

ASLA	American Society of Landscape Architects 636 Eye Street, N.W. Washington, D.C. 20001-3736
ASTM	American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, Pennsylvania 19428-2959
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235
FHWA	Federal Highway Administration 400 7 th Street, S.W. Washington, D.C. 20590
FSS	Federal Specifications and Standards U.S. General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) 1941 Jefferson Davis Highway Arlington, Virginia 22202
PPI	The Plastics Pipe Institute, Inc. 1825 Connecticut Avenue, N.W. Suite 680 Washington, D.C. 20009

1.03 BASIC DEFINITIONS

- A. Agreement; Contract; Contractor Agreement; or Contract Documents: The Agreement, including the exhibits thereto, Contractor's Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award) when specifically attached as an exhibit to and incorporated in the Agreement, the Notice to Proceed, the Bonds, the General Conditions, the Special Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives and Field Orders.
- B. Application for Payment: The form accepted by the Owner which is to be used by Contractor in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

- C. Authorized Representative: An individual or individuals, named in the Construction Agreement, who have been authorized by the Owner to execute a Change Order on behalf of the Owner.
- D. Change Order: A document recommended, that is signed by the Contractor and Owner and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
- E. Contract Times: The numbers of days or the dates stated in the Agreement:
1. to achieve Substantial Completion and
 2. to complete the Work so that it is ready for final payment as evidenced by the Project Manager's written recommendation of final payment.
- F. Contractor: The person, firm or corporation with whom Owner has entered into the Agreement.
- G. Defective: An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, in that it does not conform to the Contract Documents, or is of poor quality or workmanship, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to Project Manager's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner) at Substantial Completion.
- H. Drawings: The drawings which show the scope, extent and character of the Work to be furnished and performed by Contractor and which have been prepared or approved by Engineer and are referred to in the Contract Documents. Shop drawings are not Drawings as so defined.
- I. Engineer: The corporation (TriAD Environmental Consultants, Inc.) responsible for preparation of the Drawings and Specifications.
- J. Facility: The Owner's or other facility where the Work is to be performed.
- K. Field Order: A written order issued by the Owner which orders minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
- L. Laws and Regulations; Laws or Regulations: Any and all applicable laws, rules, regulations, ordinances, codes and orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

- M. Milestone: A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
- N. Owner: The corporation (ACC, LLC.) with whom Contractor has entered into the Agreement and for whom the Work is to be provided.
- O. Project: The total construction of which the Work to be provided under the Contract Documents may be the whole or a part as indicated elsewhere in the Contract Documents.
- P. Samples: Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
- Q. Shop Drawings: All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
- R. Subcontractor: An individual, firm, or corporation having a direct contract with Contractor or with any other subcontractor for the performance of a part of the Work at the site.
- S. Substantial Completion: The Work (or a specified part thereof) has progressed to the point where in the opinion of the Owner as evidenced by Project Manager's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if no such certificate is issued, when the Work is complete and ready for final payment as evidenced by the Project Manager's written recommendation of final payment.
- T. Supplier: A manufacturer, fabricator, distributor, materialman, or vendor having a direct contract with Contractor or with any subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any subcontractor.
- U. Underground Facilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems, or water.

1.04 OTHER DEFINITIONS

- A. Furnish: Supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.
- B. Install: Operations at the Project Site including unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- C. Provide: To furnish and install, complete and ready for the intended use.
- D. Installer: The Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
- E. Project Site: Is the space available for performing construction activities, either exclusively or in conjunction, with others performing work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01400

QUALITY ASSURANCE AND CONTROL SERVICES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The Owner will employ and pay for the services of the CQA Officer to perform construction monitoring and testing services to assure to the Owner that the Work is completed according to the Drawings and Specifications.
- B. The Contractor shall cooperate with the CQA Officer to facilitate the execution of its required services.
- C. Employment of the CQA Officer shall in no way relieve the Contractor's obligations to perform the Work and supply materials in accordance with the Contract Documents.
- D. The Contractor shall provide any additional testing required to control construction quality at no additional cost to the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 CONTRACTOR'S RESPONSIBILITIES

The Contractor shall:

- A. Cooperate with the CQA Officer and its personnel and provide access to Work and to Supplier's operations.
- B. Secure and deliver to the CQA Officer, as necessary, adequate quantities of representative samples of materials proposed to be used which require testing.
- C. Furnish copies of Supplier's test reports as required.
- D. Furnish incidental labor and facilities:
 - 1. To provide access to Work to be tested.
 - 2. To obtain and handle samples at the site or at the source of the product to be tested.
 - 3. To facilitate inspections and tests.

- E. Coordinate activities to accommodate services with a minimum delay. Notify CQA Officer 48 hours in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
- F. Employ and pay for the services of a separate, qualified independent testing laboratory to perform additional inspections, sampling, and testing required:
 - 1. for the Contractor's convenience or
 - 2. as required by the Specifications or approved Quality Control Plans
- G. Promptly notify the CQA Officer of observed irregularities or deficiencies of Work or products.

3.02 REPAIR AND PROTECTION

Unless specified otherwise, the Contractor shall protect construction exposed for testing and shall repair construction damaged by sampling, testing, or inspection.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. The Contractor shall furnish, install, and maintain required construction aids and barriers as required to prevent public entry, and to protect the Work, existing facilities, trees, and plants from construction operations and other temporary facilities required to complete the Work.
- B. The Contractor shall provide and maintain methods, equipment, and temporary construction, as necessary, to provide controls over environmental conditions at the construction site and related areas under Contractor's control.
- C. The Contractor shall remove all temporary facilities and controls at completion of Work or when no longer necessary.

1.02 DUST CONTROL

The Contractor shall provide positive methods and apply dust control water to minimize raising dust from construction operation, and provide positive means to prevent airborne dust from dispersing into the atmosphere. Dust suppressants shall be approved by the Owner prior to use. Chemical dust suppressant shall not be used

1.03 WATER CONTROL

- A. The Contractor shall provide methods to control surface water to prevent damage to the project, the site, or adjoining properties. The Contractor shall control fill, grading, and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas; and to direct drainage for proper runoff.
- B. The Contractor shall provide, operate, and maintain hydraulic equipment of adequate capacity to control surface erosion.
- C. The Contractor shall dispose of drainage water in a manner to prevent flooding, erosion, sedimentation, or other damage to any portion of the Work or to the site or to adjoining areas.

1.04 DEBRIS CONTROL

- A. All areas under Contractor's control shall be maintained free of extraneous debris.
- B. The Contractor shall initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking areas, or along access roads and haul routes.
 - 1. Appropriate containers, designed for such use, shall be provided for deposit of debris.
 - 2. The Contractor shall prohibit overloading of trucks to prevent spillages on access and haul routes. Traffic areas shall be periodically inspected to enforce requirements.
- C. The Contractor shall schedule periodic collection and disposal of debris. Additional collections and disposal of debris shall be provided whenever the periodic schedule is inadequate to prevent accumulation.

1.05 POLLUTION CONTROL

- A. The Contractor shall provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by the discharge of noxious substances from construction operations.
- B. The Contractor shall provide equipment and personnel to perform emergency measures required to contain any spillages and to remove contaminated soils or liquids; and, shall excavate and dispose of any soil contaminated by the construction operations, and replace with suitable compacted fill, topsoil, and vegetation as directed by the CQA Officer or the Owner.
- C. The Contractor shall take special measures to prevent harmful substances from entering public waters; and, shall prevent disposal of wastes, effluents, chemicals, sediments, or other such substances adjacent to streams, or in sanitary or storm sewers.
- D. The Contractor shall provide systems for control of atmospheric pollutants and shall:
 - 1. prevent toxic concentrations of chemicals and
 - 2. prevent harmful dispersal of pollutants into the atmosphere.

1.06 EROSION CONTROL

- A. The Contractor shall plan and execute construction and earthwork using methods to control surface drainage from cuts and fills and from borrow areas in order to prevent erosion and sedimentation; and shall:
 - 1. hold the number and size of areas of bare soil exposed at one time to a minimum and
 - 2. provide temporary control measures such as berms, dikes, silt fence, check dams, etc., as shown on the Drawings, as directed by the CQA Officer, and as required to satisfy all regulatory requirements.
- B. The Contractor shall construct fills by selective placement to eliminate erodible surface soils.
- C. The Contractor shall periodically inspect earthwork to detect any evidence of the start of erosion and apply corrective measures as required to control erosion.
- D. The Contractor shall be solely responsible for any adverse impacts to the project, the site, or adjoining properties due to surface water and/or erosion and sedimentation run-off.

PART 2 - PRODUCTS

2.01 MATERIALS

Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.02 CONSTRUCTION AIDS

The Contractor shall provide any and all construction aids, equipment, and materials required to facilitate execution of the Work, including but not limited to: scaffolds, staging, ladders, stairs, ramps runways, platforms, railings, hoists, cranes, chutes, and other such facilities and equipment.

PART 3 - EXECUTION

3.01 PREPARATION

The Contractor shall consult with CQA Officer and review site conditions and factors which affect construction procedures and construction aids, including adjacent properties and public facilities which may be affected by execution of the Work.

3.02 GENERAL

- A. Installation of facilities shall be of a neat and reasonable uniform appearance, structurally adequate for required purposes.
- B. The Contractor shall maintain barriers during entire construction period.
- C. The Contractor shall relocate barriers as required by construction progress.

3.03 TREE AND PLANT PROTECTION

- A. The Contractor shall preserve and protect existing trees and plants at the site which are designated to remain, and those adjacent to the site.
- B. The Contractor shall consult with Owner and remove agreed-upon roots and branches which interfere with construction.
- C. The Contractor shall protect root zones of trees and plants and shall perform the following in areas of protected trees and plants:
 - 1. Not allow vehicular traffic or parking.
 - 2. Not store materials or products.
 - 3. Prevent dumping of refuse or chemically injurious materials or liquids.
 - 4. Prevent ponding or continuous running water.
- D. The Contractor shall carefully supervise excavating, filling, grading, and subsequent construction operations, to prevent damage.
- E. The Contractor shall replace, or suitably repair, trees and plants which have been designated to remain and which are damaged or destroyed due to construction operations.

