B. Control datum for survey is identical to that of Drawings.
- C. Contractor shall protect construction control points prior to starting site work; preserve permanent reference points during construction.
- D. Contractor shall promptly report to County/Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Contractor shall replace dislocated construction control points, project bench marks, or permanent survey monuments based on original survey control. If displaced by the Contractor, replacement of these construction control points will be at the expense of the Contractor. Make no changes without prior written notice to County/Engineer.

3.5 SURVEY REQUIREMENT

- A. Contractor shall perform all surveys for layout and performance of the work, reduce the field notes, make necessary calculations, and prepare drawings necessary to carry out such work.
- B. Contractor shall establish a minimum of two project bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on Project Record Documents.
- C. Contractor shall establish a site control grid system with survey stakes placed at 100 foot grid increments.
- D. County/Engineer reserves the right to perform any desired checking and correction of the Contractor's surveys, however this shall not relieve the Contractor of the responsibility for adequate performance of the Work.

- E. County/Engineer may, at any time, use line and grade points and markers established by the Contractor. The Contractor's surveys are a part of the Work and may be checked by the County/Engineer or representatives of the County/Engineer at any time. The Contractor shall be responsible for (1) any lines, grades, or measurements which do not comply with specified or proper tolerances, or which are otherwise defective, and (2) for any resultant defects in the Work. The Contractor will be required to conduct additional surveys to verify and correct errors indicated by review of the field notebooks or otherwise detected.

3.6 SURVEYS FOR MEASUREMENT FOR PAYMENT

- A. When the Specifications or the County/Engineer require Bid Schedule items of work to be measured by surveying methods, the Contractor shall perform the surveys. Notify County/Engineer prior to starting work. the Contractor will reduce the field notes and calculate final quantities for payment purposes. A duplicate of the note reductions and calculations shall be provided to the County/Engineer.
- B. Contractor's Land Surveyor shall stamp and sign surveyor's field notes and shall calculate and certify quantities for payment purposes.

**SECTION 02110
CLEARING, GRUBBING AND STRIPPING**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. This section covers the work necessary to remove all interfering or objectionable material from the designated areas of work as shown on the Construction Drawings or designated in the Specifications.
- B. This work shall also include the preservation from injury or defacement of all vegetation and existing objects outside the limit of disturbance, as shown or as specified herein.
- C. Review with the CQA Officer the location, limits, and methods to be used prior to commencing the work under this section.
- D. Attention is directed to the prior mining activity at the project site. The Contractor should use extreme caution and provide adequate worker protection when working around any of the tunnels or stopes. The tunnels and stopes identified on the plans are based on record information and field surveys conducted at the site. Other tunnels, stopes, or major depressions may exist at the site and are not readily identifiable on the surface. Should these discoveries be made, it is the responsibility of the Contractor to stop work in that area and contact the CQA Officer immediately. The CQA Officer will observe the findings and provide the Contractor with further direction.
- E. All work performed under this section will be paid at the contract lump sum price for Clearing and Grubbing. This shall include all labor, materials, equipment and incidentals associated with this item of work and no additional compensation will be allowed therefor.

PART 2 PRODUCTS

2.1 GENERAL

- A. Provide all materials, suitable and in adequate quantity, required to accomplish the work as specified herein.

2.2 CLEARING AND GRUBBING

- A. Definition: Clearing shall consist of cutting, removing, and disposing of trees, snags, stumps, shrubs, brush, limbs, and other vegetative growth, and shall be performed in such a manner as to remove all evidence of their presence from the surface and shall be inclusive of sticks and branches greater the 2 inches in

diameter or thickness. Clearing shall also include the removal and disposal of trash piles, rubbish, concrete footings and/or foundations, automotive debris, and fencing; and the preservation of trees, shrubs, and vegetative growth which are not designated for removal.

- B. Definition: Grubbing shall consist of the removal and disposal of wood or root matter below the ground surface remaining after clearing and shall include stumps, trunks, roots, or root systems greater than 2 inches in diameter or thickness to a depth of 6 inches below the ground surface.
- C. All fill and borrow areas will be cleared and grubbed. These areas will be cleared and grubbed in stages so that no more clearing and grubbing is done than necessary.

2.3 PRESERVATION

- A. Protect trees, shrubbery, and other vegetation not designated for removal from damage resulting from the work. Cut and remove tree branches only where, in the opinion of the CQA Officer, such cutting is necessary to effect construction.

2.4 DISPOSAL OF CLEARING AND GRUBBING DEBRIS

- A. All vegetation removed in this activity, excluding refuse and concrete, shall be either stockpiled and/or disposed of in the active portion of the landfill. The onsite stockpile locations shall be identified by the Engineer. The disposal fees associated with the vegetative materials shall be the sole responsibility of the Owner.
- B. All reuse and miscellaneous debris, encountered in the clearing and grubbing activity, shall be properly disposed in the active portion of the landfill. The costs associated with hauling said material to the active portion of the landfill shall be the sole responsibility of the Contractor. The disposal fees associated with these materials shall be the sole responsibility of the Owner.

2.5 STRIPPING

- A. Definition: Stripping shall include the removal and disposal of all organic sod, topsoil, grass and grass roots, and other objectionable material remaining after clearing and grubbing from the areas designated by the CQA Officer.
- B. Areas to be Stripped:

1. All cut or borrow areas shall be stripped as specified. Do not mix strippings with excavation. Borrow areas shall be stripped in stages so that no more stripping is done than necessary.
- C. Disposal of Strippings: Topsoil from the strippings shall be stockpiled and used for the finished site grading. Excess topsoil shall be placed in designated areas as directed by the CQA Officer.

PART 3 EXECUTION (Not Used)

**SECTION 02200
EARTHWORK**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. This section covers the earthwork necessary to construct the landfill liner system and landfill base grading, complete. Earthwork for embankment fills shall be performed in accordance with the latest edition of the Caltrans Standard Specifications, except as modified herein.
- B. The work shall consist of performing all operations necessary to excavate materials and construct earthfill embankments, regardless of character and subsurface conditions, from the landfill or adjacent thereto. This would include, but not limited to, construction of foundations, excavation of trenches for culverts or other facilities, excavation of drainage channels, construction of embankments, placement of backfill around structures, culverts, backfilling trenches and other depressions, the removal of unstable material and that miscellaneous work required for the excavation and placement of earthen materials within the landfill or adjacent thereto.
- C. Payment for grading shall be at the contract unit price under Excavation (\$/square foot) delineated in the Bid Schedule of the Proposal and no additional compensation will be allowed therefor.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. The following sections in these specifications describe work closely related to this section; all work performed by the Contractor shall be in accordance with these related Specifications:

Section	Item
Clearing, Grubbing, and Stripping Preparation of Subgrade	Clearing and Grubbing Subgrade Preparation for Geomembrane

1.3 DEFINITIONS

- A. CQA Officer: Consulting engineering, surveying, and/or testing firm(s) providing subsurface soil investigations, soil testing laboratory, monitoring of earthwork construction, construction surveillance, and surveying services technically accountable to El Dorado County; responsible for certification of construction according to the specifications outlined herein.

- B. Design Engineer: The Design Engineer shall be the technical or onsite representative of the Owner.
- C. Quality Assurance Plan: Refers to a program of activities which will provide adequate confidence that materials and workmanship meet the requirements of the Contract and fulfill the projects objectives. Quality Assurance includes quality control tests and procedures.
- D. Quality Control: Refers to those activities which ensure that material and workmanship have met the requirements of the Contract Documents.
- E. Atterberg Limits: The liquid limit, plastic limit, and shrinkage limit for soils (ASTM D4318). The water content when the soil behavior changes from the liquid to the plastic state is the liquid limit; from the plastic to the semi-solid state is the plastic limit; and from the semi-solid to the solid state is the shrinkage limit.
- F. Classification System: See Unified Soil Classification (ASTM D2487).
- G. Compaction: The process of increasing the density or unit weight of soil by rolling, tamping, vibrating, or other mechanical means.
- H. Compactor Pass: A pass is defined as one trip of the compacting equipment over the life back to the starting point by a single drum roller or one trip[across the life surface from one side to the other if the compacting equipment has front and back compacting rollers.
- I. Completed Course: A course or layer that is ready for the next layer or next phase of work.
- J. Density: Mass density of a soil is its weight per unit volume; usually reported in pounds per cubic foot.
- K. Embankment: The material required to raise the existing grade in project areas.
- L. Geomembrane: An essentially impermeable synthetic membrane used as a solid or liquid barrier. Synonymous term for flexible membrane liner (FML).
- M. Geonet: A geosynthetic consisting of integrally connected parallel sets of ribs overlying similar sets at various angles for planar drainage of liquids or gases.
- N. Geotextile: A relatively porous construction of reinforcement fabric used in civil engineering for projects. The fabric's structure may be knit, woven, nonwoven (spun-bonded, etc.,) mat, or net. Drainage geotextile is used for planar flow and filter geotextile is used for separation of materials of different grain sizes but allows flow of liquid.
- O. Grain Size: Determined by ASTM D422.
- P. Imported Material: Material obtained by the Contractor from sources off the site.

