

**SPECIFICATIONS AND TECHNICAL SPECIFICATIONS
FOR
DMLR PERMIT #1102091 CIRCLE L COMPANY, INC. BOND
FORFEITURE
BUCHANAN COUNTY, VIRGINIA**

Prepared by:

Commonwealth of Virginia
Department of Mines, Minerals & Energy
Division of Mined Land Reclamation
Abandoned Mine Land Section

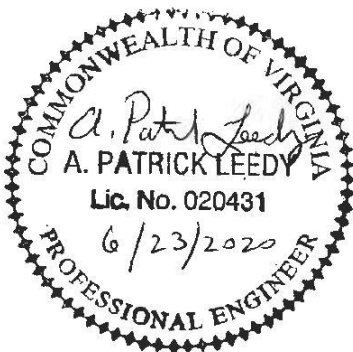


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SPECIAL CONDITIONS

1. OVERVIEW

All of the following parts considered, as a whole, shall comprise the complete specifications. They are complementary and anything called for by one and not the others shall be considered binding as though called for by all.

- 1.1 Bid Package (General Clauses, General Conditions, Notice and Instructions to Bidders, etc.)
- 1.2 Special conditions
- 1.3 Technical Specifications
- 1.4 Construction Drawings (Sheets 1 through 10)

2. DEFINITIONS

- 2.1 The word "Agency" shall mean the Commonwealth of Virginia, Department of Mines, Minerals and Energy, Division of Mined Land Reclamation.
- 2.2 Where the word "Contract" is used, it shall be understood to refer either to a purchase order placed by the agency and accepted by the Contractor together with this specification and all other documents referred to in such purchase order; or to a formal contract executed by the Agency and the Contractor, together with this specification and other documents referred to in such formal contract.
- 2.3 The word "Contractor" means the person, firm or corporation named as such in the contract and includes the plural number and the feminine gender when such are named in the contract as the Contractor.
- 2.4 The word "Subcontractor" means only those having a direct contract with the Contractor and it includes one who furnishes material worked to a special design but does not include one who merely furnishes material not so worked.
- 2.5 Where the word "Work" is used, it shall be understood to mean and include any and all labor, supervision, services, materials, machinery, equipment, tools, supplies and facilities called for by, and to complete, the Contract.

3. SCOPE OF WORK

- 3.1 The work to be performed under the terms of these Specifications consist of installation of sediment control, construction of an access road and diversion ditch, excavation and grading of an existing slide area, removal of the slide material to the designated disposal area, re-construction of the stream channel adjacent to the slide, and revegetation of all disturbed areas on the site known as the **DMLR PERMIT #1102091 CIRCLE L COMPANY, INC. BOND FORFEITURE Project** for the Commonwealth of Virginia.
- 3.2 The intent of these specifications is to prescribe the complete work to be performed. The specifications are written to permit and direct the work to be conducted by the Contractor's forces. If there are any contradictions between the Specifications and Drawings, the Contractor shall bring these facts to the attention of the Agency and obtain the Agency's decision as to the true meaning and intention before proceeding.
- A. The Contractor remains responsible for timely identifying any conflicts as may be found to the attention of the Agency.
 - B. In the absence of a formal written response from the Agency, or in the event the Contractor fails to bring such to the attention of the Agency, the Contractor is responsible to ensure compliance with the most stringent requirement.

4. TIME SCHEDULE

- 4.1 The work shall be executed with sufficient personnel, equipment, and material to complete the work and submit the final invoice within 180 days of the notice to proceed date.

5. WORK BY CONTRACTOR

The Contractor shall:

- 5.1 Furnish all supervision, labor, materials, tools and equipment necessary to perform all work. The work shall consist principally of the following:
- 5.1.1 Construct erosion and sediment control measures as shown on the construction drawings and as directed by the Project Inspector.
 - 5.1.2 Construct temporary diversion ditches and crossings to control drainage during construction.
 - 5.1.3 Reconstruct the access road from where the gas well road ends up to the actual job including a ditch and sump as directed by the Project Inspector.

- 5.1.4 Excavate the excess spoil stored in the hollow fill, expose the underdrain constructed under the hollow fill, uncover the underdrain, remove the fabric covering of the underdrain and use it as a ditch, grade area on both sides of the rock lined ditch to a stable slope as directed by the Project Inspector/Project Engineer and backfill the highwall as specified by the cross sections in the Drawings.
- 5.1.5 Material in excess shall be placed in a designated disposal area approved by the Project Inspector. This area will need to be surveyed before use to be able to calculate material removed from the hollow fill.
- 5.1.6 Revegetate all disturbed areas.
- 5.1.7 Remove temporary drainage structures, and complete any clean-up or repair issues identified by the Agency.
- 5.2 Be responsible for receiving, unloading, storing, protecting and handling all materials and equipment furnished by the Contractor or the Agency for the execution of all work under this Specification.
- 5.3 Be responsible for demurrage or claims incurred because of negligence in expediting the unloading of materials or equipment.
- 5.4 Replace any defective material furnished by the Contractor or any defective work performed by the Contractor's forces at the Contractor's own expense.
- 5.5 Furnish to the Agency for approval before start of work, a Schedule of Work and procedure for construction of the work covered by the contract.
- 5.6 Be responsible for scheduling, expediting, directing, inspecting and coordinating the work so as to complete the work in the time agreed upon. The Contractor shall immediately notify the Agency of any impending problems, which could delay the completion of the work.
- 5.7 Before starting the work, contact the Agency for proper clearance and be governed by the Agency's instructions.
- 5.8 Be responsible for locating, relocating and protecting from damage existing underground and overhead utilities when such utilities are clearly visible. Be responsible for verifying the location of all utilities, pipes, etc., before initiating the work.
- 5.9 Restrict all workers to the construction area.
- 5.10 Provide drinking water and containers.

