

Quality Control Plan
90% Lateral Expansion (Cell 4) Ash Stacking
Kingston Fossil Plant
Harriman, Roane County, Tennessee

1. Purpose and Scope

This document is a site specific Quality Control (QC) Plan that addresses construction and monitoring in association with the Lateral Expansion (Cell 4) Ash Stacking. The QC Plan is intended to present minimum project requirements and shall serve as an outline for use in developing site specific protocols based on conditions encountered during the work.

2. Responsibility and Authority

A summary of QC personnel and associated responsibilities is presented below.

2.1. Regulatory Agency

Work conducted under this project shall be coordinated with, the U.S. Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC). Designated EPA and TDEC personnel shall serve as the regulatory contact.

2.2. Quality Control Manager and Team

A professional engineer licensed in the state of Tennessee shall be designated as the QC Manager and shall be responsible for overall management of construction monitoring, testing and related documentation as outlined herein. The QC Manager shall be the Engineer of Record for project construction. The QC Manager shall determine appropriate test standards and methods for designated field observations and/or laboratory testing and shall be responsible for review of QC data to assess conformance with project requirements.

The QC Team shall consist of qualified personnel working under the direct supervision of the QC Manager. The QC Team shall be familiar with the materials used and the functional intent of the respective QC Plan components.

2.3. Owner

The plant and its ancillary functions are owned by the Tennessee Valley Authority (Owner). The Owner shall be responsible for overall management of construction activities to include but not be limited to contracting, administration and retaining the services of qualified consultants as required during the project.

The Owner and/or their Designee shall appoint one representative to serve as the Construction Manager. The Construction Manager shall be responsible for the overall planning, coordination and control of project construction. This includes but is not limited to the character and sequence of work, coordination, scheduling, and management of cost,

time and contract administration as related to the execution of the project. The Owner shall be responsible for providing qualified professionals to establish and enforce safety protocols related to the project.

2.4. Contractor

The CONTRACTOR will be the entity with which the TVA has entered into an agreement to construct the Lateral Expansion (Cell 4) Ash Stacking project. The CONTRACTOR shall designate a Site Superintendent responsible for construction activity and communication with the QC Manager and Construction Manager. Any portion(s) of the work designated to others shall be conducted under the direct supervision of the CONTRACTOR.

3. Quality Control Activities

3.1. Meetings

Meetings shall be coordinated and conducted by the QC Manager and/or the Construction Manager on a weekly basis. The primary purpose of these meetings shall be to confirm that all parties involved are familiar with the project, required procedures and associated QC objectives along with any safety issues related to construction. Specific safety issues shall be the responsibility of designated safety professionals. Minutes of each meeting shall be documented for inclusion with the project records.

Pre-construction meetings shall be held prior to initiating individual phases of construction. The QC Manager, Construction Manager, Site Superintendent, and other parties that will actively participate in the construction activities shall attend these meetings.

3.2. Alternative Methods

Consistent with the overall objectives of the project, alternative construction and QC methods may be used during the course of the work. Proposed modifications shall be developed by the QC Manager and submitted to the Owner for review prior to incorporation into the project. Documentation of these alternative methods shall be prepared with copies retained for inclusion with the project records.

3.3. Contractor Submittals

CONTRACTOR submittals shall be submitted to TVA procurement and distributed to the QC Manager and Construction Manager unless otherwise directed by TVA. These submittals shall be reviewed and approved by the QC Manager prior to delivery and/or use of the respective construction materials. Copies of all submittals shall be included with the project records.

3.4. Conformance Testing

Conformance testing consists of periodic testing of materials and/or constructed products. Conformance testing shall be conducted by the QC Team as required by this plan and additional testing may be added at the discretion of the QC Manager. Results of

conformance testing shall be reviewed by the QC Manager to assess conformance with project requirements. Copies of all conformance testing results shall be included with the project records.

