ADDENDUM NO. 2

Woodruff Landfill: Phase 7 Expansion Construction (Rebid)
Transylvania County, North Carolina

TO: All Plan Holders

FROM: LaBella Associates
400 South Tryon Street, Suite 1300
Charlotte, NC 28285

SUBJECT: ADDENDUM NO. 2 dated March 27, 2025, to the Contract Documents for the Woodruff Landfill – Phase 7 Expansion Construction (Rebid), dated February 21, 2025.

This addendum forms a part of the Contract Documents. **Acknowledge receipt of this addendum with bid submittal. Failure to do so may subject the bidder to disqualification.**

- Comments & Questions Received:

Answers to comments and questions are in **bold font**. The following changes, corrections, and clarifications have been made to the Contract Documents:

Q.1 Will the Contractor be required to pump out Sediment Basin SB-4 before constructing the proposed fill? If so, will any muck excavated from the basin be considered unsuitable soil and paid for as such?

A.1 Yes, the CONTRACTOR will be required to dewater SB-4 and to excavate and dispose the muck excavated from SB-4. The muck excavated from SB-4 is not considered unsuitable soil and will not be paid as such. However, upon reaching the SB-4 berm subgrade and the proposed slopes fill subgrade, if undercut is required or the area fails a proofroll test, the undercut and backfill will be paid on a quantity basis. The cost for performing the muck excavation and disposal work will be paid under Bid Item 31 – Sediment Basins Dewatering and Cleanup (assume six feet of muck excavation), while the cost for undercutting and backfilling will be covered under Bid Item 9 – Over Excavation and Backfill (Contingency). Please see the attached revised Sections 01025 (Measurement and Payment) and 00410 (Bid Form for Construction Contract).

Q.2 When will Haywood Electric relocate the overhead power lines?

A.2 Haywood EMC will relocate the overhead power lines after the CONTRACTOR constructs the Phase 7 eastern access road and the proposed cell tower access road.

Q.3 Slope drains specify a minimum of 18". Please confirm the required size for this project.

A.3 All slope drains shall have a diameter of 18" for this project.

Q.4 Pipe Run C-2 is shown as a dual run on the pipe schedule. Could you provide a detail for the associated drop inlet?

A.4 Please use the current drop inlet detail, Detail E on Drawing No. CP-12. Consider two (2) drop

inlets for this pipe run, i.e., one for each of the two (2) culvert pipes.

Q.5 Please confirm the lengths for Sediment Trap ST BA 1 and ST BA 2 on Sheet CP-03B.

A.5 Please refer to the attached Drawing No. ES-03A that shows the dimensions for the two temporary sediment traps (TST-BA1 and TST-BA2). Additionally, refer to C.1 in this addendum for further details about the conversion of the temporary sediment traps to sediment basins to be performed by the CONTRACTOR.

Q.6 Based on the Bid Documents Transylvania County is allowed to hold Bid Acceptance for up to 60 days past the bid date. Based on mean rainfall records (> .1-inch) in the area over the last 10 years the lost workdays caused by this delay will potentially extend the construction schedule from the allowed 240 days up to 330 days due to little to no work being able to be accomplished during December, January, and February (winter months). In addition, only allowing weather delays to be claimed for rain events exceeding .25 inches potentially does not account for up to 25 addition lost workdays over the duration of the project that cannot be claimed by the contractor as lost workdays. If award is delayed for any reason will the County, consider allowing for shut down of construction over the winter months to compensate for this delay or is the bidder required to assume this risk in the bid price?

A.6 Bid Section 00410, Paragraphs 2.03 and 6.01 have been revised to update the bid acceptance period from 60 days to 30 days. Also, to provide a buffer period for any additional lost workdays not covered by the contractual definition of weather delays, the Substantial Completion period has been revised from 240 to 270 days. See the attached revised Sections 00520 and 00550.

Q.7 Measurement and Payment Item 2 – Site Preparation states "work shall include the installation of the silt fence to delineate the area of disturbance and the additional silt fence around the borrow areas as shown on the drawings." Plans shows two LOD's, one for the Phase 7 Construction and another for Borrow Limits (14.3 AC) from 2007 Phase 5 Construction, plus Borrow Areas 1 & 2 LOD's. Is it your intent to delineate all these areas with silt fencing?

A.7 Yes, sediment fencing should be installed along the proposed LODs associated with this project, i.e., Phase 7, Borrow Areas 1 and 2, and the Cell Tower Access Road in the locations shown on the Construction Drawings. No sediment fencing is required to be installed along the limits of the existing Borrow Area (14.3 acres) from the 2007 Phase 5 Construction. However, appropriate erosion and sediment control (E&SC) best management practices (BMPs) should be utilized when performing earthwork within the existing Borrow Area.

Q.8 Would you be able to provide the engineer's estimated total cost for the project?

A.8 The Engineer's estimated total cost cannot be provided to interested bidders.

Q.9 Is it possible to be granted a two- or three-week bid extension?

A.9 As noted in Addendum No. 1, issued on March 6, 2025, the bid due date was extended by 3 weeks, to Tuesday April 8, 2025 at 10:00 A.M.

Q.10 If onsite borrow material does not meet permeability requirements, will the contractor be responsible for blending or importing material, or will alternatives be considered?

A.10 As listed in the Project Manual, specifically Sections 00410, 01025, and 02210, the material for constructing the soil liner should be obtained from offsite sources. It is the responsibility of the CONTRACTOR to ensure that the offsite soil material meets the project permeability requirements of $1x10^{-5}$ cm/sec. Refer to Section 02210 – Compacted Soil Liner for additional

information for the soil liner requirements. However, if the CONTRACTOR finds onsite borrow material that meets the project permeability requirements, or is able to blend onsite material with offsite material to meet the project permeability requirements, the CONTRACTOR can use the onsite borrow material to construct the Compacted Soil Liner. The OWNER is not responsible for finding onsite borrow material or blending materials to meet the soil material required for the Compacted Soil Liner. Regardless of the source of the borrow material, it is the CONTRACTOR's responsibility to ensure that the material meets the project permeability requirements (i.e., $1x10^{-5}$ cm/sec) and the requirements of Section 02210.

Q.11 What percentage of field-welded seams require destructive testing, and who is responsible for testing costs?

A.11 The minimum frequency of destructive testing is one (1) sample for every 500 feet of seam. The OWNER will be responsible for the cost of performing the destructive testing but it is the responsibility of the liner subcontractor to cut and repair all destructive seems required by the Specifications. The CONTRACTOR is responsible for the cost of performing the nondestructive seam continuity testing. Refer to Section 13320, Parts 3.04D and 3.04.E.

Q.12 What is the protocol for addressing damage found in the HDPE liner during quality assurance testing?

A.12 The protocol for addressing damages found in the HDPE liner are provided in Section 13320, Part F – Defects and Repairs. The CONTRACTOR and CQA Consultant shall agree on one (1) of the three (3) methods provided in the aforementioned Section.

Q.13 What are the pressure testing and video inspection requirements for the installed leachate piping system?

A.13 The hydrostatic testing requirements for the force main can be found in Section 02716 of the Project Manual. In summary, the force main shall be filled with clean, potable water and then pressurized to 150% of the maximum anticipated operating pressure. Pressure shall be maintained for four (4) hours. Then the test pressure shall be reduced by 10 psi and the pressure must be monitored for another hour. Pressure changes must remain within 5% of the test phase pressure.

Details of the video inspection requirements for the leachate collection pipes can be found in Section 02712–Leachate Collection System. The report and records of video inspection after flushing shall be provided to the OWNER and ENGINEER.

Q.14 What are the required field and laboratory testing frequencies for soil liner, geosynthetics, and leachate system components?

A.14 Refer to Divisions 2 and 13 for field and laboratory testing frequencies for soil liner, geosynthetics, and leachate system components. The field and laboratory testing frequencies for the Structural Fill, Test Pad, Soil Liner and Drainage Layer can be found in Table 1 of the Project CQA Plan (Part V of the Project Manual).

Q.15 Will the contractor be responsible for direct coordination with Haywood EMC for power and fiber optic line relocations, or will the County manage this?

A.15 The CONTRACTOR will be responsible for coordinating with Haywood EMC and Comporium for the power line and fiber optic line relocations. As detailed in Bid Item 6 of Section 01025, Haywood EMC and Comporium will perform the relocation work, but the CONTRACTOR will only perform facilitation efforts {e.g., provision of staging areas, marking proposed utility locations

(if required), and onsite meetings with Haywood EMC}.

Q.16 Will a traffic control plan be required, or is the contractor only responsible for maintaining access to active landfill areas?

A.16 A Traffic Control Plan is not required for this work but the CONTRACTOR is required to install, operate, and maintain traffic control measures. A Traffic Control Plan may be needed during hauling of offsite material e.g., material for compacted soil liner, drainage aggregate, etc. Section 01570 provides the minimum traffic control requirements for this project. At all times, the CONTRACTOR shall maintain access to the active landfill areas and the cell tower located on the property.

Q.17 Will the contractor be responsible for temporary security fencing around active work zones?

A.17 The CONTRACTOR should not need temporary security fencing around active work zones as the landfill has a perimeter fence and gate. However, any additional security measures that the CONTRACTOR wishes to take is encouraged.

Q.18 What is the Silt Sock Diameter? Where is the Pyramid Silt Sock installed opposed to Single Layer Silt Sock?

A.18 The minimum silt sock diameter is 8". Silt sock locations shown on the E&SC Plan assume a single 8" silt sock. The CONTRACTOR may use any combination of larger diameter or pyramidal silt sock to reduce maintenance, provided the configuration is in accordance with the North Carolina Erosion and Sediment Control Planning and Design Manual (NCESCPDM) and the approved E&SC Plan.

Q.19 General Conditions, Section 00700-60, Article 15, Paragraph 15.01, E. 3. States “Upon a subsequent determination that Owner’s refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement. Agreement does not address this interest percentage. Please clarify Owner allowed interest for late payment.

A.19 The interest percentage will be determined by the OWNER and CONTRACTOR during the contract award period.

Q.20 Will trees be cut prior to construction start date and are there any restrictions to when trees can be cut down?

A.20 Majority of the trees within the project limits of disturbance (LOD) have been cut by the OWNER. The remainder of the trees will be cut by the OWNER before contract award and mobilization by the CONTRACTOR. The trees will only be cut with the stumps left in place. As detailed in Section 02100, it is the responsibility of the CONTRACTOR to remove all stumps as part of the Work.

Q.21 Pipe/Culvert Detail, Plan Sheet CP-12 indicates P-3 15” RCP. Is this referring to the 18-inch Temporary RCP Culvert indicated on sheet CP-06?

A.21 P-3 represents the outlet pipe for SB-4 as shown on Drawing No. CP-03A.

Q.22 Is it acceptable for Clean Harbors to update the Bid Due Date for Section 00430 Bid Bond (Penal Sum Form) with the revised bid due date, or will LaBella be issuing a new Form? If a new Form is to be issued, can you email that to us soonest as our Surety Company is requesting that.

A.22 Section 00430 has been revised and is attached for use by bidders.

Q.23 Just want to clarify that it is the intent to only seed the 2:1 slope (Dark Green) in the borrow area except the berms and mat the floor area (Light Green) while the remaining area (unmarked) alone?

A.23 The attached drawings show all the slopes that need to be stabilized with erosion control blanket and geogrid. The bottoms of the temporary sediment traps and sediment basins do not require matting. The attached newly issued drawings (ES-03A, ES-03B, and ES-04) show the slopes that need to be stabilized within the 7-day or 14-day stabilization timeframe. Upon completion of land disturbance activities, all disturbed areas need to be stabilized within a minimum of 14 days (depending on area location and slope) after the cessation of land disturbance activities.

Q.24 Will the Side slope Riser be 18" or 24"? There are two different details showing different sizes on Sheet CP-09.

A.24 The side slope riser (SSR) is 24". Drawing Nos. CP-09 and CP-10 have been revised to update the SSR size.

Q.25 Are there any further details regarding the 6" Drainpipe to Landfill shown on Sheet CP-10, Detail C?

A.25 The 6" drainpipe is an approximately 40' long solid HDPE SDR17 pipe that drains back to the Phase 7 sump area.

Q.26 If there is a deficit of soil coming from the Phase 7 Expansion, is it assumed all Structural Fill material needed will need to come from the proposed Borrow Areas? If these proposed Borrow Areas are not needed for additional soil will the proposed grades shown on the plans be required to be met during construction? Will the ponds be required to be built if there is no need for the Borrow Areas to be excavated?

A.26 Yes, if there is a deficit of suitable structural fill material from the Phase 7 Expansion area, it is assumed all structural fill material needed for the project will come from the proposed Borrow Areas. If the CONTRACTOR does not use the proposed borrow areas for structural fill needs, the CONTRACTOR is not required to construct the proposed grades or the sediment traps/basins for the Borrow Areas. If structural fill is needed from the Borrow Area, the CONTRACTOR is required to initially excavate/construct Borrow Area 1 prior to proceeding to Borrow Area 2 if additional structural fill is required. A detailed construction sequence for the Borrow Areas construction providing instructions to the CONTRACTOR is provided in the newly issued Drawing Nos. ES-03A, ES-03B, and ES-04.

Q.27 Can clearing debris be ground and left onsite at a designated stockpile location?

A.27 Yes, land-clearing debris can be left onsite at a designated stockpile as directed by the OWNER.

Q.28 Could you provide a Proposed Edge of Liner limit in CAD for Phase 7? Could you provide a Top of Clay model in CAD for Phase 7?

A.28 Any bidder that needs a copy of these CAD files needs to sign and return the attached blank EDR agreement to LaBella.

Q.29 Is a Drone survey acceptable for a Pre & Post (Final) Topographic survey?

A.29 Yes, a drone survey can be used for pre- and post-construction topographic surveys. However, all required record drawings for this project shall meet the requirements of Section 01720.

Q.30 If any Compacted Soil Liner material is found onsite that the Contractor feels can meet the specifications, can this material be used?

A.30 See response to Q.10.

Q.31 How much water can be obtained for "small water needs?" Could a 10,000 gal. above ground tank be hooked up to this water source? If so, how long would this take to fill up?

A.31 The quantity and collection rate of water that can be obtained for small water needs can be verified during the pre-construction meeting or during CONTRACTOR mobilization. As mentioned during the pre-bid meeting, all significant water needs should be accessed from the French Broad River.

- Clarifications:

C.1 Based on NCDEQ review comments on the Erosion and Sediment Control (E&SC) Plan submitted for the proposed Borrow Areas, the two (2) temporary sediment traps (TST-BA1 and TST-BA2) will be constructed during the initial phases of land disturbance. Subsequently, the sediment traps will be expanded and converted to sediment basins (with forebays, risers with skimmers, baffles, and outlet pipes) by the CONTRACTOR. The details of the conversions from the sediment traps to sediments, and the decommissioning of the sediment basins after the establishment of permanent stabilization, are shown on newly issued Drawing Nos. ES-03B, ES-04, ES-07, and ES-07A.

C.2 LaBella Associates (LaBella) recently experienced a network disruption and currently has limited access to its CAD files. As a result, the above listed changes to the Borrow Areas construction (i.e., construction sequencing, temporary sediment traps, sediment basins, stockpile locations, stabilization timeframes, etc.) are provided in stand-alone E&SC drawings that have been approved by NCDEQ, and issued for this addendum. These stand-alone E&SC drawings have been added to the attached Bidding Drawings set (dated February 21, 2025). Prior to Contract Award, LaBella will provide a consolidated Construction Drawings set containing all the E&SC changes and the original Bidding Drawings set in a single set for ease of use and reference by the CONTRACTOR. For CAD files requests, LaBella will provide the requested files as soon as practicable but it might be dependent on when access to the CAD files are restored.

C.3 The complete Borrow Study Report 2 (prepared by BLE) was received on March 13, 2025, and is attached to this addendum. Although the report denotes the area of investigation as Borrow Area 2, the area of investigation includes both Borrow Areas 1 and 2. The locations of the test pits excavated in BLE's Borrow Study Report 2 are provided on in Figure 2 of BLE's report.

Due to the unforeseen circumstances associated with our network disruption, LaBella will be available to answer additional questions related to this addendum or the attached bidding drawings if received before April 2, 2025.

By: Rohit Garg

Rohit Garg, P.E.
LaBella Associates, P.C.

Attachments:

Attachment No. 1:	Revised Bidding Documents Revised Section 00410: Bid Form for Construction Contract Revised Section 00430: Bid Bond (Penal Sum) Revised Section 00520: Agreement Between Owner and Contractor Revised Section 00550: Notice to Proceed
Attachment No. 2:	Revised Specifications Revised Section 01025: Measurement and Payment
Attachment No. 3:	Updated Bidding Drawings
Attachment No. 4:	Borrow Study Report 2 (prepared by BLE)
Attachment No. 5:	EDR Agreement

Attachment No. 1: Revised Bidding Documents

Revised Section 00410: Bid Form for Construction Contract

Revised Section 00430: Bid Bond (Penal Sum)

Revised Section 00520: Agreement Between Owner and Contractor

Revised Section 00550: Notice to Proceed

SECTION 00410
BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—PROJECT IDENTIFICATION

1.01 Woodruff Landfill: Phase 7 Expansion Construction, Transylvania County Woodruff Landfill, Brevard, NC.

ARTICLE 2—OWNER AND BIDDER

2.01 This Bid is submitted to: Transylvania County, NC, 101 South Broad Street, Brevard, NC 28712, Attention: Jennifer Galloway, Purchasing Coordinator.

2.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2.03 Bidder accepts all the terms and conditions of the Advertisement for Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 30 days after the Bid opening, or for such longer period that Bidder may agree to in writing upon request of OWNER. Bidder will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements at the pre-construction meeting to be scheduled within 20 business days after the date of Owner's Notice of Award.

ARTICLE 3—ATTACHMENTS TO THIS BID

3.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security in the form of 5% of the maximum bid price;

B. List of Proposed Subcontractors;

C. Non-collusion Affidavit;

D. List of Project References;

E. Evidence of authority to do business in the state of the Project;

F. Contractor's license number as evidence of Bidder's State Contractor's License; and,

G. Required Bidder Qualification Statement with supporting data.

ARTICLE 4—BASIS OF BID—UNIT PRICES

4.01 Unit Price Bids

A. Bidder will perform the following Work at the indicated unit prices as totaled from the attached Table of Prices:

Base Bid Price (Items 1 through 32)

_____(word)

($_____)(figures)

Alternative Bid Price (Items 1 through 34)

_____(word)

($_____)(figures)

B. Bidder acknowledges that:

1. Each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. Estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 5—TIME OF COMPLETION

5.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

5.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 6—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

6.01 Bid Acceptance Period

A. This Bid will remain subject to acceptance for 30 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

6.02 Instructions to Bidders

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

6.03 Receipt of Addenda

A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 7—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

7.01 Bidder's Representations

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.

5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

7.02 Bidder's Certifications

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

3. Bidder has not solicited or induced any individual or entity to refrain from bidding.

4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 7.02.A:

   a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.

   b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.

c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.

d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 8—MBE/WBE REQUIREMENTS

8.01 The undersigned acknowledges that this bid is subject to a 5% Minority Business Enterprise and a 5% Woman owned Business Enterprise target participation as a requirement for the work. Failure to meet this requirement does not invalidate the bid, but bidders meeting the requirement to a greater degree may be selected over a lower bid that fails to meet the MBE/WBE requirement. Bidder shall list all MBE/WBE subcontractors and suppliers with estimated contract amounts here:

MBE(s) -_____,_____%

-_____,_____%

-_____,_____%

WBE(s) -_____,_____%

-_____,_____%

-_____,_____%

BIDDER hereby submits this Bid as set forth above:

Bidder:

_____

(typed or printed name of organization)

By: _____

(individual's signature)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Date: _____

(typed or printed)

If Bidder is a corporation (add seal), a partnership, or a joint venture, attach evidence of authority to sign.

Attest: _____

(individual's signature)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Date: _____

(typed or printed)

Address for giving notices:

_____

_____

Bidder's Contact:

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Phone: _____

Email: _____

Address:

_____

_____

_____

Bidder's Contractor License No.: _____

CONTRACTOR NAME: _____				Woodruff Landfill: Phase 7 Expansion Construction Transylvania County, NC	
Table of Prices					
Item	Description	Estimated Quantity	Unit	Unit Price ($)	Subtotal Cost ($)
General Site Work					
1	Mobilization and Demobilization	LS	1		
2	Site Preparation	LS	1		
3	Field Engineering, Surveying, and Record Documents	LS	1		
4	Locating Edge of Existing Liner	LS	1		
5	Construction Quality Control (CQC)	LS	1		
6	Facilitation/Coordination of Cell Tower Power Line and Fiber Optic Cables Relocation	LS	1		
7	Underdrain Pipes	LS	1		
Earthwork					
8	Earthwork (Unclassified Excavation & Structural Fill)	LS	1		
9	Over Excavation and Backfill (Contingency):	CY	2,000		
10	Waste Removal (Contingency)	CY	500		
11	Rock Removal – Mechanical Method (Contingency)	CY	500		
12	Geogrid with Vegetative Stabilization	LS	1		
Liner System					
13	Low Permeability Compacted Soil Liner (Offsite Soils)	LS	1		
14	Reinforced Geosynthetic Clay Liner (GCL)	LS	1		
15	60-mil Textured White HDPE Geomembrane Liner	LS	1		
16	16 oz Non-woven Geotextile Cushion Fabric	LS	1		
17	Anchor Trench Excavating and Backfilling	LS	1		
Leachate Collection & Removal System					
18	HDPE (DR17) 10-inch Diameter Pipe and Fittings	LS	1		
19	Sump Riser and Concrete Sump Headwall	LS	1		

Table of Prices

Item	Description	Estimated Quantity	Unit	Unit Price ($)	Subtotal Cost ($)
20	HDPE (DR11) 4”/8” Dual Cont. Leachate Force Main	LS	1		
21	Washed Coarse Drainage Aggregates (No. 6M or 67 stone)	LS	1		
22	20-mil White Geosynthetic Rain Cover	LS	1		
23	Stormwater Diversion Berm and Rain Flap	LS	1		
24	Leachate Pump and Electrical Work	LS	1		
Access Roads					
25	Landfill Perimeter Road, Cell Tower Access Road, SB-7E Access Road, and Temporary Gravel Construction Entrances/Exits	LS	1		
Erosion and Sediment Control					
26	Diversion Berms, Slope Drains, Silt Socks, Drop Inlets, and Inlet/Outlet Protection Structures	LS	1		
27	Perimeter Stormwater Conveyance Channels, Culverts and Drop Inlets	LS	1		
28	Revegetation (Including Borrow Areas)	LS	1		
29	Dewatering Pump and Appurtenances	LS	1		
30	Sediment Basins	LS	1		
31	Sediment Basins Dewatering and Cleanup	LS	1		
32	Miscellaneous Erosion and Sediment Control Features	LS	1		
TOTAL BASE BID (ITEMS 1 – 32)					
ALTERNATE BID ITEMS					
33	ABC Stone	Ton	100		
34	#57 Stone	Ton	100		
TOTAL ALTERNATIVE BID (ITEMS 1 – 34)					

SECTION 00430
BID BOND (PENAL SUM FORM)

Bidder	**Surety**
Name:	Name:
Address *(principal place of business)*:	Address *(principal place of business)*:
Owner	**Bid**
Name: Transylvania County, NC	Project *(name and location)*:
Address *(principal place of business)*:	Woodruff Landfill Phase 7 Expansion Construction Transylvania County Project No.: 10002 500 Howell Road Brevard, NC 28712
500 Howell Road Brevard, NC 28712	Bid Due Date: April 08, 2025, by 10:00 A.M.
Bond	
Penal Sum: $	
Date of Bond:	

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

Bidder	Surety
_____	_____
(Full formal name of Bidder)	*(Full formal name of Surety) (corporate seal)*
By: _____	By: _____
(Signature)	*(Signature) (Attach Power of Attorney)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____
Attest: _____	Attest: _____
(Signature)	*(Signature)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title:	Title:

Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
   3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
   3.2. All Bids are rejected by Owner, or
   3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project, and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

SECTION 00520
SUGGESTED AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between Transylvania County, NC ("Owner") and [**name of contracting entity**] ("Contractor").

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Construct Phase 7 Expansion (approximately 6.0 acres) to expand the landfill horizontally.

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: This project includes relocation of power and fiber optic, construction of erosion and sediment control features, earthwork and grading of base grades and perimeter road, construction of the low-permeability soil liner and geosynthetic materials installation for the Woodruff landfill, construction of the drainage layer, and installation of the leachate collection system, pumps, sump headwalls, rain cover and dual contained force main.

ARTICLE 3—ENGINEER

3.01 The Owner has retained LaBella Associates, P.C. ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by the Engineer.

ARTICLE 4—CONTRACT TIMES

4.01 Time is of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Contract Times: Days

A. The Work will be substantially complete within 270 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 300 days after the date when the Contract Times commence to run.

4.03 Liquidated Damages

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved, plus extensions within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Substantial Completion:* Contractor shall pay Owner $1,000.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, for 30 days until the Work is substantially complete. After 30 days past Substantial Completion, Contractor shall pay Owner $5,000.00 for each day that expires until the Work is substantially complete.
2. *Completion of Remaining Work:* After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $1,000.00 for each day that expires after such time until the Work is completed and ready for final payment. After 30 days past Completion, Contractor shall pay Owner $5,000.00 for each day that expires until the Work is complete.
3. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
4. Contractor agrees that except for delays caused by acts of intentional interference of the Owner, the Owner shall not in any event be liable to the Contractor for the costs or expenses of delays of any kind whatsoever, and the Contractor shall be fully responsible for making up lost time for all delays except to the extent that the Contractor is entitled to an extension of the contract time.
5. To the extent there is a delay beyond the Contractor's control occasioned by an Act of God, such delay may entitle to the Contractor to an extension of contract time in which to complete the work as agreed by the Owner; provided, however, that the Contractor shall immediately give written notice to the Owner of the cause of delay. Act of God shall have the same definition as is included in the General Conditions.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6—PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on the basis of Contractor's Applications for Payment within 21 days of receiving written recommendation of payment from the Engineer during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. Taxes must be reviewed and approved by County Finance Department before issuance of written recommendation of payment by Engineer. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously

made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.

a. 95% of the value of the work completed minus geosynthetic installation (with the balance being retainage);

b. 75% of the payment for work related to the installation of all geosynthetic materials, with the balance being retained, until all quality control testing results, daily logs, certifications, and as-built panel layouts are submitted and determined to be complete by the Owner; and,

c. 50% of cost of materials and equipment not incorporated in the Work, invoices and documentary evidence required (with the balance being retainage).

B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 75 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 Final Payment

A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 Consent of Surety

A. Owner will not make final payment or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 Contents

A. The Contract Documents consist of all of the following:

1. Advertisements for Bid.
2. Bid Submittal Checklist.
3. Instructions to Bidders for Construction Contract.
4. Bid Form for Construction Contractor.
5. Bid Bond.
6. This Agreement.
7. Bonds:
   a. Performance bond (together with power of attorney).
   b. Payment bond (together with power of attorney).
8. General Conditions.
9. Supplementary Conditions.
10. Specifications as listed in the table of contents of the project manual (copy of list attached).
11. Drawings listed on the attached sheet index.
12. Addenda (numbers [number] to [number], inclusive).
13. Exhibits to this Agreement (enumerated as follows):

a. Notice to Proceed.

b. Contractor's Bid.

c. Documentation submitted by Contractor prior to Notice of Award.

d. Contractor's List of Subcontractors.

e. Contractor's Affidavit.

14. The following, which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:

a. Written Amendments.

b. Work Change Directives.

c. Change Orders.

d. Field Orders.

B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:

1. Contractor has examined and carefully studied the Contract Documents, including Addenda.

2. That the Contractor and its subcontractors are properly and appropriately licensed for their respective work.

3. That it is financially solvent and experienced in and competent to perform the work and to furnish the labor, plant, materials, supplies or equipment, to be so performed or furnished by it.

4. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

5. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

6. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.

7. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

8. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of

the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.

9. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

10. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

11. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

12. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

13. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 Contractor's Certifications

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 Standard General Conditions

A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

ARTICLE 9—MISCELLANEOUS

9.01 Terms

A. Terms used in this Agreement will have the meanings indicated in the General Conditions.

9.02 Assignment of Contract

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 Successors and Assigns

A. Owner and Contractor each bind itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in duplicate. One counterpart each has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

This Agreement will be effective on [**indicate date on which Contract becomes effective**] (which is the Effective Date of the Contract).

Owner:	Contractor:
Transylvania County, NC *(typed or printed name of organization)*	*(typed or printed name of organization)*
By: _____ *(individual's signature)*	By: _____ *(individual's signature)*
Date: _____ *(date signed)*	Date: _____ *(date signed)*
Name: Jaime Laughter *(typed or printed)*	Name: _____ *(typed or printed)*
Title: County Manager *(typed or printed)*	Title: _____ *(typed or printed)* *(If [**Type of Entity**] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)*
Attest: _____ *(individual's signature)*	Attest: _____ *(individual's signature)*
Title: _____ *(typed or printed)*	Title: _____ *(typed or printed)*
Address for giving notices: 101 South Board Street Brevard, NC 28712	Address for giving notices:
Designated Representative:	Designated Representative:
Name: _____ *(typed or printed)*	Name: _____ *(typed or printed)*
Title: _____ *(typed or printed)*	Title: _____ *(typed or printed)*
Address:	Address:
Phone: _____	Phone: _____
Email: _____	Email: _____
*(If [**Type of Entity**] is a corporation, attach evidence of authority to sign. If [**Type of Entity**] is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)*	License No.: _____ *(where applicable)* State: _____

SECTION 00550
NOTICE TO PROCEED

Owner:	Transylvania County, NC	Owner's Project No.:	10002
Engineer:	LaBella Associates	Engineer's Project No.:	2250798 Phase 02
Contractor:		Contractor's Project No.:	
Project:	Woodruff Landfill: Phase 7 Expansion Construction		
Contract Name:			
Effective Date of Contract:			

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [**date Contract Times are to start**] pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve **Substantial Completion is 270** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of [**date, calculated from commencement date above**]; and the number of days to achieve readiness for **final payment is 300** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of [**date, calculated from commencement date above**].

Before starting any Work at the Site, Contractor must comply with the following:

[**Note any access limitations, security procedures, or other restrictions**]

Owner:	Transylvania County, NC
By *(signature)*:	
Name *(printed)*:	Jaime Laughter
Title:	County Manager
Date Issued:	

Copy: LaBella Associates

LaBella
Powered by partnership.

Attachment No. 2: Revised Specifications

Revised Section 01025: Measurement and Payment

SECTION 01025
MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. All Work completed under the Contract will be measured using United States Units of Measurement.

B. All items not specifically listed in the approved Schedule of Values for which there is no instructions as to where the price shall be included shall be covered by distributing the price within the listed items. No additional payment will be allowed.

C. All Work shall meet the applicable requirements of the CQA Plan for this project before payment will be approved.

1.02 AUTHORITY

A. Measurement methods delineated in the individual specification sections are intended to complement the criteria of this section.

B. Take all measurements and compute quantities. ENGINEER will verify measurements and quantities.

1.03 UNIT QUANTITIES SPECIFIED

A. Quantities and measurements indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by ENGINEER shall determine payment.

B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the Unit Price provided in the Contract.

1.04 MEASUREMENT OF QUANTITIES

A. Measurement of quantities expressed as volume shall be based upon topographic surveys of the area prior to and after the Work is completed. Survey will be within the Work limits shown on the Drawings for each item with no additional allowances for shrinkage, swelling, or creep.

1. In computing volumes of excavation and fill, topographic surveys, or other methods, acceptable to the ENGINEER, will be used.

B. Measurement of quantities expressed as area shall be based upon horizontal survey of the Work limits.

C. Measurement of linear items such as piping will be for quantities actually installed to the specified Work limits, based upon horizontal surveyed stations recorded along the straight or curved centerline of each respective item.

D. “Lump Sum,” when used as an item of payment, shall mean complete functioning item for the Work described by the Contract Documents. When a complete structure or structural unit is specified as the unit of measurement the unit shall be construed to include all necessary fittings, accessories, and appurtenances.

E. Tonnage measurements shall be based upon the actual weight of material brought to the site and placed. Tonnage material must be placed according to the dimensions shown on the Drawings.

F. Item measurements "each" shall be complete functional items as described in the Specifications and as shown on the Drawings and shall be construed to include all necessary fittings, accessories, and appurtenances.

G. Attach copy of surveyor's calculations and supporting documentation to applications for payment verifying the total quantity of each completed unit cost work item.

1.05 PAYMENT

A. Payment for each Lump Sum Price stated in the approved Schedule of Values shall constitute full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work required to complete all Work specified under that particular item including cleanup, and all costs for doing related Work as set forth in these Specifications and/or on the Drawings or implied in carrying out their intent. The Lump Sum stated in the approved Schedule of Values shall be deemed to include an allowance for overhead and profit.

B. Final payment for Work governed by Unit Prices will be made on the basis of the actual measurements and quantities accepted by ENGINEER multiplied by the Unit Sum/Price for Work which is incorporated in or made necessary by the Work.

C. Requests for payment shall be in accordance with the requirements provided within this Project Manual.

D. Payment will be made to the limits as specified in the Contract Documents. If the constructed limits are less than the specified limit, payment will be made to the actual limits of construction as shown on the Record Drawings prepared by a surveyor licensed in the State of North Carolina. Payment for quantities that exceed the specified contract limits will only be made with the approval of the ENGINEER. The payment for quantities that exceed the contract quantities can only be obtained through an approved change order before contract quantities are exceeded.

E. No partial payments shall be made for the installation of items which have not been tested and approved.

F. Upon installation and acceptance by the OWNER or ENGINEER, the unit cost for the item is eligible to be paid and shall be made in payment to account for the quantity of materials actually installed in the Work. The OWNER will not pay for material in excess of what is actually installed in the Work.

G. Payment for Unit Price items will be made monthly until completion of each unit price item based on quantity estimates by CONTRACTOR and verified by the ENGINEER. Final payment will be based on quantity calculated from Record Drawings.

1.06 VARIATIONS IN ESTIMATED QUANTITIES

A. The quantities given in the Bid Form are approximate only and are given as a basis for the uniform comparison of bids, and OWNER does not expressly or by implication agree that the actual amount of Work will correspond therewith.

B. The CONTRACTOR must provide, for Unit Price Work, a proposed Contract Price

determined on the basis of estimated quantities required for each item. The estimated quantities of items are not guaranteed and are solely for the purpose of comparing bids. Each such Unit Price will be deemed to include an amount for overhead, profit, and indirect costs for each separately defined item.

C. An increase or decrease in the quantity for any Unit Price item shall not be regarded as sufficient grounds for an increase or decrease in the price of the items except as provided herein.

D. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by the CONTRACTOR subject to the provisions of the General Conditions Article 13.

1.07 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of ENGINEER, it is not practical to remove and replace the Work, the ENGINEER will direct one of the following remedies:

1. The defective Work may remain, but the Unit Sum/Price will be adjusted to a new Sum/Price at the discretion of the OWNER.

2. The defective Work will be partially repaired to the instructions of the ENGINEER, and the unit Sum/Price will be adjusted to a new Sum/Price at the discretion of the OWNER.

C. The individual specification sections may modify these options or may identify a specific formula or percentage Sum/Price reduction.

D. The authority of the ENGINEER to assess the defect and identify payment adjustment is final.

1.08 NON-PAYMENT FOR REJECTED PRODUCTS

A. Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.

2. Products determined as unacceptable before or after placement.

3. Products not completely unloaded from the transporting vehicle.

4. Products placed beyond the lines and levels of the required Work.

5. Products remaining on hand after completion of the Work.

6. Loading, hauling, and disposing of rejected Products.

PART 2 PROCEDURE

2.01 CONTRACT ITEMS

A. The following are more detailed descriptions of payment items as listed on the Table of Prices. The work includes, but is not necessarily limited to, what is described.

Bid Item 1 – Mobilization and Demobilization:

a. Scope: Work shall include the furnishing of all materials, and operations required for the assembling and setting up for the project and dismantling and removal at the conclusion of the project. Additionally, work includes but not limited to: initial movement of personnel to the project site, establishment of field office for the CONTRACTOR and ENGINEER, establishment of shops and plants, provision of sanitary and any other facilities or utilities required by the Contract Documents and State or Local regulations, moving on and off site all construction equipment, hauling units, mixers, compressors, and tools required to complete the work, establishment of storage yard area, all other work and operations which must be performed prior to beginning work on compensable items of work at the project site, the cost of required insurance and bonds and any other initial expense required by the OWNER or the State, removal of any excess materials, development and maintenance of a traffic control plan, removal and proper disposal of all construction related wastes and debris, and restoration of all disturbed areas.

b. Payment: Twenty-five (25) percent of the Lump Sum Price bid will be paid with the first payment request following satisfactory evidence of mobilization of sufficient labor, equipment, and material to adequately progress the Work of this Contract. Twenty-five (25) percent of the Lump Sum Price bid will be paid with the payment request subsequent to the payment request in which the initial payment for this item is made. Fifty (50) percent of the Lump Sum Price bid will be paid with the Final Payment request. This item shall be limited to no more than 5% of the total extended price as indicated on the approved Table of Prices. The payment for this item shall be made at the Contract Price (lump sum) for Mobilization and Demobilization.

Bid Item 2 – Site Preparation:

a. Scope: Work shall include site preparation and restoration under Section 02100 consisting of any clearing and grubbing and removal of debris required to initiate and complete the work. Additionally, work shall include the installation of the sediment fence to delineate the area of disturbance and the additional sediment fence around the borrow areas as shown on the Drawings.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary for Site preparation The payment for this item shall be made at the Contract Price (lump sum) for Site Preparation and Restoration.

Bid Item 3 – Field Engineering, Surveying, and Record Documents:

a. Scope: Work shall include record documents prepared in accordance with Section 01720, and construction progress documentation prepared in accordance with Section 01250. Survey of the construction area existing conditions prior to commencing construction activities shall be included. Ground elevations shall be surveyed and staked. Additionally, work for this item includes all field engineering services and meetings needed to accomplish the Work in accordance with Section 01050. The scope for this item does not

include surveys for Item 13, Item 14, Item 18, and Item 20 of Measurement and Payment.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary for Field Engineering in accordance with Section 01050 and record documents in accordance with Section 01250 and Section 01720. Payment for this item shall be made at the Contract Price (lump sum) for Field Engineering.

Bid Item 4 – Locating Edge of Existing Liner

a. Scope: Work shall include, but not be limited to, all activities needed to prepare the existing edge of liner on Phase 5 of the landfill for tie-in to the Phase 7 liner construction. These activities include, but are not limited to, locating the edge of liner, excavation of cover soil and/or waste material to expose the liner for tie-in, removal of the existing anchor trench material, and preparation of the soil liner and trimming/cleaning of the geomembrane liner for tie-in to the Phase 7 liner. Additionally, this line item also includes covering any exposed waste on Phase 5 along the tie-in area with one (1) foot of cover soil.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary for locating the edge of existing Phase 5 liner. Payment for this item shall be made at the Contract Price (lump sum) for Locating Edge of Existing Liner.

Bid Item 5 – Construction Quality Control (CQC)

a. Scope: Work shall include construction quality control (CQC) under Section 01400.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary for construction quality control (CQC). All Work conducted under Section 01400 and the Specifications shall be paid for at the Contract Price (lump sum) for Quality Control including, but not limited to, suppliers, manufacturers, products, services, site conditions, and workmanship.

Bid Item 6 – Facilitation/Coordination of Cell Tower Power Line and Fiber Optic Cables Relocation

a. Scope: Work shall include all facilitation/coordination efforts related to the relocation of the power line and fiber optic cables of the Cell Tower located northeast of Phase 7. The actual relocation of the utility lines will be performed by the appropriate local utility company. The facilitation/coordination efforts shall include provision of staging areas for local utility companies, marking proposed utility locations, and onsite meetings with local utility companies.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to facilitate the relocation of the Cell Tower power line and fiber optic cables.

Bid Item 7 – Underdrain Pipes

a. Scope: Work shall include, but not be limited to, the installation of two (2) 8-inch perforated HDPE DR-17 underdrain pipes, #57 stone, 8 oz. non-woven geotextile, and incidentals such as excavation, disposal of the excavated material, backfill and proper compaction.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to supply and install two (2) subsurface drain (i.e., underdrain) pipes in Phase 7 as described in the Specifications and the Drawings.

Bid Item 8 – Earthwork (Unclassified Excavation & Structural Fill):

a. Scope: Work shall include, but not be limited to, excavating and grading borrow areas and Phase 7 Expansion, hauling, stockpiling, placement and compaction of excess soils, watering, haul road construction and maintenance, and maintenance of the excavation and the stockpile areas as required to comply with the Drawings. Erosion and sediment control features and adequate drainage shall be provided in the borrow areas and Phase 7 Expansion construction area as shown on the Drawings by the CONTRACTOR. Work shall include the placement of structural fill to achieve the lines and grades shown on the Drawings, consisting of excavation, hauling, spreading, compaction, and testing.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary for earthwork (unclassified excavation and structural fill), with accompanying erosion and sediment control features, as described in the Specifications to the lines and grades specified on the Drawings. Included in this line item are costs associated with the construction and maintenance of borrow areas required for the construction of Phase 7 as shown on the Drawings.

Bid Item 9 – Over Excavation and Backfill (Contingency):

a. Scope: Work shall include, but not be limited to, the limits of excavation which shall be agreed to by both the CONTRACTOR and OWNER at the time of excavation. The use of truck load counts to estimate materials removed or placed will not be accepted as a basis for payment. The limits of the excavation shall be determined by the ENGINEER and agreed by both the CONTRACTOR and OWNER or ENGINEER at the time of excavation.

b. Payment: The quantity for this line item will be the in-place volume of unsuitable materials estimated from the limits of excavation. The contingency allowance shall be exercised only with the approval of the ENGINEER and the OWNER. The Contract Unit Price per cubic yard shall be full compensation for removal of unsuitable materials and backfill prior to any structural fill placement or gravity line placement, including excavation, disposition of excavated materials, backfill, and compaction. The quantity of work to be paid for under this item will be per measured cubic yard of the excavation.

Bid Item 10 – Waste Removal (Contingency):

a. Scope: Work shall include, but not be limited to, the removal of waste and disposal of waste at the active area of the landfill and is contingent based on the direction of the ENGINEER and OWNER.
b. Payment: The Contract Unit Price per cubic yard shall be full compensation for removal of waste and disposal of waste at the active area of the landfill as directed by Transylvania County, as defined in the Contract Documents. The quantity of work to be paid for under this item will be per measured cubic yard of the excavation. The work under this item will be performed on a contingency basis at the direction of the ENGINEER and OWNER.

Bid Item 11 – Rock Removal – Mechanical Method (Contingency):

a. Scope: Work shall include the removal of rock that can be removed by mechanical means, as defined in the Specifications, and backfill prior to any structural fill placement. The limits of rock removal shall be agreed to by both the CONTRACTOR and OWNER upon completion of rock removal. The price for this item shall be paid for at the Contract Unit Price per cubic yard of rock removed and shall include the cost of all work associated with removing, loading, hauling, and disposing rock, and excavation, backfill and compaction.

b. Payment: The Contract Unit Price per cubic yard shall be full compensation for providing materials, labor, and equipment necessary for the removal of rock. No payment will be made for unauthorized rock removal. The work under this item will be performed on a contingency basis at the direction of the OWNER. Excavated rock material may be stockpiled onsite with approval from the OWNER.

Bid Item 12 – Geogrid with Vegetative Stabilization:

a. Scope: Work shall include, but not be limited to, furnishing and installation of the geogrid to stabilize and reinforce the slopes shown on the Drawings. All materials used and work performed shall meet the requirements of this specification and the Contract Documents, or the manufacturer's installation and handling instructions, whichever are more stringent.
b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to supply and install the geogrid and stabilize the reinforced slopes required for this project as shown on the Drawings.

Bid Item 13 – Low Permeability Compacted Soil Liner (Offsite Soils):

a. Scope: Work shall include, but not be limited to, the ground surveys before and after placement of the low permeability compacted soil liner, placement, and compaction of suitable soils to construct the low permeability compacted soil liner, and the construction of test pads. The CONTRACTOR's surveyor shall perform surveys of the ground surface before and after placement and compaction of soil liner within the required construction limits that will be used by the OWNER and the ENGINEER to verify the thickness of compacted,

in-place soil liner. These surveys will be provided to the OWNER as a condition for payment.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary for the procurement and hauling from offsite borrow sources, placement and compaction of suitable soils to construct the low permeability compacted soil liner, including excavation, construction of test pad(s), testing, hauling, spreading, moisture modification and compaction. Payment for this item shall be at the Contract Price (lump sum) for the Compacted Soil Liner.

Bid Item 14 – Reinforced Geosynthetic Clay Liner (GCL)

a. Scope: Work shall include, but not be limited to, materials, labor, and equipment necessary to install the reinforced geosynthetic clay liner (GCL). The CONTRACTOR's surveyor shall perform construction surveys that will show the total area of GCL installed. These surveys will be provided to the OWNER as a condition for payment.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary for the supply and installation of the reinforced GCL including all labor, material, equipment, and other incidentals, such as transportation, unloading, stockpiling, protecting, placing, and quality control testing as required to comply with the Drawings and Specifications. 10% of this line item will be retained until all quality control testing results, daily logs, certifications, and as-built layouts are submitted to and determined to be complete by the OWNER.

Bid Item 15 – 60-mil Textured White HDPE Geomembrane Liner:

a. Scope: Work shall include, but not be limited to, materials, labor, and equipment necessary to install the textured (WHITE side up) 60-mil HDPE geomembrane liner, and any repairs needed to be made based on any leaks discovered from the exposed liner Electric Leak Location (ELL) survey. This Work also includes coordination and site preparation required for the covered geomembrane ELL survey (to be performed by the CQA consultant). Any leak repairs related to the ELL found by the ELL survey shall be repaired by the CONTRACTOR in accordance with Specifications.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary for the supply and installation of textured (WHITE side up) 60-mil HDPE geomembrane liner, including quality control testing, shipping, unloading, and placement. The price for this item shall include performing an exposed liner ELL survey by the CONTRACTOR. 10% of this line item will be retained until all quality control testing results, daily logs, certifications, and as-built panel layouts are submitted to and determined to be complete by the OWNER.

Bid Item 16 – 16 oz Non-woven Geotextile Cushion Fabric:

a. Scope: Work shall include, but not be limited to, materials, labor, and equipment necessary to install the 16 oz. non-woven geotextile cushion fabric.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to supply and install 16 oz. non-woven geotextile cushion fabric, including but not limited to shipping, unloading, and placement. 10% of this line item will be retained until all quality control testing results, daily logs, and certifications are submitted to and determined to be complete by the OWNER.

Bid Item 17 – Anchor Trench Excavating and Backfilling:

a. Scope: Work shall include, but not be limited to, excavating and backfilling of anchor trenches for the liner system, and any incidentals such as dewatering the anchor trench during construction. Work under this item includes furnishing and installing all plywood and liner markers as shown on the Drawings.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary for the excavation and backfilling of anchor trenches for the liner system.

Bid Item 18 – HDPE (DR17) 10-inch Diameter Pipe and Fittings:

a. Scope: Work shall include, but not be limited to, the installation of leachate collection piping, connections, and cleanouts with stainless steel hardware, in accordance with Specification Section 02618 and the Drawings, using HDPE (DR17) 10-inch diameter pipe. Additionally, work shall include testing, flushing and camera inspection of leachate lines at the completion of construction. The CONTRACTOR's surveyor shall survey all leachate pipes within the required construction limits.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to supply and install the leachate collection and conveyance piping system. Payment for this item shall be made at the Contract Price (lump sum) for HDPE (DR17) 10-inch Diameter Pipe and Fittings.

Bid Item 19 – Sump Riser and Concrete Sump Headwall

a. Scope: Work shall include, but not be limited to, materials and labor for installing the HDPE riser (DR17), fast flange, stainless steel hardware and connection. This item also includes the concrete headwall at the sump riser, associated above ground piping, insulation, cladding, pipe support, and flow meter required for Phase 7 sump by Contract Documents.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to furnish and install HDPE riser in accordance with Specification Section 02618. Payment for this item shall include all costs associated with delivery of the material, placement, joining, testing, camera inspection, flushing and surveying, and backfilling.

Bid Item 20 – HDPE (DR11) 4"/8" Dual Containment Leachate Force Main

a. Scope: Work shall include, but not be limited to, installation of leachate force main, air release valve and apparatus, manholes, connections, pipe markers/tracing, and testing of the carrier and containment pipes. The CONTRACTOR's surveyor shall survey all leachate pipes within the limits of

construction. Work shall include testing and flushing of leachate force main at the completion of construction.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to supply and install the HDPE (DR11) 4"/8" Dual Containment Leachate force main in accordance with Specification Section 02618 and the Drawings. Payment for this item shall be made at the Contract Price (lump sum) for HDPE (DR11) 4"/8-inch Diameter Pipe and Fittings.

Bid Item 21 – Washed Coarse Drainage Aggregates (No. 6M or 67 stone)

a. Scope: Work shall include, but not be limited to, materials and labor for installing the washed coarse drainage aggregates for the liner system, including quality control testing, hauling, and spreading. The CONTRACTOR's survey prior to and after placement of drainage aggregate material within the required construction limits will be used to verify the thickness of in-place drainage layer.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to supply and place washed coarse drainage aggregate as shown on the Drawings, in accordance with Specification Section 02225. Payment for this item is contingent on the receipt and acceptance of survey drawings prepared in accordance with the Specifications and certified by a North Carolina licensed Land Surveyor.

Bid Item 22 – 20-mil White Geosynthetic Rain Cover:

a. Scope: Work shall include, but not be limited to, materials, labor, and equipment necessary to install the 20-mil white geosynthetic rain cover including anchor trench and Ultraviolet (UV) Resistant sandbag ballast system as shown on the Drawings and Contract Documents. This Work shall include a minimum one-year warranty on labor and material. This item includes a concrete pad as shown on the Drawings for a dewatering pump.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to the supply and install the rain cover including anchor trench and UV resistant sandbag ballast system and construct the concrete pad as shown on the Drawings and Contract Documents.

Bid Item 23 – Stormwater Diversion Berm and Rain Flap:

a. Scope: Work shall include, but not be limited to, materials, labor, and equipment necessary to construct the temporary stormwater diversion berm, additional drainage layer, rain flap, and UV resistant sandbag ballast system as shown on the Drawings. This Work shall include a minimum one-year warranty on labor and material.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to the construction of the stormwater diversion berm.

Bid Item 24 – Leachate Pump and Electrical Work:

a. Scope: Work shall include, but not be limited to, cost associated with pump startup by the pump manufacturer. The installation includes leachate pump, flow meter, complete electrical installations (i.e., electric meter, pump control panel, electrical connections, etc.) and inspections required by local, State, and Federal codes for the electrical work. Included in this bid item is the coordination with local utility to provide electric service to the pump control panel and the sump pumps.

b. Payment: The Lump Sum Price bid for this item shall be payment in full for all materials, labor, and equipment required to provide and install the leachate pump and all electrical connections will be at Contract Price (Lump Sum) and shall be full compensation for the materials and work completed, inspected, and accepted. The payment shall be full compensation for the materials and work completed and inspected.

Bid Item 25 – Landfill Perimeter Road, Cell Tower Access Road, SB-7E Access Road, and Temporary Gravel Construction Entrances/Exits:

a. Scope: Work shall include, but not be limited to, grading and installation of the RCP culverts, woven filter fabric, 8-inch base course which includes 4-inch of AASTHO #1 Surge Stone and 4-inch of ABC stone, and guardrails.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to supply and construct the perimeter access road encompassing Phase 7 and SB-7E, the cell tower access road, and the temporary gravel construction entrances/exits for Phase 7 and the borrow areas as shown on the Drawings.

Bid Item 26 – Diversion Berms, Slope Drains, Silt Socks, Drop Inlets, and Inlet/Outlet Protection Structures

a. Scope: Work shall include, but not be limited to, grading of berms and installation of HDPE slope drains, silt socks, drop inlets, and proposed inlet and outlet protection structures. Work shall include stabilizing the berms with erosion control blankets (ECBs) in accordance with the Contract Drawings.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to supply of materials and construct/install the diversion berms, slope drains, silt socks, drop inlets, and inlet, and outlet protection structures in Phase 7 as shown on the Drawings.

Bid Item 27 – Perimeter Stormwater Conveyance Channels, Culverts and Drop Inlets:

a. Scope: Work shall include, but not be limited to, grading, construction of stormwater conveyance channels, installation of erosion control blanket, turf reinforcement matting (TRM) or riprap with 10 oz. non-woven geotextile, proposed culverts and drop inlets, and proposed inlet and outlet protection structures.

b. Payment: The Lump Sum Price for this item shall be payment in full for all

materials, labor, and equipment necessary to construct the stormwater conveyance channels, culverts and drop inlets of Phase 7 as shown on the Drawings.