- 5.11 Provide watchmen, safety barricades, lights, signs and other items necessary for layout and installation of the work.
- 5.12 Furnish all labor, stakes, templates and tools and perform all field surveying and engineering to establish construction quantities and the lines and grades necessary for layout and installation of the work.
- 5.13 Be completely familiar with the location and accessibility of various construction and storage sites to determine the best material and equipment handling methods for the orderly completion of the work.
- 5.14 Have on the work site during construction a competent superintendent, duly authorized to represent and act for the Contractor in all matters pertaining to the work covered by this Specification.
- 5.15 Not perform any additional or temporary work for the Agency's account unless on specified written orders, signed by the Agency's authorized representative and Contractor and only in the amounts of the various types of work specified in said orders.
- 5.16 Work in close cooperation with the Agency and others engaged in the project so that the work shall be completed with dispatch and in an orderly manner.
- 5.17 Continuously maintain adequate weather and fire protection of all the Contractor's work from damage and shall protect property from damage or loss arising in connection with this contract. The Contractor shall make good any such damage or loss.
- 5.18 Comply with the provisions of the Occupational Safety and Health Act of 1970, Public Law 91-596, 29 CFR and 30 CFR; and the Safety Codes Commission of the Commonwealth of Virginia, issued by the Department of Labor and Industry under Title 40.1 of the Code of Virginia (1950), as amended. The Contractor shall be held liable to the Agency for any health and/or safety infractions, on the Contractor's part, which cause the Agency or surface owner to receive a citation and/or fine from any local, state or federal Agency. Actual costs involved shall require satisfaction, by the Contractor, to the Agency or surface owner.
- 5.19 Maintain the site of work in an orderly manner. The Contractor shall provide personnel and supervision to continuously clean up the construction area under this jurisdiction. Should the Contractor refuse or fail to clean up or remove debris when requested by the Agency, it is understood that the Agency may employ others to do this work, and without further authority withhold the cost thereof from any payment due the Contractor.

- 5.20 Dispose of all debris and waste resulting from work at a disposal site approved by the Agency. The Contractor shall comply with all Department of Environmental Quality requirements concerning the use, handling and disposal of petroleum products, working in or near streams and wetlands, burning or releasing emissions into the air and disposal of solid waste and hazardous or toxic waste. The Contractor shall not put or spill any materials into any drainage system, which would pollute area streams or waterways. The Contractor shall be liable for any pollution caused directly or indirectly by the Contractor's employees or those of any subcontractors.
- 5.21 Furnish all special apparatus, welding machines, air compressors, hoisting equipment, tools, implements, cartage, scaffolding, ladders, planks, acetylene gas, oxygen gas, expendable materials, temporary light and heat, construction materials, shims and all other materials that may be required for the proper completion of the work.
- 5.22 Furnish electrical power, gas, compressed air and any other utilities required for the Contractor's use during construction. The Contractor shall remove all temporary wiring, switches, lights, piping and connections to service facilities used during construction. Such connections shall not be made without approval of the Agency.
- 5.23 Provide temporary supports as may be required during construction including those necessary to ensure the stability of the proposed excavation or working under mine roofs.
- 5.24 Not be permitted to drive any crawler type equipment or rollers on any paved roads except on rubber tire floats or similar vehicles. The Contractor shall protect pavement when it is necessary to move such type equipment across any paved roadway.
- 5.25 Not be permitted to keep within buildings or structures any stock of gasoline, kerosene, diesel fuel or similar flammable material. Any such flammables shall be stored in areas arranged by the Contractor, in a manner approved by the Agency and in compliance with the Department of Environmental Quality's AST Regulations.
- 5.26 Be responsible for shoring as required to prevent damage to any adjacent structures, utilities or property.
- 5.27 Repair to the satisfaction of the Agency, at the Contractor's own expense, any damage to adjacent structures, utilities or property.
- 5.28 Allow and provide the Agency access to the work for inspection whenever it is in preparation or progress, and provide proper facilities for such access and inspection.