- Q. In-Situ Permeability: The permeability determined on the natural clay liner using a sealed double-ring infiltrometer (SDRI), ASTM D5093 or other approved methods.
- R. Laboratory Permeability: As described in Paragraph 3.4B, LABORATORY PERMEABILITY TESTING, ASTM D5084.
- S. Local Borrow: Material excavated on the site or taken from designated borrow areas on or near the site.
- T. Moisture Content: Ratio of quantity of water in the soil (by weight) to the weight of the soil solids (dry soil), expressed in percentage; also referred to as water content.
- U. Natural Clay: A fine-grained material having a low permeability that is obtained from borrow areas and used as a soil liner without the addition of admixtures.
- V. Optimum Moisture Content (OMC): Moisture content corresponding to maximum dry density as determined in the modified Proctor test (ASTM D1557).
- W. Permeability: Ability of pore fluid to travel through a soil mass via interconnected voids. "High" permeability indicates relatively rapid flow, and vice versa. Rates of permeability are generally reported in centimeters per second.
- X. Plasticity: Ability of soil mass to flow or be remolded without raveling or breaking apart.
- Y. Plasticity Index: A comparative number which describes the range of moisture contents over which a soil behavior is plastic. The plasticity index is numerically equal to the difference between the liquid and plastic limit.
- Z. Prepared Ground Surface: The ground surface after clearing, grubbing, stripping, excavation, and scarification and/or compaction.
- AA. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D15578. Corrections for oversize material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the CQA Officer.
- BB. Selected Material: Material available onsite that the CQA Officer determines to be suitable for a specific use.
- CC. Sieve (200 Mesh): Refers to soil particle size passing (smaller than or equal to) the U.S. Sieve No. 200 (ASTM Specification D1140-54) which includes a 75 micrometer (.00295 inch) opening.
- DD. Unclassified: The nature of materials to be encountered has not been identified or described herein.

EE. Well Graded: A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes. Well-graded does not define any numerical value that must be placed on the coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters. Well-graded is used to define a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.

1.4 SUBMITTALS

A. Provide the following submittals:

1. Certification, test results, source, and samples for all imported material.
2. Catalog and manufacturer's data sheets for compaction equipment.
3. Copies of permits obtained for excavation, blasting, etc., that are required by state and local governing authorities.

1.5 IMPORTED MATERIAL ACCEPTANCE

A. All imported materials specified in this section are subject to the following requirements:

1. All tests necessary for the Contractor to locate an acceptable source of imported material shall be made by the Contractor. Certification that the material conforms to the Specification requirements along with copies of the test results from a qualified commercial testing laboratory shall be submitted to the CQA Officer for approval at least 10 days before the material is required for use. All material samples shall be furnished by the Contractor at the Contractor's sole expense. Samples shall be representative and be clearly marked to show the source of the material and the intended use on the project. Sampling of the material source shall be done by the Contractor in accordance with ASTM D75. No imported materials shall be delivered to the site until the proposed source and materials tests have been tentatively accepted in writing by the CQA Officer. Final acceptance will be based on tests made on samples of material taken from the completed and compacted course. All testing for final acceptance shall be performed by the CQA Officer.
2. Gradation tests by the Contractor shall be made on samples taken at the place of production prior to shipment. Samples of the finished product for gradation testing shall be taken from each 1,500 tons of prepared materials or more often as determined by the CQA Officer, if variation in gradation is occurring, or if the material appears to depart from the Specifications. Test results shall be forwarded to the CQA Officer within 48 hours after sampling.
3. If tests conducted by the Contractor or the CQA Officer indicate that the material does not meet Specification requirements, material placement will be terminated until corrective measures are taken. Material which does not conform to the Specification requirements and is placed in the work shall be removed and replaced at the Contractor's sole expense. Sampling and testing performed by the Contractor shall be done at the Contractor's sole expense.

1.6 SAFETY

- A. The Contractor shall be solely responsible for performing all earthwork in a safe manner. Provide appropriate measures to retain excavation sideslopes and prevent rock falls to ensure that persons working in or near the excavation are protected.
- B. Contractors shall familiarize themselves with, and comply with, all applicable codes, ordinances, statutes, and bear sole responsibility for the penalties imposed for noncompliance.
- C. Install and maintain shoring, sheeting, bracing, and sloping necessary to support the sides of excavations, to keep and to prevent any movement which may damage adjacent facilities or endanger life and health. Install and maintain shoring, sheeting, bracing, and sloping as required by OSHA and other applicable governmental regulations and agencies.

1.7 STANDARD SPECIFICATIONS

- A. Standard Specifications, when referenced in this section, shall mean the latest edition of the Caltrans Standard Specifications. Parts of these Standard Specifications that are specially referenced shall become a part of this section as though stated herein in full. In case of a discrepancy between the requirements of the Standard Specifications and the requirements stated herein, the requirements herein shall prevail.

1.8 TOLERANCES

- A. All material limits shall be constructed within a tolerance of 1.0 foot for horizontal state plane coordinates, 0.2 foot vertical for reference to mean sea level, and 0.1 foot where dimensions or grades are shown or specified as minimum. All grading shall be performed to maintain slopes and drainage as shown. No reverse slopes will be permitted.

PART 2 PRODUCTS

2.1 GENERAL

- A. Provide all labor, materials, and equipment necessary to accomplish the work specified in this section.

2.2 GRADING

- A. Grading is unclassified. Complete all grading regardless of the type, nature, or condition of the materials encountered. Make own estimate of the kind and extent of the various materials to be graded in order to accomplish the work.

2.3 EARTHFILL

- A. Excavated material shall be free from roots, organic matter, trash, debris, rocks larger than 3 inches (except as permitted by the specification), and other deleterious materials.

- B. Individual large rocks (larger than 3 inches and less than 18 inches in minimum dimension) shall be permitted in the earthfill provided:
1. The rocks are angular.
 2. The rocks are materials excavated at the site which cannot be broken down by conventional methods.
 3. Earthfill with rocks smaller than 3 inches is placed and compacted to the specification requirements above, below and adjacent to the larger rock material.
 4. The large rock material placed in earthfill shall not comprise more than 10 percent of the total volume of a lift.

2.4 LOCAL BORROW

- A. Local borrow for construction shall be earthfill material excavated from the project site.

2.5 GRANULAR FILL

- A. Clean granular material, well graded from coarse to fine, free from roots or organic material, maximum size 1 inch with a maximum of 8 percent passing the No. 200 sieve.

2.6 BACKFILL MATERIAL FOR PIPE BASE AND PIPE ZONE

- A. Conform to the individual pipe section specifications.

2.7 WATER FOR COMPACTION

- A. Contractor is responsible for obtaining sufficient suitable water to meet the construction scheduled and compaction requirements. A fire hydrant is located on the northwest corner of the site, adjacent to the scale house. All permits required to use water from fire hydrant are the responsibility of the Contractor.

2.9 GEOTEXTILE

(Not Used)

2.10 RIPRAP

(Not Used)

2.11 COMPACTION EQUIPMENT

- A. Compaction equipment shall be of suitable mechanical type and adequate to obtain the densities specified, and shall provide satisfactory breakdown on materials to form a dense fill. Flooding or jetting will not be allowed.
- B. Compaction equipment shall be operated in strict accordance with the manufacturer's instructions and recommendations. Equipment shall be maintained in such condition that

it will deliver the manufacturer's rated compactive effort. If inadequate densities are obtained, larger and/or different types of additional equipment shall be provided by the Contractor. Hand-operated equipment shall be capable of achieving the specified densities.