Bid Item 28 – Revegetation (Including Borrow Areas):

a. Scope: The work includes, but is not limited to, grading to drain, eliminating ponding, maintaining design slopes, of disturbance areas related to the Phase 7 construction work and any borrow areas disturbed during construction. The work also includes permanent seeding (and matting of all areas as shown on drawings) not covered with aggregate or concrete in accordance with the Contract Documents.

b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to grade, mat, and revegetate areas disturbed by construction activities. The payment shall be full compensation for the materials and work completed and accepted.

Bid Item 29 – Dewatering Pump and Appurtenances

a. Scope: Work includes, but is not limited to, dewatering ponded water on Phase 7 (e.g., from rain cover) during the construction as required.

b. Payment: The Lump Sum Price bid for this item shall be payment in full for all materials, labor, and equipment required to provide dewatering of ponded areas. The payment shall be full compensation for the materials and work completed and accepted.

Bid Item 30 – Sediment Basins

a. Scope: Work includes, but is not limited to, grading, forebay berms, outlet barrels, baffles, riser boxes, skimmers, anti-seep collars, emergency spillways, and incidentals such as excavation, backfill and proper compaction for three (3) proposed sediment basins (i.e., SB-7E, SB-BA1, and SB-BA2) and one (1) modified sediment basin (SB-1).

b. Payment: The Lump Sum Price bid for this item shall be payment in full for all materials, labor, and equipment required to construct three (3) proposed sediment basin and to modify one (1) existing sediment basin. The payment shall be full compensation for the materials and work completed and accepted.

Bid Item 31 – Sediment Basins Dewatering and Cleanup

a. Scope: Work includes, but is not limited to, excavation, hauling and disposal of sediments, restoring the four (4) sediment basins, i.e., SB-1, SB-7E, SB-BA1, and SB-BA2, to design grades, re-installing baffles and filter stone, permanent seeding and matting of disturbed areas in accordance with the Contract Documents. This work also includes dewatering sediment basin SB-4, and excavating and disposing the sediment from SB-4 prior to constructing the proposed slopes in the SB-4 area. A final record drawing, sealed by a North Carolina licensed Land Surveyor, of the four (4) sediment basins, i.e., the three (3) proposed sediment basins and one (1) modified sediment basin shall be provided to the ENGINEER.

b. Payment: The Lump Sum Price bid for this item shall be payment in full for all materials, labor, and equipment required for dewatering and cleanup of the

four (4) sediment basins associated with this project at the completion of construction. The sediment excavated from SB-4 is not considered unsuitable soil and will not be paid as such. Any undercut and backfill associated with constructing the proposed slopes in the SB-4 area will be paid under Bid Item 9. The payment shall be full compensation for the materials and work completed and accepted. A final record drawing shall be provided to the ENGINEER to review and approve before payment is made for this line item. provided to the ENGINEER to review and approve before payment is made for this line item.

Bid Item 32 – Miscellaneous Erosion and Sediment Control Features

a. Scope: Work shall include, but not be limited to, providing materials, labor, and equipment necessary for installation of erosion and sediment control features such as sediment fence, removal of sediment deposit as necessary, inspection, and maintenance.
b. Payment: The Lump Sum Price for this item shall be payment in full for all materials, labor, and equipment necessary to install the erosion and sediment control features as shown on the Drawings.

Alternate Bid Items

Bid Item 33 – ABC Stone

a. Scope: Work shall include, but not limited to, the supply and stockpiling of ABC stone as directed by the OWNER.
b. Payment: The Contract Unit Price per ton shall be full compensation for all materials, labor, and equipment necessary to supply and stockpile ABC stone. The quantity of work to be paid for under this item will be per measured ton of the ABC stone. The work under this item will be performed on a contingency basis at the direction of the ENGINEER and OWNER.

Bid Item 34 – #57 Stone

a. Scope: Work shall include but not limited to, the supply and stockpiling of #57 stone as directed by the OWNER.
b. Payment: The Contract Unit Price per ton shall be full compensation for all materials, labor, and equipment necessary to supply and stockpile the #57 stone. The quantity of work to be paid for under this item will be per measured ton of the #57 stone. The work under this item will be performed on a contingency basis at the direction of the ENGINEER and OWNER.

PART 3 EXECUTION

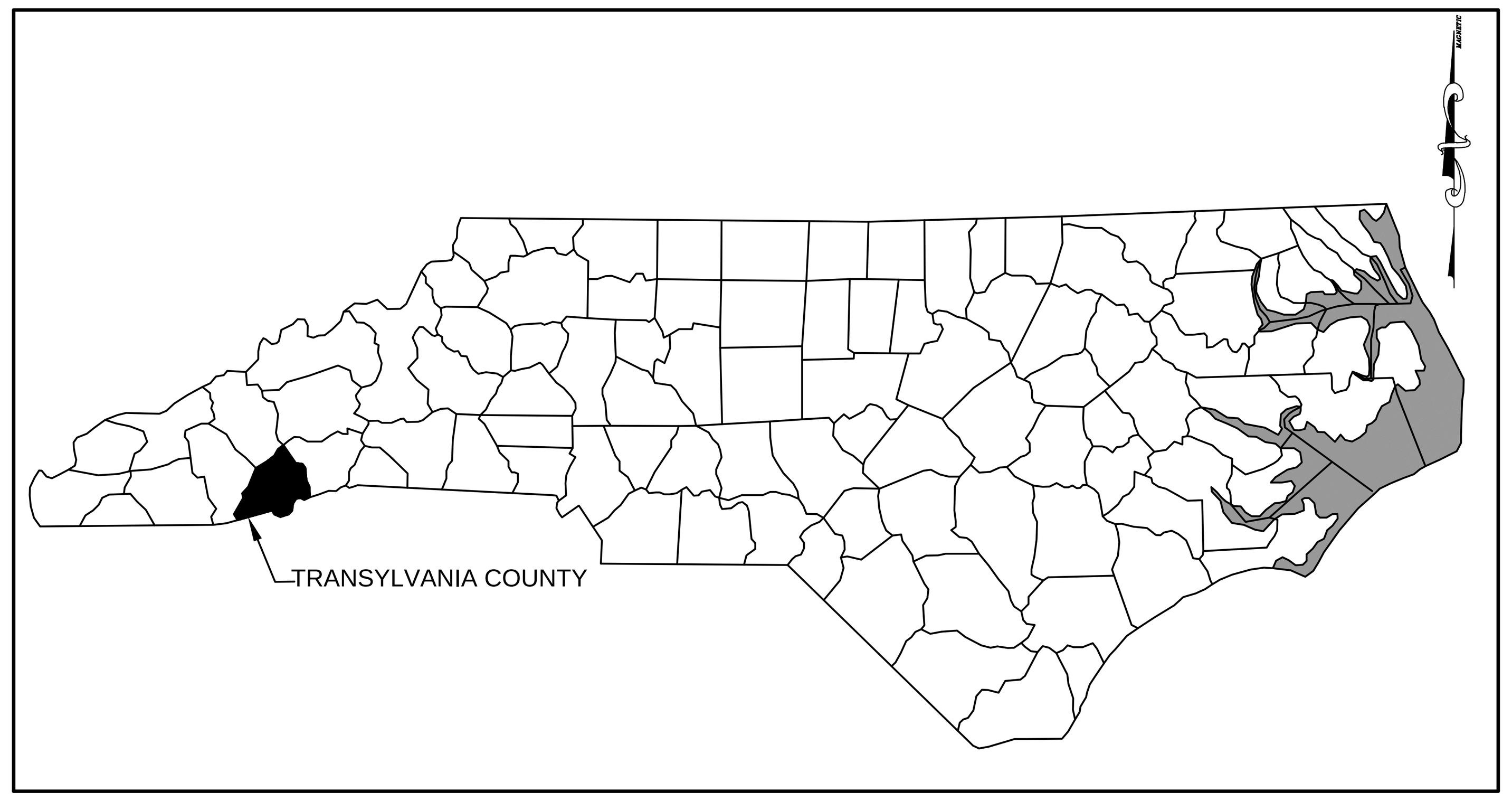
3.01 The CONTRACTOR shall be responsible to make all measurement and calculations to determine volumes and quantities for all applications for payment submittals and final record drawings prepared by a surveyor licensed in the State of North Carolina.

END OF SECTION 01025

LaBella
Powered by partnership.

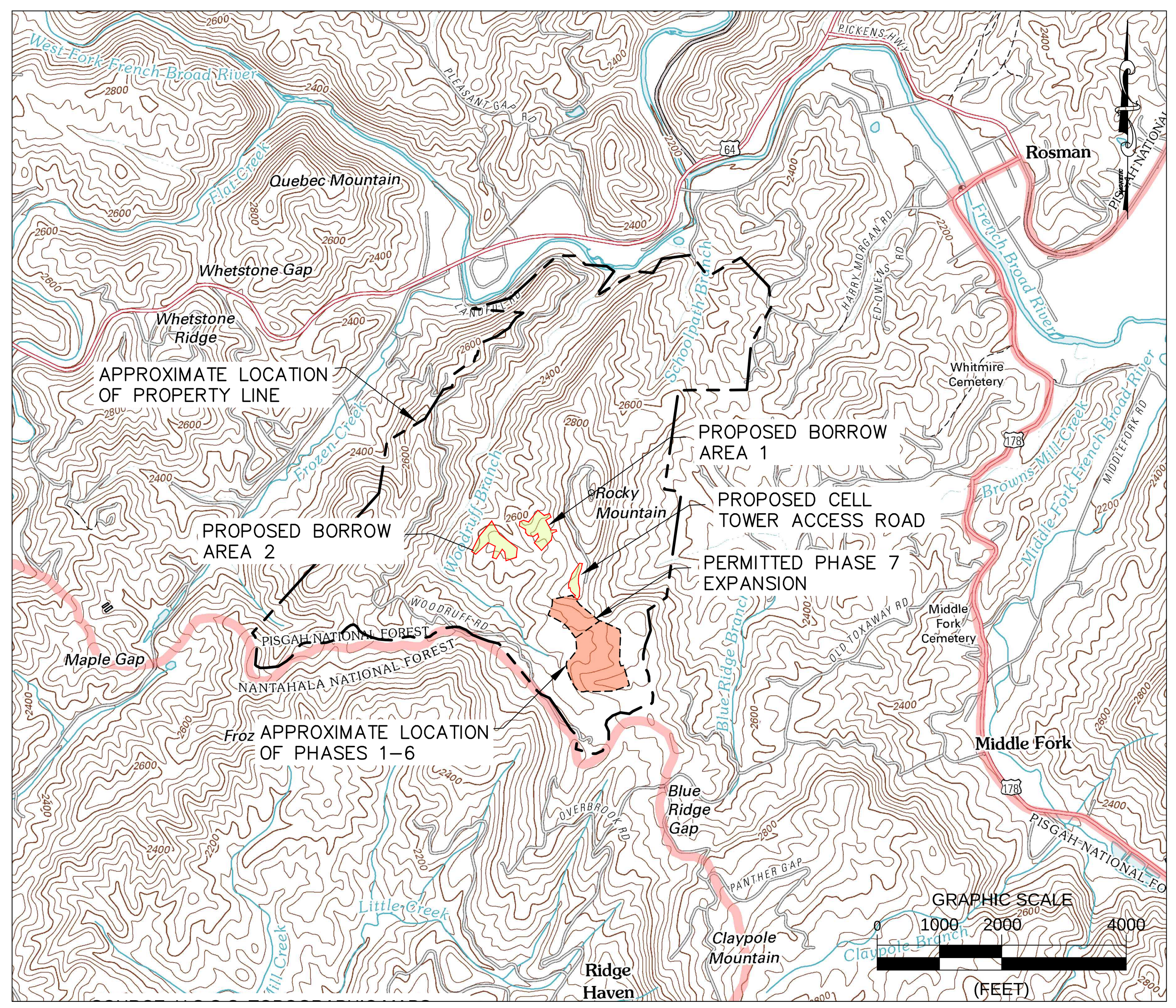
Attachment No. 3: Updated Bidding Drawings

WOODRUFF LANDFILL
PHASE 7 EXPANSION CONSTRUCTION
TRANSYLVANIA COUNTY, NORTH CAROLINA



NORTH CAROLINA
COUNTY LOCATION MAP

Land of Waterfalls
TRANSYLVANIA COUNTY
NORTH CAROLINA



VICINITY MAP
AS NOTED

OWNER INFORMATION

PREPARED FOR:	TRANSYLVANIA COUNTY SOLID WASTE DEPARTMENT
ADDRESS:	500 HOWELL ROAD BREVARD, NC 28712
CONTACT:	KENN WEBB (828) 884-6830

PROPERTY INFORMATION

ADDRESS:	500 HOWELL ROAD BREVARD, NC 28712
NCDEQ PERMIT:	8807
ACREAGE:	748.7

DRAWING INDEX

***DRAWING NOS. ES-03A AND ES-03B REPLACE ORIGNAL BID DRAWING NOS. CP-02B AND CP-03B**

CONSTRUCTION PLAN
FEBRUARY 2025, REV. MARCH 2025

LaBella
Powered by partnership.
400 S. TRYON STREET
CHARLOTTE, NC 28285
PHONE: (704) 376-6423
NC LICENSE # C-0430
labellapc.com

FOR BIDDING ONLY

NORTH CAROLINA PROFESSIONAL SEAL 054122 ENGINEER ROHIT GARG

LABELLA ASSOCIATES, P.C. CORPORATE SEAL C-0430 NORTH CAROLINA

TRANSYLVANIA COUNTY
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

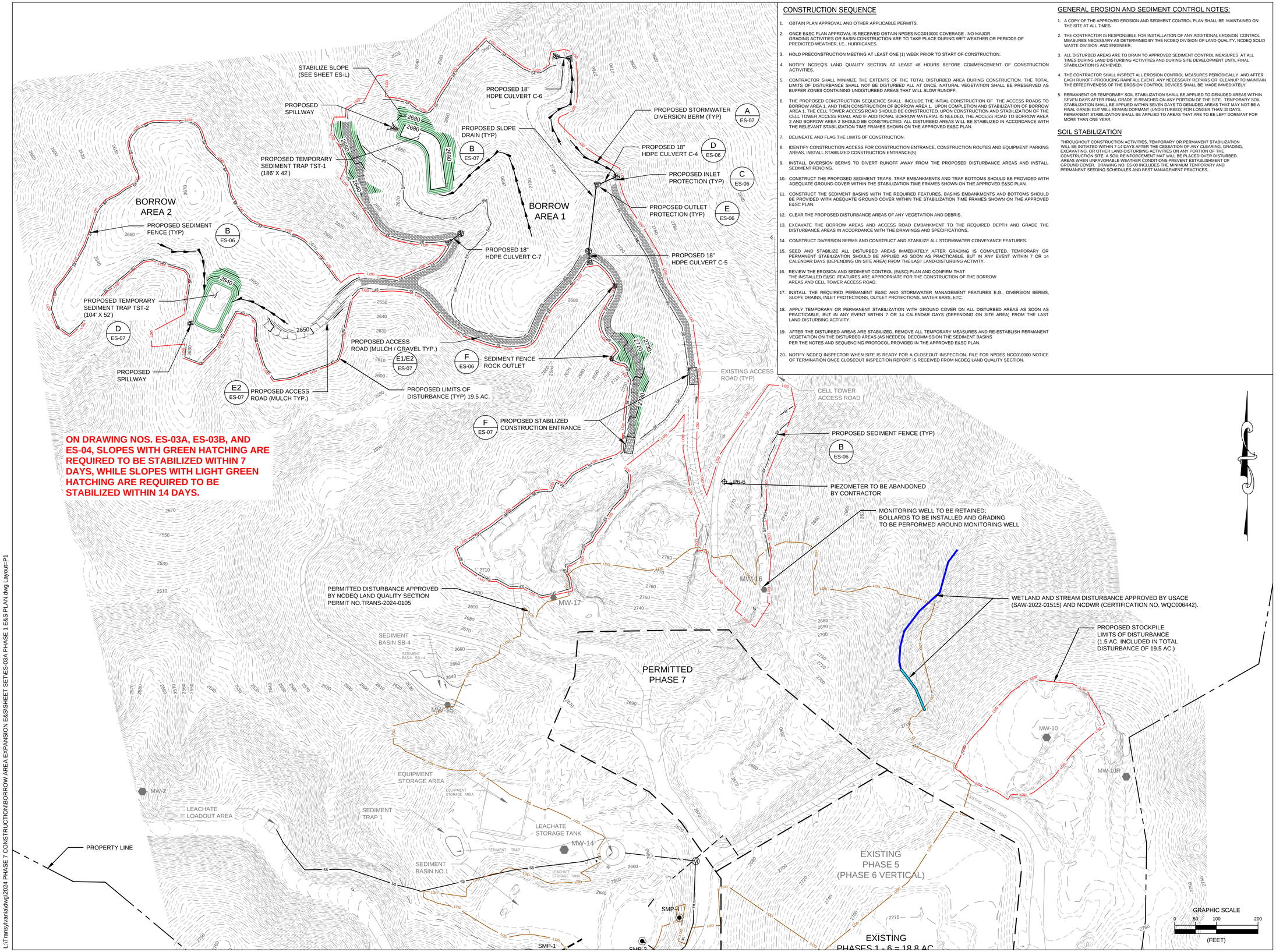
WOODRUFF LANDFILL PHASE 7 EXPANSION CONSTRUCTION
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

NO:	DATE:	DESCRIPTION:
1	03/27/2025	REVISED FOR ADDENDUM #2

Revisions

PROJECT NUMBER:	2250798
DRAWN BY:	RH
REVIEWED BY:	KN / RG
ISSUED FOR:	REBID
DATE:	02/21/25
DRAWING NAME:	TITLE SHEET
DRAWING NUMBER:	CP-T

VERSION 19.0
6/3/2010 8:47:36 AM
L:\Transylvania\dwg\2024 PHASE 7 CONSTRUCTION\SHEET SET\CP-T TITLE SHEET.dwg Layout=SHT-T



ON DRAWING NOS. ES-03A, ES-03B, AND ES-04, SLOPES WITH GREEN HATCHING ARE REQUIRED TO BE STABILIZED WITHIN 7 DAYS, WHILE SLOPES WITH LIGHT GREEN HATCHING ARE REQUIRED TO BE STABILIZED WITHIN 14 DAYS.

CONSTRUCTION SEQUENCE

1. OBTAIN PLAN APPROVAL AND OTHER APPLICABLE PERMITS.
2. ONCE E&SC PLAN APPROVAL IS RECEIVED OBTAIN NPDES NCG010000 COVERAGE . NO MAJOR GRADING ACTIVITIES OR BASIN CONSTRUCTION ARE TO TAKE PLACE DURING WET WEATHER OR PERIODS OF PREDICTED WEATHER, I.E., HURRICANES.
3. HOLD PRECONSTRUCTION MEETING AT LEAST ONE (1) WEEK PRIOR TO START OF CONSTRUCTION.
4. NOTIFY NCDEQ'S LAND QUALITY SECTION AT LEAST 48 HOURS BEFORE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
5. CONTRACTOR SHALL MINIMIZE THE EXTENTS OF THE TOTAL DISTURBED AREA DURING CONSTRUCTION. THE TOTAL LIMITS OF DISTURBANCE SHALL NOT BE DISTURBED ALL AT ONCE. NATURAL VEGETATION SHALL BE PRESERVED AS BUFFER ZONES CONTAINING UNDISTURBED AREAS THAT WILL SLOW RUNOFF.
6. THE PROPOSED CONSTRUCTION SEQUENCE SHALL INCLUDE THE INTIAL CONSTRUCTION OF THE ACCESS ROADS TO BORROW AREA 1, AND THEN CONSTRUCTION OF BORROW AREA 1. UPON COMPLETION AND STABILIZATION OF BORROW AREA 1, THE CELL TOWER ACCESS ROAD SHOULD BE CONSTRUCTED. UPON CONSTRUCTION AND STABILIZATION OF THE CELL TOWER ACCESS ROAD, AND IF ADDITIONAL BORROW MATERIAL IS NEEDED, THE ACCESS ROAD TO BORROW AREA 2 AND BORROW AREA 2 SHOULD BE CONSTRUCTED. ALL DISTURBED AREAS WILL BE STABILIZED IN ACCORDANCE WITH THE RELEVANT STABILIZATION TIME FRAMES SHOWN ON THE APPROVED E&SC PLAN.
7. DELINEATE AND FLAG THE LIMITS OF CONSTRUCTION.
8. IDENTIFY CONSTRUCTION ACCESS FOR CONSTRUCTION ENTRANCE, CONSTRUCTION ROUTES AND EQUIPMENT PARKING AREAS. INSTALL STABILIZED CONSTRUCTION ENTRANCE(S).
9. INSTALL DIVERSION BERMS TO DIVERT RUNOFF AWAY FROM THE PROPOSED DISTURBANCE AREAS AND INSTALL SEDIMENT FENCING.
10. CONSTRUCT THE PROPOSED SEDIMENT TRAPS. TRAP EMBANKMENTS AND TRAP BOTTOMS SHOULD BE PROVIDED WITH ADEQUATE GROUND COVER WITHIN THE STABILIZATION TIME FRAMES SHOWN ON THE APPROVED E&SC PLAN.
11. CONSTRUCT THE SEDIMENT BASINS WITH THE REQUIRED FEATURES. BASINS EMBANKMENTS AND BOTTOMS SHOULD BE PROVIDED WITH ADEQUATE GROUND COVER WITHIN THE STABILIZATION TIME FRAMES SHOWN ON THE APPROVED E&SC PLAN.
12. CLEAR THE PROPOSED DISTURBANCE AREAS OF ANY VEGETATION AND DEBRIS.
13. EXCAVATE THE BORROW AREAS AND ACCESS ROAD EMBANKMENT TO THE REQUIRED DEPTH AND GRADE THE DISTURBANCE AREAS IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
14. CONSTRUCT DIVERSION BERMS AND CONSTRUCT AND STABILIZE ALL STORMWATER CONVEYANCE FEATURES.
15. SEED AND STABILIZE ALL DISTURBED AREAS IMMEDIATELY AFTER GRADING IS COMPLETED. TEMPORARY OR PERMANENT STABILIZATION SHOULD BE APPLIED AS SOON AS PRACTICABLE, BUT IN ANY EVENT WITHIN 7 OR 14 CALENDAR DAYS (DEPENDING ON SITE AREA) FROM THE LAST LAND-DISTURBING ACTIVITY.
16. REVIEW THE EROSION AND SEDIMENT CONTROL (E&SC) PLAN AND CONFIRM THAT THE INSTALLED E&SC FEATURES ARE APPROPRIATE FOR THE CONSTRUCTION OF THE BORROW AREAS AND CELL TOWER ACCESS ROAD.
17. INSTALL THE REQUIRED PERMANENT E&SC AND STORMWATER MANAGEMENT FEATURES E.G., DIVERSION BERMS, SLOPE DRAINS, INLET PROTECTIONS, OUTLET PROTECTIONS, WATER BARS, ETC.
18. APPLY TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER ON ALL DISTURBED AREAS AS SOON AS PRACTICABLE, BUT IN ANY EVENT WITHIN 7 OR 14 CALENDAR DAYS (DEPENDING ON SITE AREA) FROM THE LAST LAND-DISTURBING ACTIVITY.
19. AFTER THE DISTURBED AREAS ARE STABILIZED, REMOVE ALL TEMPORARY MEASURES AND RE-ESTABLISH PERMANENT VEGETATION ON THE DISTURBED AREAS (AS NEEDED). DECOMMISSION THE SEDIMENT BASINS PER THE NOTES AND SEQUENCING PROTOCOL PROVIDED IN THE APPROVED E&SC PLAN.
20. NOTIFY NCDEQ INSPECTOR WHEN SITE IS READY FOR A CLOSEOUT INSPECTION. FILE FOR NPDES NCG010000 NOTICE OF TERMINATION ONCE CLOSEOUT INSPECTION REPORT IS RECEIVED FROM NCDEQ LAND QUALITY SECTION.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
2. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY AS DETERMINED BY THE NCDEQ DIVISION OF LAND QUALITY, NCDEQ SOLID WASTE DIVISION, AND ENGINEER.
3. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
4. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
5. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE A FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

SOIL STABILIZATION

THROUGHOUT CONSTRUCTION ACTIVITIES, TEMPORARY OR PERMANENT STABILIZATION WILL BE INITIATED WITHIN 7-14 DAYS AFTER THE CESSATION OF ANY CLEARING, GRADING, EXCAVATING, OR OTHER LAND-DISTURBING ACTIVITIES ON ANY PORTION OF THE CONSTRUCTION SITE. A SOIL REINFORCEMENT MAT WILL BE PLACED OVER DISTURBED AREAS WHEN UNFAVORABLE WEATHER CONDITIONS PREVENT ESTABLISHMENT OF GROUND COVER. DRAWING NO. ES-08 INCLUDES THE MINIMUM TEMPORARY AND PERMANENT SEEDING SCHEDULES AND BEST MANAGEMENT PRACTICES.

LaBella
Powered by partnership.
400 S. TRYON STREET
CHARLOTTE, NC 28285
PHONE: (704) 376-6423
NC LICENSE # C-0430
labellapc.com

FOR BIDDING ONLY

NORTH CAROLINA PROFESSIONAL SEAL 054122 ENGINEER ROHIT GARG 03/27/25
LABELLA ASSOCIATES, P.C. CORPORATE SEAL C-0430 NORTH CAROLINA

TRANSYLVANIA COUNTY
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

Land of Waterfalls
TRANSYLVANIA COUNTY
NORTH CAROLINA

WOODRUFF LANDFILL
PHASE 7 EXPANSION
CONSTRUCTION
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

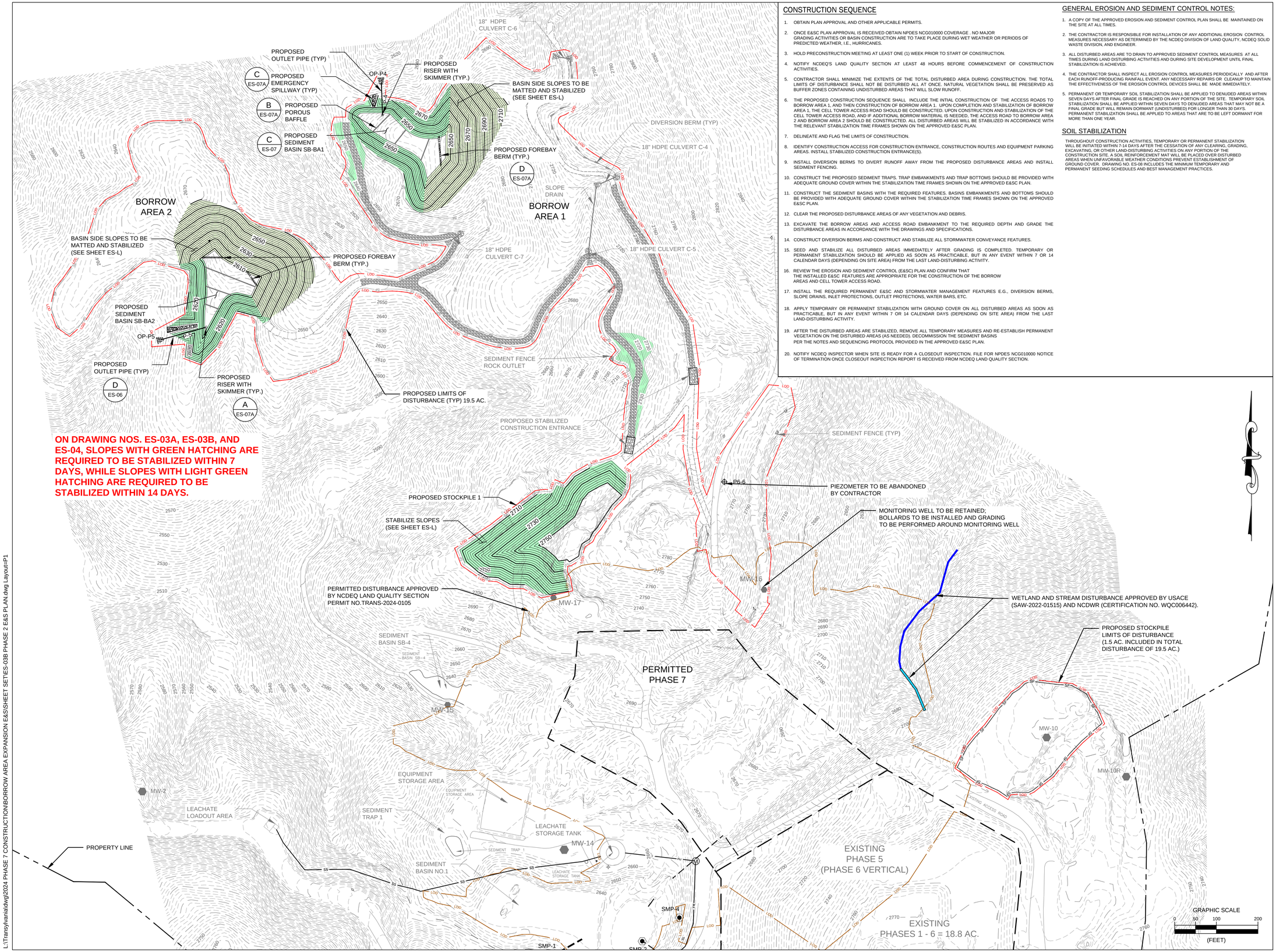
1	3/27/2025	ISSUED FOR ADDENDUM #2
NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2250798
DRAWN BY: RH
REVIEWED BY: KN / RG
ISSUED FOR: PERMITTING
DATE: 02/07/2025
DRAWING NAME:

BORROW AREAS EROSION AND SEDIMENT CONTROL PLAN PHASE 1

DRAWING NUMBER:

ES-03A



CONSTRUCTION SEQUENCE

1. OBTAIN PLAN APPROVAL AND OTHER APPLICABLE PERMITS.
2. ONCE E&SC PLAN APPROVAL IS RECEIVED OBTAIN NPDES NCG010000 COVERAGE . NO MAJOR GRADING ACTIVITIES OR BASIN CONSTRUCTION ARE TO TAKE PLACE DURING WET WEATHER OR PERIODS OF PREDICTED WEATHER, I.E., HURRICANES.
3. HOLD PRECONSTRUCTION MEETING AT LEAST ONE (1) WEEK PRIOR TO START OF CONSTRUCTION.
4. NOTIFY NCDEQ'S LAND QUALITY SECTION AT LEAST 48 HOURS BEFORE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
5. CONTRACTOR SHALL MINIMIZE THE EXTENTS OF THE TOTAL DISTURBED AREA DURING CONSTRUCTION. THE TOTAL LIMITS OF DISTURBANCE SHALL NOT BE DISTURBED ALL AT ONCE. NATURAL VEGETATION SHALL BE PRESERVED AS BUFFER ZONES CONTAINING UNDISTURBED AREAS THAT WILL SLOW RUNOFF.
6. THE PROPOSED CONSTRUCTION SEQUENCE SHALL INCLUDE THE INITIAL CONSTRUCTION OF THE ACCESS ROADS TO BORROW AREA 1, AND THEN CONSTRUCTION OF BORROW AREA 1. UPON COMPLETION AND STABILIZATION OF BORROW AREA 1, THE CELL TOWER ACCESS ROAD SHOULD BE CONSTRUCTED. UPON CONSTRUCTION AND STABILIZATION OF THE CELL TOWER ACCESS ROAD, AND IF ADDITIONAL BORROW MATERIAL IS NEEDED, THE ACCESS ROAD TO BORROW AREA 2 AND BORROW AREA 2 SHOULD BE CONSTRUCTED. ALL DISTURBED AREAS WILL BE STABILIZED IN ACCORDANCE WITH THE RELEVANT STABILIZATION TIME FRAMES SHOWN ON THE APPROVED E&SC PLAN.
7. DELINEATE AND FLAG THE LIMITS OF CONSTRUCTION.
8. IDENTIFY CONSTRUCTION ACCESS FOR CONSTRUCTION ENTRANCE, CONSTRUCTION ROUTES AND EQUIPMENT PARKING AREAS. INSTALL STABILIZED CONSTRUCTION ENTRANCE(S).
9. INSTALL DIVERSION BERMS TO DIVERT RUNOFF AWAY FROM THE PROPOSED DISTURBANCE AREAS AND INSTALL SEDIMENT FENCING.
10. CONSTRUCT THE PROPOSED SEDIMENT TRAPS. TRAP EMBANKMENTS AND TRAP BOTTOMS SHOULD BE PROVIDED WITH ADEQUATE GROUND COVER WITHIN THE STABILIZATION TIME FRAMES SHOWN ON THE APPROVED E&SC PLAN.
11. CONSTRUCT THE SEDIMENT BASINS WITH THE REQUIRED FEATURES. BASINS EMBANKMENTS AND BOTTOMS SHOULD BE PROVIDED WITH ADEQUATE GROUND COVER WITHIN THE STABILIZATION TIME FRAMES SHOWN ON THE APPROVED E&SC PLAN.
12. CLEAR THE PROPOSED DISTURBANCE AREAS OF ANY VEGETATION AND DEBRIS.
13. EXCAVATE THE BORROW AREAS AND ACCESS ROAD EMBANKMENT TO THE REQUIRED DEPTH AND GRADE THE DISTURBANCE AREAS IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
14. CONSTRUCT DIVERSION BERMS AND CONSTRUCT AND STABILIZE ALL STORMWATER CONVEYANCE FEATURES.
15. SEED AND STABILIZE ALL DISTURBED AREAS IMMEDIATELY AFTER GRADING IS COMPLETED. TEMPORARY OR PERMANENT STABILIZATION SHOULD BE APPLIED AS SOON AS PRACTICABLE, BUT IN ANY EVENT WITHIN 7 OR 14 CALENDAR DAYS (DEPENDING ON SITE AREA) FROM THE LAST LAND-DISTURBING ACTIVITY.
16. REVIEW THE EROSION AND SEDIMENT CONTROL (E&SC) PLAN AND CONFIRM THAT THE INSTALLED E&SC FEATURES ARE APPROPRIATE FOR THE CONSTRUCTION OF THE BORROW AREAS AND CELL TOWER ACCESS ROAD.
17. INSTALL THE REQUIRED PERMANENT E&SC AND STORMWATER MANAGEMENT FEATURES E.G., DIVERSION BERMS, SLOPE DRAINS, INLET PROTECTIONS, OUTLET PROTECTIONS, WATER BARS, ETC.
18. APPLY TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER ON ALL DISTURBED AREAS AS SOON AS PRACTICABLE, BUT IN ANY EVENT WITHIN 7 OR 14 CALENDAR DAYS (DEPENDING ON SITE AREA) FROM THE LAST LAND-DISTURBING ACTIVITY.
19. AFTER THE DISTURBED AREAS ARE STABILIZED, REMOVE ALL TEMPORARY MEASURES AND RE-ESTABLISH PERMANENT VEGETATION ON THE DISTURBED AREAS (AS NEEDED). DECOMMISSION THE SEDIMENT BASINS PER THE NOTES AND SEQUENCING PROTOCOL PROVIDED IN THE APPROVED E&SC PLAN.
20. NOTIFY NCDEQ INSPECTOR WHEN SITE IS READY FOR A CLOSEOUT INSPECTION. FILE FOR NPDES NCG010000 NOTICE OF TERMINATION ONCE CLOSEOUT INSPECTION REPORT IS RECEIVED FROM NCDEQ LAND QUALITY SECTION.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
2. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY AS DETERMINED BY THE NCDEQ DIVISION OF LAND QUALITY, NCDEQ SOLID WASTE DIVISION, AND ENGINEER.
3. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
4. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
5. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE A FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

SOIL STABILIZATION

THROUGHOUT CONSTRUCTION ACTIVITIES, TEMPORARY OR PERMANENT STABILIZATION WILL BE INITIATED WITHIN 7-14 DAYS AFTER THE CESSATION OF ANY CLEARING, GRADING, EXCAVATING, OR OTHER LAND-DISTURBING ACTIVITIES ON ANY PORTION OF THE CONSTRUCTION SITE. A SOIL REINFORCEMENT MAT WILL BE PLACED OVER DISTURBED AREAS WHEN UNFAVORABLE WEATHER CONDITIONS PREVENT ESTABLISHMENT OF GROUND COVER. DRAWING NO. ES-08 INCLUDES THE MINIMUM TEMPORARY AND PERMANENT SEEDING SCHEDULES AND BEST MANAGEMENT PRACTICES.

LaBella
Powered by partnership.
400 S. TRYON STREET
CHARLOTTE, NC 28285
PHONE: (704) 376-6423
NC LICENSE # C-0430
labellapc.com

FOR BIDDING ONLY

NORTH CAROLINA PROFESSIONAL SEAL 054122 ENGINEER ROHIT GARG 03/27/25
LABELLA ASSOCIATES, P.C. CORPORATE SEAL C-0430 NORTH CAROLINA

TRANSYLVANIA COUNTY
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

TRANSYLVANIA COUNTY NORTH CAROLINA

WOODRUFF LANDFILL PHASE 7 EXPANSION CONSTRUCTION
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

1	3/27/2025	ISSUED FOR ADDENDUM #2
NO:	DATE:	DESCRIPTION:
Revisions		

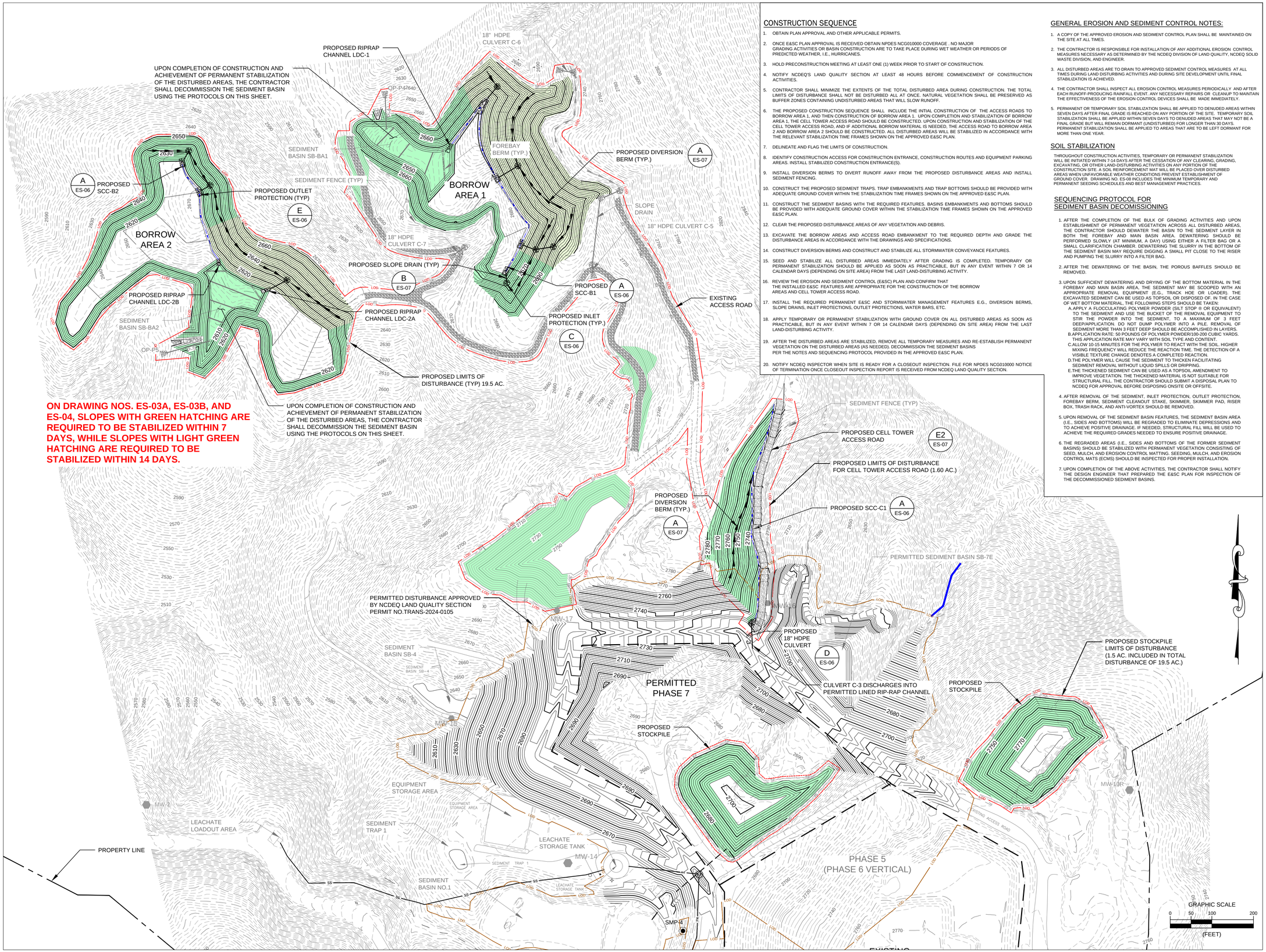
PROJECT NUMBER: 2250798
DRAWN BY: RH
REVIEWED BY: KN / RG
ISSUED FOR: PERMITTING
DATE: 02/07/2025
DRAWING NAME:

BORROW AREAS EROSION AND SEDIMENT CONTROL PLAN PHASE 2

DRAWING NUMBER:

ES-03B

L:\Transylvania\dwg\2024 PHASE 7 CONSTRUCTION\BORROW AREA EXPANSION E&S\SHEET SET\ES-03B PHASE 2 E&S PLAN.dwg Layout=P1



CONSTRUCTION SEQUENCE

1. OBTAIN PLAN APPROVAL AND OTHER APPLICABLE PERMITS.
2. ONCE E&SC PLAN APPROVAL IS RECEIVED OBTAIN NPDES NCG010000 COVERAGE . NO MAJOR GRADING ACTIVITIES OR BASIN CONSTRUCTION ARE TO TAKE PLACE DURING WET WEATHER OR PERIODS OF PREDICTED WEATHER, I.E., HURRICANES.
3. HOLD PRECONSTRUCTION MEETING AT LEAST ONE (1) WEEK PRIOR TO START OF CONSTRUCTION.
4. NOTIFY NCDEQ'S LAND QUALITY SECTION AT LEAST 48 HOURS BEFORE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
5. CONTRACTOR SHALL MINIMIZE THE EXTENTS OF THE TOTAL DISTURBED AREA DURING CONSTRUCTION. THE TOTAL LIMITS OF DISTURBANCE SHALL NOT BE DISTURBED ALL AT ONCE. NATURAL VEGETATION SHALL BE PRESERVED AS BUFFER ZONES CONTAINING UNDISTURBED AREAS THAT WILL SLOW RUNOFF.
6. THE PROPOSED CONSTRUCTION SEQUENCE SHALL INCLUDE THE INTIAL CONSTRUCTION OF THE ACCESS ROADS TO BORROW AREA 1, AND THEN CONSTRUCTION OF BORROW AREA 1. UPON COMPLETION AND STABILIZATION OF BORROW AREA 1, THE CELL TOWER ACCESS ROAD SHOULD BE CONSTRUCTED. UPON CONSTRUCTION AND STABILIZATION OF THE CELL TOWER ACCESS ROAD, AND IF ADDITIONAL BORROW MATERIAL IS NEEDED, THE ACCESS ROAD TO BORROW AREA 2 AND BORROW AREA 2 SHOULD BE CONSTRUCTED. ALL DISTURBED AREAS WILL BE STABILIZED IN ACCORDANCE WITH THE RELEVANT STABILIZATION TIME FRAMES SHOWN ON THE APPROVED E&SC PLAN.
7. DELINEATE AND FLAG THE LIMITS OF CONSTRUCTION.
8. IDENTIFY CONSTRUCTION ACCESS FOR CONSTRUCTION ENTRANCE, CONSTRUCTION ROUTES AND EQUIPMENT PARKING AREAS. INSTALL STABILIZED CONSTRUCTION ENTRANCE(S).
9. INSTALL DIVERSION BERMS TO DIVERT RUNOFF AWAY FROM THE PROPOSED DISTURBANCE AREAS AND INSTALL SEDIMENT FENCING.
10. CONSTRUCT THE PROPOSED SEDIMENT TRAPS. TRAP EMBANKMENTS AND TRAP BOTTOMS SHOULD BE PROVIDED WITH ADEQUATE GROUND COVER WITHIN THE STABILIZATION TIME FRAMES SHOWN ON THE APPROVED E&SC PLAN.
11. CONSTRUCT THE SEDIMENT BASINS WITH THE REQUIRED FEATURES. BASINS EMBANKMENTS AND BOTTOMS SHOULD BE PROVIDED WITH ADEQUATE GROUND COVER WITHIN THE STABILIZATION TIME FRAMES SHOWN ON THE APPROVED E&SC PLAN.
12. CLEAR THE PROPOSED DISTURBANCE AREAS OF ANY VEGETATION AND DEBRIS.
13. EXCAVATE THE BORROW AREAS AND ACCESS ROAD EMBANKMENT TO THE REQUIRED DEPTH AND GRADE THE DISTURBANCE AREAS IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
14. CONSTRUCT DIVERSION BERMS AND CONSTRUCT AND STABILIZE ALL STORMWATER CONVEYANCE FEATURES.
15. SEED AND STABILIZE ALL DISTURBED AREAS IMMEDIATELY AFTER GRADING IS COMPLETED. TEMPORARY OR PERMANENT STABILIZATION SHOULD BE APPLIED AS SOON AS PRACTICABLE, BUT IN ANY EVENT WITHIN 7 OR 14 CALENDAR DAYS (DEPENDING ON SITE AREA) FROM THE LAST LAND-DISTURBING ACTIVITY.
16. REVIEW THE EROSION AND SEDIMENT CONTROL (E&SC) PLAN AND CONFIRM THAT THE INSTALLED E&SC FEATURES ARE APPROPRIATE FOR THE CONSTRUCTION OF THE BORROW AREAS AND CELL TOWER ACCESS ROAD.
17. INSTALL THE REQUIRED PERMANENT E&SC AND STORMWATER MANAGEMENT FEATURES E.G., DIVERSION BERMS, SLOPE DRAINS, INLET PROTECTIONS, OUTLET PROTECTIONS, WATER BARS, ETC.
18. APPLY TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER ON ALL DISTURBED AREAS AS SOON AS PRACTICABLE, BUT IN ANY EVENT WITHIN 7 OR 14 CALENDAR DAYS (DEPENDING ON SITE AREA) FROM THE LAST LAND-DISTURBING ACTIVITY.
19. AFTER THE DISTURBED AREAS ARE STABILIZED, REMOVE ALL TEMPORARY MEASURES AND RE-ESTABLISH PERMANENT VEGETATION ON THE DISTURBED AREAS (AS NEEDED). DECOMMISSION THE SEDIMENT BASINS PER THE NOTES AND SEQUENCING PROTOCOL PROVIDED IN THE APPROVED E&SC PLAN.
20. NOTIFY NCDEQ INSPECTOR WHEN SITE IS READY FOR A CLOSEOUT INSPECTION. FILE FOR NPDES NCG010000 NOTICE OF TERMINATION ONCE CLOSEOUT INSPECTION REPORT IS RECEIVED FROM NCDEQ LAND QUALITY SECTION.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
2. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY AS DETERMINED BY THE NCDEQ DIVISION OF LAND QUALITY, NCDEQ SOLID WASTE DIVISION, AND ENGINEER.
3. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
4. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
5. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE A FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

SOIL STABILIZATION

THROUGHOUT CONSTRUCTION ACTIVITIES, TEMPORARY OR PERMANENT STABILIZATION WILL BE INITIATED WITHIN 7-14 DAYS AFTER THE CESSATION OF ANY CLEARING, GRADING, EXCAVATING, OR OTHER LAND-DISTURBING ACTIVITIES ON ANY PORTION OF THE CONSTRUCTION SITE. A SOIL REINFORCEMENT MAT WILL BE PLACED OVER DISTURBED AREAS WHEN UNFAVORABLE WEATHER CONDITIONS PREVENT ESTABLISHMENT OF GROUND COVER. DRAWING NO. ES-08 INCLUDES THE MINIMUM TEMPORARY AND PERMANENT SEEDING SCHEDULES AND BEST MANAGEMENT PRACTICES.

SEQUENCING PROTOCOL FOR SEDIMENT BASIN DECOMISSIONING

1. AFTER THE COMPLETION OF THE BULK OF GRADING ACTIVITIES AND UPON ESTABLISHMENT OF PERMANENT VEGETATION ACROSS ALL DISTURBED AREAS, THE CONTRACTOR SHOULD DEWATER THE BASIN TO THE SEDIMENT LAYER IN BOTH THE FOREBAY AND MAIN BASIN AREA. DEWATERING SHOULD BE PERFORMED SLOWLY (AT MINIMUM, A DAY) USING EITHER A FILTER BAG OR A SMALL CLARIFICATION CHAMBER. DEWATERING THE SLURRY IN THE BOTTOM OF THE SEDIMENT BASIN MAY REQUIRE DIGGING A SMALL PIT CLOSE TO THE RISER AND PUMPING THE SLURRY INTO A FILTER BAG.
2. AFTER THE DEWATERING OF THE BASIN, THE POROUS BAFFLES SHOULD BE REMOVED.
3. UPON SUFFICIENT DEWATERING AND DRYING OF THE BOTTOM MATERIAL IN THE FOREBAY AND MAIN BASIN AREA, THE SEDIMENT MAY BE SCOOPED WITH AN APPROPRIATE REMOVAL EQUIPMENT (E.G., TRACK HOE OR LOADER). THE EXCAVATED SEDIMENT CAN BE USED AS TOPSOIL OR DISPOSED OF. IN THE CASE OF WET BOTTOM MATERIAL, THE FOLLOWING STEPS SHOULD BE TAKEN:
   A. APPLY A FLOCCULATING POLYMER POWDER (SILT STOP ® OR EQUIVALENT) TO THE SEDIMENT AND USE THE BUCKET OF THE REMOVAL EQUIPMENT TO STIR THE POWDER INTO THE SEDIMENT, TO A MAXIMUM OF 3 FEET DEEP/APPLICATION. DO NOT DUMP POLYMER INTO A PILE. REMOVAL OF SEDIMENT MORE THAN 3 FEET DEEP SHOULD BE ACCOMPLISHED IN LAYERS.
   B. APPLICATION RATE: 50 POUNDS OF POLYMER POWDER/100-200 CUBIC YARDS. THIS APPLICATION RATE MAY VARY WITH SOIL TYPE AND CONTENT.
   C. ALLOW 10-15 MINUTES FOR THE POLYMER TO REACT WITH THE SOIL. HIGHER MIXING FREQUENCY WILL REDUCE THE REACTION TIME. THE DETECTION OF A VISIBLE TEXTURE CHANGE DENOTES A COMPLETED REACTION.
   D. THE POLYMER WILL CAUSE THE SEDIMENT TO THICKEN FACILITATING SEDIMENT REMOVAL WITHOUT LIQUID SPILLS OR DRIPPING.
   E. THE THICKENED SEDIMENT CAN BE USED AS A TOPSOIL AMENDMENT TO IMPROVE VEGETATION. THE THICKENED MATERIAL IS NOT SUITABLE FOR STRUCTURAL FILL. THE CONTRACTOR SHOULD SUBMIT A DISPOSAL PLAN TO NCDEQ FOR APPROVAL BEFORE DISPOSING ONSITE OR OFFSITE.
4. AFTER REMOVAL OF THE SEDIMENT, INLET PROTECTION, OUTLET PROTECTION, FOREBAY BERM, SEDIMENT CLEANOUT STAKE, SKIMMER, SKIMMER PAD, RISER BOX, TRASH RACK, AND ANTI-VORTEX SHOULD BE REMOVED.
5. UPON REMOVAL OF THE SEDIMENT BASIN FEATURES, THE SEDIMENT BASIN AREA (I.E., SIDES AND BOTTOMS) WILL BE REGRADED TO ELIMINATE DEPRESSIONS AND TO ACHIEVE POSITIVE DRAINAGE. IF NEEDED, STRUCTURAL FILL WILL BE USED TO ACHIEVE THE REQUIRED GRADES NEEDED TO ENSURE POSITIVE DRAINAGE.
6. THE REGRADED AREAS (I.E., SIDES AND BOTTOMS OF THE FORMER SEDIMENT BASINS) SHOULD BE STABILIZED WITH PERMANENT VEGETATION CONSISTING OF SEED, MULCH, AND EROSION CONTROL MATTING. SEEDING, MULCH, AND EROSION CONTROL MATS (ECMS) SHOULD BE INSPECTED FOR PROPER INSTALLATION.
7. UPON COMPLETION OF THE ABOVE ACTIVITIES, THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER THAT PREPARED THE E&SC PLAN FOR INSPECTION OF THE DECOMMISSIONED SEDIMENT BASINS.