- 5.29 The drawings and specifications illustrate the general character and scope of the work. Any additional detail and other information deemed necessary by the Agency will be furnished to the Contractor when and as required by the work.
- 5.30 Where the word “similar” appears on the drawings, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection with other parts of the work.
- 5.31 The specifications are divided into several parts for convenience only, since the entire specifications must be considered as a whole. The divisions of the specifications are not intended to control the Contractor in dividing the work among subcontractors or to limit the work performed by any trade. The Contractor shall be responsible for the coordination of the trades, subcontractors and vendors engaged upon this work.
- 5.32 The Contractor shall verify measurements or dimensions shown on the drawings at the site. Where there are discrepancies, the Agency shall be consulted.
- 5.33 The Contractor shall maintain at the site, one copy of all drawings, specifications, addenda, change orders and other modifications, in good order and marked to record all changes made during construction.
- 5.34 An Affidavit of Payment and Claims and Certifications of Materials (DMLR-AML-314) form certifying that all materials meet or exceed the specifications of the Contract shall be completed and submitted with the final Application of Payment.

6. WORK BY AGENCY

The Agency will:

- 6.1 Furnish the site in an “as is” condition.
- 6.2 Provide limited area, not necessarily adjacent to the site, for storage purposes and for the Contractor’s offices, change houses, sanitary stations, and tool and storage sheds. The Contractor shall make and maintain access to the facilities.
- 6.3 Furnish all design and detail drawings necessary to complete the specified work. One set of Plans and Specifications will be sold to interested bidders. Additional sets of Plans and Specifications will be issued to the selected Contractor as needed.
- 6.4 Designate in the field the manner in which the work is to be performed, as conditions warrant, if not detailed in the Specifications or shown on the Drawings.

6.5 Inspect the work during its progress. No work will be considered completed until approved by the Agency.

TECHNICAL SPECIFICATIONS

FOR THE

BOND FORFEITURE – DMLR PERMIT #1102091 CIRCLE L LAND COMPANY, INC. PROJECT

1. MOBILIZATION

SCOPE

This item shall consist of the mobilization and demobilization of the Contractor's forces and equipment necessary for performing the work required to complete the Contract.

PROCEDURE

- A. It shall include the purchase of contract bonds (if applicable), eVA, insurance, the project sign, transportation of personnel, equipment and operating supplies to the site, and other preparatory work at the site.
- B. It shall not include mobilization for any specific item of work for which payment for mobilization is provided elsewhere in the Contract.
- C. This item covers mobilization for work required by the Contract at the time of award. If additional mobilization costs are incurred during performance of the contract as a result of changed or added items of work for which the Contractor is entitled to an adjustment in contract price, compensation for such costs will be included in the price adjustment for the items of work changed or added.

MEASUREMENT AND PAYMENT

- A. Measurement: Mobilization shall be Lump Sum for the job as shown in the project Scope of Work.
- B. Payment: Mobilization shall not exceed 10% of the Base Bid amount. Exceeding this limit may be basis for rejection of the bid as non-responsive. The Base bid amount shall be the total of all sub-items on the Bid Schedule, less the amount for Mobilization.
- C. Payment for Mobilization shall be the Lump Sum amount listed on the Bid Schedule and shall constitute full compensation for all labor, equipment, materials and incidentals necessary to complete the work.
- D. Payment for Mobilization shall be made on the basis of 50% of the Lump Sum amount on the first invoice submitted and the remaining 50% on the final invoice.

2. SITE PREPARATION

SCOPE

This item shall include all clearing, grubbing and general site preparation work on any areas affected by the project.

The work shall consist of the cutting and storage of trees (as directed in the plans or by the Agency representative), disposal of tree stumps, brush, snags, logs, trash and combustible or compressible debris, and removal of large boulders (including hammering if necessary) from all areas where construction is to occur and where fill is to be disposed. It shall include the cutting and disposal of trees and vegetative growth from access roads and other areas incidental to construction for whatever reasons. Site preparation shall include temporary access roads and temporary drainage. Site preparation shall further include the complete removal and disposal of all trash, garbage, scraps and debris located within the project limits. The Contractor shall maintain the access road so that the Contractor and Agency representatives can access the site.

PROCEDURE

- A. Project Limits: The Contractor shall use stakes, flags, and/or other suitable methods to mark the limits of the areas to be worked. Site preparation shall be strictly limited to the areas shown on the Drawings, unless otherwise directed by the Inspector. The Contractor shall incorporate any adjacent areas reasonably necessary to perform the work when directed to do so by the Agency.
- B. Tree Removal and Storage: All timber shall be cut and stored neatly in the designated Timber Storage Areas as directed by the Agency representative. It shall be the responsibility of the surface property owner to remove the timber.
- C. Soft Soil Conditions: If encountered, the Contractor shall remove soft soils or compressible materials present in work areas as directed by the Agency before fill placement begins, or during construction of surface drainage facilities.
- D. Access Road Maintenance: The Contractor shall grade the road surface creating a smooth base and any soft areas shall be excavated and filled with VDOT #1 stone. The drainage ditch shall be reestablished and then the road shall be surfaced as directed by the Project Inspector. The aggregate used in this shall section be paid for in **Section 5 – Aggregate and Stone**.

