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CONSTRUCTION QUALITY ASSURANCE REPORT

Municipal Solid Waste Landfill Facility
Phase 4

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SOLID WASTE SECTION
ASHEVILLE REGIONAL OFFICE

Volume 1

Ashe County
North Carolina

November 2011

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CONSTRUCTION QUALITY ASSURANCE (CQA) REPORT
MUNICIPAL SOLID WASTE LANDFILL FACILITY – Phase 4
ASHE COUNTY, NORTH CAROLINA

The following parties performed the Ashe County Municipal Solid Waste Landfill – Phase 4 Construction Quality Assurance (QA) and Quality Control (QC):

QA

1. Municipal Engineering Services Co., P.A. (MESCO)
2. Geotechnics, Inc.

QC

1. Unifour Engineering and Testing
2. Hunter Construction Group
3. American Environmental Group Ltd.
4. Thomas Herman Company, PLLC

The Contractor was Hunter Construction Group of Mooresville, North Carolina. Hunter Construction contracted with Ashe County to construct Phase 4 of the MSW landfill. Hunter Construction contracted Unifour Engineering and Testing for QC testing during subgrade preparation and the construction of the 24-inch thick cohesive soil liner. Hunter Construction contracted American Environmental Group Ltd. to install and provide testing of textured high-density polyethylene (HDPE) liner manufactured and supplied by Agru America. Ashe County contracted MESCO to provide the Quality Assurance observation for the County. Through MESCO, the County also employed Geotechnics to provide third party laboratory testing on cohesive soil liner and laboratory testing on HDPE liner. This CQA report consists of information related to subgrade/structural fill, cohesive soil liner, HDPE liner, geocomposite net, protective cover, leachate collection system, and as-built drawings.

Subgrade preparation, including cut, fill, and embankment operations were observed and tested by Unifour. The fill subgrade and cut areas were satisfactorily proofrolled using a loaded dump truck and found acceptable.

The fill soils were tested for in-place densities and moisture contents. There were 21 tests completed with no failures. The test methods were mainly sand cone with a few drive cylinders. Testing quantities are considered representative and sufficient for the volume of fill placed and are acceptable to this project. The laboratory test results are presented in Unifour's report.

Hunter Construction used Unifour to select the on-site borrow soils for the cohesive soil liner construction, through preconstruction quality control testing. One compacted clay liner test pad was constructed in the floor area of the cell. The soils used to construct the test pad were excavated from the onsite borrow area. Based on the results of the test pads, the borrow soils were recommended for use in production placement of the compacted clay liner. The test pad was incorporated into the final compacted clay liner. The laboratory test results are presented in Unifour's report.

Once the test pad met the requirements of the specifications, construction of the cohesive soil liner began. Unifour was responsible for the day-to-day construction testing of the cohesive soil liner. In-place moisture/density tests (4 per lift per acre) and permeability tests (4 per lift per acre) were performed. The Permit to Construct required one (1) per lift per acre in each case. As construction progressed, MESCO/Geotechnics verified the in-place permeability of the cohesive soil liner.

The depth of cohesive soil liner was verified by surveying performed by Thomas Herman Company, PLLC and corings performed by MESCO after construction was completed. The holes that were left open by testing, corings, and the removal of grade stakes were backfilled with hand compacted bentonite and soil shaving mixture.

The 60-mil textured HDPE liner, manufactured and supplied by Agru America, was installed and the destructs were tested by Geotechnics. Agru America furnished documentation of the manufacturer certificate of conformity, bill of lading, and resin certificate for the rolls of HDPE liner that were shipped to the site. Roll numbers were verified on-site by MESCO by comparing shipping documentation with the manufacturer's documentation as well as the roll identification tag that was attached to each roll of liner. Based on the satisfactory QA

conformance test results on the HDPE liner material (density, thickness, asperity height, carbon content, carbon dispersion, and tensile strength) from Geotechnics and based on the satisfactory QC test results (tear resistance, puncture resistance, stress crack resistance, etc.) from Agru America, the HDPE liner materials used on this project are found acceptable.

At the beginning of each day of seaming and at approximately every 4-working hour interval, each welder had his welds field tested for peel and shear. If these tests failed, adjustments were made until these tests were passed and before any seams were welded by that particular welder. As seams were being completed, air pressure tests or vacuum tests were performed by American Environmental Group Ltd. personnel and verified by MESCO personnel. At approximately 500-foot intervals of seams, a destructive test sample was cut out and sent by MESCO to Geotechnics for peel and shear testing. Where failing destructive tests were encountered, additional samples were obtained and tested in the field and in the third party laboratory until all destructive test results passed. All destructive test locations were patched and vacuum tested successfully. When the HDPE liner installation was complete, as-built drawings and QC documentation were prepared by American Environmental Group Ltd. showing the seam location, panel number and location, non-destructive test results, locations of destructive tests, and repair information.

A total of approximately 14,041 lineal feet of weld was performed on the HDPE liner material. Based on the requirement of one (1) destruct sample per approximately 500 lineal feet of weld, a total of 28 weld destruct samples would be required for this project. There were 30 passing weld destruct samples (DS-32 thru DS-61) secured for this project and satisfy the permit requirements.

The installation of the geocomposite drainage net (SKAPS Transnet 270-2-7.1) was observed by MESCO personnel. A 270-mil Transnet geonet, sandwiched between 7.1-oz. Geotextile fabric, was placed on top of and across the HDPE liner. Based on the satisfactory test results presented in the attached certifications for geonet, geotextile fabric, and the composite from the manufacturer and based on the attached satisfactory 100-hour transmissivity test results, the geocomposite net used on this project is found acceptable.

The protective cover was spread across the geocomposite net. The as-built drawing for the protective cover is presented in this report. Once the protective cover was satisfactorily installed, the installation of the leachate collection system was started. The trench for the leachate collection system was excavated into the protective cover. A trackhoe excavated the trench within approximately 6 inches of the geocomposite net/liner. The remaining 6 inches (approximate) were hand excavated. MESCO personnel continually examined the exposed geocomposite net/liner. The drainage medium around the leachate collection pipes and within the sump consisted of NCDOT No. 57 stone and No. 5 stone, respectively, which were visually observed and found acceptable. The HDPE leachate pipes were embedded in the NCDOT No. 57 stone wrapped in an 8 oz. Geotextile filter fabric. Based on the attached certification for the HDPE pipe and the filter fabric, the pipe and fabric used on this project are found acceptable. The leachate force main line was leak tested from the sump to the existing manhole, and passed the leak test.

Subgrade/Cohesive Soil

License No. C-0281

CIVIL/SANITARY/ENVIRONMENTAL ENGINEERS

SOLID WASTE MANAGEMENT

Municipal Services

Engineering Company, P.A.

SITE PLANNING/SUBDIVISIONS

SUBSURFACE UTILITY ENGINEERING (SUE)

CERTIFICATION OF SUBGRADE
MUNICIPAL SOLID WASTE LANDFILL FACILITY – PHASE 4
ASHE COUNTY, NORTH CAROLINA

I, Jimmy D. Woodie, P.E. as Principal Engineer certify that the subgrade was properly prepared, that elevations are in general accordance with Solid Waste Section approved plans, that the cut subgrade was proofrolled using a loaded dump truck, and that the fill soils have been tested for density and moisture content in general accordance with the Solid Waste Section approved plans.

MUNICIPAL ENGINEERING SERVICES COMPANY, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 6282 ENGINEER JIMMY D. WOODIE

Jimmy D. Woodie, PE, NC Registration No. 6282

12/1/2011

Date

PO Box 97, Garner, North Carolina 27529 (919) 772-5393

PO Box 349, Boone, NC 28607 (828) 262-1767

CIVIL/SANITARY/ENVIRONMENTAL ENGINEERS
SOLID WASTE MANAGEMENT
Municipal Services
Engineering Company, P.A.
SITE PLANNING/SUBDIVISIONS
SUBSURFACE UTILITY ENGINEERING (SUE)

CERTIFICATION OF COMPACTED COHESIVE SOIL LINER
MUNICIPAL SOLID WASTE LANDFILL FACILITY – PHASE 4
ASHE COUNTY, NORTH CAROLINA

I, Jimmy D. Woodie, PE as Principal Engineer certify that the compacted cohesive soil liner was properly prepared in general accordance with the Solid Waste Section approved plans. The cohesive soil liner was constructed using methods and acceptable criteria consistent with laboratory tests on borrow material, test pad construction, and in-place testing in general accordance with the Solid Waste Section approved plans.

Materials used for the cohesive soil liner were tested in the laboratory for particle size distribution analysis, Atterberg limits, moisture content, triaxial cell permeability, and the moisture-density-permeability relation, before being accepted as approved material, as required by the Division approved plans. A "window" was developed from laboratory results comparing moisture-density to permeability and a successful test pad was constructed to verify these results.

Construction of the cohesive soil liner was controlled through results of laboratory testing on borrow materials and in-place testing on the test pad. The test pad was compacted to various densities and Shelby tube samples were obtained to test for permeability. At each location of the moisture content and density tests, the results were compared to the appropriate moisture-density-permeability relation. Each lift of compacted cohesive soil liner was tested for moisture-density and permeability at 4 tests per acre per lift. The final in-place permeability tests met the specification requirement of 1×10^{-7} cm/sec or less.

The thickness of each lift and the final thickness of the cohesive soil liner were controlled by survey stakes and verified by hand augering to visually observe the thickness. A survey was done to compare subgrade elevations to the top of the cohesive soil liner elevations in order to verify the final thickness of the cohesive soil liner.

Any penetrations of the compacted cohesive soil liner was repaired using hand compacted bentonite and soil shaving mixture, in general accordance with the Solid Waste Section approved plans.

MUNICIPAL ENGINEERING SERVICES COMPANY, P.A.

Jimmy D. Woodie, PE, NC Registration No. 6282

NORTH CAROLINA PROFESSIONAL SEAL 6282 ENGINEER JIMMY D. WOODIE

12/1/2011
Date

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Unifour
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Engineering & Testing Laboratories, PC

CERTIFICATION REPORT OF CONSTRUCTION QUALITY ASSURANCE TESTING

FINAL CLAY LINER CERTIFICATION
ASHE COUNTY MUNICIPAL SOLID WASTE LANDFILL PHASE 4

ASHE COUNTY, NORTH CAROLINA

Prepared for:

HUNTER CONSTRUCTION GROUP
Mooresville, North Carolina

Prepared by:

UNIFOUR ENGINEERING & TESTING LABORATORIES, PC
Hickory, North Carolina

October 10, 2011

STATEMENT OF CERTIFICATION FOR CONSTRUCTION QUALITY CONTROL

STRUCTURAL FILL & COMPACTED CLAY LINER CERTIFICATION
ASHE COUNTY MUNICIPAL SOLID WASTE LANDFILL PHASE 4 CONSTRUCTION

ASHE COUNTY, NORTH CAROLINA

By this document, I do hereby state and certify that Unifour Engineering & Testing Laboratories, PC, a registered professional engineering corporation in the state of North Carolina, did directly and by its representatives conduct and perform construction quality assurance observation and testing services in accordance with project Technical Specifications for construction of a compacted clay cover over the final limits of construction as defined by approved project drawings prepared by Municipal Engineering Services Co., Inc. (MESCO), for the Ashe County Municipal Solid Waste Landfill Phase 4 Construction.

By this document, I do further state that I am a licensed professional engineer in the state of North Carolina representing Unifour Engineering & Testing Laboratories, PC., and that under my direction and supervision, such observation and testing efforts performed thereby do support and certify that the compacted structural fill soils and compacted clay liner materials for final constructed limits of the Ashe County Municipal Solid Waste Landfill Phase 4 Construction have been installed per Specifications and all applicable addendums and supplements thereto.

Certified to on this date by:

Bobby L. Barnes, P.E.
Principal Geotechnical Engineer
Unifour Engineering & Testing Laboratories, PC
NC Registration No. 19385

NORTH CAROLINA PROFESSIONAL SEAL 19385 ENGINEER BOBBY L. BARNES

Signature

10/10/11

October 10, 2011

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CERTIFICATION REPORT OF CONSTRUCTION QUALITY ASSURANCE TESTING

Final Clay Structural Fill & Compacted Clay Liner Certification
Ashe County Municipal Solid Waste Landfill Phase 4 Construction
Ashe County, North Carolina

1.0 Introduction

This Certification Report of Construction Quality Control Testing has been prepared as required under project specifications Item 3.01.1 (d) and in general accordance with the requirements of Title 15A NCAC 13B for North Carolina Solid Waste Management.

2.0 Narrative

The purpose of Construction Quality Control (CQC) Testing is to provide reasonable and sufficient confidence through systematic inspection and testing to ensure that the materials and construction procedures provided for placement of the clay cover meet the design and technical specification requirements of the Construction Quality Assurance Plan as prepared by MESCO for construction of the Phase 4 Municipal Solid Waste Landfill cell for Ashe County, North Carolina as approved by the North Carolina Department of Environment, Health, and Natural Resources through the Division of Solid Waste Management.

To accomplish the purpose of CQC Testing, Unifour personnel were available and present on-site during all periods of structural fill and compacted clay liner material placement to observe and document activities related to the construction of the clay structure embankments and the clay liner. Additionally, Unifour personnel conducted a sequence of field and laboratory testing services in accordance with the approved Plans and Technical Specifications for construction as prepared by MESCO. Documentation on each item of CQC monitoring and testing performed by Unifour are provided in the following sections of this report.

3.0 Structural Fill & Clay Cover Soil Pre-Construction Qualification

In accordance with the Technical Specifications for Stage 1 construction of the structural fill soils and compacted clay liner at the Ashe County MSW, Unifour conducted the following tests for pre-construction soil material qualification. At 7.92 plan acres using a specified 2-ft thickness of compacted clay liner, a plan total of approximately 25,600 cubic yards of compacted clay liner soils were required for project construction.

STRUCTURAL FILL SOILS

Test Description	Quantity Performed	Min. Required Frequency
Grain Size, ASTM D422	9	1 per 3 ft of each 10,000 SF
Atterberg Limits, ASTM D4318	9	1 per 3 ft of each 10,000 SF
Standard Proctor, ASTM D698	9	1 per 3 ft of each 10,000 SF

COMPACTED CLAY LINER MATERIALS

Test Description	Quantity Performed	Min. Required Frequency
Grain Size, ASTM D422	10	1 per 4,000 cyd (6 total)
Atterberg Limits, ASTM D4318	10	1 per 4,000 cyd (6 total)
Standard Proctor, ASTM D698	10	1 per 4,000 cyd (6 total)
Remolded Permeability, ASTM D5084	10	1 per 4,000 cyd (6 total)

The project contractor identified multiple on-site borrow areas for creation of both stockpiled structural fill soils and a composite stockpiled source to supply clay liner soils. Unifour personnel accompanied representatives for the contractor to excavate test pits within the proposed borrow areas and the composite stockpile. All samples were obtained by random grab methods, being selected to represent the materials to be removed from the proposed borrow area. The proposed clay liner soils were determined to require the addition of bentonite materials to achieve minimum permeability results under compacted conditions as required by the Project Specifications.

Results of laboratory testing are attached in the following section.

4.0 Structural Fill Embankment Construction

Unifour personnel were requested by the Contractor to be present daily during all structural fill placement efforts. In accordance with the Technical Specifications for Stage 1 construction of the structural fill soils at the Ashe County MSW, Unifour conducted the following tests for construction quality control testing of the structural fill embankment materials. .

STRUCTURAL FILL SOILS

Test Description	Quantity Performed	Min. Required Frequency
Moisture Content, ASTM D2216	see attached	1 per 15,000 ft^2 each 3 ft
Field Density, ASTM D2937	see attached	1 per 15,000 ft^2 each 3 ft
Standard Proctor, ASTM D698	9	1 per 3 ft of each 10,000 SF

5.0 Clay Liner Soil Test Pad Construction

Unifour personnel observed the construction of a 25-foot by 50 foot test pad prior to beginning full scale placement of the clay cover soils as required by the Technical Specifications. The purpose of the test pad was to use all equipment, materials, and placement procedures that would be representative of full scale construction. Pursuant to the Technical Specifications, Unifour conducted the following tests for Test Pad Construction.

Test Description	Quantity Performed	Min. Required Frequency
Moisture Content, ASTM D2216	4	1 per 6-inch lift
Field Density, ASTM D2937*	4	1 per 6-inch lift
Shelby Tube Undisturbed Samples	4	1 per 6-inch lift
Grain Size, ASTM D422	4	1 per 6-inch lift
Atterberg Limits, ASTM D4318	4	1 per 6-inch lift
UD Sample Permeability, ASTM D5084	4	1 per 6-inch lift

*Testing was initially conducted by ASTM D1556 Sand Cone Density, but field correlation to D2937 Drive Tube Method shown acceptable uniformity and reduced contractor down time waiting on results due to small work area. Authorization was made to allow use of D2937.

One undisturbed Shelby tube sample and one additional spare tube samples were collected from each test pad lift. Each tube was sealed with wax, capped and placed in a cushioned carrier for transport to Unifour's lab. Each tube sample was then extruded and trimmed for permeability testing using a flexible wall permeameter. Testing procedures for permeability were in accordance with ASTM D5084, Method C for Falling Head with Rising Tail Water.

Permeability measurements for all undisturbed samples collected from lifts 1 through recorded maximum permeability values at less than 1×10^{-7} cm/sec. It was concluded from the testing results on the test pad construction that the proposed materials and construction procedures would be adequate at full scale to obtain the requirements for the clay cover.

Table I
Summary of Laboratory Hydraulic Conductivity CQC Test Pad Testing
Stage 1 @ Ashe Co. MSW Closure

Sample Identification	Sample Location	Measured Saturated Hydraulic Conductivity, cm/sec
44(TP-L1)	Test Pad Lift 1(re-test)	2.38 E-08
65(TP-L2)	Test Pad Lift 2	1.75 E-08
66(TP-L3)	Test Pad Lift 3	6.75 E-08
131(TP-L4)	Test Pad Lift 4	4.30 E-08

Results of laboratory testing are attached in the following section.

6.0 CLAY COVER PLACEMENT

Based on the acceptable results of laboratory testing for the test pad, the contractor was approved to initiate full scale installation of the compacted clay cover at the Ashe Count MSW Phase 4 construction. Unifour personnel were present at the site during all cover soil placement activities, and recorded observations and testing efforts on a daily basis. In accordance with the Technical Specifications, Unifour personnel performed the following field and laboratory testing for conformance of construction to plan. Total plan area for the landfill cell was defined at approximately 7.92 acres, or nominally 345,000 square feet, requiring approximately 25'600 cubic yards of compacted clay soils to construct the liner.

Test Description	Quantity Performed	Min. Required Frequency
Moisture Content, ASTM D2216	>256	1 per 10,000 ft^2 per lift
Field Density, ASTM D2937	>256	1 per 10,000 ft^2 per lift
Grain Size, ASTM D422	128	4 per Acre per lift
Atterberg Limits, ASTM D4318	128	4 per Acre per lift
Shelby Tube Undisturbed Samples	128	4 per Acre per lift
UD Sample Permeability, ASTM D5084	128	4 per Acre per lift

A minimum of eight moisture and density measurements were taken on each 6-inch lift for Stage 1, with all test locations meeting or exceeding moisture and compaction requirements either at the time of initial testing or following subsequent controlled re-conditioning and re-compaction efforts performed by the contractor and as approved by MESCO QA representatives in accordance with the Technical Specifications and supplementals.

Daily reports representing in-place moisture and density testing results related to Stage 1 compacted clay liner placement efforts are attached in the following section. Figures of field test locations and laboratory test reports for UD Sample permeability testing are also provided where applicable.

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CERTIFICATION REPORT OF CONSTRUCTION QUALITY ASSURANCE TESTING

Final Clay Structural Fill & Compacted Clay Liner Certification
Ashe County Municipal Solid Waste Landfill Phase 4 Construction
Ashe County, North Carolina

1.0 Introduction

This Certification Report of Construction Quality Control Testing has been prepared as required under project specifications Item 3.01.1 (d) and in general accordance with the requirements of Title 15A NCAC 13B for North Carolina Solid Waste Management.

2.0 Narrative

The purpose of Construction Quality Control (CQC) Testing is to provide reasonable and sufficient confidence through systematic inspection and testing to ensure that the materials and construction procedures provided for placement of the clay cover meet the design and technical specification requirements of the Construction Quality Assurance Plan as prepared by MESCO for construction of the Phase 4 Municipal Solid Waste Landfill cell for Ashe County, North Carolina as approved by the North Carolina Department of Environment, Health, and Natural Resources through the Division of Solid Waste Management.

To accomplish the purpose of CQC Testing, Unifour personnel were available and present on-site during all periods of structural fill and compacted clay liner material placement to observe and document activities related to the construction of the clay structure embankments and the clay liner. Additionally, Unifour personnel conducted a sequence of field and laboratory testing services in accordance with the approved Plans and Technical Specifications for construction as prepared by MESCO. Documentation on each item of CQC monitoring and testing performed by Unifour are provided in the following sections of this report.

3.0 Structural Fill & Clay Cover Soil Pre-Construction Qualification

In accordance with the Technical Specifications for construction of the structural fill soils and compacted clay liner at the Ashe County MSW, Unifour conducted the following tests for pre-construction soil material qualification. At 7.92 plan acres using a specified 2-ft thickness of compacted clay liner, a plan total of approximately 25,600 cubic yards of compacted clay liner soils were required for project construction.