2.12 MOISTURE CONTROL EQUIPMENT

- A. Equipment for applying water shall be of a type and quality adequate for the work, shall not leak, and shall be equipped with a distributor bar or other approved device to assure uniform application. Equipment for mixing and drying out material shall consist of blades, discs, or other approved equipment.

PART 3 EXECUTION

3.1 CLEARING, GRUBBING, AND STRIPPING

- A. Complete clearing, grubbing, and stripping work as specified in Section 02110, CLEARING, GRUBBING, AND STRIPPING prior to beginning work in this section.

3.2 GRADING

- A. Perform all grading, regardless of the type, nature, or condition of material encountered, as specified, shown, or required to accomplish the construction. Transport excess graded material to where it will be placed as earthfill or to designated surplus disposal stockpile area.
- B. Allow for forms, working space, overlaying materials, and finish topsoil as shown or required. Trenches for pipelines shall be at least 24 inches wider than the pipe outside diameter unless otherwise approved. Do not carry excavations deeper than the elevation shown. Excavation carried below the grade lines shown or established by the CQA Officer shall be replaced with overexcavated material compacted to a density equal to that specified for similar embankments, but not less than that of the underlying ground. Cuts below grade shall be corrected by similarly cutting adjoining areas and creating a smooth transition. Correct all overexcavated areas at the Contractor's expense.
- C. Carry the bottom of trenches to the line and grade shown, or as established by the CQA Officer. Allow for pipe thickness and for pipe base or special bedding when specified.

3.3 BACKFILL

- A. Preparation for placing backfill:
 - 1. Backfill around concrete structures only after the concrete has attained the specified compressive strength indicated in Section 03300, CONCRETE. Removal all form materials and trash from the excavation before placing any backfill. Obtain the CQA Officer's acceptance of concrete work and attained strength prior to backfilling.
 - 2. Do not operate earth-moving equipment within 5 feet of walls of concrete structures for the purpose of depositing or compacting backfill material. Compact backfill

adjacent to concrete walls with hand-operated tampers or similar equipment that will not damage the structure.

3.4 GRANULAR BACKFILL AROUND STRUCTURES

- A. Place hereinbefore specified in Article 2.6, GRANULAR FILL, in a maximum 6-inch lift and compact each lift to not less than 90 percent relative compaction (ASTM D1557).

3.5 REMOVAL OF WATER

- A. Provide and operate equipment adequate to keep all excavations and trenches free of water. Remove all water during periods when concrete is being deposited, when pipe is being laid, during the placing of embankment backfill, and at such other times as required for efficient and safe execution of the work. Avoid settlement or damage to adjacent property. Dispose of water in a manner that will not damage adjacent property. When dewatering open excavations, dewater from outside the structural limits and from a point below the bottom of the excavation when possible. Design dewatering system to prevent removal of fines from existing ground.

3.6 FOUNDATION PREPARATION

- A. After completion of excavation, and prior to embankment construction, proof-roll the excavation surface to detect soft or loose zones. Notify the CQA Officer prior to commencement of proof-rolling. If soft or loose zones are found excavate the soft or loose material to a depth accepted by the CQA Officer, then fill and compact as specified for similar areas of embankment. Overexcavation and replacement filling, as specified in this paragraph, shall be paid for on a cost reimbursement basis as specified in the General Conditions, provided that the CQA Officer shall authorize such overexcavation and replacement filling in writing prior to accomplishing such work.

3.7 CONSTRUCTION OF EMBANKMENTS

- A. Construct embankment to lines and cross sections shown. Use native earthfill material. Deposit material in lifts not exceeding 8-inch depth (after compaction) across full width of any given embankment. Compact each lift to not less than 90 percent relative compaction, based on the average of the most recent four tests on like material. At any given embankment operation, if any two of the four test falls below 88 percent or any one of the four preceding tests falls below 86 percent, additional work will be required including, but not limited to moisture control, recompaction or material replacement.
- B. Existing hillside slopes to receive embankment material shall be cut in a series of steps or level platforms a minimum of 8 feet wide. These steps shall be excavated as the embankment is being placed in accordance with Section 19-6.01 of the Standard Specifications.

- C. Compact full width of the embankment. If pipelines are to be laid in embankment, construct embankment to an elevation 2 feet above the top of proposed pipeline prior to excavating for the pipeline.
- D. During all compacting operations, maintain optimum practicable moisture content required for compaction purposes in each lift of fill. Maintain moisture content uniform throughout the lift. Insofar as practicable, add water to the material at the site of excavation. Supplement, if required, by sprinkling the fill. At the time of compaction, the water content of the material shall be at optimum moisture content, ± 4 percentage points.
- E. Do not attempt to compact fill material that contains excessive moisture. Aerate material by blading, discing, harrowing, or other methods, to hasten the drying process.

3.8 COMPACTION OF SUBGRADE

- A. The relative compaction of the top 0.5 feet of finished subgrades for the full width of the subgrade plus 3 feet on each side thereof shall be 90 percent whether in excavation or embankment.

3.9 FIELD DENSITY AND MOISTURE TEST

- A. The CQA Officer will determine in-place density and moisture content by any one or combination of the following methods: ASTM D2922, D1556, D2216, D3017, or other methods selected by the CQA Officer. Cooperate with this testing work by leveling small test areas designated by the CQA Officer. Backfill test areas at Contractor's sole expense. The frequency and location of testing shall be determined solely by the CQA Officer. The CQA Officer may test any lift of fill at any time, location, or elevation.

3.10 PLACING GEOTEXTILE

(Not Used).

3.11 PLACING RIPRAP

(Not Used).

3.12 DISPOSAL OF EXCESS EXCAVATION

- A. Dispose of all excess excavation, not required for embankment or natural clay liner, as directed by the CQA Officer. Uniformly grade waste area to conform to existing contours, leave with a neat appearance, and in free-draining condition.

3.13 FINISH GRADING

- A. Perform all earthwork to the lines and grades as shown and/or established by the CQA Officer, with proper allowance for topsoil where specified or shown. Shape, trim, and finish slopes of channels to conform with the lines, grades, and cross sections shown. Make slopes free of all exposed roots and stones exceeding 3-inch diameter which are loose and liable to fall. Round tops of banks to circular curves, in general, not less than a 6-foot radius. Rounded surfaces shall be neatly and smoothly trimmed. Neatly blend all new grading into surrounding, existing terrain. Overexcavating and backfilling to the proper grade will not be acceptable. Finished site grading will be reviewed by the CQA Officer.

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SECTION 02232
PREPARATION OF SUBGRADE

PART 1 GENERAL

1.1 WORK INCLUDED

- A. This section covers the work necessary for the preparation of the subgrade, complete.
- B. Payment for Preparation of Subgrade shall be considered in the various items of work and no additional compensation will be allowed therefor.

1.2 GENERAL

- A. The subgrade will be considered as those areas and surfaces upon which additional material are to be placed under Contract, or which are to be constructed or prepared for the future placement thereupon of other materials.
- B. All underground work contemplated in the area of the subgrade shall be completed and properly backfilled before subgrade work is started.

PART 2 PRODUCTS

2.1 EQUIPMENT

- A. Furnish all necessary equipment required to accomplish the excavating, shaping, grading and rolling, and compaction specified herein.

PART 3 EXECUTION

3.1 EXCAVATION BELOWGRADE

- A. Where the CQA Officer deems subgrade material to be unsatisfactory, excavation belowgrade will be required to such depths as necessary to remove the unsatisfactory material. Excavation belowgrade shall be of the same classification as that above it provided it is removed in the same operation as the normal excavation. Where the Contractor has completed the excavation and is required to move back to remove unsuitable material, or where the additional depth requires special equipment because of the presence of shallow utilities or other unforeseen conditions, the work shall be performed and a payment for excavation belowgrade will be made on the basis of extra work as provided in the Contract.
- B. If the excavation belowgrade is required because of negligence on the part of the Contractor, the necessary excavation belowgrade and the backfilling required to restore the surface satisfactorily shall be at the Contractor's sole expense.