MEASUREMENT AND PAYMENT

- A. Measurement: Site Preparation shall be measured for payment in a unit of Lump Sum accepted and approved by the Agency.
- B. Payment: Site Preparation shall be the Lump Sum amount listed on the Bid Schedule and shall constitute full compensation for all labor, equipment, materials and incidentals necessary to complete the work.

3. SILT FENCE

SCOPE

This item shall consist of furnishing, maintaining and removing temporary silt fence as detailed on the Drawings, and as directed by the Project Inspector.

MATERIALS

The silt fence shall meet or exceed the following specifications:

Property	Value
U.V. Resistance (ASTM D-4355)	80 %
Grab Strength (ASTM D-4632)	124 lbs
Permittivity (ASTM D-4491)	0.1 sec ⁻¹
Trapezoidal Tear (ASTM D-4533)	65

INSTALLATION

All silt fence shall be placed as detailed by the Drawings and/or Specifications prior to starting the excavation or construction activities. Additional silt fence locations may be specified by the Project Inspector to accommodate changing field conditions. Installation specifications are shown in the Drawings.

MAINTENANCE

Silt fences shall be maintained in a functionally sound condition and accumulations of silt shall be promptly removed each day.

MEASUREMENT AND PAYMENT

A.. Measurement: SILT FENCE shall be measured on a Linear Feet basis for the length of sediment control actually installed, maintained, and removed.

B. Payment: SILT FENCE shall be for the actual quantity of the SILT FENCE installed and accepted by the Agency, and the Unit Price listed in the Bid Schedule for this item. Payment as specified shall be full compensation for all labor, materials, equipment and incidentals required to install, maintain and remove the items specified.

4. EXCAVATION

SCOPE

Work under this item shall consist of the excavation of material to the limits and required grades shown on the plan views and cross sections shown on the plan drawings (or as directed by the Project Inspector). This item includes the excavation, handling and disposal of materials located in the hollow fill and adjacent areas (access road, etc.) and any work required to complete the final measurement and payment requirements defined below.

CLASSIFICATION

All excavation under this specification shall be classified as "common". Materials to be removed will consist of earth; sediment; loose, fragmented or weathered sandstone material; soft or weathered shales; boulders; and debris and other materials which can reasonably be moved by equipment, up to and including a heavy excavator, dozer, ripper, rockram, hydraulic hammer, or other equipment.

PROCEDURE

- A. Material Removal: The material shall be excavated from the limits of the hollow fill and graded to the depths and limits detailed on the project cross sections or as adjusted by the Project Inspector. The Contractor shall use competent personnel and suitable equipment to slope the spoil material on each side of the covered underdrain. Where boulders are encountered in the hollow fill material, care shall be taken to prevent the material from moving downslope in an uncontrolled manner. This could be accomplished either through the use of larger equipment capable of pulling the boulder upslope or through the use of a hydraulic hammer to break the boulder into a workable size. The equipment list submitted by the Contractor shall be evaluated as part of the bid and used to evaluate the ability of the Contractor to complete this project in a timely manner.
- B. Material Disposal: Material excavated (cut) from the hollow fill area to achieve the final grade shall be: a) placed in the area to achieve the final slopes and grades shown on the plan drawings; or b) if approved by the Project Inspector due to lack of area, hauled to the disposal area designated by the Project Engineer/Project Inspector.
- C. Temporary Drainage Control: It is the responsibility of the contractor to construct and maintain all necessary temporary channels, diversions, pipes or other means required to pursue the excavation work in a timely manner. Constriction of natural drainage or impounding of water shall not be allowed unless specifically required by the plans or approved by the Project Inspector. Temporary drainage control shall be considered incidental to material excavation with no additional compensation to the contractor.

- D. Access Road: This item includes excavation and grading necessary to re-establish the access road. Surfacing of the access road is addressed in **Section 5 – Aggregate and Stone**.
- E. Grading of area around the underdrain that is uncovered shall be graded according to the section shown on Sheet 10. This is a general section since the actual depth to the underdrain is unknown. The slopes beside the underdrain shall be regraded from 1H:1V to 1.8H:1V based on field conditions and shall be approved by the Project Inspector. This grading shall be considered incidental to the excavation of the spoiled stored in the hollowfill area shown on the Site Plan.

MEASUREMENT AND PAYMENT

- A. Measurement: Measurement for Excavation of rock and soil shall be on a cubic yard basis. During construction, yardage may be measured using truck counts based upon a yardage per truck agreed to by the contractor and Agency representative. A survey shall be performed at the 85% of the projected material to be moved to establish an accurate measurement of the material hauled from the hollow fill. The 85% estimate shall be designated by the Project Inspector and/or Project Engineer. Measurement for the yardage shall be in accordance with **Section 8 – Surveys** and will be based upon the fill yardage from Cross Section A-A to EE-EE and optional disposal area if utilized. The Agency will not allow any estimates of cubic yards excavated once the total estimated amount becomes greater than 75% of the cubic yards on the bid schedule. The Contractor shall have a Professional Engineer calculate and send a certified engineering report showing the amount of material disposed with the Final Application of Payment. The Contractor shall deduct the estimated amounts paid prior to having the actual amount calculated by the final survey. The calculated number can be used by the Contractor to submit an Application of Payment for that amount minus what was previously entered on prior Application of Payments. If the difference is negative, then the amount will be deducted from the final payment.
- B. Payment: Payment for Excavation of rock and soil shall be on a Unit Price basis for the cubic yards of material disposed and the unit price listed on the bid schedule. Payment as specified shall constitute full compensation for all labor, materials, equipment, and incidentals necessary to complete the work. Payment for Excavation will be considered complete upon submittal and review of the final surveying activities discussed in **Section 8 - Surveys**.