3.5. Field Observations

The QC Team shall observe and document (as outlined herein) all construction activities associated with the project. Results shall be reported to the QC Manager and Construction Manager (with the Owner copied) on a daily basis.

4. Subgrade Improvements

4.1. General

The term subgrade references the prepared surface accomplished by excavation and embankment upon which the ash stacking is constructed. The prepared surface of the subgrade generally meets the lines and grades for the Existing Conditions as shown in the Drawings. The present lines and grades of the project area vary from that shown on the Existing Conditions Plan. Since the date of the January 24, 2011 LIDAR survey, saturated materials have been placed in areas of the site.

4.2. Excavation

Existing surfaces shall be excavated to the existing conditions lines and grades shown in the Drawings. The Owner shall establish grade stakes for use in excavation and embankment activities. The CONTRACTOR shall make arrangements through the Construction Manager to schedule survey activities.

4.3. Subgrade Embankment

Prior to placement of fill and/or construction of other embankment components, exposed surfaces shall be stripped of all vegetation as well as any other deleterious materials. Lifts of subgrade embankment shall be placed to the maximum horizontal extent practicable to allow pore water dissipation. The total rate of ash placement shall not exceed two feet vertically per day (24 hour period) unless otherwise approved by the QC Manager based on response of the material and monitoring of geotechnical instrumentation. "Wet" ash stockpile rates shall not exceed two feet per day (24 hour period) as per Section 02300, Paragraph 2 of the Technical Specifications. These rates shall be controlled by the Contractor and confirmed by the QC Team.

4.4. Subgrade Compaction

Each lift of embankment shall be compacted as noted in Section 02300 of the Technical Specifications. Ash placement shall meet the same compaction standards as for Ash Stacking and shall be confirmed by testing. Compaction of other materials such as stone will be confirmed visually by the QC Team based on the response of materials to loaded equipment. Following initial compaction, the surface may be sealed by the CONTRACTOR to promote runoff and reduce the potential for surface water infiltration. Prior to placement of subsequent lifts, a sealed surface shall be scarified a minimum of two inches deep to promote lift bonding.

4.5. Quality Control Requirements

Prior to subgrade improvements in the Lateral Expansion area, the QC Team shall verify the following:

- a. A subgrade improvement work plan has been submitted and reviewed.
- b. Materials utilized for subgrade improvements have been submitted with necessary certifications or testing in accordance with Section 02400 of the Technical Specifications.

Prior to ash stacking on the subgrade improvements, the QC Team shall verify the following:

- a. The subgrade was constructed in accordance with the performance goals stated in Section 02400 of the Technical Specifications.
- b. Materials incorporated into the subgrade conform to those for which certifications have been obtained or for which testing has been performed as applicable.
- c. The exposed surface was inspected to:
 - i. Confirm the subgrade is properly compacted and uniform and is suitable to support subsequent construction;
 - ii. Observe a proofroll using appropriate equipment as noted in Section 02400 of the Technical Specifications or alternative equipment as approved by the QC Manager. Significant pumping or rutting (greater than three inches) or lateral displacement observed during proofrolls shall be corrected using methods approved by the QC Manager until satisfactory proofroll results are attained. Each proofroll shall be documented for inclusion with the program records; and
 - iii. Confirm that elevations and grades are consistent with the program.

5. Ash Stacking

5.1. General

Lifts shall be placed to the maximum horizontal extent practicable to allow pore water dissipation. The daily rate of placement within discrete (or localized) areas shall not exceed two feet per day unless otherwise approved by the QC Manager based on response of the material and monitoring of geotechnical instrumentation. Grading shall conform to the lines and grades shown in the accompanying Drawings.

5.2. Placement

The sequence of filling shall commence at the lowest section (in elevation) of the subject footprint and proceed upward in maximum 12-inch loose lifts in a manner to maintain positive drainage at all times. Positive drainage shall be maintained on all fill surfaces. The fill sequence shall also be performed in a manner that reduces the potential for uncontrolled

sediment runoff and adequately controls runoff from the embankment area. Ash placement shall be performed uniformly across the cell and result in slopes no steeper than the design grades.