- C. The subgrade shall be sprinkled with water, as required, and in such quantities as necessary to obtain the specified compaction.
- D. After completion of excavation, and prior to embankment construction, proof-roll the excavation surface. Notify the CQA Officer prior to commencement of proof-rolling. If soft or loose zones are found excavate the soft or loose material to a depth accepted by the CQA Officer, then fill and compact as specified in this paragraph, shall be paid for on a cost reimbursement basis as specified in the General Conditions, provided that the CQA Officer shall authorize such overexcavation and replacement filling in writing prior to accomplishing such work.

3.2 SUBGRADE PREPARATION FOR GEOMEMBRANE

- A. Prior to placement of the geomembrane the Contractor shall prepare the subgrade to provide a uniform surface, free of defects or imperfections that may result in damage to the liner (maximum particle size of ½-inch).
- B. Final preparation of all areas to receive geosynthetics shall be steel-drum rolled. The finished surface shall be free from abrupt breaks, sharp objects or other foreign material that may inhibit placement of the geomembrane. The subgrade shall be unyielding, smooth and uniform. The surface shall be free of ruts or tracks from equipment. The Contractor shall maintain the prepared subgrade in the finished condition until all geomembrane is placed. Any damage to the prepared subgrade shall be repaired at the Contractor's sole expense.

3.3 PROTECTION OF SUBGRADE

- A. After preparing the subgrade as above specified, all unnecessary traffic shall be kept off. Should it be found necessary to haul over the prepared subgrade, the Contractor shall drag and roll the traveled way as frequently as may be necessary to remove ruts, cuts, and breaks in the surface. All cuts, ruts, and breaks in the surface on the subgrade that are not removed by the above operations shall be raked and hand tamped. All equipment used for transporting materials over the prepared subgrade shall be equipped with pneumatic tires.
- B. Continued use of sections of prepared subgrade for hauling, so as to cut up or deform it from the true cross-section, will not be permitted. The Contractor shall protect the prepared subgrade from both the Contractor's own and public traffic.
- C. The Contractor will be required, at the Contractor's sole expense, to plank the subgrade before hauling materials or equipment over it as directed by the CQA Officer.
- D. The subgrade shall be maintained in the finished condition until the first succeeding course is placed.

LEGAL

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 603, San Francisco, CA 94101 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.
 5. 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.

ASSIGNMENT OF ANTI-TRUST CLAIMS

A. 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 Owner 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 Owner tenders Final Payment to the Contractor, without further acknowledgment by the parties.
2. In submitting a bid to Owner the bidder offers and agrees that if bid is accepted, it will assign to Owner 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 Owner pursuant to the bid. Such assignment shall be made and become effective at the time the Owner tenders Final Payment to the bidder.

* * * * *

SECTION 02775
LLDPE GEOMEMBRANE LINER

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The Contractor shall furnish all labor, materials, supervision and equipment to complete the Geomembrane Liner, including, but not limited to, anchor trench excavation and backfill, liner layout, seaming, patching, and all necessary and incidental items required to complete the Work, in accordance with the Construction Drawings and these Technical Specifications. The Earthwork Contractor is required to construct and backfill all anchor trenches.
- B. Payment for linear low density polyethylene (LLDPE) Geomembrane Liner shall be considered as included in the contract unit prices per square foot in the Bid Schedule and no additional compensation shall be allowed therefor.

1.2 GENERAL

- A. Provide all labor, materials, and equipment necessary to accomplish the work specified in this section.

1.3 REFERENCES

- A. Reference Standards: Standards, including documents referenced therein, are referenced within this section and form part of this section to the extent designated herein. Unless otherwise specified, the most recent version of the reference standards, at the time of bidding shall apply.

1.4 DEFINITIONS

- A. Geomembrane: An essentially impermeable synthetic membrane of LLDPE which is partially crystalline in nature and contains 2 to 3 percent carbon black for ultraviolet light resistance.
- B. Geotextile: A relatively porous construction or reinforcement fabric used in civil engineering for geotechnical projects. The fabric structure may be knit, woven, or non-woven. Filter geotextile is a material which provides separation of materials with different pore size openings to prevent clogging. Drainage geotextiles are materials with adequate transmissivity to provide planar flow of fluid. Reinforcing geotextile is a material with sufficient in-plane strength to support some or all of the load applied to a composite system (such as soil-geotextile).
- C. Extrusion Weld: A bond between two polyethylene materials which is achieved by extruding a bead of LLDPE over the overlap area utilizing a hand-held apparatus.

- D. Fusion Weld: A bond between two linear low density polyethylene materials which is achieved by reaching the melting point of the LLDPE material and applying pressure to those areas to join the melted surfaces.
- E. In-Situ: "As is", or as it exists in-place naturally.

1.5 SAFETY

- A. The Contractor shall be solely responsible for installing LLDPE liner in a safe manner. Provide appropriate measures to ensure that persons working in or near the project area are protected.
- B. Contractors shall familiarize themselves with, and comply with, all applicable codes, ordinances, statutes, and bear sole responsibility for the penalties imposed for noncompliance.

1.6 SUBMITTALS

- A. Prior to delivery submit certificates of compliance with the requirements and testing methods specified.
- B. The Contractor shall submit to the CQA Officer or Engineer the proposed LLDPE geomembrane panel layouts at least 14 days prior to mobilization of crews. Once the panel layout is approved, the Contractor may not change the layout without permission of the CQA Monitor.
- C. Qualifications of the seamers shall be provided to the CQA Monitor 7 days prior to the start of installation of the LLDPE geomembrane.
- D. The Contractor shall be required to submit the Manufacturers Quality Assurance (MQA) program to the CQA Monitor prior to initiating field work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. LLDPE liner material shipped during the wet weather period shall be covered with tarps and shipped on a flat-bed trailer.
- B. LLDPE liner shall be protected from precipitation, inundation, ultraviolet exposure, dirt puncture, cutting, and other damaging or deleterious condition.

PART 2 PRODUCTS

2.1 LLDPE GEOMEMBRANE LINER

A. Materials:

1. LLDPE Geomembrane liner shall be made of linear low density (textured both sides) polyethylene as noted on the Construction Drawings. The required nominal liner thickness shall be 60-mil for the LLDPE.
2. The LLDPE geomembrane used shall meet, at a minimum, the standards included in Tables 02775-1A and 1B.
3. The chemical resistance of the LLDPE geomembrane liner and seams shall be in keeping with typical properties of high quality polyethylene products currently available through commercial sources.
4. LLDPE Geomembrane liner shall be shipped in rolls.
5. Material furnished shall be accepted as manufactured by GSE Lining Technologies, Inc., 19103 Gundle Road, Houston, Texas 77073; and Polyflex, 2000 West Marshall Drive, Grand Prairie, Texas 75051 or another manufacturing facility approved by the Engineer.

2.2 OTHER PRODUCTS

A. Extrudate

1. Extrudate for extrusion welding shall be formulated from the same linear low density resin as the liner and shall meet the applicable physical property requirements.

B. Miscellaneous Products

1. Each product installed as part of the lining system shall be as recommended by the geomembrane manufacturer and approved by the Engineer.

PART 3 EXECUTION

3.1 GENERAL

- #### A.
- The LLDPE geomembrane installer shall be properly trained and qualified to install synthetic liners. All personnel performing field seaming shall be qualified by experience. At least one seamer shall have a minimum of 1,000,000 ft² of polyethylene geomembrane experience.

B. Geomembrane Installation:

1. Areas to receive liner installation should be relatively smooth and even, and free of ruts, voids, etc. No rubber tired vehicles are permitted on final dressed surfaces unless authorized by the CQA Monitor.