5. AGGREGATE AND STONE

SCOPE

This item shall consist of providing and installing all necessary aggregate and stone associated with the construction and maintenance of the site. Stone shall be used only as indicated on the plan drawings, addressed in these specifications, or as directed by the Agency representative. It

includes the delivery, labor for installation, and equipment needed to accomplish installation of said aggregate or stone.

MATERIAL

- A. Aggregate: Aggregate for this work shall be clean, uniform aggregate with no excessive fines, and shall conform to VDOT specifications. VDOT No. 1, VDOT Crusher Run (No. 26), and VDOT No. 57 shall be used.
- B. Stone: Stone used shall be Class I Riprap as defined by Section 414 of VDOT's Road and Bridge Specifications.

PROCEDURE

- A. Aggregate and stone shall be transported and handled to prevent dirt and debris from entering the material. The spalling and breakage of the stone shall be prevented. Aggregate and stone shall be placed as indicated on the plan drawings or as directed by the Agency.
- B. Storage: Storage of aggregate and stone on-site shall only be allowed as directed by the Agency. If required, storage areas shall be approved by the Agency representative. Measurement and payment of aggregate and stone shall include only materials installed and accepted by the Agency.
- C. Access Roads: The plan drawings show the routes of the construction access roads. In general, these routes have been chosen in order to minimize additional disturbance and to minimize effects on existing drainage patterns.
- D. Maintenance: Access roads shall be maintained at all times during construction. Areas that show excessive rutting shall be graded and additional stone shall be placed as directed by the Agency. Roads shall be maintained to prevent excessive amounts of mud and debris from being picked up by construction vehicles and deposited on surrounding public roads.
- E. Class I Riprap: The Project Inspector and/or Project Engineer shall utilize this stone if needed to armor a pipe or slow water down. This item shall only be used if needed and is not shown on the plans.

MEASUREMENT AND PAYMENT

- A. Measurement: Measurement for Aggregate and Stone shall be on a per Ton basis delivered and installed. Weight tickets shall be submitted as documentation for payment. Tickets shall include the total weight of the truck empty and loaded, the net stone weight of aggregate, the name of the project, date of delivery, and type of stone.
- B. Payment: Payment for Aggregate and Stone shall be on a Unit Price basis for the amount of material delivered, installed, and accepted by the Agency and the unit price listed in the bid schedule. Payment shall be full compensation for all labor, materials, equipment, and incidentals necessary to complete the work.

6. SUMPS

SCOPE

This item shall consist of furnishing all equipment and labor necessary to install two (2) drainage sumps at the completion of excavation to permanently place surface drainage into existing drainage ditches.

PROCEDURE

The Contractor shall install a sump with 18" HDPE single wall pipe to direct the water from the uncovered underdrain across the bench to an existing ditch. The Contractor will install a sump with 18" HDPE single wall pipe to direct water from the ditch created at the toe of the regrade. The Project Inspector shall decide the exact location based on field conditions or the need for the second sump as denoted on the drawings. The sumps addressed here shall have a following finished dimensions: 8'W x *8L with a finished depth of 5' with 1' of the depth above the top of the pipe.

MEASUREMENT AND PAYMENT

- A. Measurement: Measurement for SUMP shall be per each closure installed and accepted by the Agency.
- B. Payment: Payment for SUMP shall be based upon the Unit Price per sump listed on the Bid Schedule and the number of sumps actually installed and accepted. Payment as specified shall be full compensation for all materials, labor, equipment and incidentals necessary to complete the work. Stone shall be paid for as specified in **Section 5 – Aggregate and Stone**.

7. REVEGETATION

SCOPE

This item covers the furnishing of all labor, equipment, and material for preparing the seedbed, liming, fertilizing, tilling, seeding and mulching on the designated areas. Designated areas encompass all disturbed areas, including borrow and disposal areas and access roads within the project limits and as directed by the Agency representative but shall exclude the area identified as the riparian corridor.

SUBMITTALS

- A. Kinds and varieties of seeds, as shown on the tables below of these specifications shall be delivered to the project. All seeds shall comply with applicable state and federal seed laws and contract requirements. The Agency reserves the right to have seeds tested after they have been delivered to the project.

- B. An **Affidavit of Payment of Claims and Certification of Materials (DMLR-AML-314)** form certifying that all materials meet or exceed the specifications of the Contract shall be completed and submitted with the final Application of Payment.