5.3. Compaction

Each embankment lift shall be compacted with an appropriate roller or rubber tired equipment as approved by the QC Manager for the subject material. Materials shall be compacted to a minimum of 90 percent of standard Proctor maximum dry density at a moisture content within minus four percent and plus two percent of optimum. The QC Manager may make adjustments to this moisture range based on field observations and testing.

Following initial compaction, the surface shall be sealed with a smooth drum roller to reduce the potential for surface water infiltration. Prior to placement of subsequent lifts the surface shall be lightly scarified to promote lift bonding.

Although compaction will be confirmed visually by the QC Team based on the response of materials to loaded equipment, field conformance testing shall also be performed and include periodic in-place density and device calibration testing to provide documentation of the compaction operations at the prescribed intervals indicated in the attached testing schedule or as established by the QC Manager. Device calibration/confirmation testing shall consist of in-situ density tests performed at intervals as established by the QC Manager.

5.4. QC Requirements

Embankment placement and compaction methods shall be monitored by the QC Team to assess conformance with program requirements.

Evaluation criteria shall include overall compaction results. Appropriate modifications to embankment placement and compaction methodology shall be developed by the QC Manager if compacted materials do not meet program requirements.

The rate of embankment construction shall be measured by the QC Team every 24-hour period in which work has been performed as well as for a weekly total. Measurement methods shall be as approved by the QC Manager.

Field conformance testing shall include periodic in-place density and device calibration testing to provide documentation of the compaction operations at prescribed intervals as directed by the QC Manager. Moisture testing will include both nuclear density readings and laboratory moistures.

Drive tube samples will be taken at random locations corresponding to nuclear density tests. These samples will be subjected to laboratory density and moisture testing to calibrate the nuclear density gauge.

Shelby tube samples will be collected in conjunction with drive tube samples at a limited number of locations in order to perform a testing comparison. These Shelby tube samples will likewise be subjected to laboratory density and moisture testing.

6. Non-Woven Geotextile Filter Fabric

6.1. General

Geotextile materials shall be unloaded and stored in accordance with manufacturer recommendations. The CONTRACTOR shall provide to the QC Manager a copy of receipts from incoming delivery of geotextile. This can be performed by forwarding receipts from TVA procurement or during unloading of material shipments. Geotextile used for ditch lining shall conform to the requirements in Section 02410 of the Technical Specifications and as outlined below. Geotextile used for Subgrade Improvements may vary from the list of fabrics shown.

Requirements for geotextile used in ditches are as follows:

- a. Geotextile shall be a 16-ounce weight, non-woven, polyester or polypropylene fabric. Acceptable geotextile fabrics include:
 - Skaps Industries GE 116;
 - Propex Geosynthetics Geotex 1701;
 - Agru American Agrutex 1161;
 - Dalco Nonwovens Dultex 11610;
 - GSE Lining Technology NW 16;
 - Tencate Geosynthetics Mirafi S1600; and
 - US Fabrics, Inc. US380 NW.
- b. Geotextile shall be protected from direct sunlight, ultraviolet rays, temperature greater than 140 degrees Fahrenheit, mud, dirt, dust and debris. During storage, geotextile filter fabric shall be wrapped in a heavy duty protective covering.
- c. Installation shall be in accordance with manufacturer recommendations.
- d. Surfaces to receive geotextile shall be prepared to a relatively smooth condition, free of obstructions, depressions and debris.
- e. Geotextile shall be placed with the long dimension parallel with the centerline of ditches and roads, and/or parallel to embankment slopes, as applicable. Geotextile shall be laid smooth, and free of tension, stress, folds, wrinkles or creases. Perpendicular seams shall be avoided.
- f. Geotextile shall be covered with designated materials within 15 days of deployment to protect the geotextile from ultraviolet degradation.
- g. Geotextile shall be overlapped one foot. Care shall be taken during riprap placement to avoid displacement/damage of geotextile.
- h. Geotextile used in subgrade improvements shall be subject to large scale direct shear testing as described in Section 02400 of the Technical Specifications.