STRUCTURAL FILL SOILS

Test Description	Quantity Performed	Min. Required Frequency
Grain Size, ASTM D422	10	1 per 3 ft of each 10,000 SF
Atterberg Limits, ASTM D4318	10	1 per 3 ft of each 10,000 SF
Standard Proctor, ASTM D698	10	1 per 3 ft of each 10,000 SF

COMPACTED CLAY LINER MATERIALS

Test Description	Quantity Performed	Min. Required Frequency
Grain Size, ASTM D422	11	1 per 4,000 cyd (6 total)
Atterberg Limits, ASTM D4318	11	1 per 4,000 cyd (6 total)
Standard Proctor, ASTM D698	11	1 per 4,000 cyd (6 total)
Remolded Permeability, ASTM D5084	10	1 per 4,000 cyd (6 total)

The project contractor identified multiple on-site borrow areas for creation of both stockpiled structural fill soils and a composite stockpiled source to supply clay liner soils. Unifour personnel accompanied representatives for the contractor to excavate test pits within the proposed borrow areas and the composite stockpile. All samples were obtained by random grab methods, being selected to represent the materials to be removed from the proposed borrow area. The proposed clay liner soils were determined to require the addition of bentonite materials to achieve minimum permeability results under compacted conditions as required by the Project Specifications.

Results of laboratory testing are attached in the following section.

4.0 Structural Fill Embankment Construction

Unifour personnel were requested by the Contractor to be present daily during all structural fill placement efforts. In accordance with the Technical Specifications for construction of the structural fill soils at the Ashe County MSW, Unifour conducted the following tests for construction quality control testing of the structural fill embankment materials. .

STRUCTURAL FILL SOILS

Test Description	Quantity Performed	Min. Required Frequency
Moisture Content, ASTM D2216	see attached	1 per 15,000 ft^2 each 3 ft
Field Density, ASTM D2937	see attached	1 per 15,000 ft^2 each 3 ft
Standard Proctor, ASTM D698	10	1 per 3 ft of each 10,000 SF

5.0 Clay Liner Soil Test Pad Construction

Unifour personnel observed the construction of a 25-foot by 50 foot test pad prior to beginning full scale placement of the clay cover soils as required by the Technical Specifications. The purpose of the test pad was to use all equipment, materials, and placement procedures that would be representative of full scale construction. Pursuant to the Technical Specifications, Unifour conducted the following tests for Test Pad Construction.

Test Description	Quantity Performed	Min. Required Frequency
Moisture Content, ASTM D2216	4	1 per 6-inch lift
Field Density, ASTM D2937*	4	1 per 6-inch lift
Shelby Tube Undisturbed Samples	4	1 per 6-inch lift
Grain Size, ASTM D422	4	1 per 6-inch lift
Atterberg Limits, ASTM D4318	4	1 per 6-inch lift
UD Sample Permeability, ASTM D5084	4	1 per 6-inch lift

*Testing was initially conducted by ASTM D1556 Sand Cone Density, but field correlation to D2937 Drive Tube Method shown acceptable uniformity and reduced contractor down time waiting on results due to small work area. Authorization was made to allow use of D2937.

One undisturbed Shelby tube sample and one additional spare tube samples were collected from each test pad lift. Each tube was sealed with wax, capped and placed in a cushioned carrier for transport to Unifour's lab. Each tube sample was then extruded and trimmed for permeability testing using a flexible wall permeameter. Testing procedures for permeability were in accordance with ASTM D5084, Method C for Falling Head with Rising Tail Water.

Permeability measurements for all undisturbed samples collected from lifts 1 through recorded maximum permeability values at less than 1×10^{-7} cm/sec. It was concluded from the testing results on the test pad construction that the proposed materials and construction procedures would be adequate at full scale to obtain the requirements for the clay cover.

Table I
Summary of Laboratory Hydraulic Conductivity CQC Test Pad Testing
Ashe Co. MSW Phase 4 Cell

Sample Identification	Sample Location	Measured Saturated Hydraulic Conductivity, cm/sec
44(TP-L1)	Test Pad Lift 1(re-test)	2.38 E-08
65(TP-L2)	Test Pad Lift 2	1.75 E-08
66(TP-L3)	Test Pad Lift 3	6.75 E-08
131(TP-L4)	Test Pad Lift 4	4.30 E-08

Results of laboratory testing are attached in the following section.

6.0 CLAY COVER PLACEMENT

Based on the acceptable results of laboratory testing for the test pad, the contractor was approved to initiate full scale installation of the compacted clay cover at the Ashe Count MSW Phase 4 construction. Unifour personnel were present at the site during all cover soil placement activities, and recorded observations and testing efforts on a daily basis. In accordance with the Technical Specifications, Unifour personnel performed the following field and laboratory testing for conformance of construction to plan. Total plan area for the landfill cell was defined at approximately 7.92 acres, or nominally 345,000 square feet, requiring approximately 25,600 cubic yards of compacted clay soils to construct the liner.

Test Description	Quantity Performed	Min. Required Frequency
Moisture Content, ASTM D2216	see attached	1 per 10,000 ft^2 per lift
Field Density, ASTM D2937	see attached	1 per 10,000 ft^2 per lift
Grain Size, ASTM D422	128	4 per Acre per lift
Atterberg Limits, ASTM D4318	128	4 per Acre per lift
Shelby Tube Undisturbed Samples	128	4 per Acre per lift
UD Sample Permeability, ASTM D5084	128	4 per Acre per lift

A minimum of eight moisture and density measurements were taken on each 6-inch lift for each project liner grid designation as defined by MESCO, with all test locations meeting or exceeding moisture and compaction requirements either at the time of initial testing or following subsequent controlled re-conditioning and re-compaction efforts performed by the contractor and as approved by MESCO QA representatives in accordance with the Technical Specifications and supplementals. Field Density tests corresponding to UD Sample collection as directed by MESCO QA representatives were additionally identified by the UD Sample designation assigned by MESCO for that particular test location.

Daily reports representing in-place moisture and density testing results related to compacted clay liner placement efforts are attached in the following section. Figures of field test locations and laboratory test reports for UD Sample permeability testing are also provided where applicable.

STRUCTURAL FILL SOILS

BULK SAMPLE TESTING

Unifour
Engineering & Testing Laboratories, PC

MOISTURE-DENSITY TEST

SAMPLE # 3477-E1

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

OLIVE GRAY SILTY SAND W/GRAVEL USC - SM

%-200 - 27.0 LL - NT PL - NT

LOCATION : (EMBANKMENT FILL) ON-SITE BORROW
ELEVATION :
DATE START: December 4, 2009
DATE FINISH: December 5, 2009
TESTED BY : TOB
CHECKED BY : BLB

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

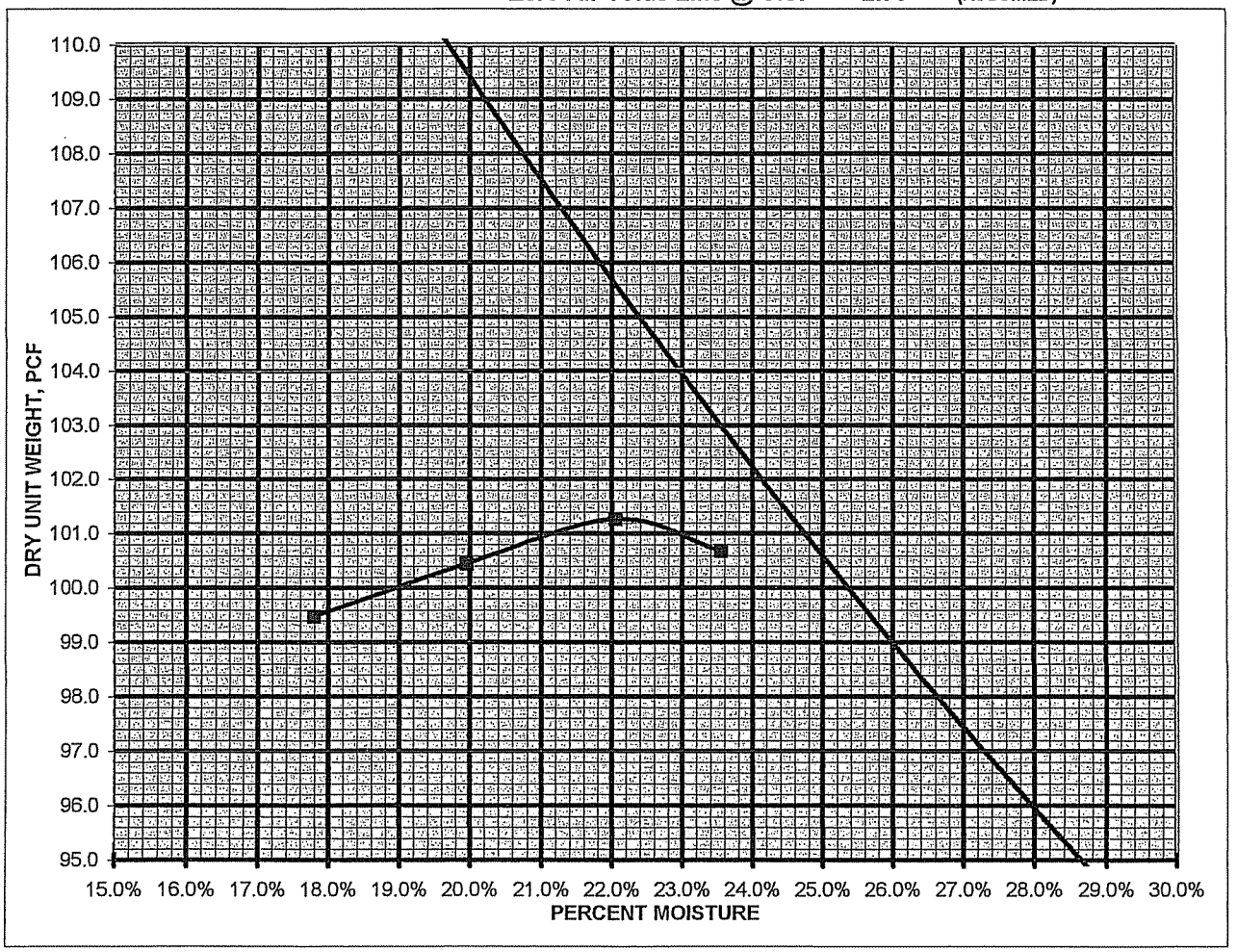
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 101.3

OPTIMUM MOISTURE (%) 22.0

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4225	6104	8.2	509.8	414.2	23.5%	124.4	100.7	
2	4225	6092	6.6	530.4	435.8	22.0%	123.6	101.3	
3	4225	6045	6.6	525.5	439.2	19.9%	120.5	100.4	
4	4225	5995	6.6	518.4	441.1	17.8%	117.2	99.5	

Zero Air Voids Line @ G.S.= 2.70 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-E2

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION
OLIVE GREEN SILTY SAND — USC - SM
%-200 - 37.2 LL - NT PL - NT

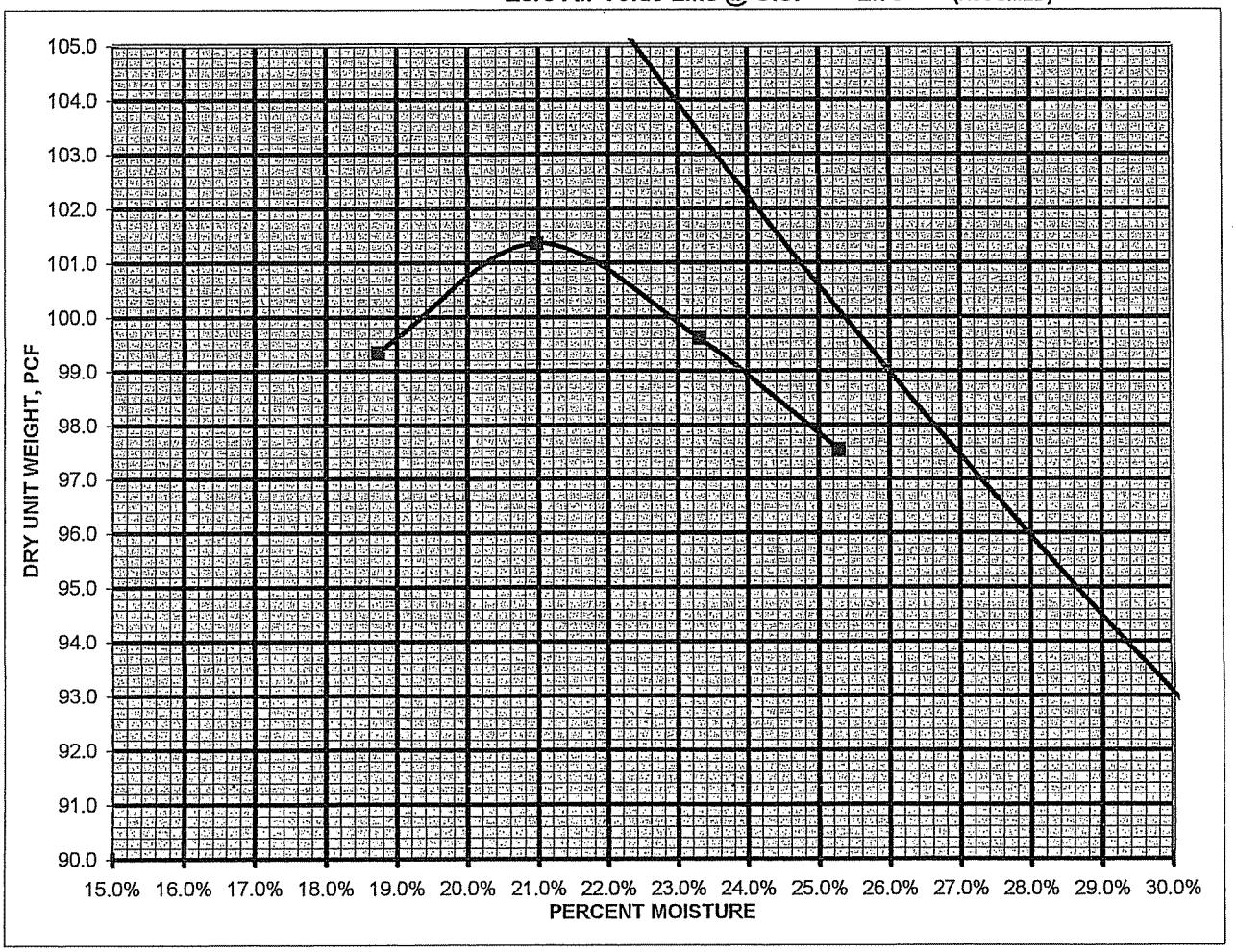
(EMBANKMENT FILL)
LOCATION : ON-SITE BORROW
ELEVATION :
DATE START: December 4, 2009
DATE FINISH: December 5, 2009
TESTED BY : ZJE
CHECKED BY : BLB

TEST PROTOCOL
ASTM - D698
METHOD - B WET HAMMER: MANUAL

TEST RESULTS
MAXIMUM DRY DENSITY (PCF) 101.4
OPTIMUM MOISTURE (%) 21.0

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4254	6089	6.6	349.0	279.9	25.3%	122.2	97.5	
2	4254	6098	8.2	346.4	282.5	23.3%	122.8	99.6	
3	4254	6095	8.2	320.3	266.2	21.0%	122.6	101.4	
4	4254	6025	8.1	335.2	283.6	18.7%	117.9	99.3	

Zero Air Voids Line @ G.S.= 2.70 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-E3

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

YELLOWISH BROWN SANDY SILT W/GRAVEL USC - ML
%-200 - 58.4 LL - NT PL - 39

(EMBANKMENT FILL)
LOCATION : ON-SITE BORROW
ELEVATION :

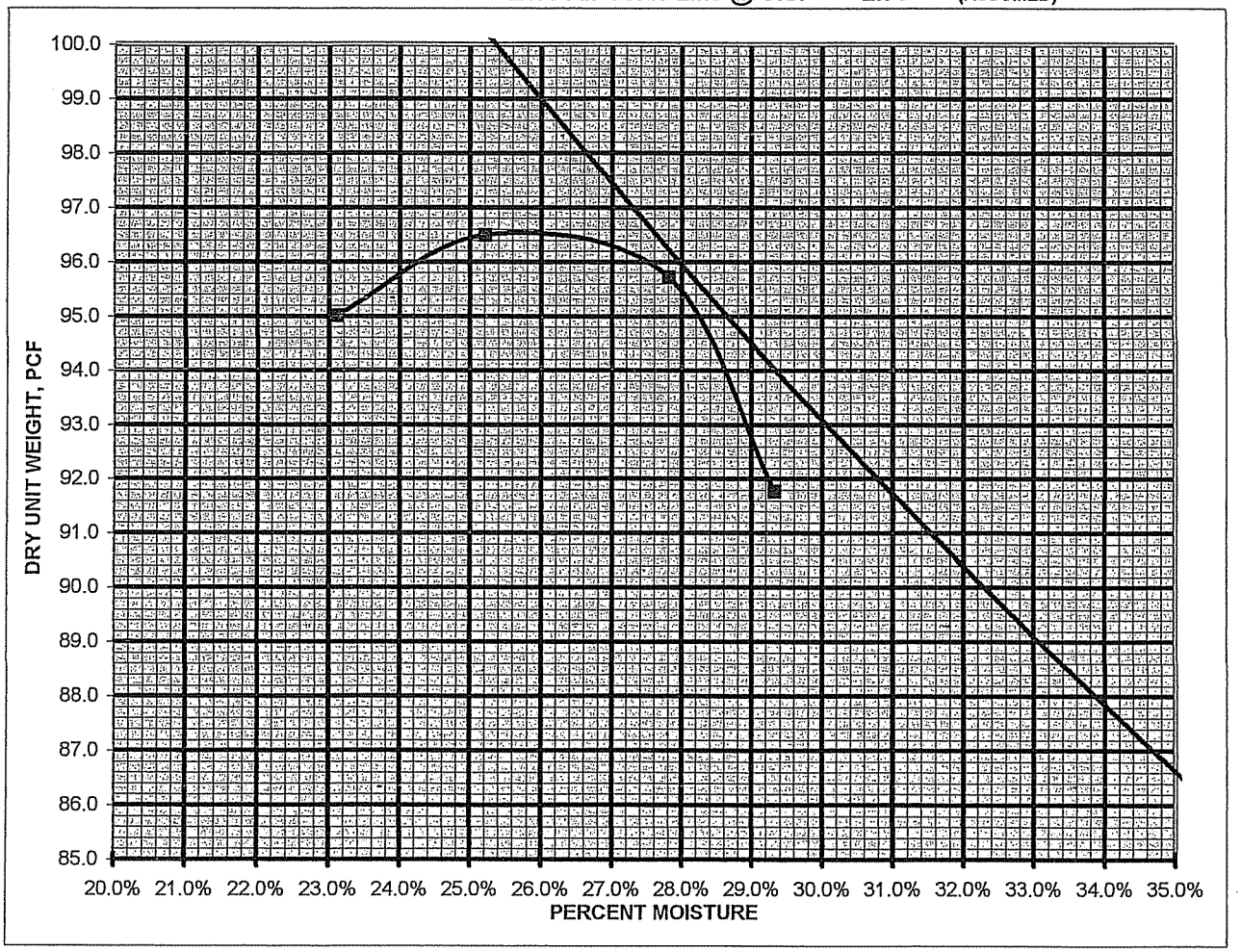
TEST PROTOCOL
ASTM - D698
METHOD - B WET HAMMER: MANUAL

TEST RESULTS
MAXIMUM DRY DENSITY (PCF) 96.6
OPTIMUM MOISTURE (%) 25.7

DATE START: December 3, 2009
DATE FINISH: December 7, 2009
TESTED BY : ZJE
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4225	6018	6.6	510.2	396.0	29.3%	118.7	91.8	
2	4225	6073	6.6	510.8	401.1	27.8%	122.3	95.7	
3	4225	6050	6.6	512.8	410.9	25.2%	120.8	96.5	
4	4225	5992	8.4	514.6	419.6	23.1%	117.0	95.0	

Zero Air Voids Line @ G.S.= 2.70 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-E4

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION
BROWN SAPROLITIC SILTY SAND USC - SM
%-200 - 46.5 LL - NT PL - 47

LOCATION : (EMBANKMENT FILL) ON-SITE STOCKPILE
ELEVATION :