2. An anchor trench shall be required at the areas shown on Construction Drawings) depicted areas at the liner perimeter to secure the geomembrane and shall have a straight, smooth edge over which the liner enters the trench. The Contractor shall take precautions to minimize loose soil underlying the geomembrane in the anchor trenches. The Contractor shall ensure that excessive desiccation of trench soils does not occur prior to backfilling.
3. Installation of the geomembrane shall be as follows:
 - a. Unroll only those sections which are to be seamed together or anchored in one day. Panels should be positioned with the overlap recommended by the manufacturer, but not less than 3 inches. The edge of the upslope sheet shall be positioned above the edge of the downslope sheet. The geomembrane liner sections shall be placed in an anchor trench which is then backfilled by the Contractor with compacted soil as shown on the Construction Drawings. Compaction shall be to a minimum of 85 percent of the maximum dry density as determined by ASTM D1557 modified Proctor test.
 - b. After panels are initially in place, the Contractor shall remove wrinkles to the satisfaction of the CQA Monitor. Unroll several panels and allow the liner to "relax" before beginning field seaming. The purpose of this is to make the edges which are to be bonded as smooth and free of wrinkles as possible.
 - c. Once panels are in place and smooth, commence field seaming operations.
 - d. The LLDPE geomembrane installer shall determine the amount of compensation to allow in the LLDPE geomembrane to account for expansion and contraction caused by daily temperature changes so that folding or bridging does not develop in the material, especially at the toe of lined slopes.
4. Field seaming shall be as follows:
 - a. All foreign matter (dirt, water oil, etc.) shall be removed from the edges to be bonded. For extrusion-type welds, the bonding surfaces must be thoroughly cleaned by mechanical abrasion approved by the CQA Monitor to remove surface cure and prepare the surfaces for bonding. No solvents shall be used to clean the geomembrane liner.
 - b. As much as practical, field seaming shall start from the top of the slope down. This shall keep any wrinkles which may occur due to having people working on the side slopes behind the area being seamed. Tack welds (if used) shall use heat only; no double-sided tape, glue or other method shall be permitted. The geomembrane should be seamed completely to the ends of all panels to minimize the potential of tear propagation along the seam. The completed liner shall not exhibit any "trampolining."
 - c. At the end of each day or installation segment all unseamed edges shall be anchored by sand bags, or other approved device. Sand bags securing the geomembrane on the side slopes should be connected by rope fastened at the top of the slope section by a temporary anchor. Staples, U-shaped rods or other penetrating anchors shall not be used

- to secure the geomembrane. Any damage to the liner due to wind, rain, hail, or other weather condition shall be the sole responsibility of the Contractor.
5. Field seaming shall be primarily performed by fusion welding, with repairs completed by extrusion welding. The CQA Monitor reserves the right to reject any proposed seaming method that does not meet the intent of these Technical Specifications. Additional concepts and requirements of proper field seaming include the following:
- a. Extrusion welding applies a molten bead of material to preheated sheet edge of geomembrane. The sheets are then joined by the extrudate bead weld.
 - b. The fusion welding process heats the area to be joined to the melting point and then applies pressure to join the melted surfaces.
 - c. The sheets to be joined shall be overlapped at least 3 inches or in accordance with the manufacturers specifications after the necessary aligning and cutting.
 - d. The seams shall be oriented parallel to the line of maximum slope, i.e., oriented down, not across, the slope. In corners and odd shaped geometric locations, the number of field seams shall be minimized.
 - e. No horizontal seams should be within 1.5m (5 ft) of the toe of the slope.
 - f. No seaming shall be attempted above 40°C (104°F) ambient air temperature or below 5°C (41°F) ambient air temperature without special testing to demonstrate effective welding outside of these temperature ranges. Preheating of the seam area of geomembrane shall be required, unless it is demonstrated that this is not necessary (i.e., acceptable test (start-up) seams which duplicate, as closely as possible, actual field conditions can be achieved). Preheating may be achieved by natural and/or artificial means (shelters and heating devices). Ambient temperature is measured 18 inches above the liner surface. The membrane installation contractor shall supply instrumentation for measurement of ambient temperature.
 - g. Seaming shall extend to the outside edge of panels to be placed in anchor trenches.
 - h. If required, a firm working surface should be provided by using a flat board, a conveyor belt, or similar hard surface directly under the seam overlap to achieve proper support.
 - i. No excessive grinding prior to welding shall be permitted. Overground or improperly ground areas shall be replaced at the Geomembrane Contractor's expense.
 - j. Seams at panel corners of 3 or 4 sheets shall be completed with a patch having a minimum dimension of 24 inches, extrusion welded to the parent sheet.

D. Geomembrane Testing:

All geomembrane sheets and seams shall be tested and evaluated prior to acceptance. In general, testing of the sheets shall be conducted by the manufacturer. Testing of the seams shall be conducted by the Contractor under observation by the CQA Monitor. The CQA Monitor or a designated, independent geosynthetics laboratory may perform additional testing, as required by the CQA Plan or as required in the judgement of the CQA Monitor to verify that the sheets and seams meet the Technical Specifications. Testing requirements are detailed in the following subsections:

1. Pre-shipment Sheet Tests:

At a minimum, the Contractor is responsible to perform the tests at the frequencies given in Table 02775-2 on the sheet prior to shipping LLDPE material to the site. Test results shall be submitted prior to shipping the LLDPE rolls.

2. Trial Welds (Destructive Tests):

The Contractor shall maintain and use equipment and personnel at the site to perform testing of trial welds. Trial welds shall be made each day prior to commencing field seaming. These seams shall be made on pieces of geomembrane liner to verify that seaming conditions are adequate. Such trial welds shall be made at the beginning of each seaming period, at the CQA Monitor's discretion, and at least once every four hours during continuous operation of each welding machine. Also, each seamer shall make at least one trial weld each day. Requirements for trial welds are as follows:

a. The trial weld sample shall be at least 0.9m (3 ft) long by 0.3m (1 ft) wide with the seam centered lengthwise. Six adjoining specimens 25mm (1 in) wide each shall be die cut from the trial weld sample. These specimens shall be tested in the field with a calibrated tensiometer with digital readout for both shear (3 specimens) and peel (3 specimens). Trial welds shall be tested by the Geomembrane Contractor in accordance with ASTM D4437 under observation of the CQA Monitor, or designated representative of the Owner. The specimens should not fail in the weld. The Geomembrane Contractor shall supply all necessary knowledgeable personnel and testing equipment. No strain measurements need be obtained in the field. A passing machine or hand welded trial weld shall be achieved when the criteria described below in Sections 3.1.D.4 © or (d) are satisfied with the exclusion of any strain requirements. If a trial weld fails, the entire operation shall be repeated. If the additional trial weld fails, the seaming apparatus or seamer shall not be accepted and shall not be used for seaming until the deficiencies are corrected and two consecutive successful field trial welds are achieved. Trial weld failure is defined as failure of any one of the specimens tested in shear or peel.

b. The CQA Monitor shall observe all trial weld procedures. The remainder of the successful trial weld sample shall be assigned a number and marked accordingly by the CQA Monitor, who shall also

log the date, hour, ambient temperature, number of seaming unit, name of seamer, and pass or fail description. The sample itself should be retained in the Owner's archives.

3. Production Seams (Non-Destructive Testing): Production seams shall be tested by the Contractor continuously using non-destructive techniques and at intervals using destructive tests. Requirements for non-destructive and destructive testing are as follows:
 - a. Single Weld Seams - the Contractor shall maintain and use equipment and personnel at the site to perform continuous vacuum box testing on all single weld production seams. The system shall be capable of applying a vacuum of at least 3 psi. The vacuum shall be held for a minimum of 15 seconds for each section of seam.
 - b. Double Weld Seams - The Contractor shall maintain and use equipment and personnel to perform air pressure testing of all double weld seams. The system shall be capable of applying a pressure of at least 30 psi for not less than 5 minutes. The Contractor shall perform all pressure and vacuum testing under the supervision of the CQA Monitor. Pressure loss tests shall be conducted in accordance with the procedures outlined in "Pressurized Air Channel Test for Dual Seamed Geomembranes," Geosynthetic Research Institute Test Method GM-6. As outlined by the test method, following a 2 minute pressurized stabilization period pressure losses over a measurement period of 5 minutes shall not exceed 2 psi.
4. Destructive testing shall be performed on an average of every 500 linear feet of production seam in accordance with ASTM D4437. The locations shall be selected by the CQA Monitor. Sufficient samples shall be obtained by the Contractor to provide one sample to the archive, one sample to the CQA Monitor for laboratory testing, and one sample to be retained by the Contractor for field testing. Testing requirements are as follows: Each sample shall be large enough to test five specimens in peel and five specimens in shear. The average values of each set of five specimens must meet the specification as shown in Table 02775-1, and must meet the specifications for the seam to be considered a passing seam. If the average of the five specimens is adequate, but one of the specimens is failing, values for the failing specimen must be at least 80 percent of the values required for the seam for the sample to pass. All samples must fail in film tear bond (FTB). If unresolved discrepancies exist between the CQA Monitor's and Contractor's test results, the archived sample may be tested by the CQA Monitor. Samples which do not pass the shear and peel tests shall be re-sampled from locations at least 10 feet on each side of the original location. These two re-test samples must pass both shear and peel testing. If these two samples do not pass, then additional samples shall continue to be obtained until the questionable seam area is defined. The area of the failed seam bracketed by passing tests shall be capped or removed.
 - a. Tests shall be conducted in peel and shear using a calibrated tensiometer.