3.04 REMOVAL

- A. The Contractor shall completely remove temporary barriers, materials, equipment, and services:
 - 1. when construction needs can be met by use of permanent construction or
 - 2. at completion of Project.

- B. The Contractor shall clean and repair damage caused by installation or by use of temporary facilities including:
1. removal of foundations and underground installations for construction aids,
 2. grading areas of site affected by temporary installations to required elevations and slopes, and
 3. cleaning of the area.
- C. The Contractor shall restore existing facilities used for temporary purposes to specified or original condition.
- D. The Contractor shall restore permanent facilities, if any, used for temporary purposes to the specified condition.

END OF SECTION

SECTION 01560

TEMPORARY EROSION AND SEDIMENT CONTROLS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Work covered by this section includes providing all labor, materials, and equipment to install the required means of erosion and sediment control, as detailed in the Drawings, and as otherwise required during construction, and for maintaining erosion controls throughout the Work. Erosion and sediment control measures as shown on the Drawings are the absolute minimum anticipated for the project. The Contractor has the ultimate responsibility to establish and maintain adequate erosion and sediment control measures as required to satisfy all applicable site permits, as well as all federal, state, and local requirements. All Work shall be conducted in accordance with applicable federal, state, and local requirements.
- B. The Site is located upgradient of a 303(d) Listed stream which requires a sediment pond downgradient of any location where more than 5 acres will be disturbed.

PART 2 - PRODUCTS

2.01 SILTATION FENCES

- A. Silt fence shall conform to the standards identified on the Drawings and as specified in the Tennessee Erosion and Sediment Control Handbook.
- B. Filter fabric material shall be made of a durable and pervious type material such as propylene, nylon, or polyester fabric material, and contain ultraviolet ray inhibitors and stabilizers.
- C. Wire backing shall be made of zinc coated, woven wire reinforcement.
- D. Posts shall be made of wood and steel as identified on the Drawings.

PART 3 - EXECUTION

3.01 PERFORMANCE

- A. Temporary sediment and erosion control measures shall be established prior to the start of any clearing, grubbing, grading, or excavation activities.
- B. Control measures shall be inspected by the Contractor periodically and after every storm event to determine the efficiency of the system. Damaged controls shall be repaired or replaced immediately.

- C. Sediment control measures shall be periodically cleaned of silt. At a minimum, silt shall be removed from the structures when 50 percent of the system capacity is achieved.
- D. The Contractor shall plan and execute construction and earthwork using methods to control surface drainage from cuts and fills and from borrow and waste disposal areas in order to prevent erosion and sedimentation, and shall:
 - 1. hold the number and size of areas of bare soil exposed at one time to a minimum, and
 - 2. provide temporary control measures such as berms, dikes, silt fence, check dams, etc., as shown on the Drawings, as directed by the Site Inspector, and as required to satisfy all regulatory requirements.
- E. The Contractor shall construct fill areas by selective placement to eliminate erodible surface soils.
- F. The Contractor shall periodically inspect earthwork to detect any evidence of the start of erosion, and apply corrective measures as required to control erosion.
- G. The Contractor shall be solely responsible for any adverse impacts to the site, or adjoining properties due to surface water and/or erosion and sedimentation run-off.
- H. The Contractor may be required to install and maintain additional sediment and erosion controls, as necessary to prevent erosion, as directed by the Owner.

END OF SECTION

SECTION 01570
TRAFFIC CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

The Work covered by this section includes all material and labor required to furnish, install, erect, maintain, and illuminate all construction signs (regulatory, warning and guide), barricades, temporary pavement markings and temporary traffic control devices necessary to maintain safe traffic operations through construction work zones.

PART 2 - PRODUCTS

- A. All traffic control and marking devices for construction work zones shall meet applicable State and local requirements. Additional traffic control devices may be required to ensure satisfactory performance of the Work.
- B. Materials are not required to be new. Used items may be acceptable provided materials are in good repair, clean, and structurally sound.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall have a designated representative for surveillance over traffic control during construction activities, as necessary.
- B. Flagmen with proper attire and flags shall be provided as necessary to safely handle traffic through, entering, and exiting the construction site.
- C. All Contractor employees will park personal vehicles in designated parking areas, approved by the Owner. Vehicles will not be parked along roadways or in areas which may create a general nuisance to the public or surrounding property owners.
- D. Construction vehicles will be provided use of all existing access roads at the construction site. However, public vehicles shall have the right-of-way over the Contractor or other construction vehicles utilized to complete the Work specified herein.

3.02 MAINTENANCE

- A. The Contractor shall assume responsibility for the continuous and expeditious maintenance of all signs, barricades, and other traffic control devices. All items

used for traffic control shall be generally maintained in their original placement condition.

- B. The Contractor shall be responsible for the expeditious removal of all traffic control devices at the completion of construction activities or at such a time as the devices are no longer necessary.

END OF SECTION

SECTION 02160

DUST CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall conduct operations and maintain the site so as to minimize the creation and dispersion of dust. Dust control measures shall be implemented, as necessary, to prevent dust from creating a nuisance or safety hazard to adjacent landowners or to persons engaged in supervising, operating, or using the Site

PART 2 - PRODUCTS

2.01 WATER

The Contractor shall use water for dust control from an onsite source.

PART 3 - EXECUTION

3.01 GENERAL CONTRACTOR REQUIREMENTS

The Contractor shall implement strict dust control measures during active construction periods onsite. These control measures shall generally consist of water applications that shall be applied a minimum of twice per day during dry weather to prevent dust emissions. The Contractor shall also be responsible for implementing effective dust control measures for equipment.

3.02 WATER APPLICATION TO SOIL SURFACES

For water application to soil surfaces, the Contractor shall:

1. Apply water to road surface with equipment consisting of a tank truck, spray bar, and pump with discharge pressure gauge.
2. Arrange spray bar height nozzle spacing and spray pattern to provide complete coverage of the ground with water.
3. General area dampening for dust control may be done using conventional lawn sprinkling equipment.

END OF SECTION

SECTION 02200

GENERAL EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The Contractor shall furnish all labor, materials, tools, supervision, transportation, and installation equipment necessary to perform all related work as specified herein, as shown on the Drawings, and in accordance with the approved Corrective Action Plan (CAP) and construction quality assurance (CQA) requirements.
- B. The work of this section shall include, but is not limited to excavating, separating, hauling, stockpiling, backfilling, compacting, and grading of soil. The work of this section may pertain in whole or in part to construction of the corrective measures at the former ACC Landfill. The work of this section also includes dewatering and protection.
- C. The Contractor shall conform to the dimensions, lines, and grades shown on the Drawings.

1.02 REFERENCES

- A. ACC Landfill Phase 1 Waste Relocation Area Operations Manual.
- B. Latest version of American Society for Testing and Materials (ASTM) standards:
 - 1. ASTM D422, Standard Test Method for Particle-Size Analysis of Soils.
 - 2. ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D1557, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 4. ASTM D2216, Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock.
 - 5. ASTM D2487, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

6. ASTM D2922, Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
7. ASTM D2937, Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method.
8. ASTM D3017, Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
9. ASTM D4220, Standard Practices for Preserving and Transporting Soil Samples.
10. ASTM D4318, Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.03 SUBMITTALS AND QUALIFICATIONS

- A. The Contractor shall notify the Owner's Representative in writing at least seven days in advance of intention to perform the work of this section.
- B. If work is interrupted for reasons other than inclement weather, the Contractor shall notify the Owner and CQA Officer a minimum of 24 hours prior to the resumption of work.

1.04 CONSTRUCTION QUALITY ASSURANCE

The Contractor shall coordinate with onsite construction quality assurance personnel to ensure that testing and documentation of all constructed elements are conducted in accordance with approved plans.

1.05 PROTECTION

- A. The Contractor shall contact utility companies and locate, mark, and protect all existing utilities before commencement of construction.
- B. The Contractor shall protect trees, shrubs, lawns, rock outcroppings, and other features remaining as part of final landscaping.
- C. The Contractor shall protect benchmarks, survey markers, fences, roads, sidewalks, paving, curbs, groundwater monitoring wells, and other existing structures from damage due to the Contractor's activities.
- D. The Contractor shall repair damage caused by the construction operations.
- E. Erosion controls must be maintained. Erosion control measures shall be as noted on the Drawings, or as directed by the Owner or CQA Officer.

PART 2 - PRODUCTS

2.01 STRUCTURAL FILL MATERIAL

- A. All laboratory testing to evaluate the suitability or conformance of soil materials shall be carried out in accordance with the test methods indicated in Part 1.02.
- B. Structural fill material shall be the onsite soil materials, or other materials, as approved by the Owner or CQA Officer. The structural fill material shall be free of debris, foreign objects, roots, organics, and other materials considered deleterious by the CQA Officer.
- C. Any material that is determined to be substandard by the CQA Officer shall be removed from the work area by the Contractor as directed by the Owner at no extra cost to the Owner.

2.02 PIPE BEDDING GRAVEL MATERIAL

The pipe bedding gravel material shall be AASHTO M-43 Size No. 57 or equivalent angular crushed stone with particle size ranging between 1/4 inch to 1 inch.

PART 3 - EXECUTION

3.01 FAMILIARIZATION

- A. Prior to implementing any work described in this section, the Contractor shall become thoroughly familiar with the site, the site conditions, and all portions of the work falling within this section and the CQA requirements set forth in the Phase 1 Waste Relocation Area Operations Manual.
- B. Inspection:
 - 1. Prior to implementing any of the work in this section, the Contractor shall carefully inspect the installed work of all other Sections and verify that all work is complete to the point where the installation of this section may properly commence without adverse impact.
 - 2. If the Contractor has any concerns regarding the installed work of other sections, the Contractor shall notify the CQA Officer and the Owner in writing within 48 hours of the site visit. Failure to notify the Owner or continuance with earthworks will be construed as Contractor's acceptance of the related work of all other sections.

3.02 PREPARATION

- A. The Contractor shall establish and identify required lines and levels.