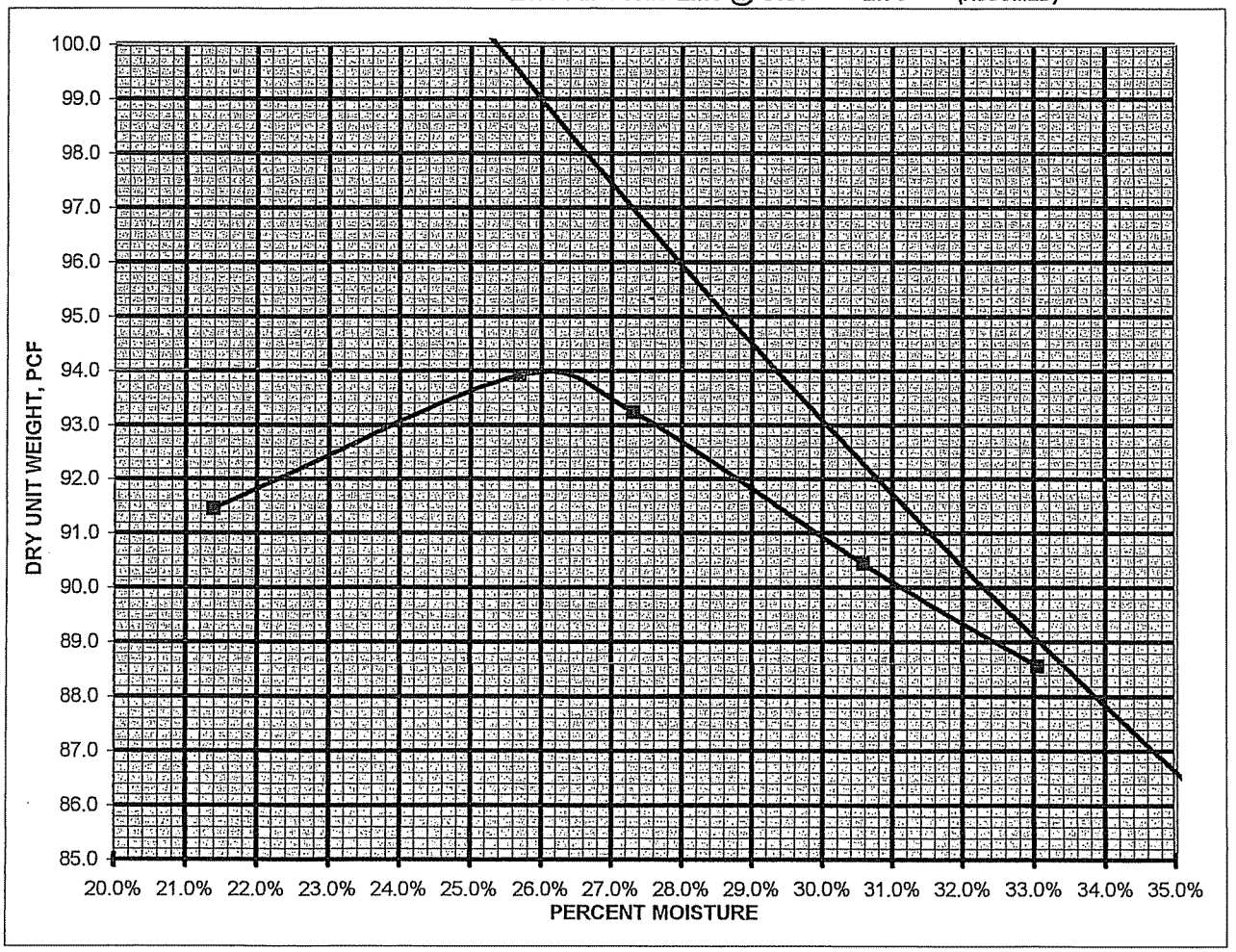
TEST PROTOCOL
ASTM - D698
METHOD - B WET HAMMER: MANUAL

TEST RESULTS
MAXIMUM DRY DENSITY (PCF) 94.0
OPTIMUM MOISTURE (%) 26.1

DATE START: December 4, 2009
DATE FINISH: December 5, 2009
TESTED BY : TOB
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4227	6007	6.6	509.1	384.3	33.0%	117.8	88.6	
2	4227	6011	8.4	526.0	404.8	30.6%	118.1	90.4	
3	4227	6020	8.2	516.0	407.1	27.3%	118.7	93.2	
4	4227	6010	8.2	524.5	419.0	25.7%	118.0	93.9	
5	4227	5904	8.1	508.3	420.2	21.4%	111.0	91.5	

Zero Air Voids Line @ G.S.= 2.70 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-E5

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

YELLOWISH BROWN SAPROLITIC SANDY SILT USC - ML
%-200 - 50.4 LL - NT PL - 48

(EMBANKMENT FILL)
LOCATION : ON-SITE STOCKPILE
ELEVATION :

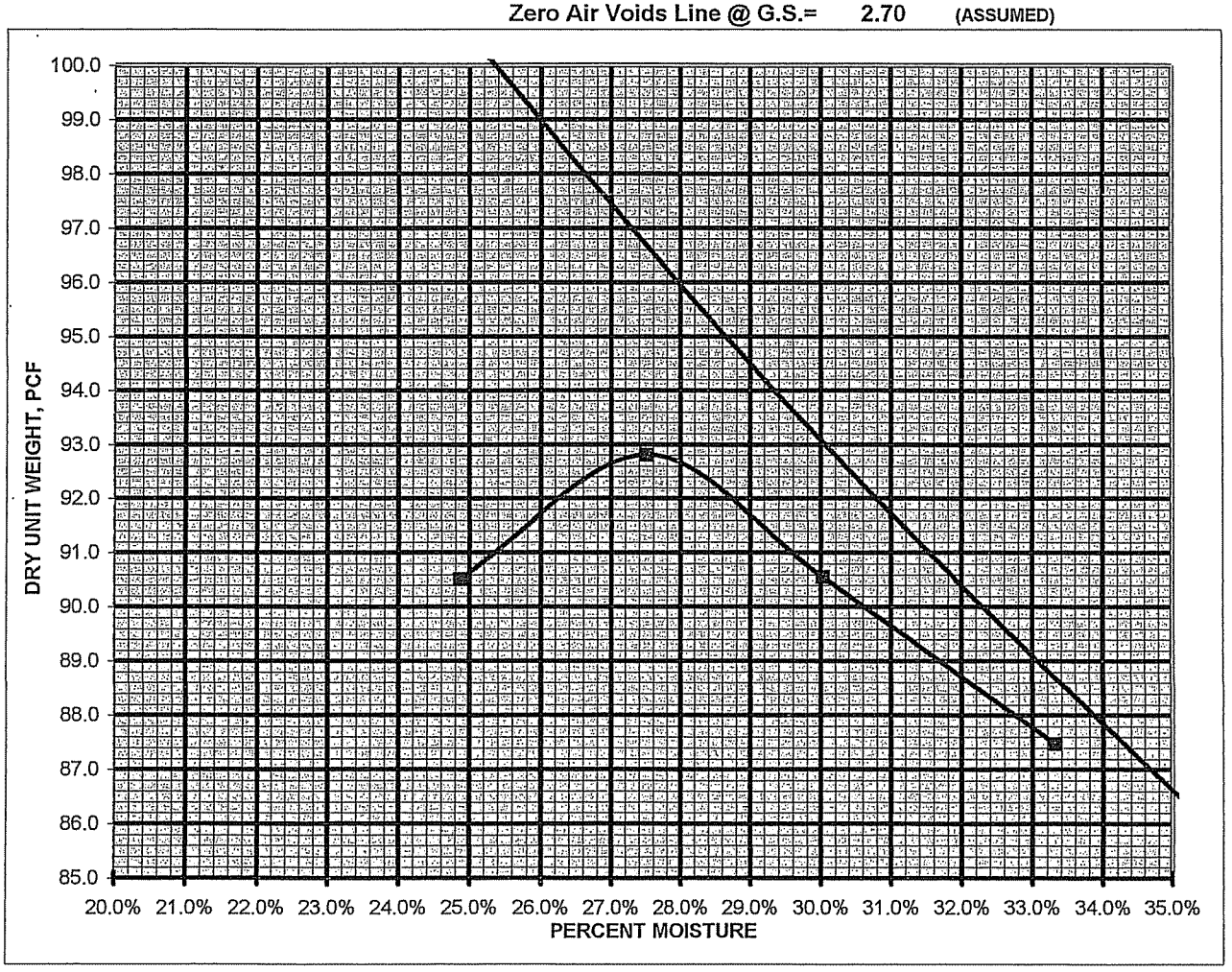
TEST PROTOCOL
ASTM - D698
METHOD - B WET HAMMER: MANUAL

TEST RESULTS
MAXIMUM DRY DENSITY (PCF) 92.8
OPTIMUM MOISTURE (%) 27.5

DATE START: December 4, 2009
DATE FINISH: December 5, 2009
TESTED BY : ZJE
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4254	5951	8.2	515.5	414.5	24.9%	113.0	90.5	
2	4254	6031	13.7	524.4	414.2	27.5%	118.3	92.8	
3	4254	6022	13.6	519.9	403.0	30.0%	117.7	90.6	
4	4254	6005	13.5	517.7	391.7	33.3%	116.6	87.5	

Zero Air Voids Line @ G.S.= 2.70 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-E6

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION
LIGHT BROWN SILTY SAND USC - SM
%-200 - 27.7 LL - NT PL - NT

(EMBANKMENT FILL)
LOCATION : ON-SITE (IN-PLACE)
ELEVATION :

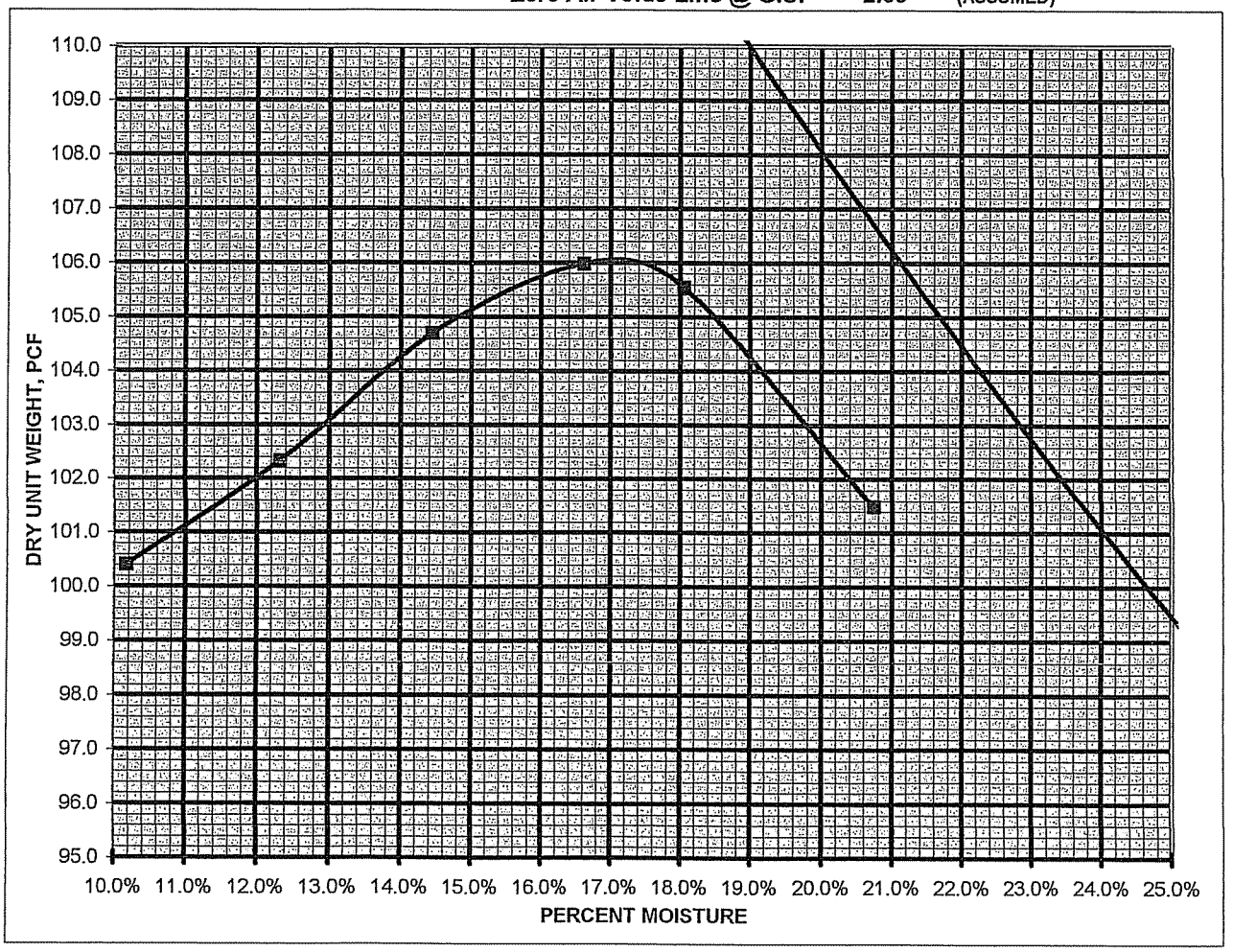
TEST PROTOCOL
ASTM - D698
METHOD - B WET HAMMER: MANUAL

TEST RESULTS
MAXIMUM DRY DENSITY (PCF) 106.1
OPTIMUM MOISTURE (%) 17.2

DATE START: December 18, 2009
DATE FINISH: December 19, 2009
TESTED BY : PAH
CHECKED BY : DOB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4255	5916	6	483	439	10.2%	110.6	100.4	
2	4255	5981	8	418	373	12.3%	115.0	102.3	
3	4255	6054	8	436	382	14.4%	119.8	104.7	
4	4255	6111	8	450	387	16.6%	123.6	106.0	
5	4255	6126	7	504	428	18.1%	124.6	105.6	
6	4255	6095	8	532	442	20.7%	122.5	101.5	

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-E7

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION
LIGHT BROWN SILTY SAND — USC - SM
%-200 - 38.9 — LL - NT — PL - NT

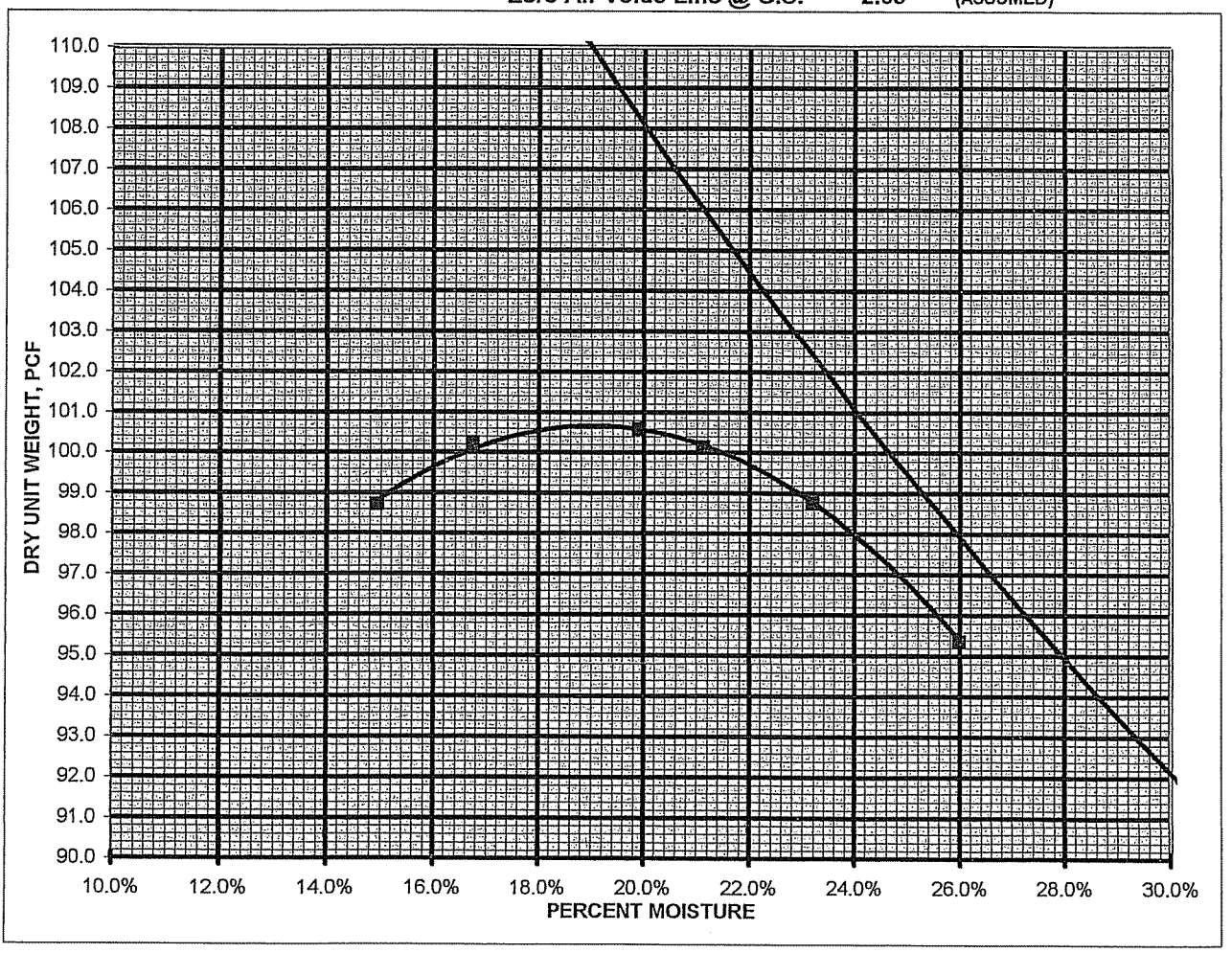
LOCATION : (EMBANKMENT FILL) ON-SITE (IN-PLACE)
ELEVATION :
DATE START: June 2, 2010
DATE FINISH: June 3, 2010
TESTED BY : JH/TOB
CHECKED BY : BLB

TEST PROTOCOL
ASTM - D698
METHOD - B WET HAMMER: MANUAL

TEST RESULTS
MAXIMUM DRY DENSITY (PCF) 100.7
OPTIMUM MOISTURE (%) 19.0

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4257	6061	6.0	504.0	401.3	26.0%	120.1	95.4	
2	4257	6084	6.6	500.2	407.3	23.2%	121.7	98.8	
3	4257	6078	8.1	500.3	414.5	21.1%	121.3	100.1	
4	4257	6068	8.2	501.1	419.3	19.9%	120.6	100.6	
5	4257	6014	6.6	501.3	430.4	16.7%	117.0	100.2	
6	4257	5961	8.1	499.9	436.0	14.9%	113.5	98.7	

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-E8

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION
LIGHT BROWN SILTY SAND USC - SM
%-200 - 39.4 LL - 44 PL - 43

LOCATION : (EMBANKMENT FILL) ON-SITE (IN-PLACE)
ELEVATION:

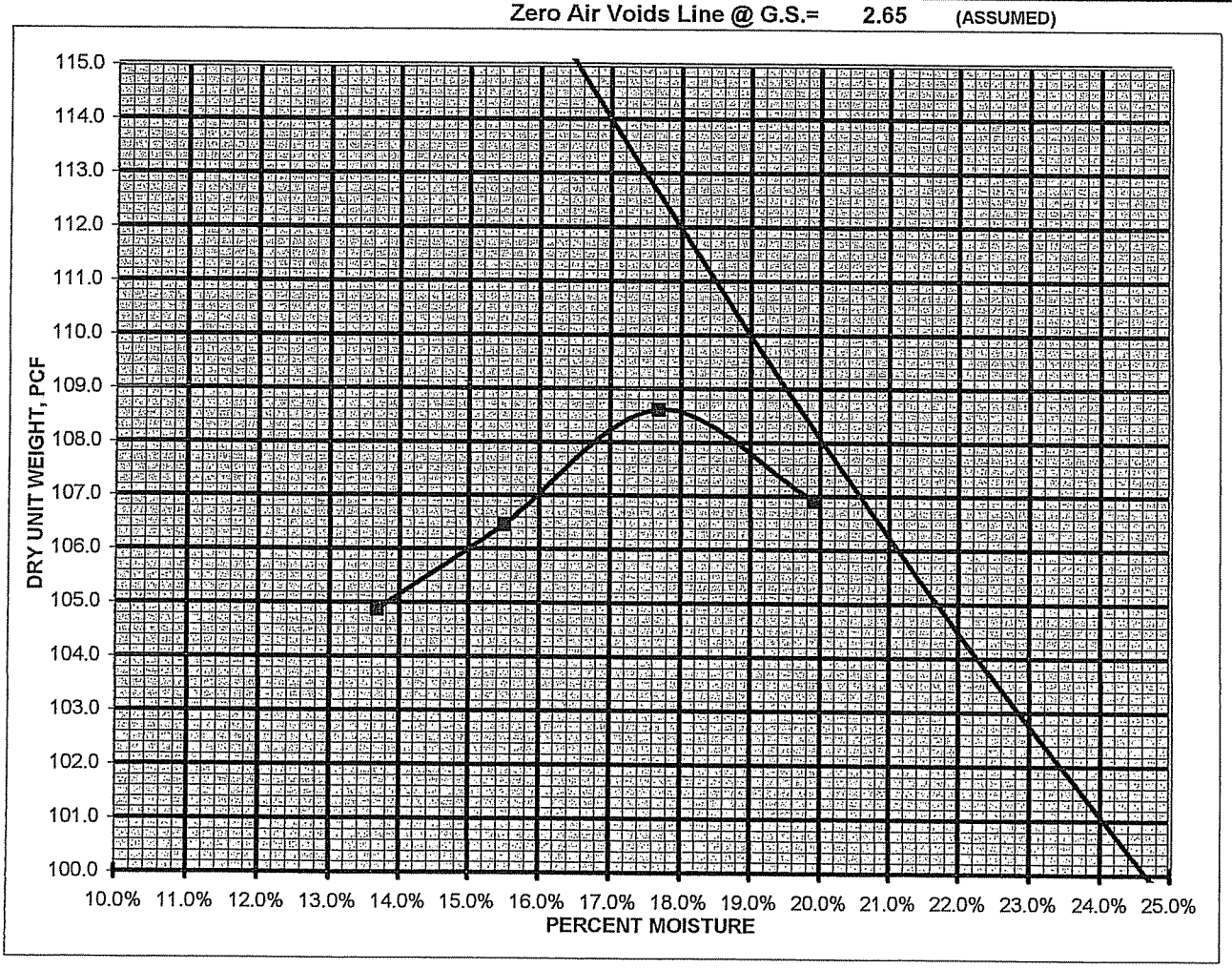
TEST PROTOCOL
ASTM - D698
METHOD - B WET HAMMER: MANUAL