b. The CQA Monitor shall observe all production seam field test procedures. The remainder of the successful trial weld sample shall be assigned a number and marked accordingly by the CQA Monitor, who shall also log the date, seam number, approximate location in the seam, and field test pass-or-fail description, if applicable. The CQA Monitor shall be responsible for the archive specimen.

E. Repair of Damaged and Sampled Areas:

Damaged and sample coupon areas of geomembrane shall be repaired by the Contractor by construction of a cap strip. Damaged materials are the property of the Contractor and shall be removed from the site at the Contractor's expense. The Contractor shall retain all ownership and responsibility for the geomembrane until acceptance by the Owner. The geomembrane shall be accepted by the Owner after the installation and repair are complete, and after the Owner has received documentation for the installation by the CQA Monitor.

F. Potentially Damaging Activities:

No support equipment used by the Contractor shall be allowed on the geomembrane. Personnel working on the geomembrane shall not smoke, wear damaging shoes (as determined by the CQA Monitor), or engage in any activity which damages the geomembrane.

G. Anchor Trench Backfilling:

The anchor trench shall be backfilled and compacted by the Earthwork Contractor to not less than 85 percent of the maximum dry density determined by the modified Proctor (ASTM D1557). Care should be taken when backfilling the trench to prevent any damage to the geomembrane. Anchor trench spoil shall be used as backfill material, wherever possible.

H. Protection of Leading Edges:

Between construction of partial sections of the membrane liner, leading edges of the membrane may be exposed or buried for extended periods of time prior to their joining to adjacent, subsequent membrane sections. The combined action of abrasive soil and equipment impact stresses may "etch" unprotected membrane surfaces sufficiently to affect seam strengths. Therefore, it is necessary to protect leading edges in high activity areas with sacrificial layers of LLDPE sheet or plywood until they are ready for final seaming. As a minimum, each leading edge to be seamed that must be buried or which must be exposed for periods of one month or longer shall be continuously covered by a sacrificial layer of LLDPE geomembrane sheet or plywood. The sacrificial LLDPE sheet shall have a minimum thickness equal to that of the membrane liner to be protected. Both protective layers shall have a minimum width of 2 feet. The protective cover sheets shall be either covered with soil or weighted with sand bags to prevent displacement by wind. The edge of the sheet to

be protected shall be approximately centered beneath the overlying protective layers prior to burial or weighting with sandbags. Leading edges located in areas expected to receive direct traffic from construction equipment shall be buried under a minimum thickness of one foot of buffer soil.

I. Certification:

1. Prior to consideration for payment, Contractor shall submit certification of compliance from the manufacturer and certification that seams and liner have been constructed in accordance with the plans and specifications.

Table 02775-1
Required Physical Properties of Textured LLDPE Geomembrane Liner
Union Mine Disposal Site

Property	Test Method	LLDPE (60-mil, textured)
Thickness mils (min.ave.) a. lowest individual 8 of 10 b. lowest individual of any 10	ASTM D5994	nom. (-5%) -10% -15%
Asperity Height mils (min. ave.)	GM 12	15
Density g/ml (max.)	ASTM D1505 ASTM D792	0.939
Tensile Properties (1) (min. ave.) a. break strength - lb/in. B. Break elongation - %	ASTM D6693 Type IV	90 250
Tear Resistance - lb (min. ave.)	ASTM D1004	33 lbs
Puncture Resistance - lb. (Min. Ave.)	ASTM D4833	66
Axi-Symmetric Break Resistance Strain - % (min.)	ASTM D5617	30
Carbon Black Content - %	ASTM D1603 (2)	2.0-3.0
Carbon Black Dispersion	ASTM D5596	note (2)
Seam Strength (lb/in) Peel Strength (Fusion) Peel Strength (Extrusion) Shear Strength	ASTM D6392	75 70 90
Oxidative Induction Time (OIT) (min. ave.) a. Standard OIT or b. High Pressure OIT	ASTM D3895 ASTM D5885	 100 400
Oven Aging at 85°C a. Standard OIT (min. ave.) - % retained after 90 days or b. High Pressure OIT (min. ave.) - % retained after 90 days	ASTM D5721 ASTM D3895 ASTM D5885	 35 60

Notes:

- Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction. Break elongation is calculated using a gage length of 2.0 in./min.
- Carbon black dispersion (only near spherical agglomerates) for 10 different views: 9 in categories 1 or 2 and 1 in category 3.

**Table 02775-2
Required Pre-Shipping Sheet Testing for LLDPE Geomembrane Liner**

Property	Test Method	Frequency
Thickness	ASTM D5994	Every Roll
Sheet Density, g/cm ³ (max.)	ASTM D1505	Every 50,000 SF
Tensile Properties, lb/in.	ASTM D6693	Every 50,000 SF
Tear Resistance, lb.	ASTM D1004	Every 50,000 SF
Puncture Resistance, lb (min.)	ASTM D4833	Every 50,000 SF
Carbon Black Content (allowable range in %)	ASTM D1603	Every 50,000 SF
Carbon Black Dispersion (acceptable levels)	ASTM D5596	Every 50,000 SF
OIT Oxidation Induction Time	ASTM D3895	Once Per Resin Batch
Asperity Height	GRI - GMR	Every 2 nd Roll

SECTION 02777
GEOCOMPOSITE DRAINAGE NET

PART 1 GENERAL

1.1 WORK INCLUDED

- A. This section covers the work necessary to furnish and install the geocomposite drainage net over the geomembrane, including, but not limited to, placement of material over the geomembrane, and the tie-in to the existing final cover systems.
- B. The work includes furnishing all labor, supervision, tools, construction equipment, and materials necessary to install the drainage layer described by these Technical Specifications and the Construction Plans.
- C. Payment for GEOCOMPOSITE DRAINAGE NET shall be considered as included in the contract unit prices per square foot for the GEOCOMPOSITE DRAINAGE NET in the Bid Schedule and no additional compensation will be allowed therefor.

1.2 GENERAL

- A. Provide all labor, materials, and equipment necessary to accomplish the work specified in this section.

1.3 SUBMITTALS

- A. Prior to delivery of all materials submit certificates of compliance with the requirements and testing methods specified.
- B. At least 10 days prior to the installation of the Geocomposite Drainage Net, the geosynthetics contractor shall submit a panel layout to the CQA Monitor or Engineer for approval.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Geocomposite Drainage Net shall be supplied in rolls, marked or tagged with the manufacturer's name, product identification, lot number, roll number, and roll dimensions; and shall be shipped in a closed trailer.
- B. Geocomposite Drainage Net shall be protected from precipitation, inundation, ultraviolet exposure, dirt puncture, cutting, and other damaging or deleterious condition.

1.5 SAFETY

- A. The Contractor shall be solely responsible for performing GEOCOMPOSITE DRAINAGE NET installation in a safe manner. Provide appropriate measures to ensure that persons working in or near the project area are protected.
- B. Contractors shall familiarize themselves with, and comply with, all applicable codes, ordinances, statutes, and bear sole responsibility for the penalties imposed for noncompliance.