LaBella Powered by partnership.
400 S. TRYON STREET
CHARLOTTE, NC 28285
PHONE: (704) 376-6423
NC LICENSE # C-0430
labellapc.com

FOR BIDDING ONLY

NORTH CAROLINA PROFESSIONAL SEAL 054122 ENGINEER ROHIT GARG
LABELLA ASSOCIATES, P.C. CORPORATE SEAL C-0430 NORTH CAROLINA

TRANSYLVANIA COUNTY
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

WOODRUFF LANDFILL PHASE 7 EXPANSION CONSTRUCTION

500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

NO:	DATE:	DESCRIPTION:
1	3/27/2025	ISSUED FOR ADDENDUM #2

Revisions

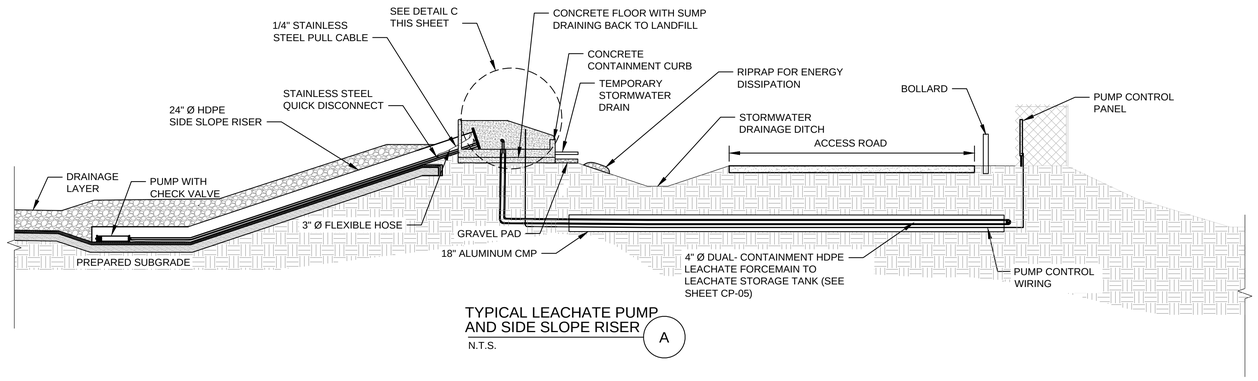
PROJECT NUMBER: 2250798
DRAWN BY: RH
REVIEWED BY: KN / RG
ISSUED FOR: PERMITTING
DATE: 02/07/2025
DRAWING NAME:

BORROW AREAS EROSION AND SEDIMENT CONTROL PLAN PHASE 3

DRAWING NUMBER:

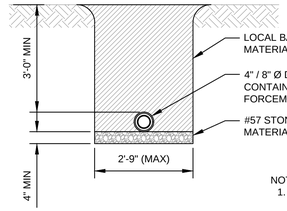
ES-04

L:\Transylvania\dwg\2024 PHASE 7 CONSTRUCTION\BORROW AREA EXPANSION E&S\SHEET SETIES-04 PHASE 3 E&S PLAN.dwg Layout=P2



TYPICAL LEACHATE PUMP AND SIDE SLOPE RISER A

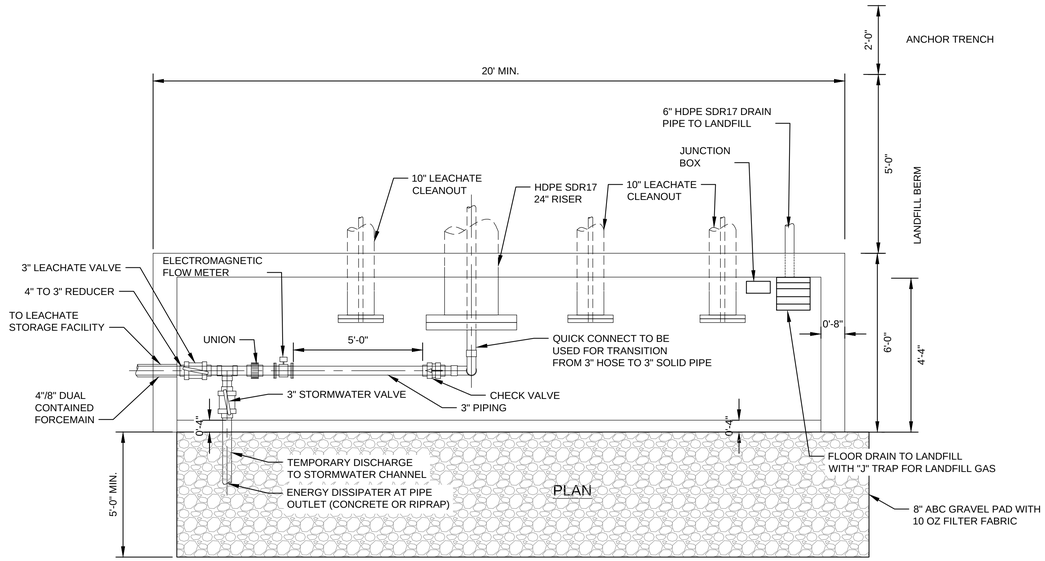
N.T.S.

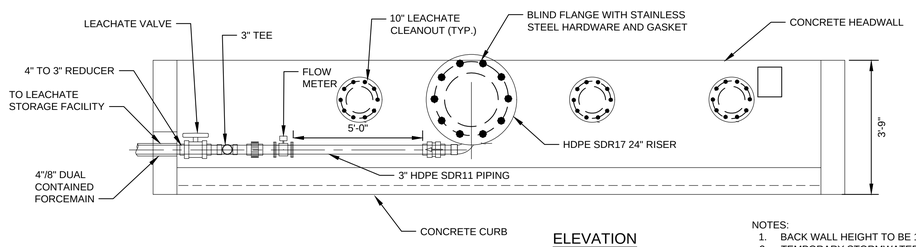


LEACHATE FORCEMAIN PIPE TRENCH DETAIL B

N.T.S.

NOTES:
1. SELECT FILL WILL BE PLACED IN LIFTS NOT EXCEEDING 8" AND COMPACTED TO 95% MAX DRY DENSITY (STANDARD PROCTOR) TO 12" ABOVE THE CROWN OF THE PIPE, MIN.
2. PLACE CONT. #10 THIN STRANDED COPPER, INSULATED TRACER WIRE, SUITABLE FOR DIRECT BURY, IN THE TRENCH NEXT TO ALL PIPING. BRING ENDS TO A TEST STATION, AND TEST CONTINUITY IN THE PRESENCE OF THE ENGINEER OR REPRESENTATIVE.





ELEVATION

SUMP CONCRETE HEADWALL DETAIL C

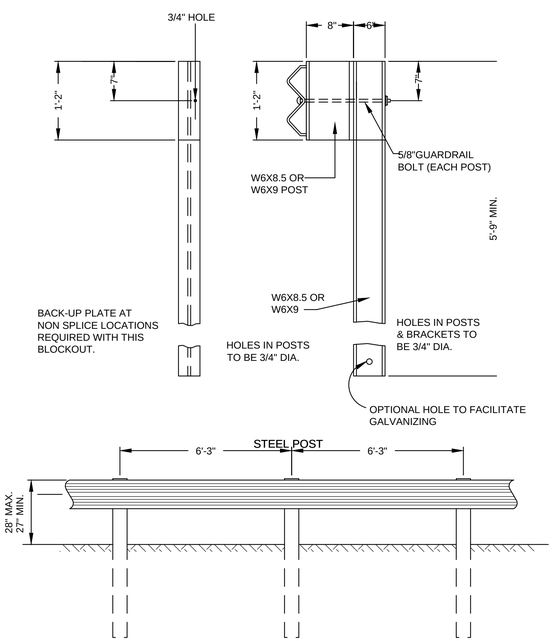
N.T.S.

NOTES:
1. BACK WALL HEIGHT TO BE 1'-0" ABOVE FINAL CLOSURE GRADES
2. TEMPORARY STORMWATER VALVE SHOULD BE FLG * FLG 3" DIAMETER. VALVE TO BE USED TO DISCHARGE STORMWATER PRIOR TO INITIAL WASTE PLACEMENT. AFTER WASTE PLACEMENT BEGINS, VALVE SHOULD BE REMOVED AND THE THE PIPE CAPPED.
3. FLOOR DRAIN TO LANDFILL OR CONNECTED TO LEACHATE PIPE, GIVEN A J-PIPE IS INSTALLED. TRAP DEPTH TO BE ADJUSTED FOR LANDFILL GAS COLLECTION VACUUM SET POINTS. MIN 4" DRAIN PIPE TO BE USED.
4. PIPE SUPPORTS TO BE INSTALLED IN ACCORDANCE WITH ANSI/MSS SP-58-2018, AT MINIMUM. PIPE SUPPORTS TO BE STAINLESS STEEL OR CONCRETE , WITH LINED SADDLES TO PREVENT ABRASION OF PIPE AND APPURTENANCES.
5. PIPE INSULATION, CLADDING AND HEAT TRACING TO BE PROVIDED TO PROTECT FROM FREEZING AND WEATHER ELEMENTS.(SEE PROJECT SPECIFICATIONS)
6. PROVIDE FREEZE PROTECTION FOR FLOW METER.
7. ALL ELECTRICAL CONDUIT SHALL BE SEALED TO PREVENT LANDFILL GAS MIGRATION.
8. ALL PIPING AND MATERIAL USED SHALL BE SCH 80 PVC OR APPROVED EQUIVALENT.
9. PROVIDE A MINIMUM 5' GRAVEL PAD IN FRONT OF RISER AREA.
10. ALL PIPE CONNECTIONS TO BE FLANGED WITH GASKETS AND STAINLESS STEEL HARDWARE.
11. ALL PIPING SHALL BE SCH 80 PVC, UNLESS OTHERWISE NOTED.
12. FLOW METER READER AND RECORDER SHALL BE INSTALLED IN THE PUMP ELECTRICAL PANEL.
13. PIPE INSULATION SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C585 AND PROVIDE INSULATION FOR OUTDOOR APPLICATION IN TRANSYLVANIA COUNTY, NC.
14. PIPE CLADDING SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C1879 AND PROVIDE DURABLE NON-CORROSIVE INSULATION FOR OUTDOOR APPLICATION IN TRANSYLVANIA COUNTY, NC.

NOTES: ALL BOLTS, NUTS, WASHERS, AND STEEL BLOCKOUTS ARE TO BE GALVANIZED.

POST AND BLOCKOUT MAY BE HOT ROLLED OR WELDED.

ⓢSTANDARD WASHER TO BE USED ON LAST 50' OF RUN OFF END.



(6'-3" POST SPACING)

GUARDRAIL DETAIL D

N.T.S.

LaBella Powered by partnership.
400 S. TRYON STREET
CHARLOTTE, NC 28285
PHONE: (704) 376-6423
NC LICENSE # C-0430
labellapc.com

FOR BIDDING ONLY

NORTH CAROLINA PROFESSIONAL SEAL 054122 ENGINEER ROHIT GARG 03/27/25

LABELLA ASSOCIATES, P.C. CORPORATE SEAL C-0430 NORTH CAROLINA

TRANSYLVANIA COUNTY
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

WOODRUFF LANDFILL PHASE 7 EXPANSION CONSTRUCTION
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

NO:	DATE:	DESCRIPTION:
1	03/27/2025	REVISED FOR ADDENDUM #2

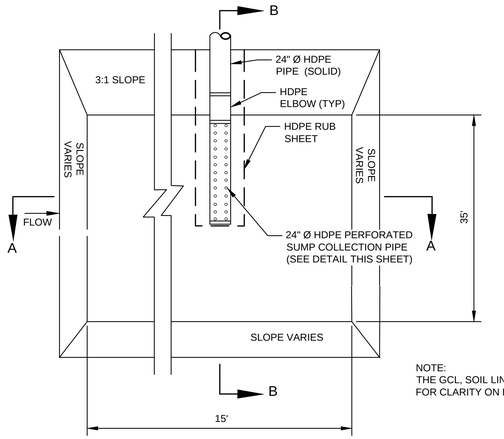
Revisions

PROJECT NUMBER: 2250798
DRAWN BY: RH
REVIEWED BY: KN / RG
ISSUED FOR: REBID
DATE: 02/21/25
DRAWING NAME:

GENERAL DETAILS

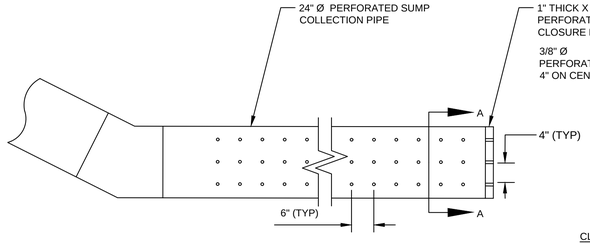
DRAWING NUMBER:

CP-09

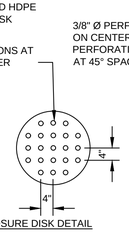


LEACHATE SUMP
PLAN VIEW
N.T.S.
A

NOTE:
THE GCL, SOIL LINER AND PREPARED SUBGRADE HAVE NOT BEEN SHOWN FOR CLARITY ON DETAILS A,B AND ASSOCIATED SECTIONS.

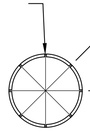


TYPICAL PERFORATED SUMP
COLLECTION PIPE DETAIL
N.T.S.

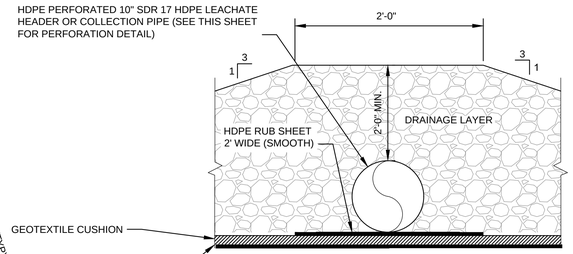


CLOSURE DISK DETAIL

NOTE:
CLOSURE DISK TO BE WELDED TO THE SUMP COLLECTION PIPE.

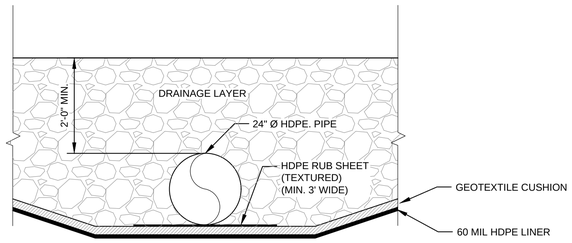


SECTION A-A

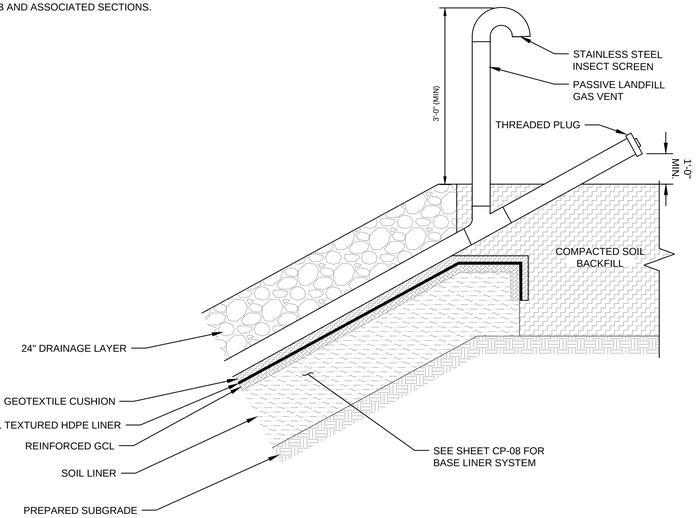


NOTE:
NOT ALL BASE LINER COMPONENTS ARE SHOWN.

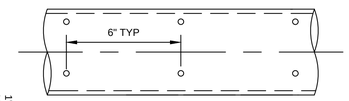
LEACHATE
COLLECTION PIPE
SECTION DETAIL
N.T.S.
B



TYPICAL LEACHATE SUMP SECTION A-A
N.T.S.



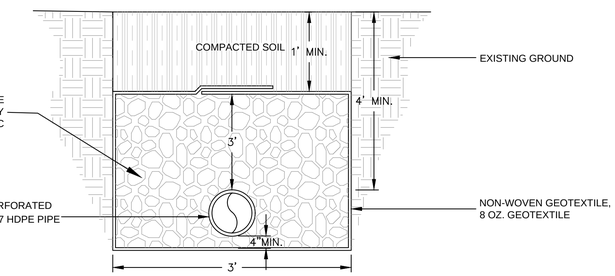
LEACHATE CLEANOUT
DETAIL
N.T.S.
C



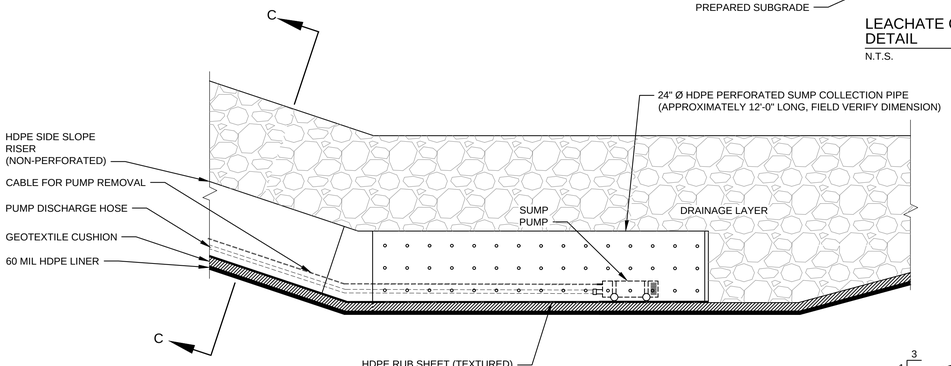
ELEVATION

SECTION

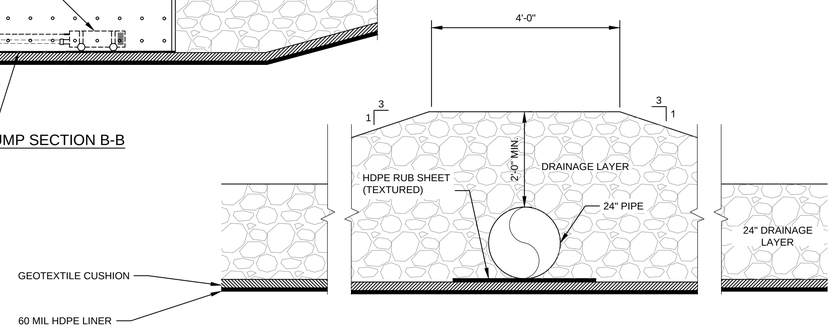
LEACHATE COLLECTION PIPE
PERFORATION DETAIL
N.T.S.



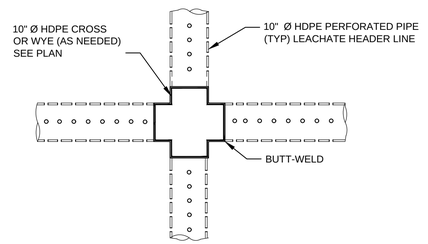
UNDERDRAIN DETAIL
N.T.S.
D



TYPICAL LEACHATE SUMP SECTION B-B
N.T.S.



SIDE SLOPE RISER SECTION C-C
N.T.S.



LEACHATE PIPE
CONNECTION DETAIL
N.T.S.
E

LaBella
Powered by partnership.
400 S. TRYON STREET
CHARLOTTE, NC 28285
PHONE: (704) 376-6423
NC LICENSE # C-0430
labellapc.com

FOR BIDDING ONLY

NORTH CAROLINA PROFESSIONAL SEAL 054122 ENGINEER ROHIT GARG 03/27/25
LABELLA ASSOCIATES, P.C. CORPORATE SEAL C-0430 NORTH CAROLINA

TRANSYLVANIA COUNTY
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

Land of Waterfalls
TRANSYLVANIA COUNTY
NORTH CAROLINA

**WOODRUFF LANDFILL
PHASE 7 EXPANSION
CONSTRUCTION**
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

1	03/27/2025	REVISED FOR ADDENDUM #2
NO:	DATE:	DESCRIPTION:
Revisions		

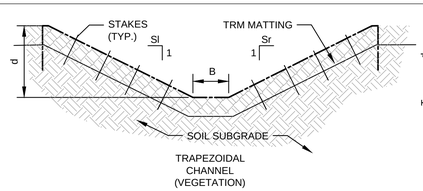
PROJECT NUMBER: 2250798
DRAWN BY: RH
REVIEWED BY: KN / RG
ISSUED FOR: REBID
DATE: 02/21/25
DRAWING NAME:

GENERAL DETAILS

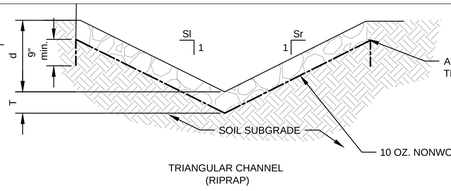
DRAWING NUMBER:

CP-10

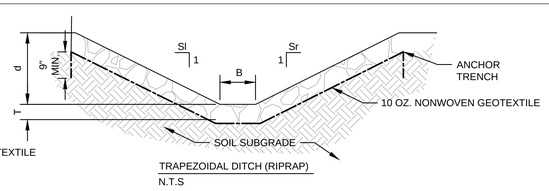
VERSION 19.0
6/3/2010 8:47:56 AM
L:\Transylvania\dwg\2024 PHASE 7 CONSTRUCTION\SHEET SET\CP-10_11 GENERAL DETAILS.dwg Layout=cp-10



TRAPEZOIDAL
CHANNEL
(VEGETATION)



TRIANGULAR CHANNEL
(RIPRAP)



TRAPEZOIDAL DITCH (RIPRAP)
N.T.S

STORMWATER CONVEYANCE CHANNEL (SCC) SCHEDULE							
CHANNEL SECTION NO.	CHANNEL TYPE	BOTTOM WIDTH (B) (FT)	TOTAL DEPTH (d) (FT)	LEFT SIDE SLOPE (Sl)	RIGHT SIDE SLOPE (Sr)	CHANNEL LINING	MIN. LINING THICKNESS (T)
SCC - B1	TRAPEZOIDAL	3'-0"	2'-0"	3	3	TRM / VEGETATION	-
SCC - B2	TRAPEZOIDAL	3'-0"	2'-0"	3	3	TRM / VEGETATION	-
LDC-1	TRAPEZOIDAL	6'-0"	1'-0"	3	3	LINED / RIPRAP d_{50} = 6"	14"
LDC-2A	TRAPEZOIDAL	6'-0"	1'-0"	3	3	LINED / RIPRAP d_{50} = 9"	21"
LDC-2B	TRAPEZOIDAL	6'-0"	1'-0"	3	3	LINED / RIPRAP d_{50} = 6"	14"
SCC - C1	TRIANGULAR	N/A	2'-0"	2	2	LINED / RIPRAP d_{50} = 12"	27"

STORMWATER
CONVEYANCE CHANNEL
TYPICAL DETAIL
N.T.S.
A

NOTE:
TOTAL DEPTH FOR RIPRAP CHANNEL IS TO TOP OF RIPRAP.

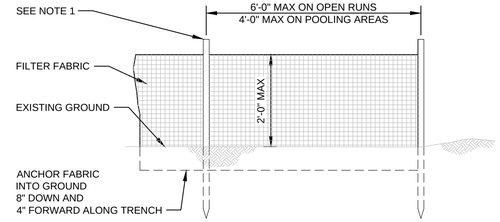
SCC MAINTENANCE NOTES:

GRASS-LINED

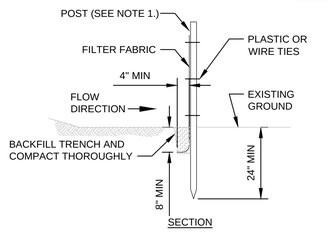
1. DURING THE ESTABLISHMENT PERIOD, INSPECT GRASS-LINED CHANNELS AFTER EVERY RAINFALL.
2. AFTER GRASS IS ESTABLISHED, PERIODICALLY INSPECT THE CHANNEL. INSPECT AFTER SIGNIFICANT RAINFALL EVENTS AND IMMEDIATELY MAKE ANY NECESSARY REPAIRS.
3. INSPECT THE CHANNEL OUTLET AND ALL ROAD CROSSINGS FOR BANK STABILITY AND EVIDENCE OF PIPING OR SCOUR HOLES.
4. REMOVE ALL SIGNIFICANT SEDIMENT ACCUMULATIONS TO MAINTAIN THE DESIGNED CARRYING CAPACITY.
5. KEEP GRASS IN A HEALTHY, VIGOROUS CONDITION AT ALL TIMES.

RIP-RAP

1. INSPECT CHANNELS AT LEAST WEEKLY AND AFTER EACH RAINFALL OF 0.5 INCH OR GREATER AND MAKE REPAIRS PROMPTLY. GIVE SPECIAL ATTENTION TO THE OUTLET AND INLET SECTIONS AND OTHER POINTS WHERE CONCENTRATED FLOW EXISTS.
2. CAREFULLY INSPECT STABILITY AT ROAD CROSSINGS, LOOKING FOR INDICATION OF PIPING, SCOUR HOLES, OR BANK FAILURES. MAKE ANY REPAIRS IMMEDIATELY.
3. MAINTAIN ALL VEGETATION ADJACENT TO THE CHANNEL IN A HEALTHY, VIGOROUS CONDITION.



ELEVATION



SECTION

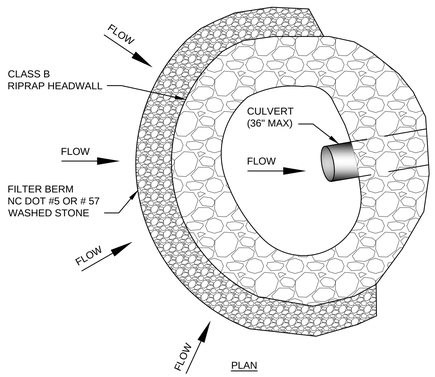
SEDIMENT
FENCE DETAIL
N.T.S.
B

NOTES:

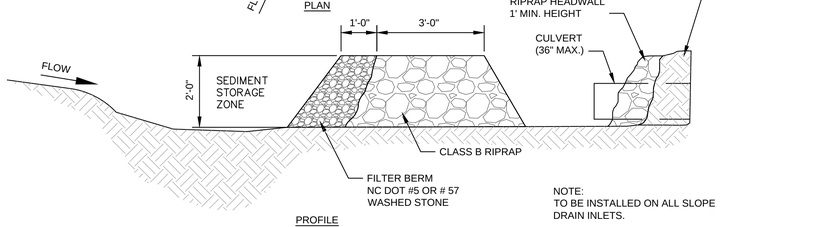
1. POSTS SHALL BE 1.33 LB/L.F. STEEL WITH MIN LENGTH OF 5 FT.
2. LOCATE SEDIMENT A SUFFICIENT DISTANCE FROM PROPOSED WORK ACTIVITIES SO THAT IT WILL NOT INTERFERE WITH THE WORK.

SEDIMENT FENCE MAINTENANCE NOTES:

1. INSPECT ALL MEASURES AT LEAST WEEKLY AND AFTER EACH RAINFALL OF 0.5 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUTS.
4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



PLAN



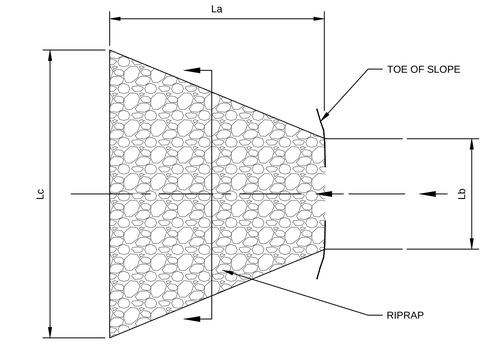
PROFILE

NOTE:
TO BE INSTALLED ON ALL SLOPE DRAIN INLETS.

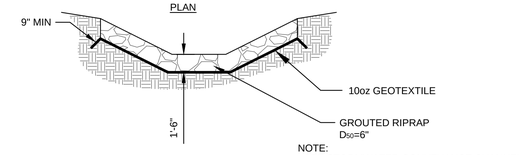
INLET PROTECTION
DETAIL
N.T.S.
C

INLET PROTECTION TYPE I MAINTENANCE NOTES:

1. INSPECT ALL MEASURES AT LEAST WEEKLY AND AFTER EACH RAINFALL OF 0.5 INCH OR GREATER AND MAKE NECESSARY REPAIRS AS SOON AS PRACTICAL.
2. REMOVE SEDIMENT AND RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP.
3. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.
4. CHECK THE STRUCTURE FOR DAMAGE. ANY RIPRAP DISPLACED FROM THE STONE HORSESHOE MUST BE REPLACED IMMEDIATELY.
5. AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND PROVIDE PERMANENT GROUND COVER.



PLAN



SECTION

NOTE:
SEE STORMWATER CONVEYANCE CHANNEL SCHEDULE ON SHEET ES-06 FOR CHANNEL DIMENSIONS.

OUTLET PROTECTION
DETAIL
N.T.S.
E

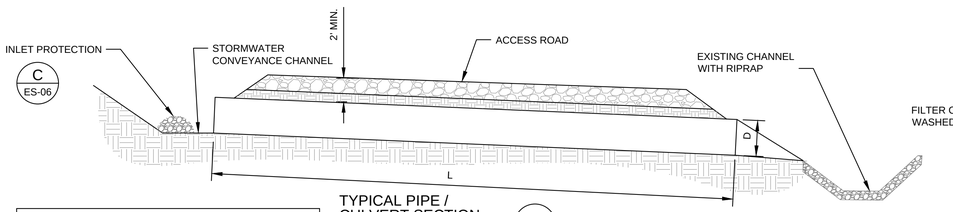
BORROW AREAS OUTLET PROTECTION SCHEDULE					
OUTLET NO	La	Lb	Lc	d_{50} RIPRAP	THICKNESS OF RIPRAP
OP-C4	9'	4.5'	10.5'	6"	14"
OP-C5	9'	4.5'	10.5'	6"	14"
OP-C6	9'	4.5'	10.5'	6"	14"
OP-C7	9'	4.5'	10.5'	6"	14"
OP-P4	9'	4.5'	10.5'	6"	14"
OP-P5	9'	4.5'	10.5'	6"	14"

OUTLET PROTECTION GENERAL NOTES:

1. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.
2. THE RIPRAP AND GRAVEL FILTER MUST CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.
3. FILTER CLOTH, WHEN USED, MUST MEET DESIGN REQUIREMENTS, AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OVER THE DAMAGED AREA. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE FILTER CLOTH.
4. ALL CONNECTING JOINTS SHOULD OVERLAP SO THE TOP LAYER IS ABOVE THE DOWNSTREAM LAYER A MINIMUM OF 1 FOOT.
5. THE MINIMUM THICKNESS OF THE RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
6. RIPRAP MAY BE FIELD STONE OR ROUGH QUARRY STONE. IT SHOULD BE HARD, ANGULAR HIGHLY WEATHER-RESISTANT AND WELL GRADED.
7. CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFILL AT THE END. MAKE THE TOP OF THE RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
8. ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT ITS LENGTH. IF A CURVE IS NEEDED, PLACE IN THE UPPER SECTION OF THE APRON.

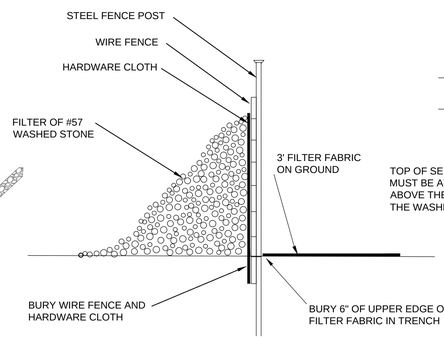
OUTLET PROTECTION MAINTENANCE NOTES:

1. INSPECT OUTLET STRUCTURES AT LEAST WEEKLY AND AFTER EACH RAINFALL OF 0.5 INCH OR GREATER.
2. CHECK OUTLETS FOR EROSION AROUND OR BELOW RIPRAP AND FOR DISLODGED STONES. MAKE REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE.

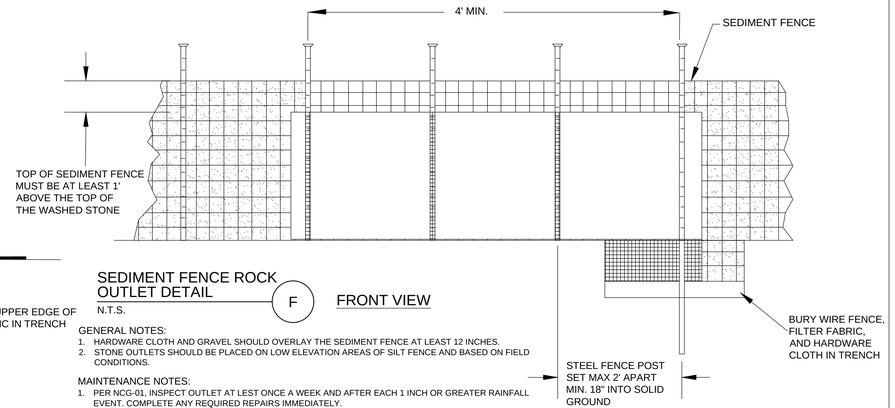


TYPICAL PIPE /
CULVERT SECTION
N.T.S.
D

BORROW AREAS PIPE/CULVERT SCHEDULE				
PIPE NO.	DIAMETER / TYPE (D)	LENGTH (L)	INV. IN	INV. OUT
C-3	18" HDPE	60'	2718	2714
C-4	18" HDPE	45'	2736	2728
C-5	18" HDPE	20'	2697	2695
C-6	18" HDPE	30'	2722	2715
C-7	18" HDPE	32'	2649	2648
P-4	18" RCP	80'	2644	2640
P-5	18" RCP	110'	2608	2605



SECTION VIEW



FRONT VIEW

SEDIMENT FENCE ROCK
OUTLET DETAIL
N.T.S.
F

GENERAL NOTES:
1. HARDWARE CLOTH AND GRAVEL SHOULD OVERLAY THE SEDIMENT FENCE AT LEAST 12 INCHES.
2. STONE OUTLETS SHOULD BE PLACED ON LOW ELEVATION AREAS OF SILT FENCE AND BASED ON FIELD CONDITIONS.

MAINTENANCE NOTES:
1. PER NCG-01, INSPECT OUTLET AT LEST ONCE A WEEK AND AFTER EACH 1 INCH OR GREATER RAINFALL EVENT. COMPLETE ANY REQUIRED REPAIRS IMMEDIATELY.
2. FRESHEN STONE WHEN SEDIMENT ACCUMULATION EXCEEDS 6 INCHES.
3. KEEP MESH FREE OF DEBRIS TO PROVIDE ADEQUATE FLOW.
4. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.
5. REPLACE STONE AS NEEDED TO FACILITATE DE-WATERING.

LaBella
Powered by partnership.
400 S. TRYON STREET
CHARLOTTE, NC 28285
PHONE: (704) 376-6423
NC LICENSE # C-0430
labellapc.com

FOR BIDDING ONLY

NORTH CAROLINA PROFESSIONAL SEAL 054122 ENGINEER ROHIT GARG 03/27/25
LABELLA ASSOCIATES, P.C. CORPORATE SEAL C-0430 NORTH CAROLINA

TRANSYLVANIA COUNTY
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

**WOODRUFF LANDFILL
PHASE 7 EXPANSION
CONSTRUCTION**
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

NO:	DATE:	DESCRIPTION:
1	3/27/2025	ISSUED FOR ADDENDUM #2
Revisions		

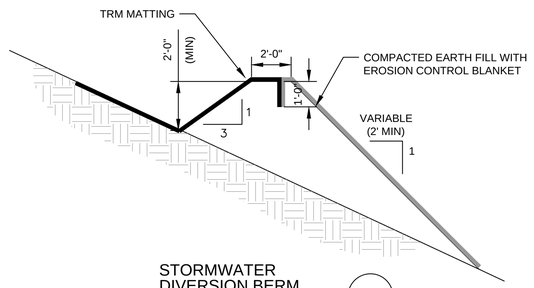
PROJECT NUMBER: 2250798
DRAWN BY: RH
REVIEWED BY: KN / RG
ISSUED FOR: PERMITTING
DATE: 02/07/2025
DRAWING NAME:

**BORROW AREAS
EROSION AND SEDIMENT
CONTROL DETAILS**

DRAWING NUMBER:

ES-06

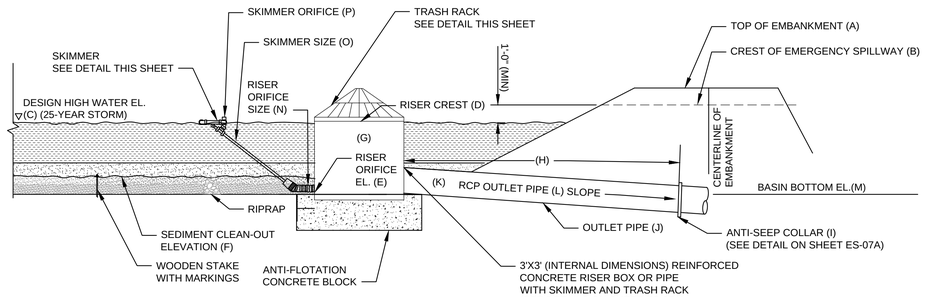
L:\Transylvania\dwg\2024 PHASE 7 CONSTRUCTION\BORROW AREA EXPANSION E&S\SHEET SET\ES-06_ES-07 Erosion and Sediment Control Details_ recover.dwg Layout=ES-06



STORMWATER DIVERSION BERM (A)
N.T.S.

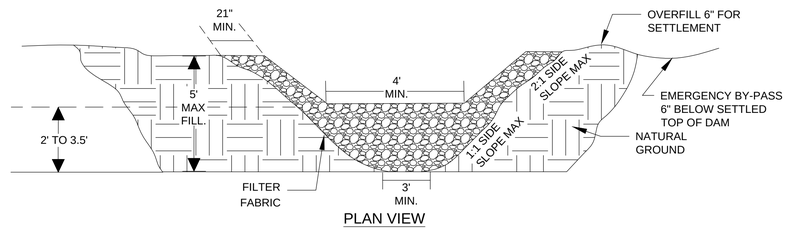
DIVERSION BERM MAINTENANCE NOTES:

1. INSPECT PERMANENT DIVERSIONS AT LEAST WEEKLY AND AFTER EACH RAINFALL OF 0.5 INCH OR GREATER.
2. IMMEDIATELY REMOVE ANY OBSTRUCTIONS FROM THE FLOW AREA, AND REPAIR THE DIVERSION RIDGE.
3. CHECK OUTLETS, AND MAKE TIMELY REPAIRS AS NEEDED.
4. MAINTAIN THE VEGETATION IN A VIGOROUS, HEALTHY CONDITION AT ALL TIMES.

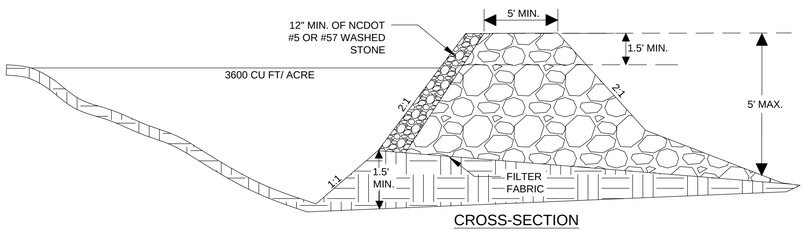


S.B. #	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
SB-BA1	2652	2650	2648.09	2649	2644	2644.5	3' X 3'	36'	4' X 4'	80'	18"	5%	2644	7"	5"	5"
SB-BA2	2616	2614	2612.90	2613	2608	2608.5	5' X 5'	42'	4' X 4'	110'	18"	1.82%	2608	7"	5"	4.75"

SEDIMENT BASIN PARTIAL SECTION (C)
N.T.S.



PLAN VIEW



CROSS-SECTION

Spillway Design	
Drainage Area (acres)	Weir Length (ft)*
1	4
2	6
3	8
4	10
5	12
*Dimensions shown are minimums.	

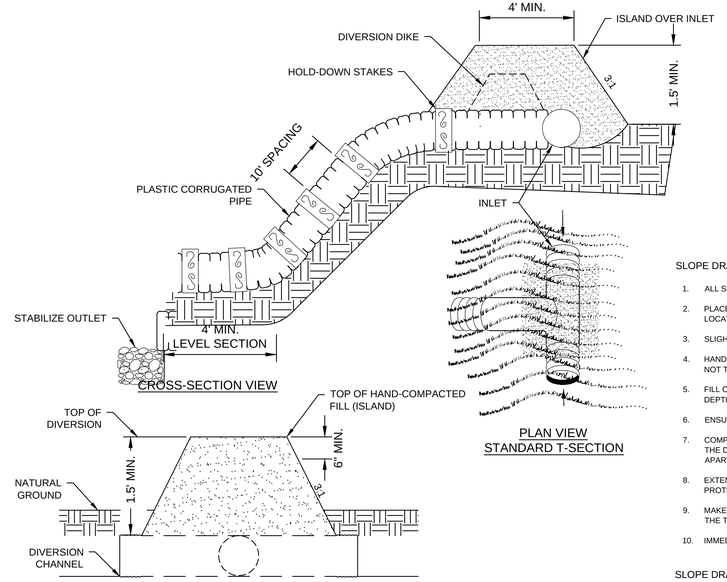
TEMPORARY SEDIMENT TRAP (D)
N.T.S.

NOTES:

1. CLEAR, GRUB, AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA.
2. ENSURE THAT FILL MATERIAL IS FREE OF ROOTS, WOODY VEGETATION, ORGANIC MATERIAL AND OTHER OBJECTIONABLE MATERIAL. PLACE FILL IN LIFTS NOT EXCEEDING 9 INCHES, AND MACHINE COMPACT. OVERFILL THE EMBANKMENT 6 INCHES TO ALLOW FOR SETTLEMENT.
3. CLEAR THE POND AREA BELOW THE ELEVATION OF THE CREST OF THE SPILLWAY TO FACILITATE SEDIMENT CLEANOUT.
4. ALL CUT AND FILL SLOPES SHOULD BE 2:1 OR FLATTER.
5. ENSURE THE STONE SECTION OF THE EMBANKMENT HAS A 3 FOOT MINIMUM, BOTTOM WIDTH AND MAXIMUM SIDE SLOPES OF 1:1 THAT EXTEND TO THE BOTTOM OF THE SPILLWAY SECTION.
6. THE WEIR MUST BE LEVEL AND CONSTRUCTED TO GRADE TO ASSURE DESIGN CAPACITY.
7. DISCHARGE INLET WATER IN A MANNER TO PREVENT EROSION, USING TEMPORARY SLOPE DRAINS OR DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT-LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY.
8. ENSURE THE STONE SPILLWAY OUTLET SECTION EXTENDS DOWNSTREAM PAST THE TOE OF THE EMBANKMENT UNTIL STABLE CONDITIONS ARE REACHED AND THE OUTLET VELOCITY IS ACCEPTABLE FOR THE RECEIVING STREAM. KEEP THE EDGES OF THE STONE OUTLET SECTION FLUSH WITH THE SURROUNDING GROUND, AND SHAPE THE CENTER TO CONFINE THE OUTFLOW STREAM.
9. PLACE EMERGENCY SPILLWAY IN UNDISTURBED SOILS AND DIRECT EMERGENCY BYPASS TO NATURAL, STABLE AREAS. LOCATE BYPASS OUTLETS SO THAT FLOW WILL NOT DAMAGE THE EMBANKMENT.
10. STABILIZE THE EMBANKMENT AND ALL DISTURBED AREAS ABOVE THE SEDIMENT POOL AND BARE SOIL DOWNSTREAM FROM THE TRAP IMMEDIATELY AFTER CONSTRUCTION.
11. SHOW THE DISTANCE FROM THE TOP OF THE SPILLWAY TO THE SEDIMENT CLEANOUT LEVEL(1/2 DESIGN DEPTH) ON THE PLANS AND INDICATE IN THE FIELD.
12. INSTALL POROUS BAFFLES AS SPECIFIED ON FOLLOWING SHEETS.
13. IF TRAP IS TO BE DE-WATERED USING A PUMP AND SILT BAG, SHOW LOCATION ON PLANS.

MAINTENANCE:

1. INSPECT ALL MEASURES AT LEAST WEEKLY AND AFTER EACH RAINFALL OF 1.0 INCH OR GREATER.
2. REMOVE SEDIMENT AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP.
3. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA, AND REPLACE THE PART OF THE GRAVEL FACING THAT IS IMPAIRED BY SEDIMENT.
4. CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.5 FEET BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE.
5. ANY RIPRAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.
6. AFTER ALL SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND AND STABILIZE PROPERLY.



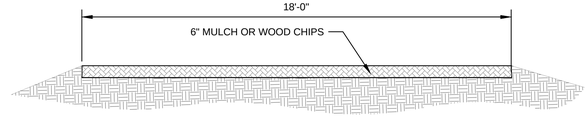
SLOPE DRAIN GENERAL NOTES:

1. ALL SLOPE DRAINS SHALL BE A MINIMUM OF 15".
2. PLACE SLOPE DRAINS ON UNDISTURBED SOIL OR WELL COMPACTED FILL AT LOCATIONS AND ELEVATIONS SHOWN ON THE PLAN.
3. SLIGHTLY SLOPE THE SECTION OF PIPE UNDER THE DIKE TOWARD ITS OUTLET.
4. HAND TAMP THE SOIL UNDER AND AROUND THE ENTRANCE SECTION IN LIFTS NOT TO EXCEED 6 INCHES.
5. FILL OVER THE DRAIN AT THE TOP OF THE SLOPE TO A MINIMUM OF 1.5 FEET DEPTH, 4 FEET TOP WIDTH AND 3:1 SIDE SLOPES.
6. ENSURE ALL SLOPE DRAIN CONNECTIONS ARE WATERTIGHT.
7. COMPACT FILL MATERIAL AND SECURELY FASTEN THE EXPOSED SECTION OF THE DRAIN WITH GROMMETS OR STAKES SPACED NO MORE THAN 10 FEET APART.
8. EXTEND THE DRAIN BEYOND THE TOE OF THE SLOPE, AND ADEQUATELY PROTECT THE OUTLET FROM EROSION.
9. MAKE THE COMPACTED, SETTLED DIKE RIDGE NO LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE AT EVERY POINT.
10. IMMEDIATELY STABILIZE ALL DISTURBED AREAS FOLLOWING CONSTRUCTION.

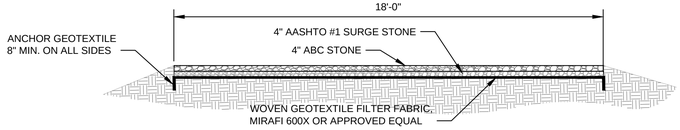
SLOPE DRAIN MAINTENANCE NOTES:

1. INSPECT ALL MEASURES AT LEAST WEEKLY AND AFTER EACH RAINFALL OF 0.5 INCH OR GREATER; REPAIR IMMEDIATELY.

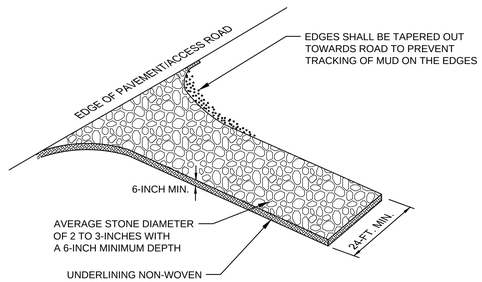
SLOPE DRAIN DETAIL (B)
N.T.S.



MULCH / WOOD CHIPS OPTION ACCESS ROAD (E1)
N.T.S.



GRAVEL ROAD OPTION ACCESS ROAD (E2)
N.T.S.



STABILIZED CONSTRUCTION ENTRANCE (F)
N.T.S.

LaBella
Powered by partnership.
400 S. TRYON STREET
CHARLOTTE, NC 28285
PHONE: (704) 376-6423
NC LICENSE # C-0430
labellapc.com

FOR BIDDING ONLY

NORTH CAROLINA PROFESSIONAL SEAL 054122 ENGINEER ROHIT GARG 03/27/25
LABELLA ASSOCIATES, P.C. CORPORATE SEAL C-0430 NORTH CAROLINA

TRANSYLVANIA COUNTY
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

Land of Waterfalls
TRANSYLVANIA COUNTY
NORTH CAROLINA

WOODRUFF LANDFILL PHASE 7 EXPANSION CONSTRUCTION
500 HOWELL ROAD, BREVARD,
NORTH CAROLINA 28712

1	3/27/2025	ISSUED FOR ADDENDUM #2
NO:	DATE:	DESCRIPTION:
Revisions		

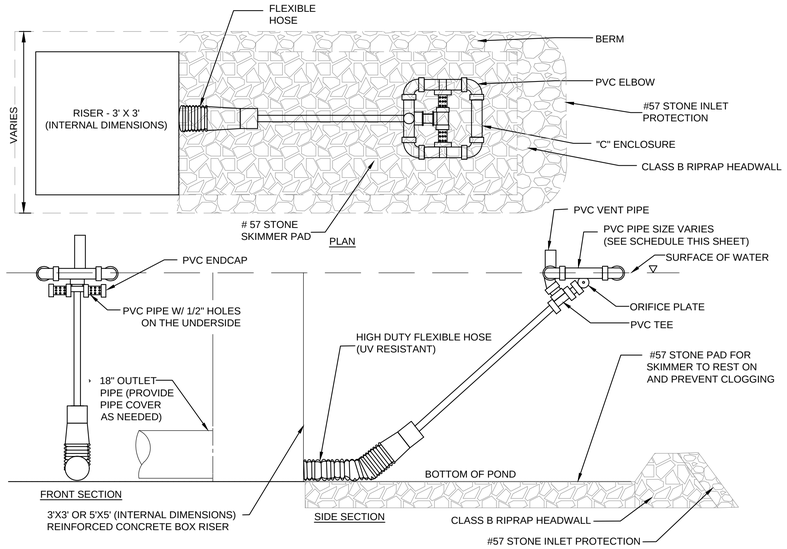
PROJECT NUMBER: 2250798
DRAWN BY: RH
REVIEWED BY: KN / RG
ISSUED FOR: PERMITTING
DATE: 02/07/2025
DRAWING NAME:

BORROW AREAS EROSION AND SEDIMENT CONTROL DETAILS

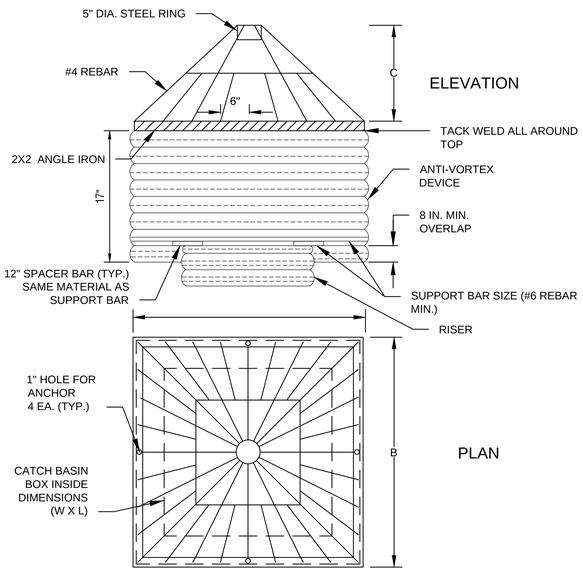
DRAWING NUMBER:

ES-07

L:\Transylvania\dwg\2024 PHASE 7 CONSTRUCTION\BORROW AREA EXPANSION E&S\SHEET SET\ES-06_ES-07 Erosion and Sediment Control Details_recover.dwg Layout=ES-07



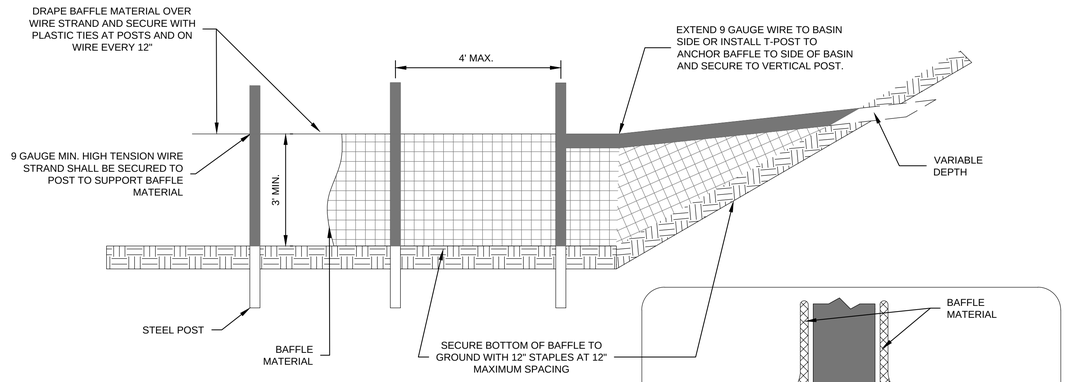
RISER WITH SKIMMER DETAIL (A)
N.T.S.



DESCRIPTION I.D. (WXL)	DIM. A	DIM. B	DIM. C
3' X 3' RISER	4'-1"	4'-1"	1'-2"

NOTES:
1. TRASH RACKS TO BE COATED WITH GALVANIZING PAINT.
2. CONTRACTOR TO PROVIDE ANTI-VORTEX PLATES.

CONICAL TRASH RACK WITH ANTI-VORTEX DEVICE FOR RISER
N.T.S.