6.2. QC Requirements

QC requirements are as follows:

- a. Prior to delivery, manufacturer and supplier certifications shall be submitted to the QC Manager indicating that all materials meet, or exceed, the minimum established properties. Certifications shall be accompanied by supporting QC testing.
- b. Conformance testing and procedures shall be performed as shown in the testing schedule.
- c. Construction monitoring and field acceptance of geotextile installation shall be documented by the QC Team. Laps shall be visually inspected for conformance.

7. Erosion Control

Erosion Control shall conform to the site wide Storm Water Management Plan (SWMP). Erosion and sediment control measures shall be provided as field conditions dictate and approved by the Construction Manager, or as directed by the appropriate Regulatory Agency.

The Construction Manager shall periodically monitor these structures as well as overall site drainage conditions. Appropriate adjustments to site drainage and related sediment control structures shall be made as necessary based on current site conditions during the project.

8. As-built Documentation

8.1. General

The CONTRACTOR will grade stake the existing configuration and provide cut/fill stakes on an appropriate interval as needed for construction. The location (northing and easting) and elevation of the existing surface shall be recorded and provided to the QC Manager. Other surveys shall include:

- Monthly progress survey of stacking;
- As-needed to provide support to QC activities;
- Top of Subgrade Improvements Stacking and Top of Ash Stacking;
- Location of ditches and drainage structures; and
- Cross sections on 100 foot centers on the project baseline of each work item noted above with maximum survey point incremental distance of 50 feet.

8.2. Quality Control Requirements

- a. All survey activities shall be performed under the direction of a Tennessee licensed Land Surveyor or Professional Engineer.

- b. Survey data shall be provided to the QC Manager within 10 days of survey completion in survey point files with a description for each of the points. Survey shots shall be performed along cross sections and along breaks in slopes.
- c. The QC Manager will develop as-built Drawings from the provided data.

9. TDOT Class A-3 Machined Riprap

Riprap materials are utilized for rock check dam construction and ditches, and shall conform to the requirements in Section 709.03 of the TDOT "Standard Specifications for Road and Bridge Construction." Prior to delivery, supplier certification shall be submitted to the QC Manager that all materials meet or exceed the minimum established properties.

10. TDOT Machined Riprap and Shot Rock

Riprap or shot rock imported to the site for use in the subgrade improvements shall consist of quarry stone meeting the physical and chemical requirements of Section 709 of the Tennessee Department of Transportation "Standard Specifications for Road and Bridge Construction" latest edition. Prior to delivery, the gradation of the shot rock and supplier certification shall be submitted to the TVA that all materials meet or exceed the minimum established properties. Riprap or shot rock already on site that has been used in other applications and reclaimed for use for subgrade improvements is not subject to this requirement.

11. Geogrid

A sample of the proposed geogrid and the product specifications shall be submitted to the TVA for documentation purposes prior to installation. For quality control purposes the QC Team should document that installation occurs in accordance with the manufacturer's recommendation. The use of geogrid that exhibits shear at junctions when subjected to typical construction conditions shall be discontinued and another product utilized.

12. Bottom Ash

Bottom Ash if utilized for subgrade improvements shall meet site and EPA/TDEC requirements for sourcing. Bottom Ash shall not be imported to the site.

13. Aggregate

Aggregate imported to the site for use in the subgrade improvements shall consist of quarry stone meeting the physical and chemical requirements of Section 903 of the Tennessee Department of Transportation "Standard Specifications for Road and Bridge Construction" latest edition. Prior to delivery, the gradation of the aggregate and supplier certification shall be submitted to the TVA that all materials meet or exceed the minimum established properties. Aggregate already on site that has been used in other applications and reclaimed for use for subgrade improvements is not subject to this requirement.