TEST RESULTS
MAXIMUM DRY DENSITY (PCF) 108.6
OPTIMUM MOISTURE (%) 17.7

DATE START: June 7, 2010
DATE FINISH: June 8, 2010
TESTED BY : JH
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4258	6183	6.6	534.6	446.9	19.9%	128.2	106.9	
2	4258	6177	8.1	444.1	378.6	17.7%	127.8	108.6	
3	4258	6104	6.6	444.3	385.6	15.5%	122.9	106.5	
4	4258	6048	8.1	506.3	446.4	13.7%	119.2	104.9	

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-32 (E-9)

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

OLIVE SL. MIC. SILTY SAND USC - SM

%-200 - 26.0 LL - NP PL - NP

LOCATION : On-Site (In-Place)
ELEVATION :

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

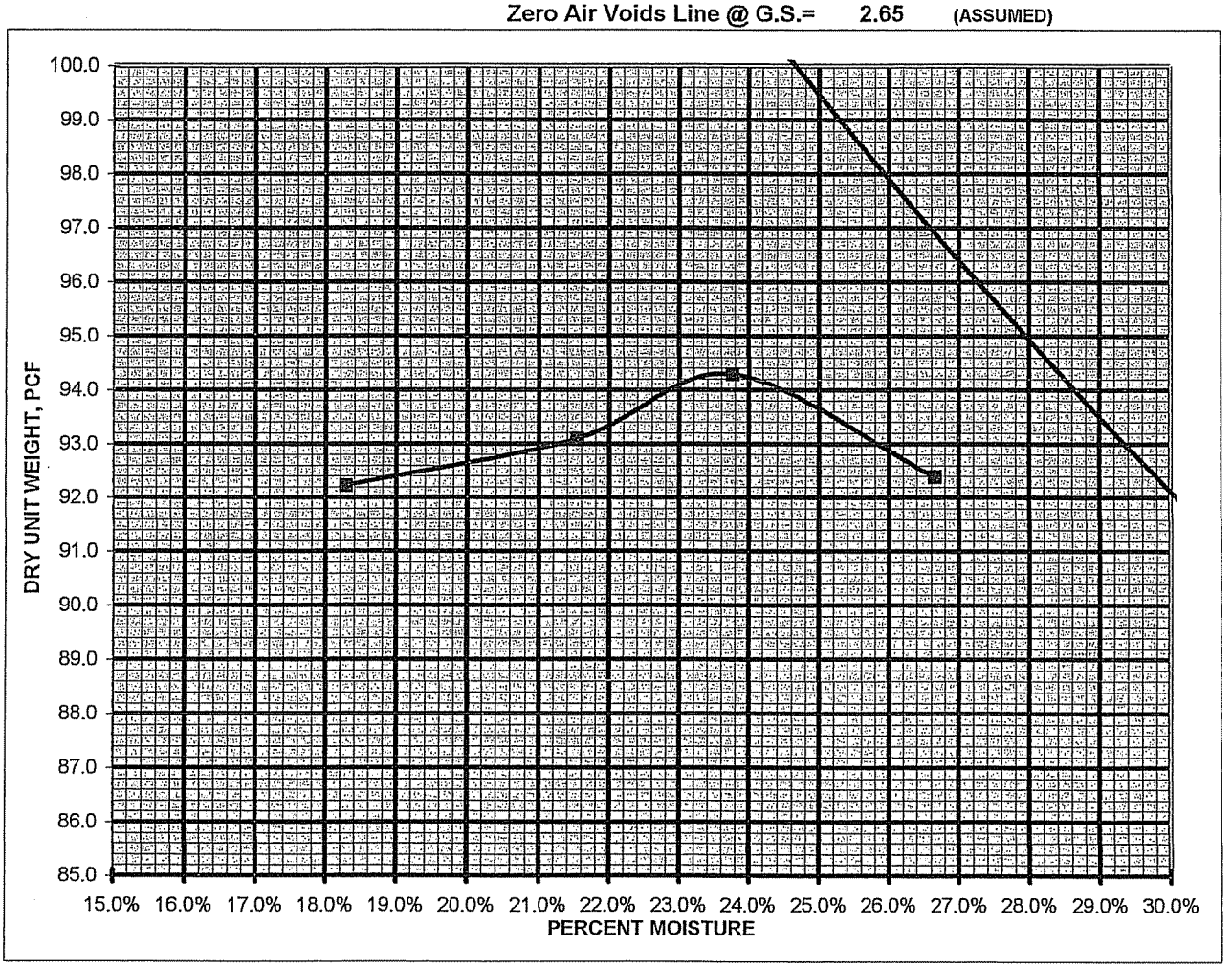
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 94.3
OPTIMUM MOISTURE (%) 23.8

DATE START: June 24, 2010
DATE FINISH: June 25, 2010
TESTED BY : TOB
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4256	5894	6.6	523.7	443.8	18.3%	109.1	92.2	
2	4256	5955	8.4	516.2	426.2	21.5%	113.2	93.1	
3	4256	6008	8.1	517.1	419.4	23.8%	116.7	94.3	
4	4256	6013	8.5	515.1	408.5	26.7%	117.0	92.4	

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-33 (E10)

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

OLIVE SILTY SAND USC - SM

%-200 - 27.0 LL - NT PL - NT

LOCATION :
ELEVATION :

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

TEST RESULTS

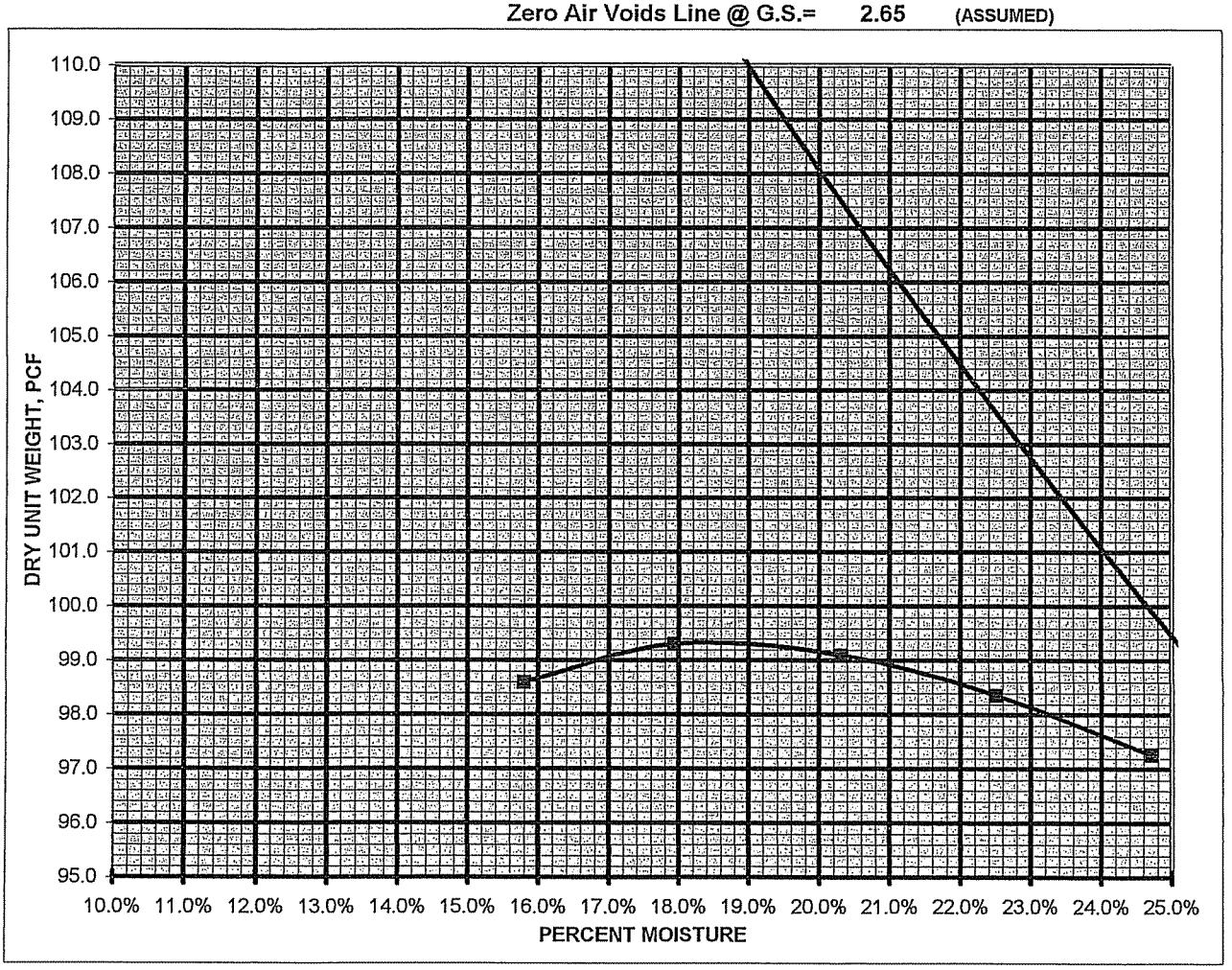
MAXIMUM DRY DENSITY (PCF) 99.3

OPTIMUM MOISTURE (%) 18.6

DATE START: July 8, 2010
DATE FINISH: July 9, 2010
TESTED BY : ZJE
CHECKED BY : MS

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4266	6090	8.2	400.8	323.0	24.7%	121.3	97.3	
2	4266	6078	6.6	435.0	356.3	22.5%	120.5	98.4	
3	4266	6059	6.6	405.2	337.9	20.3%	119.2	99.1	
4	4266	6027	6.6	350.8	298.5	17.9%	117.1	99.3	
5	4266	5983	8.4	388.9	337.0	15.8%	114.2	98.6	

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



COMPACTED CLAY LINER MATERIALS

BULK SAMPLE TESTING

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MOISTURE-DENSITY TEST

SAMPLE # 3477-31

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

BROWN SL. MIC. SANDY SILT USC - ML

%-200 - 56.6 LL - NP PL - NP

LOCATION : COMPOSITE SCREEN
ELEVATION :
DATE START: June 21, 2010
DATE FINISH: June 22, 2010
TESTED BY : TOB
CHECKED BY : BLB

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

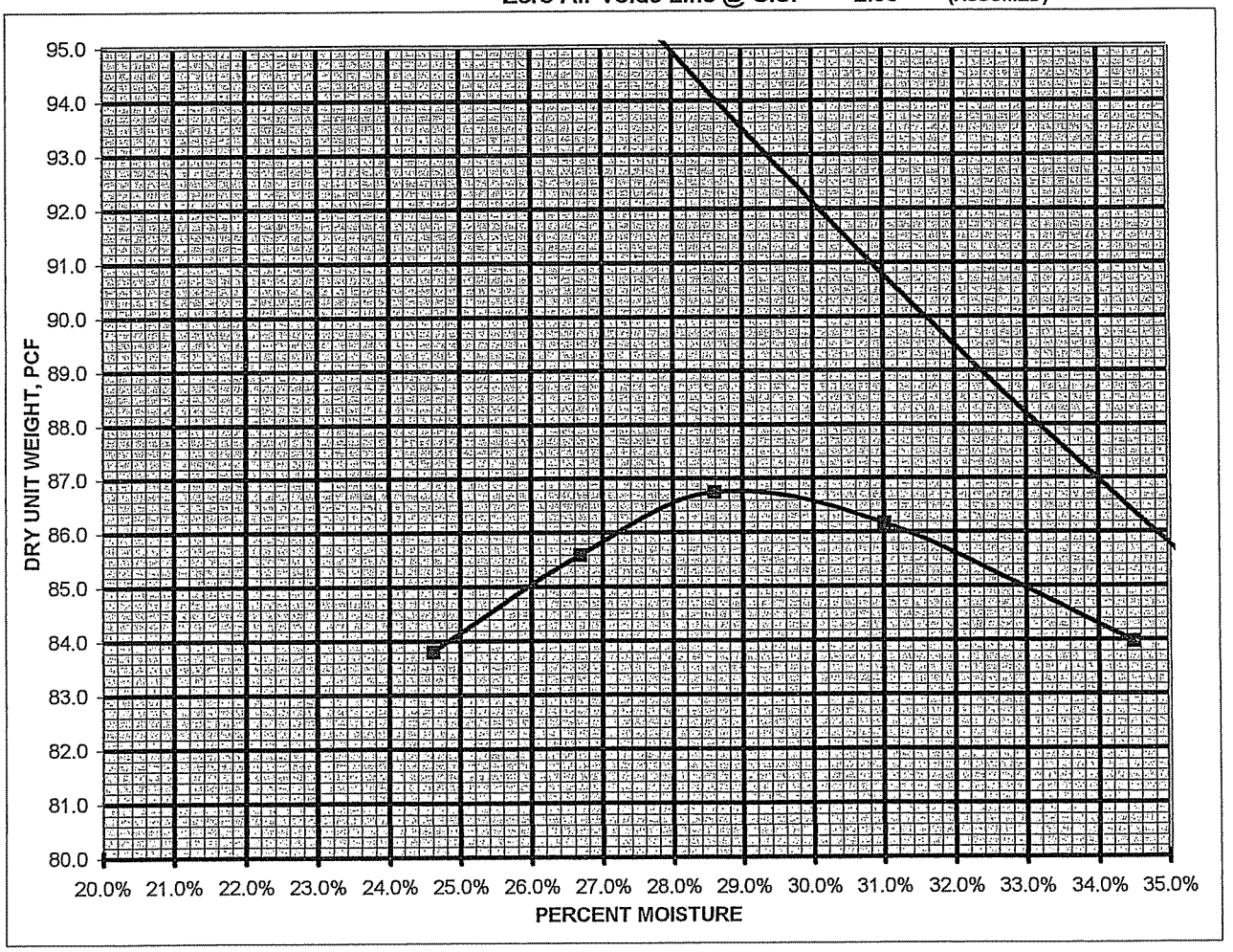
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 86.8

OPTIMUM MOISTURE (%) 29.0

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4258	5954	6.5	483.7	361.3	34.5%	113.0	84.0	3.5%BENTONITE
2	4258	5953	6.5	501.8	384.6	31.0%	112.9	86.2	3.5%BENTONITE
3	4258	5933	8.3	472.9	369.6	28.6%	111.6	86.8	3.5%BENTONITE
4	4258	5886	6.7	466.8	369.9	26.7%	108.4	85.6	3.5%BENTONITE
5	4258	5826	6.7	513.6	413.5	24.6%	104.4	83.8	3.5%BENTONITE

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-34

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

BROWN SANDY SILT USC - ML

%-200 - 54.1 LL - 46 PL - 44

LOCATION : ON-SITE STOCKPILE
ELEVATION :

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

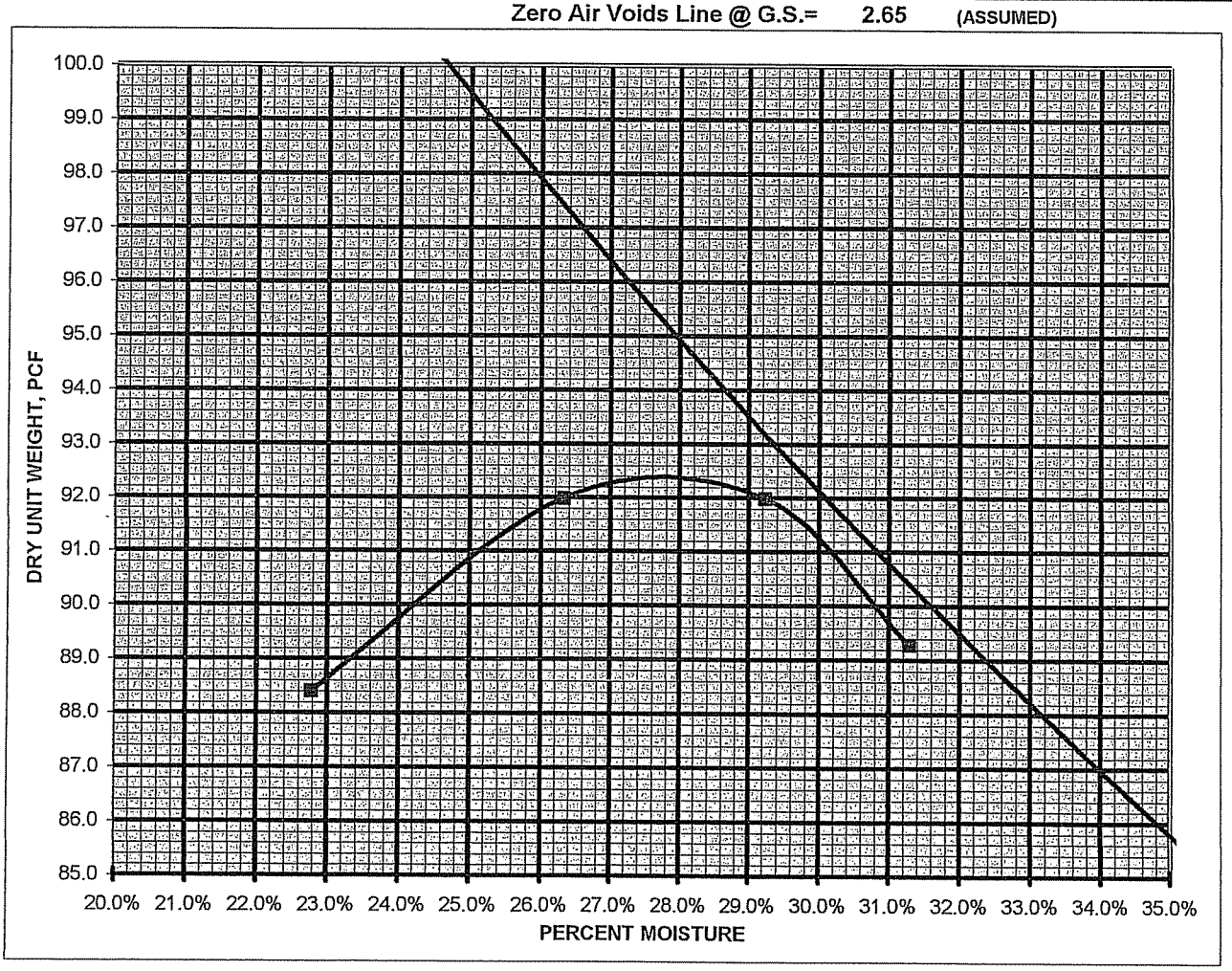
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 92.4
OPTIMUM MOISTURE (%) 27.8

DATE START: July 13, 2010
DATE FINISH: July 14, 2010
TESTED BY : TOB
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4256	6016	6.6	525.7	402.0	31.3%	117.2	89.3	3.5% BENTONITE
2	4256	6041	6.6	515.0	400.0	29.2%	118.9	92.0	3.5% BENTONITE
3	4256	6001	8.3	500.6	398.0	26.3%	116.2	92.0	3.5% BENTONITE
4	4256	5886	8.3	522.5	427.1	22.8%	108.6	88.4	3.5% BENTONITE

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-35

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

REDDISH BROWN SANDY SILT USC - ML

%-200 - 57.5 LL - 47 PL - 42

LOCATION : N. END LINER S.P.
ELEVATION :

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

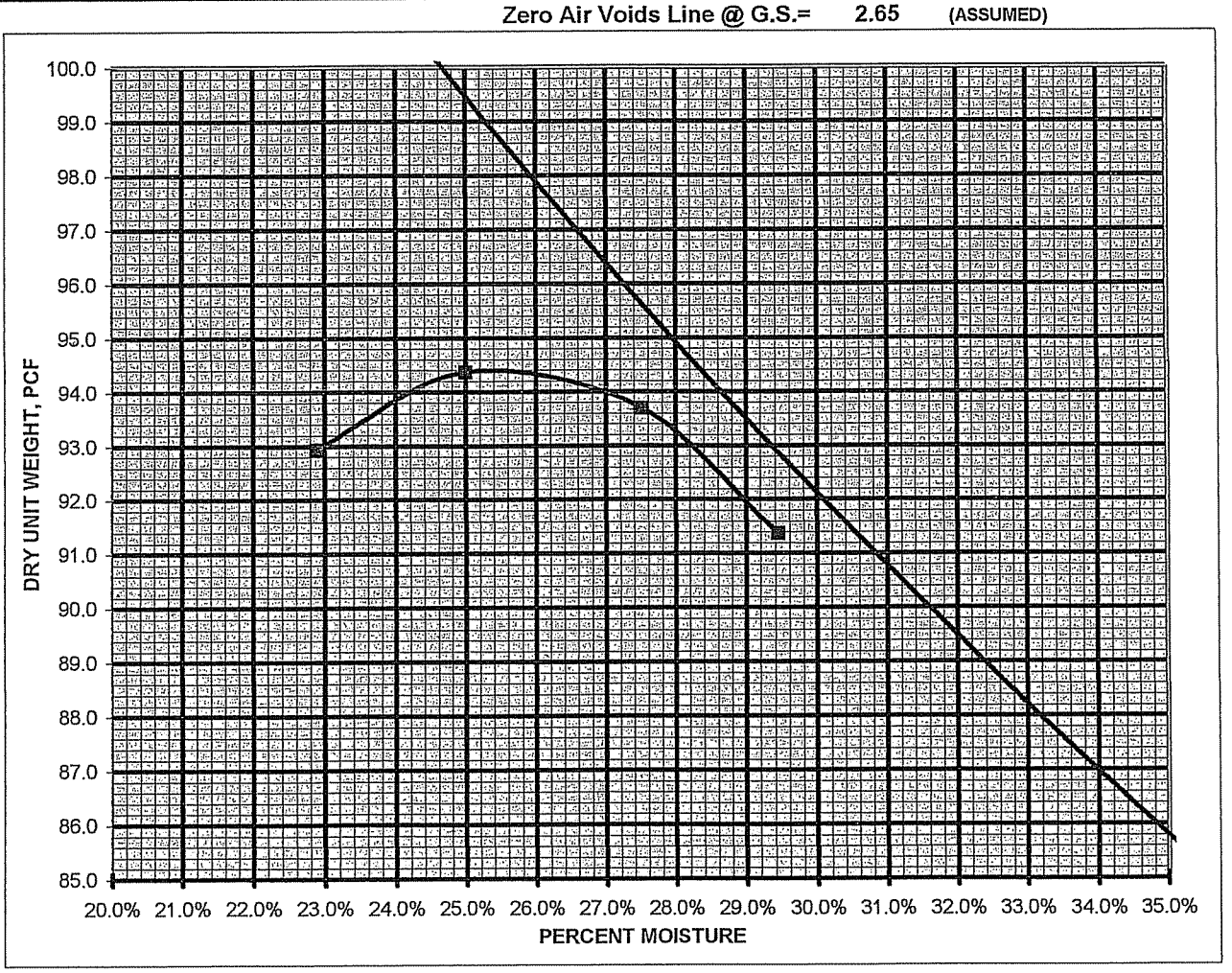
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 94.4
OPTIMUM MOISTURE (%) 25.4