- B. The Contractor shall maintain benchmarks, monuments, and other reference points and re-establish points if disturbed or destroyed, at no cost to Owner.
- C. Before start of grading, the Contractor shall establish the location and extent of utilities in the work areas. The Contractor shall notify utilities to remove and relocate lines which are in the way of construction and are not to be relocated as a part of the Work covered by these specifications.
- D. The Contractor shall maintain, protect, reroute, or extend as required existing utilities to remain which pass through the work area.
- E. The Contractor shall develop access to the construction area in accordance with the requirements of the Drawings.
- F. The Contractor shall install silt fence as shown on the Drawings, immediately down-slope of each area to be disturbed prior to the beginning of work in that area. The Contractor shall maintain silt fence for the duration of construction. Accumulated sediment behind silt fences shall be disposed of on-site by the Contractor in a manner approved by the Owner.
- G. The Contractor shall be responsible for constructing diversion ditches as required to divert run-on around the construction area. The construction of temporary ditches not shown on the Drawings shall not be undertaken until the Contractor's plan for constructing the ditches is approved by the Owner or CQA Officer.
- H. The Contractor shall install barriers and other devices to protect areas adjacent to construction.

3.03 STOCKPILING

- A. Excavated materials classified as fill shall be stockpiled in designated areas free of incompatible soil, clearing debris, or other objectionable materials. Stockpile areas will be as shown on the Drawings or designated by the Owner or CQA Officer.
- B. Excavated material classified as spoil shall be segregated from fill and stockpiled or disposed of in the manner shown on the Drawings or as specified by the Owner or CQA Officer.
- C. Excavated material classified as topsoil shall be segregated from fill and stockpiled in the manner shown on the Drawings or as specified by the Owner or CQA Officer.

- D. Stockpiles of fill, spoil, or topsoil shall be no steeper than 3:1 (horizontal:vertical) without approval of the CQA Officer; graded to drain; sealed by tracking parallel to the slope with a dozer or other means approved by the CQA Officer; and dressed daily during periods when fill is taken from the stockpile. The Contractor may cover fill stockpiles with plastic sheeting or other material approved by the CQA Officer in order to preserve the moisture content of the fill.
- E. Stockpiles that will remain out of active use for a period greater than seven months shall either be covered as described previously or stabilized by revegetation.

3.04 EXCAVATION - GENERAL

- A. Excavation shall be performed, at a minimum, to the lines and grades indicated on the Drawings. Additional excavation shall be performed to achieve a stable working base or to "bridge" over weak subgrade materials. The limits of additional excavation shall be determined by the CQA Officer.
- B. Excavated materials shall be transported to stockpile or placement locations, as indicated on the Drawings or as directed by the Owner or CQA Officer.
- C. Upon completion of excavation within designated soil borrow areas, the area shall be graded to promote positive drainage.

3.05 EXCAVATION - PIPE TRENCHES

- A. Excavation shall be performed in such a manner as to form a suitable trench in which to place the pipe and so as to cause the least inconvenience to the public.
- B. Maximum width at the crown of the pipe shall be two feet plus the nominal diameter of the pipe, unless approved specifically by the Owner or Owner's Authorized Representative due to unusual bracing and shoring requirements. The minimum width at the crown at the pipe shall be one foot plus the nominal pipe diameter.
- C. Trench depth shall be as noted on the Drawings.
- D. The Contractor shall align trenches as shown on the Drawings unless a change is necessary to miss an unforeseen obstruction or avoid tree root systems.
- E. When unstable soil is encountered at the trench bottom, the Contractor shall remove it to a depth required to assure support of the pipeline and backfill to the proper grade with the pipe bedding material as specified on the Drawings.

- F. The Contractor shall remove rock encountered in trench excavation to a depth of six inches below the bottom of the pipe barrel, backfill with an approved material, and compact to uniformly support the pipe. In no case shall solid rock exist within six inches of the finished pipeline.

3.06 SHEETING, SHORING, AND BRACING

- A. When necessary, the Contractor shall furnish, put in place, and maintain such sheeting, bracing, etc., as may be required to support the sides of the excavation and to prevent movement.
- B. Care shall be taken to prevent voids outside the sheeting.
- C. If voids form, they shall be immediately filled and compacted.
- D. Unless adjacent facilities will be damaged, the Contractor shall remove all sheeting, shoring, and bracing after backfill has been placed to a depth of eighteen inches over the pipeline.
- E. Shoring shall be cut off at the top of the pipe with the lower section left in the trench.
- F. Contractor shall be responsible for performance and safety on all sheeting, shoring, and bracing.

3.07 UNAUTHORIZED EXCAVATION

- A. All excavation outside or below the proposed lines and grades shown on the Drawings shall be considered unauthorized excavation.
- B. The Contractor shall backfill areas of unauthorized excavation with the type material necessary (e.g., soil, rock, or concrete) in accordance with this Section at no cost to the Owner, to insure the stability of the structure or construction involved.

3.08 OBSTRUCTIONS

- A. Obstructions shown on the Drawings are for information only and do not guarantee their exact locations nor exclude the presence of other obstructions.
- B. The Contractor shall exercise due care in excavating adjacent to existing obstructions.

- C. In the event obstructions are disturbed, the Contractor shall repair or replace them as quickly as possible to the condition existing prior to their disturbance, at no cost to the Owner.
- D. If desired by the utility Owner, the Contractor shall pay for the repair or replacement work performed by the forces of the utility company or other appropriate party.
- E. If replacement or repair of disturbed obstructions is not performed after a reasonable period of time, the Owner may have the necessary work done and deduct the cost of same from payments to the Contractor.

3.09 CLEAN-UP AND DISPOSAL OF DEBRIS

- A. Unless otherwise requested by the Owner, the Contractor shall remove all surplus materials from the site. Debris shall be cleaned up and disposed of in a manner that is satisfactory to the Owner.
- B. The Contractor shall stockpile all excess excavated material that cannot be used at the location directed by the Owner.

3.10 PUMPING AND DRAINAGE

- A. At all times during construction, the Contractor shall provide, maintain, and operate proper equipment and facilities to remove all water entering excavations and keep such excavations dry so as to obtain a satisfactory subgrade to allow the construction of the recompacted soil.
- B. Drainage shall be disposed of only in an area approved by the Owner and CQA Officer.

3.11 SURVEY CONTROL

The Owner shall provide surveying services required by the CQA requirements set forth in the Phase 1 Waste Relocation Area Operations Manual and for verifying quantities for payment. The Contractor shall provide surveying services necessary for construction, which includes staking. The Owner's surveyor will verify correct grades. If grades are not correct, the Contractor will be responsible for payment for services provided by the Owner's surveyor to reverify correct grades.

3.12 ROUGH GRADING

- A. The Contractor shall rough grade the site to required levels, profiles, contours, and elevations ready for finish grading and surface treatment.

- B. Prior to placing fill material over undisturbed subsoil or upon completion of excavation to subgrade, the subgrade shall be proofrolled with loaded dump truck or similar pneumatic tired vehicle under the observation of the CQA Officer. Should subgrade soils pump, yield, or fail to achieve the density required, the Contractor shall disc, blade, scarify, and allow to dry. The Contractor shall then recompact the soil in layers as specified in Paragraphs 3.15 and 3.16 under the observation of the CQA Officer. This procedure shall be repeated as necessary as the weather permits, to facilitate the drying and recompaction of the soil. After recompaction, the subgrade shall be proofrolled under the observation of the CQA Officer.
- C. Should efforts to achieve required density be unsuccessful, the Contractor shall excavate the material and replace with suitable backfill in layers as specified in Paragraphs 3.15 and 3.16. Undercutting shall not be permitted except at the direction of the CQA Officer.

3.13 SUBGRADE PREPARATION

- A. The Contractor shall grade to subgrade. Uneven areas and low spots shall be eliminated. Debris, roots, branches, stones, etc., in excess of three inches in size shall be removed. Remove subsurface soils which have been contaminated with petroleum products.
- B. Areas which are to receive stabilizing base for paving shall be cut out to sub-grade elevation.
- C. Subgrade shall be brought to required levels, profiles, and contours. Changes in grade shall be gradual. Slopes shall be blended into level areas.
- D. Subgrade shall be cultivated to a depth of three inches where topsoil is to be placed. Cultivation shall be repeated in areas where equipment, used for hauling and spreading topsoil, has compacted sub-soil.
- E. All subgrades that are to receive stabilizing base shall be proofrolled under the observation of the CQA Officer prior to placement of base gravel. If soft spots are found, the CQA Officer will direct removal, backfilling, and recompacting.

3.14 SOIL BACKFILL

- A. The Contractor shall perform soil backfilling for clay and structural fill components of the construction with material meeting the requirements of this Section in loose lifts not exceeding eight (8) inches in compacted thickness and maintained within 3 percent of the optimum moisture content as determined by ASTM D 698.

- B. When backfilling in unimproved areas the Contractor shall:
1. Dispose of and replace all soft or yielding material which is unsuitable for backfill with suitable material.
 2. Deposit backfill to the surface of the ground by dragline, bulldozer, or other suitable equipment in such a manner.
 3. In areas of trench excavation, neatly round sufficient surplus excavated material over the trench to compensate for settlement.
 4. Dispose of all surplus excavated material.

3.15 PIPE BACKFILL

- A. The Contractor shall deposit a six inch bedding layer of material meeting the requirements of this Section in the bottom of the trench.
- B. Backfilling shall not begin before the Owner or Owner's Representative has inspected the grade and alignment of the pipe, the bedding of the pipe, and the joints between the pipe. If backfill material is placed over the pipe before an inspection is made, the Contractor shall reopen the trench in order for an inspection to be made.
- C. The Contractor shall deposit pipe bedding gravel, together with hand tamping in loose lifts not exceeding eight (8) inches to an elevation of one-half the height of the pipe.

3.16 VEGETATED COVER PLACEMENT

- A. The Contractor shall perform protective cover placement with material meeting the requirements of this Section in 12-inch lifts.
- B. The vegetated cover layer will be installed directly over the subgrade or compacted soil layer. Placement of the protective cover material may be performed using a low ground-pressure dozer.

3.17 COMPACTION

- A. Protective cover materials shall be compacted to a minimum density of 90 percent of the maximum dry density as determined by ASTM D698. The compacted clay and structural fill shall be compacted to a minimum density of 95 percent of the maximum dry density as determined by ASTM D698

- B. The Contractor shall be responsible for implementing any necessary measures including, but not limited to, drying, moisture addition, additional compaction, removal and recompaction, necessary to achieve the compaction specification.