14. Instrumentation

14.1. General

Instrumentation monitoring has been established for the Lateral Expansion (Cell 4) Ash Stacking project embankment area to monitor the embankment slopes and the underlying foundation materials. Instrumentation for geotechnical monitoring shall be installed or extended according to the attached Plan and Detail Sheets. The instrumentation program includes the prescribed use of the instrumentation and the specific monitoring of these devices as further, detailed. T-posts and orange safety fence or other protective barriers or high visibility measures approved by the QC Manager shall be installed by the CONTRACTOR around instrumentation.

14.2. Types

- a. Piezometers shall be installed and monitored to characterize the increase and dissipation of pore pressures within the existing ash and native foundation soil-layers due to embankment loading.
- b. Slope inclinometers shall be used to measure lateral displacements within the embankment and foundation materials due to loading. The inclinometers shall be anchored a minimum of 10 feet into bedrock.
- c. Settlement plates shall be utilized to measure the vertical deformation of the foundation soils due to embankment loading.

If any instruments are damaged during construction, they shall be repaired/replaced as directed by the QC Manager.

14.3. Measurements

Baseline data shall be confirmed prior to embankment loading. Piezometers, inclinometers and settlement plates shall be measured once a day in active areas and weekly elsewhere, unless directed otherwise by the QC Manager. The rate of embankment construction shall be varied by the QC Manager as part of the overall program objectives. Measured instrumentation responses shall be reviewed and evaluated by the QC Manager.

14.4. Thresholds

Embankment loading models have been analyzed which take into account the existing subsurface conditions and the proposed embankment heights. The following threshold limits shall be used for the stacking embankment.

- a. Piezometers – Embankment filling may continue, with regular monitoring frequency, as long as the ratio of excess pore pressure to the applied embankment load is 10 percent or below. When the excess pore pressure ratio within **native foundation soil layers** ranges from 10 to 15 percent, embankment filling may continue, but with an increase in instrumentation monitoring specified by the QC Manager. All fill placements shall stop immediately when the excess pore pressure ratio is above the 15 percent level within **native foundation soil layers**. Embankment filling shall stop

immediately when the excess pore pressure ratio is above the 10 percent level within **wet (foundation) ash layers**. All excess pore pressure measurements shall be evaluated from baseline data values.

- b. Slope Inclinometers and Settlement Plates – Embankment filling may continue with regular monitoring frequency, as long as the displacement ratio of lateral inclinometer movement to vertical settlement plate movement is 20 percent or below. When the displacement ratio ranges from 20 to 30 percent, embankment filling may continue, but with an increase in instrumentation monitoring specified by the QC Manager. All fill placements shall stop immediately when the displacement ratio is above the 30 percent level.

Following a stoppage, embankment filling in affected areas may resume based on the discretion of the QC Manager and engineering considerations on embankment stability. It should be noted that embankment loading may be restricted and/or modified at the discretion of the QC Manager based on other potentially unstable conditions not outlined herein.

15. Project Documentation

Documentation shall be collected and maintained by the QC Manager (copied to the Owner) during the project. This documentation shall include but not be limited to the following:

- Daily construction field reports;
- Observation reports;
- CONTRACTOR submittals;
- Material conformance data;
- Photographic documentation in accordance with site SOP;
- Survey data;
- As-Built Drawings;
- Construction issue and solution reports;
- Weekly summary reports (for regulatory submittal);
- Plan modifications; and
- Meeting minutes.