POROUS BAFFLE MAINTENANCE NOTES:

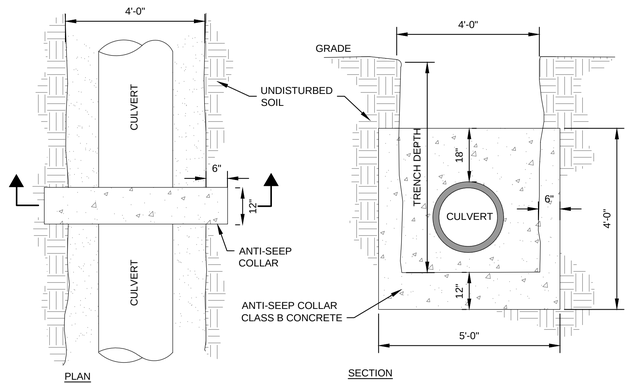
1. INSPECT ALL MEASURES AT LEAST WEEKLY AND AFTER EACH RAINFALL OF 1.0 INCH OR GREATER AND MAKE NECESSARY REPAIRS AS SOON AS PRACTICAL.
2. MAINTAIN ACCESS TO BAFFLES. IF THE FABRIC COLLAPSES, TEARS, DECOMPOSES, OR BECOMES INEFFECTIVE, REPLACE PROMPTLY.
3. REMOVE SEDIMENT DEPOSITS WHEN IT REACHES THE SEDIMENT CLEAN-OUT ELEVATION. REPLACE IF BAFFLE FABRIC IS DAMAGED DURING CLEAN-OUT OPERATIONS.

TYPICAL POROUS BAFFLE DETAIL (B)
N.T.S.

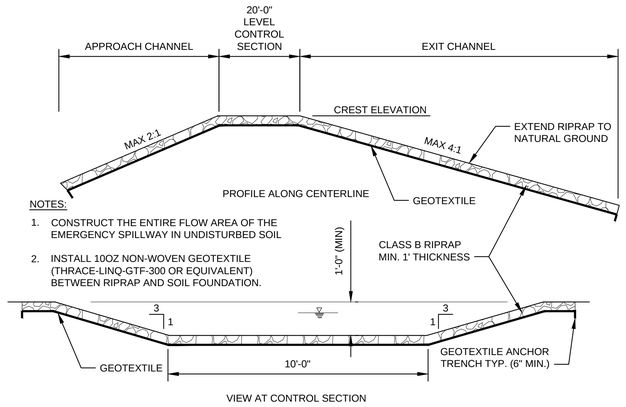
IF THE TEMPORARY SEDIMENT BASIN WILL BE CONVERTED TO A PERMANENT STORMWATER BASIN OF GREATER DEPTH, THE BAFFLE HEIGHT SHOULD BE BASED ON THE POOL DEPTH DURING USE AS A TEMPORARY SEDIMENT BASIN.

NOTE:

INSTALL (3) COIR FIBER BAFFLES IN BASINS AT DRAINAGE OUTLETS WITH A SPACING OF 1/4 THE BASIN LENGTH. TWO (2) COIR FIBER BAFFLES CAN BE INSTALLED IN THE BASINS LESS THAN 20 FEET IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.

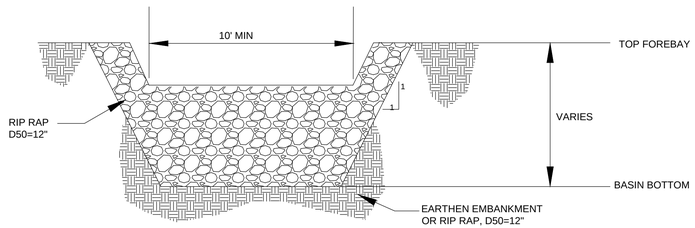


ANTI-SEEP COLLAR DETAIL
N.T.S.



VIEW AT CONTROL SECTION

EMERGENCY SPILLWAY DETAILS (C)
N.T.S.



FOREBAY BERM DETAIL (D)
N.T.S.

LaBella Powered by partnership.
400 S. TRYON STREET
CHARLOTTE, NC 28285
PHONE: (704) 376-6423
NC LICENSE # C-0430
labellapc.com

FOR BIDDING ONLY

NORTH CAROLINA PROFESSIONAL SEAL 054122 ENGINEER ROHIT GARG
LABELLA ASSOCIATES, P.C. CORPORATE SEAL C-0430 NORTH CAROLINA

TRANSYLVANIA COUNTY
500 HOWELL ROAD, BREVARD, NORTH CAROLINA 28712

NO:	DATE:	DESCRIPTION:
1	3/27/2025	ISSUED FOR ADDENDUM #2
Revisions		

PROJECT NUMBER: 2250798
DRAWN BY: RH
REVIEWED BY: KN / RG
ISSUED FOR: PERMITTING
DATE: 02/07/2025
DRAWING NAME:

WOODRUFF LANDFILL PHASE 7 EXPANSION CONSTRUCTION
500 HOWELL ROAD, BREVARD, NORTH CAROLINA 28712

BORROW AREAS EROSION AND SEDIMENT CONTROL DETAILS

DRAWING NUMBER:

ES-07A

Attachment No. 4: Borrow Study Report 2 (prepared by BLE)

March 13, 2025

Transylvania County Solid Waste
500 Howell Road
Brevard, North Carolina 28712

Attention: Mr. Kenn Webb
Director of Transylvania County Solid Waste

Subject: Report for Borrow Area 2 Exploration for Phase 7 Earthwork Soils
Woodruff Landfill
Transylvania County, North Carolina
BLE Project Number 24-24201-03

Dear Mr. Webb:

Bunnell-Lammons Engineering, Inc. (BLE) has completed an exploration and evaluation of soils in the area of exploration, northwest of future Phase 7 at the Woodruff Landfill to estimate the volume of available structural fill soils for the earthwork portion of the construction of the proposed Phase 7 Expansion within the currently permitted landfill.

PROJECT INFORMATION

The Woodruff Landfill is located on Howell Road, west of NC Highway 178 in Brevard, North Carolina (Figure 1). Phase 7 construction is expected to begin in the fall of 2025. The proposed earthwork borrow area, located northwest of proposed Phase 7, has not been cleared and grubbed and is currently heavily wooded. Sandy, silty soils are present under the topsoil and have roots in the upper residual soil profile in the proposed borrow area.

FIELD EXPLORATION

The exploration of future Phase 7 consisted of test pit excavations and laboratory testing of potential earthwork soils. The location of the future Phase 7 is indicated in the attached Figure 1, and the location of the test pits is indicated in Figure 2. Test pit records are also attached to this report in the Appendix.

The soil was evaluated based on visual classification and the laboratory test results. The data was used to evaluate the approximate soil volumes that could potentially be used as earthwork soil for Phase 7 construction.

As requested by Mr. Kenn Webb, Mr. Payton Legrand visited the site on December 4th and 5th of

2024 to observe and collect soil samples from up to twenty test pit excavations within the proposed borrow area northwest of future Phase 7. The test pit locations were selected by Mr. Kenn Webb and located by Mr. Payton LeGrand by using a non-survey quality hand-held GPS. Transylvania County personnel assisting with field operations decided to cease test pit explorations after BLE collected ten samples. Ultimately, 9 test pits were excavated, with one of the test pits located west of the current landfill. The test pits were designated as TP-1, TP-2, TP-3A, TP-3B, TP-3C, TP-4, TP-5, TP-6 (TP-6A & TP-6B), and TP-7 and excavated with a tracked excavator operated by Transylvania County personnel. Each test pit was terminated at different depths due to encountering rock fragments greater than 2 inches in diameter per project specifications. The test pits were backfilled with excavated soil. Test pit excavation samples were transported to BLE's laboratory, where a geotechnical engineer visually classified the soils. The soil samples were prepared to confirm the field classification and perform laboratory tests.

SUBSURFACE CONDITIONS

The soil conditions encountered can be summarized as consisting of three layers as follows:

Layer 1: an upper approximately 1-foot-thick layer of topsoil/root layer,
Layer 2: a middle approximately 5- to 8-foot-thick layer of rock-free sandy, silty soil (USCS symbol ML)
Layer 3: a lower layer of sandy silt with rock fragments greater than 2 inches in diameter.

Rock fragments greater than 2 inches in diameter were encountered in test pits. It should be noted that rock outcrop depths may vary between test pit locations and the test pit depths were limited by the presence of rock fragments.

The above descriptions provide a general summary of the subsurface conditions encountered. The Test Pit Records attached to this report contain detailed information recorded at each location. The lines designating the interfaces between various strata represent approximate boundaries, and the transition between strata may be gradual. It should also be noted that the soil, partially weathered rock, rock, and groundwater conditions vary between the widely spaced test pit locations. The assessment of site environmental conditions for the presence of pollutants in the site's soil, rock and groundwater was beyond the scope of this exploration.

LABORATORY TEST RESULTS

The focus of laboratory testing was to determine the suitability of and quantify the soils in the proposed borrow area northwest of future Phase 7 for use in earthwork construction. Project specifications for Phase 7 Expansion Construction, sections 02200-1 (Earthwork) and 13400 (Interface Friction and Soil Strength Testing), were used as the basis for assigning laboratory testing. Natural (in-situ) moisture content (ASTM D 2216), grain size distribution (ASTM D 6913),

Atterberg limits (ASTM D 4318), standard Proctor compaction (ASTM D 698) USCS classification (ASTM D 2487) triaxial shear (ASTM D 4767) and direct shear (ASTM D 3080) were performed on the test pit bulk samples to assist in the classification and determination of potential use. The attached test reports include a summary table of the laboratory test results.

The non-cohesive soils (Layer 2) were tested for use as earthwork material and classified as sandy silts (ML). The percent fines (% passing #200 sieve) of the samples ranged between 53.0% and 74.2%. Atterberg limit plasticity indices (PIs) ranged from NP to 5. The in-situ soil moisture of the samples tested ranged from 2.3% dry to 7.9% wetter than the respective optimum moisture content from Proctor compaction tests.

The triaxial shear test results, reported as effective stress angle, ranged from 23.01 to 29.65 degrees when remolded to approximately 95% of the standard Proctor optimum dry density (ASTM D698) at moisture contents equal to the standard optimum moisture contents.

The direct shear test results, reported as ultimate stress angle, ranged from 29.83 to 35.54 degrees when remolded to approximately 95% of the standard Proctor optimum dry density (ASTM D698) at moisture contents equal to the standard optimum moisture contents.

Soil Liner Borrow Volume

Based on the assumed average thickness of Layer 2 being approximately 7 feet across the area of exploration (approximately 391,550 sf), the estimated available borrow volume is as follows:

Sandy Silt (ML) ..... Approximately 101,500 cy

LIMITATIONS

Our evaluation of the borrow area conditions has been based on our understanding of the project information and our experience with similar projects. The general subsurface conditions utilized in our evaluation have been based on interpolating the subsurface data between the widely spaced test pits. Subsurface soil, rock, rock outcroppings, groundwater and soil moisture conditions between the test pits will differ. The observation of any site or subsurface conditions during construction that deviates from the data obtained in this exploration should be reported to BLE for evaluation. The design engineer of record should review the borrow soil testing data and determine whether the soils are appropriate to utilize for the scope of work.

CLOSING

We appreciate the opportunity to be of continuing assistance at Woodruff Landfill and to provide the required borrow study services for this project. We hope that you find this report acceptable for your needs. If you have any questions regarding this report, please do not hesitate to contact us at (864) 288-1265.

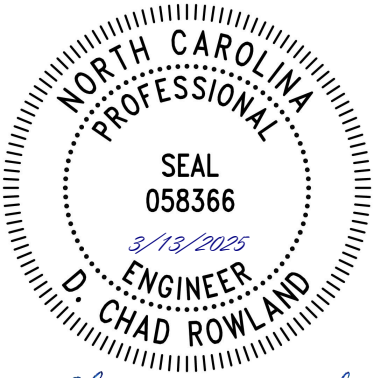
Sincerely,

BUNNELL LAMMONS ENGINEERING, INC.

BLE North Carolina Business Licenses C-284 & C-1538

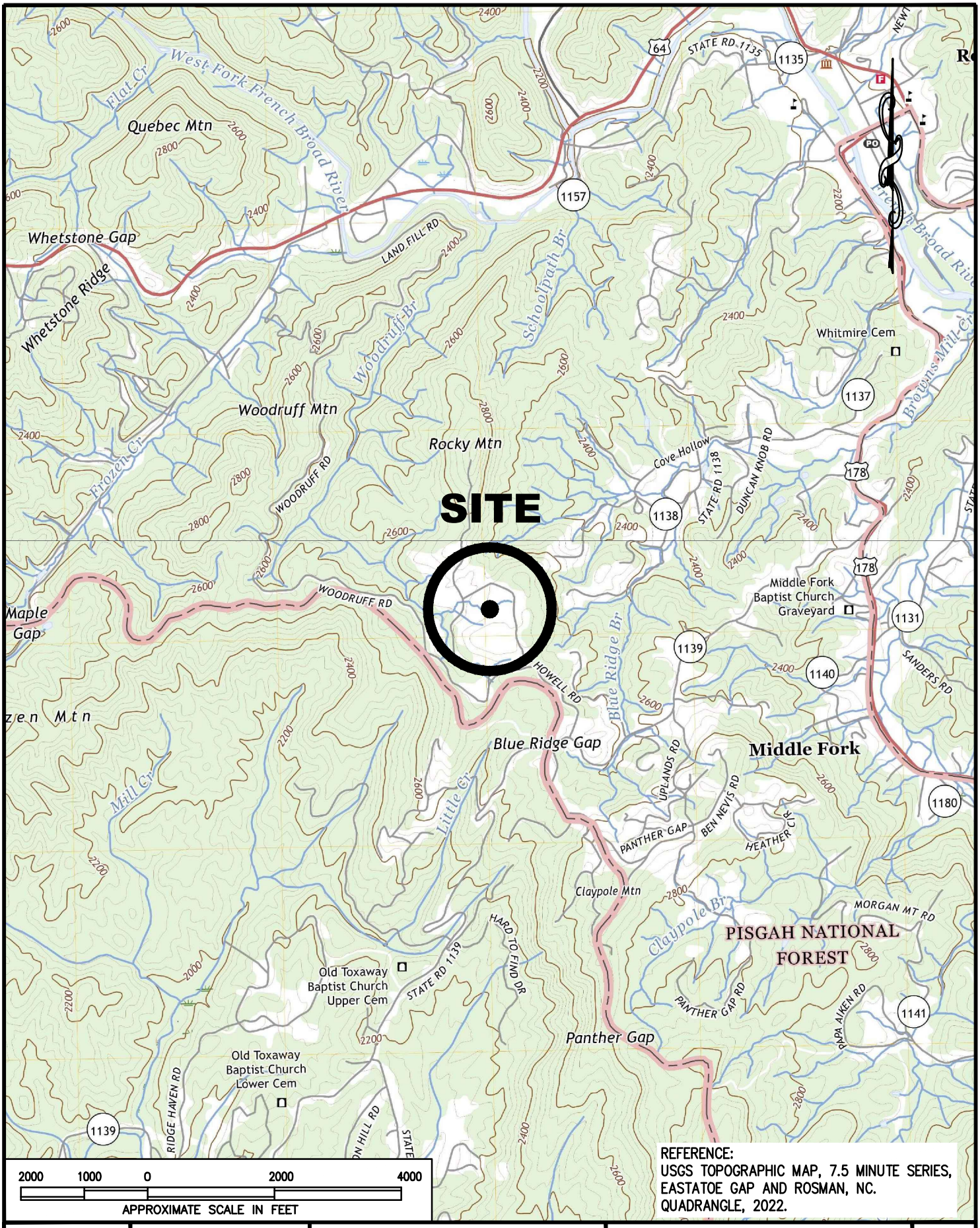
Brian D. Keyes
Engineering Associate

Attachments: Figure 1
Figure 2
Field Test Pit Logs
Summary of Laboratory Test Reports
Laboratory Test Reports



Chad Rowland, P.E.
Senior Engineer
Licensed, NC, 058366

FIGURE 1: SITE VICINITY MAP



REFERENCE:
USGS TOPOGRAPHIC MAP, 7.5 MINUTE SERIES, EASTATOE GAP AND ROSMAN, NC. QUADRANGLE, 2022.

DRAWN: KLW	DATE: 2-25-25	BUNNELL LAMMONS ENGINEERING 6004 Ponders Court, Greenville, SC 29615 (864) 288-1265	SITE VICINITY MAP TRANSLYVANIA COUNTY WOODRUFF LANDFILL BREVARD, NORTH CAROLINA
CHECKED: BDK	CAD: TRANSWOODLF-03TPLP		
APPROVED:	JOB NO: J24-24201-03		

FIGURE
1

FIGURE 2: TEST PIT LOCATION PLAN

DRAWN: KLW	DATE: 2-25-25	BUNNELL LAMMONS ENGINEERING 6004 Ponders Court, Greenville, SC 29615 (864) 288-1265	TEST PIT LOCATION PLAN TRANSLYVANIA COUNTY WOODRUFF LANDFILL BREVARD, NORTH CAROLINA
CHECKED: BDK	CAD: TRANSWOODLF-03TPLP		
APPROVED:	JOB NO: J24-24201-03		

FIGURE 2

FIELD TEST PIT LOGS

BUNNELL LAMMONS ENGINEERING

TEST PIT LOG

Job Name: Woodruff Landfill		**ID & Location:** TP-1 **35.12063°N 82.84724°W**
Job Number: 24-24201-03		**Date Logged:** 12/04/2024
Approximate Elevation: 2724.0 ft		**Logged By:** Payton LeGrand
Depth (Feet)		**Stratum Description**
From	**To**	
0	0.5	Topsoil
0.5	1	Organic matter / Light tan sandy silty CLAY
1	8	Light tan sandy silty CLAY (Sample TP-1)
Remarks and Notes: Test pit was terminated at 8 feet due to encountering rock >2-in. diameter. Test pit backfilled immediately upon completion.		

BUNNELL LAMMONS ENGINEERING

TEST PIT LOG

Job Name: Woodruff Landfill		**ID & Location:** TP-2 **35.12634°N 82.84721°W**
Job Number: 24-24201-03		**Date Logged:** 12/04/2024
Approximate Elevation: 2669.0 ft		**Logged By:** Payton LeGrand
Depth (Feet)		**Stratum Description**
From	**To**	
0	0.5	Topsoil
0.5	1	Organic matter / Light brown sandy SILT
1	8	Light brown sandy SILT (Sample TP-2)
Remarks and Notes: Test pit was terminated at 8 feet due to encountering rock >2-in. diameter. Test pit backfilled immediately upon completion.		

BUNNELL LAMMONS ENGINEERING

TEST PIT LOG

Job Name: Woodruff Landfill		**ID & Location:** TP-3A **35.12658^{O}N 82.84686^{O}W**
Job Number: 24-24201-03		**Date Logged:** 12/05/2024
Approximate Elevation: 2701.0 ft		**Logged By:** Payton LeGrand
Depth (Feet)		**Stratum Description**
From	**To**	
0	0.5	Topsoil
0.5	1	Organic matter / Tan brown sandy SILT
1	3	Tan brown sandy SILT (Sample TP-3A)
3	8	Tan sandy SILT

Remarks and Notes: Test pit was terminated at 8 feet due to encountering rock >2-in. diameter. Test pit backfilled immediately upon completion.

BUNNELL LAMMONS ENGINEERING

TEST PIT LOG

Job Name: Woodruff Landfill		**ID & Location:** TP-3B **35.12658^{O}N 82.84686^{O}W**
Job Number: 24-24201-03		**Date Logged:** 12/05/2024
Approximate Elevation: 2701.0 ft		**Logged By:** Payton LeGrand
Depth (Feet)		**Stratum Description**
From	**To**	
0	0.5	Topsoil
0.5	1	Organic matter / Orange sandy SILT
1	8	Light brown sandy SILT (Sample TP-3B)
Remarks and Notes: Test pit was terminated at 8 feet due to encountering rock >2-in. diameter. Test pit backfilled immediately upon completion.		

BUNNELL LAMMONS ENGINEERING

TEST PIT LOG

Job Name: Woodruff Landfill		**ID & Location:** TP-3C **35.12658°N 82.84686°W**
Job Number: 24-24201-03		**Date Logged:** 12/05/2024
Approximate Elevation: 2701.0 ft		**Logged By:** Payton LeGrand
Depth (Feet)		**Stratum Description**
From	**To**	
0	0.5	Topsoil
0.5	1	Organic matter / Tan sandy SILT
1	3	Tan sandy SILT
3	8	Light tan sandy SILT (Sample TP-3C)

Remarks and Notes: Test pit was terminated at 8 feet due to encountering rock >2-in. diameter. Test pit backfilled immediately upon completion.

BUNNELL LAMMONS ENGINEERING

TEST PIT LOG

Job Name: Woodruff Landfill		**ID & Location:** TP-4 **35.12735^{O}N 82.84819^{O}W**
Job Number: 24-24201-03		**Date Logged:** 12/05/2024
Approximate Elevation: 2653.0 ft		**Logged By:** Payton LeGrand
Depth (Feet)		**Stratum Description**
From	**To**	
0	0.5	Topsoil
0.5	1	Organic matter / Orange tan sandy SILT
1	3	Orange tan sandy SILT
3	6	Light reddish-brown SILT with sand (Sample TP-4)

Remarks and Notes: Test pit was terminated at 6 feet due to encountering rock >2-in. diameter. Test pit backfilled immediately upon completion.

BUNNELL LAMMONS ENGINEERING

TEST PIT LOG

Job Name: Woodruff Landfill		**ID & Location:** TP-5 **35.12702^{O}N 82.84739^{O}W**
Job Number: 24-24201-03		**Date Logged:** 12/05/2024
Approximate Elevation: 2681.0 ft		**Logged By:** Payton LeGrand
Depth (Feet)		**Stratum Description**
From	**To**	
0	0.5	Topsoil
0.5	1	Organic matter / Orange tan sandy SILT
1	3	Orange tan sandy SILT
3	5	Tan brown sandy SILT (Sample TP-5)

Remarks and Notes: Test pit was terminated at 5 feet due to encountering rock >2-in. diameter. Test pit backfilled immediately upon completion.

BUNNELL LAMMONS ENGINEERING

TEST PIT LOG

Job Name: Woodruff Landfill		**ID & Location:** TP-6 **35.12686°N 82.84715°W**
Job Number: 24-24201-03		**Date Logged:** 12/05/2024
Approximate Elevation: 2685.0 ft		**Logged By:** Payton LeGrand
Depth (Feet)		**Stratum Description**
From	**To**	
0	0.5	Topsoil
0.5	1	Organic matter / Light brown sandy SILT
1	8	Light brown sandy SILT (Sample TP-6A)
8	14	Tan brown sandy SILT (Sample TP-6B)

Remarks and Notes: Test pit was terminated at 14 feet due to encountering rock >2-in. diameter. Test pit backfilled immediately upon completion.

BUNNELL LAMMONS ENGINEERING

TEST PIT LOG

Job Name: Woodruff Landfill		**ID & Location:** TP-7 **35.12621^{O}N 82.84858^{O}W**
Job Number: 24-24201-03		**Date Logged:** 12/05/2024
Approximate Elevation: 2658.0 ft		**Logged By:** Payton LeGrand
Depth (Feet)		**Stratum Description**
From	**To**	
0	0.5	Topsoil
0.5	1	Organic matter / Tan brown clayey Sand
1	2	Tan brown clayey SAND
2	7	Tan brown sandy SILT (Sample TP-7)

Remarks and Notes: Test pit was terminated at 7 feet due to encountering rock >2-in. diameter. Test pit backfilled immediately upon completion.

LABORATORY TEST REPORTS

- **SUMMARY OF LABORATORY TESTING**
- **STANDARD PROCTOR TEST & NATURAL MOISTURE TEST REPORTS**
- **PARTILCLE SIZE DISTRIBUTION TEST REPORTS**
- **ATTERBERG LIMITS TEST REPORTS**
- **TRIAXIAL SHEAR TEST REPORTS - REMOLDED SAMPLES**
- **DIRECT SHEAR TEST REPORTS - REMOLDED SAMPLES**

SUMMARY OF LABORATORY TESTING

SUMMARY OF LABORATORY TESTING

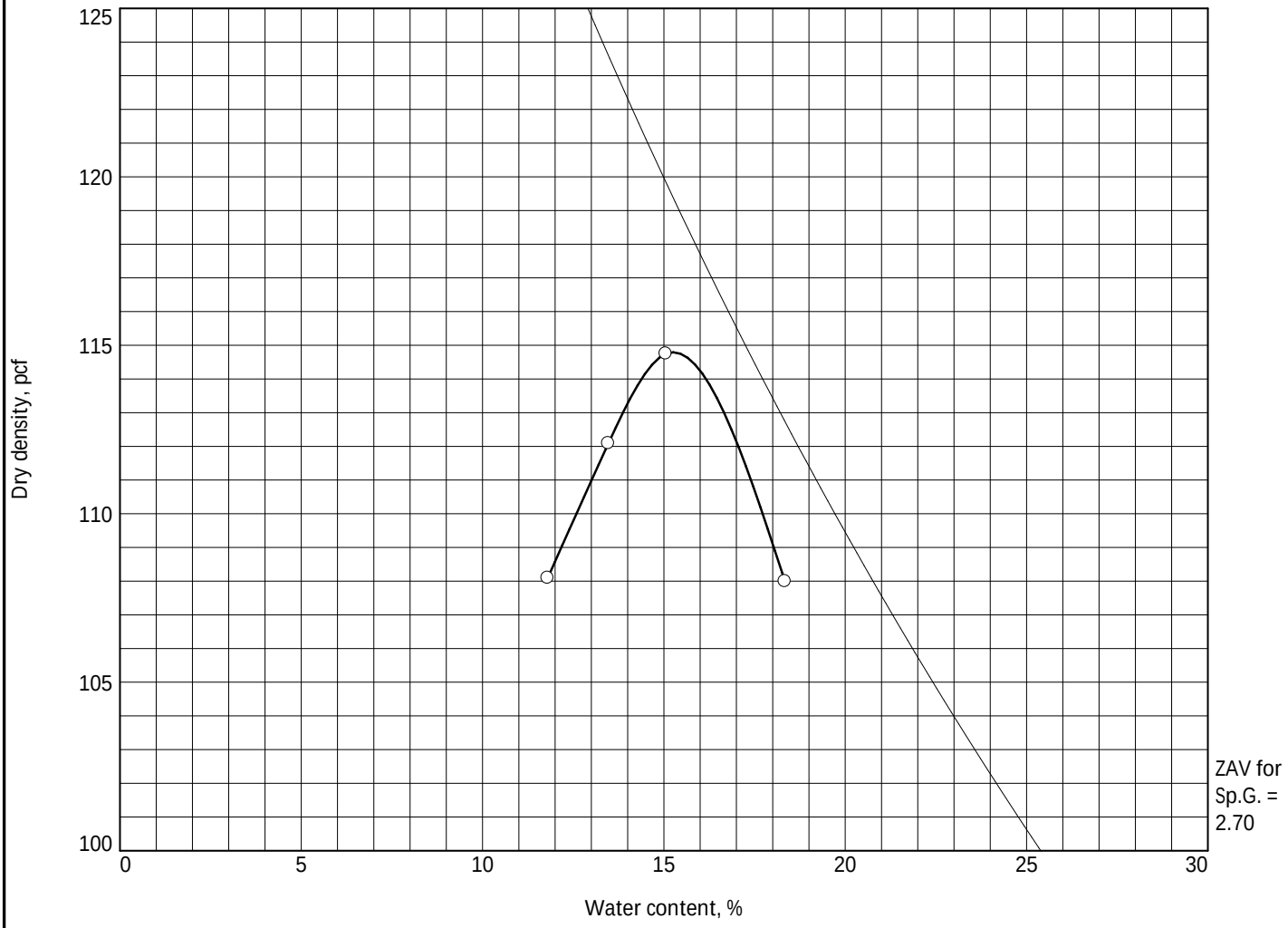
BORROW STUDY - PHASE 7 EXPANSION

CONSTRUCTION QUALITY ASSURANCE
WOODRUFF LANDFILL
TRANSYLVANIA COUNTY, NORTH CAROLINA
BLE Project No. J24-24201-03

SAMPLE NUMBER	MATERIAL DESCRIPTION (USCS)	SIEVE ANALYSIS		ATTERBERG LIMITS		PROCTOR PARAMETERS		MOISTURE CONTENT (%)	REMOLD PARAMETERS		TRIAXIAL SHEAR (degrees)	DIRECT SHEAR (degrees)
		SAND CONTENT (%)`	SILT & CLAY CONTENT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)		DRY DENSITY [% COMPACTION] (%)	MOISTURE CONTENT [%WET OF OPTIMUM] (%)		
TP-1	Light tan sandy silty CLAY (CL-ML)	45.8	53.0	23	4	114.8	15.3	20.0	109.2 [95.1%]	15.3 [0.0]	23.01	34.97
TP-2	Light brown sandy SILT (ML)	42.7	56.1	29	1	103.9	18.2	16.7	98.8 [95.0%]	18.2 [0.0]	27.47	29.83
TP-3A	Tan brown sandy SILT (ML)	33.5	63.1	28	5	109.0	16.1	22.3	103.6 [95.0%]	16.1 [0.0]	26.29	33.41
TP-3B	Light brown sandy SILT (ML)	39.8	59.7	25	2	105.8	17.0	21.4	100.6 [95.0%]	17.0 [0.0]	28.34	35.54
TP-3C	Light tan sandy SILT (ML)	44.4	55.4	26	NP	104.9	18.0	19.1	99.7 [95.0%]	18.1 [0.0]	27.43	34.41
TP-4	Light reddish brown SILT with sand (ML)	25.0	74.2	30	1	100.0	19.0	26.9	95.0 [95.0%]	19.0 [0.0]	25.75	32.50
TP-5	Tan brown sandy SILT (ML)	39.4	60.3	28	5	106.6	16.8	20.9	101.4 [95.1%]	16.8 [0.0]	26.82	33.28
TP-6A	Light brown sandy SILT (ML)	44.6	55.4	32	NP	100.0	18.9	16.6	95.0 [95.0%]	18.9 [0.0]	25.55	33.04
TP-6B	Tan brown sandy SILT (ML)	40.7	57.6	32	5	98.0	19.6	19.6	93.2 [95.1%]	19.6 [0.0]	23.88	33.64
TP-7	Tan brown sandy SILT (ML)	42.0	57.9	29	1	102.8	18.5	16.6	97.8 [95.1%]	18.5 [0.0]	29.65	34.65

STANDARD PROCTOR TEST &
NATURAL MOISTURE TEST REPORTS

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	CL-ML	A-4(0)	20.0		23	4	1.2	53.0

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 114.8 pcf Optimum moisture = 15.3 %	Light tan sandy silty CLAY

Project No. 24201-03 Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Date: 12-10-2024

○ Source of Sample: TP Sample Number: TP-1

Bunnell Lammons Engineering, Inc.

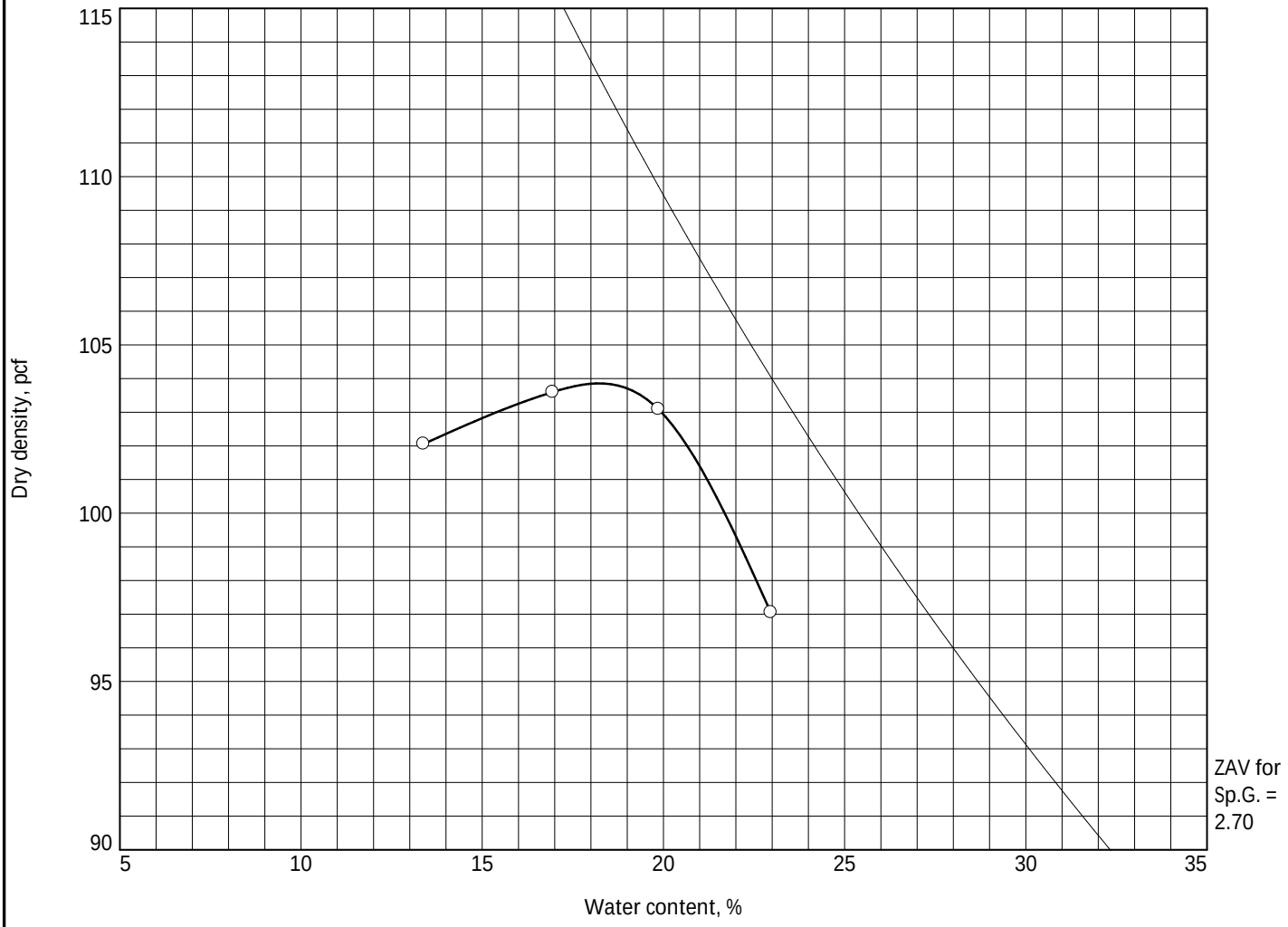
Greenville, SC

Remarks:

Figure

Tested By: CB Checked By: DM

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	ML	A-4(0)	16.7		29	1	1.2	56.1

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 103.9 pcf Optimum moisture = 18.2 %	Light brown sandy SILT

Project No. 24201-03 Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Date: 12-10-2024

○ Source of Sample: TP Sample Number: TP-2

Bunnell Lammons Engineering, Inc.

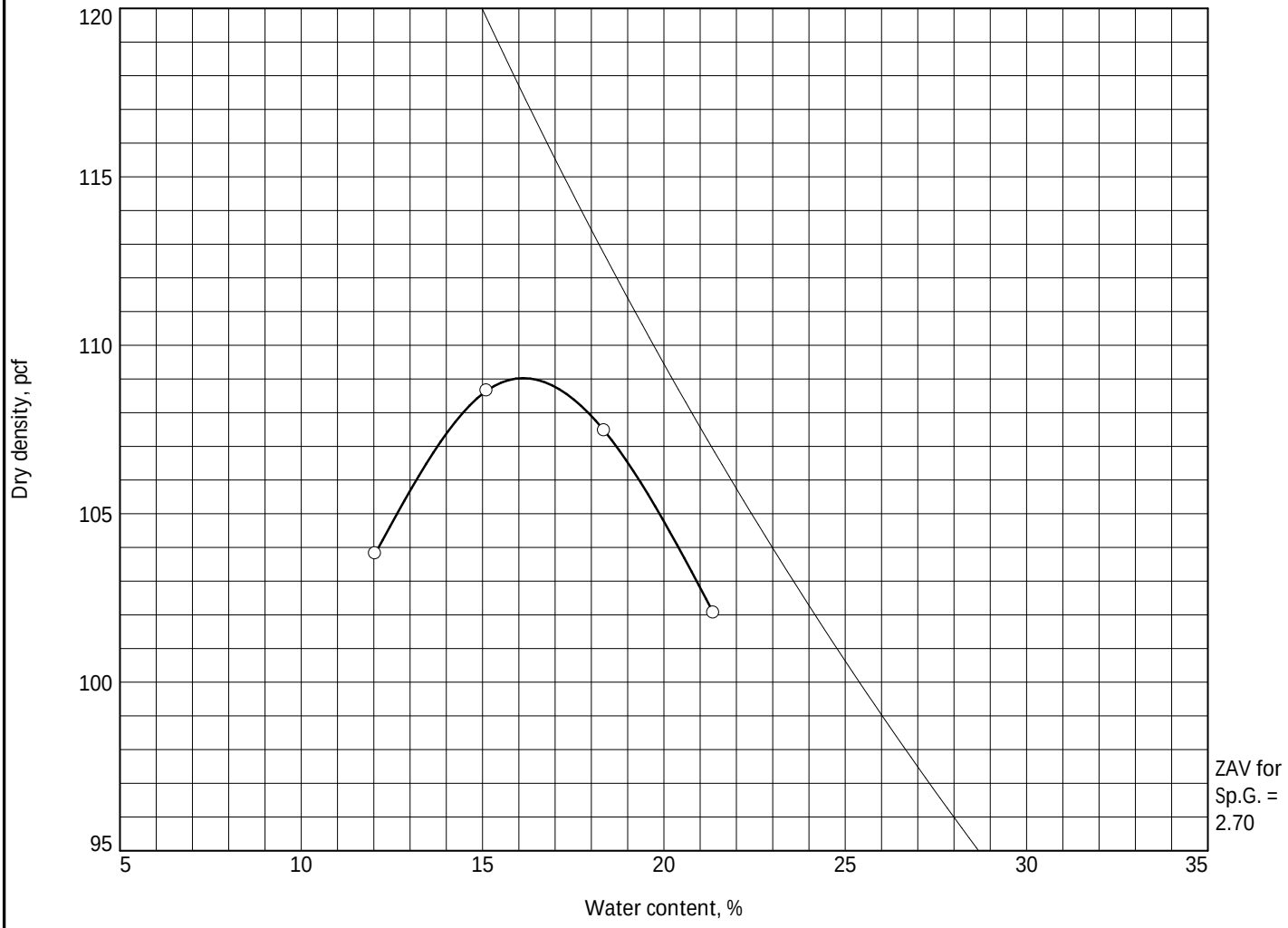
Greenville, SC

Remarks:

Figure

Tested By: CB Checked By: DM

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	ML	A-4(2)	22.3		28	5	3.4	63.1

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 109.0 pcf Optimum moisture = 16.1 %	Tan brown sandy SILT

Project No. 24201-03 Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Date: 12-10-2024

○ Source of Sample: TP Sample Number: TP-3A

Bunnell Lammons Engineering, Inc.

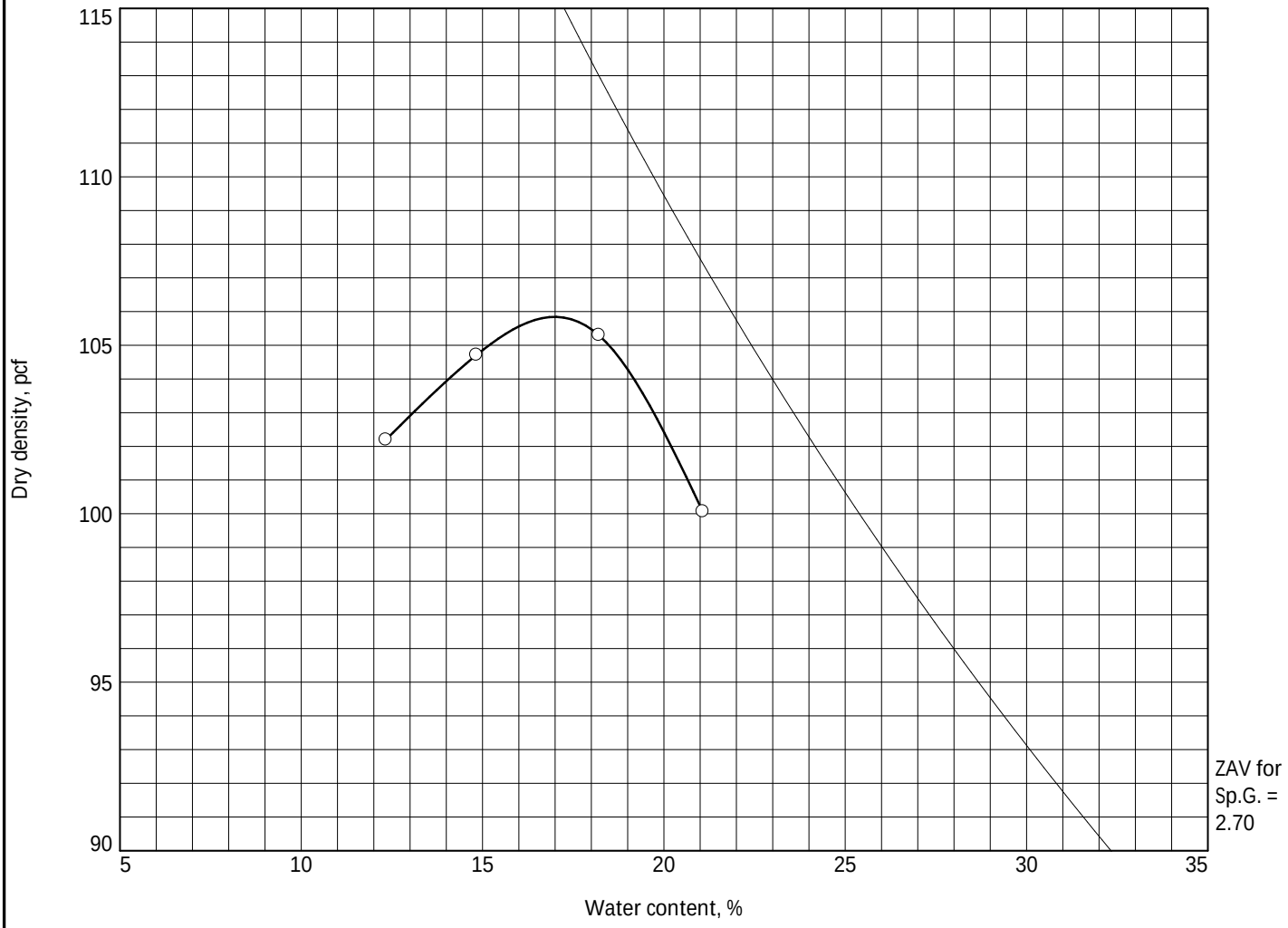
Greenville, SC

Remarks:

Figure

Tested By: CB Checked By: DM

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	ML	A-4(0)	21.4		25	2	0.5	59.7

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 105.8 pcf Optimum moisture = 17.0 %	Light brown sandy SILT

Project No. 24201-03 Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Date: 12-11-2024

○ Source of Sample: TP Sample Number: TP-3B

Bunnell Lammons Engineering, Inc.

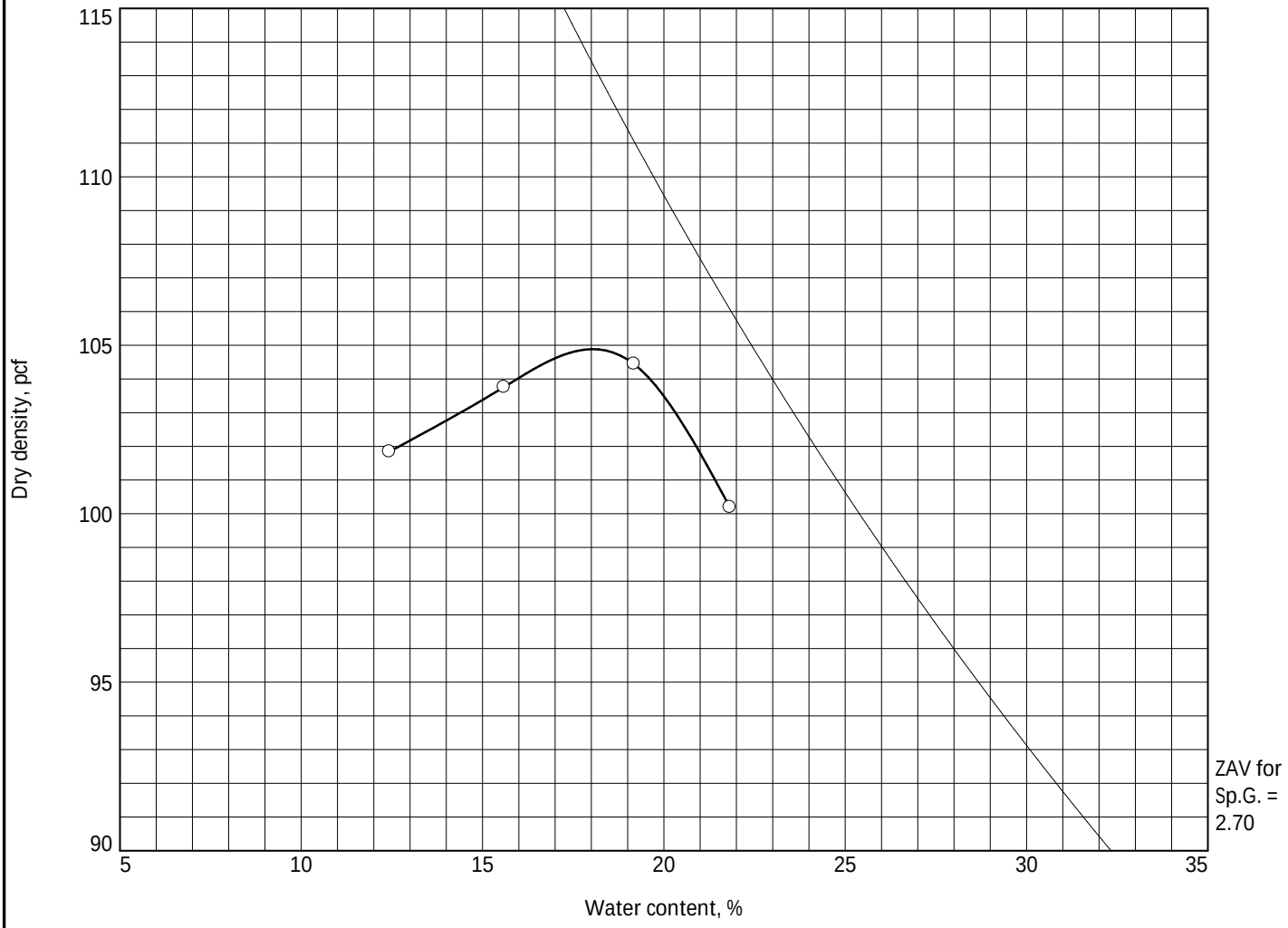
Greenville, SC

Remarks:

Figure

Tested By: CB Checked By: DM

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	ML	A-4(0)	19.1		26	NP	0.2	55.4

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 104.9 pcf Optimum moisture = 18.0 %	Light tan sandy SILT

Project No. 24201-03 Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Date: 12-10-2024

○ Source of Sample: TP Sample Number: TP-3C

Bunnell Lammons Engineering, Inc.

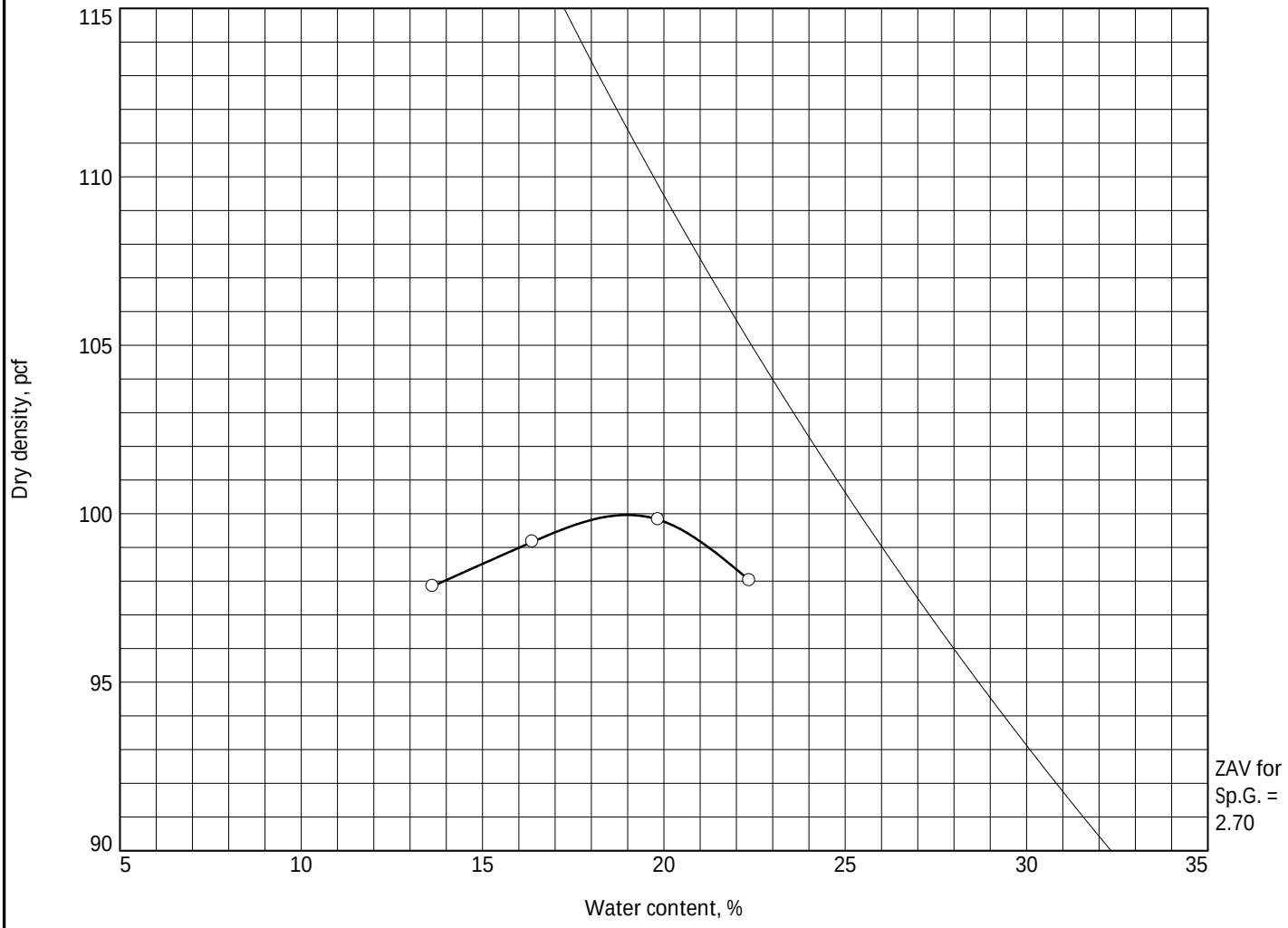
Greenville, SC

Remarks:

Figure

Tested By: CB Checked By: DM

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	ML	A-4(1)	26.9		30	1	0.8	74.2

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 100.0 pcf Optimum moisture = 19.0 %	Light reddish brown SILT with sand

Project No. 24201-03 Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Date: 12-11-2024

○ Source of Sample: TP Sample Number: TP-4

Bunnell Lammons Engineering, Inc.