3.18 FINISH GRADING

All earthwork shall be shaped to the lines and grades indicated on the Drawings, with proper allowance for topsoil, where specified. Slopes shall be free of roots and loose stones exceeding three inch diameters. Rounded surfaces shall be neatly and smoothly trimmed. All new grading shall be blended into the surrounding, existing terrain.

3.19 FIELD QUALITY CONTROL

- A. The minimum frequency and details of quality assurance testing are provided in the Phase 1 Waste Relocation Area Operations Manual. The Contractor shall be aware of all field quality assurance activities, as these may affect his schedule.
- B. All perforations resulting from testing the recompacted soil shall be filled with soil compacted to the satisfaction of the Owner and CQA Officer.
- C. If a defective area is discovered in the earthwork, the CQA Officer shall immediately determine the extent and nature of the defect by additional tests, observations, a review of records, or other means that the CQA Officer deems appropriate.
- D. After determining the extent and nature of a defect, the Contractor shall correct the deficiency at his expense to the satisfaction of the CQA Officer.
- E. Additional testing shall be performed to verify that the defect has been corrected before any additional work is performed by the Contractor in the area of the deficiency.

3.20 PRODUCT PROTECTION

- A. The Contractor shall use all means necessary to protect all prior work, including all materials and completed work of other sections.
- B. In the event of damage, the Contractor shall immediately make all repairs and replacements necessary, to the approval of the Owner or CQA Officer at no additional cost to Owner.
- C. At the end of each day, the Contractor shall verify that the entire work area was left in a state that promotes surface drainage off and away from the

area and from finished work. If threatening weather conditions are forecast, compacted surfaces shall be seal-rolled to protect finished work.

END OF SECTION

SECTION 02930

SEEDING AND MULCHING

PART 1 - GENERAL

1.01 WORK INCLUDED

This Work shall include all labor, materials, tools and equipment necessary for furnishing and applying lime, fertilizer, furnishing and placing grass seed, and mulching at designated areas of the site.

PART 2 - PRODUCTS

2.01 FERTILIZER

- A. Fertilizer shall be uniform in composition, free flowing, and suitable for application with approved equipment. The fertilizer shall be delivered to the site in bags or other convenient containers, each fully labeled, conforming to Tennessee fertilizer laws, and bearing the name, trade name or trademark, and warranty of the producer.
- B. Fertilizer shall be commercial grade fertilizer conforming to all state and federal regulations. The analysis shall represent percentages of nitrogen, phosphoric, and potash.
 - 1. The analysis ratio shall be based on recommendations obtained from the Natural Resource Conservation Service (NRCS). The Contractor shall provide the NRCS with a composite soil sample taken from the area to be revegetated. The composite sample will be comprised of ten aliquots taken from the area at a depth of 6-inches and combined in a manner to ensure sufficient uniformity. The composite sample shall then be tested for percent water content, pH, potassium, and phosphorus.
 - 2. A minimum of 30 percent of the nitrogen in the fertilizer used shall be water insoluble (WIN).
- C. All fertilizer shall be identified by labels and shall show the following:
 - 1. Guaranteed analysis.
 - 2. Name and address of the guarantor of the fertilizer.
 - 3. Type or brand.
 - 4. Net weight.

2.02 LIME

Lime shall be agricultural-grade dolomitic limestone ground to pass an 8-mesh sieve with 25 percent passing a 100-mesh sieve and be applied at a rate of 2 tons/acre to achieve a soil pH value of 6.5. In addition, the dolomitic limestone shall contain not less than 40 percent magnesium oxide. Coarser materials will be acceptable provided the specified rates of application are increased proportionately, on the basis of quantities passing the 9 and 100-mesh sieves, but no additional payment will be made for the increased quantity.

2.03 MULCH

- A. Mulch shall be threshed straw of cereal grain such as oats, wheat, barley, rye, rice, etc., or pine needles or wood fiber. Hay or chopped cornstalks are not acceptable.
- B. Materials that contain objectionable weed seeds or other species that might be detrimental to the planting being established will not be acceptable.

2.04 GRASS SEED

- A. Grass seed shall meet all state requirements and shall not include primary noxious weed seeds.
- B. Seed shall be selected based on recommendations by the NRCS and the Tennessee Sediment and Erosion Control Handbook.
- C. Grass seed shall be furnished in fully labeled, standard, sealed containers.
- D. Percent germination and purity of the seed and weed seed content shall be clearly stated on the label.
- E. Seed shall be subject to the testing provisions of the Association of Official Seed Analysis. The month and year of the test shall be clearly stated on the label.
- F. Seed may be tested after it has been delivered to the project.
- G. Seed which has become wet, moldy, or otherwise damaged will not be acceptable.

2.05 WATER

Water used to spray seed shall be free from oil, acid, alkali, salt and other substances harmful to growth of grass, and shall be from a source approved by the Owner or Site Inspector prior to use.

PART 3 - EXECUTION

3.01 GRADING

Previously established grades shall be maintained on the areas to be treated in a true and even condition; necessary repairs shall be made to previously graded areas. Where grades have not been established, the areas shall be graded as shown on the Drawings and all surfaces shall be left in an even and properly compacted condition to prevent formation of depressions.

3.02 SEEDING

- A. Fertilizer and lime shall be distributed uniformly over the area and shall be uniformly mixed with the soil to a depth of at least 2 inches by disking or harrowing.
- B. The seed shall be selected and sown based upon recommendations by the NRCS. The seed shall be covered and compacted to a depth of $\frac{1}{8}$ to $\frac{1}{2}$ inch by means of an empty traffic roller or other roller weighing less than 3 tons. Broadcasting seed will not be permitted when the wind makes it difficult to get satisfactory distribution.
- C. Mulch shall be applied to a thickness of approximately 1 inch immediately after seeding. Straw mulch shall be applied at a rate of 2 tons per acre, or wood fiber mulch shall be applied at a rate of 1,400 pounds per acre.

3.03 GENERAL REQUIREMENTS FOR SEEDING

In order to prevent unnecessary erosion of excavated areas and unnecessary siltation of drainage ways, the Contractor shall carry out erosion control items of work such as seeding and mulching as soon as he has satisfactorily completed that portion of the project.

3.04 CARE AFTER SEEDING

- A. The Contractor shall be responsible for protecting and caring for seeded areas until final acceptance of the work by the Owner. He shall repair, at his own expense, any damage to seeded areas caused by pedestrian, vehicular traffic or other causes.
- B. The seeded areas shall be carefully and suitably watered as necessary to produce a satisfactory growth.

3.05 WATERING

- A. Watering equipment of a type that prevents damage to the finished ground surface shall be used.

- B. Watering will be required if sprigging is authorized when the ground is excessively dry. Water shall be applied at the time of or immediately following sprigging until the soil is thoroughly wet to a depth of at least 2 inches below the planted sprigs. Additional waterings shall be made as directed by the Owner.

3.06 QUALITY CONTROL

The Owner has the authority to postpone seeding at any time weather or moisture conditions are unfavorable. If there is not enough moisture in the soil to ensure adequate plant growth, water shall be applied until an adequate moisture content has been reached. Additional waterings will be required during the germination period, and during the growth period until a satisfactory growth has been attained. Water shall not be applied when there is danger of freezing.

3.07 STAND OF GRASS REQUIRED

It is the intent of this specification that the Contractor is obligated to deliver a satisfactory stand of perennial grass before final acceptance of work. If it is necessary to repeat any or all of the work, including plowing, fertilizing, watering and seeding, the Contractor shall repeat these operations, without additional cost to the Owner, until a satisfactory stand is obtained. A satisfactory stand of grass will be considered a full cover over the seeded areas with grass that is alive and growing leaving no bare spots larger than one square yard, the total of all bare spots in any one area not to exceed 10 percent of the area.

END OF SECTION

CALCULATIONS

Table 1: AGC Former Landfill Impoundment/Sugar Creek Dilution Calculations
October 1, 2018