DATE START: July 14, 2010
DATE FINISH: July 15, 2010
TESTED BY : ZJE
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4257	6033	8.2	404.8	314.6	29.4%	118.3	91.4	3.5% BENTONITE
2	4257	6051	8.2	407.7	321.5	27.5%	119.5	93.7	3.5% BENTONITE
3	4257	6028	8.4	409.6	329.4	25.0%	117.9	94.4	3.5% BENTONITE
4	4257	5972	8.5	384.3	314.3	22.9%	114.2	92.9	3.5% BENTONITE

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-36

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

LIGHT BROWN SANDY SILT USC -

%-200 - 52.1 LL - 44 PL - 39

LOCATION : LINER STOCKPILE
ELEVATION :

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

TEST RESULTS

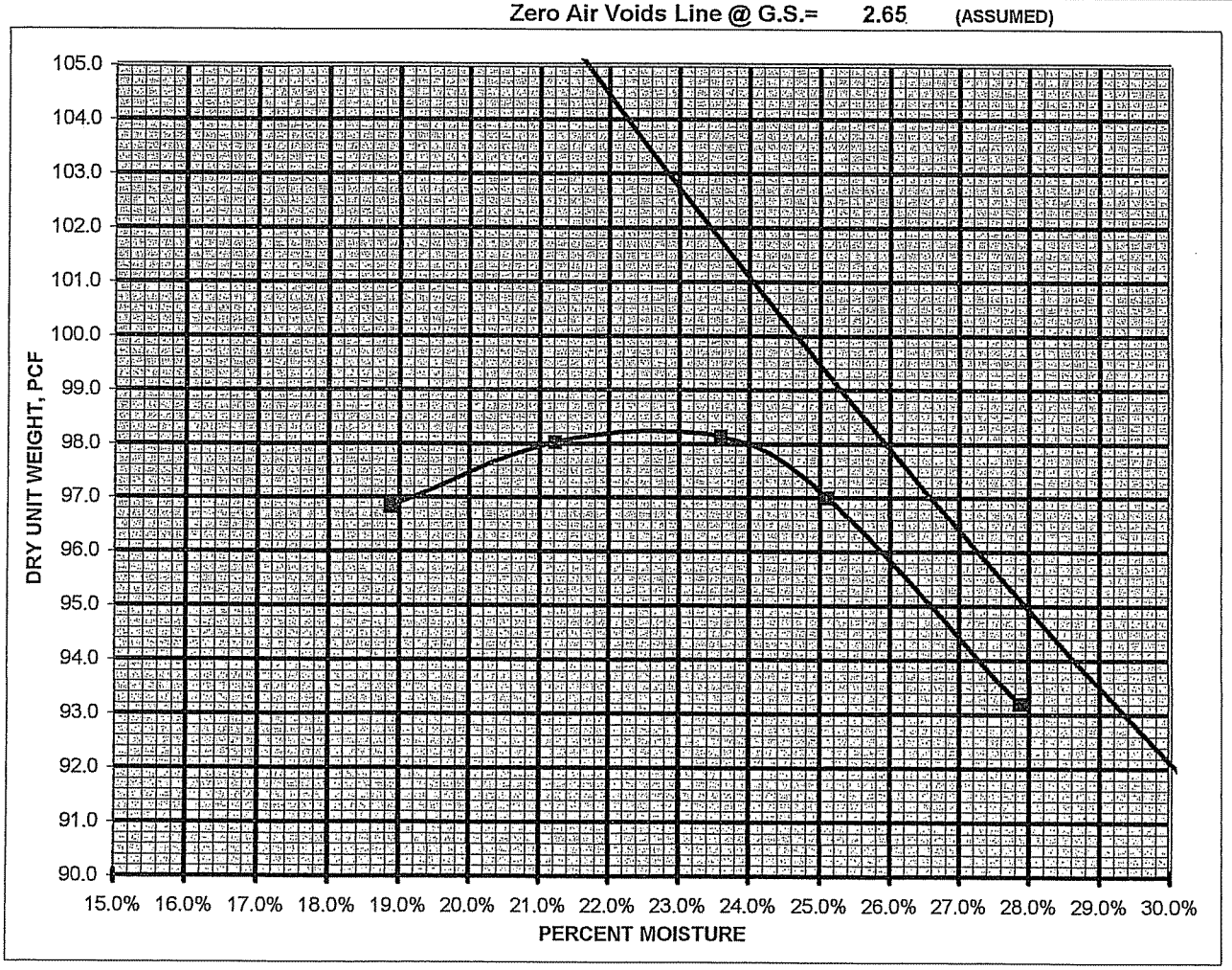
MAXIMUM DRY DENSITY (PCF) 98.3

OPTIMUM MOISTURE (%) 22.8

DATE START: August 25, 2010
DATE FINISH: August 26, 2010
TESTED BY : ZJE
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	2077	3808	8.2	420.2	354.8	18.9%	115.1	96.8	3.5% BENTONITE
2	2077	3864	8.3	459.6	380.6	21.2%	118.8	98.0	3.5% BENTONITE
3	2077	3901	8.2	487.6	396.1	23.6%	121.3	98.1	3.5% BENTONITE
4	2077	3902	8.3	523.1	419.8	25.1%	121.4	97.0	3.5% BENTONITE
5	2077	3869	8.3	481.5	378.4	27.9%	119.2	93.2	3.5% BENTONITE

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-E11

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

LIGHT BROWN SILTY SAND USC - SM

%-200 - 23.9 LL - NP PL - NP

(EMBANKMENT FILL)
LOCATION : N1017106; E1304217
ELEVATION : 2743
DATE START: July 16, 2010
DATE FINISH: July 17, 2010
TESTED BY : TOB
CHECKED BY : BLB

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

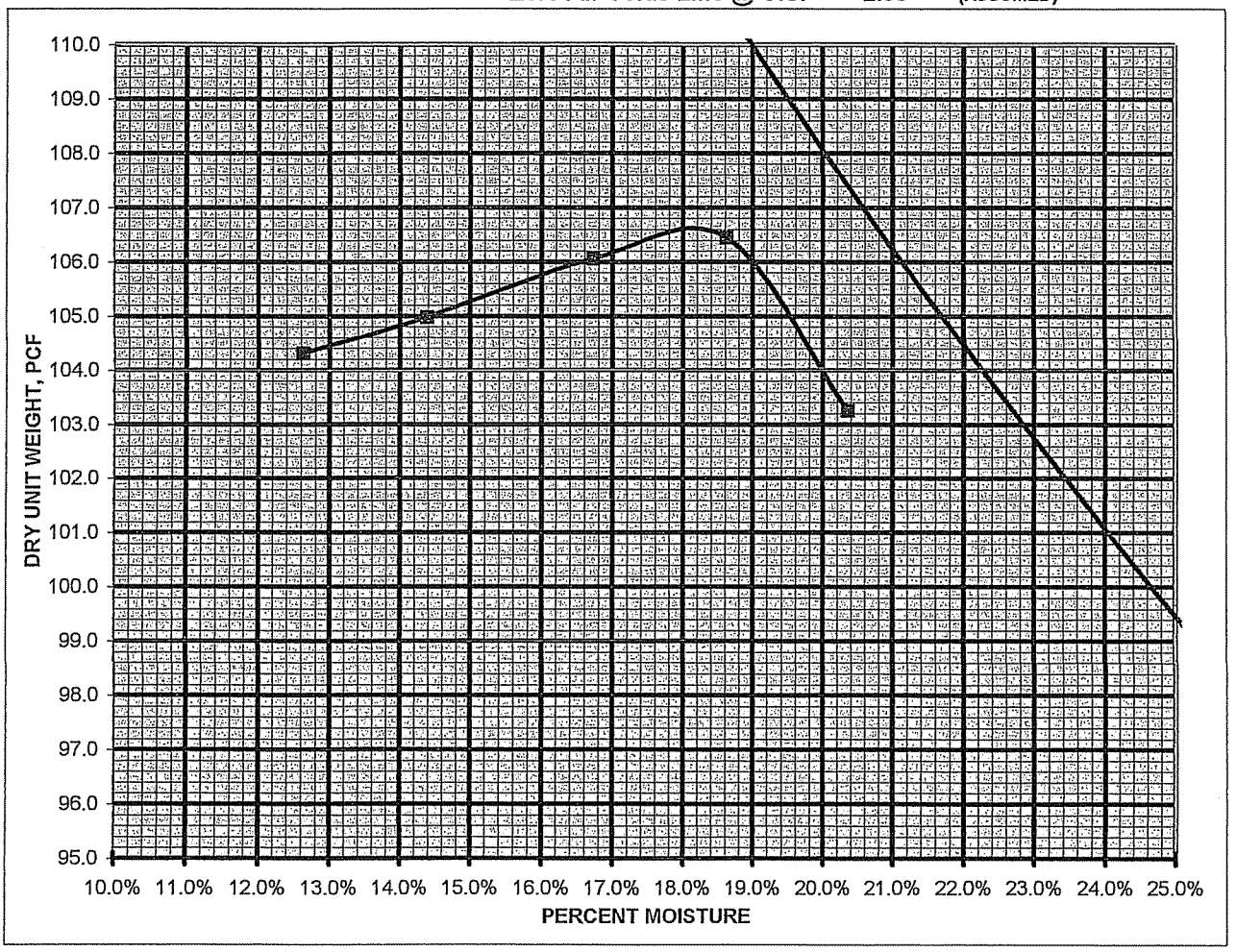
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 106.6

OPTIMUM MOISTURE (%) 18.1

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4256	6020	8.3	515.8	458.9	12.6%	117.5	104.3	
2	4256	6059	6.7	519.7	455.2	14.4%	120.1	105.0	
3	4256	6115	6.6	525.1	450.8	16.7%	123.8	106.1	
4	4256	6152	8.2	519.2	439.0	18.6%	126.3	106.5	
5	4256	6122	8.2	521.3	434.5	20.4%	124.3	103.3	

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-38

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

BROWN SL. MIC. SANDY SILT USC -

%-200 - 52.8 LL - 37 PL - 33

LOCATION : LINER STOCKPILE
ELEVATION :

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

TEST RESULTS

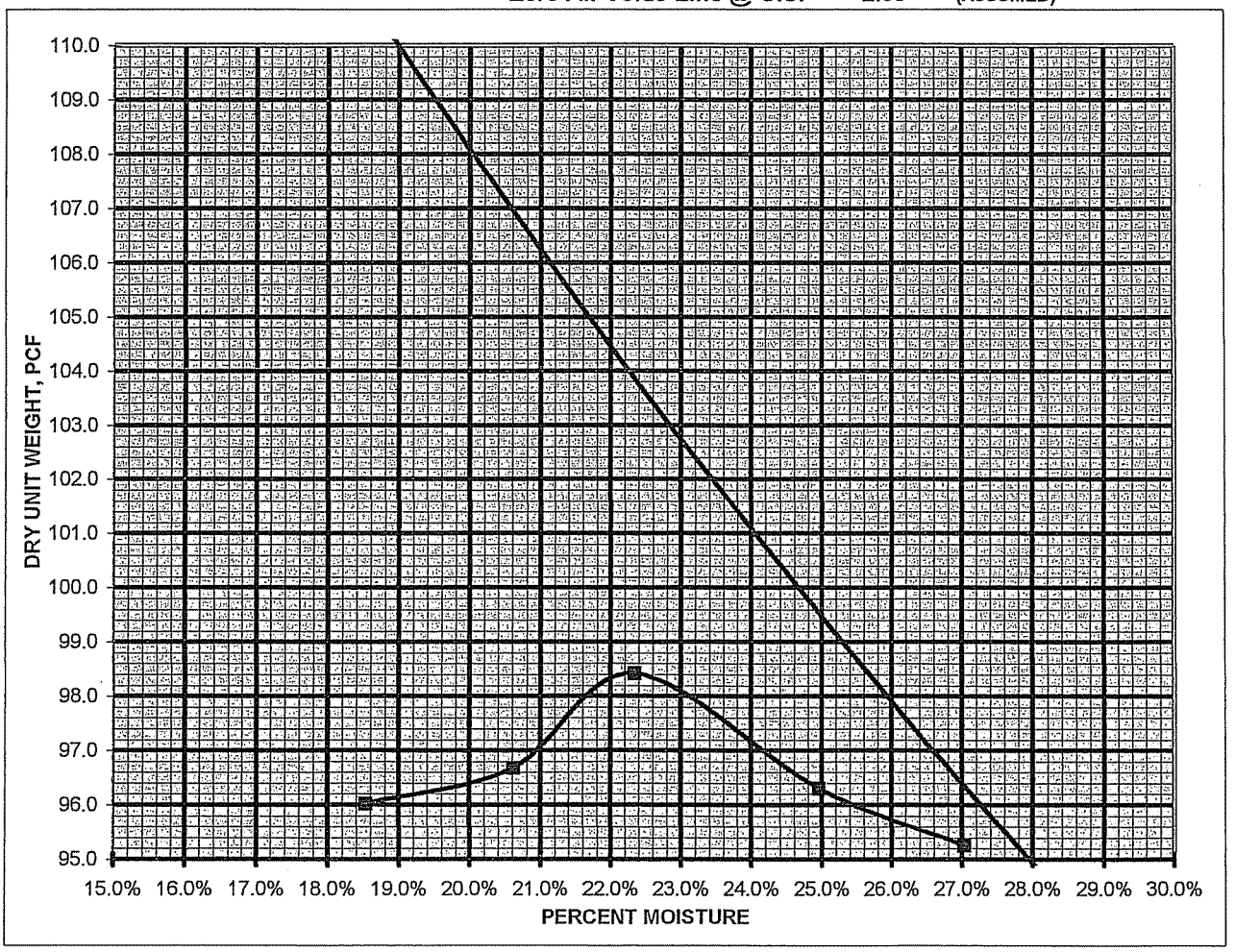
MAXIMUM DRY DENSITY (PCF) 98.4

OPTIMUM MOISTURE (%) 22.3

DATE START: August 19, 2010
DATE FINISH: August 20, 2010
TESTED BY : TOB
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4255	6072	8.3	529.1	418.3	27.0%	121.0	95.3	3.5% BENTONITE
2	4255	6062	8.3	529.5	425.4	25.0%	120.3	96.3	3.5% BENTONITE
3	4255	6063	8.2	520.2	426.7	22.3%	120.4	98.4	3.5% BENTONITE
4	4255	6006	6.6	519.8	432.1	20.6%	116.6	96.7	3.5% BENTONITE
5	4255	5964	8.2	527.6	446.4	18.5%	113.8	96.0	3.5% BENTONITE
6									

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-39

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

BROWN SL. MIC. SILTY SAND USC - SM

%-200 - 49.7 LL - 35 PL - 32

LOCATION : LINER STOCKPILE
ELEVATION :

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

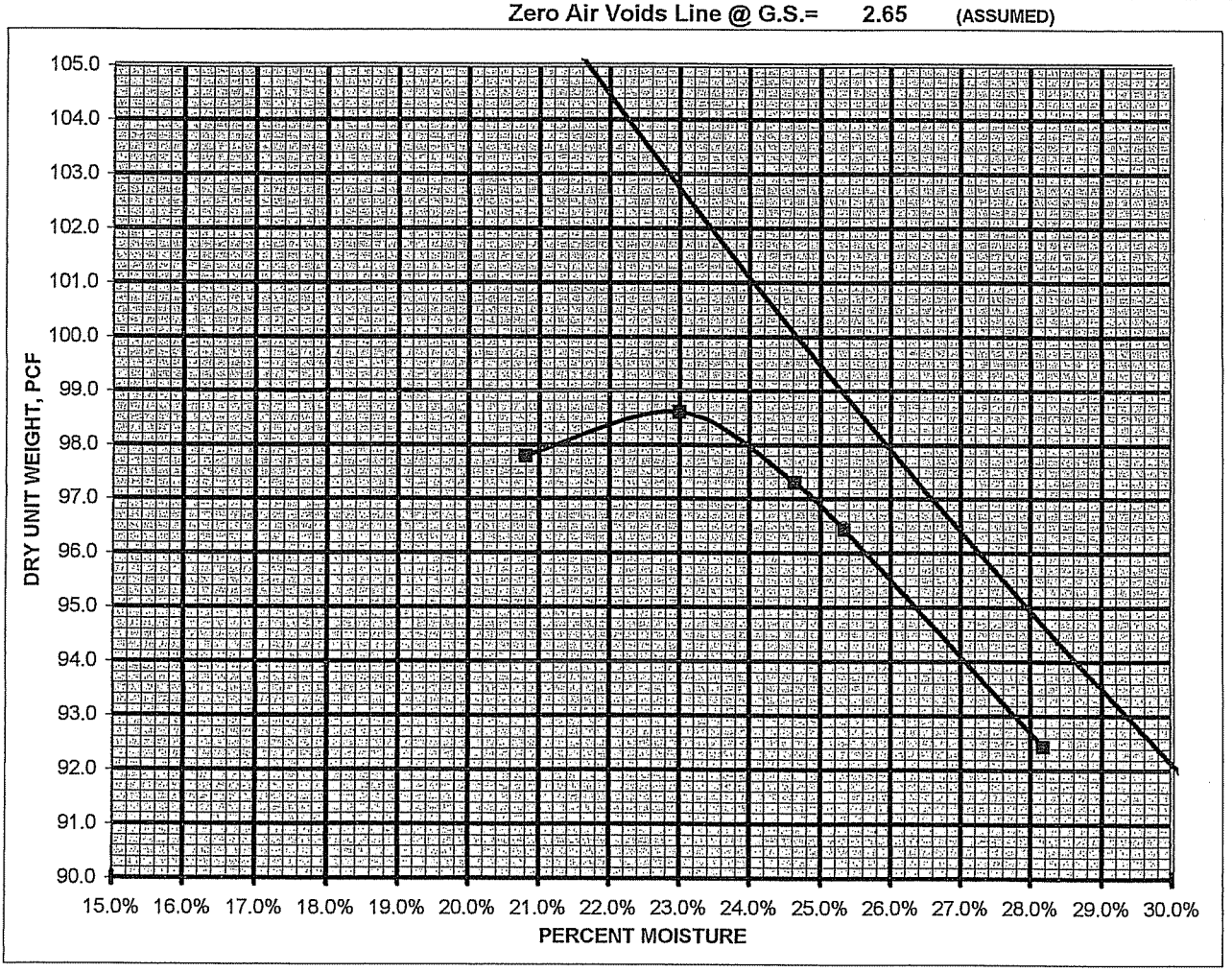
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 98.6
OPTIMUM MOISTURE (%) 23.0

DATE START: August 16, 2010
DATE FINISH: August 17, 2010
TESTED BY : TOB
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4257	6036	8.3	518.8	406.6	28.2%	118.5	92.4	3.5% BENTONITE
2	4257	6072	8.2	518.4	415.3	25.3%	120.9	96.5	3.5% BENTONITE
3	4257	6078	8.3	531.0	427.7	24.6%	121.3	97.3	3.5% BENTONITE
4	4257	6078	6.6	513.2	418.5	23.0%	121.3	98.6	3.5% BENTONITE
5	4257	6031	8.4	511.9	425.2	20.8%	118.1	97.8	3.5% BENTONITE
6									

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-40

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

LIGHT BROWN SILTY SAND USC - SM

%-200 - 48.5 LL - NP PL - NP

LOCATION : LINER STOCKPILE
ELEVATION :