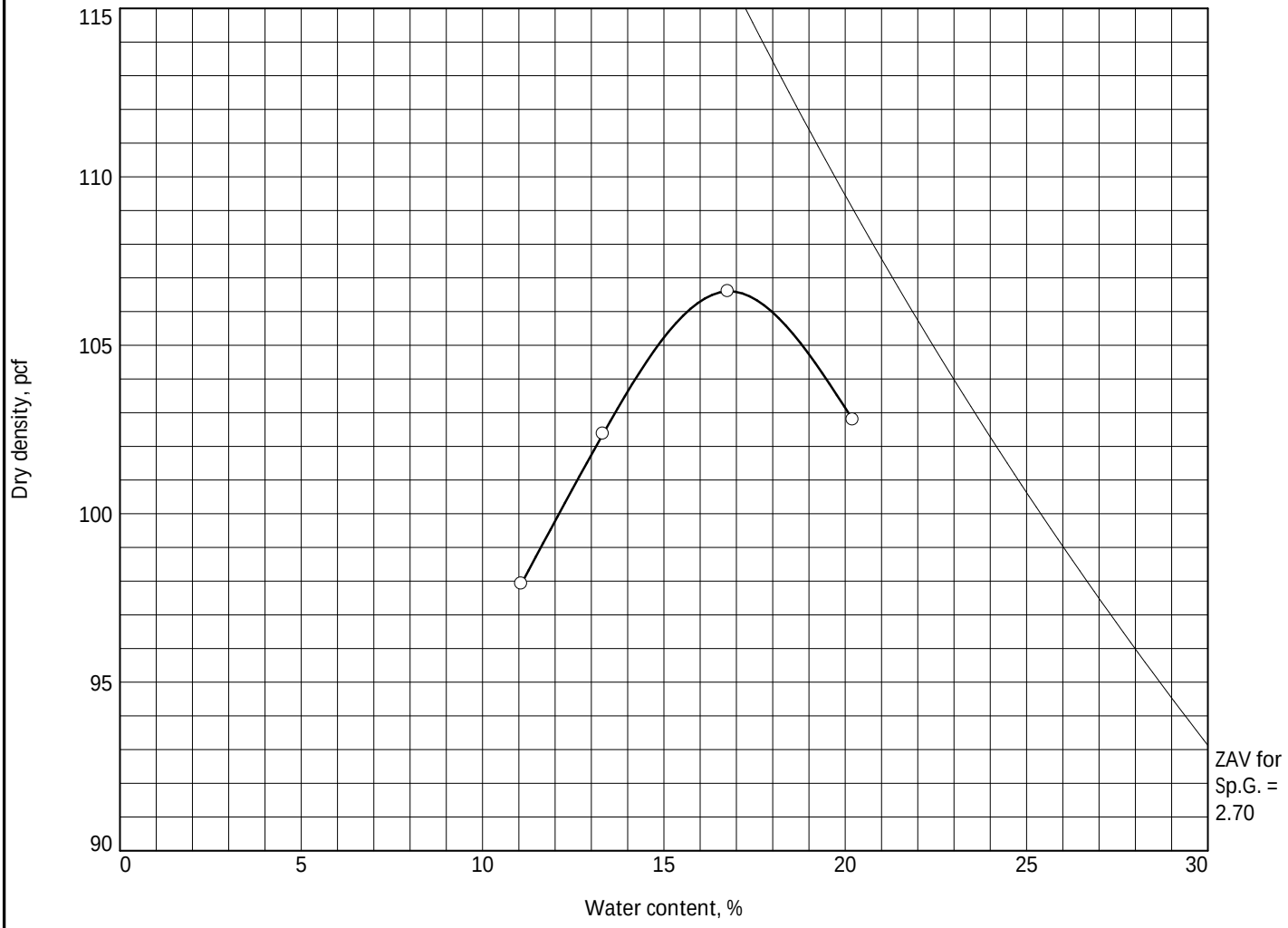
Greenville, SC

Remarks:

Figure

Tested By: CB Checked By: DM

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	ML	A-4(1)	20.9		28	5	0.3	60.3

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 106.6 pcf Optimum moisture = 16.8 %	Tan brown sandy SILT

Project No. 24201-03 Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Date: 12-11-2024

○ Source of Sample: TP Sample Number: TP-5

Bunnell Lammons Engineering, Inc.

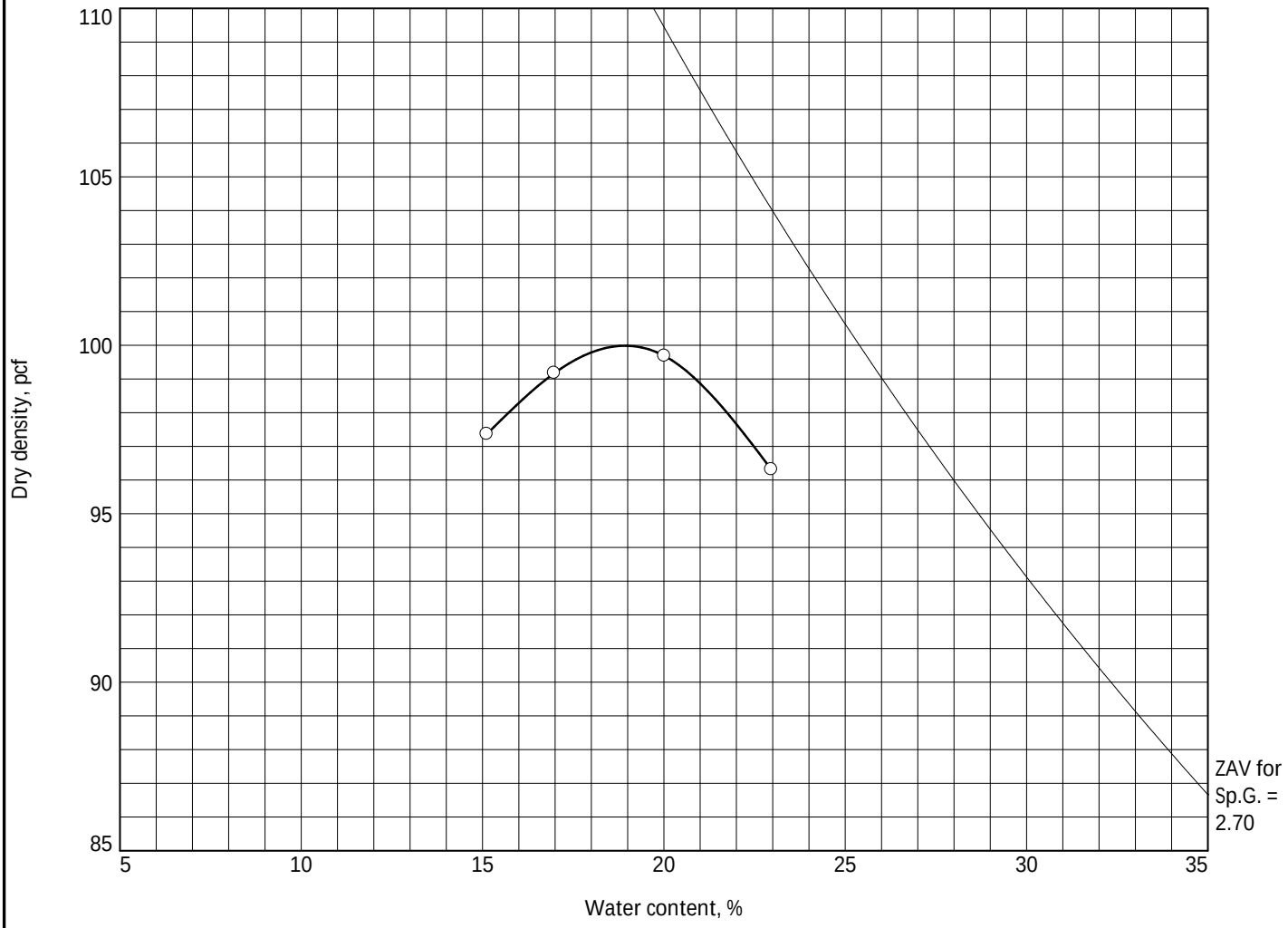
Greenville, SC

Remarks:

Figure

Tested By: CB Checked By: DM

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	ML	A-4(0)	16.6		32	NP	0.0	55.4

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 100.0 pcf Optimum moisture = 18.9 %	Light brown sandy SILT

Project No. 24201-03 Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Date: 12-11-2024

○ Source of Sample: TP Sample Number: TP-6A

Bunnell Lammons Engineering, Inc.

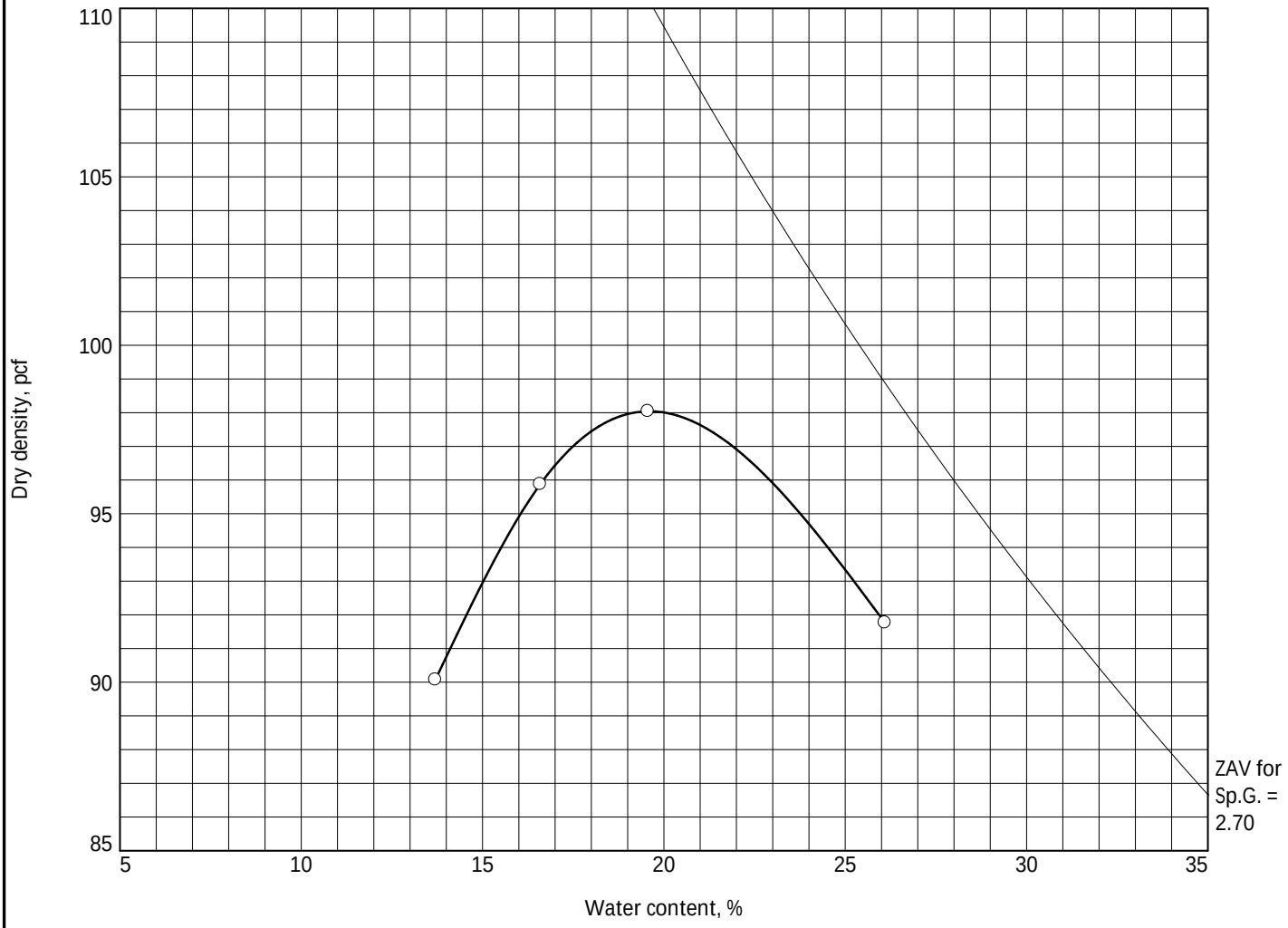
Greenville, SC

Remarks:

Figure

Tested By: CB Checked By: DM

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	ML	A-4(2)	19.6		32	5	1.7	57.6

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 98.0 pcf Optimum moisture = 19.6 %	Tan brown sandy SILT

Project No. 24201-03 Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Date: 12-10-2024

○ Source of Sample: TP Sample Number: TP-6B

Bunnell Lammons Engineering, Inc.

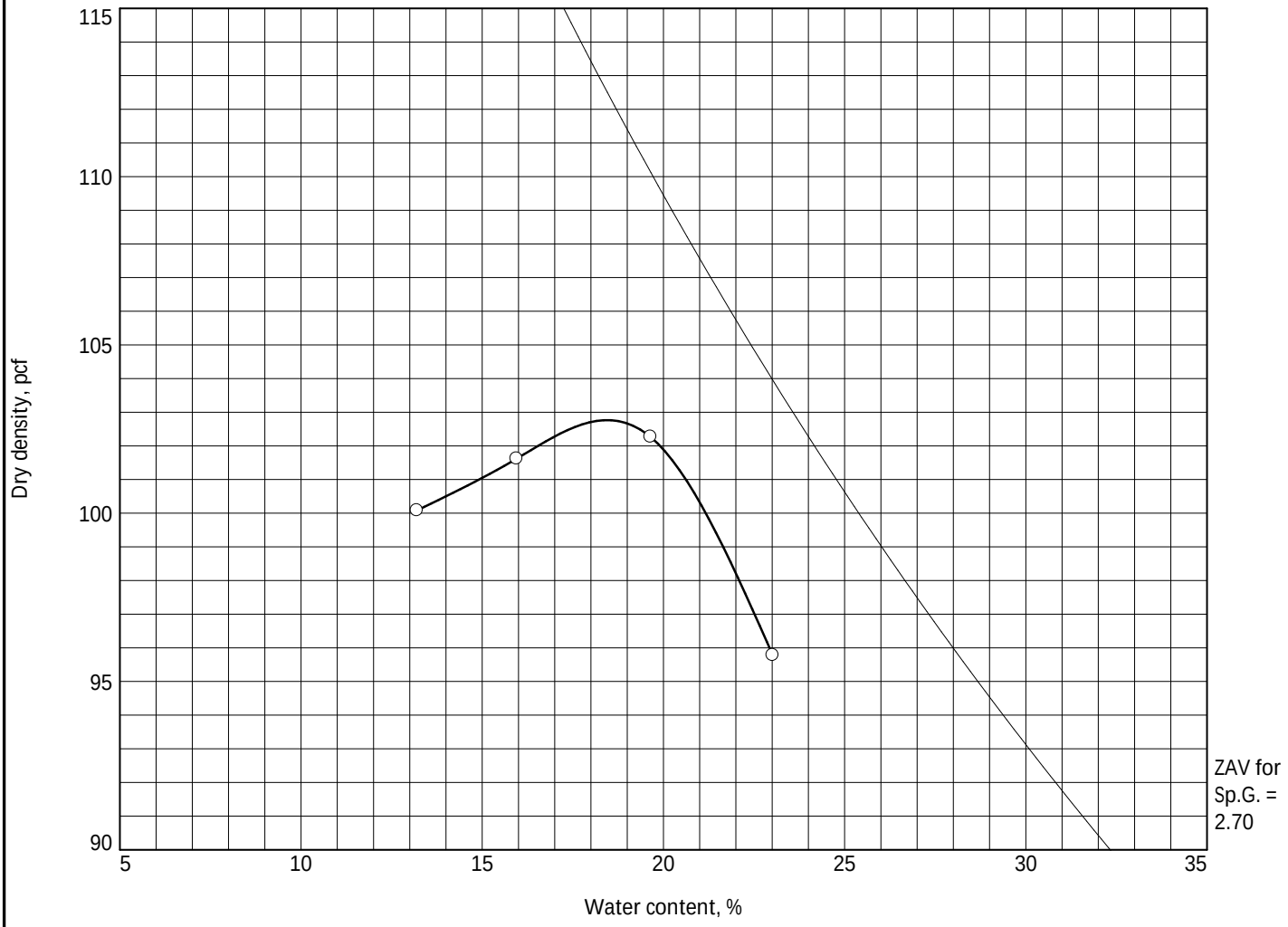
Greenville, SC

Remarks:

Figure

Tested By: MW Checked By: DM

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	ML	A-4(0)	16.6		29	1	0.1	57.9

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 102.8 pcf Optimum moisture = 18.5 %	Tan brown sandy SILT

Project No. 24201-03 Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Date: 12-10-2024

○ Source of Sample: TP Sample Number: TP-7

Bunnell Lammons Engineering, Inc.

Greenville, SC

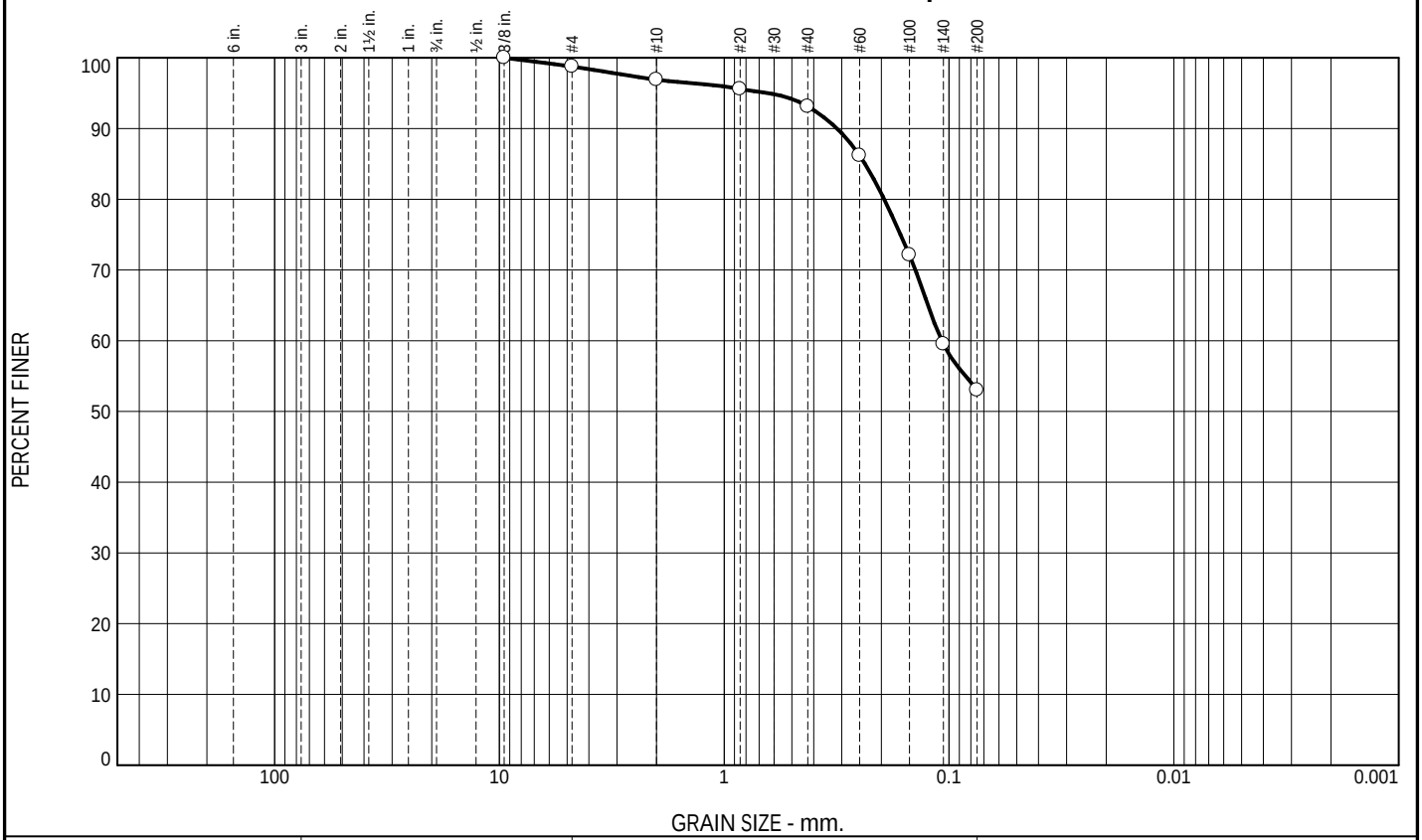
Remarks:

Figure

Tested By: MW Checked By: DM

PARTILCLE SIZE DISTRIBUTION TEST REPORTS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.9	3.8	40.1	53.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	98.8		
#10	96.9		
#20	95.6		
#40	93.1		
#60	86.2		
#100	72.1		
#140	59.5		
#200	53.0		

* (no specification provided)

Soil Description

Light tan sandy silty CLAY

Atterberg Limits

PL= 19 LL= 23 PI= 4

Coefficients

D_{90}= 0.3149 D_{85}= 0.2365 D_{60}= 0.1078
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(0)

Remarks

Source of Sample: TP
Sample Number: TP-1

Date:

Bunnell Lammons Engineering, Inc.

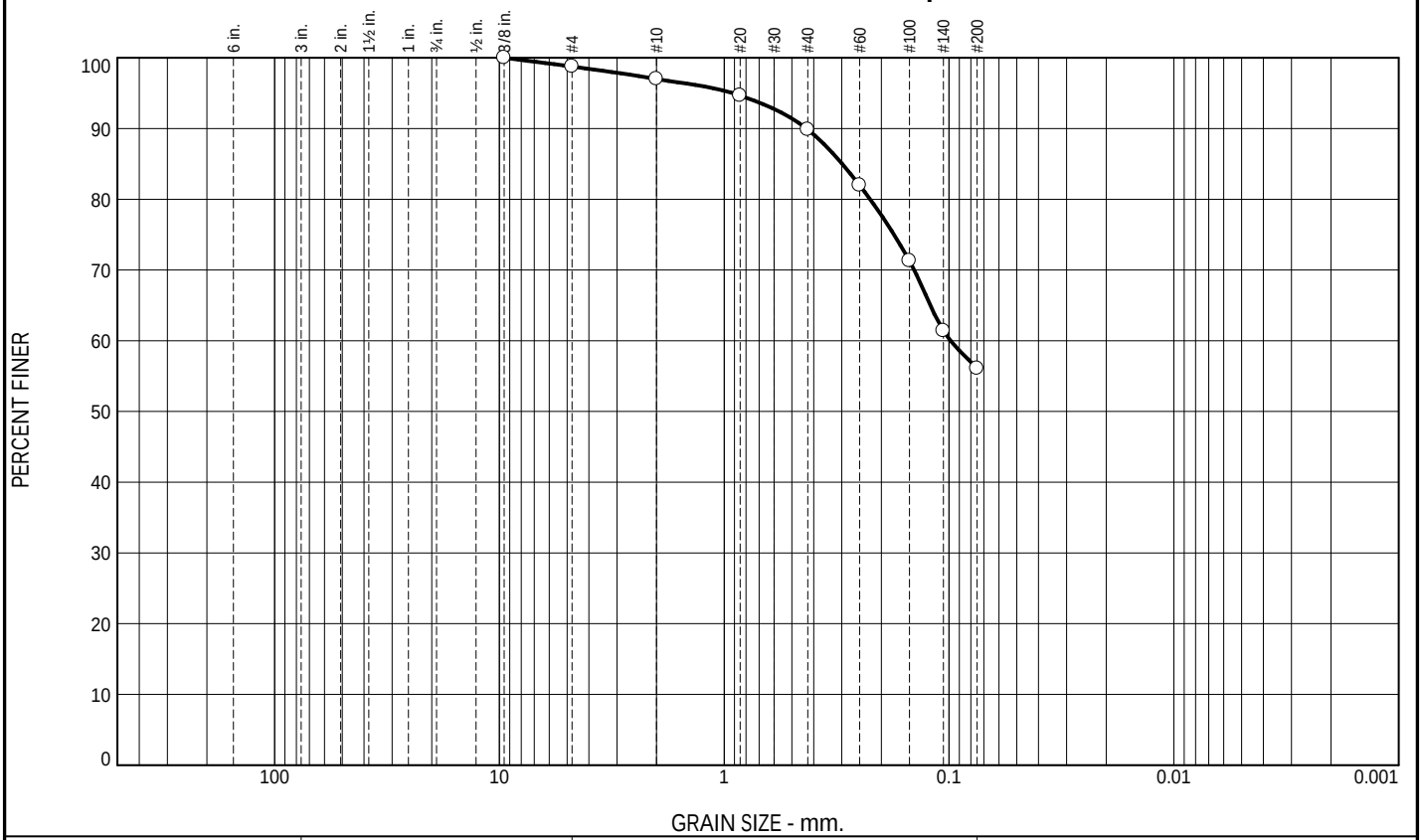
Greenville, SC

Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No: 24201-03 Figure

Tested By: MW Checked By: ML

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.8	7.1	33.8	56.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	98.8		
#10	97.0		
#20	94.7		
#40	89.9		
#60	82.0		
#100	71.3		
#140	61.4		
#200	56.1		

* (no specification provided)

Soil Description

Light brown sandy SILT

Atterberg Limits

PL= 28 LL= 29 PI= 1

Coefficients

D_{90}= 0.4309 D_{85}= 0.2985 D_{60}= 0.0986
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Source of Sample: TP
Sample Number: TP-2

Date:

Bunnell Lammons Engineering, Inc.

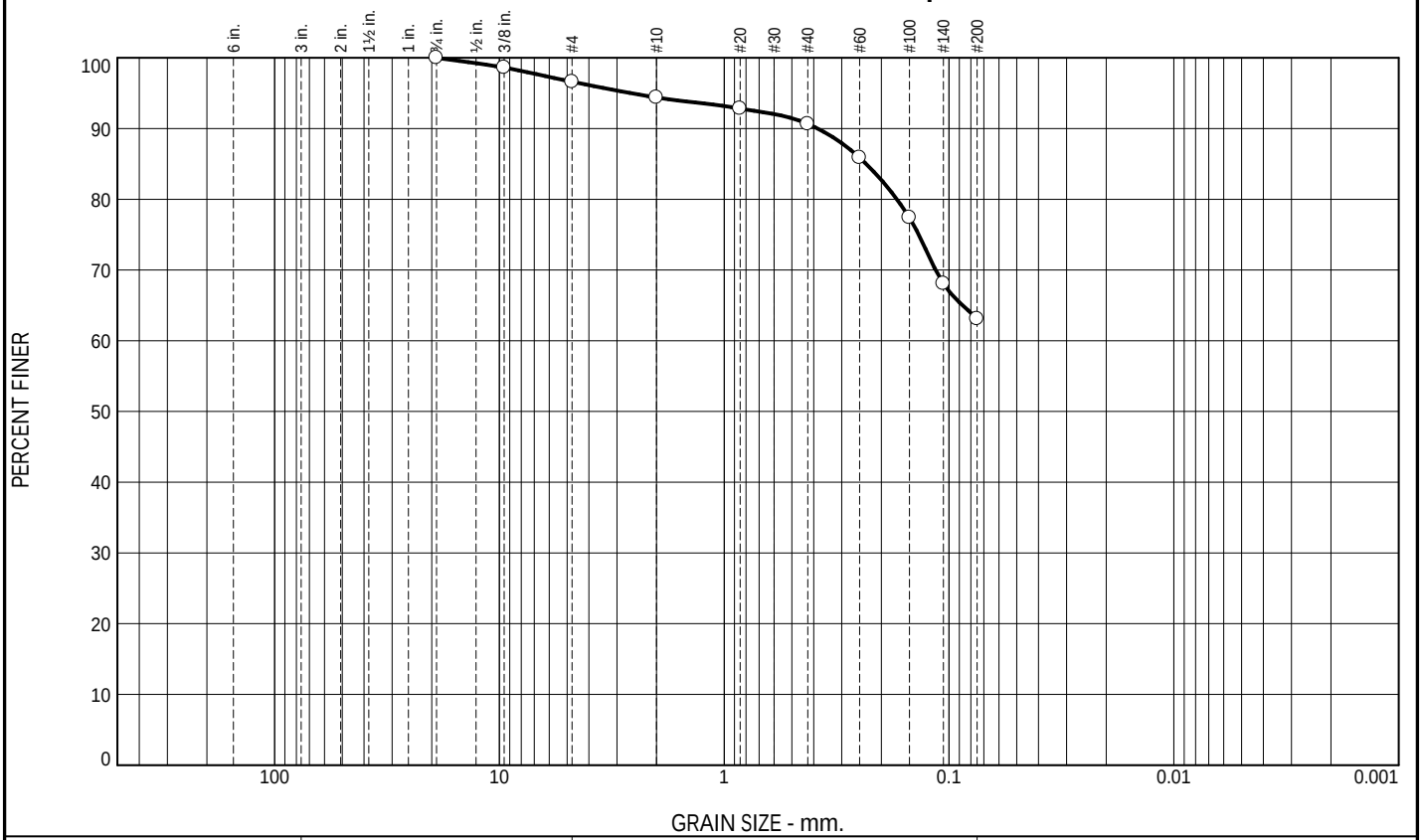
Greenville, SC

Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No: 24201-03 Figure

Tested By: LM Checked By: ML

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.4	2.2	3.8	27.5	63.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	98.6		
#4	96.6		
#10	94.4		
#20	92.8		
#40	90.6		
#60	85.9		
#100	77.4		
#140	68.1		
#200	63.1		

* (no specification provided)

Soil Description

Tan brown sandy SILT

Atterberg Limits

PL= 23 LL= 28 PI= 5

Coefficients

D_{90}= 0.3846 D_{85}= 0.2338 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(2)

Remarks

Source of Sample: TP
Sample Number: TP-3A

Date:

Bunnell Lammons Engineering, Inc.

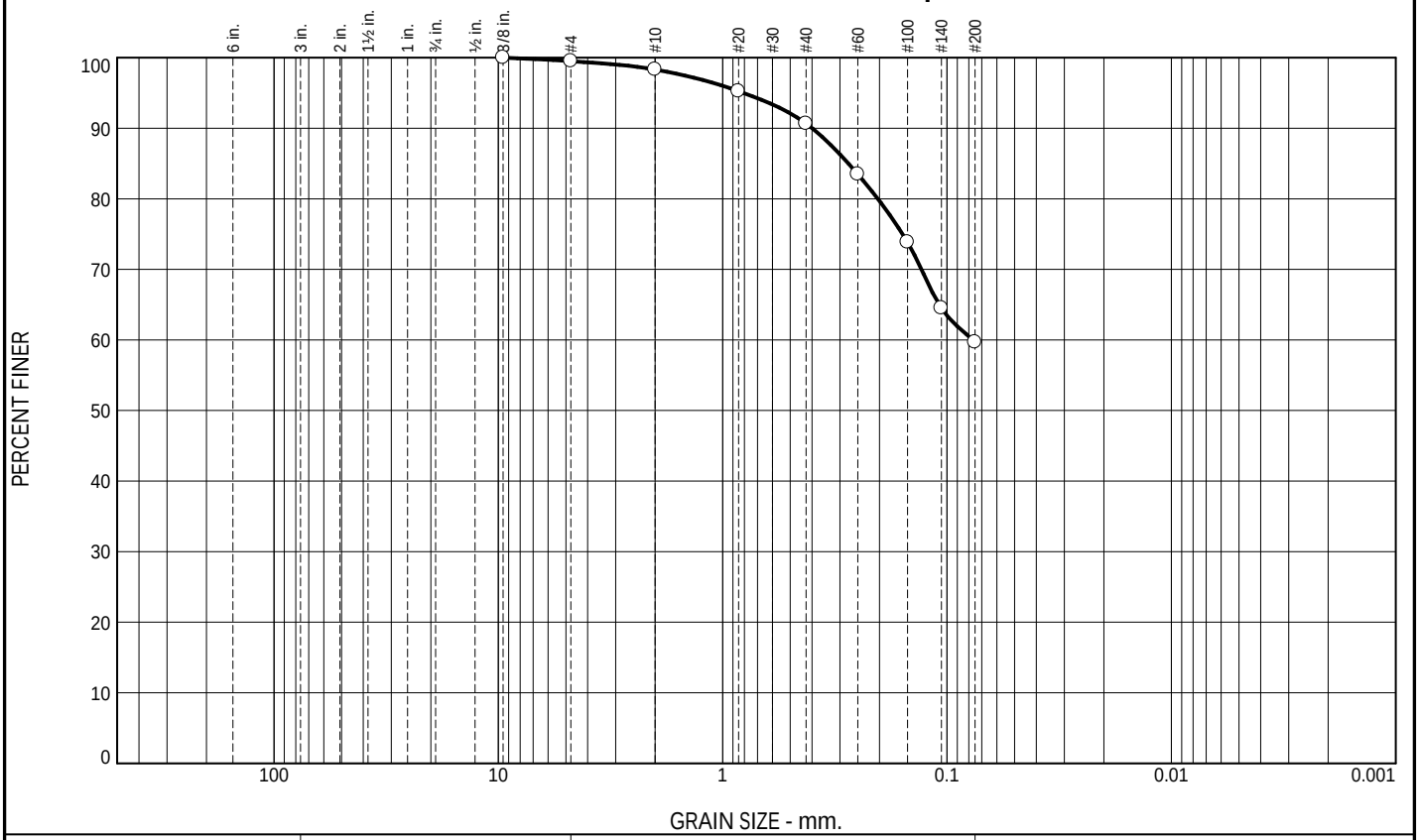
Greenville, SC

Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No: 24201-03 Figure

Tested By: LM Checked By: ML

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.2	7.6	31.0	59.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.5		
#10	98.3		
#20	95.2		
#40	90.7		
#60	83.5		
#100	73.9		
#140	64.5		
#200	59.7		

* (no specification provided)

Soil Description

Light brown sandy SILT

Atterberg Limits

PL= 23 LL= 25 PI= 2

Coefficients

D_{90}= 0.3995 D_{85}= 0.2751 D_{60}= 0.0769
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Source of Sample: TP
Sample Number: TP-3B

Date:

Bunnell Lammons Engineering, Inc.

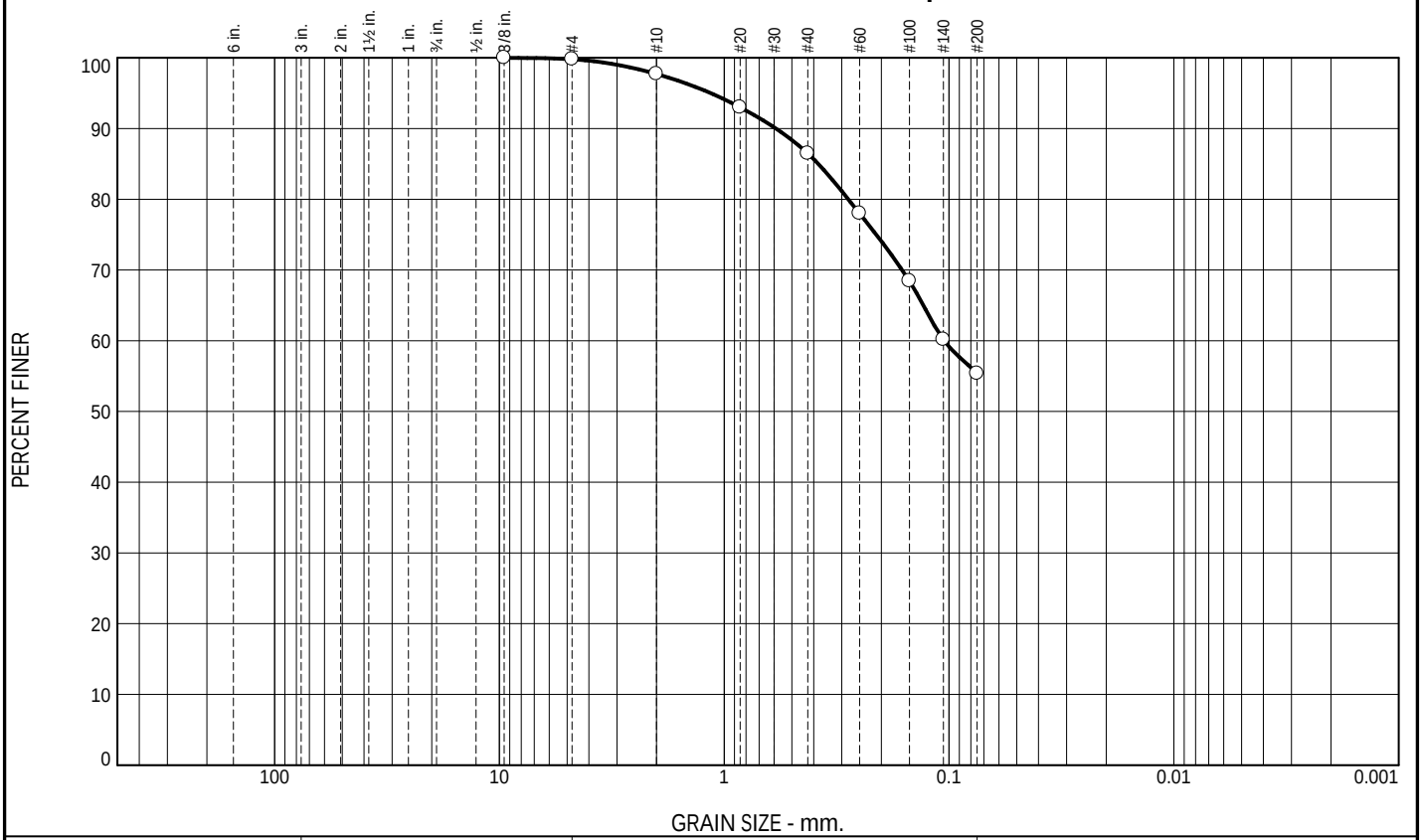
Greenville, SC

Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No: 24201-03 Figure

Tested By: LM Checked By: ML

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	2.1	11.2	31.1	55.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.8		
#10	97.7		
#20	93.0		
#40	86.5		
#60	78.0		
#100	68.4		
#140	60.2		
#200	55.4		

* (no specification provided)

Soil Description

Light tan sandy SILT

Atterberg Limits

PL= 27 LL= 26 PI= NP

Coefficients

D_{90}= 0.5886 D_{85}= 0.3816 D_{60}= 0.1051
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Source of Sample: TP
Sample Number: TP-3C

Date:

Bunnell Lammons Engineering, Inc.

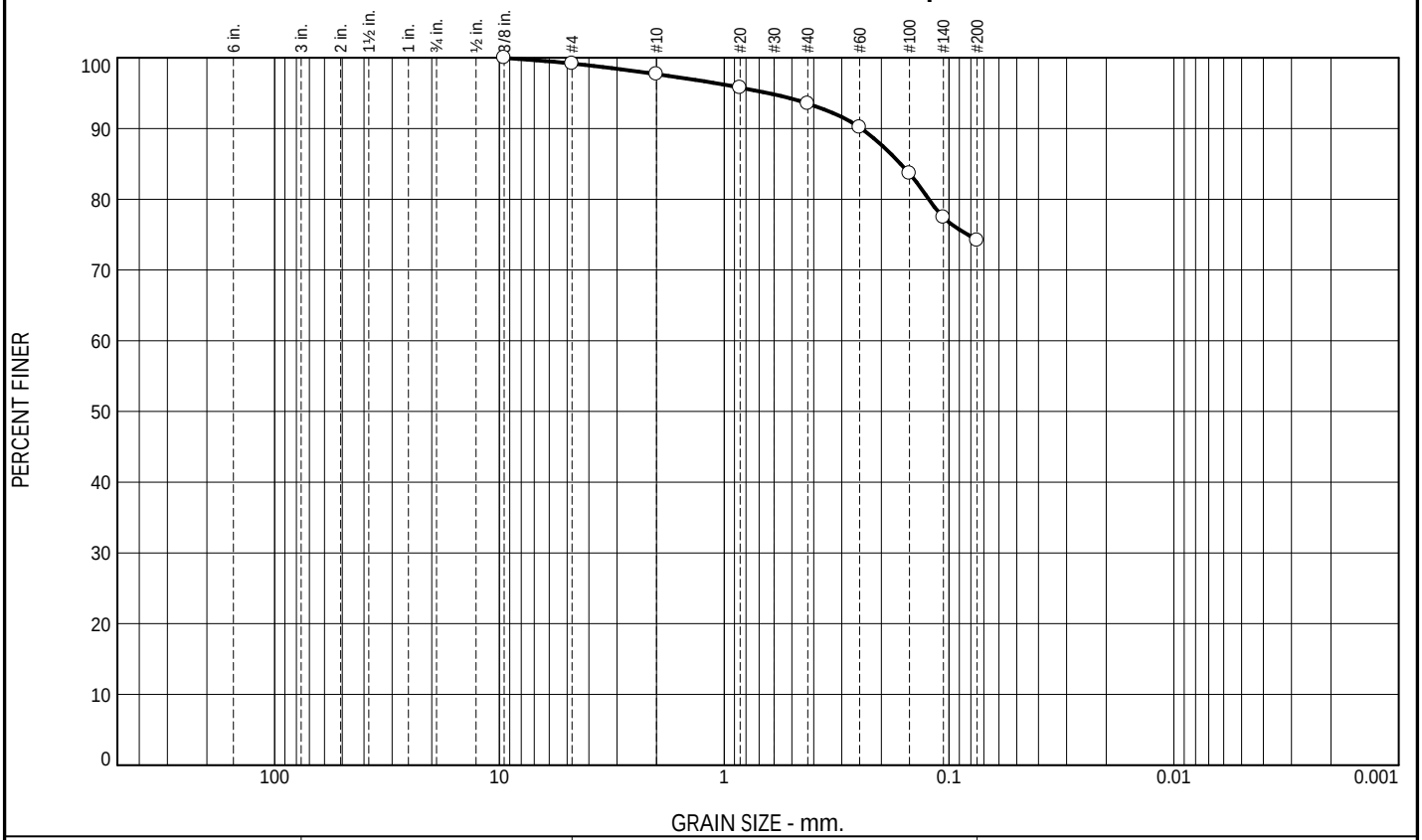
Greenville, SC

Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No: 24201-03 Figure

Tested By: LM Checked By: ML

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.5	4.2	19.3	74.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.2		
#10	97.7		
#20	95.8		
#40	93.5		
#60	90.2		
#100	83.7		
#140	77.4		
#200	74.2		

* (no specification provided)

Soil Description

Light reddish brown SILT with sand

Atterberg Limits

PL= 29 LL= 30 PI= 1

Coefficients

D_{90}= 0.2457 D_{85}= 0.1641 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(1)

Remarks

Source of Sample: TP
Sample Number: TP-4

Date:

Bunnell Lammons Engineering, Inc.

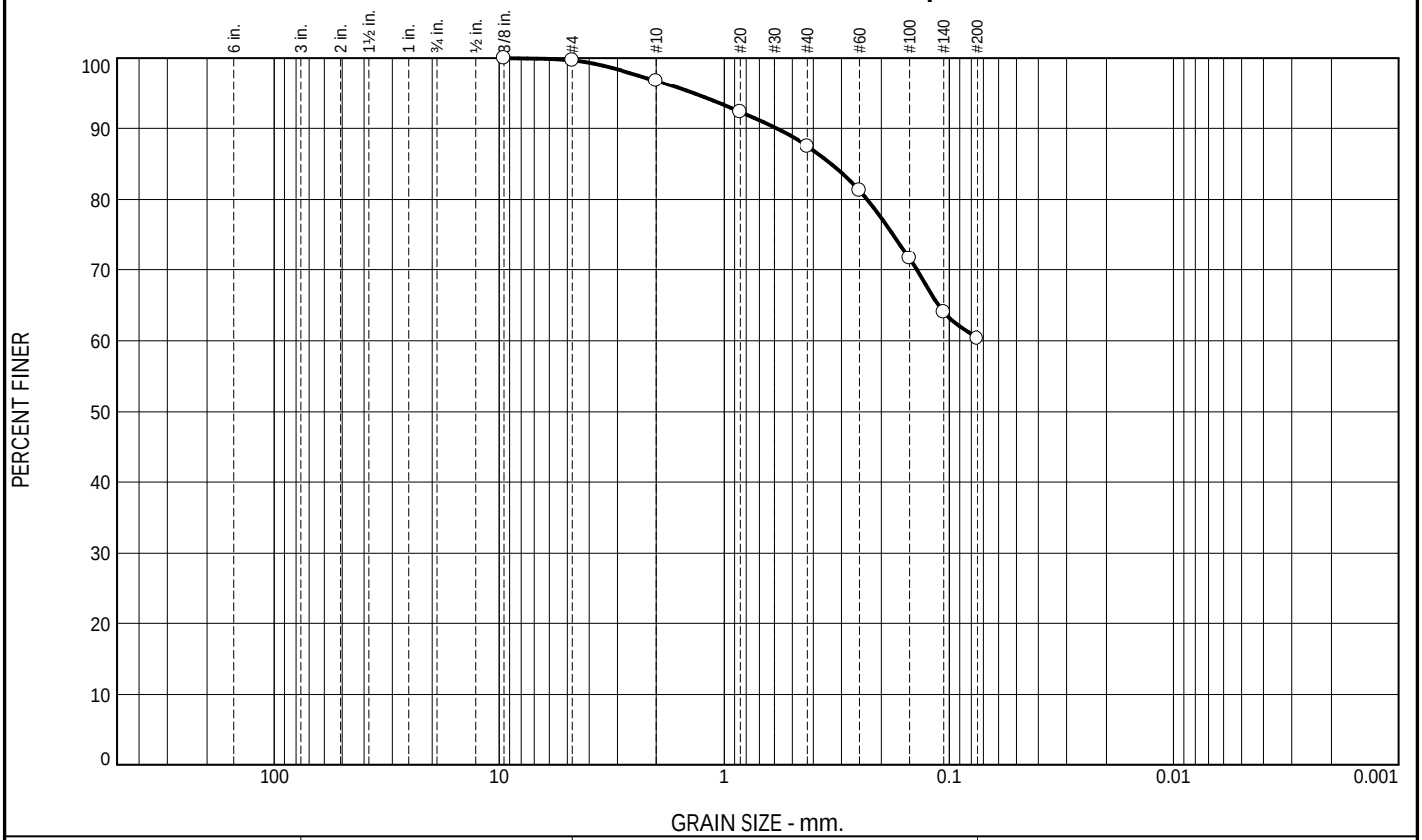
Greenville, SC

Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No: 24201-03 Figure

Tested By: LM Checked By: ML

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	3.0	9.2	27.2	60.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.7		
#10	96.7		
#20	92.3		
#40	87.5		
#60	81.3		
#100	71.6		
#140	64.0		
#200	60.3		

* (no specification provided)

Soil Description

Tan brown sandy SILT

Atterberg Limits

PL= 23 LL= 28 PI= 5

Coefficients

D_{90}= 0.5869 D_{85}= 0.3334 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(1)

Remarks

Source of Sample: TP
Sample Number: TP-5

Date:

Bunnell Lammons Engineering, Inc.

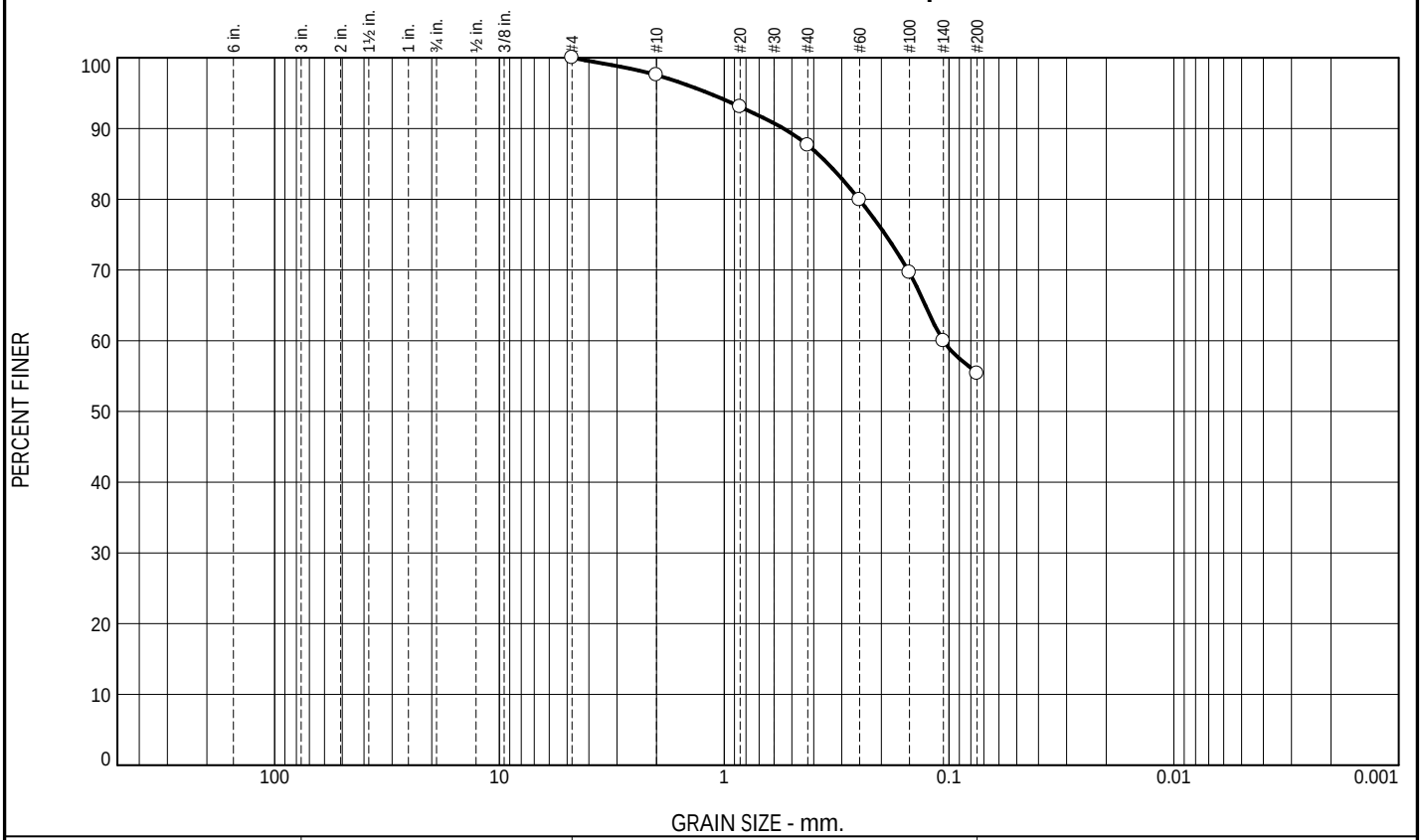
Greenville, SC

Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No: 24201-03 Figure

Tested By: LM Checked By: ML

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.4	10.0	32.2	55.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.6		
#20	93.1		
#40	87.6		
#60	79.9		
#100	69.6		
#140	60.0		
#200	55.4		

* (no specification provided)

Soil Description

Light brown sandy SILT

Atterberg Limits

PL= NP LL= 32 PI= NP

Coefficients

D_{90}= 0.5443 D_{85}= 0.3450 D_{60}= 0.1061
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Source of Sample: TP
Sample Number: TP-6A

Date:

Bunnell Lammons Engineering, Inc.

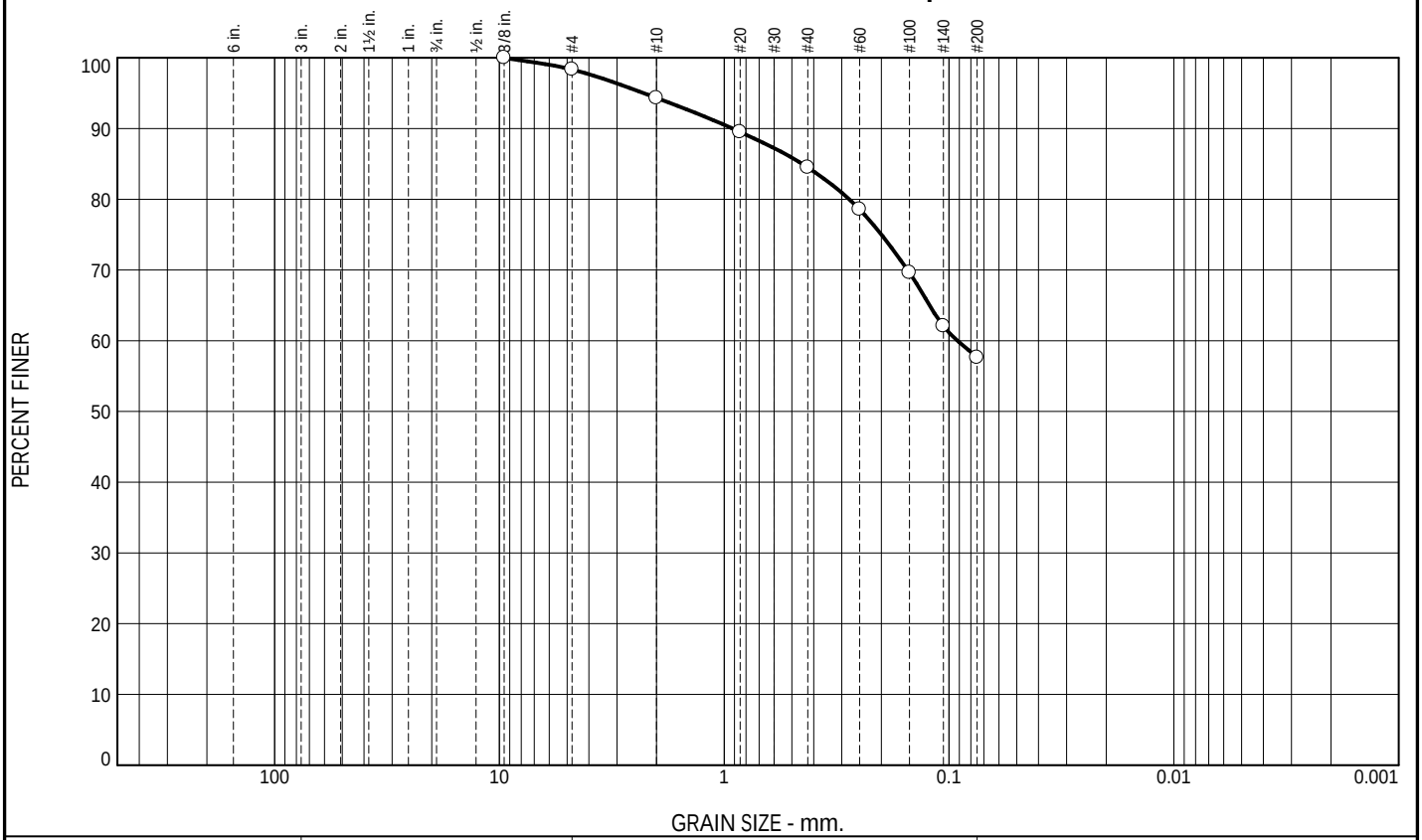
Greenville, SC

Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No: 24201-03 Figure

Tested By: MW Checked By: ML

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	4.0	9.8	26.9	57.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	98.3		
#10	94.3		
#20	89.5		
#40	84.5		
#60	78.6		
#100	69.6		
#140	62.1		
#200	57.6		

* (no specification provided)

Soil Description

Tan brown sandy SILT

Atterberg Limits

PL= 27 LL= 32 PI= 5

Coefficients

D_{90}= 0.9185 D_{85}= 0.4497 D_{60}= 0.0918
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(2)

Remarks

Source of Sample: TP
Sample Number: TP-6B

Date:

Bunnell Lammons Engineering, Inc.