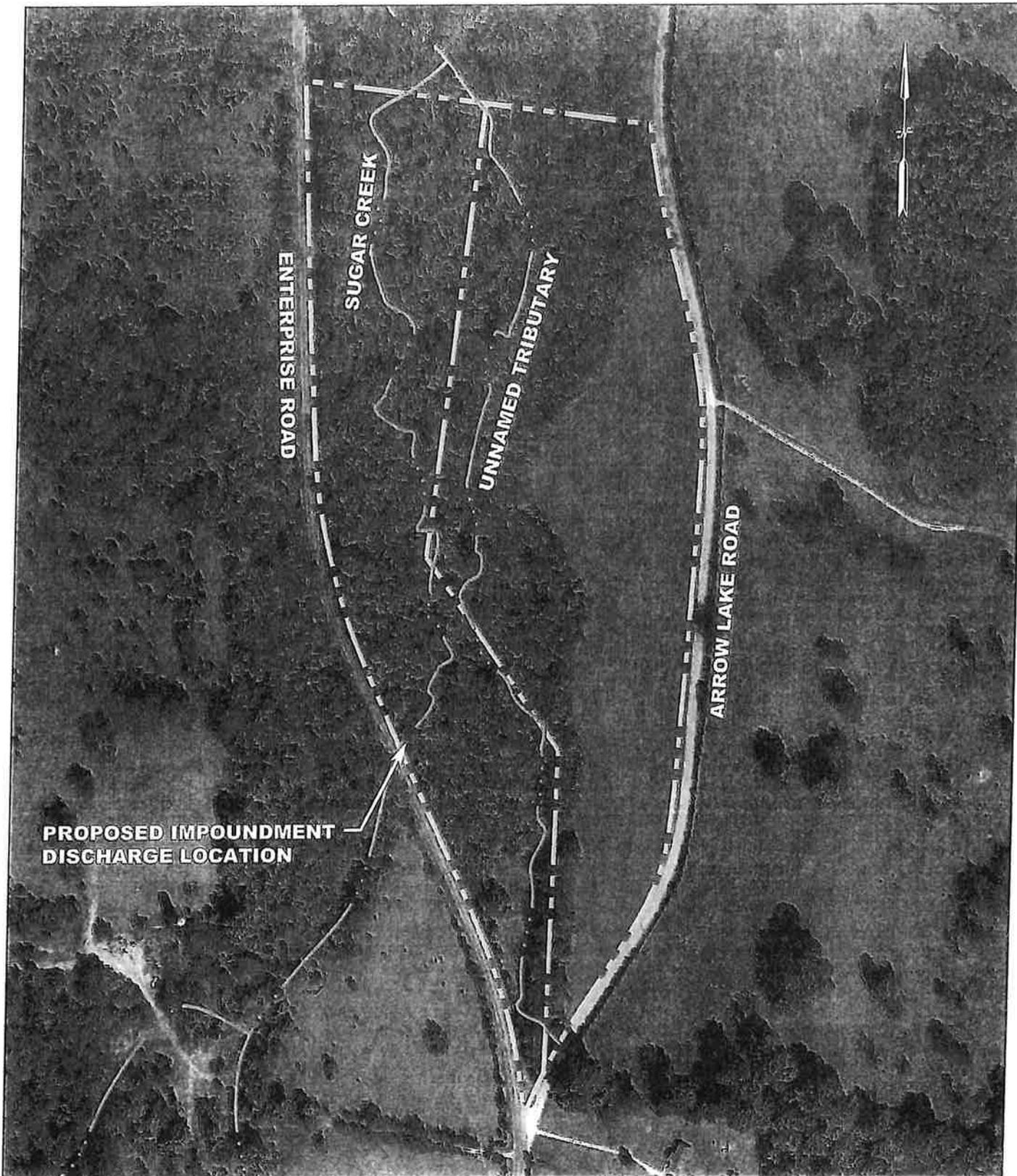
Month	Monthly Mean Precipitation ¹ (in.)	Mean Impoundment Precipitation Volume ² (gal.)	Average Impoundment Precipitation Inflow (gpm)	Initial Impoundment Specific Conductivity ³ (µS/cm)	Initial Impoundment Chloride Concentration ⁴ (mg/l)	Assumed Sugar Creek Chloride Concentration (mg/l)	Maximum Monthly Impoundment Pump Rate (gpm)	Maximum Monthly Impoundment Pump Volume (gal.)	Mean Annual Sugar Creek Stream Flow ⁵ (gpm)	Chloride Concentration after Mixing (mg/l)
01	4.70	1,225,201	28.6	16,800	6,166	15	40	1,785,600	3,312	88
02	4.72	1,230,415	28.7	16,800	6,166	15	40	1,812,800	3,312	88
03	5.69	1,483,276	34.6	16,800	6,166	15	40	1,785,600	3,312	88
04	4.88	1,272,124	29.7	16,800	6,166	15	40	1,728,000	3,312	88
05	6.59	1,717,889	40.1	16,800	6,166	15	40	1,785,600	3,312	88
06	4.50	1,173,065	27.4	16,800	6,166	15	40	1,728,000	3,312	88
07	4.75	1,238,238	28.9	16,800	6,166	15	40	1,785,600	3,312	88
08	3.61	941,059	22.0	16,800	6,166	15	40	1,785,600	3,312	88
09	4.99	1,300,799	30.4	16,800	6,166	15	40	1,728,000	3,312	88
10	3.71	967,127	22.6	16,800	6,166	15	40	1,785,600	3,312	88
11	5.49	1,431,140	33.4	16,800	6,166	15	40	1,728,000	3,312	88
12	6.12	1,595,369	37.2	16,800	6,166	15	40	1,785,600	3,312	88
Average	4.98	1,297,975	30.3	16,800	6,166	15	40	1,752,000	3,312	88
Annual Total	59.75	15,575,699						21,024,000		

- Notes:
1. Monthly Mean Precipitation obtained from National Oceanic & Atmospheric Administration (NOAA) monthly precipitation normals (1981-2010) for Mount Pleasant, Tennessee.
 2. Mean Precipitation Volume calculated based on monthly mean precipitation over 9.6-acre WEA drainage area assuming 100% runoff.
 3. Initial Impoundment Specific Conductivity measured by TriAD on September 17, 2018.
 4. Initial Impoundment Chloride Concentration calculated by site specific linear correlation equation (chloride concentration vs. specific conductivity). Chloride (mg/l) = 0.3854 x Specific Conductivity (µS/cm) - 308.75.
 5. Mean Annual Sugar Creek Stream Flow (7.38 cfs) obtained from U.S. Geologic Survey (USGS) StreamStats, Version 4.

Table 2: JACO Former Landfill Impoundment/Sugar Creek Dilution Calculations (Worst Case)
October 1, 2018

Month	Monthly Mean Precipitation ¹ (in.)	Mean Impoundment Precipitation Volume ² (gal.)	Average Impoundment Precipitation Inflow (gpm)	Initial Impoundment Specific Conductivity ³ (µS/cm)	Initial Impoundment Chloride Concentration ⁴ (mg/l)	Assumed Sugar Creek Chloride Concentration (mg/l)	Maximum Monthly Impoundment Pump Rate (gpm)	Maximum Monthly Impoundment Pump Volume (gal.)	Minimum Required Sugar Creek Stream Flow ⁵ (gpm)	Chloride Concentration after Mixing (mg/l)
01	4.70	1,225,201	28.6	16,800	6,166	15	40	1,785,600	1,145	223
02	4.72	1,230,415	28.7	16,800	6,166	15	40	1,812,800	1,145	223
03	5.89	1,483,276	34.6	16,800	6,166	15	40	1,785,600	1,145	223
04	4.88	1,272,124	29.7	16,800	6,166	15	40	1,728,000	1,145	223
05	6.59	1,717,889	40.1	16,800	6,166	15	40	1,785,600	1,145	223
06	4.50	1,173,065	27.4	16,800	6,166	15	40	1,728,000	1,145	223
07	4.75	1,238,236	28.9	16,800	6,166	15	40	1,785,600	1,145	223
08	3.61	941,059	22.0	16,800	6,166	15	40	1,785,600	1,145	223
09	4.99	1,300,789	30.4	16,800	6,166	15	40	1,728,000	1,145	223
10	3.71	987,127	22.6	16,800	6,166	15	40	1,785,600	1,145	223
11	5.49	1,431,140	33.4	16,800	6,166	15	40	1,728,000	1,145	223
12	6.12	1,595,369	37.2	16,800	6,166	15	40	1,785,600	1,145	223
Average	4.98	1,297,975	30.3	16,800	6,166	15	40	1,752,000	1,145	223
Annual Total	59.75	15,575,698						21,024,000		

Notes: 1. Monthly Mean Precipitation obtained from National Oceanic & Atmospheric Administration (NOAA) monthly precipitation normals (1981-2010) for Mount Pleasant, Tennessee.
 2. Mean Precipitation Volume calculated based on monthly mean precipitation over 9.6-acrs WEA drainage area assuming 100% runoff.
 3. Initial Impoundment Specific Conductivity measured by TIAD on September 17, 2018.
 4. Initial Impoundment Chloride Concentration calculated by site specific linear correlation equation (chloride concentration vs. specific conductivity). Chloride (mg/l) = 0.3854 x Specific Conductivity (µS/cm) - 308.75.
 5. Minimum Required Sugar Creek Stream Flow equal to Summer Mean Flow (2.55 cfs) for Sugar Creek obtained from U.S. Geologic Survey (USGS) StreamStats, Version 4.



**PROPOSED IMPOUNDMENT
DISCHARGE LOCATION**

ENTERPRISE ROAD

SUGAR CREEK

UNNAMED TRIBUTARY

ARROW LAKE ROAD

PREPARED BY:



TriAD ENVIRONMENTAL CONSULTANTS, INC.
Suite 200, 207 Donelson Pike, Nashville, Tn 37214
615-889-6888 fax 615-889-4004

**FIGURE 1:
SUGAR CREEK DISCHARGE LOCATION MAP
ACC LANDFILL
MAURY COUNTY, TENNESSEE**

DWG. DATE: 09/27/18

PROJECT NO.: 97-SSI07-01

SCALE: 1:300

SHEET 1 OF 1

ACC LANDFILL/SUGAR CREEK MIXING CALCULATION SUMMARY

I. PARAMETERS/ASSUMPTIONS

- Mixing zone modeling performed with CORMIX v11.0E.
- Stream flow rates for Sugar Creek obtained from USGS StreamStats, Version 4.0 (Mean annual flow = 7.38 ft³/s).
- Sugar Creek modeled as a 6 feet wide and 0.5 feet deep channel.
- Stream/Discharge water temperature (assumed) = 25° C.
- Discharge chloride concentration (assumed) = 6,166 mg/l.
- Discharge flow rate = 40 gpm.
- Discharge pipe modeled as 1.0-inch pipe located on the stream bottom in the middle of the channel with a vertical discharge angle of 90°.
- Acute Chloride Freshwater Screening Value/Chloride Criterion Maximum Concentration (CMC) = 860 mg/l.
- Chronic Chloride Freshwater Screening Value/Chloride Criterion Continuous Concentration (CCC) = 230 mg/l.