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

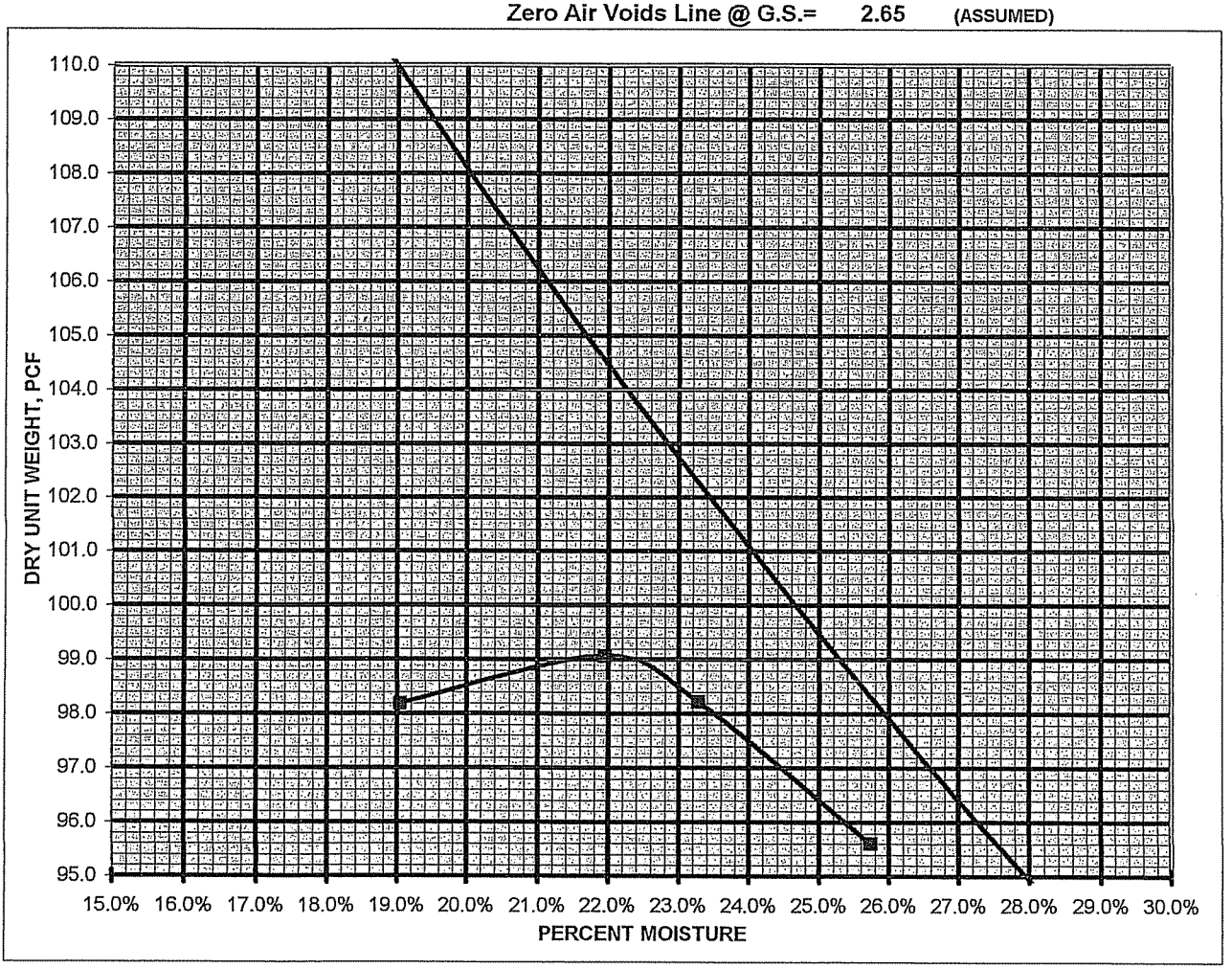
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 99.0
OPTIMUM MOISTURE (%) 22.1

DATE START: August 16, 2010
DATE FINISH: August 17, 2010
TESTED BY : TOB
CHECKED BY : BLB

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4257	6062	6.6	530.4	423.2	25.7%	120.2	95.6	3.5% BENTONITE
2	4257	6075	6.6	518.4	421.8	23.3%	121.1	98.2	3.5% BENTONITE
3	4257	6071	6.6	516.6	424.8	22.0%	120.8	99.1	3.5% BENTONITE
4	4257	6012	8.2	529.8	446.4	19.0%	116.9	98.2	3.5% BENTONITE
5									
6									

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-43

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

LIGHT BROWN SANDY SILT USC - ML

%-200 - 53.0 LL - 37 PL - 32

LOCATION : Test Strip 1, 1st Lift
ELEVATION :
DATE START: August 27, 2010
DATE FINISH: August 28, 2010
TESTED BY : TOB
CHECKED BY : BLB

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

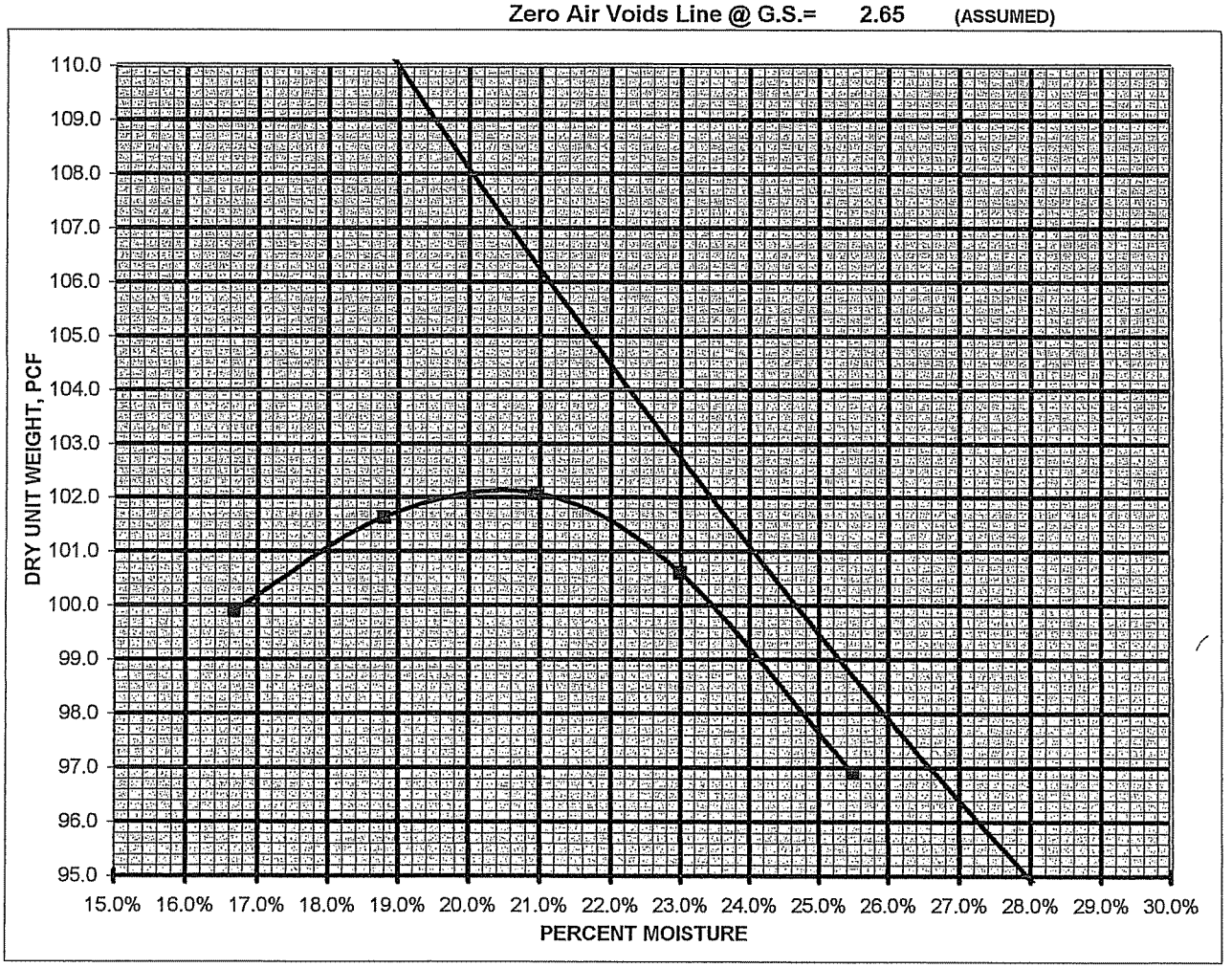
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 102.2

OPTIMUM MOISTURE (%) 20.5

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4256	6082	8.1	525.0	420.0	25.5%	121.6	96.9	
2	4256	6114	8.5	527.6	430.6	23.0%	123.7	100.6	
3	4256	6110	6.6	526.6	436.5	21.0%	123.5	102.1	
4	4256	6069	6.6	529.4	446.7	18.8%	120.7	101.6	
5	4256	6006	8.4	533.5	458.5	16.7%	116.6	99.9	

Zero Air Voids Line @ G.S.= 2.65 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-70

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

BROWN SL. MIC. SILTY SAND USC - SM

%-200 - 35.8 LL - NP PL - NP

LOCATION : SCREENINGS
ELEVATION :
DATE START: September 28, 2010
DATE FINISH: September 29, 2010
TESTED BY : TOB
CHECKED BY : BLB

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

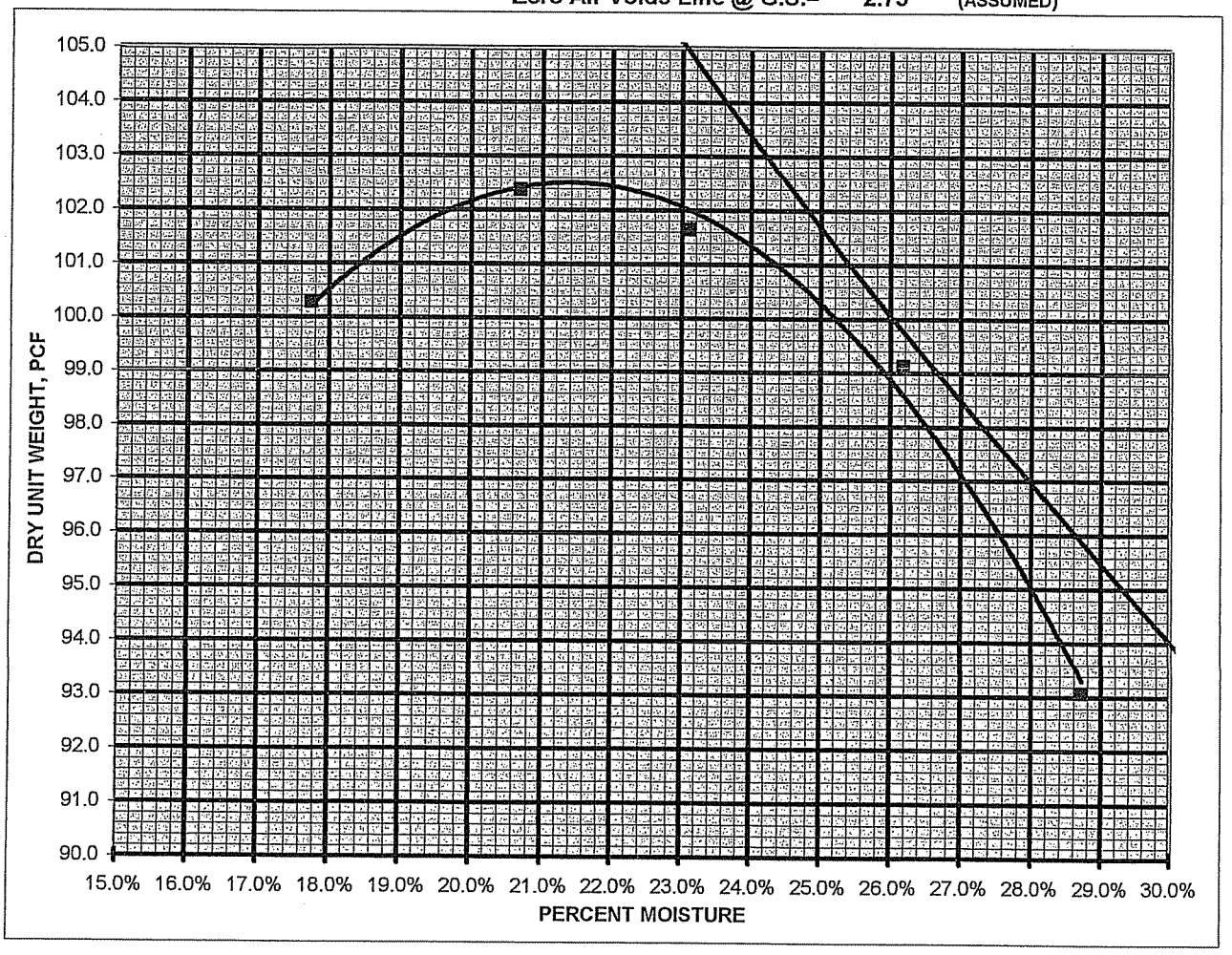
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 102.5

OPTIMUM MOISTURE (%) 21.4

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4257	6056	6.7	530.2	413.4	28.7%	119.8	93.1	3.5% BENTONITE
2	4257	6135	8.2	530.8	422.4	26.2%	125.1	99.1	3.5% BENTONITE
3	4257	6136	8.3	531.6	433.4	23.1%	125.1	101.7	3.5% BENTONITE
4	4257	6112	6.6	529.1	439.6	20.7%	123.5	102.4	3.5% BENTONITE
5	4257	6030	8.2	533.1	454.0	17.7%	118.1	100.3	3.5% BENTONITE

Zero Air Voids Line @ G.S.= 2.75 (ASSUMED)



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MOISTURE-DENSITY TEST

SAMPLE # 3477-88

PROJECT: ASHE COUNTY LANDFILL, CRUMPLER, NC
CLIENT: HUNTER CONSTRUCTION GROUP, INC.

FILE NO. : 3477
SHEET NO. : 1 of 1

SAMPLE DESCRIPTION

BROWN SL. MIC. SILTY SAND USC - SM

%-200 - 49.1 LL - NP PL - NP

LOCATION : SCREENINGS
ELEVATION :
DATE START: October 12, 2010
DATE FINISH: October 13, 2010
TESTED BY : TOB
CHECKED BY : BLB

TEST PROTOCOL

ASTM - D698

METHOD - B WET HAMMER: MANUAL

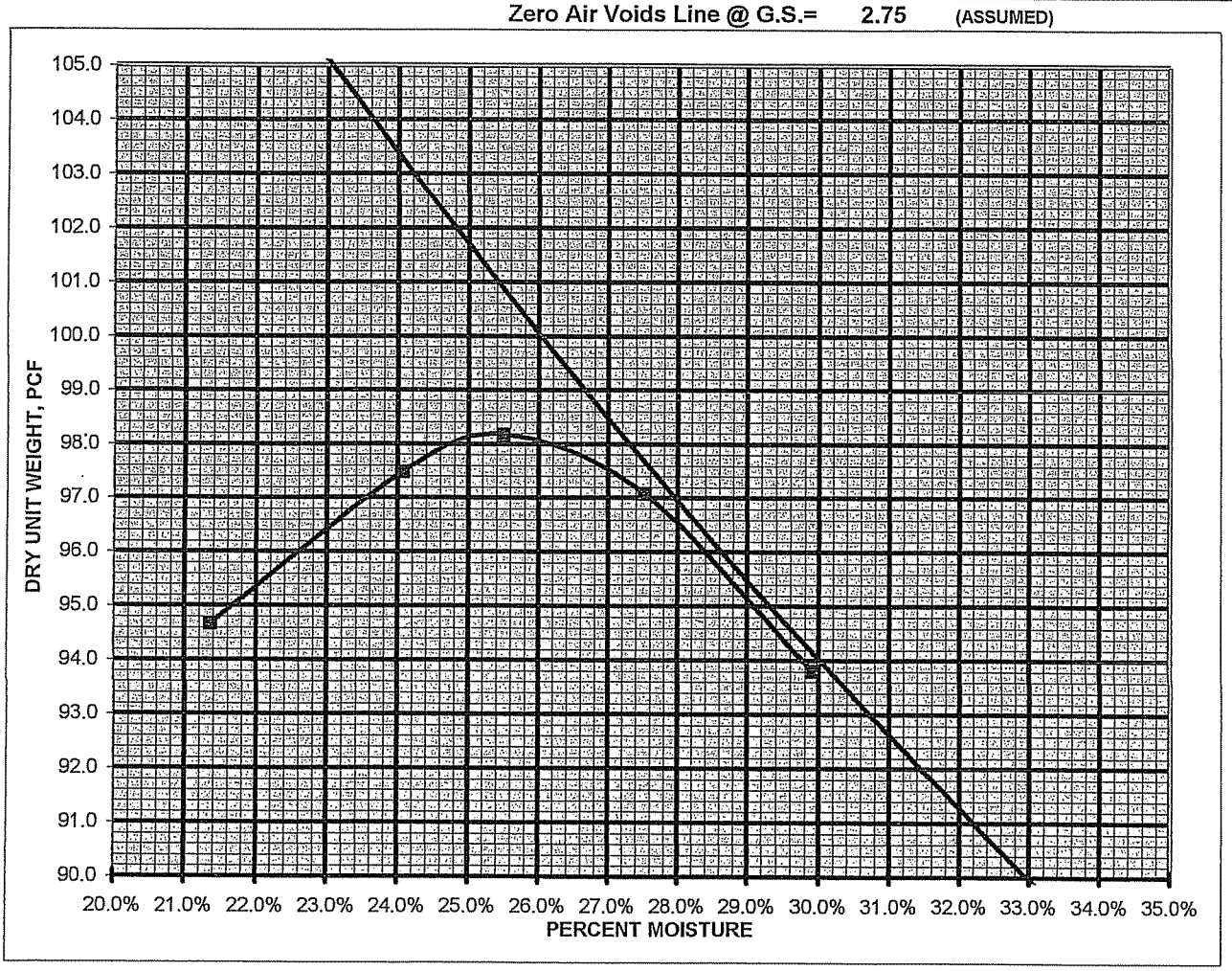
TEST RESULTS

MAXIMUM DRY DENSITY (PCF) 98.2

OPTIMUM MOISTURE (%) 25.5

SAMPLE POINT #	TARE WT. (GR.)	WET WT. + TARE (GR)	MC TARE WT. (GR)	MC WET WT. + TARE (GR)	MC DRY WT. + TARE (GR)	WATER CONTENT (%)	WET DENSITY (PCF)	DRY DENSITY (PCF)	COMMENTS
1	4256	5981	8.2	437.3	361.8	21.4%	114.9	94.7	3.5% BENTONITE
2	4256	6072	8.4	512.6	414.8	24.1%	120.9	97.5	3.5% BENTONITE
3	4256	6106	6.6	459.5	367.5	25.5%	123.2	98.2	3.5% BENTONITE
4	4256	6115	8.2	410.4	323.6	27.5%	123.8	97.1	3.5% BENTONITE
5	4256	6086	6.6	422.6	326.8	29.9%	121.9	93.8	3.5% BENTONITE

Zero Air Voids Line @ G.S.= 2.75 (ASSUMED)



STRUCTURAL FILL EMBANKMENT CONSTRUCTION

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PHONE 828 256-3000 FAX 828 256-6921

REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 12-17-09**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-1556**	
ENGINEER: BOBBY L. BARNES, PE	**TECHNICIAN: RICHARDSON**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	TEST DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
12-17	1	32 IN. UNDER DRAIN PIPELINE FILL - STA. 5+00 - APPROX. CENTER	LIGHT BROWN SILTY SAND	SG -5 FT	17.2	13.6	106.1	110.6	100+

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. SG=SUBGRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 04-01-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-2937/D-2216**	
ENGINEER: BOBBY L. BARNES, PE	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
04-01	1	32 IN. UNDER DRAIN PIPELINE - STA. 05+00 - APPROX. CENTER	LIGHT BROWN SILTY SAND	SG -5.5 FT	17.2	16.9	106.1	104.3	98
04-01	2	SOUTHEAST END OF STOCKPILE	BROWN SAPROLITIC SILTY SAND	EG -2 FT	26.1	39.6	94.0	-	-
04-01	3	CENTER OF STOCKPILE	BROWN SAPROLITIC SILTY SAND	EG -2.5 FT	26.1	38.6	94.0	-	-
04-01	4	STOCKPILE FROM MATERIAL REMOVED FROM 32 IN. UNDER DRAIN PIPELINE TRENCH	LIGHT BROWN SILTY SAND	EG -2 FT	17.2	26.8	106.1	-	-
04-01	5	AT LOCATION OF TEST NO. 4	LIGHT BROWN SILTY SAND	EG -3 FT TO EG -5 FT	17.2	25.4	106.1	-	-

REMARKS: IN-PLACE DENSITY TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
SG=SUBGRADE. EG=EXISTING GRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 04-05-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-1556/D-2216**	
ENGINEER: BOBBY L. BARNES, PE	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
04-05	1	32 IN. UNDER DRAIN PIPELINE - STA. 09+50 - APPROX. CENTERLINE	LIGHT BROWN SILTY SAND	SG -3 FT	17.2	18.3	106.1	103.0	97
04-05	2	32 IN. UNDER DRAIN PIPELINE - STA. 04+50 - APPROX. CENTERLINE	YELLOWISH BROWN SAPROLITIC SANDY SILT	SG -5 FT	27.5	29.2	92.8	-	-
04-05	3	32 IN. UNDER DRAIN PIPELINE - STA. 06+00 - APPROX. CENTERLINE	YELLOWISH BROWN SAPROLITIC SANDY SILT	SG -5 FT	27.5	28.2	92.8	-	-
04-05	4	EAST DITCH AREA WHERE MATERIAL PLACED ON 12-17-09 WAS EXCAVATED	LIGHT BROWN SILTY SAND	EG -1 FT TO 2 FT	17.2	21.1	106.1	-	-

REMARKS: IN-PLACE DENSITY TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
SG=SUBGRADE. EG=EXISTING GRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 04-14-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-1556**	
ENGINEER: BOBBY L. BARNES, PE	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
04-14	1	32 IN. UNDER DRAIN PIPELINE - STA. 03+75 - 3 FT WEST OF CENTERLINE	OLIVE MICACEOUS SILTY SAND WITH TRACE GRAVEL	SG -3 FT	22.0	18.2	101.3	102.2	100+
04-14	2	32 IN. UNDER DRAIN PIPELINE - STA. 10+50 - 5 FT NORTH OF CENTERLINE	OLIVE MICACEOUS SILTY SAND WITH TRACE GRAVEL	SG -3 FT	22.0	20.0	101.3	100.4	99