PART 2 PRODUCTS

2.1 GEOCOMPOSITE DRAINAGE NET

- A. The GEOCOMPOSITE DRAINAGE NET shall consist of a HDPE drainage core with a non-woven geotextile bonded to both sides, placed with the net directly on the LLDPE geomembrane. The drainage net shall be manufactured by extruding two strands to form a three-dimensional structure allowing sheet flow of water.
- B. The drainage net material shall conform to the material properties listed in Table 02777-1.
- C. The geotextile filter fabric bonded to the drainage net shall conform to the material properties listed in Table 02777-1.
- D. The geocomposite shall be manufactured by heat bonding the geotextile to the HDPE drainage net on both sides. No burn through geotextiles will be permitted or accepted. No glue or adhesive will be permitted. The bond between the geotextile and the HDPE drainage net shall exhibit a minimum peel strength of ½ pounds per inch, and an average of 1 pound per inch as per ASTM D-413. The Contractor shall submit samples of the geocomposite to the CQA Monitor or Engineer with a complete set of specifications for approval.

PART 3 EXECUTION

3.1 GENERAL

- A. Subgrade for the GEOCOMPOSITE DRAINAGE NET shall be the completed LLDPE textured geomembrane liner.
- B. The LLDPE material and installation shall be as specified in Section 02775, LLDPE GEMEMBRANE LINER.

3.2 INSTALLATION

- A. Geocomposite Drainage Net is to be deployed following the manufacturer's recommendations, standards, and guidelines. The geocomposite shall be anchored into the anchor trench as shown in the Construction Plans.
- B. Geocomposite Drainage Net is to be deployed on the LLDPE textured geomembrane liner material only when the wrinkles in the LLDPE material have been removed to the satisfaction of the CQA Monitor. Once the LLDPE textured geomembrane liner is flat, the geosynthetics contractor shall commence installation of the geocomposite drainage net.
- C. The geocomposite is to be secured against movement caused by wind. Securing mechanism must be left in place on geocomposite until replaced with protective soil cover material. Any damage to geocomposite material caused by the wind shall be the sole responsibility of the Contractor and no additional compensation will be allowed therefor.
- D. The geocomposite shall be placed on the LLDPE within the final cover area as shown on the Construction Plans. The geocomposite shall be rolled across the final cover area over the LLDPE textured geomembrane liner in such a manner as to keep the geocomposite in tension. If necessary, the geocomposite shall be repositioned by hand to minimize wrinkles. Horizontal seams or cross seams shall be avoided on any slopes 5:1 or steeper.
- E. Adjacent rolls shall be overlapped a minimum of 2 inches and secured with plastic ties approximately every 5 feet along the seam length and every foot across roll ends and in the anchor trench. Plastic ties shall be white or another color for easy inspection. Metallic ties shall not be allowed. The geotextile will then be either sewn or heat seamed per the manufacturers recommendation. The geocomposite shall not be welded to the underlying geomembrane.
- F. Contractor or OWNER shall place cover material (Vegetative Soil Cover Layer) in such a manner to ensure that the geocomposite and underlying materials are not damaged. Do not operate equipment directly on the geocomposite layer.
- G. Vegetative Soil Cover must be placed over the geocomposite in such a manner that does not allow the geotextile component of the geocomposite to have direct exposure to the sunlight for more than 20 days.

**Table 02777-1
Required Properties for Geocomposite Drainage Net
Union Mine Disposal Site**

Property	Test Method	Acceptance Criteria
Geocomposite		
Transmissivity, gal/min/ft	ASTM D4716	0.48
Ply Adhesion, lb/in	ASTM D7005	1.0
Geonet Core		
Transmissivity ¹ , gal/min/ft	ASTM D4716	9.66
Thickness, mil	ASTM D5199	200
Density, g/cm ³	ASTM D1505	0.94
Tensile Strength (MD), lb/in	ASTM D5035	45
Carbon Black Content, %	ASTM D1603	2.0
Geotextile (prior to lamination)		
Mass per Unit Area, oz/yd ²	ASTM D5261	8
Grab Strength, lb	ASTM D4632	220
Puncture Strength, lb	ASTM D4833	120
AOS, US sieve (mm)	ASTM D4751	80
Permittivity, (sec ⁻¹)	ASTM D4491	1.5
Flow Rate, gpm/ft ²	ASTM D4491	110
UV Resistance, % retained	ASTM D4355 (after 500 hours)	70

¹Gradient of 0.1, normal load of 10,000 psf, water at 70°F between steel plates for 15 minutes.

SECTION 02288
VEGETATIVE COVER MATERIAL

PART 1 GENERAL

1.1 WORK INCLUDED

- A. This section covers the all work necessary to provide, protect and place the vegetative cover soil for the *Final Cover Project, 13.6-Acre Class III Old Landfill Area at the Union Mine Disposal Site*, complete.
- B. The work shall consist of performing all operations necessary to either excavate materials onsite, regardless of character and subsurface conditions, from the Landfill or adjacent thereto; or supply and haul the vegetative soil material to the Landfill. This would include, but not limited to, excavation of trenches for culverts or other facilities, excavation of drainage channels, construction of embankments, placement of backfill around structures, culverts, backfilling trenches and other depressions, the removal of unstable material and that miscellaneous work required for the excavation and placement of earthen materials within the Landfill or adjacent thereto; and loading, hauling and placing all soil in the onsite stockpile.
- C. Payment for "Vegetative Layer" shall be at the contract unit price under Vegetative Layer (\$/cubic yard) delineated in the Bid Schedule of the Proposal will include all work necessary to comply with this Technical Specification and no additional compensation will be allowed therefor.

1.2 DEFINITIONS

- A. **CQA Officer:** Consulting engineering, surveying, and/or testing firm(s) providing subsurface soil investigations, soil testing laboratory, monitoring of stockpile construction, construction surveillance, and surveying services technically accountable to El Dorado County; responsible for certification of construction according to the specifications outlined herein.
- B. **CQA Plan:** Refers to the *Construction Quality Assurance Plan for Final Closure of the 15.8-Acre Class III Old Landfill Area, Union Mine Disposal Site, El Dorado County, California* prepared by NJF Engineering and dated March 2006.
- C. **Design Engineer:** The Design Engineer shall be the technical or onsite representative of the Owner and shall be a licensed professional civil engineer in the State of California.
- D. **Construction Drawings:** Refers to the *Construction Drawings for Final Cover, 13.6-Acre Class III Old Landfill Area, Union Mine Disposal Site, El Dorado County, California* prepared by NJF Engineering and dated July 2006
- E. **Quality Control:** Refers to those activities which ensure that material and workmanship have met the requirements of the Contract Documents.

- F. Atterberg Limits: The liquid limit, plastic limit, and shrinkage limit for soils (ASTM D4318). The water content when the soil behavior changes from the liquid to the plastic state is the liquid limit; from the plastic to the semi-solid state is the plastic limit; and from the semi-solid to the solid state is the shrinkage limit.
- G. Classification System: See Unified Soil Classification (ASTM D2487).
- H. Geonet: A geosynthetic consisting of integrally connected parallel sets of ribs overlying similar sets at various angles for planar drainage of liquids or gases.
- I. Imported Material: Material obtained by the Contractor from sources off the site.
- J. Local Borrow: Material excavated on the site or taken from designated borrow areas on or near the site.
- K. Moisture Content: Ratio of quantity of water in the soil (by weight) to the weight of the soil solids (dry soil), expressed in percentage; also referred to as water content.
- L. Optimum Moisture Content (OMC): Moisture content corresponding to maximum dry density as determined in the modified Proctor test (ASTM D1557).
- M. Plasticity: Ability of soil mass to flow or be remolded without raveling or breaking apart.
- N. Plasticity Index: A comparative number which describes the range of moisture contents over which a soil behavior is plastic. The plasticity index is numerically equal to the difference between the liquid and plastic limit.
- O. Prepared Ground Surface: The ground surface after clearing, grubbing, stripping, excavation, and scarification and/or compaction.
- P. Selected Material: Material available onsite that the CQA Officer determines to be suitable for a specific use.
- Q. Sieve (200 Mesh): Refers to soil particle size passing (smaller than or equal to) the U.S. Sieve No. 200 (ASTM Specification D1140-54) which includes a 75 micrometer (.00295 inch) opening.
- R. Unclassified: The nature of materials to be encountered has not been identified or described herein.