II. CORMIX SUMMARY

Ambient Stream Parameters	Quantity (SI Units)	Quantity (Imperial/US)
Cross-Section	Bounded	Bounded
Width	1.83 m	6.0 ft
Channel Regularity	Highly Irregular	Highly Irregular
Ambient Flowrate	0.21 m ³ /s	7.38 ft ³ /s
Average Depth	0.15 m	0.5 ft
Depth at Discharge	0.15 m	0.5 ft
Ambient Velocity ¹	0.7498 m/s	2.46 ft/s
Manning's n	0.04	0.04
Wind Velocity	0 m/s	0 ft/s

Ambient Stream Parameters	Quantity (SI Units)	Quantity (Imperial/US)
Stratification Type	Uniform	Uniform
Surface Temperature	25° C	77° F
Bottom Temperature	25° C	77° F
Surface Density ¹	997.05 kg/m ³	62.24 lb/ft ³
Bottom Density ¹	997.05 kg/m ³	62.24 lb/ft ³

Note¹ Value generated by CORMIX

Discharge Parameters	Quantity (metric)	Quantity (standard)
Nearest Bank	East	East
Distance to Bank	0.91 m	3.0 ft
Port Diameter	0.0254 m	1.0 in
Port Cross-Sectional Area ¹	0.0148 m ²	0.159 ft ²
Discharge Velocity ¹	0.17 m/s	0.558 ft/s
Discharge Flowrate	0.002524 m ³ /s	40 gpm
Discharge Port Height above Bottom	0 m	0 ft
Vertical Discharge Angle	90 degrees	90 degrees
Horizontal Discharge Angle	0 degrees	0 degrees
Discharge Concentration	6,166 mg/l	6,166 mg/l
Surface Heat Exchange Coefficient ¹	0 m/s	0 ft/s
Coefficient of Decay	0 /s	0 /s

Note¹ Value generated by CORMIX

Discharge concentration C0 = 6166 mg/l
Surface heat exchange coeff. KS = 0 m/s
Coefficient of decay KD = 0 /s

DISCHARGE/ENVIRONMENT LENGTH SCALES:

LQ = 0.12 m Im = 0.03 m Lb = 0.00 m
LM = 0.28 m Im' = 99999 m Lb' = 99999 m

NON-DIMENSIONAL PARAMETERS:

Port densimetric Froude number FR0 = 2.16
Velocity ratio R = 0.23

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:

Toxic discharge = yes
CMC concentration = 860 mg/l
CCC concentration = 230 mg/l
Water quality standard specified = given by CCC value
Regulatory mixing zone = no
Region of interest = 30.48 m downstream

HYDRODYNAMIC CLASSIFICATION:

| FLOW CLASS = NV3 |

This flow configuration applies to a layer corresponding to the full water depth at the discharge site.
Applicable layer depth = water depth = 0.15 m

Limiting Dilution S = (QA/Q0) + 1.0 = 83.8

MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:

Origin is located at the BOTTOM below the port/diffuser center:
0.91 m from the right bank/shore.
Number of display steps NSTEP = 3 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :

Note: The NFR is the zone of strong initial mixing. It has no regulatory implication. However, this information may be useful for the discharge designer because the mixing in the NFR is usually sensitive to the discharge design conditions.

Pollutant concentration at NFR edge c = 850.530700 mg/l
Dilution at edge of NFR s = 7.2
NFR Location: x = 0.71 m
(centerline coordinates) y = 0 m
z = 0 m

NFR plume dimensions: half-width (bh) = 0.11 m
thickness (bv) = 0.11 m
Cumulative travel time: 0.6445 sec.

Buoyancy assessment:

The effluent density is greater than the surrounding ambient water density at the discharge level. Therefore, the effluent is NEGATIVELY BUOYANT and will tend to sink towards the bottom.

IMPORTANT NOTE:

Since the effluent is NEGATIVELY BUOYANT, it is recommended that you consider using the Brine or Sediment options for Effluent specification for a more detailed analysis, particularly for coastal discharges over a sloping bottom where density currents are important.

CORMIX will however continue with the current simulation.

FAR-FIELD MIXING SUMMARY:

Plume becomes vertically fully mixed at 1.73 m downstream and laterally fully mixed at 10.87 m downstream.

PLUME BANK CONTACT SUMMARY:

Plume contacts both banks simultaneously.

The x-coordinate for this contact is 10.87 m.

*****TOXIC DILUTION ZONE SUMMARY *****

Recall: The TDZ corresponds to the three (3) criteria issued in the USEPA Technical Support Document (TSD) for Water Quality-based Toxics Control, 1991 (EPA/505/2-90-001).

Criterion maximum concentration (CMC) = 860 mg/l

Corresponding dilution = 7.169767

The CMC was encountered at the following plume position:

Plume location: x = 0.71 m

(centerline coordinates) y = 0 m

z = 0 m

Plume dimension: half-width (bh) = 0.11 m

thickness (bv) = 0.11 m

Computed distance from port opening to CMC location = 0.71 m.

CRITERION 1: This location is within 50 times the discharge length scale of $Lq = 0.12$ m.

++++ The discharge length scale TEST for the TDZ has been SATISFIED. +++++
Computed horizontal distance from port opening to CMC location = 0.71 m.
CRITERION 2: This location is within 5 times the ambient water depth of
HD = 0.15 m.

+++++ The ambient depth TEST for the TDZ has been SATISFIED. +++++

CRITERION 3: No RMZ has been defined. Therefore, the Regulatory Mixing zone
test for the TDZ cannot be applied.

The diffuser discharge velocity is equal to 0.17 m/s.
This is below the value of 3.0 m/s recommended in the TSD.

*** All three CMC criteria for the TDZ are SATISFIED for this discharge. ***
***** REGULATORY MIXING ZONE SUMMARY *****
No RMZ has been specified.
However:

The CCC was encountered at the following plume position:
The CCC for the toxic pollutant was encountered at the following
plume position:

CCC = 230 mg/l
Corresponding dilution = 26.9
Plume location: x = 1.66 m
(centerline coordinates) y = 0 m
z = 0 m

Computed horizontal distance from port opening to CCC location = 1.66
Plume dimensions: half-width (bh) = 0.30 m
thickness (bv) = 0.15 m

***** FINAL DESIGN ADVICE AND COMMENTS *****
REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known
technique is NOT AN EXACT SCIENCE.

Extensive comparison with field and laboratory data has shown that the
CORMIX predictions on dilutions and concentrations (with associated
plume geometries) are reliable for the majority of cases and are accurate
to within about +-50% (standard deviation).

As a further safeguard, CORMIX will not give predictions whenever it judges
the design configuration as highly complex and uncertain for prediction.

StreamStats Report

Region ID: TN
 Workspace ID: TN20180928194858795000
 Clicked Point (Latitude, Longitude): 35.48643, -87.18280
 Time: 2018-09-28 14:45:24 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CONTPA	Area that contributes flow to a point on a stream	4.1	square miles
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	57.24	feet per mi
DRNAREA	Area that drains to a point on a stream	4.1	square miles
RECESS	Number of days required for streamflow to recede one order of magnitude when hydrograph is plotted on logarithmic scale	75	days per log cycle

Parameter Code	Parameter Description	Value	Unit
CLIMFAC2YR	Two-year climate factor from Lichy and Karlinger (1990)	2.388	dimensionless
SOILPERM	Average Soil Permeability	2.292	inches per hour
PERMGTE2IN	Percent of area underlain by soils with permeability greater than or equal to 2 inches per hour	66.524	percent

Peak-Flow Statistics Parameters [MultiVariable Area 3 CDA LT 30.2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CONTDA	Contributing Drainage Area	4.1	square miles	0.173	30.2
CSL10_85	Stream Slope 10 and 85 Method	57.24	feet per mi	2.12	132

Peak-Flow Statistics Flow Report [MultiVariable Area 3 CDA LT 30.2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SEp	Equiv. Yrs.
2 Year Peak Flood	860	ft ³ /s	491	1510	35.2	2.2
5 Year Peak Flood	1350	ft ³ /s	775	2360	34.9	2.7
10 Year Peak Flood	1700	ft ³ /s	968	2990	35.4	3.5
25 Year Peak Flood	2140	ft ³ /s	1200	3820	36.4	4.5
50 Year Peak Flood	2490	ft ³ /s	1370	4500	37.4	5.2
100 Year Peak Flood	2820	ft ³ /s	1530	5190	38.6	5.8
500 Year Peak Flood	3590	ft ³ /s	1860	6940	40.5	7

Peak-Flow Statistics Citations

Law, G.S., and Tasker G.D., 2003, Flood-Frequency Prediction Methods for Unregulated Streams of Tennessee, 2000: U.S. Geological Survey Water-Resources Investigations Report 03-4176, 79p. (<http://pubs.usgs.gov/wri/wri034176/>)

Low-Flow Statistics Parameters [Low Flow Central and East Regions 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.1	square miles	1.3	14441
RECESS	Recession Index	75	days per log cycle	32	175
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.388	dimensionless	2.056	2.46
SOILPERM	Average Soil Permeability	2.292	inches per hour	0.45	9.72
PERMGTE2IN	Percent permeability gte 2 in per hr	66.524	percent	2	100

Low-Flow Statistics Flow Report [Low Flow Central and East Regions 2009 5159]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
7 Day 10 Year Low Flow	0.308	ft ³ /s	89
30 Day 5 Year Low Flow	0.479	ft ³ /s	70.2

Low-Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E., 2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009-5159, 212 p., 1 pl. (<http://pubs.usgs.gov/sir/2009/5159/>)

Annual Flow Statistics Parameters [Low Flow Central and East Regions 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.1	square miles	1.3	14441
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.388	dimensionless	2.056	2.46
SOILPERM	Average Soil Permeability	2.292	inches per hour	0.45	9.72

Annual Flow Statistics Flow Report [Low Flow Central and East Regions 2009 5159]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
Mean Annual Flow	7.38	ft ³ /s	25.6

Annual Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E.,2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009-5159, 212 p., 1 pl. (<http://pubs.usgs.gov/sir/2009/5159/>)

Seasonal Flow Statistics Parameters [Low Flow Central and East Regions 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.1	square miles	1.3	14441
RECESS	Recession Index	75	days per log cycle	32	175
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.388	dimensionless	2.056	2.46
SOILPERM	Average Soil Permeability	2.292	inches per hour	0.45	9.72

Seasonal Flow Statistics Flow Report [Low Flow Central and East Regions 2009 5159]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
Summer Mean Flow	2.55	ft ³ /s	43.1

Seasonal Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E.,2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009-5159, 212 p., 1 pl. (<http://pubs.usgs.gov/sir/2009/5159/>)

Flow-Duration Statistics Parameters [Low Flow Central and East Regions 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.1	square miles	1.3	14441

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
RECESS	Recession Index	75	days per log cycle	32	175
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.388	dimensionless	2.056	2.46
SOILPERM	Average Soil Permeability	2.292	inches per hour	0.45	9.72
PERMGTE2IN	Percent permeability gte 2 in per hr	66.524	percent	2	100