**Lateral Expansion (Cell 4) Ash Stacking
Quality Control Task Summary⁽¹⁾**

A. General Site and Construction Tasks

Task	Responsible Personnel⁽⁴⁾	Task Description/Itemization
QC Testing	QC Manager	-Designate appropriate test standards and methods to maintain quality standards outlined in the project requirements -Calibration of nuclear density gauges -Review all QC data for conformance with project standards and requirements -Collection and maintenance of all QC documentation -Generation of all QC related reports
Project Meetings	QC Manager / Construction Manager	-Organize meetings as necessary to ensure construction related personnel are familiar with design, construction procedures, and QA/QC requirements.
Contractor Submittals	QC Manager (QC Team)	-Approval of contractor submittals a minimum of 10 days before materials arrive on site -Verify materials utilized in site construction meet or exceed project requirements
Scheduling	Construction Manager	-Develop and maintain construction schedule and verify construction progress
Site Inspections	Construction Manager	-Site observations for indications of slope failure and/or instability
Surveying	Construction Manager	-Schedule surveying

B. Embankment

Task	Responsible Personnel	Task Description/Itemization
Ash Fill Placement and Compaction	QC Manager	-Verify and document ash fill placement and compaction per project requirements -Verify ash fill meets or exceeds project requirements -Confirm proper lift thickness -Verify proper lift surface preparation and scarification techniques -Establish and record elevations

C. Non-Woven Geotextile Filter Fabric

Task	Responsible Personnel	Task Description/Itemization
Submittals	QC Manager	-Approval of material samples and certified material specifications a minimum of 10 days prior to product arrival on site
Conformance Testing	QC Manager	-Collection, organization and maintenance of delivery tickets and all available documentation that supplied materials meet or exceed project requirements -Verification of minimum conformance tests
Installation	QC Team	-Monitor geotextile deployment and covering operations -Documentation that operations performed per project requirements, manufacturer recommendations, and industry practice

D. TDOT Class A-3 Machined Riprap		
Task	Responsible Personnel	Task Description/Itemization
Submittals	QC Manager	-Approval of documentation regarding conformance and TDOT ⁽³⁾ acceptance of proposed riprap supplier and riprap materials for TDOT projects a minimum of 10 days prior to material arrival on site
Conformance Testing	QC Manager	-Verify minimum conformance testing per current QC Plan
E. Subgrade Improvements		
Task	Responsible Personnel	Task Description/Itemization
Submittals	QC Manager	-Approval of material samples and certified material specifications a minimum of 10 days prior to product arrival on site
Conformance Testing	QC Manager	-Observe proofrolls and verify that performance standards are met
Installation	QC Team	-Monitor deployment of imported materials -Document materials conform to submittals
F. Instrumentation		
Task	Responsible Personnel	Task Description/Itemization
Extensions	QC Manager	-Extend existing instrumentation
New Installations	QC Manager	-Install new geotechnical instrumentation
Readings	QC Manager	-QC Team takes readings for threshold analyses
Protection	Construction Manager	-Arrange and coordinate installation of protective barriers around instrumentation
G. Erosion and Sediment Control		
Task	Responsible Personnel	Task Description/Itemization
Site Inspections and Evaluations	Construction Manager	-Periodic erosion and sediment control structure inspections and overall site drainage evaluations -Adjustments to site drainage and structures as necessary, based upon prevalent site conditions -Documentation of sediment control observations and modifications
H. QA/QC Documentation		
Task	Responsible Personnel	Task Description/Itemization
Documentation	QC Manager AND Construction Manager	-Overall organization and maintenance of QA/QC documentation of items outlined above as well as those designated in the QA/QC Plan

Notes:

1) The task summary is an itemized list of the general responsibilities to be administered by the Construction Manager and the QC Manager/QC Team per the current Quality Control Plan and the associated testing schedule.

2) All materials testing and site observations are to be conducted in accordance with the current Quality Control Plan and the associated testing schedule to assure that minimum project requirements are maintained on the site during the construction of the special waste disposal facility. Frequency stated when applicable. Many manager or team tasks, such as subgrade inspection, have no quantifiable testing frequency but are required during work progress.