MATERIAL

- A. Lime: Lime material shall be ground agricultural limestone and shall conform to the minimum Calcium Carbonate Equivalent (C.C.E.) guaranteed by the supplier and approved by the Agency representative. Agricultural limestone applied for seeding shall have a minimum C.C.E. of ninety percent (90%). The supplier shall certify this analysis.
- B. Fertilizer: Fertilizer shall be standard commercial product. The rate of fertilizer applied shall be 300 pounds per acre of 16-27-14 or as approved by the Agency. Fertilizer may be applied by mechanical spreader or hydraulically by a hydroseeder. Fertilizer and seed may be applied at the same time with a hydroseeder. Water used in a hydroseeder shall have a pH between 6.0 and 9.0.
- C. Seed: All seed mixtures shall conform to the requirements of the temporary and permanent seed mixture schedules detailed below and shall be certified as discussed in the Submittals section of this specification.
- D. Inoculants: All leguminous seed shall be inoculated with inoculant specified for use on that particular seed. The Manufacturer's directions for inoculating seed shall be followed. Inoculants shall be applied at double the manufacturer's rate. Inoculant shall be mixed with legume seed prior to mixing with other seeds. Pre-inoculated legume seed from a supplier may be used.
- E. Mulch: Wood cellulose or paper fiber mulch for use with a hydroseeder shall be applied at the rate of 2,000 pounds per acre. This mulch shall be applied along with seed, lime and fertilizer mixtures. Alternatively, material for mulching may consist of dry straw or hay, free of noxious weeds. The mulch shall be reasonably bright in color and shall not be musty, moldy, caked, decayed or very dusty. Straw or Hay Mulch shall be applied at the rate of 4,000 pounds per acre.

PROCEDURE

- A. All seeding work shall be performed by the Contractor or licensed subcontractor (which shall be approved by the Agency) with demonstrated experience and who has the necessary equipment to complete all operations required. It is anticipated that all areas shall be seeded by using a hydroseeder. However, other mechanical equipment may be used if approved by the Agency.
- B. Surface Preparation: Prior to seeding, both the construction site and disposal area shall be worked to ensure the final surface is free of large rocks. The disposal area should be graded as needed to ensure the final surface is suitable for agricultural (hayland/pasture) use.
- C. Seeding Schedule: After completion of grading and liming operations, the areas shall be seeded. Areas eroded by rainfall or crusted over shall be repaired prior to seeding. The Project Inspector shall approve all seeding operation time schedules. It is recommended that the seeding operations be confined from February 15th and June 15th and September 1st to November 1st to obtain satisfactory results. There may be some occasions such as during winter or summer months, when some areas may require temporary seeding. The Agency

representative may require these operations when deemed necessary to prevent erosion and sedimentation. Temporary seed mixtures and rates shall be applied during these periods.

- D. Permanent Seed Mixture: Permanent seed mixture and rates are specified below. The quality of seed shall conform to or exceed seed quality standards. Any substitution or adjustment shall be approved by the Agency representative.

Permanent Seed

Name	Lbs. /Acre
Orchard Grass	25
Annual Ryegrass	10
Red Clover	5
Ladino Clover	5
Birdsfoot Trefoil	5
Redtop grass	3
TOTAL	53

- E. Temporary Seed Mixture: Temporary seeding mixtures and rates are specified below. Any substitution shall be approved by the Agency representative. Permanent seed mixtures shall be applied at the first available seeding period on all temporary seeded areas.

Summer Mixture

Name	Lbs. /Acre
German Foxtail Millet	40
Annual Ryegrass	20
TOTAL	60

Winter Mixture

Name	Lbs. /Acre
Annual Ryegrass	20
Cereal Rye	40
TOTAL	60

- F. Lime Application: Lime shall be spread at a rate of 2 tons per acre as directed by the Agency representative prior to final grading (tracking) for incorporation into the soil.
- G. Mulch Application: Mulch shall be required on all seeded areas including the permanent spoil disposal area, designated grass access roads, and all areas above waterlines of treatment structures. Mulch shall be applied as soon as practicable after seeding and fertilizing, but no later than 24 hours after the seeding operation. Mulch shall be blown or spread to a uniform depth. Not more than 10% of the soil surface shall be left exposed after mulching. Straw mulch shall be anchored to the seeded surface by spraying with wood cellulose fiber at a rate of 1,500 pounds per acre.

MAINTENANCE

- A. The Contractor shall maintain all seeded areas until final acceptance of the project and shall restore or replace any portion of the seeding work that is found defective or which becomes damaged prior to final acceptance. Restoration or replacement work shall include additional

- fertilization, seeding and mulching as directed by the Agency representative. When the damage consists only of the displacement of the mulch, the mulch shall be replaced within 7 days.
- B. Areas reseeded or replanted shall also include construction maintenance areas where vegetation is destroyed due to repair work. Progressive seeding of small project areas shall be required during the complete project. Maintenance work for revegetation shall be reviewed prior to each seeding operation throughout the project and corrective action on prior seeded/planted areas may be required. The Contractor at his/her cost shall complete revegetation maintenance.
 - C. Other provisions of these Contract Documents notwithstanding, disturbances outside the project limits caused by the Contractor shall be seeded in accordance with these specifications at the Contractor's expense, under the direction of the Agency.