Flow-Duration Statistics Flow Report [Low Flow Central and East Regions 2009 5159]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
99.5 Percent Duration	0.302	ft ³ /s	86.4
99 Percent Duration	0.34	ft ³ /s	78
98 Percent Duration	0.403	ft ³ /s	72.2
95 Percent Duration	0.508	ft ³ /s	66.3
90 Percent Duration	0.658	ft ³ /s	60.2
80 Percent Duration	0.911	ft ³ /s	54
70 Percent Duration	1.27	ft ³ /s	50.7
60 Percent Duration	1.79	ft ³ /s	48.7
50 Percent Duration	2.64	ft ³ /s	42.9
40 Percent Duration	4.02	ft ³ /s	36.1
30 Percent Duration	6.01	ft ³ /s	28.3
20 Percent Duration	9.06	ft ³ /s	23.3
10 Percent Duration	15.1	ft ³ /s	20.8

Flow-Duration Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E., 2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009-5159, 212 p., 1 pl. (<http://pubs.usgs.gov/sir/2009/5159/>)

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Application Version: 4.2.1

APPENDIX 4
Closure/Post-Closure Care Plan

Closure/Post-Closure Care Plan Former ACC Landfill

TriAD Project 97-SSI07-01

Prepared for:

**ACC, LLC
P. O. Box 432
Mt. Pleasant, Tennessee 38474**

Prepared by:



**TriAD Environmental Consultants
207 Donelson Pike, Suite 200
Nashville, Tennessee 37214**

January 31, 2018

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1.0 INTRODUCTION

1.1 General Information

The Closure/Post-Closure Care (C/PC) Plan presented herein details closure and post-closure care activities to be conducted at the former ACC Landfill, owned by ACC, Inc. This Plan has been prepared in accordance with the requirements of Tennessee Rule Chapter 0400-11-01-.03 and -.04 (Solid Waste Processing and Disposal) and in accordance with the related guidance document issued by the Division of Solid Waste Management (DSWM) of the Tennessee Department of Environment and Conservation (TDEC).

1.2 Facility Description

The former Class II disposal facility is located east of Arrow Mines Road in Maury County, Tennessee. The site is approximately 48 acres in size with an approximate 14-acre former waste disposal area. This Closure/Post-Closure Care Plan addresses only those activities associated with the former waste disposal area.

1.3 Anticipated Closure Date

All waste was progressively excavated from the landfill between the years of 2012 through 2016. Drainage from the landfill is either contained within the former disposal area or is diverted to the downgradient impoundment. A site investigation is proposed for implementation during the summer of 2018 to delineate the extent of any impacted soils. Subsequent to completion of the site investigation and evaluation of potential future corrective measures, the site will be closed. Although the specific requirements for closure have yet to be determined, it is anticipated that all or a portion of the facility closure will incorporate a vegetated cover and groundwater monitoring system. Requirements for construction, operation, and maintenance of these facilities is included herein.

1.4 Facility Contact

The ACC Landfill is owned by ACC, Inc. Information pertaining to closure and post-closure care activities will remain on file at the ACC Mount Pleasant facility throughout the post-closure care period. Information pertaining to the Mount Pleasant location is provided as follows:

Address: ACC, Inc.
1101 Arrow Lake Road
Mount, Pleasant, Tennessee

Contact: Tom Grosko

Telephone: (931)224-1603

2.0 FACILITY CLOSURE

ACC will notify the DSWM of the intent to close the facility 60 days prior to the date closure is expected to begin. Complete closure activities, including grading and establishing vegetative cover, will be conducted in accordance with the approved Closure schedule. Final cover will be placed on the disposal area within 90 days after achieving final grade. CRLF will notify the Director of the DSWM in writing of the completion of closure and provide a certification of closure, documenting that all closure activities have been completed in accordance with the permitted plans and the approved C/PC Plan.

2.1 Partial Closure

Partial closure of the facility will not be required.

2.2 Complete Closure

The steps necessary for complete closure of the facility at the end of its operating life, as well as procedures for meeting the closure standards established under *Tennessee Rule Chapter 0400-11-01-.04(8)* are identified in Sections 2.2.1 through 2.2.4.

2.2.1 Final Cover

Within 90 days after completing excavation and grading activities, final cover consisting of the approved final cover system (which will likely include a 12-inch vegetative support layer) will be placed across the completed fill area.

The following guidelines or similar guidelines, approved by DSWM, will be observed:

- Vegetative Cover - A minimum 12-inch soil layer, capable of supporting the growth of vegetation, will be placed over the completed area within 90 days after

any portion of the fill area has achieved final grades. All borrow areas located outside of the landfill area will also be revegetated.

- Fertilizer - Readily available commercial fertilizers and ground agricultural limestone will be applied to the topsoil during seedbed preparation. Application rates will be determined in accordance with the most recent edition of the Tennessee Erosion & Sediment Control Handbook.
- Seeding - Planting seed mixture will be compatible with the time of year. Grass seed mixtures and seed application dates shall comply with the most recent edition of the Tennessee Erosion & Sediment Control Handbook.
- Mulching - To avoid the loss of moisture from the soil, an appropriate mulch will be applied and anchored immediately after seeding at a rate of approximately 2 tons per acre with an overall uniform soil coverage of 70%. Hydroseeding may be utilized as an alternative to conventional seeding and mulching methods.

2.2.2 Drainage Facilities

Final surfaces of the facility will be graded to promote positive drainage and direct storm water run-on away from the completed fill areas. Vegetation will be utilized to prevent erosion. The off-site transport of sediment will be controlled through a series of silt fences, ditches, check dams, and, potentially, sediment basins. All drainage facilities will be designed to accommodate the peak flow resulting from the 25-year, 24-hour storm event, while emergency spillways will be designed to accommodate the 100-year, 24-hour storm event.

Inspections of drainage facilities will be completed on a regular basis to ensure compliance and that the design capacity of the system is maintained. Sediment will be removed from sediment control structures when approximately 50% of the sediment storage capacity is achieved.

2.2.3 Leachate Collection

It is not anticipated that leachate collection and disposal will be required at the former waste excavation area.

2.2.4 Closure Scheduling

The anticipated schedule for completing the steps of final closure is as follows:

1. CRLF will notify the Division Director at least 60 days prior to the date final closure of the disposal facility is to begin.
2. The final cover will be placed within 90 days after final grading is complete.
3. Vegetative cover will be established within 180 days after final grading is complete.
4. Vegetation will be established within 90 days after completing borrow operations in any area.
5. Within 30 days after the completion of closure activities, CRLF will provide the DSWM with a certification of closure, documenting that all closure activities have been completed in accordance with the permitted plans and the approved C/PC Plan.

Inspection of the drainage system facilities and revegetated areas will be conducted on a regular basis throughout the closure period and will be maintained as necessary. Groundwater monitoring will continue to be conducted in accordance with the frequencies and procedures detailed in the Groundwater Monitoring Plan (GWMP).

3.0 POST-CLOSURE ACTIVITIES

There is no planned use for the facility subsequent to closing. Post-closure care activities will continue for 30 years after the date of final closure. A description of the post-closure care activities to be conducted at the facility is in the subsequent sections.

3.1 Topographic Survey

Subsequent to closure, a topographic or photogrammetric survey will be conducted across the completed fill area and drainage facilities. A final grading plan will thereafter be prepared at a scale of 1"=100' depicting final grades at a 2-foot contour interval.

3.2 Maintenance, Monitoring, and Inspection Activities

During the post-closure period, ACC will be responsible for the performance of the following activities, such that the objectives in Tennessee Rule 0400-11-01-.04(8) are met:

- Maintenance of the approved final contours and drainage system.
- Maintenance of a healthy vegetative cover over the closed portions of the facility after such cover is established.
- Maintenance of existing drainage features (i.e., ditches and sediment basins) until such time that a healthy vegetative cover is sufficiently established to render such maintenance unnecessary.
- Monitoring of the groundwater in accordance with the procedures and frequencies described in the GWMP. A description of the facility groundwater monitoring system, the compliance monitoring boundary, and the detection monitoring program is included in the GWMP provided with the Operations Manual.

Inspections of the final cover and drainage facilities will be conducted on an annual basis by ACC or their designated representative. Inspections of groundwater wells will be conducted during groundwater monitoring events. An annual report of the inspection findings and any repair activities implemented will subsequently be prepared for submittal to DSWM. Following completion of the post-closure care period, ACC will notify the DSWM that post-closure has been completed in accordance with the post-closure plan. Additional details pertaining to inspection and monitoring requirements and frequencies are in Table 1.

Table 1 Post-Closure Care Activities		
Activity	Description	Frequency
Topographic Survey	Conduct aerial or field survey across the completed former waste disposal area and related drainage system to confirm that adequate drainage is maintained.	At closure
Vegetation Inspection	Inspect completed closure area to identify areas of erosion and/or unhealthy vegetation. In the event that such conditions are identified, the areas will be revegetated in accordance with Section 2.2.1.	Bi-monthly for the first 60 days after vegetation and annually thereafter
Mowing	The completed closure area will be mowed to maintain the original vegetation and prevent trees and other deep-rooted vegetation from growing.	Semi-annually

Table 1 Post-Closure Care Activities		
Activity	Description	Frequency
Maintain Final Cover	Inspect closure area for signs of ponding, subsidence, and inadequate drainage. Also inspect the final cover for signs of excessive cracking and erosion. In the event that ponding or inadequate final cover is identified, additional final cover will be placed and the disturbed area will be revegetated in accordance with the procedures described in Section 2.2.1.	Annually
Maintain Drainage and Sediment and Erosion Control Features	Inspect drainage ditches, sediment ponds and silt fences to ensure that no more than 50 percent of the sediment storage capacity is achieved. In the event that greater than 50 percent of the system storage capacity is utilized, removal and reuse or disposal of the sediment will be conducted.	Bi-monthly for the first 60 days after vegetation and annually thereafter. Silt fences and/or toe-of-slope filters may be removed after vegetation is sufficiently established (approximately 60 days after seeding).
Monitor Surface and Groundwater	Obtain surface and groundwater samples for analysis in accordance with the procedures described in the GWMP. In the event that a statistically significant increase in the contaminant levels are identified, additional confirmatory sampling and remediation activities will be conducted as necessary to comply with DSWM requirements.	Semi-annually

3.3 Cost Estimates

Costs for closure will be determined and submitted to TDEC upon completion of the site investigation and selection of the closure system. Post-closure care financial assurance is in place for the previous landfill. Any required modifications to these post-closure costs will be included with the updated Closure Estimates upon selection of the final closure system.