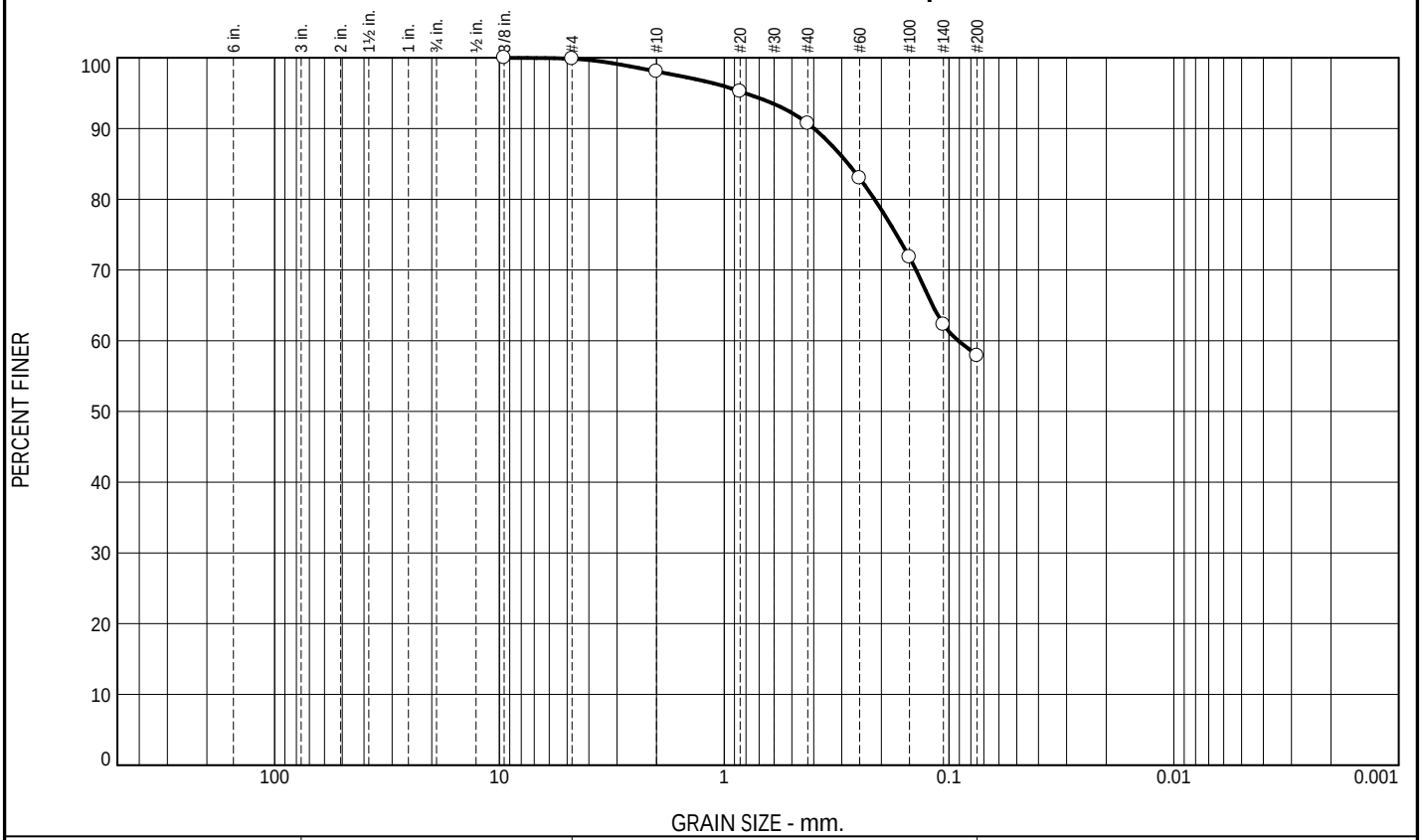
Greenville, SC

Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No: 24201-03 Figure

Tested By: LM Checked By: ML

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	1.8	7.4	32.8	57.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.9		
#10	98.1		
#20	95.3		
#40	90.7		
#60	83.0		
#100	71.8		
#140	62.3		
#200	57.9		

* (no specification provided)

Soil Description

Tan brown sandy SILT

Atterberg Limits

PL= 28 LL= 29 PI= 1

Coefficients

D_{90}= 0.3983 D_{85}= 0.2807 D_{60}= 0.0911
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Source of Sample: TP
Sample Number: TP-7

Date:

Bunnell Lammons Engineering, Inc.

Greenville, SC

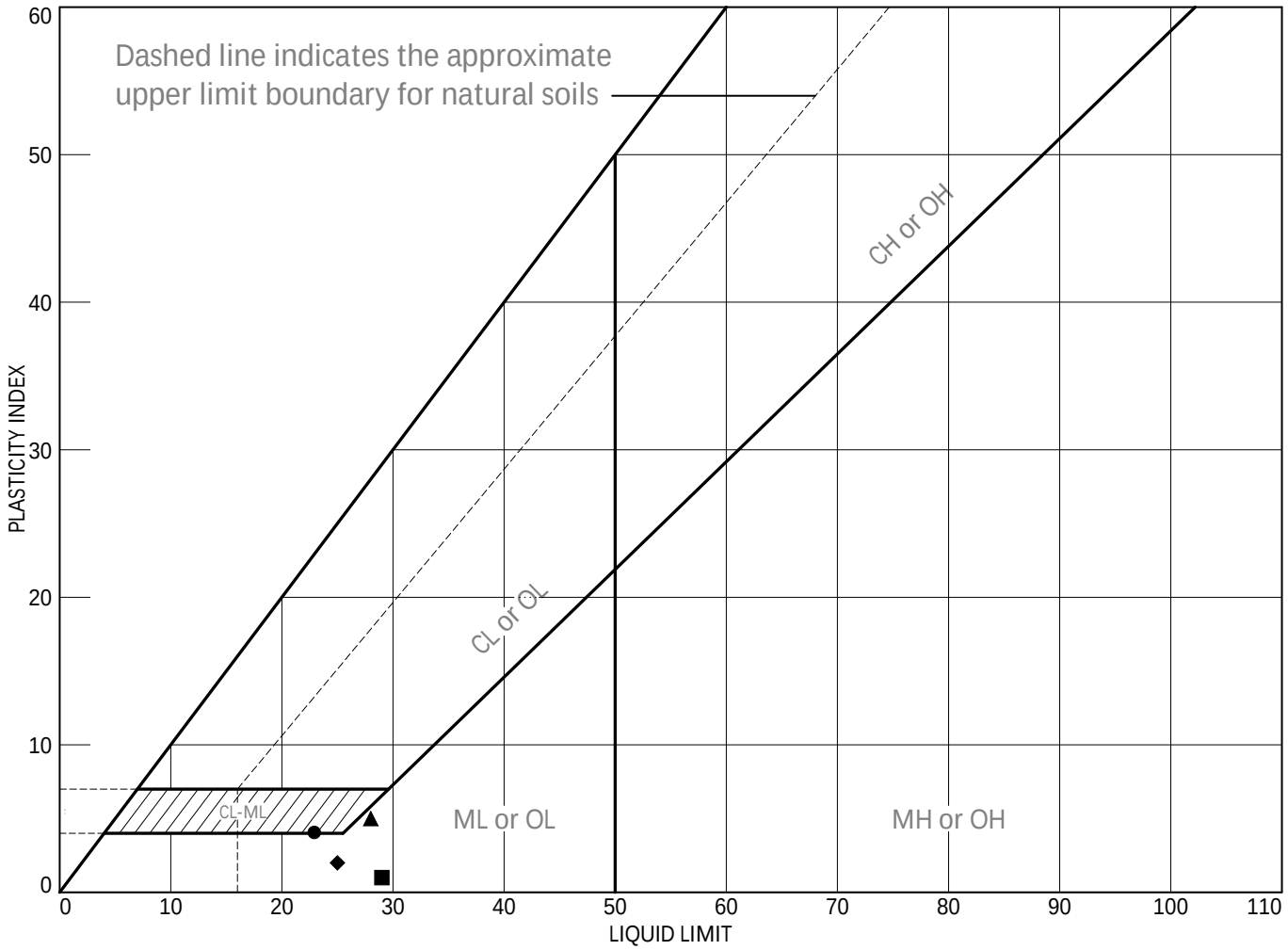
Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No: 24201-03 Figure

Tested By: LM Checked By: ML

ATTERBERG LIMITS TEST REPORTS

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP	TP-1		20.0	19	23	4	CL-ML
■	TP	TP-2		16.7	28	29	1	ML
▲	TP	TP-3A		22.3	23	28	5	ML
◆	TP	TP-3B		21.4	23	25	2	ML
▼	TP	TP-3C		19.1	27	26	NP	ML

Bunnell Lammons Engineering, Inc.

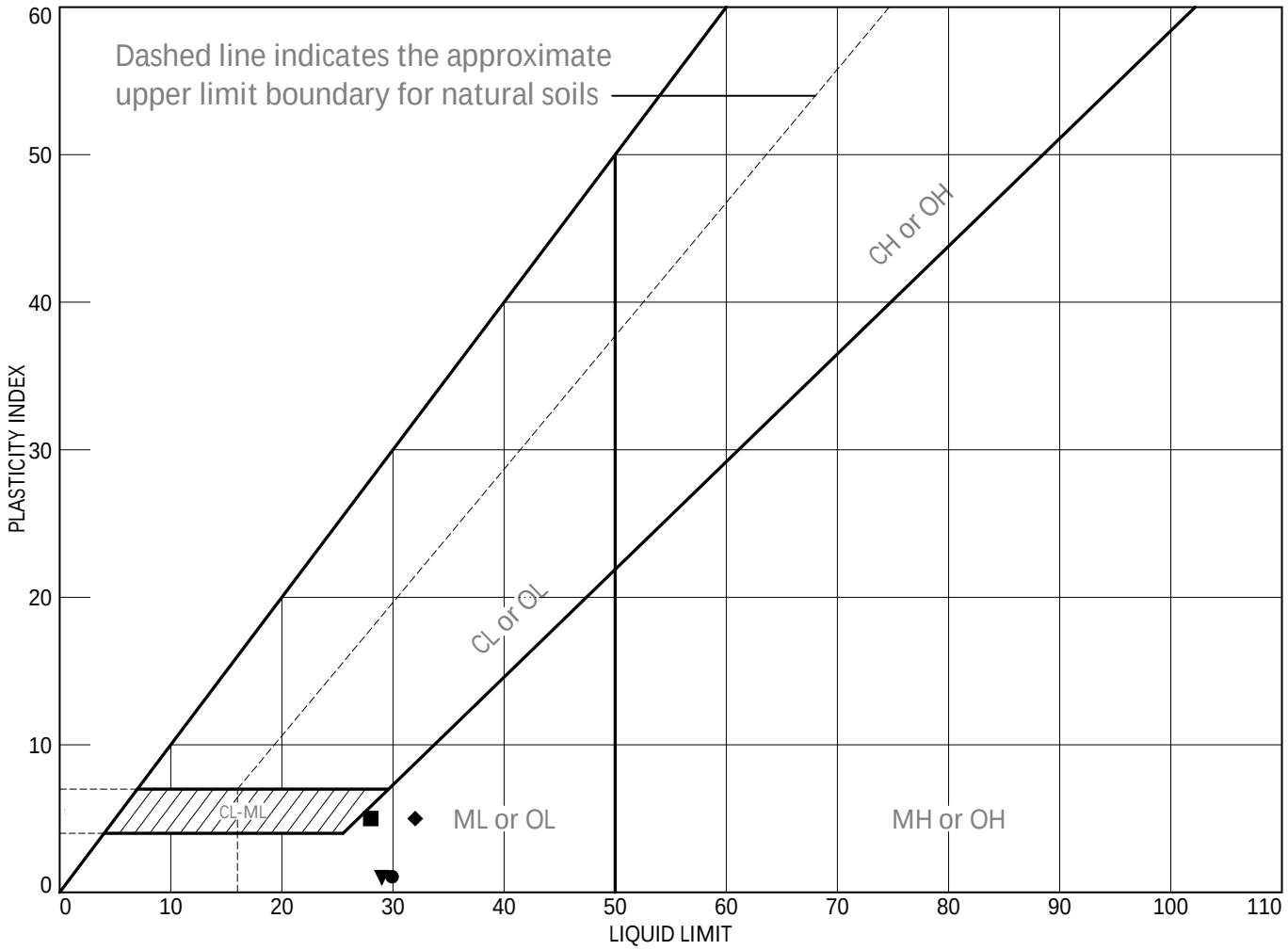
Greenville, SC

Client: Transylvania County Solid Waste
Project: Woodruff County Landfill

Project No.: 24201-03 Figure

Tested By: JM Checked By: ML

LIQUID AND PLASTIC LIMITS TEST REPORT

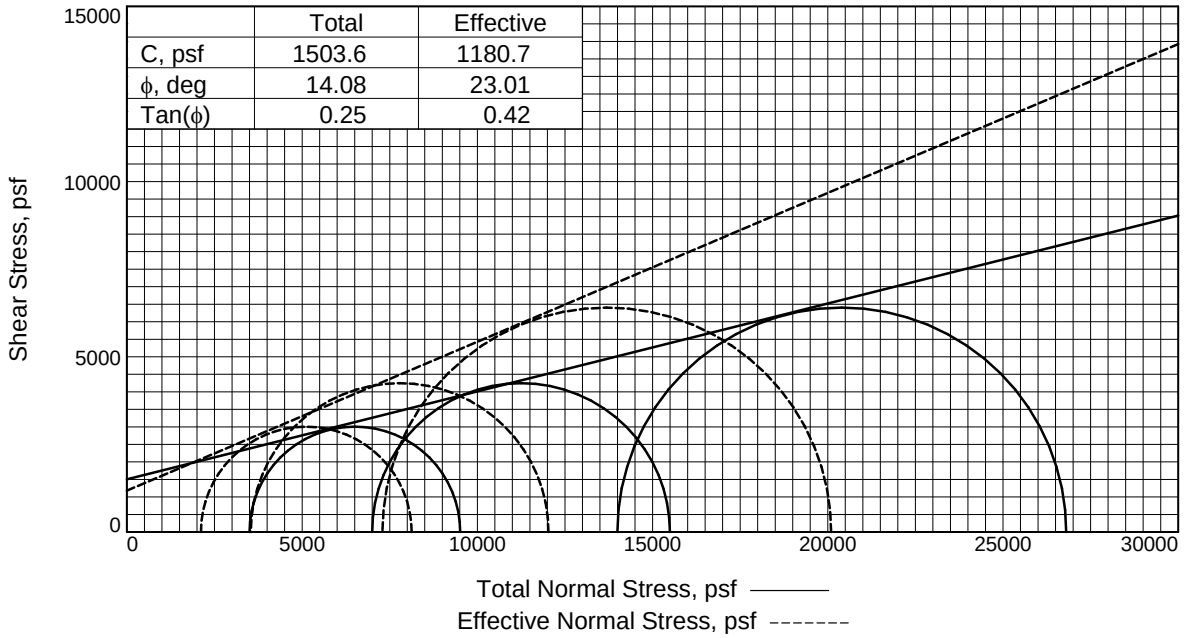


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP	TP-4		26.9	29	30	1	ML
■	TP	TP-5		20.9	23	28	5	ML
▲	TP	TP-6A		16.6	NP	32	NP	ML
◆	TP	TP-6B		19.6	27	32	5	ML
▼	TP	TP-7		16.6	28	29	1	ML

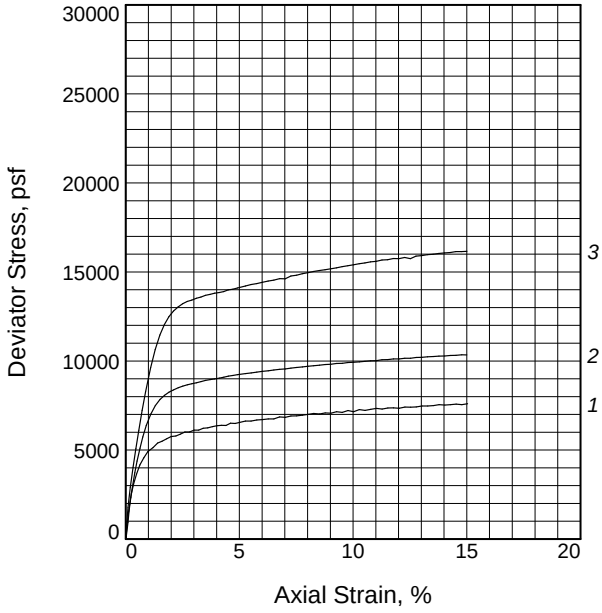
Bunnell Lammons Engineering, Inc. Greenville, SC	Client: Transylvania County Solid Waste Project: Woodruff County Landfill Project No.: 24201-03 Figure

Tested By: JM Checked By: ML

TRIAXIAL SHEAR TEST REPORTS - REMOLDED SAMPLES



	Total	Effective
C, psf	1503.6	1180.7
ϕ, deg	14.08	23.01
Tan(ϕ)	0.25	0.42



Sample No.		1	2	3
Initial	Water Content, %	15.3	15.3	15.3
	Dry Density, pcf	109.2	109.2	109.7
	Saturation, %	75.9	75.9	76.9
	Void Ratio	0.5432	0.5432	0.5360
	Diameter, in.	2.865	2.865	2.865
	Height, in.	6.000	6.000	6.000
At Test	Water Content, %	18.0	17.6	16.4
	Dry Density, pcf	110.8	112.3	114.6
	Saturation, %	93.4	94.7	93.9
	Void Ratio	0.5209	0.5007	0.4703
	Diameter, in.	2.852	2.840	2.822
	Height, in.	5.966	5.940	5.920
Strain rate, %/min.		0.08	0.08	0.08
Eff. Cell Pressure, psi		24.300	48.600	97.200
Fail. Stress, psf		6011.7	8495.7	12806.4
Excess Pore Pr., psf		1387.0	3463.2	6706.0
Strain, %		2.6	2.3	2.1
Ult. Stress, psf		7600.9	10339.7	16161.9
Excess Pore Pr., psf		767.2	3262.4	8138.2
Strain, %		15.0	15.0	15.0
$\bar{\sigma}_1$ Failure, psf		8123.9	12030.9	20097.2
$\bar{\sigma}_3$ Failure, psf		2112.2	3535.2	7290.8

Type of Test:
CU with Pore Pressures

Sample Type: Remolded

Description: Light tan sandy silty CLAY

LL= 23 **PL=** 19 **PI=** 4

Assumed Specific Gravity= 2.7

Remarks:

Figure _____

Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

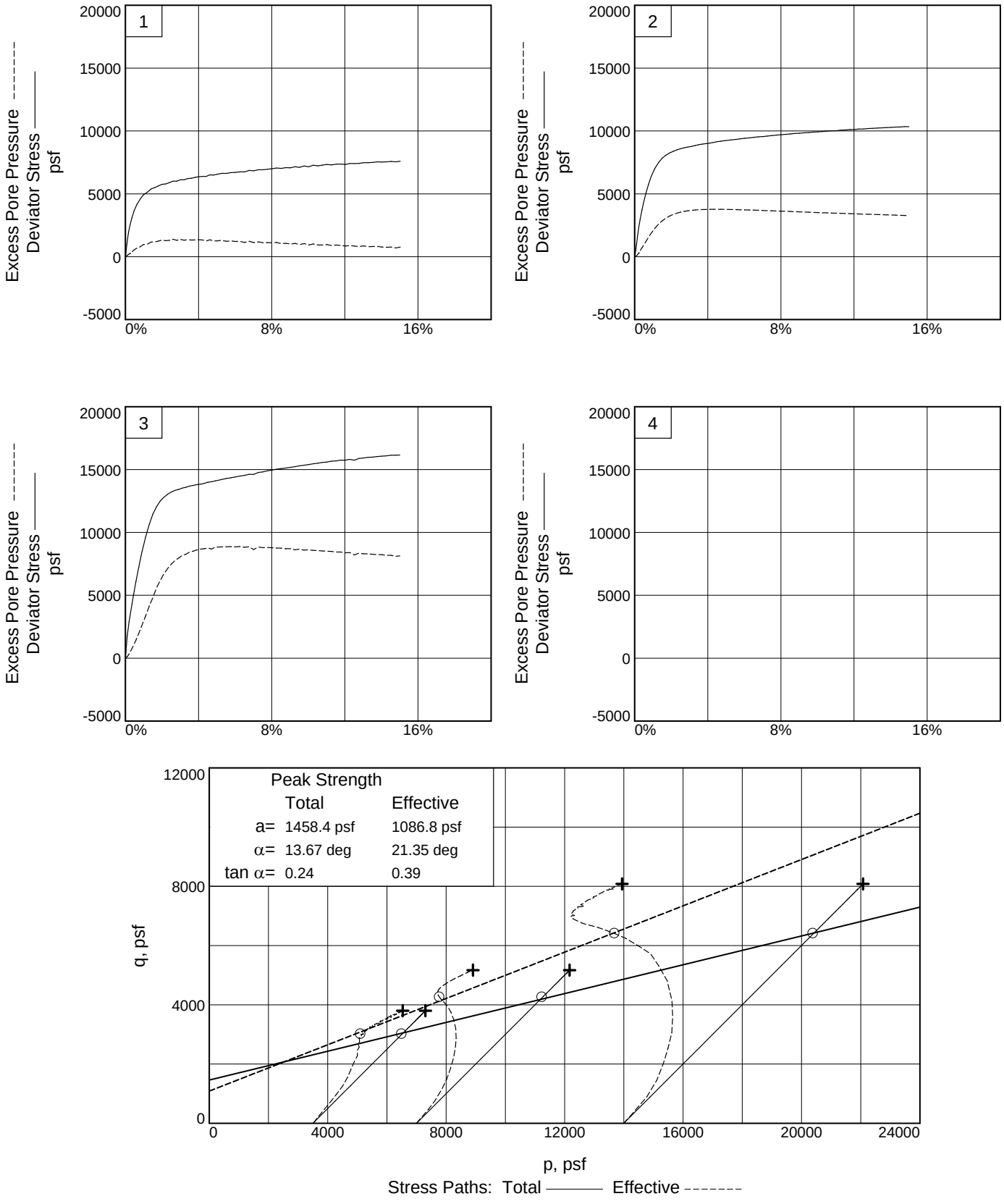
Source of Sample: TP

Sample Number: TP-1

Proj. No.: 24201-03 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

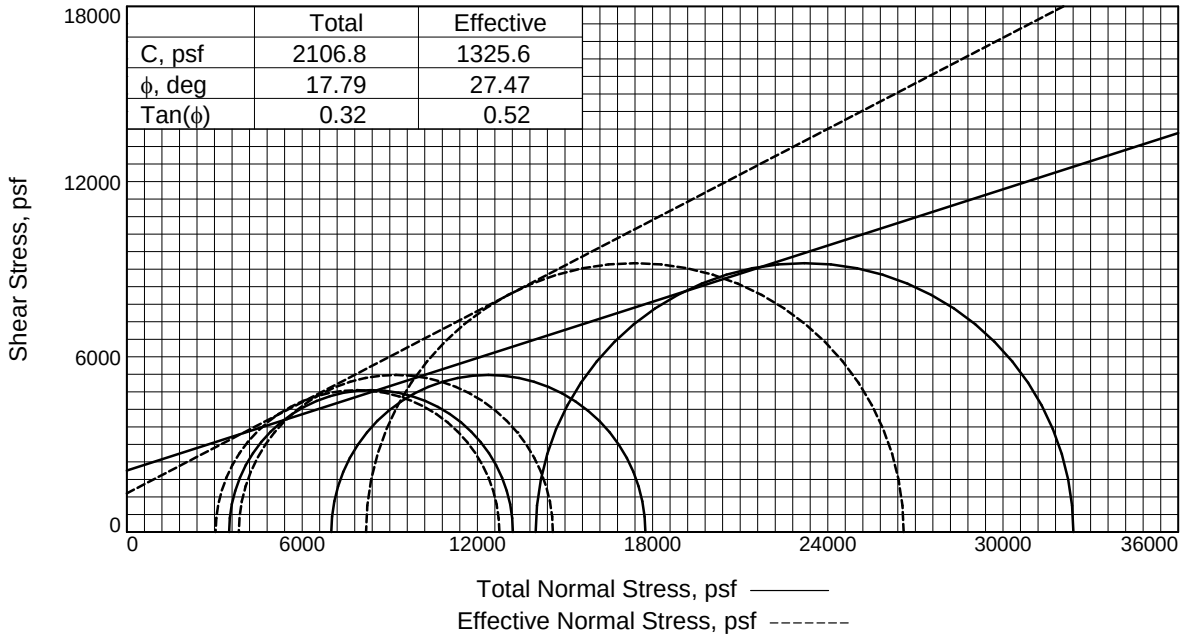
Tested By: JM **Checked By:** ML



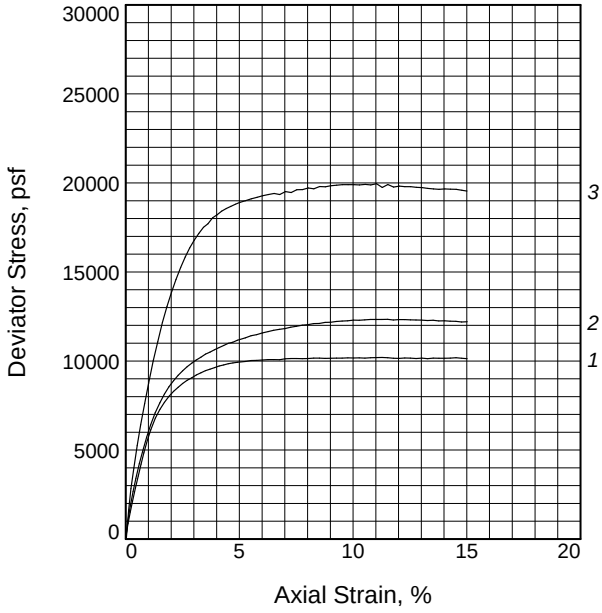
Client: Transylvania County Solid Waste
Project: Woodruff County Landfill
Source of Sample: TP **Sample Number:** TP-1
Project No.: 24201-03 **Figure** _____

Bunnell Lammons Engineering, Inc.

Tested By: JM **Checked By:** ML



	Total	Effective
C, psf	2106.8	1325.6
ϕ, deg	17.79	27.47
Tan(ϕ)	0.32	0.52



Sample No.		1	2	3
Initial	Water Content, %	18.2	18.2	18.2
	Dry Density, pcf	98.8	98.8	98.8
	Saturation, %	69.5	69.5	69.5
	Void Ratio	0.7054	0.7054	0.7054
	Diameter, in.	2.865	2.865	2.865
	Height, in.	6.000	6.000	6.000
At Test	Water Content, %	23.3	23.1	22.5
	Dry Density, pcf	100.9	101.9	103.4
	Saturation, %	94.0	95.3	96.3
	Void Ratio	0.6702	0.6545	0.6303
	Diameter, in.	2.845	2.838	2.820
	Height, in.	5.958	5.932	5.920
Strain rate, %/min.		0.08	0.08	0.08
Eff. Cell Pressure, psi		24.300	48.600	97.200
Fail. Stress, psf		9717.1	10755.8	18413.5
Excess Pore Pr., psf		463.0	3166.2	5809.6
Strain, %		4.1	4.1	4.2
Ult. Stress, psf		10129.7	12202.7	19545.2
Excess Pore Pr., psf		-132.0	2506.4	6725.0
Strain, %		15.0	15.0	15.0
$\bar{\sigma}_1$ Failure, psf		12753.3	14587.9	26600.7
$\bar{\sigma}_3$ Failure, psf		3036.2	3832.2	8187.2

Type of Test:
CU with Pore Pressures

Sample Type: Remolded

Description: Light brown sandy SILT

LL= 29 **PL=** 28 **PI=** 1

Assumed Specific Gravity= 2.7

Remarks:

Figure _____

Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

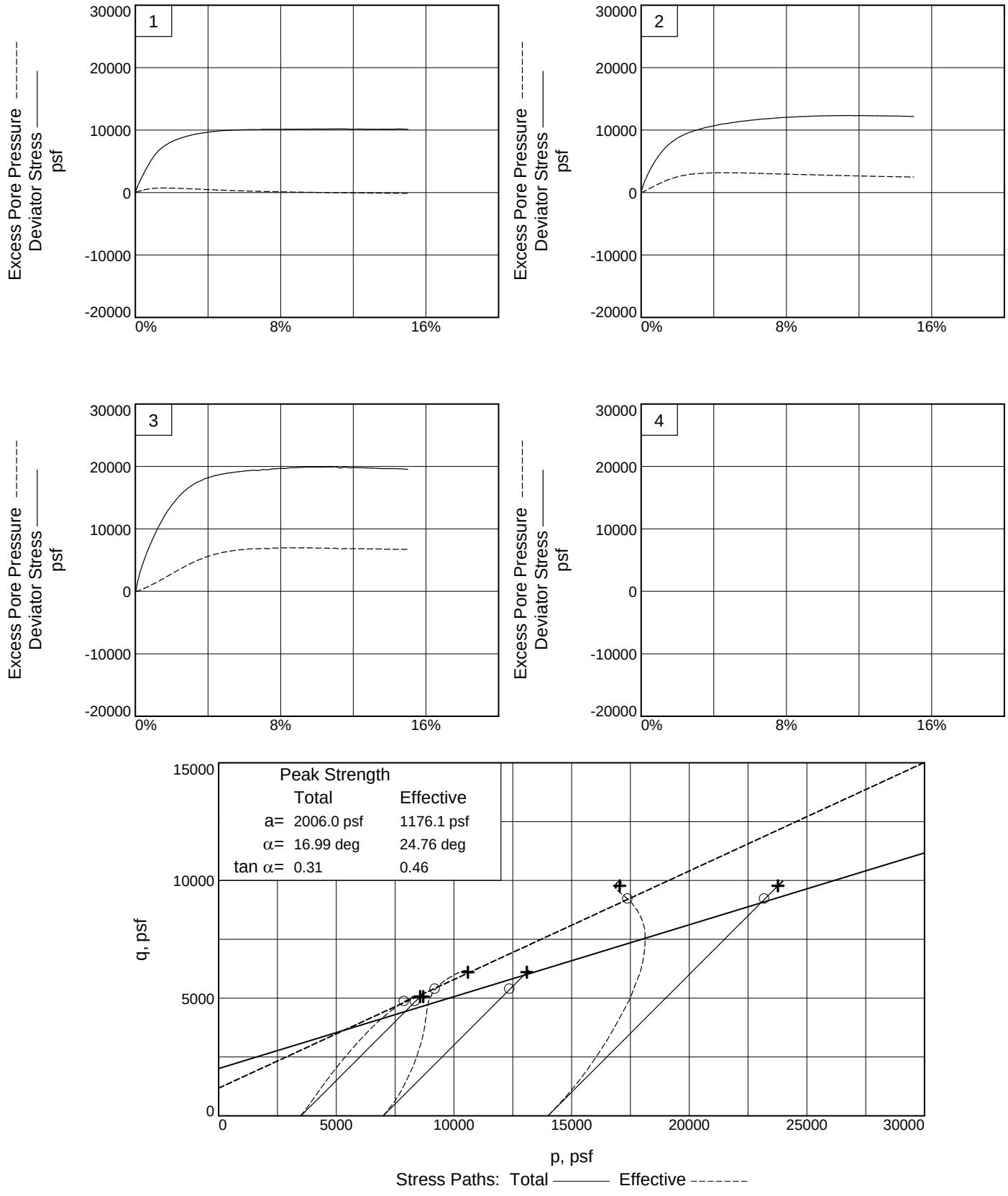
Source of Sample: TP

Sample Number: TP-2

Proj. No.: 24201-03 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

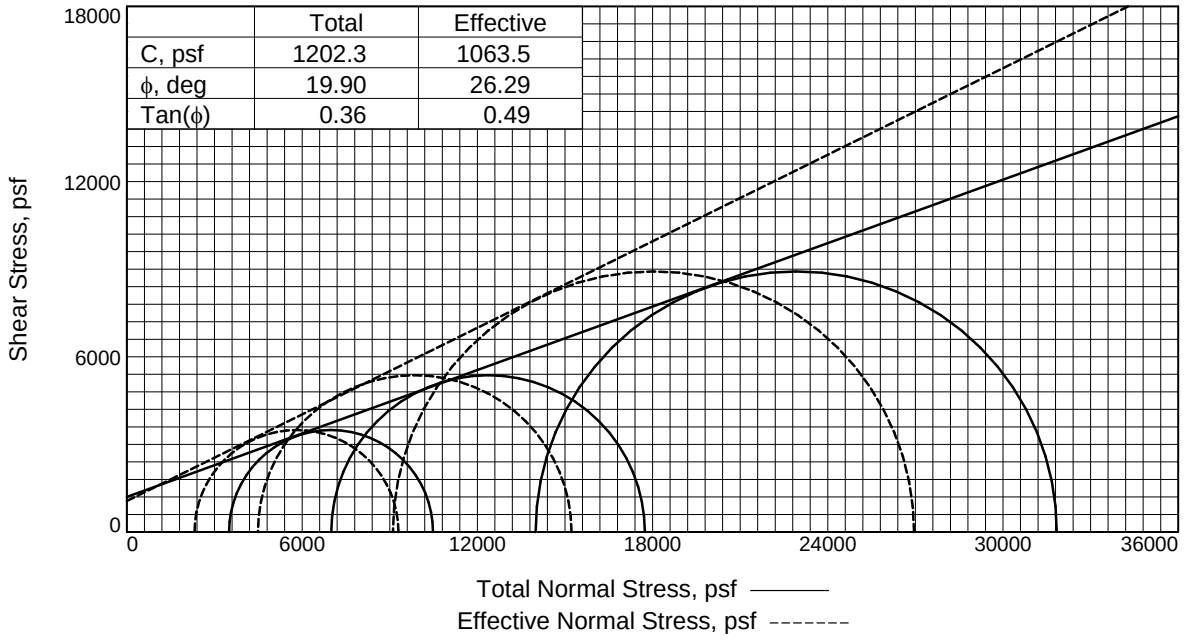
Tested By: JM **Checked By:** ML

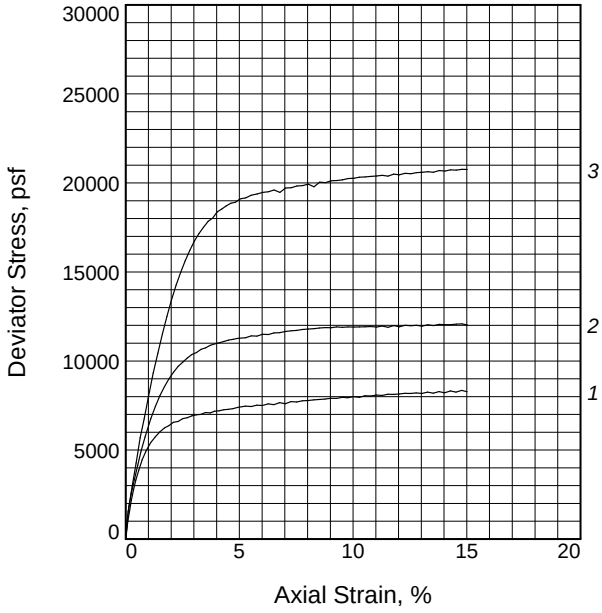


Client: Transylvania County Solid Waste
Project: Woodruff County Landfill
Source of Sample: TP **Sample Number:** TP-2
Project No.: 24201-03 **Figure** _____

Bunnell Lammons Engineering, Inc.

Tested By: JM **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	16.1	16.1	16.1
	Dry Density, pcf	103.6	103.6	103.6
	Saturation, %	69.5	69.5	69.5
	Void Ratio	0.6269	0.6269	0.6269
	Diameter, in.	2.865	2.865	2.865
	Height, in.	6.000	6.000	6.000
At Test	Water Content, %	19.7	19.0	18.0
	Dry Density, pcf	104.8	105.7	107.3
	Saturation, %	87.1	86.3	85.3
	Void Ratio	0.6090	0.5953	0.5712
	Diameter, in.	2.857	2.850	2.830
	Height, in.	5.968	5.945	5.938
Strain rate, %/min.		0.08	0.08	0.08
Eff. Cell Pressure, psi		24.300	48.600	97.200
Fail. Stress, psf		6982.2	10737.4	17844.9
Excess Pore Pr., psf		1183.6	2512.2	4887.2
Strain, %		3.1	3.5	3.6
Ult. Stress, psf		8271.5	12019.2	20755.8
Excess Pore Pr., psf		656.2	2599.5	6457.6
Strain, %		15.0	15.0	15.0
$\bar{\sigma}_1$ Failure, psf		9297.7	15223.6	26954.5
$\bar{\sigma}_3$ Failure, psf		2315.6	4486.2	9109.6

Type of Test:
CU with Pore Pressures

Sample Type: Remolded

Description: Tan brown sandy SILT

LL= 28 **PL=** 23 **PI=** 5

Assumed Specific Gravity= 2.7

Remarks:

Figure _____

Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

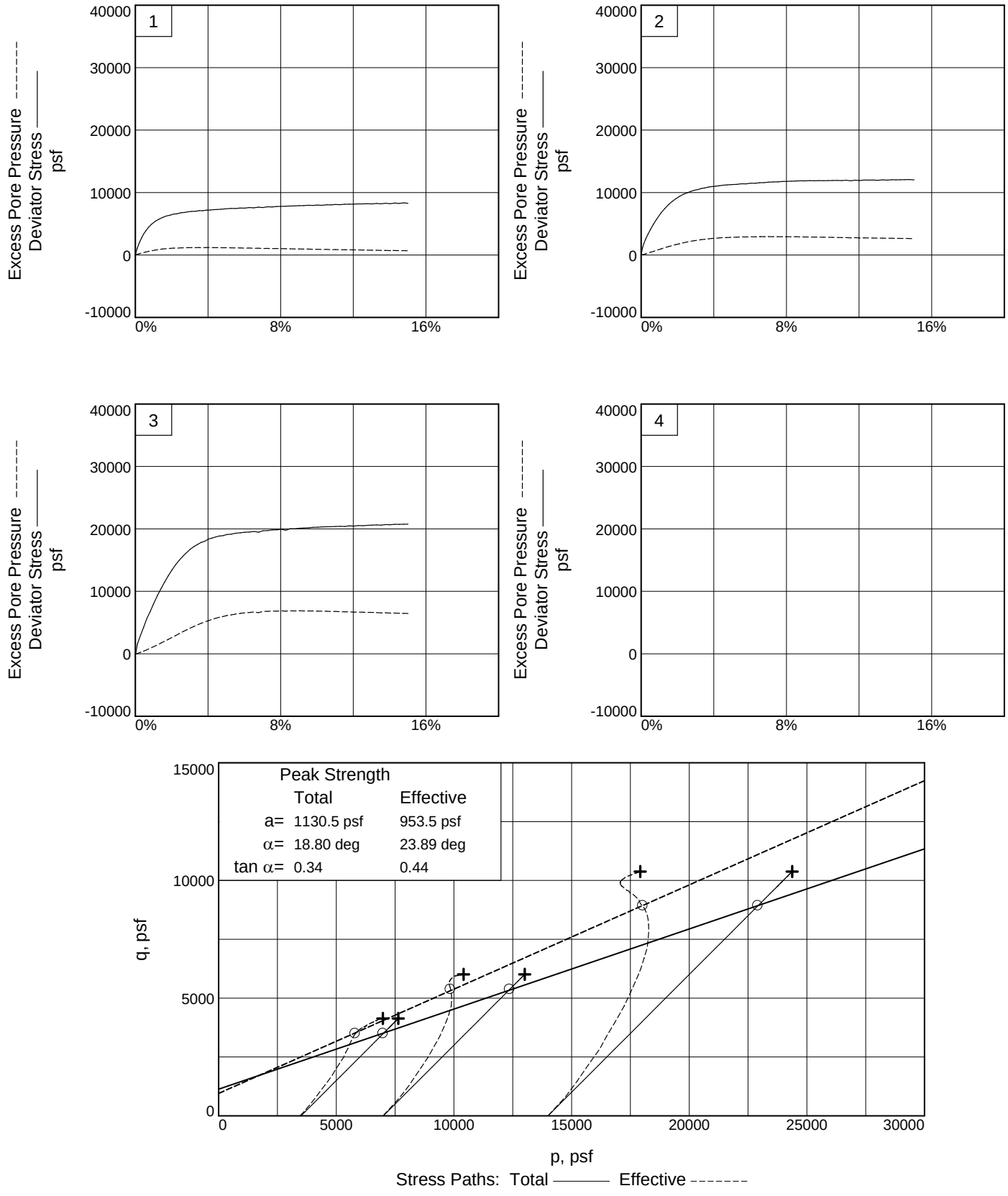
Source of Sample: TP

Sample Number: TP-3A

Proj. No.: 24201-03 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

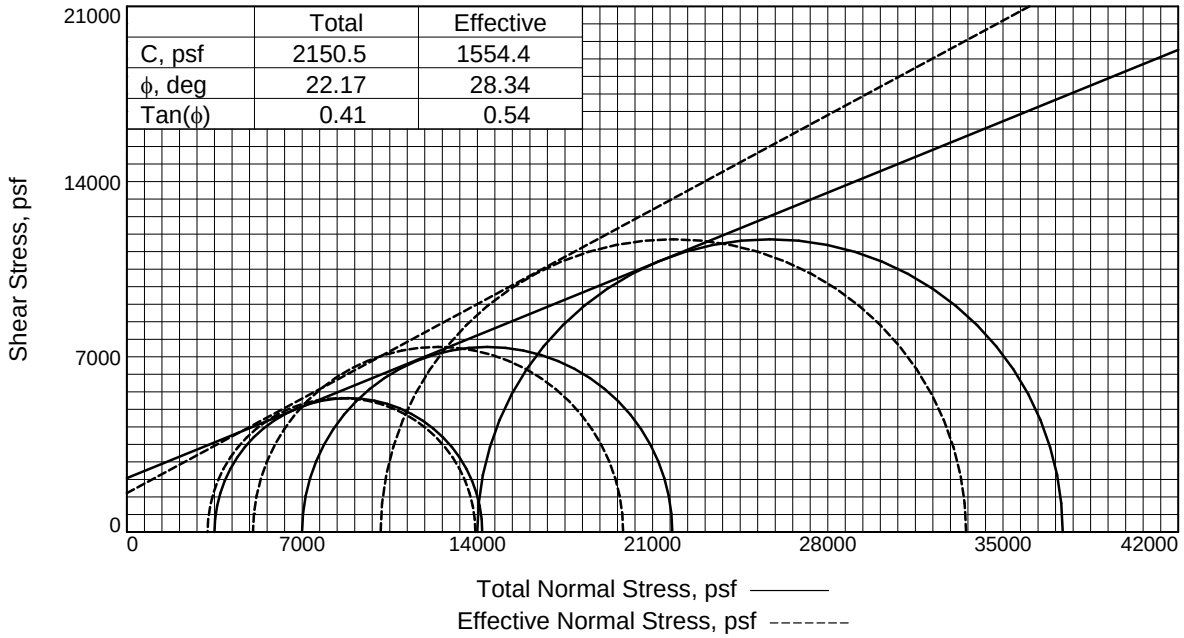
Tested By: JM **Checked By:** ML



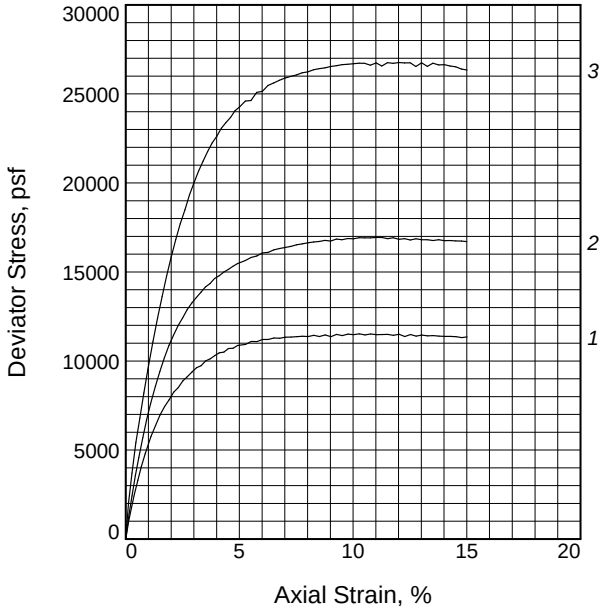
Client: Transylvania County Solid Waste
Project: Woodruff County Landfill
Source of Sample: TP **Sample Number:** TP-3A
Project No.: 24201-03 **Figure** _____

Bunnell Lammons Engineering, Inc.

Tested By: JM **Checked By:** ML



	Total	Effective
C, psf	2150.5	1554.4
ϕ, deg	22.17	28.34
Tan(ϕ)	0.41	0.54



Sample No.		1	2	3
Initial	Water Content, %	17.0	17.0	17.0
	Dry Density, pcf	100.6	100.6	100.6
	Saturation, %	67.8	67.8	67.8
	Void Ratio	0.6750	0.6750	0.6750
	Diameter, in.	2.865	2.865	2.865
	Height, in.	6.000	6.000	6.000
At Test	Water Content, %	21.2	21.1	20.4
	Dry Density, pcf	102.3	103.6	104.7
	Saturation, %	88.3	90.8	90.3
	Void Ratio	0.6483	0.6265	0.6102
	Diameter, in.	2.851	2.837	2.827
	Height, in.	5.962	5.942	5.922
Strain rate, %/min.		0.08	0.08	0.08
Eff. Cell Pressure, psi		24.300	48.600	97.200
Fail. Stress, psf		10696.8	14789.5	23388.9
Excess Pore Pr., psf		275.4	1961.5	3860.8
Strain, %		4.5	4.1	4.4
Ult. Stress, psf		11351.1	16709.4	26346.4
Excess Pore Pr., psf		-677.8	1212.5	4418.6
Strain, %		15.0	15.0	15.0
$\bar{\sigma}_1$ Failure, psf		13920.7	19826.4	33524.9
$\bar{\sigma}_3$ Failure, psf		3223.8	5036.9	10136.0

Type of Test:
CU with Pore Pressures

Sample Type: Remolded

Description: Light brown sandy SILT

LL= 25 **PL=** 23 **PI=** 2

Assumed Specific Gravity= 2.7

Remarks:

Figure _____

Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

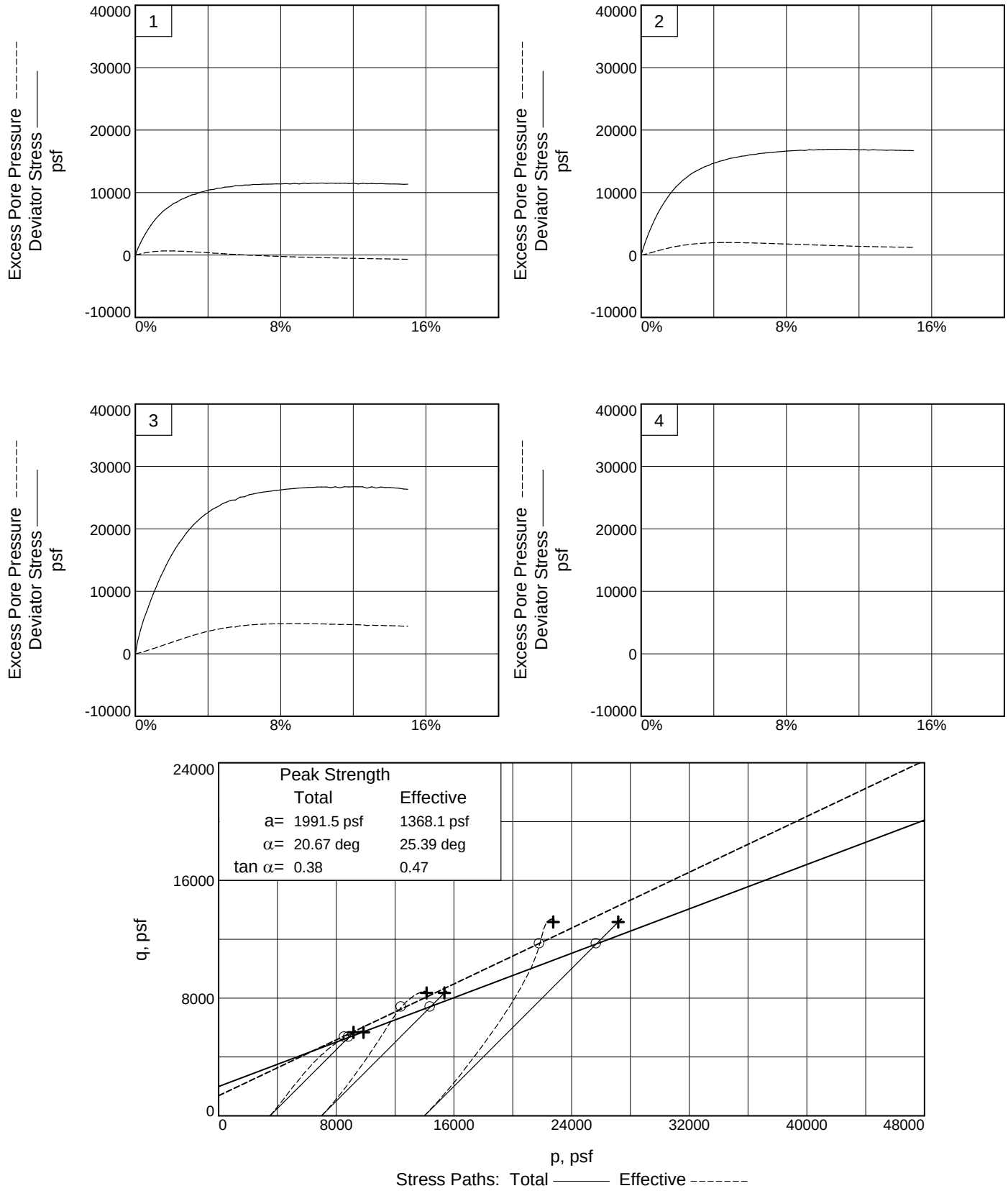
Source of Sample: TP

Sample Number: TP-3B

Proj. No.: 24201-03 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

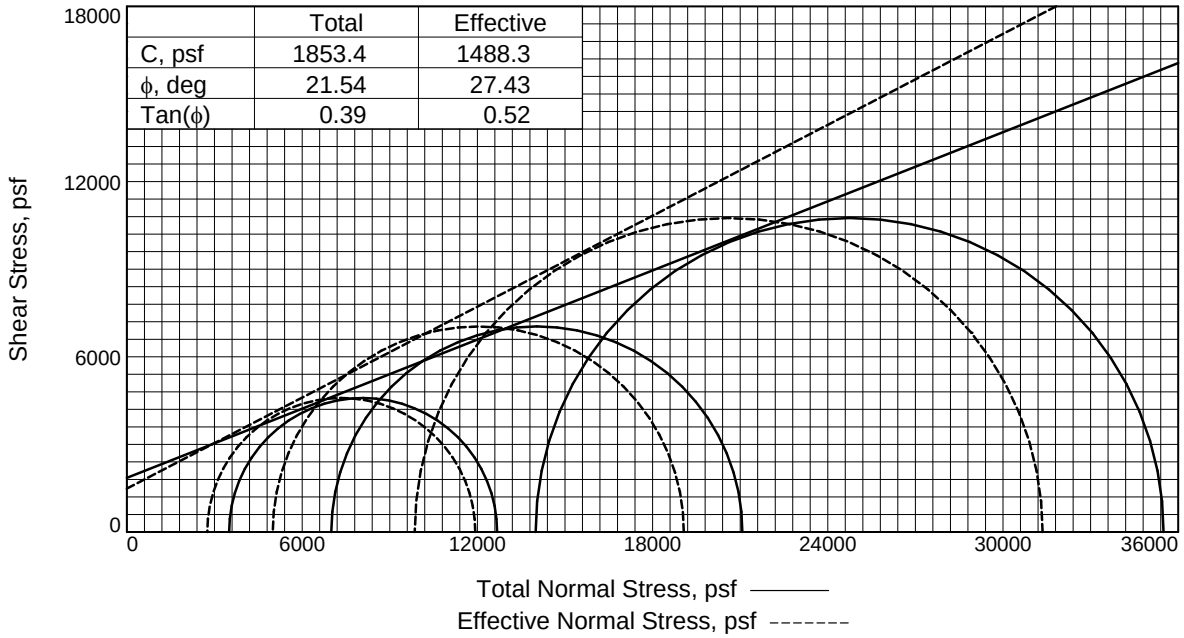
Tested By: JM **Checked By:** ML

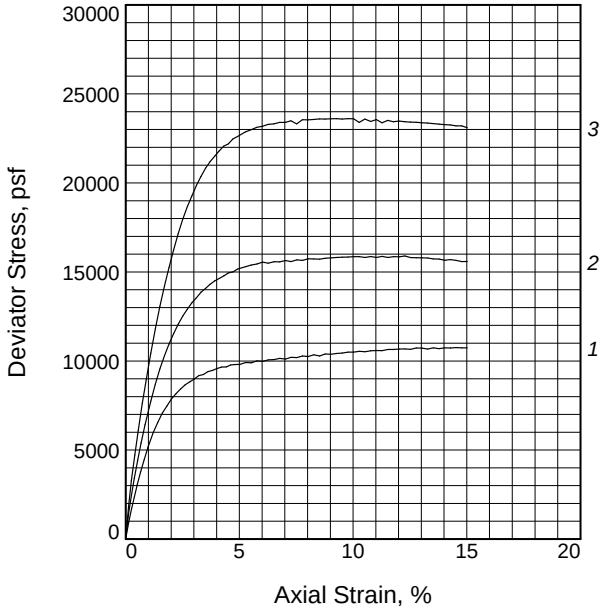


Client: Transylvania County Solid Waste
Project: Woodruff County Landfill
Source of Sample: TP **Sample Number:** TP-3B
Project No.: 24201-03 **Figure** _____

Bunnell Lammons Engineering, Inc.