MEASUREMENT AND PAYMENT

- A. Measurement: Revegetation shall be measured on a per acre basis.
- B. Payment: Payment for Revegetation shall be based on the acreage of area seeded and accepted by the Agency and the unit price listed in the Bid Schedule. Payment shall be full compensation for all labor, materials, equipment, and incidentals necessary to complete the work.

8. SURVEYS

SCOPE

This item shall consist of furnishing, placing and maintaining construction layout stakes necessary for the proper execution of the work required under the Contract and any surveying or measuring necessary to develop cross sections and/or topographic maps required for determination of construction quantities by means of conducting a post-clearing/pre-disposal and a post-disposal surveys of the project area. All surveys shall be certified by a Professional Engineer or Certified Land Surveyor licensed in the Commonwealth of Virginia. The Professional Engineer or Certified Land Surveyor shall be from a separate, independent business from the Contractor and not in the permanent employment of the Contractor.

PROCEDURE

- A. The contractor shall conduct a post-clearing/pre-disposal survey of the construction area disposal area and a post-disposal survey of both the construction area and disposal area. The initial post-clearing survey of the construction area shall be following removal of any soft-soils to prepare areas for fill placement. All surveys and calculations shall be submitted to the Agency.
- B. Measurement for Haul to Disposal Area yardage shall be based on the fill yardage differential between the pre-disposal and final surveys of the disposal area. Measurement for Retained On-Site yardage shall be based on the cut yardage only differential between the post-clearing and final surveys of the construction area.
- C. The contractor shall survey all cross sections to demonstrate achievement of the slopes and grades shown on the Grading Plan.
- D. The Agency has established benchmarks adjacent to the construction area and disposal area. The contractor shall make all calculations involved and shall furnish all layout stakes or markers.
- E. The Contractor shall provide field forces and shall set all additional stakes needed, such as offset stakes, reference point stakes, slope stakes, grade stakes, stakes for roadway drainage, culverts or other structures, supplementary bench marks and any other horizontal or vertical controls necessary to secure a correct layout of the work.
- F. The Contractor shall be responsible for having the layout staking work conform to the lines, grades, elevations and dimensions called for on the plan drawings. The Contractor shall be responsible for reporting any discrepancies to the Agency representative for clarification. Minor adjustments to suit field conditions are anticipated and it shall be the responsibility of the Agency representative to make decisions regarding adjustments.
- G. The Contractor shall furnish 1 hard copy and 1 electronic copy of all survey records to the Agency. These records shall be furnished as they are completed during the progress of the work.
- H. All drawings and cross sections as well as a set of as-built drawings are to be submitted at the completion of the work before the last invoice is paid. These drawings shall include a plan view. Any inspection or checking of the contractor's layout by the Agency and the acceptance

of all or any part of it shall not relieve the Contractor of his responsibility to secure the proper dimensions, grades and elevations for the required work.

- I. The Contractor shall exercise care in the preservation of stakes and bench marks and shall have them reset at his expense when any are damaged, lost, displaced or removed
- J. The Contractor shall use competent personnel and suitable equipment for the layout and survey work required.

MEASUREMENT AND PAYMENT

- A. Measurement: Measurement for Surveys shall be on a lump sum basis.
- B. Payment: Payment for Surveys shall be based upon the lump sum amount entered on the Bid Schedule, conducted, and accepted by the Agency. Payment as specified shall be full compensation for all labor, materials, equipment and incidentals necessary to complete the work. Fifty percent (50%) shall be paid when all initial layout has been completed and accepted by the Agency. The Twenty-Five (25%) shall be paid on the second survey of the project at the approximate 75% completed milestone as determined by the Project Inspector and the remaining Twenty-Five (25%) shall be paid on the final invoice.

9. FUGITIVE DUST CONTROL

SCOPE

This item shall address the requirements of the Virginia Department of Environmental Quality, Air Division that pertain to fugitive dust control.

PROCEDURE

- A. The Contractor shall comply with all provisions and requirements of Regulations 120-04-0101 through 120-04-0107 for fugitive dust.
- B. The Contractor shall water the roads as necessary to control fugitive dust.
- C. The final diversion ditches shall be constructed only after the surrounding excavation or regrading has been completed and accepted by the Agency.
- D. If necessary, the location of a diversion shall be built up or excavated to meet the anticipated design grades for each diversion ditch. Any excavated material should be disposed of in the disposal area or as directed by the Agency.

MEASUREMENT AND PAYMENT

No payment shall be made for Fugitive Dust Control. Compliance with this section shall be considered incidental to the work.

10. SAFETY CONDITIONS AND GROUND CONTROL PLAN

SCOPE

This item consists of the procedures and protocol to be followed to ensure the safety of the public and workers in or around the construction site.