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. SG=SUBGRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 04-15-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-1556**	
ENGINEER: BOBBY L. BARNES, PE	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
04-15	1	32 IN. UNDER DRAIN PIPELINE - STA. 04-00 - CENTERLINE	OLIVE GRAY SILTY SAND WITH GRAVEL	SG -2 FT	22.0	19.0	101.3	100.4	99
04-15	2	32 IN. UNDER DRAIN PIPELINE - STA. 10-00 - CENTERLINE	OLIVE GRAY SILTY SAND WITH GRAVEL	SG -2 FT	22.0	22.6	101.3	96.2	95

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. SG=SUBGRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 06-16-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-1556**	
ENGINEER: MICHAEL W. SLOAN, P.E.	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-16	1	32 IN. UNDER DRAIN PIPELINE - APPROX. STA. 02+25 - 10 FT EAST OF CENTERLINE	YELLOWISH BROWN SANDY SILT	SG -20 FT	25.7	26.9	96.6	91.7	95
06-16	2	32 IN. UNDER DRAIN PIPELINE - APPROX. STA. 04+75 - 125 FT EAST OF CENTERLINE	LIGHT BROWN SILTY SAND	SG -20 FT	17.7	18.6	108.6	103.8	96

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. SG=SUBGRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 06-19-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-2937**	
ENGINEER: MICHAEL W. SLOAN, P.E.	**TECHNICIAN: NICHOLS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-19	1	RE-TEST OF TEST NO. 5 ON 06-18-10	LIGHT BROWN SILTY SAND	SG -12 FT	19.0	18.8	100.7	96.3	96
06-19	2	250 FT EAST OF APPROX. STA. 2+30 OF THE 32 IN. UNDER DRAIN PIPELINE	LIGHT BROWN SILTY SAND	EG +1 FT	19.0	16.8	100.7	96.0	95
06-19	3	32 IN. UNDER DRAIN PIPELINE - APPROX. STA. 02+00 - 15 FT WEST OF CENTERLINE	YELLOWISH BROWN SANDY SILT WITH GRAVEL	SG -9 FT	25.7	20.9	96.6	91.7	95
06-19	4	32 IN. UNDER DRAIN PIPELINE - APPROX. STA. 12+90 - 40 FT EAST OF CENTERLINE	LIGHT BROWN SILTY SAND	SG -10 FT	19.0	16.7	100.7	99.5	99

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. SG=SUBGRADE. EG=EXISTING GRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 06-21-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-1556**	
ENGINEER: MICHAEL W. SLOAN, P.E.	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-21	1	200 FT EAST OF APPROX. STA. 05+00 OF THE 32 IN. UNDER DRAIN PIPELINE	YELLOWISH BROWN MICACEOUS SILTY SAND	SG -10 FT	19.0	16.9	100.7	96.4	96
06-21	2	32 IN. UNDER DRAIN PIPELINE - APPROX. STA. 02+00 - 10 FT EAST OF CENTERLINE	YELLOWISH BROWN MICACEOUS SILTY SAND	SG -8 FT	19.0	16.8	100.7	99.8	99
06-21	3	32 IN. UNDER DRAIN PIPELINE - APPROX. STA. 12+75 - 5 FT WEST OF CENTERLINE	YELLOWISH BROWN MICACEOUS SILTY SAND	SG -12 FT	19.0	16.2	100.7	97.6	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. SG=SUBGRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 06-23-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-1556**	
ENGINEER: MICHAEL W. SLOAN, P.E.	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-23	1	30 FT EAST OF STA. 03+50 OF 32 IN. UNDER DRAIN PIPELINE	YELLOWISH BROWN MICACEOUS SILTY SAND	SG -2 FT	19.0	14.1	100.7	99.6	99
06-23	2	150 FT EAST OF STA. 05+00 OF 32 IN. UNDER DRAIN PIPELINE - 60 FT WEST OF EAST POWER LINE	YELLOWISH BROWN MICACEOUS SILTY SAND	SG -22 FT	19.0	19.2	100.7	98.5	98
06-23	3	150 FT EAST OF STA. 06+50 OF 32 IN. UNDER DRAIN PIPELINE - 40 FT WEST OF EAST POWER LINE	YELLOWISH BROWN MICACEOUS SILTY SAND	SG -12 FT	19.0	19.5	100.7	97.0	96
06-23	4	10 FT WEST OF STA. 11+25 OF 32 IN. UNDER DRAIN PIPELINE	YELLOWISH BROWN MICACEOUS SILTY SAND	SG -6 FT	19.0	18.3	100.7	97.0	96

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. SG=SUBGRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-24-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-23	1	N1017211; E1304172	YELLOWISH BROWN MICACEOUS SILTY SAND	2727	19.0	17.0	100.7	99.7	99
06-23	2	N1017015; E1304126	YELLOWISH BROWN MICACEOUS SILTY SAND	2722	19.0	15.1	100.7	98.9	98
06-23	3	N1017456; E1303608	BROWN SILTY SAND	2662	17.2	16.4	106.1	103.4	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-26-10 (REVISED 01-18-11)
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: NICHOLS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-26	1	N1016952; E1304176	LIGHT BROWN SILTY SAND	2727	19.0	17.0	100.7	94.3	94
06-26	2	N1017238; E1304173	YELLOWISH BROWN SLIGHTLY MICACEOUS SILTY SAND	2726	19.0	15.1	100.7	99.5	99
06-26	3	RE-TEST OF TEST NO. 1 ON 06-24-10	YELLOWISH BROWN MICACEOUS SILTY SAND	SG -7 FT	19.0	16.4	100.7	100.1	99
06-26	4	RE-TEST OF TEST NO. 1	LIGHT BROWN SILTY SAND	2727	19.0	14.1	100.7	100.4	100
06-26	5	N1017619; E1303532	LIGHT BROWN SILTY SAND	2648	19.0	15.4	100.7	94.9	94

REMARKS: AFTER RE-TESTS, TEST NO. 1, 2, 3 AND 4 MEET OR EXCEED SPECIFIED REQUIREMENTS, TEST NO. 5 DOES NOT. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. SG=SUBGRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-29-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-29	1	N1016821; E1304021	LIGHT BROWN SILTY SAND	2736	17.7	14.6	108.6	110.2	100+
06-29	2	N1016985; E1304171	OLIVE & YELLOWISH BROWN SILTY SAND	2727	21.0	20.9	101.4	96.5	95
06-29	3	N1017176; E1304182	OLIVE BROWN SILTY SAND WITH GRAVEL	2729	22.0	22.2	101.3	102.5	100+
06-29	4	RE-TEST OF TEST NO. 5 ON 06-26-10	LIGHT BROWN SILTY SAND	2648	19.0	14.8	100.7	100.1	99
06-29	5	N1017427; E1303617	LIGHT BROWN SILTY SAND	2665	19.0	15.4	100.7	98.6	98
06-29	6	N1016826; E1303833	LIGHT BROWN SILTY SAND	2744	17.2	15.0	106.1	104.5	98

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-02-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-02	1	N1016807; E1304089	OLIVE BROWN SILTY SAND	2737	21.0	20.7	101.4	99.2	98
07-02	2	N1016903; E1304179	LIGHT BROWN SILTY SAND	2733	19.0	15.8	100.7	100.8	100+
07-02	3	N1017062; E1304235	LIGHT BROWN SILTY SAND	2737	19.0	15.9	100.7	100.4	100
07-02	4	N1017194; E1304181	LIGHT BROWN SILTY SAND	2730	17.2	13.8	106.1	105.1	99
07-02	5	N1017321; E1304125	LIGHT BROWN SILTY SAND	2725	17.7	14.2	108.6	107.5	99
07-02	6	N1017540; E1303575	LIGHT BROWN SILTY SAND	2699	17.2	18.2	106.1	104.3	98
07-02	7	N1017636; E1303552	LIGHT BROWN SILTY SAND	2655	19.0	17.3	100.7	99.8	99
07-02	8	N1017417; E1303585	LIGHT BROWN SILTY SAND	2667	19.0	16.2	100.7	99.7	99

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-07-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-07	1	N1016836; E1303800	OLIVE MICACEOUS SILTY SAND	2750	18.6	19.7	99.3	94.5	95
07-07	2	N1016830; E1303972	LIGHT BROWN SILTY SAND	2741	19.0	16.9	100.7	102.5	100+
07-07	3	N1017552; E1303579	LIGHT BROWN SILTY SAND	2661	19.0	17.0	100.7	99.9	99
07-07	4	N1016953; E1304199	OLIVE GRAY SILTY SAND WITH GRAVEL	2735	22.0	19.1	101.3	97.6	96
07-07	5	N1017286; E1304137	LIGHT BROWN SILTY SAND	2728	19.0	20.0	100.7	99.4	99

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-09-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-09	1	15 FT WEST OF STA. 12+00 OF 32 IN. UNDER DRAIN PIPELINE	OLIVE GRAY SILTY SAND WITH GRAVEL	SG -2.5 FT	22.0	21.6	101.3	100.2	99
07-09	2	30 FT EAST OF STA. 13+50 OF 32 IN. UNDER DRAIN PIPELINE	LIGHT BROWN SILTY SAND	SG -6 FT	17.2	13.4	106.1	107.2	100+
07-09	3	200 FT EAST OF STA. 05+00 OF 32 IN. UNDER DRAIN PIPELINE	OLIVE MICACEOUS SILTY SAND	SG -10 FT	18.6	17.7	99.3	100.2	100+
07-09	4	150 FT EAST OF STA. 06+25 OF 32 IN. UNDER DRAIN PIPELINE	LIGHT BROWN SILTY SAND	SG -10 FT	17.7	13.9	108.6	104.7	96
07-09	5	10 FT NORTH OF CENTER LINE OF SOUTH ACCESS ROAD - 40 FT FROM WEST END	LIGHT BROWN SILTY SAND	SG -5 FT	19.0	19.5	100.7	99.7	99

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. SG=SUBGRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-12-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-12	1	N1016830; E1303828	BROWN MICACEOUS SILTY SAND	2750	16.0	16.0	102.2	101.9	100
07-12	2	N1016937; E1304205	LIGHT BROWN SILTY SAND	2738	19.0	20.0	100.7	98.3	98

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. TEST NO. 1 BASED ON ONE-POINT FIELD PROCTOR.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-13-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-13	1	N1016979; E1304237	LIGHT BROWN SILTY SAND	2740	17.2	11.2	106.1	103.9	98
07-13	2	N1017063; E1304276	OLIVE GREEN SILTY SAND	2744	21.0	19.9	101.4	96.3	95
07-13	3	N1017066; E1304234	OLIVE SILTY SAND WITH GRAVEL	2742	22.0	21.2	101.3	96.3	95
07-13	4	N1017186; E1304160	LIGHT BROWN SILTY SAND	2736	19.0	17.4	100.7	100.6	100

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-15-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-15	1	N1016844; E1303937	LIGHT BROWN SILTY SAND	2745	17.7	12.8	108.6	103.8	96
07-15	2	N1016834; E1303872	LIGHT BROWN SILTY SAND	2749	17.2	10.2	106.1	103.3	97
07-15	3	N1016831; E1303786	LIGHT BROWN SILTY SAND	2754	17.7	13.6	108.6	104.8	97
07-15	4	N1017106; E1304217	LIGHT BROWN SILTY SAND	2743	18.1	13.9	106.6	102.7	96
07-15	5	N1017168; E1304195	LIGHT BROWN SILTY SAND	2740	19.0	18.2	100.7	102.3	100+
07-15	6	N1017305; E1304128	LIGHT BROWN SILTY SAND	2732	17.2	13.0	106.1	102.9	97
07-15	7	N1016954; E1304280	LIGHT BROWN SILTY SAND	2748	18.1	14.0	106.6	101.4	95
07-15	8	N1016901; E1304242	LIGHT BROWN SILTY SAND	2746	17.7	13.2	108.6	103.4	95
07-15	9	N1016953; E1304203	OLIVE SILTY SAND	2743	21.0	25.1	101.4	97.9	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-20-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-20	1	N1017214; E1304170	LIGHT BROWN SILTY SAND	2738	17.7	11.0	108.6	110.8	100+
07-20	2	N1017091; E1304217	LIGHT BROWN SILTY SAND	2746	17.7	18.6	108.6	106.1	98
07-20	3	N1016990; E1304250	OLIVE SILTY SAND	2750	18.6	18.3	99.3	98.1	99
07-20	4	N1016927; E1304244	OLIVE SLIGHTLY MICACEOUS SILTY SAND	2751	23.8	19.3	94.3	93.1	99
07-20	5	N1016818; E1303901	LIGHT BROWN SILTY SAND	2745	17.2	12.1	106.1	103.3	97
07-20	6	N1016837; E1303785	LIGHT BROWN SILTY SAND	2756	19.0	17.7	100.7	98.6	98

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-23-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-23	1	N1016893; E1304256	OLIVE GREEN SILTY SAND	2757	21.0	21.4	101.4	96.7	95
07-23	2	N1016968; E1304252	LIGHT BROWN SILTY SAND	2755	17.7	15.4	108.6	103.7	95
07-23	3	N1017088; E1304232	LIGHT BROWN SILTY SAND	2749	17.2	14.7	106.1	102.8	97
07-23	4	N1017174; E1304188	LIGHT BROWN SILTY SAND	2743	17.2	13.8	106.1	104.0	98

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-27-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-1556	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-27	1	N1016856; E1304255	LIGHT BROWN SILTY SAND	2766	17.2	10.9	106.1	100.9	95
07-27	2	N1016966; E1304242	LIGHT BROWN SILTY SAND	2758	17.2	12.9	106.1	103.5	98
07-27	3	N1017117; E1304214	LIGHT BROWN SILTY SAND	2749	17.7	14.0	106.1	103.6	98
07-27	4	N1017494; E1303623	LIGHT BROWN SILTY SAND	2668	19.0	16.1	100.7	102.8	100+
07-27	5	N1017628; E1303616	LIGHT BROWN SILTY SAND	2664	17.2	12.0	106.1	103.3	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 08-04-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
08-04	1	N1016848; E1304256	LIGHT BROWN SILTY SAND	2768	17.7	15.8	108.6	103.7	96
08-04	2	N1016956; E1304247	LIGHT BROWN SILTY SAND	2761	17.2	13.7	106.1	103.6	98
08-04	3	N1017094; E1304233	LIGHT BROWN SILTY SAND	2752	17.2	14.5	106.1	103.5	98

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 08-17-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-2937**	
ENGINEER: MICHAEL W. SLOAN, P.E.	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
08-17	1	LINER TEST PAD - SOUTHWEST CORNER	BROWN SLIGHTLY MICACEOUS SILTY SAND	1ST LIFT	23.0	23.2	98.6	92.0	93
08-17	2	LINER TEST PAD - APPROX. CENTER	BROWN SLIGHTLY MICACEOUS SILTY SAND	1ST LIFT	23.0	23.0	98.6	91.1	92
08-17	3	LINER TEST PAD - NORTHEAST CORNER	BROWN SLIGHTLY MICACEOUS SILTY SAND	1ST LIFT	23.0	22.5	98.6	92.2	94

REMARKS: TEST RESULTS DO NOT MEET SPECIFIED REQUIREMENTS.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 08-18-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
08-18	1	RE-TEST OF TEST NO. 2 OF 08-17-10 - N1017188; E1304061	BROWN SLIGHTLY MICACEOUS SILTY SAND	2716.2	23.0	23.3	98.6	88.9	90

REMARKS: TEST RESULTS DO NOT MEET SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 08-23-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
08-23	1	LINER TEST PAD - N1017132; E1304080	BROWN SLIGHTLY MICACEOUS SILTY SAND	2718.5	23.0	23.2	98.6	98.0	99
08-23	2	LINER TEST PAD - N1017147; E1304093	BROWN SLIGHTLY MICACEOUS SILTY SAND	2718.3	23.0	23.5	98.6	97.8	99
08-23	3	LINER TEST PAD - N1017109; E1304062	BROWN SLIGHTLY MICACEOUS SILTY SAND	2719.0	23.0	24.1	98.6	97.7	99

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. SG=SUBGRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 08-30-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-2937**	
ENGINEER: MICHAEL W. SLOAN, P.E.	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
08-30	1	LINER TEST PAD - APPROX. CENTER	LIGHT BROWN SANDY SILT	1ST LIFT	20.5	22.4	102.2	101.5	99
08-30	2	LINER TEST PAD - SOUTHWEST CORNER	LIGHT BROWN SANDY SILT	1ST LIFT	20.5	22.3	102.2	100.5	98
08-30	3	LINER TEST PAD - NORTHEAST CORNER	LIGHT BROWN SANDY SILT	1ST LIFT	20.5	23.1	102.2	101.5	99

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 09-01-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
09-01	1	LINER TEST PAD - N1017191: E1304041	LIGHT BROWN SANDY SILT	2716.7	20.5	22.3	102.2	100.6	98
09-01	2	LINER TEST PAD - N1017180: E1304063	LIGHT BROWN SANDY SILT	2717.1	20.5	21.9	102.2	100.6	98
09-01	3	LINER TEST PAD - N1017171: E1304086	LIGHT BROWN SANDY SILT	2717.9	20.5	21.6	102.2	100.6	98

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 09-08-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
09-08	1	RETEST OF TEST #1 - ON 09-01-10	LIGHT BROWN SANDY SILT	2716.7	20.5	20.6	102.2	100.8	99
09-08	2	RETEST OF TEST #2 – ON 09-01-10	LIGHT BROWN SANDY SILT	2717.1	20.5	21.0	102.2	102.0	100
09-08	3	RETEST OF TEST #3 – ON 09-01-10	LIGHT BROWN SANDY SILT	2717.9	20.5	21.1	102.2	100.5	98

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 09-15-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 2**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-2937**	
ENGINEER: MICHAEL W. SLOAN, P.E.	**TECHNICIAN: FREEMAN/NICHOLS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
09-15	1	LINER TEST PAD - 10 FT EAST AND 10 FT NORTH OF SOUTHWEST CORNER	LIGHT BROWN SANDY SILT	2ND LIFT	20.5	16.9	102.2	101.9	98
09-15	2	RETEST OF TEST NO. 1	LIGHT BROWN SANDY SILT	2ND LIFT	20.5	19.0	102.2	104.7	100+
09-15	3(P7)	GRID 4 – N1017350; E1303840	BROWN SLIGHTLY MICACEOUS SILTY SAND	2688.7	23.0	22.2	98.6	99.4	100+
09-15	4(P8)	GRID 4 – N1017427; E1303752	BROWN SLIGHTLY MICACEOUS SILTY SAND	2678.1	23.0	24.1	98.6	97.3	99
09-15	5(P9)	GRID 6 – N1017541; E1303639	BROWN SLIGHTLY MICACEOUS SILTY SAND	2668.5	23.0	23.8	98.6	99.3	100+

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 09-15-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 2 OF 2**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-2937**	
ENGINEER: MICHAEL W. SLOAN, P.E.	**TECHNICIAN: FREEMAN/NICHOLS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
09-15	6 (P10)	GRID 4 – N1017376; E1303759	BROWN SLIGHTLY MICACEOUS SILTY SAND	2681.2	23.0	23.5	98.6	96.3	98
09-15	7 (P11)	GRID 6 – N1017503; E1303656	BROWN SLIGHTLY MICACEOUS SILTY SAND	2669.8	23.0	24.5	98.6	99.5	100+

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 09-17-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: NICHOLS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
09-17	1	LINER TEST PAD – N1017173; E1304082	BROWN SANDY SILT	2717.6	20.5	22.2	102.2	104.5	100+
09-17	2	LINER TEST PAD – APPROX. CENTER OF PAD	BROWN SANDY SILT	2ND LIFT	20.5	22.1	102.2	104.7	100+
09-17	3	LINER TEST PAD - 16 FT SOUTH & 14 FT WEST OF NORTHEAST CORNER OF THE PAD	BROWN SANDY SILT	2ND LIFT	20.5	22.0	102.2	104.2	100+

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATION NO. 1 AND ELEVATION NO. 1 FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 09-22-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 2
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATON	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
09-22	1	LINER TEST PAD - N 1017174; E 1304036	REDDISH BROWN SANDY SILT	2717.3	20.5	22.0	102.2	101.0	99
09-22	2	LINER TEST PAD - APPROXIMATE CENTER OF TEST PAD	REDDISH BROWN SANDY SILT	3RD LIFT	20.5	23.7	102.2	99.3	97
09-22	3	LINER TEST PAD - APPROXIMATE CENTER OF EAST SIDE OF TEST PAD	REDDISH BROWN SANDY SILT	3RD LIFT	20.5	23.1	102.2	100.6	98

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST NO. 1 LOCATON AND ELEVATION FROM CLIENT'S EQUIPMENT.