3) TDOT- "Tennessee Department of Transportation"

4) Responsible Personnel Definitions:

Construction Manager - A TVA employee or consultant designated to be the Owner representative on the construction site. Responsibilities involve overall management of site operations including construction administration tasks, waste disposal, contracting and retaining the services of all necessary personnel (including a qualified engineer) for the life of the facility. The Construction Manager is also a liaison for the Owner to the QC Manager and Contractors.

QC Manager - Registered Professional Engineer in the State of Tennessee that becomes the Engineer of Record for construction. Responsibilities generally include the management of the QC Team as well as determining conformance of submittals and test results with project requirements, review of data, construction monitoring and/or testing, and construction document preparation.

QC Team - Personnel qualified in construction quality assurance/quality control (QA/QC) testing procedures pertinent to the Kingston Fossil Plant facility working under the direct supervision of the QC Manager.

DRAFT

Lateral Expansion (Cell 4) Ash Stacking
Kingston Fossil Plant
Harriman, Roane County, Tennessee

Quality Control Plan - Material Testing and Product Certification Schedule

Material	Property	Test Method	Value	Minimum Conformance Test Frequency
Ash Fill Stacking Operations				
Ash Fill	Nuclear Density and Moisture	ASTM	Minimum 90% standard Proctor and -4% to +2% optimum moisture	5 tests / acre / lift
	Calibration	ASTM	Drive Tube / Shelby Tube	Random
	Classification and Proctor	ASTM	Varies to be approved by QC Manager	1 / 50,000 CY loose volume
Rate of Embankment Construction	Height in Feet		Measured	Daily/Weekly/Monthly
Non-Woven Geotextile Filter Fabric	Project Requirements	ASTM	Project Requirements	1/ manufacturer / year visual
TDOT Class A-3 Riprap	Gradations	ASTM	Project Requirements	1 / 30,000 tons delivered
Instrumentation				
Readings	Measurements		Observations	Daily in active areas/Weekly elsewhere
Extensions	TVA Protocols		Manufacturer's Recommendations	

<p>Subgrade Improvements</p> <p>Ash Fill</p> <p>Geotextile</p> <p>Geogrid</p> <p>Riprap</p> <p>Shot Rock</p> <p>Aggregate</p>	<p>Nuclear Density and Moisture</p> <p>Classification and Proctor</p> <p>Shear Interface</p> <p>Sample and Specifications</p> <p>Gradation</p> <p>Gradation</p> <p>Gradation</p>	<p>ASTM</p> <p>ASTM</p> <p>ASTM D5321</p> <p>ASTM</p> <p>ASTM</p> <p>ASTM</p>	<p>Minimum 90% standard Proctor and -4% to +2% optimum moisture</p> <p>Varies to be approved by QC Manager</p> <p>Project Requirements</p> <p>Project Requirements</p>	<p>5 tests / acre / lift</p> <p>1 / 10,000 CY</p> <p>1 / manufacturer / type / year</p> <p>1 / manufacturer / year</p> <p>1 / 30,000 tons delivered</p> <p>1 / 30,000 tons delivered</p> <p>1 / 30,000 tons delivered</p>
<p>Erosion Control and Stabilization</p> <p>Site Inspections and Evaluations</p>	<p>Project Requirements</p>		<p>Site Wide SWMP</p>	<p>Bi-Weekly inspections</p>
<p>Thresholds</p>	<p>Pore Pressure Ratios</p> <p>Displacement Ratio</p>	<p>Measurement</p> <p>Measurement</p>	<p>Project Requirements</p> <p>Project Requirements</p>	<p>Daily in active areas/Weekly elsewhere</p> <p>Daily in active areas/Weekly elsewhere</p>
<p>QA/QC Documentation</p>	<p>Project Requirements</p>		<p>Project Requirements</p>	