Tested By: JM **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	18.1	18.1	18.1
	Dry Density, pcf	99.7	99.7	99.7
	Saturation, %	70.7	70.7	70.7
	Void Ratio	0.6903	0.6903	0.6903
	Diameter, in.	2.865	2.865	2.865
	Height, in.	6.000	6.000	6.000
At Test	Water Content, %	22.2	21.5	21.0
	Dry Density, pcf	101.8	102.0	103.1
	Saturation, %	91.4	88.7	89.3
	Void Ratio	0.6556	0.6532	0.6344
	Diameter, in.	2.845	2.846	2.834
	Height, in.	5.960	5.948	5.928
Strain rate, %/min.		0.08	0.08	0.08
Eff. Cell Pressure, psi		24.300	48.600	97.200
Fail. Stress, psf		9177.9	14077.6	21501.1
Excess Pore Pr., psf		747.5	2004.6	4141.3
Strain, %		3.2	3.5	3.9
Ult. Stress, psf		10738.7	15592.5	23104.3
Excess Pore Pr., psf		-99.9	1450.8	5426.0
Strain, %		15.0	15.0	15.0
$\bar{\sigma}_1$ Failure, psf		11929.5	19071.4	31356.6
$\bar{\sigma}_3$ Failure, psf		2751.7	4993.8	9855.5

Type of Test:
CU with Pore Pressures
Sample Type: Remolded
Description: Light tan sandy SILT

LL= 26 **PI=** NP
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

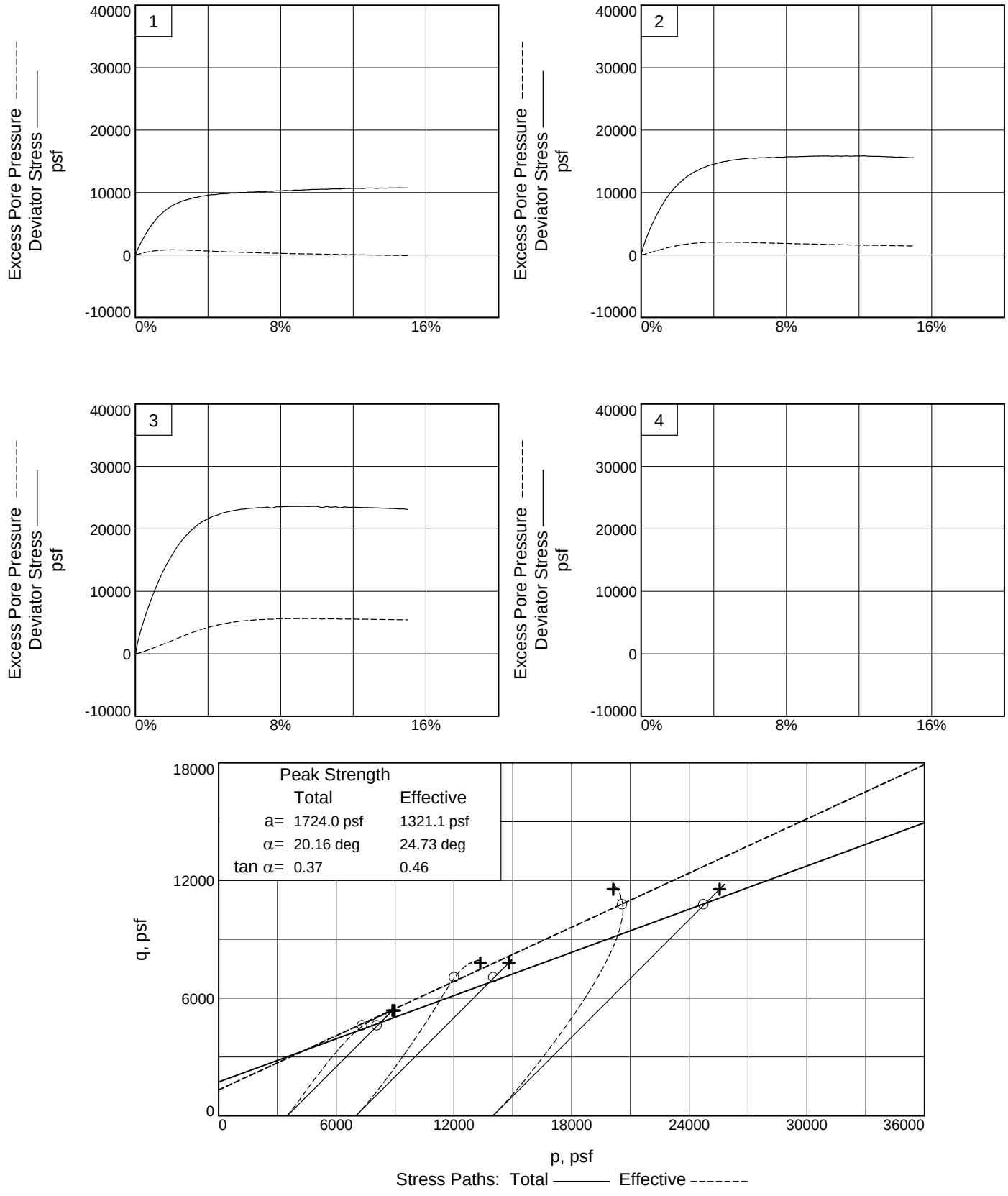
Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-3C
Proj. No.: 24201-03 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

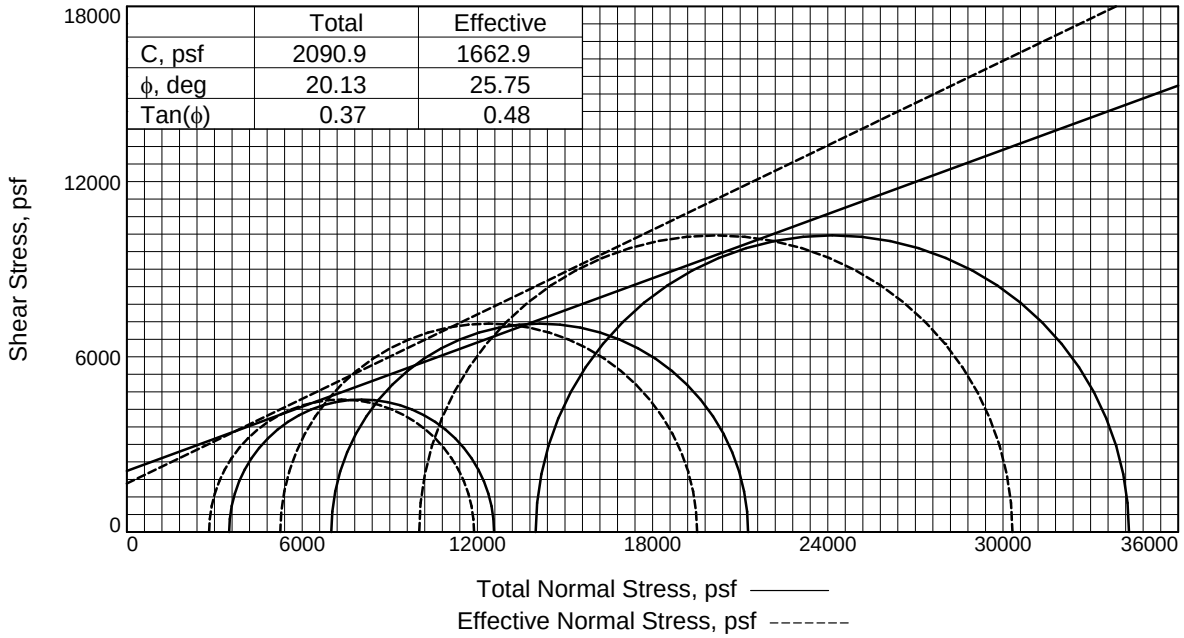
Tested By: JM **Checked By:** ML

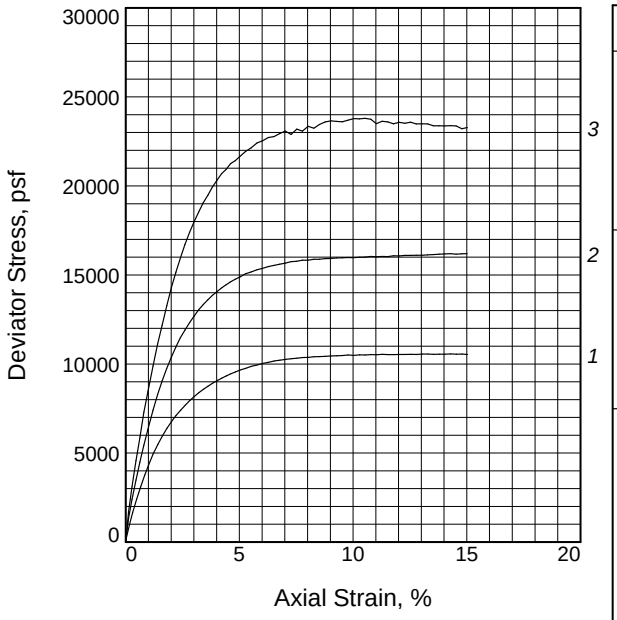


Client: Transylvania County Solid Waste
Project: Woodruff County Landfill
Source of Sample: TP **Sample Number:** TP-3C
Project No.: 24201-03 **Figure** _____

Bunnell Lammons Engineering, Inc.

Tested By: JM **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	19.0	19.0	19.0
	Dry Density, pcf	95.0	95.0	95.0
	Saturation, %	66.5	66.5	66.5
	Void Ratio	0.7737	0.7737	0.7737
	Diameter, in.	2.865	2.865	2.865
	Height, in.	6.000	6.000	6.000
At Test	Water Content, %	25.3	24.2	23.4
	Dry Density, pcf	96.5	96.5	97.7
	Saturation, %	91.6	87.7	87.3
	Void Ratio	0.7465	0.7459	0.7245
	Diameter, in.	2.856	2.857	2.848
	Height, in.	5.946	5.938	5.905
Strain rate, %/min.		0.08	0.08	0.08
Eff. Cell Pressure, psi		24.300	48.600	97.200
Fail. Stress, psf		9071.5	14273.4	20316.2
Excess Pore Pr., psf		684.0	1746.3	3989.1
Strain, %		4.0	4.2	4.0
Ult. Stress, psf		10534.6	16198.2	23279.2
Excess Pore Pr., psf		-305.3	1148.8	4760.5
Strain, %		15.0	15.0	15.0
$\bar{\sigma}_1$ Failure, psf		11886.7	19525.4	30323.9
$\bar{\sigma}_3$ Failure, psf		2815.2	5252.1	10007.7

Type of Test:
CU with Pore Pressures

Sample Type: Remolded

Description: Light reddish brown SILT with sand

LL= 30 **PL=** 29 **PI=** 1

Assumed Specific Gravity= 2.7

Remarks:

Figure _____

Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

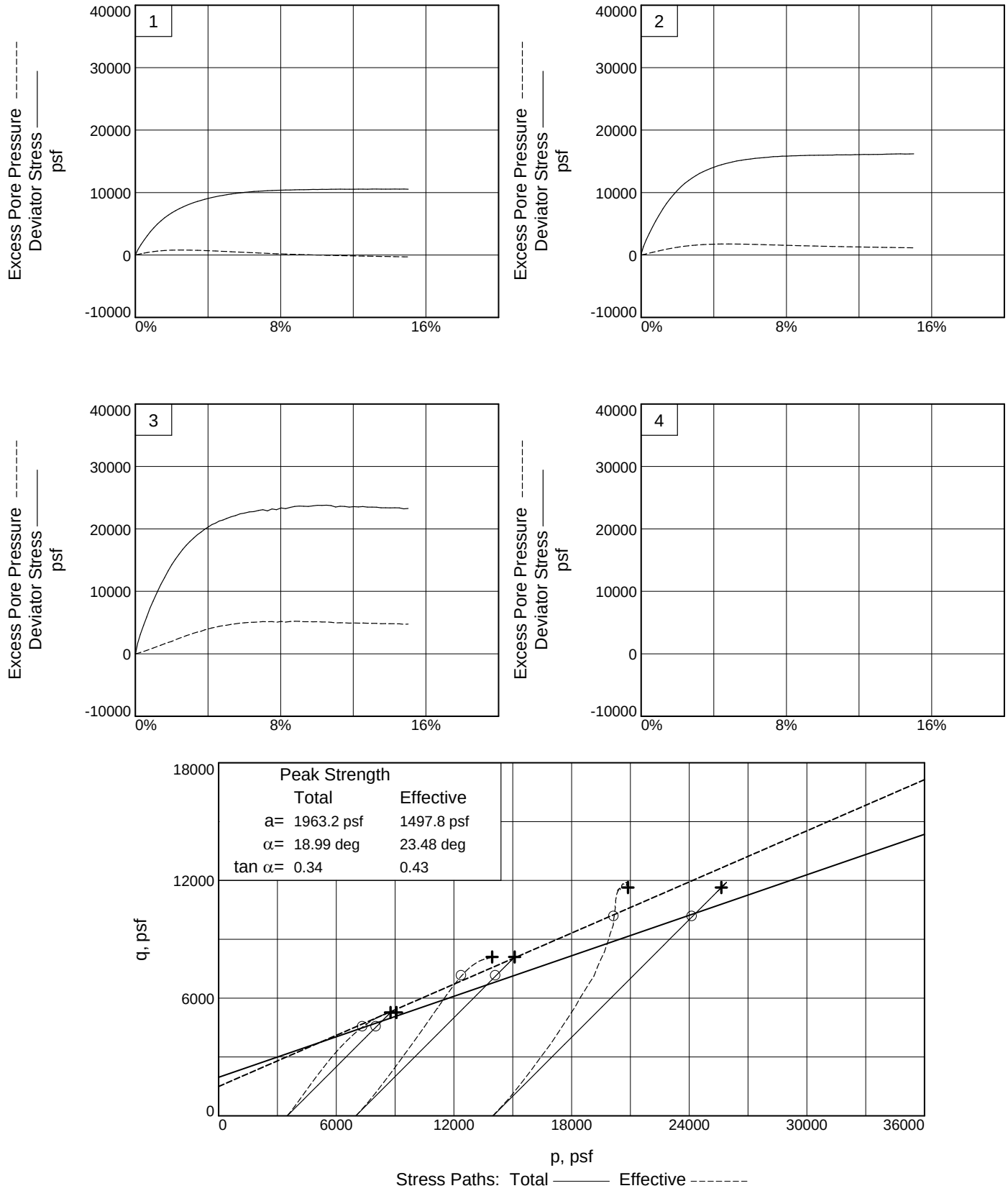
Source of Sample: TP

Sample Number: TP-4

Proj. No.: 24201-03 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

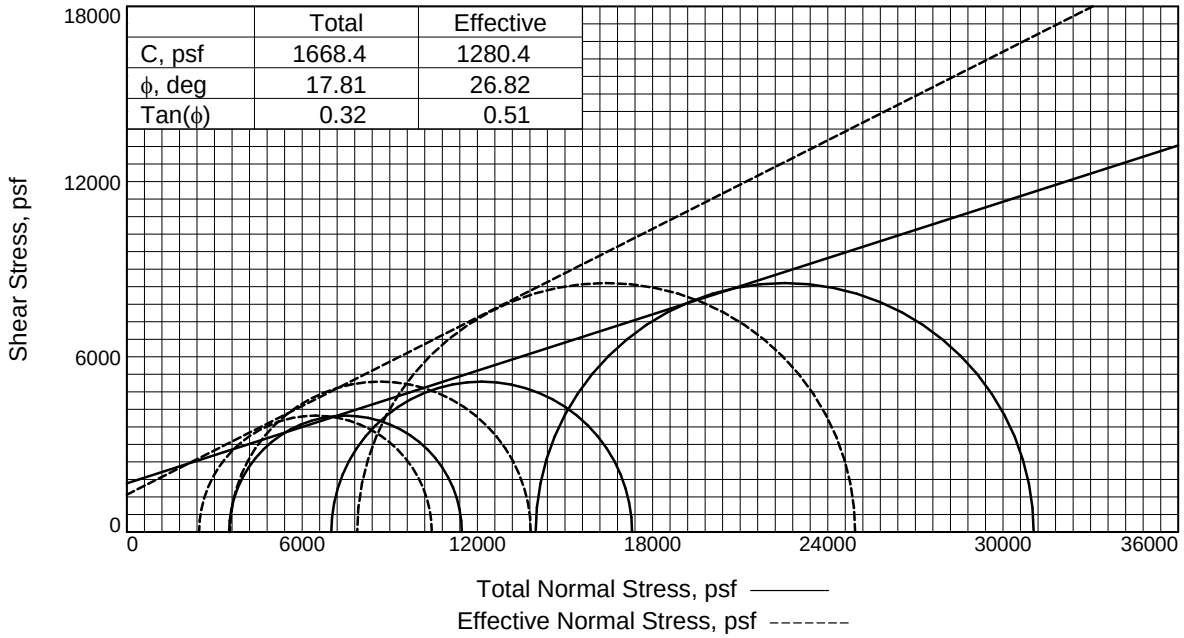
Tested By: JM **Checked By:** ML

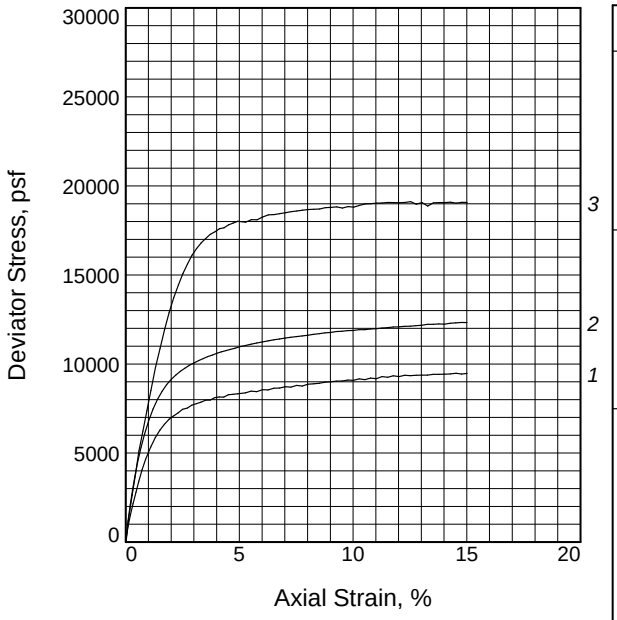


Client: Transylvania County Solid Waste
Project: Woodruff County Landfill
Source of Sample: TP **Sample Number:** TP-4
Project No.: 24201-03 **Figure** _____

Bunnell Lammons Engineering, Inc.

Tested By: JM **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	16.8	16.8	16.8
	Dry Density, pcf	101.4	101.4	101.4
	Saturation, %	68.6	68.6	68.6
	Void Ratio	0.6630	0.6630	0.6630
	Diameter, in.	2.865	2.865	2.865
	Height, in.	6.000	6.000	6.000
At Test	Water Content, %	21.3	21.0	20.2
	Dry Density, pcf	102.8	105.0	105.1
	Saturation, %	89.7	93.5	90.3
	Void Ratio	0.6401	0.6049	0.6045
	Diameter, in.	2.855	2.831	2.836
	Height, in.	5.959	5.932	5.910
Strain rate, %/min.		0.08	0.08	0.08
Eff. Cell Pressure, psi		24.300	48.600	97.200
Fail. Stress, psf		7968.8	10299.9	17052.9
Excess Pore Pr., psf		1027.0	3469.1	6111.5
Strain, %		3.5	3.4	3.5
Ult. Stress, psf		9474.9	12323.4	19069.6
Excess Pore Pr., psf		321.8	2752.0	7190.3
Strain, %		15.0	15.0	15.0
$\bar{\sigma}_1$ Failure, psf		10441.1	13829.2	24938.1
$\bar{\sigma}_3$ Failure, psf		2472.2	3529.3	7885.3

Type of Test:
CU with Pore Pressures
Sample Type: Remolded
Description: Tan brown sandy SILT

LL= 28 **PL=** 23 **PI=** 5
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

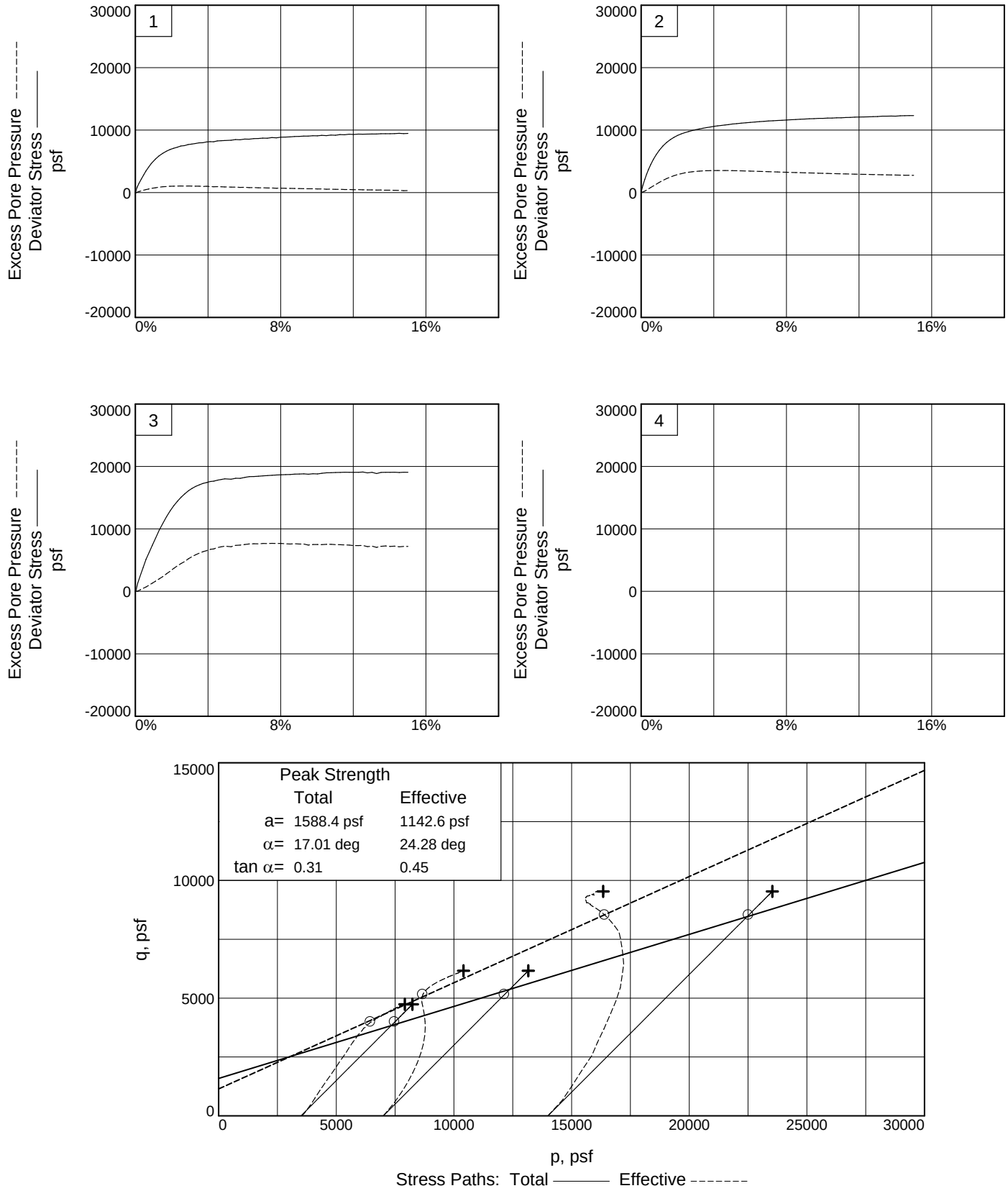
Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-5
Proj. No.: 24201-03 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

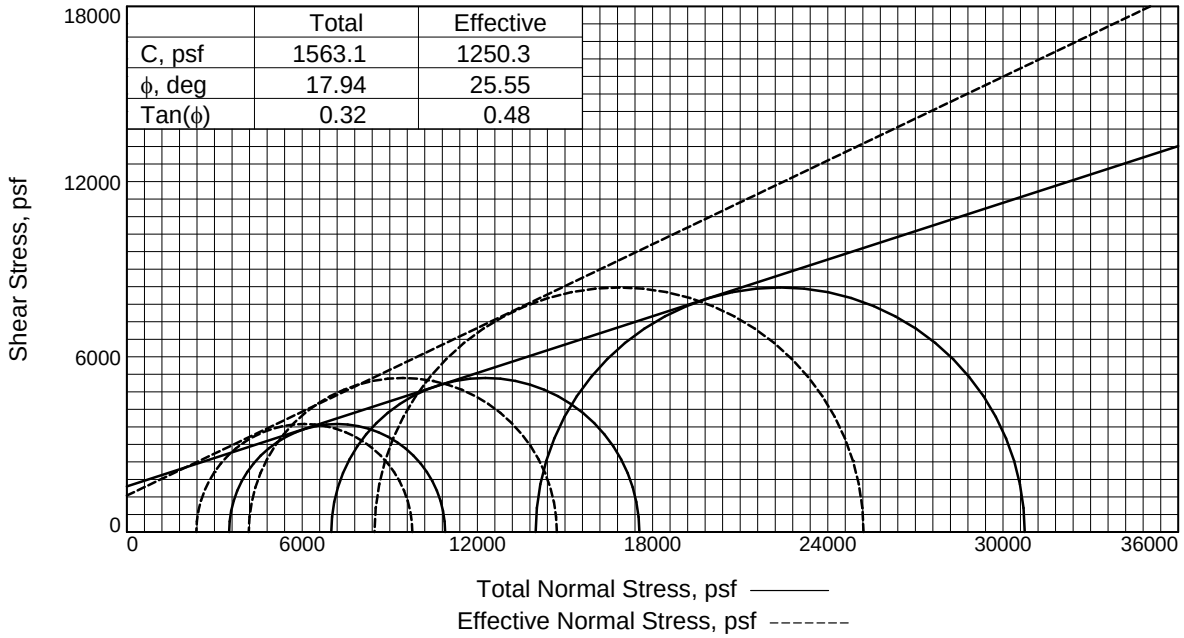
Tested By: JM **Checked By:** ML



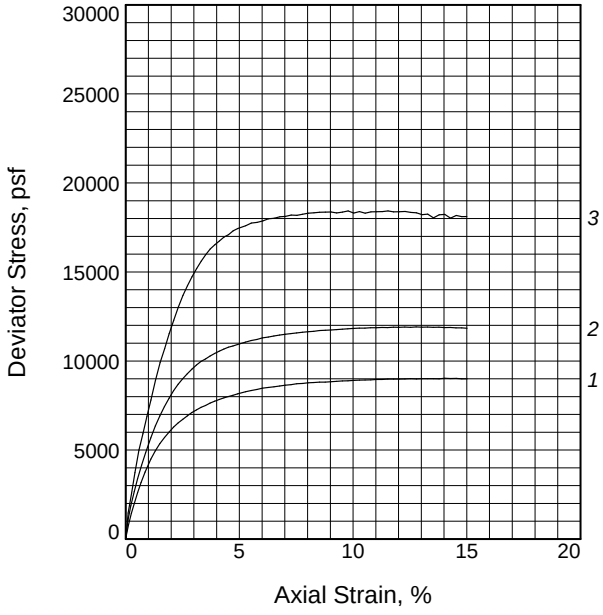
Client: Transylvania County Solid Waste
Project: Woodruff County Landfill
Source of Sample: TP **Sample Number:** TP-5
Project No.: 24201-03 **Figure** _____

Bunnell Lammons Engineering, Inc.

Tested By: JM **Checked By:** ML



	Total	Effective
C, psf	1563.1	1250.3
ϕ, deg	17.94	25.55
Tan(ϕ)	0.32	0.48



Sample No.		1	2	3
Initial	Water Content, %	18.9	18.9	18.9
	Dry Density, pcf	95.0	95.0	95.0
	Saturation, %	66.1	66.1	66.1
	Void Ratio	0.7734	0.7734	0.7734
	Diameter, in.	2.865	2.865	2.865
	Height, in.	6.000	6.000	6.000
At Test	Water Content, %	25.5	25.0	24.2
	Dry Density, pcf	97.2	98.3	100.2
	Saturation, %	93.9	94.7	95.7
	Void Ratio	0.7334	0.7143	0.6824
	Diameter, in.	2.848	2.838	2.816
	Height, in.	5.935	5.910	5.890
Strain rate, %/min.		0.08	0.08	0.08
Eff. Cell Pressure, psi		24.300	48.600	97.200
Fail. Stress, psf		7396.3	10549.1	16746.2
Excess Pore Pr., psf		1122.9	2825.3	5517.6
Strain, %		3.3	4.1	4.1
Ult. Stress, psf		8997.3	11836.2	18110.9
Excess Pore Pr., psf		387.9	2629.4	7121.5
Strain, %		15.0	15.0	15.0
$\bar{\sigma}_1$ Failure, psf		9772.6	14722.1	25225.4
$\bar{\sigma}_3$ Failure, psf		2376.3	4173.1	8479.2

Type of Test:
CU with Pore Pressures

Sample Type: Remolded

Description: Light brown sandy SILT

LL= 32 **PI=** NP

Assumed Specific Gravity= 2.7

Remarks:

Figure _____

Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

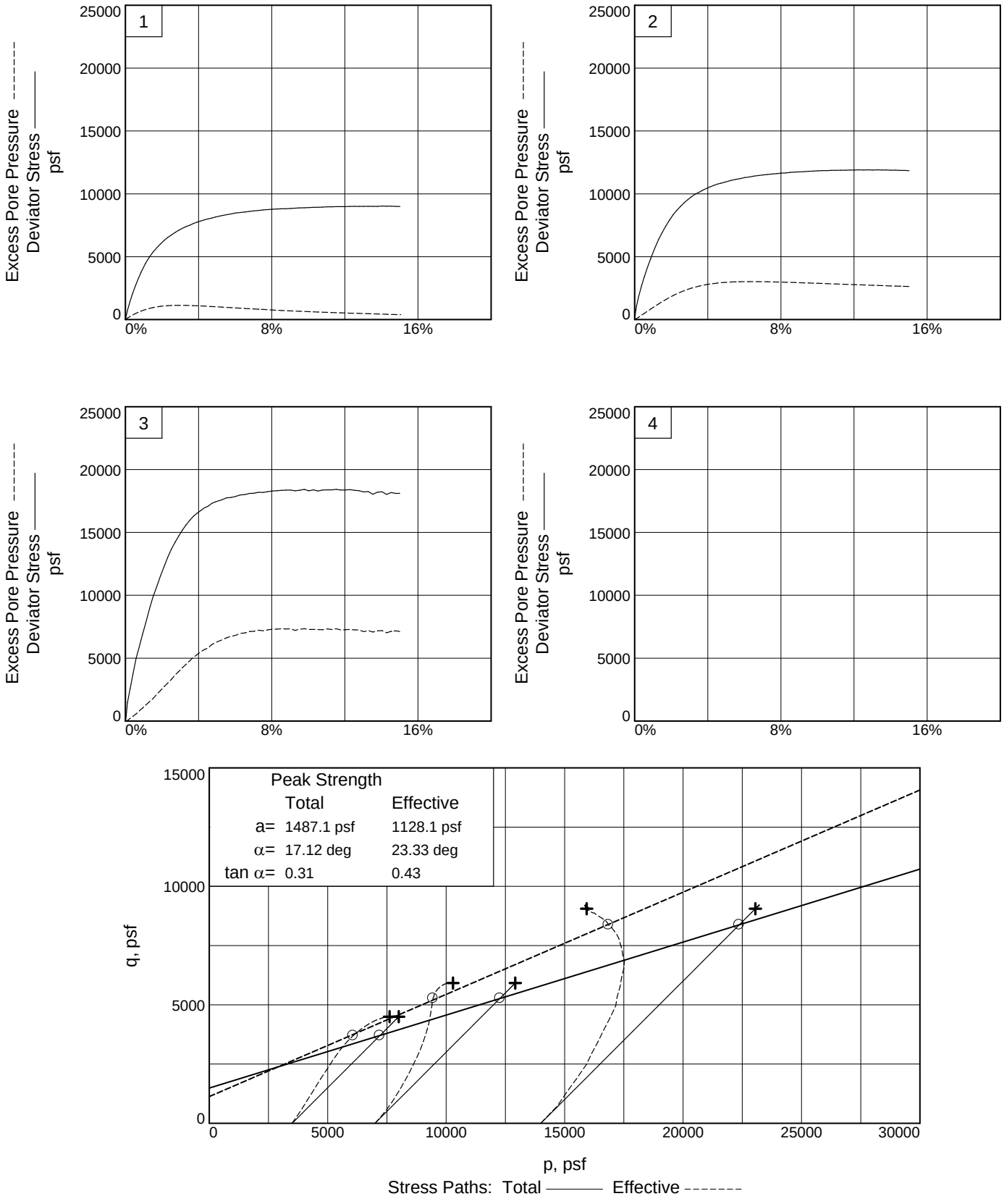
Source of Sample: TP

Sample Number: TP-6A

Proj. No.: 24201-03 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

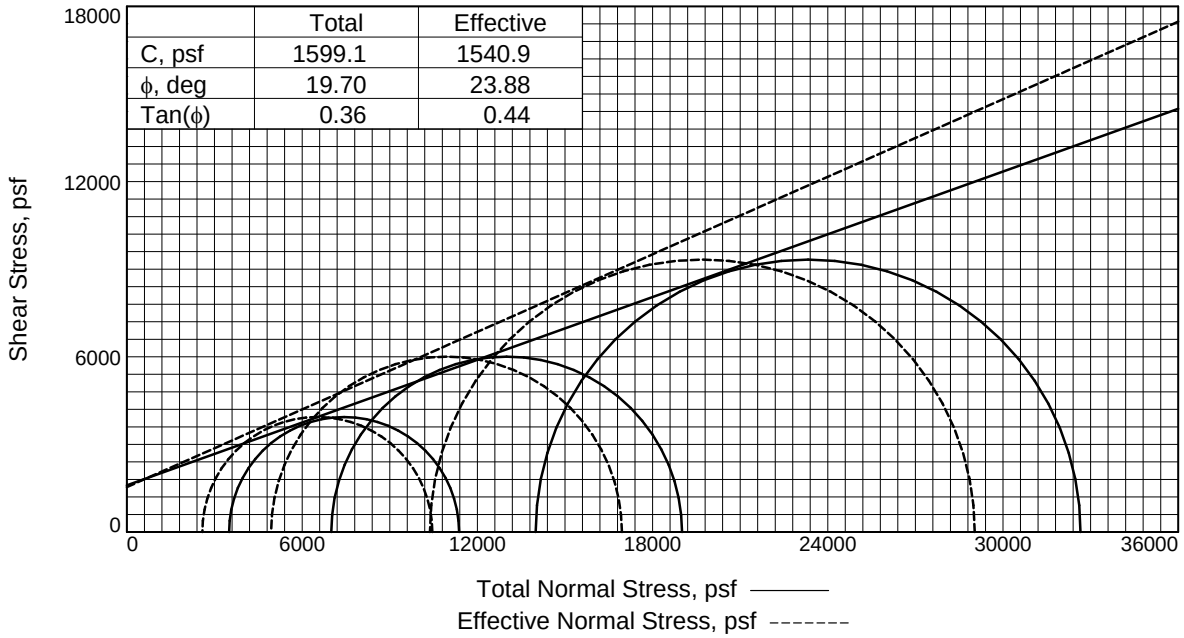
Tested By: JM **Checked By:** ML



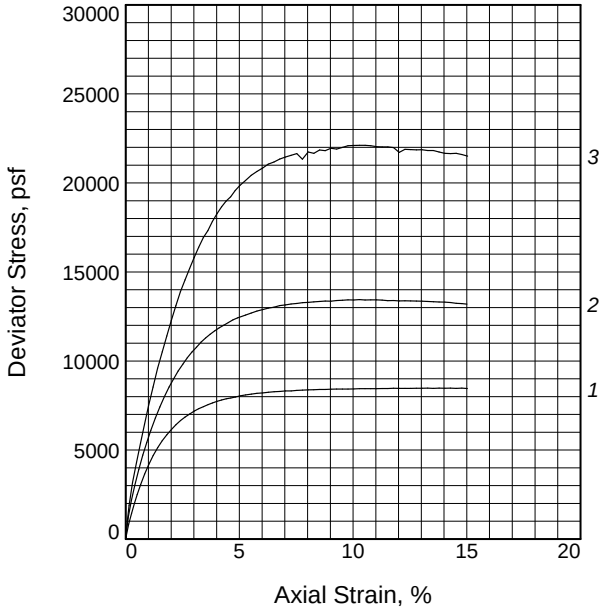
Client: Transylvania County Solid Waste
Project: Woodruff County Landfill
Source of Sample: TP **Sample Number:** TP-6A
Project No.: 24201-03 **Figure** _____

Bunnell Lammons Engineering, Inc.

Tested By: JM **Checked By:** ML



	Total	Effective
C, psf	1599.1	1540.9
ϕ, deg	19.70	23.88
Tan(ϕ)	0.36	0.44



Sample No.		1	2	3
Initial	Water Content, %	19.6	19.6	19.6
	Dry Density, pcf	93.2	93.2	93.2
	Saturation, %	65.4	65.4	65.4
	Void Ratio	0.8094	0.8094	0.8094
	Diameter, in.	2.865	2.865	2.865
	Height, in.	6.000	6.000	6.000
At Test	Water Content, %	24.9	24.6	23.3
	Dry Density, pcf	94.8	95.8	97.4
	Saturation, %	86.4	87.4	86.1
	Void Ratio	0.7774	0.7601	0.7305
	Diameter, in.	2.851	2.840	2.824
	Height, in.	5.950	5.938	5.905
Strain rate, %/min.		0.08	0.08	0.08
Eff. Cell Pressure, psi		24.300	48.600	97.200
Fail. Stress, psf		7874.8	12010.9	18657.9
Excess Pore Pr., psf		916.2	2060.3	3620.9
Strain, %		4.4	4.3	4.2
Ult. Stress, psf		8457.0	13191.2	21509.4
Excess Pore Pr., psf		533.6	2124.1	5793.7
Strain, %		15.0	15.0	15.0
$\bar{\sigma}_1$ Failure, psf		10457.8	16949.0	29033.8
$\bar{\sigma}_3$ Failure, psf		2583.0	4938.1	10375.9

Type of Test:
CU with Pore Pressures

Sample Type: Remolded

Description: Tan brown sandy SILT

LL= 32 **PL=** 27 **PI=** 5

Assumed Specific Gravity= 2.7

Remarks:

Figure _____

Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

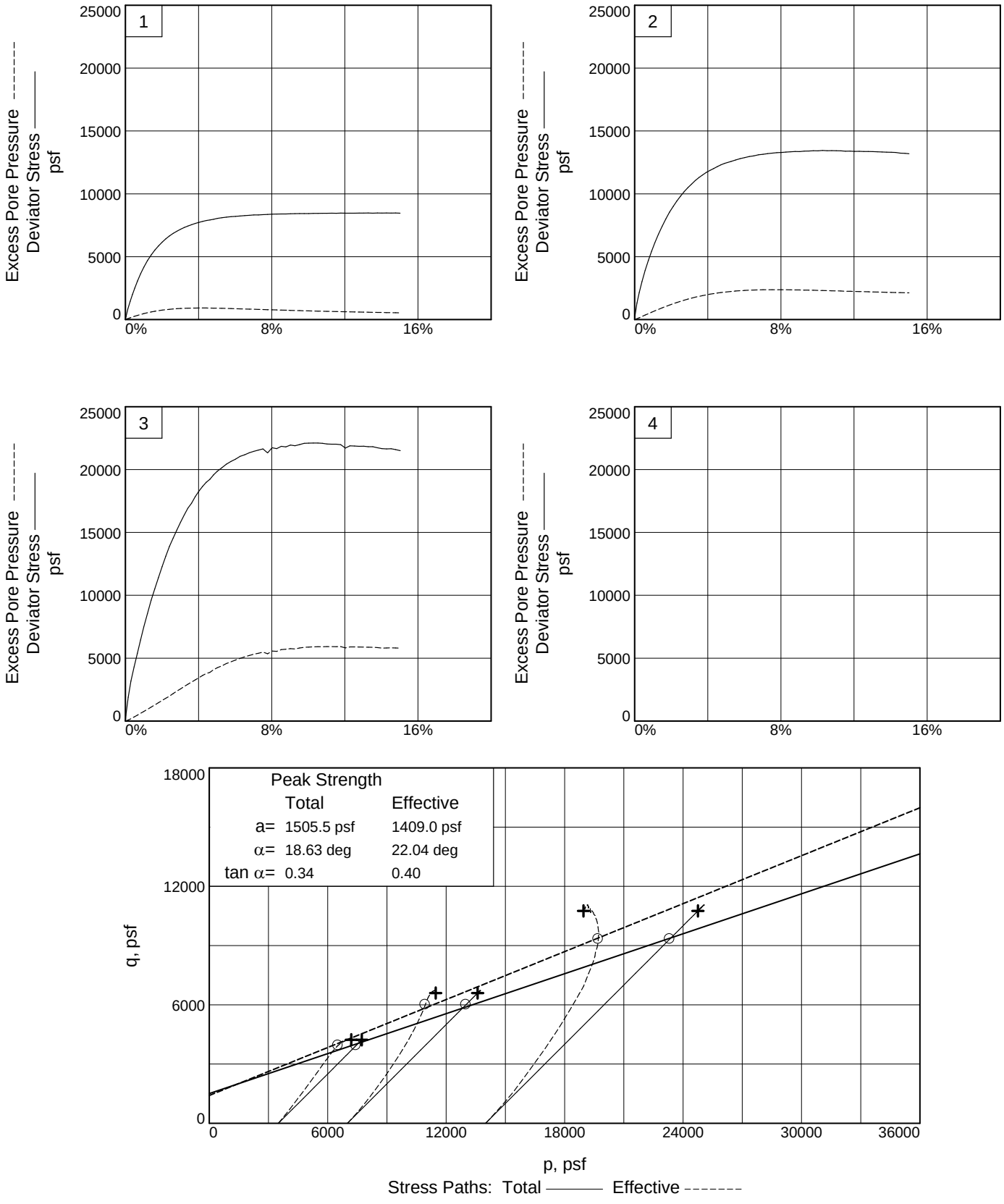
Source of Sample: TP

Sample Number: TP-6B

Proj. No.: 24201-03 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

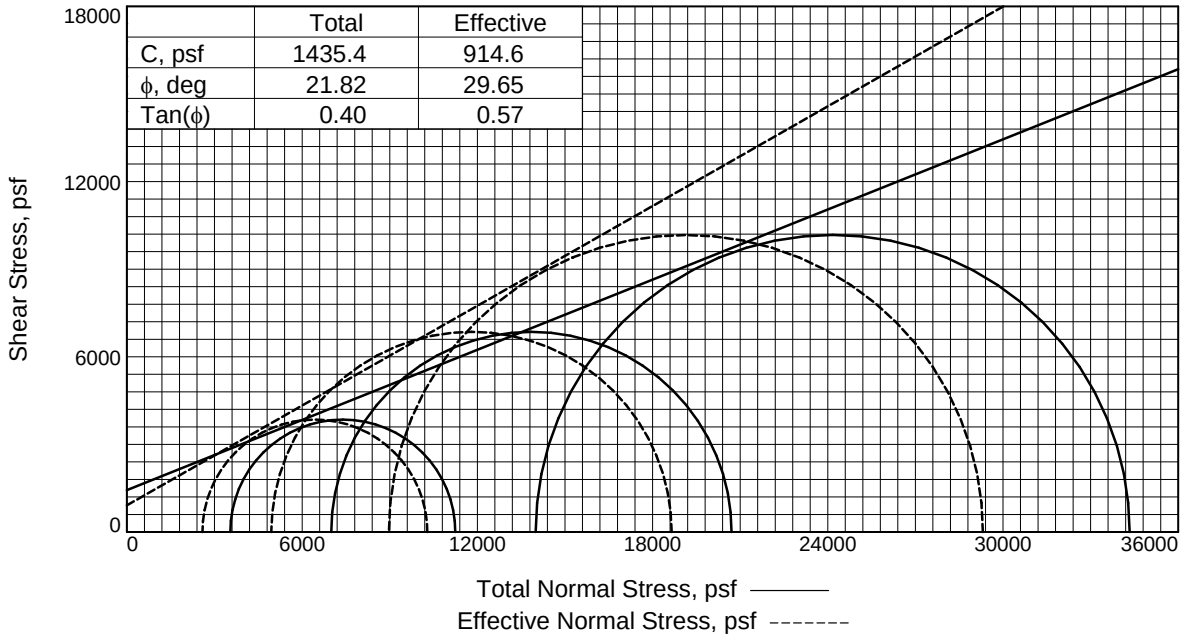
Tested By: JM **Checked By:** ML



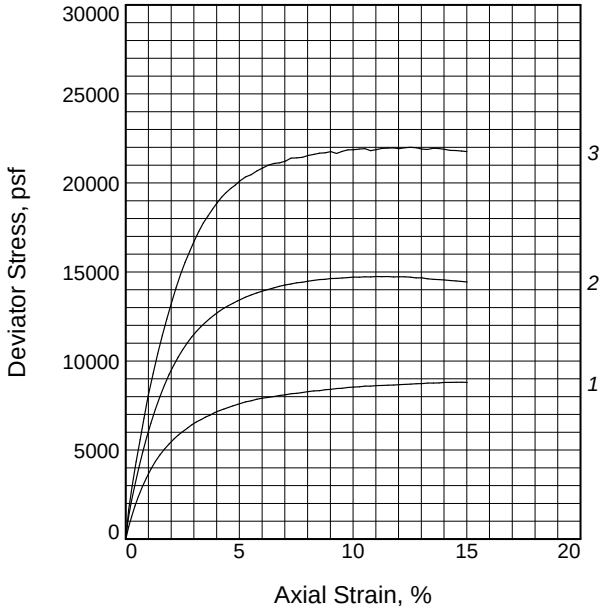
Client: Transylvania County Solid Waste
Project: Woodruff County Landfill
Source of Sample: TP **Sample Number:** TP-6B
Project No.: 24201-03 **Figure** _____

Bunnell Lammons Engineering, Inc.

Tested By: JM **Checked By:** ML



	Total	Effective
C, psf	1435.4	914.6
ϕ, deg	21.82	29.65
Tan(ϕ)	0.40	0.57



Sample No.		1	2	3
Initial	Water Content, %	18.5	18.5	20.7
	Dry Density, pcf	97.8	97.8	96.0
	Saturation, %	69.0	69.0	73.9
	Void Ratio	0.7241	0.7241	0.7562
	Diameter, in.	2.865	2.865	2.865
	Height, in.	6.000	6.000	6.000
At Test	Water Content, %	22.3	22.0	21.4
	Dry Density, pcf	99.7	101.0	100.1
	Saturation, %	87.4	88.9	84.5
	Void Ratio	0.6900	0.6692	0.6837
	Diameter, in.	2.849	2.836	2.826
	Height, in.	5.948	5.927	5.913
Strain rate, %/min.		0.08	0.08	0.08
Eff. Cell Pressure, psi		24.600	48.600	97.200
Fail. Stress, psf		7701.5	13707.7	20341.4
Excess Pore Pr., psf		956.7	2053.5	5026.1
Strain, %		5.3	5.5	5.3
Ult. Stress, psf		8801.5	14435.1	21763.5
Excess Pore Pr., psf		256.7	1491.2	5700.1
Strain, %		15.0	15.0	15.0
$\bar{\sigma}_1$ Failure, psf		10287.2	18652.6	29312.1
$\bar{\sigma}_3$ Failure, psf		2585.7	4944.9	8970.7

Type of Test:
CU with Pore Pressures
Sample Type: Remolded
Description: Tan brown sandy SILT

LL= 29 **PL=** 28 **PI=** 1
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

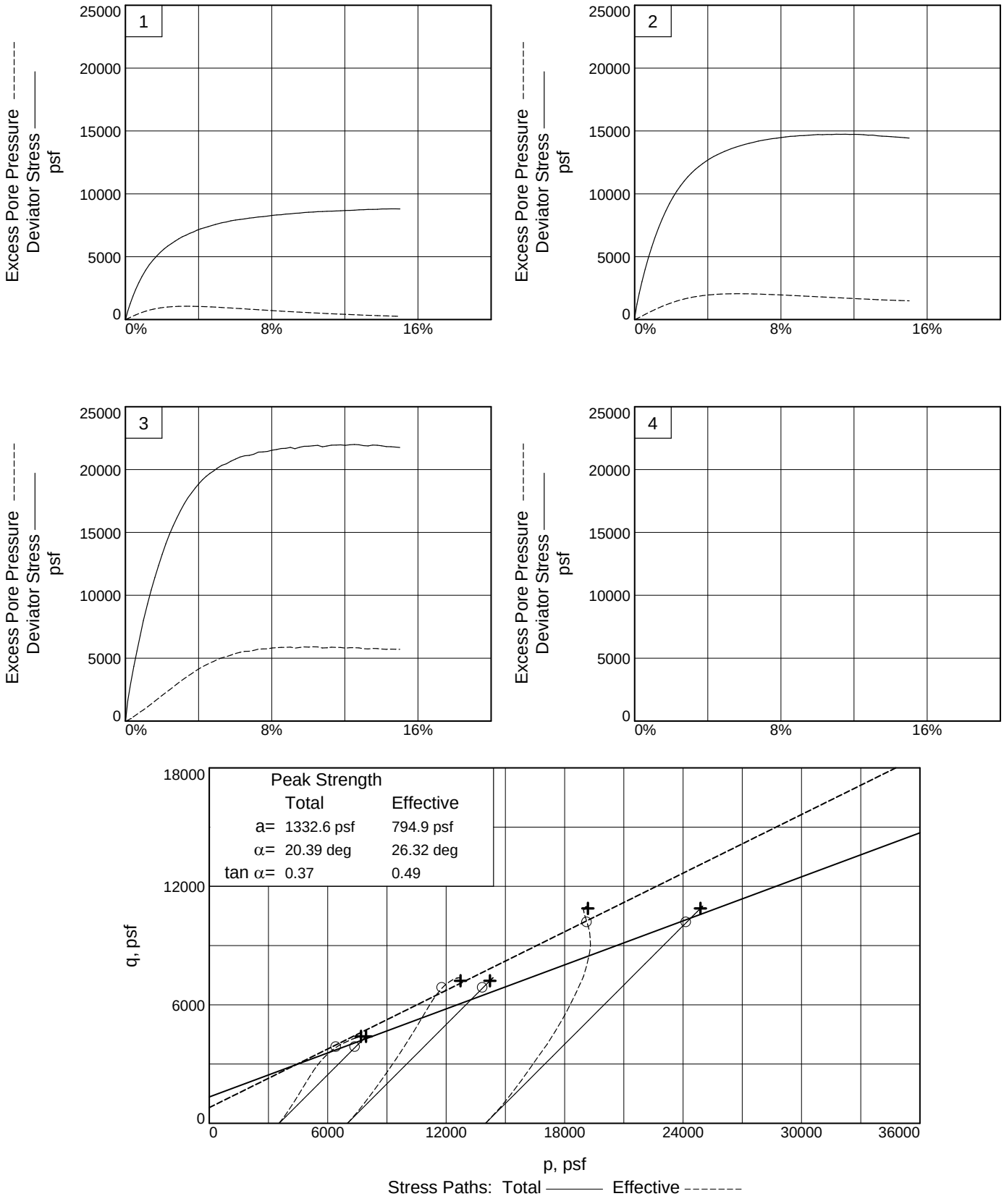
Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-7
Proj. No.: 24201-03 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: JM **Checked By:** ML

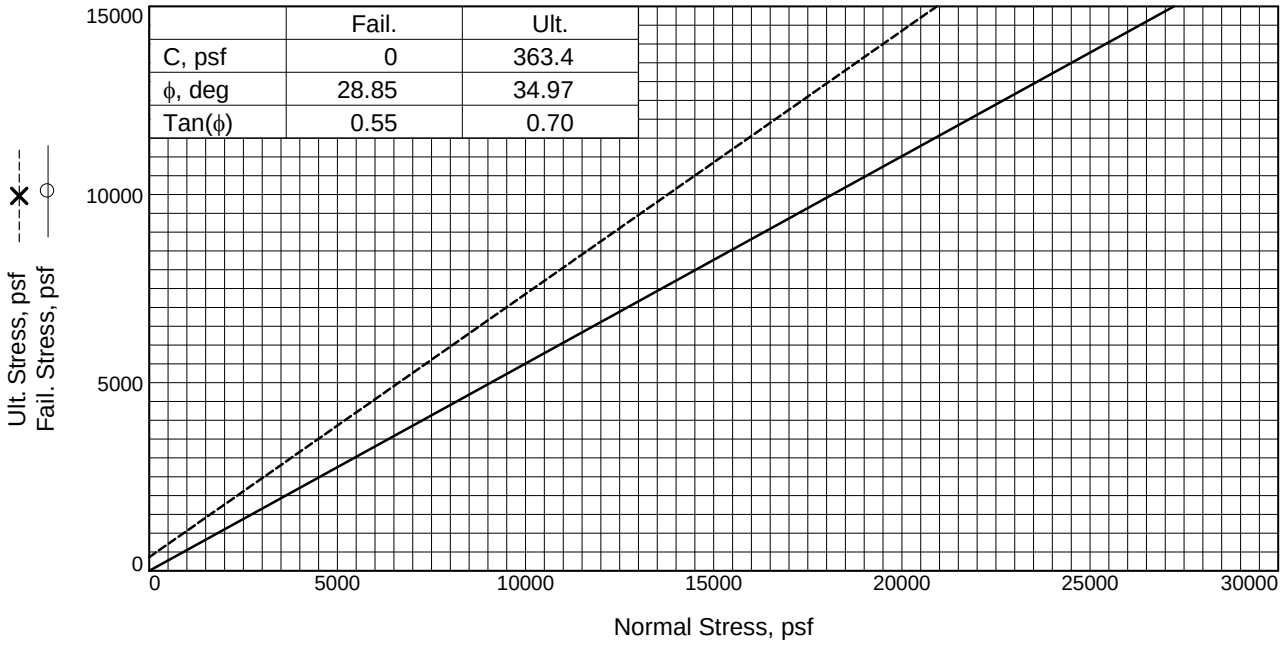


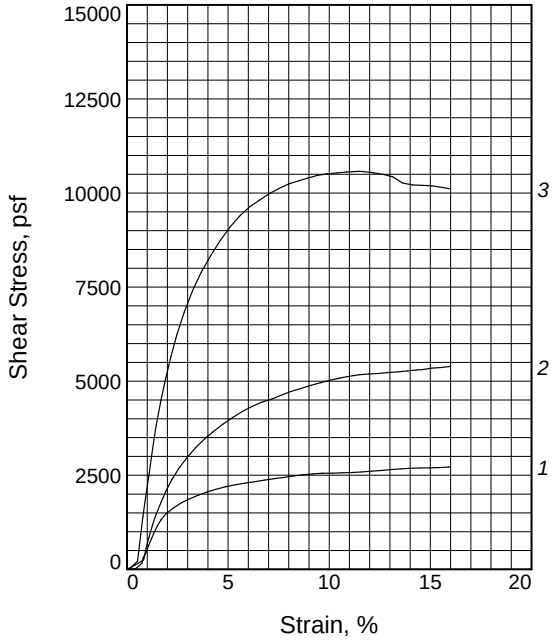
Client: Transylvania County Solid Waste
Project: Woodruff County Landfill
Source of Sample: TP **Sample Number:** TP-7
Project No.: 24201-03 **Figure** _____

Bunnell Lammons Engineering, Inc.