PROCEDURE

A. General Items:

- a. The contractor shall examine the all areas within and adjacent to the project sites for unstable rock, debris, highwalls hazards, mine gases, and any other hazards to safety.
- b. The contractor shall maintain a logbook with daily recordings of safety inspections and conditions. This log shall be available to the Agency representative upon request.
- c. There shall be no blasting.
- d. The contractor shall scale loose rock from the face of any highwall prior to working adjacent to it. At the approval of the Agency representative, the contractor may shift the work area away from a highwall to avoid unsafe working conditions.

B. Roadways:

- a. Access roads, to the extent possible, shall be constructed a safe distance away from highwalls to minimize exposure to falling or sliding materials.
- b. Spoil banks and highwalls adjacent to all active roads shall be maintained in such a manner to protect persons from hazardous conditions.
- c. During construction, roadways that are exposed to upslope dumping or pushing of material shall be protected by effective means utilized to ensure the safety of vehicles traveling on the roadway.

C. Map:

- a. A map shall be maintained by the contractor at the construction site showing residences, businesses, public buildings, and public or private roads that may be affected by construction activities and permanent spoil disposal. All "Red Zone" areas of the site created during construction or existing during operations shall be clearly identified on the map by highlighting or no other less effective means. Red zones are areas where construction activities are or shall be conducted that may present a potential threat or hazard to the public safety and are shown on the plans as a thick red line. Temporary notations that might affect the project sites shall be updated on the map by the contractor when they become known.

D. Working In and Around Red Zones:

- a. Warning signs, flagging, or other no less effective means shall be used to mark work areas that are designated red zones. The method used to mark these work areas shall be distinctively different from other warnings and markings utilized at the construction site.
- b. Berms, fencing, or other barrier protection shall be used to contain material that creates a hazardous condition upslope from red zones. In locations where berms, fencing or other barrier protection cannot be used, spotters shall be used to control work so that

material is prevented from rolling, slipping, or sliding down slope. No work shall be performed upslope in red zones without these precautions in place where the work being performed creates a hazard for dislodged material.

- c. Work activity in red zone areas shall be conducted in a safe manner using proper equipment for the work being performed.
- d. Residents or occupants affected by red zones shall be initially notified by personal contact if they are present, or by written notice conspicuously attached to the residence or building at least three hours and no more than 24 hours prior to beginning such work. This notification is to include the type of work that is planned, the length of time the work is expected to last, and the safety measures that shall be used.
- e. The contractor is responsible and accountable for the implementation of the approved plan; for ensuring work in red zone area(s) is conducted in a safe manner using proper equipment; **that employees be familiar with the ground control plan and project map, red zone areas, perimeter boundaries of the project; location of gas wells/pipelines, utility lines/poles/towers, or other structures which may be impacted by the construction activities;** and that "Miss Utility of Virginia" be called, where applicable, at 1-800-552-7001. Note that the Virginia Underground Utility Damage Prevention Act requires that Miss Utility be called at least 3 working days in advance of the planned work.
- f. In the event of an injury or fatality (from the project's activities), proper notification shall be immediately made to DMLR and, as applicable, to the appropriate office of the Virginia Department of Labor and Industry - Occupational Safety and Health Compliance (OSHA), the Mine Safety and Health Administration (MSHA), and/or the State Fire Marshall

E. Hazardous and Toxic Materials

- a. If hazardous or toxic materials (i.e. PCB's, Asbestos Containing Material (ACM), lead acid batteries, etc.) are encountered during the work, the contractor shall immediately notify the Agency. The Department of Environmental Quality guidelines for handling and cleaning up the site shall be followed.

MEASUREMENT AND PAYMENT

No payment shall be made for Safety Conditions and Ground Control Plan. Compliance with this section shall be considered incidental to the work.

11. CLEANUP AND REPAIR OF DAMAGE

SCOPE

This item shall consist of cleaning up the site prior to demobilization, repairing damage and guarantee of workmanship.

PROCEDURE

A. Cleaning Up:

- a. After all construction work is complete, prior to final payment, all exposed areas shall be cleaned and left in a sightly condition. All unused material shall be removed from the site or otherwise disposed of as directed by the Agency. Any bare areas shall be seeded and treated in accordance with the applicable specification.

B. Repairing Damage:

- a. Any damage done to structures, fill, pavement or other areas shall be repaired at the contractor's expense before final payment is made. In the event such damage occurs as a result of instructions from the Agency, payment shall be made at the price agreed to by the contractor and Agency.
- b. The Contractor shall identify any buried power line, buried water line, buried drain pipe and buried septic lines located in the work area and exercise care in and around these lines. Replacement of any destroyed, functioning power, water or septic line shall be at the Contractor's expense.
- c. Any damage to existing roads and pavement shall be repaired at the Contractor's expense.

C. Guarantee:

- a. The Contractor shall assume responsibility for all workmanship and materials for a period of time as described in the General Conditions.

MEASUREMENT AND PAYMENT

No payment shall be made for Cleanup and Repair of Damage. Compliance with this section shall be considered incidental to Mobilization.