1.4 SUBMITTALS

- A. Provide the following submittals:
1. Test results, source and samples for all excavated or imported material.
 2. Copies of permits obtained for hauling, excavating, etc., that are required by state and local governing authorities.

1.5 IMPORTED MATERIAL ACCEPTANCE

- A. All imported materials specified in this section are subject to the following requirements:
1. All tests necessary for the Contractor to locate an acceptable source of imported material shall be made by the Contractor. Certification that the material conforms to the Specification requirements along with copies of the test results from a qualified commercial testing laboratory shall be submitted to the Design Engineer for approval at least 10 days before the material is required for use. All material samples shall be furnished by the Contractor at the Contractor's sole expense. Samples shall be representative and be clearly marked to show the source of the material and the intended use on the project. Sampling of the material source shall be done by the Contractor in accordance with ASTM D75. No imported materials shall be delivered to the site until the proposed source and materials tests have been tentatively accepted in writing by the Design Engineer.
 2. Gradation tests by the Contractor shall be made on samples taken at the place of the soil stockpile or borrow source prior to shipment. Samples of the finished product for gradation testing shall be taken at the testing frequencies outlined in Table C-2 of the CQA Plan. If variation in gradation is occurring, or if the material appears to depart from the Specifications, the CQA Officer may require testing to be conducted more frequently to better evaluate the material for acceptance. Test results shall be forwarded to the CQA Officer within 48 hours after sampling.
 3. If tests conducted by the Contractor or the CQA Officer indicate that the material does not meet Specification requirements, material acceptance will be terminated until corrective measures are taken. Material which does not conform to the Specification requirements and is hauled to the Landfill, shall be removed and replaced at the Contractor's sole expense. Sampling and testing performed by the Contractor shall be done at the Contractor's sole expense.

1.6 SAFETY

- A. The Contractor shall be solely responsible for performing all work in a safe manner. Provide appropriate measures to stabilize sideslopes and prevent sloughing to ensure that persons working in or near the excavation are protected.
- B. Contractors shall familiarize themselves with, and comply with, all applicable codes, ordinances, statutes, and bear sole responsibility for the penalties imposed for noncompliance.

- C. Place all imported or excavated material in the onsite stockpile in accordance with these Technical Specifications and Standard Specifications necessary to support the sideslopes and to prevent any movement which may damage adjacent facilities or endanger life and health. This work shall comply with all requirements by OSHA and other applicable governmental regulations and agencies.

1.7 STANDARD SPECIFICATIONS

- A. Standard Specifications, when referenced in this section, shall mean the latest edition of the Caltrans Standard Specifications. Parts of these Standard Specifications that are specially referenced shall become a part of this section as though stated herein in full. In case of a discrepancy between the requirements of the Standard Specifications and the requirements stated herein, the requirements herein shall prevail.

1.8 TOLERANCES

- A. All material limits shall be constructed within a tolerance of 1.0 foot for horizontal state plane coordinates, 0.2 foot vertical for reference to mean sea level, and 0.1 foot where dimensions or grades are shown or specified as minimum. All grading shall be performed to maintain slopes and drainage as shown. No reverse slopes will be permitted.

PART 2 PRODUCTS

2.1 GENERAL

- A. Provide all labor, materials, and equipment necessary to accomplish the work specified in this section.

2.2 VEGETATIVE COVER SOIL

- A. The vegetative cover soil material shall conform with this Technical Specification, the requirements outlined in Tables C-1 and C-2 of the CQA Plan, and shall be placed in accordance with the lines and grades delineated on the Construction Drawings. The soil material shall be uncontaminated which means the soil will not contain any detectable petroleum hydrocarbons, synthetic organic compounds, acids, caustic or any other hazardous material. Total metal concentrations must be below the average levels at the Union Mine Disposal Site. The placement of the vegetative soil material in the onsite stockpile shall not begin until it has been approved by the CQA Monitor. The vegetative cover material shall consist of a soil material capable of supporting plants and grasses necessary for erosion control and shall not contain angular rocks that could damage the linear low density polyethylene (LLDPE).
- B. Following the placement vegetative soil material in the onsite stockpile, the soil material shall be protected by either visqueen or another erosion control measure approved by the Design Engineer.

2.3 EARTHFILL

- A. Excavated material shall be free from roots, organic matter, trash, debris, rocks larger than 3 inches (except as permitted by the specification), and other deleterious materials.
- B. Individual large rocks (larger than 3 inches and less than 18 inches in minimum dimension) shall be permitted in the earthfill provided:
 - 1. The rocks are angular.
 - 2. The rocks are materials excavated at the site which cannot be broken down by conventional methods.
 - 3. Earthfill with rocks smaller than 3 inches is placed and compacted to the specification requirements above, below and adjacent to the larger rock material.
 - 4. The large rock material placed in earthfill shall not comprise more than 10 percent of the total volume of a lift.

2.4 LOCAL BORROW

- A. Local borrow for construction shall be earthfill material excavated from the project site and approved by the CQA Officer.

2.5 WATER FOR MOISTURE CONTROL

- A. Contractor is responsible for obtaining sufficient suitable water to comply with this Technical Specification. A fire hydrant is located on the northwest corner of the site, adjacent to the scale house. All permits required to use water from fire hydrant are the responsibility of the Contractor.

2.6 MOISTURE CONTROL EQUIPMENT

- A. Equipment for applying water shall be of a type and quality adequate for the work, shall not leak, and shall be equipped with a distributor bar or other approved device to assure uniform application. Equipment for mixing and drying out material shall consist of blades, discs, or other approved equipment.

PART 3 EXECUTION

3.1 CLEARING, GRUBBING, AND STRIPPING

- A. Complete clearing, grubbing, and stripping work as specified in Section 02110, CLEARING, GRUBBING, AND STRIPPING prior to beginning work in this section.

3.2 GRADING

- A. Perform all grading, regardless of the type, nature, or condition of material encountered, as specified, shown, or required to accomplish the construction. Transport excess graded material to where it will be placed as earthfill or to designated surplus disposal stockpile area.
- B. Trenches for pipelines shall be at least 24 inches wider than the pipe outside diameter unless otherwise approved. Excavation carried below the grade lines shown or established by the CQA Officer shall be replaced with overexcavated material compacted to a density equal to that specified for similar embankments, but not less than that of the underlying ground. Cuts below grade shall be corrected by similarly cutting adjoining areas and creating a smooth transition. Correct all overexcavated areas at the Contractor's expense.
- C. Carry the bottom of trenches to the line and grade shown, or as established by the CQA Officer. Allow for pipe thickness and for pipe base or special bedding when specified.
- D. The construction of the vegetative soil cover stockpile shall be strictly controlled and documented in compliance with these specifications. During construction, the CQA Monitor shall conduct or cause to conduct test programs that conform these Technical Specifications.

3.3 REMOVAL OF WATER

- A. Provide and operate equipment adequate to keep all excavations and trenches free of water. Remove all water during periods when concrete is being deposited, when pipe is being laid, during the placing of embankment backfill, and at such other times as required for efficient and safe execution of the work. Avoid settlement or damage to adjacent property. Dispose of water in a manner that will not damage adjacent property. When dewatering open excavations, dewater from outside the structural limits and from a point below the bottom of the excavation when possible. Design dewatering system to prevent removal of fines from existing ground.

3.4 DISPOSAL OF EXCESS EXCAVATION

- A. Dispose of all excess excavation, not required for embankment or vegetative cover soil, as directed by the CQA Officer. Uniformly grade waste area to conform to existing contours, leave with a neat appearance, and in free-draining condition.

3.5 FINISH GRADING

- A. Perform all earthwork to the lines and grades as shown on the Construction Drawings and/or established by the CQA Officer. Shape, trim, and finish slopes of channels to conform with the lines, grades, and cross sections shown. Make slopes free of all exposed roots and stones exceeding 3-inch diameter which are loose and liable to fall. Round tops of banks to circular curves, in general, not less than a 6-foot radius. Rounded surfaces shall be neatly and smoothly trimmed. Neatly blend all new grading into surrounding, existing terrain. Overexcavating and backfilling to the proper grade will not be acceptable. Finished site grading will be reviewed by the CQA Officer.

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