Tested By: JM **Checked By:** ML

DIRECT SHEAR TEST REPORTS - REMOLDED SAMPLES





Sample No.		1	2	3
Initial	Water Content, %	15.3	15.3	15.3
	Dry Density, pcf	109.1	109.1	109.1
	Saturation, %	75.7	75.9	75.9
	Void Ratio	0.5445	0.5454	0.5454
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	19.0	19.3	18.2
	Dry Density, pcf	112.0	115.4	116.1
	Saturation, %	101.8	113.1	108.9
	Void Ratio	0.5049	0.4601	0.4523
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.974	0.945	0.940
Normal Stress, psf		3500.0	7000.0	14000.0
Fail. Stress, psf		1974.2	3470.9	7892.5
Strain, %		3.5	3.8	3.7
Ult. Stress, psf		2720.8	5394.5	10109.3
Strain, %		16.0	16.0	16.0
Strain rate, %/min.		0.08	0.08	0.08

Sample Type: Remolded
Description: Light tan sandy silty CLAY

LL= 23 **PL=** 19 **PI=** 4
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

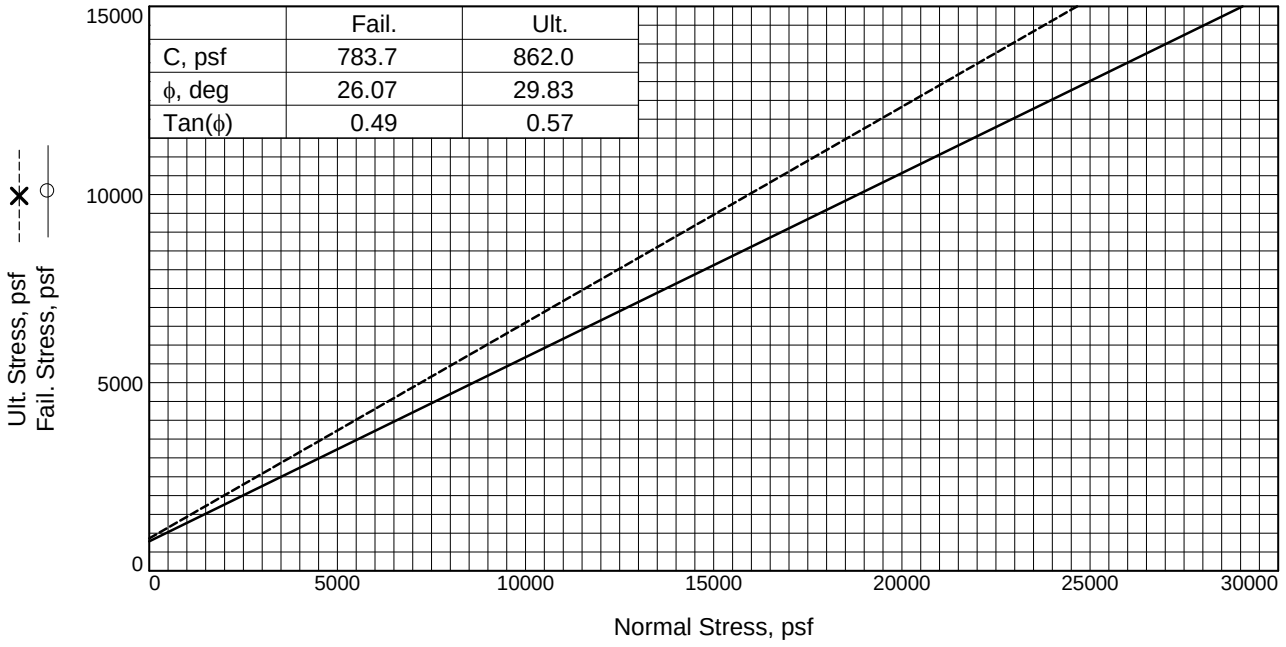
Client: Transylvania County Solid Waste

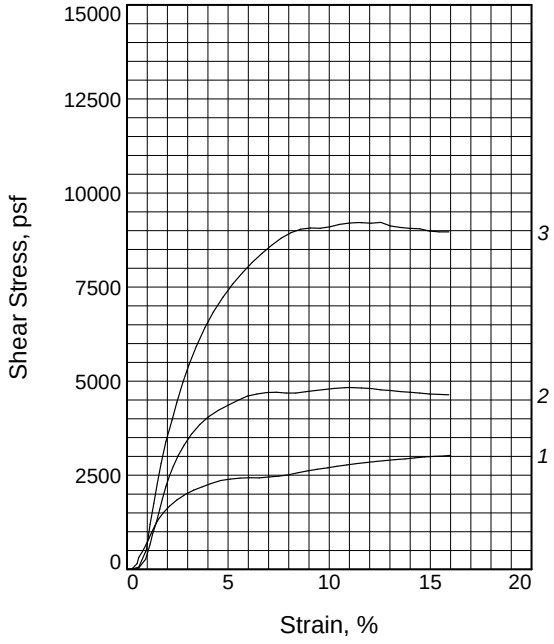
Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-1
Proj. No.: 24201-03 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: ML **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	18.2	18.2	18.2
	Dry Density, pcf	98.7	98.7	98.7
	Saturation, %	69.5	69.5	69.5
	Void Ratio	0.7069	0.7069	0.7069
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	27.9	27.6	25.4
	Dry Density, pcf	101.5	103.6	105.5
	Saturation, %	114.0	119.0	114.5
	Void Ratio	0.6614	0.6267	0.5982
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.973	0.953	0.936
Normal Stress, psf		3500.0	7000.0	14000.0
Fail. Stress, psf		2397.6	4356.6	7584.4
Strain, %		5.1	5.0	5.2
Ult. Stress, psf		3028.1	4636.9	8969.0
Strain, %		16.0	15.9	15.9
Strain rate, %/min.		0.08	0.08	0.08

Sample Type: Remolded
Description: Light brown sandy SILT

LL= 29 **PL=** 28 **PI=** 1
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

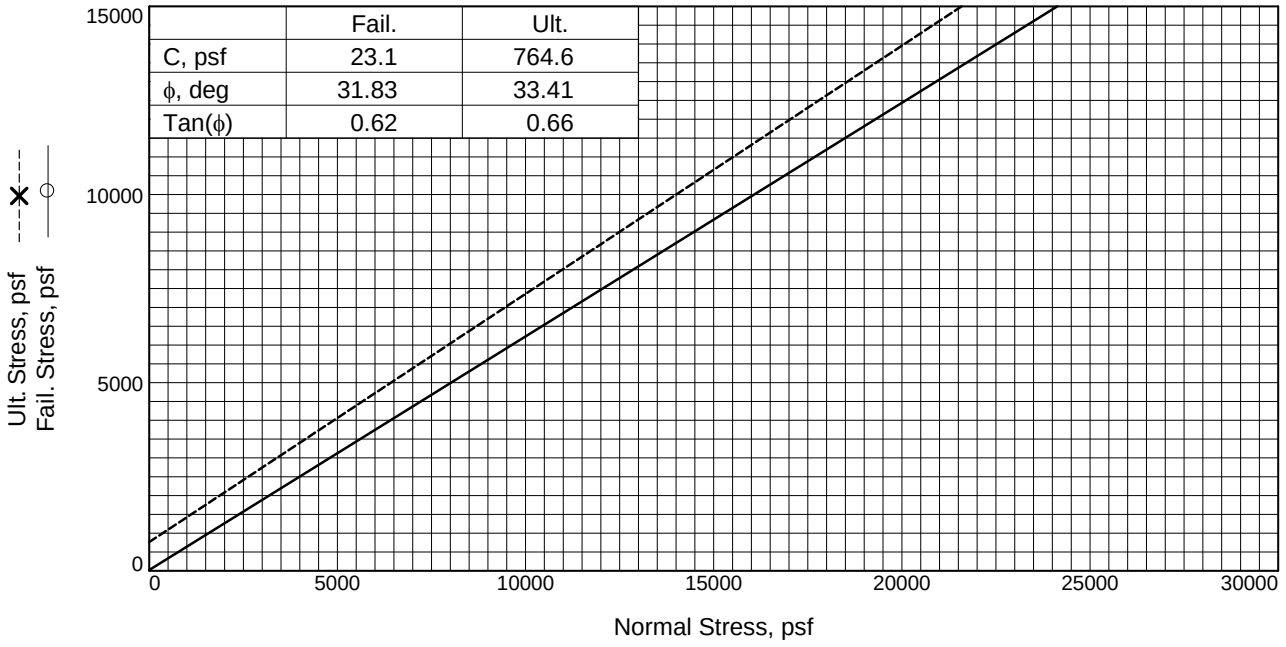
Client: Transylvania County Solid Waste

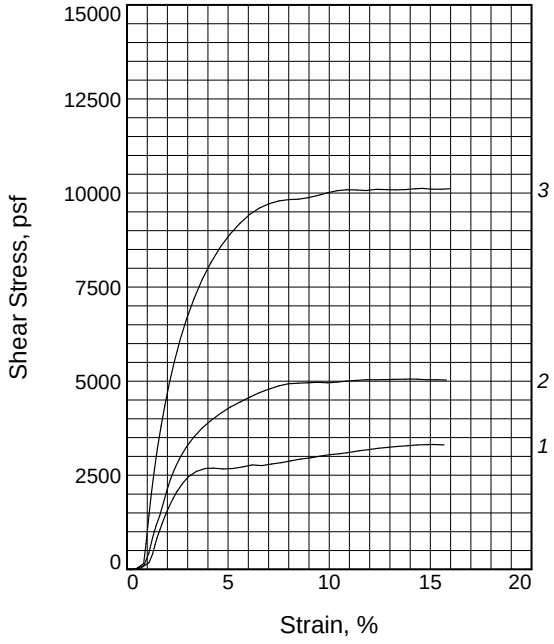
Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-2
Proj. No.: 24201-03 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: ML **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	16.1	16.1	16.1
	Dry Density, pcf	103.6	103.6	103.6
	Saturation, %	69.3	69.3	69.3
	Void Ratio	0.6265	0.6265	0.6265
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	20.2	20.2	20.3
	Dry Density, pcf	107.0	109.2	112.2
	Saturation, %	95.0	100.4	109.0
	Void Ratio	0.5752	0.5442	0.5024
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.969	0.949	0.924
Normal Stress, psf		3500.0	7000.0	14000.0
Fail. Stress, psf		2600.4	3760.7	8915.4
Strain, %		3.4	3.7	5.1
Ult. Stress, psf		3307.0	5029.9	10114.7
Strain, %		15.7	15.8	16.0
Strain rate, %/min.		0.08	0.08	0.08

Sample Type: Remolded
Description: Tan brown sandy SILT

LL= 28 **PL=** 23 **PI=** 5
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

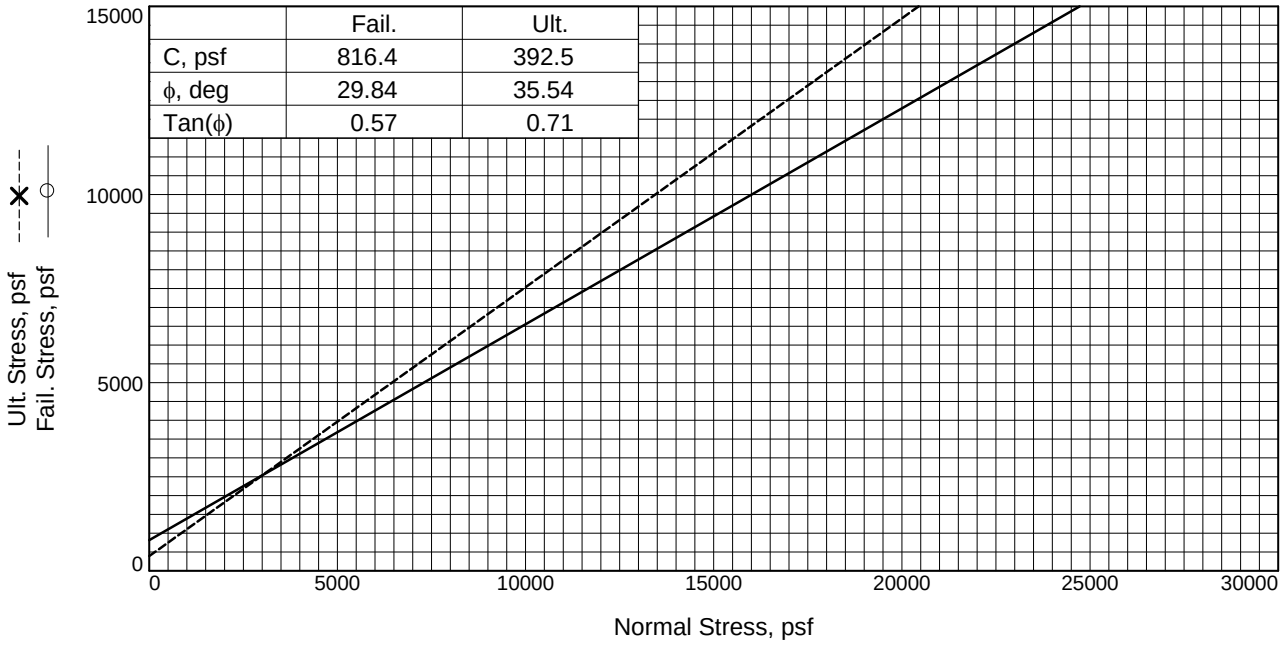
Client: Transylvania County Solid Waste

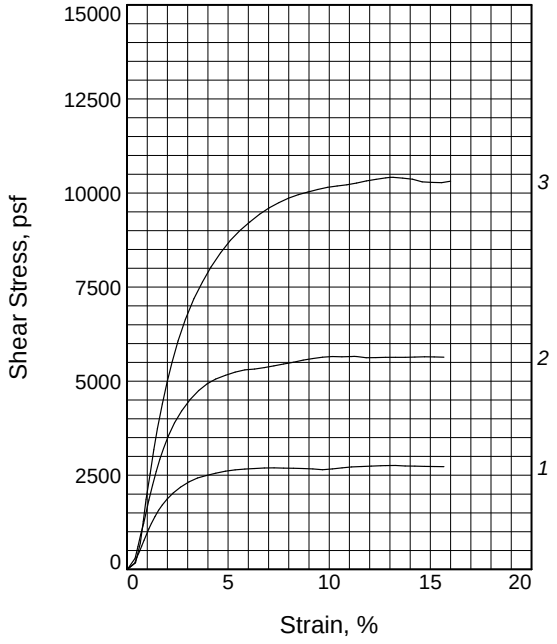
Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-3A
Proj. No.: 24201-03 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: JM **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	17.0	17.0	17.0
	Dry Density, pcf	100.5	100.5	100.5
	Saturation, %	68.0	68.0	68.0
	Void Ratio	0.6766	0.6766	0.6766
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	25.7	22.6	22.8
	Dry Density, pcf	105.3	105.4	108.6
	Saturation, %	115.4	101.9	111.3
	Void Ratio	0.6005	0.5995	0.5522
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.955	0.954	0.926
Normal Stress, psf		3500.0	7000.0	14000.0
Fail. Stress, psf		2609.2	5154.4	8740.0
Strain, %		4.9	4.9	5.1
Ult. Stress, psf		2729.8	5638.5	10313.0
Strain, %		15.7	15.7	16.0
Strain rate, %/min.		0.08	0.08	0.08

Sample Type: Remolded
Description: Light brown sandy SILT

LL= 25 **PL=** 23 **PI=** 2
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

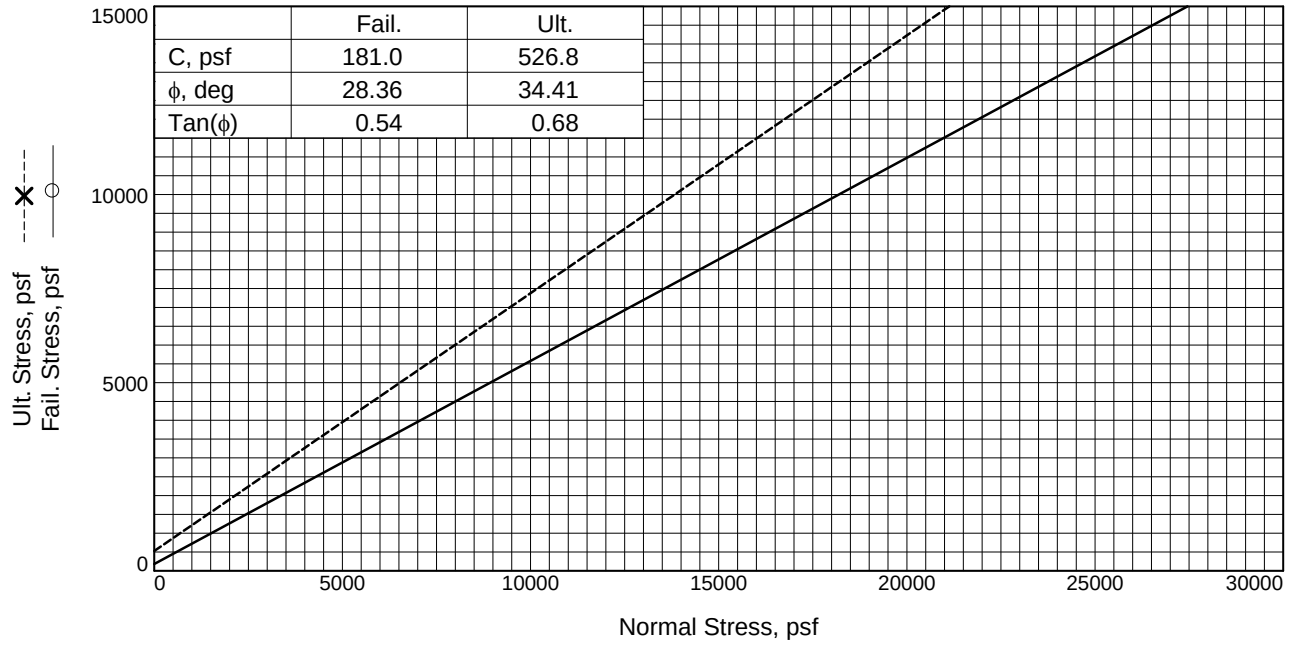
Client: Transylvania County Solid Waste

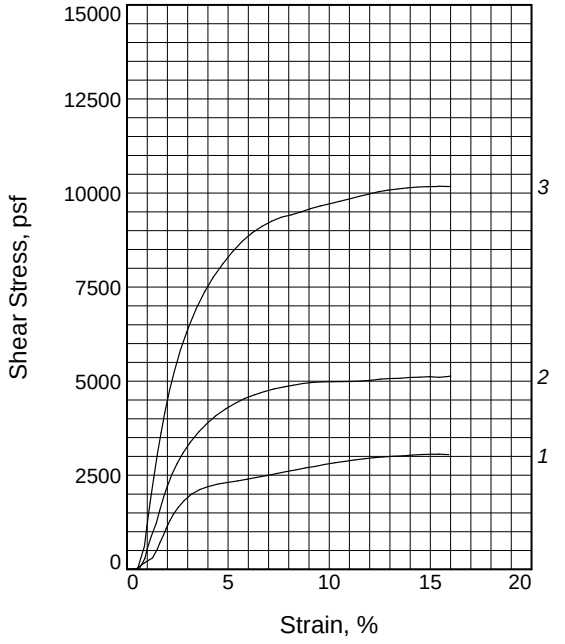
Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-3B
Proj. No.: 24201-03 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: ML **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	18.0	18.7	18.0
	Dry Density, pcf	99.7	99.1	99.7
	Saturation, %	70.4	72.1	70.4
	Void Ratio	0.6904	0.7005	0.6904
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	24.3	24.3	24.9
	Dry Density, pcf	104.1	104.2	105.8
	Saturation, %	106.0	106.0	113.4
	Void Ratio	0.6186	0.6183	0.5934
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.958	0.952	0.943
Normal Stress, psf		3500.0	7000.0	14000.0
Fail. Stress, psf		2121.2	3882.3	7762.7
Strain, %		3.6	4.0	4.3
Ult. Stress, psf		3048.0	5136.2	10178.5
Strain, %		15.9	16.0	16.0
Strain rate, %/min.		0.08	0.08	0.08

Sample Type: Remolded
Description: Light tan sandy SILT

LL= 26 **PI=** NP
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

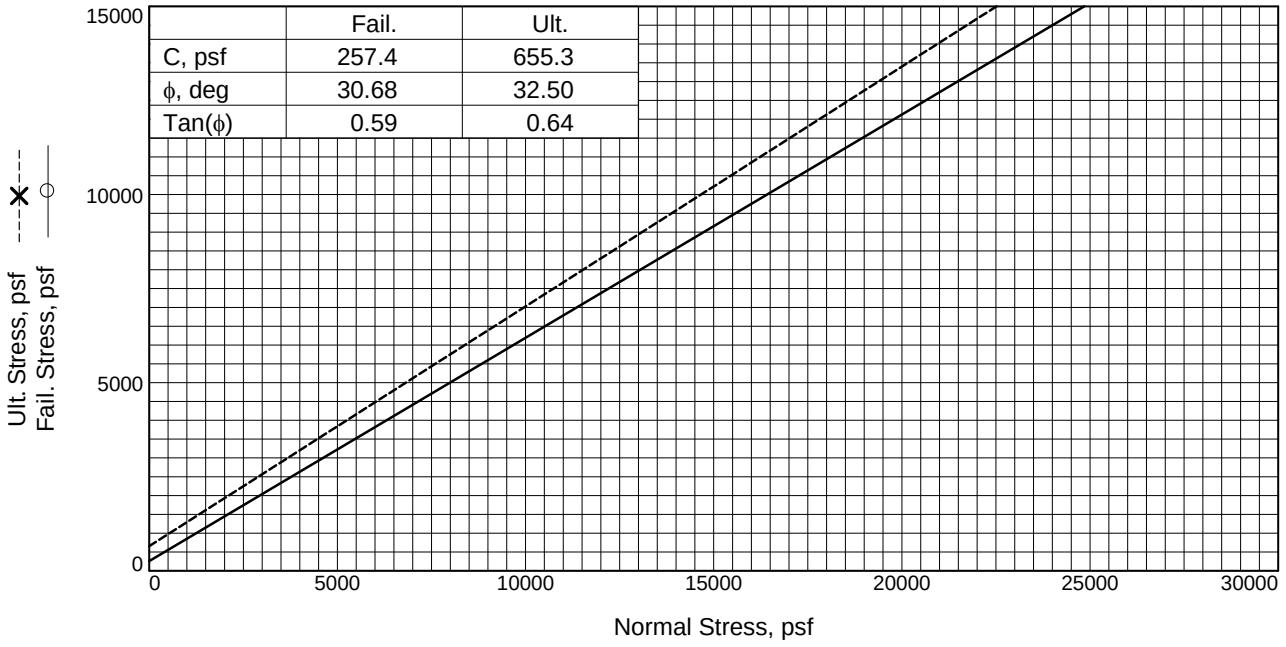
Client: Transylvania County Solid Waste

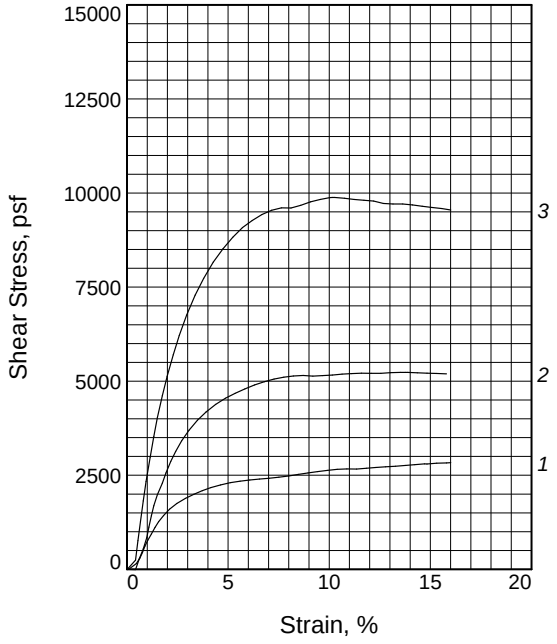
Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-3C
Proj. No.: 24201-03 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: JM **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	19.0	19.0	19.0
	Dry Density, pcf	95.0	95.0	95.0
	Saturation, %	66.2	66.2	66.2
	Void Ratio	0.7735	0.7735	0.7735
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	30.2	28.4	26.6
	Dry Density, pcf	97.9	99.2	102.9
	Saturation, %	113.1	109.8	112.5
	Void Ratio	0.7214	0.6987	0.6377
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.971	0.958	0.923
Normal Stress, psf		3500.0	7000.0	14000.0
Fail. Stress, psf		2242.8	4547.7	8518.5
Strain, %		4.6	4.9	4.7
Ult. Stress, psf		2833.0	5194.3	9549.5
Strain, %		16.0	15.8	16.0
Strain rate, %/min.		0.08	0.08	0.08

Sample Type: Remolded
Description: Light reddish brown SILT with sand

LL= 30 **PL=** 29 **PI=** 1
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

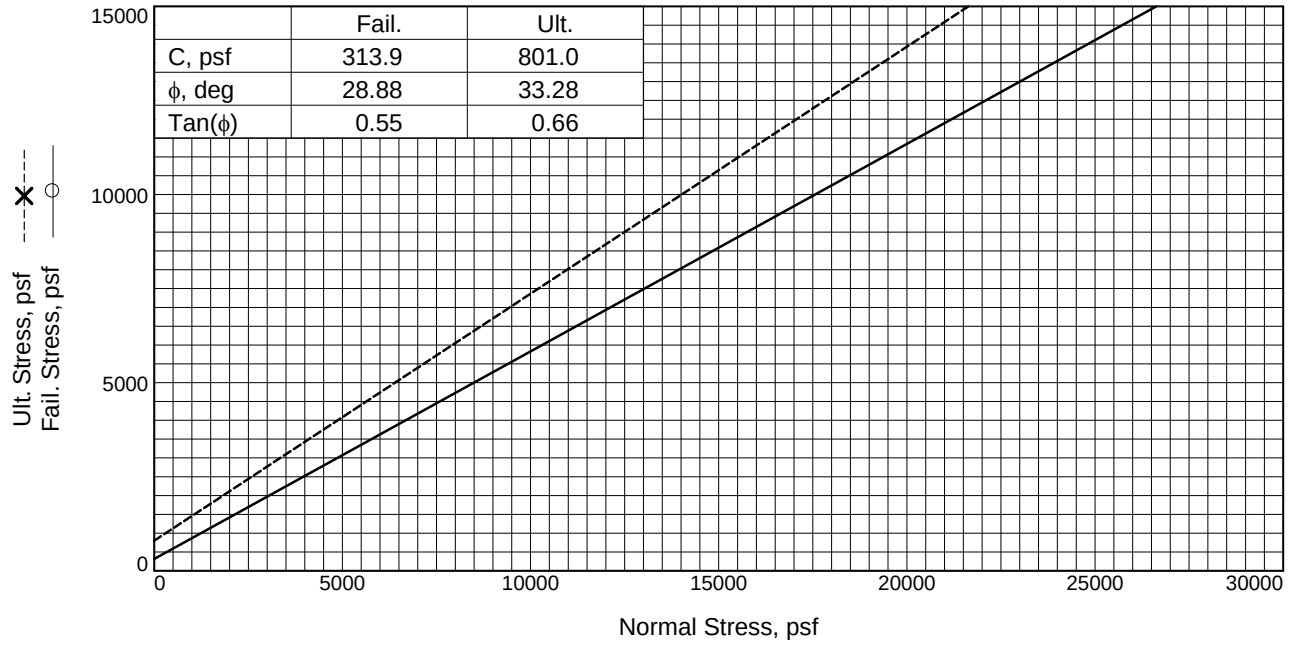
Client: Transylvania County Solid Waste

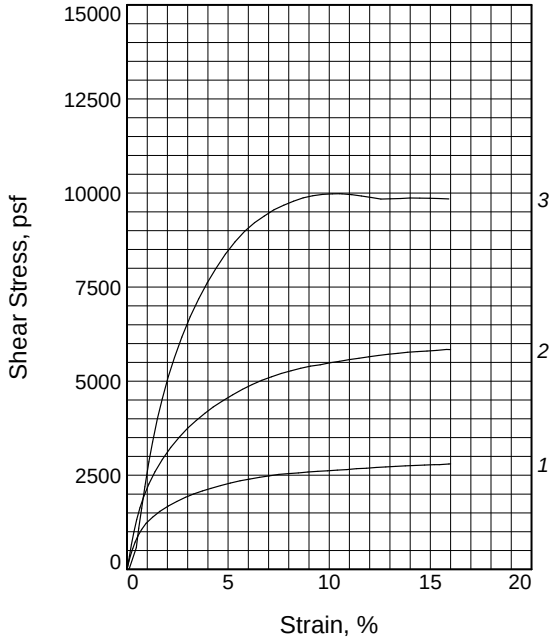
Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-4
Proj. No.: 24201-03 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: ML **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	16.8	16.8	16.8
	Dry Density, pcf	101.3	101.3	101.3
	Saturation, %	68.4	68.4	68.4
	Void Ratio	0.6637	0.6637	0.6637
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	23.4	24.0	21.8
	Dry Density, pcf	105.6	108.4	110.5
	Saturation, %	105.9	117.1	112.2
	Void Ratio	0.5963	0.5542	0.5251
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.960	0.934	0.917
Normal Stress, psf		3500.0	7000.0	14000.0
Fail. Stress, psf		2151.3	4314.4	7989.2
Strain, %		4.1	4.3	4.4
Ult. Stress, psf		2802.8	5838.2	9841.8
Strain, %		16.0	16.0	15.9
Strain rate, %/min.		0.08	0.08	0.08

Sample Type: Remolded
Description: Tan brown sandy SILT

LL= 28 **PL=** 23 **PI=** 5
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

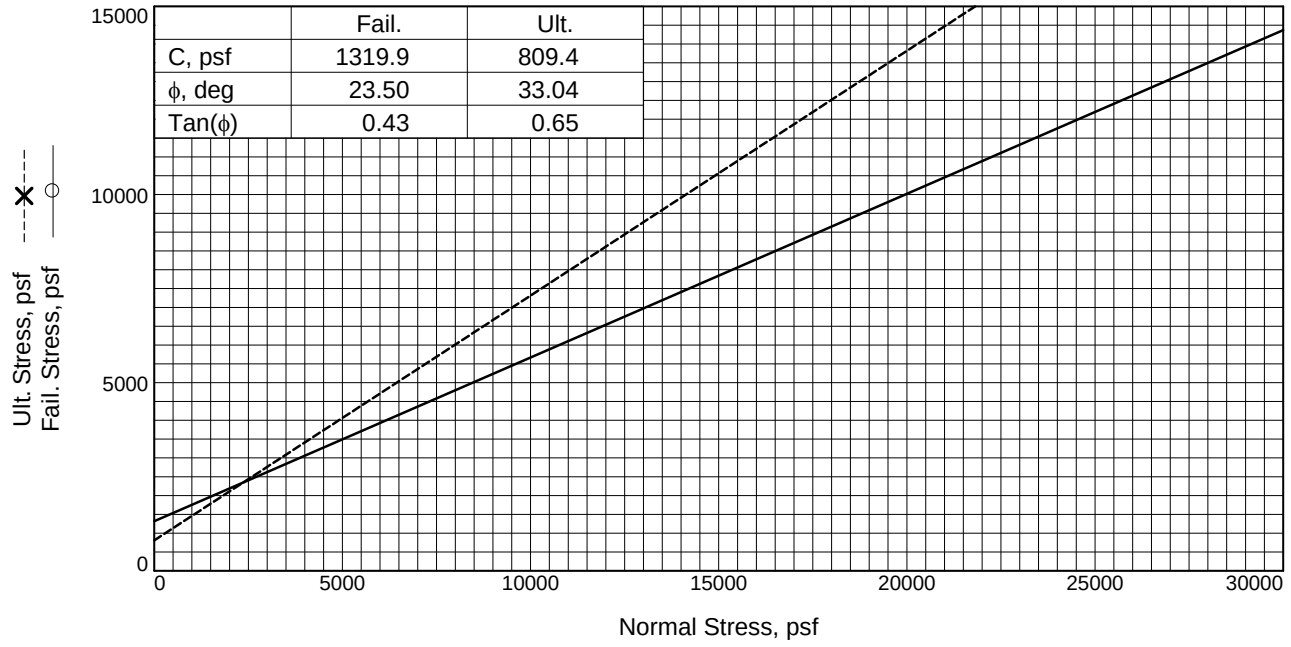
Client: Transylvania County Solid Waste

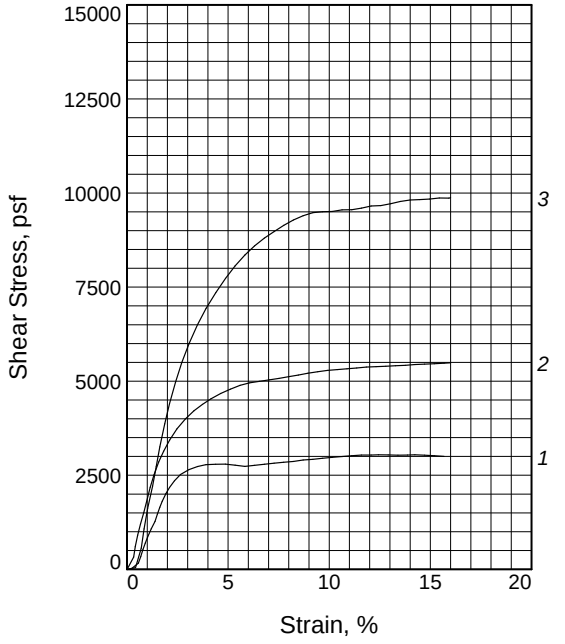
Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-5
Proj. No.: 24201-03 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: ML **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	18.9	18.9	18.9
	Dry Density, pcf	95.0	95.0	95.0
	Saturation, %	66.0	66.0	66.0
	Void Ratio	0.7737	0.7737	0.7737
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	28.7	27.3	27.7
	Dry Density, pcf	98.9	99.1	103.0
	Saturation, %	110.1	105.2	117.4
	Void Ratio	0.7035	0.7008	0.6364
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.960	0.959	0.923
Normal Stress, psf		3500.0	7000.0	14000.0
Fail. Stress, psf		2730.3	4532.0	7352.7
Strain, %		3.5	4.2	4.4
Ult. Stress, psf		3001.8	5488.7	9873.6
Strain, %		15.7	16.0	16.0
Strain rate, %/min.		0.08	0.08	0.08

Sample Type: Remolded
Description: Light brown sandy SILT

LL= 32 **PI=** NP
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

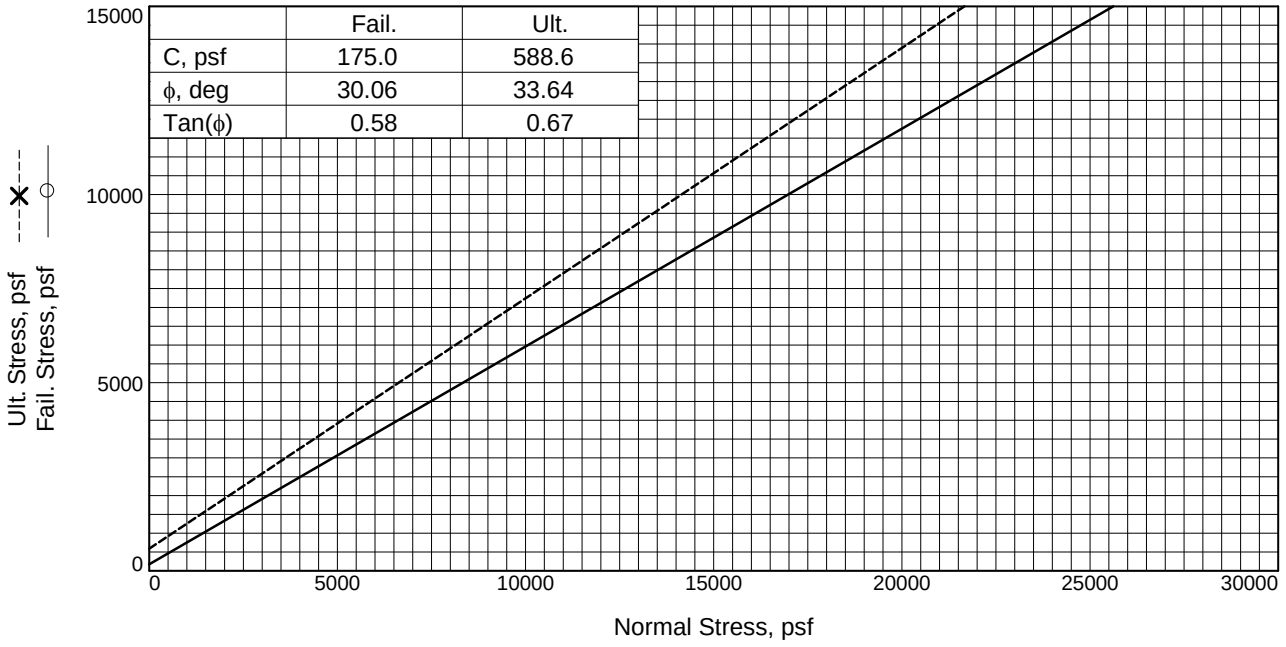
Client: Transylvania County Solid Waste

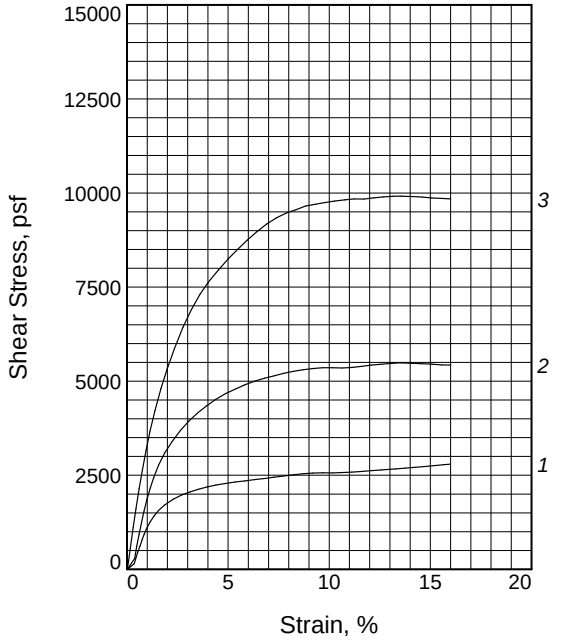
Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-6A
Proj. No.: 24201-03 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: JM **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	19.6	19.6	19.6
	Dry Density, pcf	93.1	93.1	93.1
	Saturation, %	65.4	65.4	65.4
	Void Ratio	0.8104	0.8104	0.8104
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	29.3	29.1	28.3
	Dry Density, pcf	96.9	99.2	102.5
	Saturation, %	106.7	112.5	118.7
	Void Ratio	0.7402	0.6985	0.6449
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.961	0.938	0.909
Normal Stress, psf		3500.0	7000.0	14000.0
Fail. Stress, psf		2129.7	4332.4	8241.7
Strain, %		3.5	3.9	5.0
Ult. Stress, psf		2795.1	5429.0	9841.9
Strain, %		16.0	16.0	16.0
Strain rate, %/min.		0.08	0.08	0.08

Sample Type: Remolded
Description: Tan brown sandy SILT

LL= 32 **PL=** 27 **PI=** 5
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

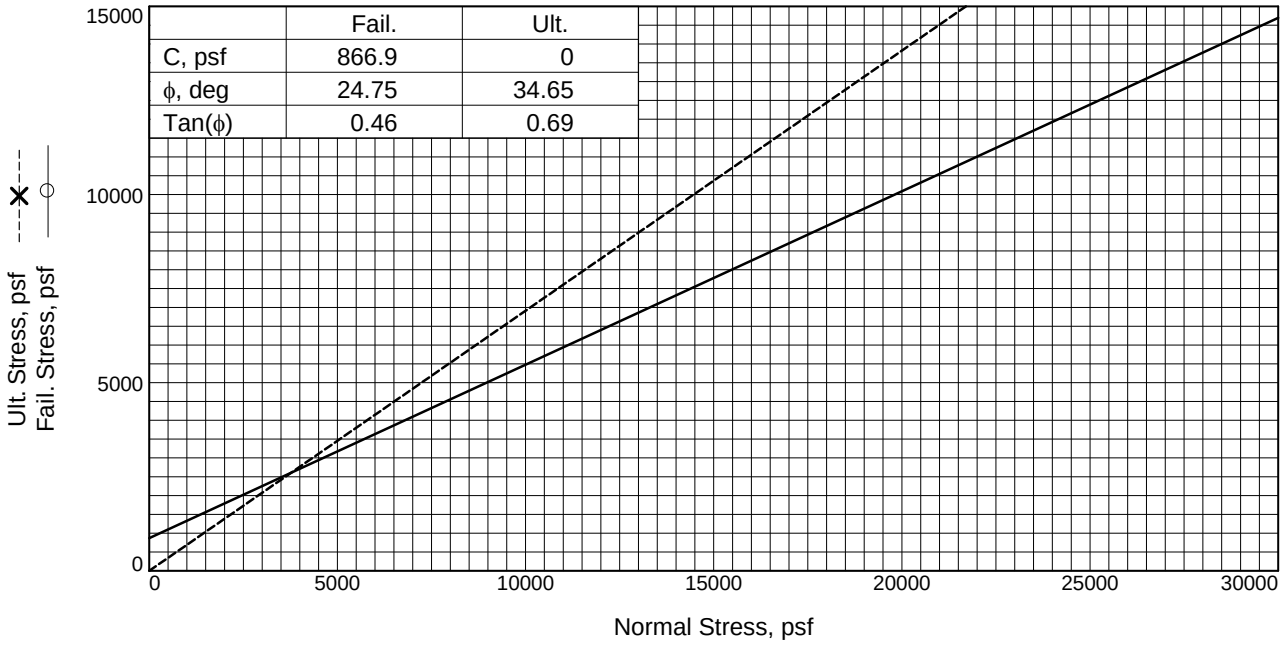
Client: Transylvania County Solid Waste

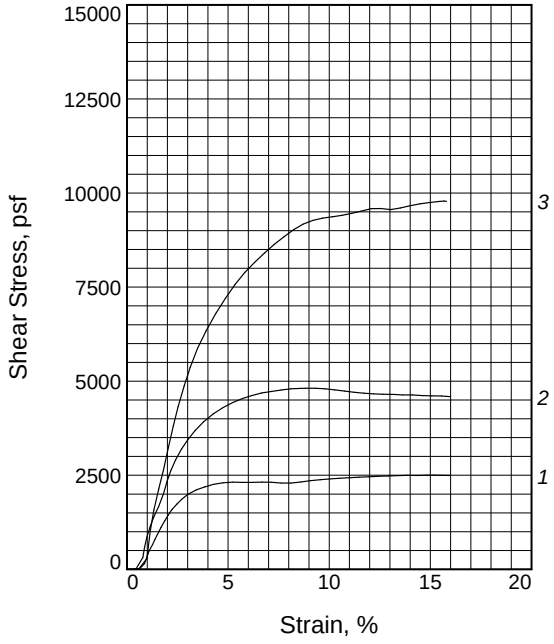
Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-6B
Proj. No.: 24201-03 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: JM **Checked By:** ML





Sample No.		1	2	3
Initial	Water Content, %	18.5	18.5	18.5
	Dry Density, pcf	97.7	97.7	97.7
	Saturation, %	68.9	68.9	68.9
	Void Ratio	0.7247	0.7247	0.7247
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	27.6	27.0	23.9
	Dry Density, pcf	101.4	104.8	106.6
	Saturation, %	112.7	119.7	111.2
	Void Ratio	0.6620	0.6088	0.5809
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.964	0.933	0.917
Normal Stress, psf		3500.0	7000.0	14000.0
Fail. Stress, psf		2255.2	4430.9	7207.5
Strain, %		4.3	5.2	4.9
Ult. Stress, psf		2495.7	4590.2	9780.7
Strain, %		16.0	16.0	15.8
Strain rate, %/min.		0.08	0.08	0.08

Sample Type: Remolded
Description: Tan brown sandy SILT

LL= 29 **PL=** 28 **PI=** 1
Assumed Specific Gravity= 2.7
Remarks:

Figure _____

Client: Transylvania County Solid Waste

Project: Woodruff County Landfill

Source of Sample: TP
Sample Number: TP-7
Proj. No.: 24201-03 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Bunnell Lammons Engineering, Inc.
Greenville, SC

Tested By: ML **Checked By:** ML

LaBella
Powered by partnership.

Attachment No. 5: EDR Agreement

Last Update: 02/25/2025

AGREEMENT FOR DELIVERY OF DOCUMENTS IN ELECTRONIC FORMAT

In connection with the **WOODRUFF LANDFILL PHASE 7 EXPANSION CONSTRUCTION PROJECT**, for which LaBella Associates, D.P.C. has been retained to provide services, **TRANSYLVANIA COUNTY** has requested that LaBella Associates provide recipient with certain instruments of services prepared by LaBella Associates and its Subconsultants in electronic machine readable format. These documents in such format shall hereinafter be referred to as the "Electronic Documents". In consideration LaBella Associates' agreement to release electronic documents, the recipient agrees as follows:

1. It is understood and agreed that all drawings, specifications, data, or other documents of any kind prepared by LaBella Associates or its Subconsultants, whether in hard copy or any electronic or machine readable format, including electronic documents (collectively "Electronic Documents") are, and shall remain, instruments of their services. These Electronic Documents were prepared solely for use in connection with this project. This agreement is not intended in any way to alter the respective interests of the parties in the instruments of services as set forth in any agreement for services between recipient and LaBella Associates, notwithstanding LaBella Associates' agreement to release the Electronic Documents to recipient.

2. The Electronic Documents are provided as a convenience to the recipient for informational purposes only in connection with the recipient's performance of its responsibilities and obligations relating to the project. The Electronic Documents do not replace or supplement the paper copies of the drawings and specifications which are, and remain, the contract documents for the project or the paper copies of any other document prepared by LaBella Associates or its Subconsultants.

3. The parties agree that the Electronic Documents are not, nor shall they be construed to be a product. It is expressly agreed by the recipient that there are no warranties of any kind in such Electronic Documents or in the media in which they are contained, either expressed or implied.

4. It is further understood and agreed that no Electronic Documents shall be signed or sealed.

5. If any differences exist between printed instruments of services and the Electronic Documents, the information contained in the printed documents shall be presumed to be correct and take precedence over the Electronic Documents.

6. Recipient assumes all liability that results from any interpretation of, or modification or alteration in any way, to the Electronic Documents.

7. The Electronic Documents may be supplied in any commercially available or privately developed software which may include but shall not be limited to the following: STAAD, Adobe Acrobat, Bentley products such as MicroStation, Autodesk products such as AutoCAD

and Revit, Microsoft products such as Word, Excel, PowerPoint, or MS Project. Transfer of Electronic Documents in no way conveys right or license to use the underlying software nor extinguish the rights of LaBella Associates to reuse the information in the general course of professional practice.

8. It is understood by recipient that the media in which any Electronic Documents are transmitted can deteriorate over time and under various conditions. LaBella Associates is not responsible for such deterioration. In addition, any conversion of the format is solely the responsibility of the recipient. Recipient understands that the conversion of paper copies of instruments of services into electronic or machine readable format, or the conversion of Electronic Documents from the machine readable format used by LaBella Associates, to some other format may introduce errors or other inaccuracies and agrees to release LaBella Associates and its Subconsultants from any liability or claims for recovery of damages or expenses arising as the result of such errors or inaccuracies.

9. Where the recipient has received specific permission to use the Electronic Documents in connection with recipient's obligation to prepare certain documents for the project, recipient shall, in addition to the other obligations set forth herein, be obligated to remove LaBella Associates' or the Subconsultant's title block from the copy of the Electronic Documents used by recipient.

10. Recipient further agrees that LaBella Associates' documents were prepared for use in connection with this project only, and that the Electronic Documents are supplied to recipient for the limited purpose stated above only. Recipient agrees not to use, or allow others to use, the Electronic Documents, in whole or in part, for any purpose or project other than as stated above without the expressed prior written permission of LaBella Associates.

11. Recipient agrees to waive any and all claims and liability against LaBella Associates and its Subconsultants resulting in any way from any failure by recipient to comply with the requirements of this agreement for the delivery of documents in electronic format.

12. Recipient further agrees to indemnify and hold harmless LaBella Associates and its Subconsultants and each of their partners, officers, shareholders, directors, and employees from any and all claims, judgments, suits, liabilities, damages, costs, or expenses (including reasonable defense and attorney's fees) arising as the result of either: (1) recipient's failure to comply with any of the requirements of this agreement for the delivery of documents in electronic format; or (2) a defect, error, or omission in the Electronic Documents or the information contained therein, which defect, error, or omission was not contained in the contract documents as defined in Paragraph 2 or where the use of such contract documents would have prevented the claim, judgment, suit, liability, damage, cost, or expense.

_____

Signature, Representative of **Recipient**