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	294		10.0	1	12/18/2018 19:16	WG1211463

Wet Chemistry by Method 350.1

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	12/20/2018 17:32	WG1213461

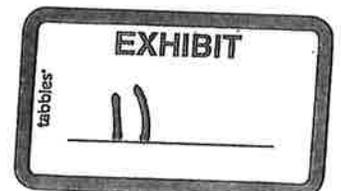
Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	56.8		1.00	1	12/14/2018 00:51	WG1210648
Fluoride	0.184		0.100	1	12/14/2018 00:51	WG1210648
Nitrate as (N)	2.38		0.100	1	12/14/2018 00:51	WG1210648
Nitrite as (N)	0.189		0.100	1	12/14/2018 00:51	WG1210648

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	ND		0.200	1	12/15/2018 15:24	WG1211030
Arsenic	ND		0.0100	1	12/15/2018 15:24	WG1211030
Barium	0.0157		0.00500	1	12/15/2018 15:24	WG1211030
Cadmium	ND		0.00200	1	12/15/2018 15:24	WG1211030
Chromium	ND		0.0100	1	12/15/2018 15:24	WG1211030
Copper	ND		0.0100	1	12/15/2018 15:24	WG1211030
Iron	0.350		0.100	1	12/15/2018 15:24	WG1211030
Lead	ND		0.00500	1	12/15/2018 15:24	WG1211030
Manganese	0.266		0.0100	1	12/15/2018 15:24	WG1211030
Potassium	6.69		1.00	1	12/15/2018 15:24	WG1211030
Selenium	ND		0.0100	1	12/15/2018 15:24	WG1211030
Sodium	28.9		1.00	1	12/15/2018 15:24	WG1211030
Sulfur	3.26		1.00	1	12/16/2018 15:44	WG1211030
Titanium	ND		0.0500	1	12/15/2018 15:24	WG1211030
Vanadium	ND		0.0200	1	12/15/2018 15:24	WG1211030
Zinc	ND		0.0500	1	12/15/2018 15:24	WG1211030

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



5. To my knowledge, and at my direction, ACC has complied with both the 2012 and 2016 Consent Orders to the best of its abilities.

6. In carrying out the requirements of the 2012 and 2016 Consent Orders, ACC has relied on the advice of its environmental consultants, Triad Environmental Consultants, Inc.

7. ACC, through its environmental consultants, has explored numerous options and submitted several corrective action plans to the TDEC in an effort to comply with the 2012 and 2016 Consent Orders.

8. ACC is not in receipt of any invoice for contingent civil penalties from the Commissioner of the Tennessee Department of Environment and Conservation.

10. ACC has not received any subsequent Orders from the Commissioner of TDEC after the November 2016.

11. ACC, through its environmental consultants, has repeatedly contacted TDEC personnel in an effort to remain in compliance with both the 2012 Amended Consent Order and the 2016 Consent Order and finish the remedial actions at the former ACC landfill site.

12. On March 14, 2018, I sent a letter to Evan Spann, that presented a timeline of the requests, meetings, and submittals regarding the proposed changes to the groundwater monitoring network at the ACC Landfill site in response to TDEC letters. A copy of the correspondence is attached hereto as Exhibit 1.

13. TDEC by letter dated October 19, 2018 rejected ACC's revised Corrective Work Plan submitted to TDEC on October 1, 2018. I replied to the TDEC by letter on November 2, 2018; in my letter I identified four actions that ACC would undertake in the continued effort to prevent ammonia, chlorides, and/or total dissolved solids in surface water at the road crossing from leaving the ACC property in concentrations exceeding Tennessee Water Quality Criteria for the designated uses. ACC has completed three of the four tasks identified in this

correspondence; the weather prevented ACC from constructing the weir, however, ACC will begin construction of the weir as soon as the weather is permitting. A copy of this correspondence is attached hereto as Exhibit 2.

14. To date I have not received any correspondence from the TDEC in response to my November 2, 2018 letter.

Everything contained herein is true and correct to the best of my knowledge.

FURTHER AFFIANT SAITH NOT.

Thomas Grosko

THOMAS GROSKO

Sworn to and subscribed before me this 3rd day of January, 2019.

Kori B. Jones
NOTARY PUBLIC

My Commission Expires: 7/18/21



ACC, LLC
400 Arrow Mines Road
Mt. Pleasant, Tennessee 38474-0432

ACC, LLC

March 14, 2018

Evan Spann
TDEC
Division of Remediation
William R. Snodgrass Tennessee Tower
412 Rosa L. Parks Avenue, 14th Floor
Nashville, TN 37243

RE: April 19, 2017 ACC Monitoring Well Replacement Plan

Dear Evan:

We were surprised to receive your letter of March 5, 2018. Therefore, we have put together a brief timeline of the monitoring well issue contained in your letter. The following is a timeline based upon TriAD's records regarding the monitoring well plan:

- September 16, 2016 letter-The first time TDEC mentioned a concern regarding the monitoring well network at ACC, specifically wells MW-4 and MW-6 referencing the June 2016 groundwater monitoring report. The letter directed ACC to submit a plan by October 31, 2016, for abandonment and replacement of the two wells.
- On October 21, 2016, TriAD met with you, in part to discuss TDEC's requested changes to the groundwater monitoring network. Broad agreement was reached, including that there was no need to replace MW-4, and that the plan should also include the addition of other monitoring points to allow future groundwater monitoring of the new waste disposal area. TDEC agreed that TriAD should ask for an extension to the due date for the plan to allow for additional investigation of potential monitoring points.
- On October 28, TriAD emailed you the request for the due date extension. When no reply was received, a follow-up email was sent again on November 11, 2016. Again, TriAD received no response.
- On February 3, 2017, you responded to the December 2017 groundwater monitoring report with the same comments about wells MW-4 and MW-6 that were contained in the September 16, 2016 letter asking for plan.
- In a meeting on February 17, 2017, additional discussions were held with you regarding the planned changes to the monitoring network. You never expressed any objections to TriAD regarding the proposed changes; therefore, TriAD drafted the plan based upon the February 17th discussions.
- On April 19, 2017, TriAD submitted the written plan for changes to the groundwater monitoring network for your review and approval. The plan included abandonment and replacement of MW-6 and the addition of two other monitoring wells. The plan also



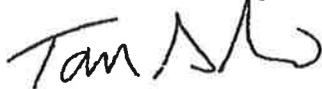
included a detailed explanation of why abandonment of MW-4 was not needed. To date, we have received no response to the April 19, 2017 plan.

- On July 28, 2017, you sent a letter regarding the report of the June 2017 groundwater monitoring event in which you again required abandonment and replacement of MW-4 and MW-6. TriAD replied to you by email on that exact same day, asking you if had reviewed the April 19, 2017 plan. TriAD did not receive a response from you on that date.
- On August 2, 2017, you replied that you had probably received the plan but could not find it. You asked that it be resubmitted. TriAD emailed you another copy of the April 2017 plan on August 2, 2017. To date no questions or response to the plan have been received.
- On December 7, 2017, TDEC sent a demand to ACC that it submit a revised Corrective Action Work Plan, which also included references to the same requests for revisions to the groundwater monitoring network. The due date for the revised CAWP was ultimately set to occur on January 31, 2018.
- On January 31, 2018, TriAD submitted the revised CAWP, which included the proposed changes to the groundwater monitoring network within the revised groundwater monitoring plan, an appendix to the revised CAWP. This was the third time ACC had submitted proposed changes to the groundwater monitoring network to TDEC. To date we have not received any response to the proposal.
- On March 5, 2018, you sent the most recent letter referring to the December 2017 groundwater monitoring report with a letter again requiring abandonment and replacement of MW-4 and MW-6, with a plan for such work due by March 30.

To date, neither TriAD nor ACC have ever received any questions, comments or approval from you regarding the plan to make changes to the groundwater monitoring system. Since the initial plan was submittal to you on April 19, 2017; TriAD and ACC have only received letters stating ACC should submit a plan to abandon and replace MW-4 and MW-6. These letters were sent after each groundwater monitoring event report was timely filed. The most recent letter accused ACC of ignoring this issue, being unresponsive, of being out of compliance.

As noted in the timeline above, ACC has been waiting for almost a year for TDEC to approve its plan. It is unclear to us why TDEC is withholding approval of the very plan you have been asking ACC to submit for over a year. To the extent the Division has comments or questions; TriAD remains available at any time to answer those questions. In the meantime, we will continue to wait for TDEC to approve the April 19, 2017 plan. We are prepared to implement the plan as soon as we receive final approval from TDEC.

Please let me know if you have questions.



Tom Grosko
Manager

cc: Sheri Jacobs, Esq.
Chris Scott
Ryan Swindell
Nancy Sullivan

ACC, LLC
400 Arrow Mines Road
Mt. Pleasant, Tennessee 38474-0432

ACC, LLC

November 2, 2018

Evan Spann
Project Manager
Division of Remediation
Tennessee Department of Environment and Conservation
William R. Snodgrass TN Tower
312 Rosa L. Parks Avenue, 14th Floor
Nashville, Tennessee 37243

**Re: Corrective Action Work Plan
ACC Landfill
Site #60-555**

Dear Mr. Spann

In response to your letter dated October 19, 2018, ACC has been able to obtain a commitment from a contractor to perform the following actions beginning next week:

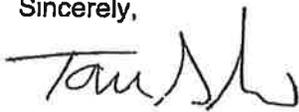
- Excavation and lining the ditch north of the lower impoundment with an erosion control matting to route water around the pond.
- Construction of the Diversion Berm/Riprap Ditch/Outlet Protection Structure to direct storm water run-on around the upper impoundment.
- Construction of the weir.
- Cleaning the sediment basin located downgradient of the landfill.

It has been difficult to find a contractor that is available at this time and even this contractor says they are not comfortable beginning any work within the impoundments this late in the year.

We therefore will begin and complete the above actions before year end as partial, but significant steps designed to prevent ammonia, chlorides, and/or total dissolved solids in surface water at the road crossing from leaving the ACC property in concentrations exceeding Tennessee Water Quality Criteria for the designated uses.

Attached please find a drawing identifying this work which will begin next week.

Sincerely,



Tom Grosko
Manager

Attachments: 0701-1 Fall 2018 Corrective Action Plan