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PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 09-22-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 2 OF 2
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	ELEVATON	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
09-22	4	GRID 2 - N 1017205; E 1304005	REDDISH BROWN SANDY SILT	2713.6	20.5	24.5	102.2	96.9	95
09-22	5	GRID 3 - N 1017260; E 1303916	REDDISH BROWN SANDY SILT	2706.0	20.5	24.4	102.2	96.9	95
09-22	6	GRID 4 - N 1017261; E 1303756	REDDISH BROWN SANDY SILT	2690.4	20.5	25.3	102.2	96.8	95
09-22	7 (P13)	RETEST OF TEST NO. 3 (P13) ON 09-16-10	BROWN SLIGHTLY MICACEOUS SILTY SAND	2667.7	23.0	24.6	98.6	95.5	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 09-24-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: MICHAEL W. SLOAN, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
09-24	1 (P16)	GRID 1 - N 1016896; E 1304078	BROWN SLIGHTLY MICACEOUS SILTY SAND	2724.6	23.0	27.2	98.6	94.3	96
09-24	2 (P17)	GRID 1 - N 1017011; E 1304090	BROWN SLIGHTLY MICACEOUS SILTY SAND	2723.1	23.0	27.2	98.6	95.0	96
09-24	3 (P18)	GRID 2 - SOUTHWEST QUADRANT	BROWN SLIGHTLY MICACEOUS SILTY SAND	1ST LIFT	23.0	30.2	98.6	91.7	93
09-24	4 (P18)	RETEST OF TEST NO. 3 (P18) - N 1017108; E 1304079	BROWN SLIGHTLY MICACEOUS SILTY SAND	2719.7	23.0	26.3	98.6	95.8	97

REMARKS: AFTER RETEST, TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-06-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-06	1 (P24)	GRID 2 - N1017119; E1304104	BROWN SLIGHTLY MICACEOUS SILTY SAND	2720.0	23.0	26.3	98.6	93.8	95
10-06	2 (P25)	GRID 1- N1016999; E1304108	BROWN SLIGHTLY MICACEOUS SILTY SAND	2723.9	23.0	27.8	98.6	93.7	95
10-06	3 (P26)	GRID 1- N1016896; E1304093	BROWN SLIGHTLY MICACEOUS SILTY SAND	2726.0	23.0	28.6	98.6	93.7	95
10-06	4 (P22)	RETEST OF TEST NO. 3 (P22) ON 10-05-10 - N1017397; E1303863	BROWN SLIGHTLY MICACEOUS SILTY SAND	2686.5	23.0	27.9	98.6	93.4	95
10-06	5 (P23)	RETEST OF TEST NO. 5 (P23) ON 10-04-10 - N1017563; E1303662	BROWN SLIGHTLY MICACEOUS SILTY SAND	2669.1	23.0	27.5	98.6	93.7	95

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-08-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-08	1 (P32)	GRID 7 - N 1017546; E 1303720	BROWN SLIGHTLY MICACEOUS SILTY SAND	2670.3	23.0	27.4	98.6	93.6	95
10-08	2 (P33)	GRID 6 - N 1017632; E 1303682	BROWN SLIGHTLY MICACEOUS SILTY SAND	2668.6	23.0	27.3	98.6	94.3	97
10-08	3 (P34)	GRID 1 - N 1016905; E 1304186	BROWN SLIGHTLY MICACEOUS SILTY SAND	2745.5	23.0	26.2	98.6	94.2	96

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-09-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: FREEMAN	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-09	1 (P35)	GRID 1 - N 1017011; E 1304153	BROWN SLIGHTLY MICACEOUS SILTY SAND	2727.9	23.0	27.9	98.6	95.5	97
10-09	2 (P36)	GRID 2 - N 1017060; E 1304172	BROWN SLIGHTLY MICACEOUS SILTY SAND	2734.1	23.0	28.9	98.6	94.6	96
10-09	3 (P37)	GRID 2 - N 1017178; E 1304155	BROWN SLIGHTLY MICACEOUS SILTY SAND	2735.6	23.0	28.7	98.6	94.0	95
10-09	4	GRID 5 - N 1017281; E 1303745	BROWN SLIGHTLY MICACEOUS SILTY SAND	2685.5	23.0	27.7	98.6	95.4	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-11-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-11	1	GRID 1 – N1016880; E1304222	BROWN SLIGHTLY MICACEOUS SILTY SAND	2756.5	23.0	26.2	98.6	93.7	95

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-12-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-12	1 (P25)	RETEST OF TEST NO. 2 (P25) ON 10-06-10 - N1016999; E1304108	BROWN SLIGHTLY MICACEOUS SILTY SAND	2723.9	23.0	25.6	98.6	95.9	97
10-12	2 (P38)	GRID 2 - N1017098; E1304107	BROWN SLIGHTLY MICACEOUS SILTY SAND	2721.7	23.0	26.3	98.6	95.2	97
10-12	3 (P39)	GRID 2 - N1017173; E1304040	BROWN SLIGHTLY MICACEOUS SILTY SAND	2717.4	23.0	27.3	98.6	95.1	96
10-12	4	GRID 6 - N1017658; E1303511	BROWN SLIGHTLY MICACEOUS SILTY SAND	2665.8	23.0	25.3	98.6	95.7	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-13-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-13	1 (P40)	GRID 1 - N1016891; E1304075	BROWN SLIGHTLY MICACEOUS SILTY SAND	2726.0	23.0	25.8	98.6	95.0	96
10-13	2 (P41)	GRID 1 - N1016996; E1304062	BROWN SLIGHTLY MICACEOUS SILTY SAND	2722.9	23.0	26.7	98.6	96.4	98
10-13	3 (P42)	GRID 6 - N1017626; E1303513	BROWN SLIGHTLY MICACEOUS SILTY SAND	2669.2	23.0	25.1	98.6	95.8	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-15-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-15	1 (P35)	RETEST OF TEST NO. 1 (P35) ON 10-09-10 - N1017011; E1304153	BROWN SLIGHTLY MICACEOUS SILTY SAND	2727.9	22.1	28.6	99.0	91.8	93
10-15	2 (P36)	RETEST OF TEST NO. 2 (P36) ON 10-09-10 - N1017060; E1304172	BROWN SLIGHTLY MICACEOUS SILTY SAND	2734.1	22.1	28.6	99.0	92.7	94

REMARKS: TEST RESULTS DO NOT MEET SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 10-17-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-2937**	
ENGINEER: BOBBY L. BARNES, P.E.	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-17	1 (P35)	RETEST OF TEST NO. 1 (P35) ON 10-15-10 - N1017011; E1304153	BROWN SLIGHTLY MICACEOUS SILTY SAND	2727.9	22.1	24.0	99.0	94.1	95
10-17	2 (P36)	RETEST OF TEST NO. 2 (P36) ON 10-15-10 - N1017060; E1304172	BROWN SLIGHTLY MICACEOUS SILTY SAND	2734.1	22.1	25.3	99.0	97.8	99
10-17	3 (P39)	RETEST OF TEST NO. 3 (P39) ON 10-12-10 - N1017173; E1304040	BROWN SLIGHTLY MICACEOUS SILTY SAND	2717.4	23.0	25.9	98.6	97.5	99

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-19-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-19	1 (P35)	RETEST OF TEST NO. 1 (P35) ON 10-17-10	BROWN SLIGHTLY MICACEOUS SILTY SAND	2727.9	22.1	25.3	99.0	96.7	98
10-19	2 (P38)	RETEST OF TEST NO. 2 P(38) ON 10-12-10	BROWN SLIGHTLY MICACEOUS SILTY SAND	2721.7	23.0	26.7	98.6	93.8	95
10-19	3 (P43)	GRID 1 - N1016892; E1304160	BROWN SLIGHTLY MICACEOUS SILTY SAND	2738.3	25.5	28.1	98.2	93.8	96
10-19	4 (P44)	GRID 1 - N1016967; E1304178	BROWN SLIGHTLY MICACEOUS SILTY SAND	2740.8	25.5	27.9	98.2	93.9	96
10-19	5 (P45)	GRID 2 - N1017103; E1304148	BROWN SLIGHTLY MICACEOUS SILTY SAND	2730.1	25.5	26.7	98.2	94.4	96
10-19	6 (P46)	GRID 2 - N1017253; E1304124	BROWN SLIGHTLY MICACEOUS SILTY SAND	2732.8	25.5	28.5	98.2	93.9	96

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-22-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-22	1 (P35)	RETEST OF TEST NO. 1 (P35) ON 10-19-10	BROWN SLIGHTLY MICACEOUS SILTY SAND	2727.9	22.1	24.0	99.0	96.0	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST ELEVATION FROM CLIENT'S EQUIPMENT.
(P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-23-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: FREEMAN	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-23	1 (P47)	GRID 1 - N1016867; E1304167	BROWN SLIGHTLY MICACEOUS SILTY SAND	2742.4	25.5	29.3	98.2	94.5	96
10-23	2 (P48)	GRID 1 - N1016966; E1304193	BROWN SLIGHTLY MICACEOUS SILTY SAND	2746.1	25.5	28.3	98.2	94.7	96

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 10-24-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-24	1 (P49)	GRID 2 - N1017099; E1304149	BROWN SLIGHTLY MICACEOUS SILTY SAND	2730.5	25.5	28.8	98.2	93.7	95
10-24	2 (P50)	GRID 2 - N1017197; E1304124	BROWN SLIGHTLY MICACEOUS SILTY SAND	2729.3	25.5	28.1	98.2	93.1	95

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 10-26-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-2937**	
ENGINEER: BOBBY L. BARNES, P.E.	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
10-26	1 (P35)	RETEST OF TEST NO. 1 (P35) ON 10-22-10	BROWN SLIGHTLY MICACEOUS SILTY SAND	1ST LIFT	25.5	28.0	98.2	93.8	96
10-26	2	SAME LOCATION AS TEST NO. 1	BROWN SLIGHTLY MICACEOUS SILTY SAND	2ND LIFT	25.5	26.9	98.2	95.4	97
10-26	3	SAME LOCATION AS TEST NO. 1	BROWN SLIGHTLY MICACEOUS SILTY SAND	3RD LIFT	25.5	27.4	98.2	95.4	97

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	**PROJECT NO: 3477**	**DATE: 11-03-10**
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	**CLIENT NAME: HUNTER CONSTRUCTION GROUP**	**SHEET 1 OF 1**
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	**TEST METHOD: ASTM D-2937**	
ENGINEER: BOBBY L. BARNES, P.E.	**TECHNICIAN: EDWARDS**	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
11-03	1 (P51)	GRID 1 - N1016910; E1304156	BROWN SLIGHTLY MICACEOUS SILTY SAND	2737.0	25.5	29.0	98.2	92.9	95
11-03	2 (P52)	GRID 1 - N1017006; E1304179	BROWN SLIGHTLY MICACEOUS SILTY SAND	2739.4	25.5	28.4	98.2	94.2	96
11-03	3 (P53)	GRID 2 - N1017109; E1304153	BROWN SLIGHTLY MICACEOUS SILTY SAND	2732.7	25.5	27.9	98.2	94.4	96
11-03	4 (P54)	GRID 2 - N1017233; E1304114	BROWN SLIGHTLY MICACEOUS SILTY SAND	2728.8	25.5	29.1	98.2	93.7	95
11-03	5 (P55)	LINER TEST PAD - GRID 2 - N1017190; E1304056	BROWN SLIGHTLY MICACEOUS SILTY SAND	2718.7	25.5	29.9	98.2	92.8	95
11-03	6 (P56)	RETEST OF TEST NO. 1 ON 11-02-10 - GRID 7 - N1017694; E1303644	BROWN SLIGHTLY MICACEOUS SILTY SAND	2672.9	25.5	27.9	98.2	93.5	95
11-03	7 (P57)	GRID 1 - N1016933; E1304107	BROWN SLIGHTLY MICACEOUS SILTY SAND	4TH LIFT	25.5	28.8	98.2	93.2	95

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 11-08-10
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
11-08	1 (P26)	RETEST OF TEST NO. 3 (P26) ON 10-06-10	BROWN SLIGHTLY MICACEOUS SILTY SAND	2ND LIFT	23.0	27.1	98.6	95.0	96

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. (P#) = PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 11-09-10 (REV)
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: EDWARDS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
11-09	1 (P58)	GRID 1 - N1016965; E1304072	BROWN SLIGHTLY MICACEOUS SILTY SAND	2721.0	25.5	28.7	98.2	93.6	95
11-09	2 (P59)	GRID 2 - N1017075; E1304057	BROWN SLIGHTLY MICACEOUS SILTY SAND	2724.1	25.5	28.3	98.2	94.0	96
11-09	3	LINER TEST PAD - N1017179; E1304055	BROWN SLIGHTLY MICACEOUS SILTY SAND	2718.1	25.5	29.2	98.2	93.0	95
11-09	4	LINER TEST PAD - N1017199; E1304070	BROWN SLIGHTLY MICACEOUS SILTY SAND	2717.7	25.5	28.8	98.2	93.6	95

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 04-14-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: FREEMAN	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
04-14	1	GRID 3 - N1017429; E1804024	BROWN SLIGHTLY MICACEOUS SILTY SAND	2ND LIFT OF LINER	23.0	25.2	98.6	95.8	97
04-14	2	GRID 7 - N1017563; E1303870	BROWN SLIGHTLY MICACEOUS SILTY SAND	2ND LIFT OF LINER	23.0	24.8	98.6	95.6	97
04-14	3	GRID 8 - N1017660; E1303427	BROWN SLIGHTLY MICACEOUS SILTY SAND	2ND LIFT OF LINER	23.0	25.3	98.6	95.8	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS FROM CLIENT'S EQUIPMENT.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 05-24-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: FREEMAN	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL DEPTH	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
05-24	1	BOTTOM OF GRIDS 4 & 5 AND PART OF 6 FOR SLOPES BEFORE WATER WAS ADDED		N/A		26.0			
05-24	2	BOTTOM OF GRIDS 4 & 5 AND PART OF 6 FOR SLOPES BEFORE WATER WAS ADDED		N/A		29.9			
05-24	3	BOTTOM OF GRIDS 4 & 5 AND PART OF 6 FOR SLOPES AFTER WATER WAS ADDED 1ST PASS		N/A		29.4			
05-24	4	BOTTOM OF GRIDS 4 & 5 AND PART OF 6 FOR SLOPES AFTER WATER WAS ADDED 2ND PASS		N/A		32.7			

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. SG=SUBGRADE.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 05-25-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: FREEMAN	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
05-25	1 (P67)	GRID 3 - N 1017442 ; E 1303981	BROWN SLIGHTLY MICACEOUS SILTY SAND	2701.0	25.5	28.2	98.2	92.8	95
05-25	2 (P68)	GRID 3 - N 1017366 ; E 1304034	BROWN SLIGHTLY MICACEOUS SILTY SAND	2710.8	25.5	27.8	98.2	94.7	96
05-25	3 (P69)	GRID 3 - N 1017332 ; E 1304053	BROWN SLIGHTLY MICACEOUS SILTY SAND	2715.4	25.5	28.2	98.2	93.1	95
05-25	4 (P70)	GRID 3 - N 1017458 ; E 1303980	BROWN SLIGHTLY MICACEOUS SILTY SAND	2703.7	25.5	28.5	98.2	92.8	95
05-25	5 (P71)	GRID 7 - N 1017561 ; E 1303874	BROWN SLIGHTLY MICACEOUS SILTY SAND	2699.4	25.5	29.5	98.2	93.6	95

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 05-26-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: FREEMAN	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
05-26	1 (P72)	GRID 7 - N 1017547 ; E 1303902	BROWN SLIGHTLY MICACEOUS SILTY SAND	2699.7	25.5	30.2	98.2	92.8	95
05-26	2 (P73)	GRID 7 - N 1017567 ; E 1303860	BROWN SLIGHTLY MICACEOUS SILTY SAND	2694.5	25.5	27.8	98.2	93.4	95

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-01-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: RICHARDSON	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-01	1 (P67)	RE-TEST OF TEST NO. 1 (P67) ON 05-25-11	BROWN SLIGHTLY MICACEOUS SILTY SAND	2701.0	25.5	28.2	98.2	93.6	95
06-01	2 (P68)	RE-TEST OF TEST NO. 2 (P68) ON 05-25-11	BROWN SLIGHTLY MICACEOUS SILTY SAND	2710.8	25.5	33.6	98.2	87.6	89
06-01	3 (P68)	RE-TEST OF TEST NO. 2 (P68)	BROWN SLIGHTLY MICACEOUS SILTY SAND	2710.8	25.5	28.4	98.2	92.4	94
06-01	4 (P68)	RE-TEST OF TEST NO. 2 (P68)	BROWN SLIGHTLY MICACEOUS SILTY SAND	2710.8	25.5	27.8	98.2	94.2	96
06-01	5 (P74)	GRID 3 - N 1017381 ; E 1304041	BROWN SLIGHTLY MICACEOUS SILTY SAND	2714.8	25.5	25.5	98.2	95.4	97
06-01	6 (P68)	GRID 3 - N 1017457 ; E 1303996	BROWN SLIGHTLY MICACEOUS SILTY SAND	2708.1	25.5	26.8	98.2	94.6	96

REMARKS: AFTER RE-TESTS, TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-02-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: RICHARDSON	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-02	1 (P76)	GRID 7 - N 1017631 ; E 1303752	BROWN SLIGHTLY MICACEOUS SILTY SAND	2681.6	25.5	29.1	98.2	92.8	95
06-02	2 (P76)	RE-TEST OF TEST NO. 1	BROWN SLIGHTLY MICACEOUS SILTY SAND	2681.6	25.5	29.0	98.2	93.6	95

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-07-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: RICHARDSON	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-07	1 (P78)	N 1017597 ; E 1303419	BROWN SLIGHTLY MICACEOUS SILTY SAND	2686.7	25.5	26.8	98.2	95.4	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-13-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: RICHARDSON	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-13	1	GRID 3 - SOUTHWEST QUADRANT	BROWN SLIGHTLY MICACEOUS SILTY SAND	LIFT #3	25.5	29.3	98.2	92.7	94
06-13	2	GRID 3 - NORTHWEST QUADANT	BROWN SLIGHTLY MICACEOUS SILTY SAND	LIFT #3	25.5	31.1	98.2	91.4	93
06-13	3 (P83)	N 1017274 ; E 1303590	BROWN SLIGHTLY MICACEOUS SILTY SAND	2697.0	25.5	27.7	98.2	94.0	96
06-13	4	GRID 5 - SOUTHWEST QUADRANT	BROWN SLIGHTLY MICACEOUS SILTY SAND	LIFT #1	25.5	30.5	98.2	90.0	92

REMARKS: TEST NO. 3 MEETS OR EXCEEDS SPECIFIED REQUIREMENTS. TEST NO. 1, NO. 2 AND NO. 4 DID NOT. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-14-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: RICHARDSON	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-14	1 (P84)	GRID 3 - N 1017305 ; E 1304017	BROWN SLIGHTLY MICACEOUS SILTY SAND	2708.5	25.5	27.6	98.2	95.5	97
06-14	2 (P85)	GRID 3 - N 1017388 ; E 1303944	BROWN SLIGHTLY MICACEOUS SILTY SAND	2693.1	25.5	28.0	98.2	93.8	96

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#) PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-15-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: RICHARDSON	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-15	1 (P86)	GRID 4 - N 1017379 ; E 1303876	BROWN SLIGHTLY MICACEOUS SILTY SAND	2689.9	25.5	28.3	98.2	94.2	96
06-15	2 (P87)	GRID 4 - N 1017317 ; E 1303870	BROWN SLIGHTLY MICACEOUS SILTY SAND	2695.3	25.5	28.3	98.2	94.2	96
06-15	3 (P88)	GRID 4 - N 1017354 ; E 1303764	BROWN SLIGHTLY MICACEOUS SILTY SAND	2683.1	25.5	26.7	98.2	96.4	98

REMARKS: TEST RESULT MEETS OR EXCEEDS SPECIFIED REQUIREMENTS.
TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-17-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: RICHARDSON	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-17	1	GRID 4 - NORTHWEST QUADRANT	BROWN SLIGHTLY MICACEOUS SILTY SAND	LIFT 3	25.5	27.9	98.2	93.0	95
06-17	2	GRID 4 - SOUTHWEST QUADRANT	BROWN SLIGHTLY MICACEOUS SILTY SAND	LIFT 3	25.5	26.9	98.2	93.9	96
06-17	2 (P89)	GRID 4 - N 1017262 ; E 1303876	BROWN SLIGHTLY MICACEOUS SILTY SAND	2703.8	25.5	28.0	98.2	94.0	96
06-17	3 (P90)	GRID 4 - N 1017305 ; E 1303777	BROWN SLIGHTLY MICACEOUS SILTY SAND	2689.0	25.5	28.1	98.2	94.7	96

REMARKS: TEST RESULT MEETS OR EXCEEDS SPECIFIED REQUIREMENTS.
TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 06-24-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: RICHARDSON	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
06-24	1 (P93)	GRID 3 - N 1017447 ; E 1404003	BROWN SLIGHTLY MICACEOUS SILTY SAND	2709.6	25.5	26.8	98.2	94.2	96
06-24	2 (P94)	GRID 3 - N 1017345 ; E 1304062	BROWN SLIGHTLY MICACEOUS SILTY SAND	2719.5	25.5	26.6	98.2	94.6	96
06-24	3 (P95)	GRID 3 - N 1017311 ; E 1304025	BROWN SLIGHTLY MICACEOUS SILTY SAND	2708.7	25.5	27.1	98.2	97.3	99
06-24	4 (P96)	GRID 3 - N 1017376 ; E 1303945	BROWN SLIGHTLY MICACEOUS SILTY SAND	2694.3	25.5	27.9	98.2	94.9	97
06-24	5 (P97)	GRID 4 - N 1017289 ; E 1303841	BROWN SLIGHTLY MICACEOUS SILTY SAND	2696.3	25.5	27.0	98.2	95.8	98
06-24	6 (P98)	GRID 4 - N 1017280 ; E 1303760	BROWN SLIGHTLY MICACEOUS SILTY SAND	2690.2	25.5	27.2	98.2	94.3	96

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-22-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: BURKHALTER	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-22	1 (P99)	GRID 7 - N 1017546 ; E 1303898	BROWN SLIGHTLY MICACEOUS SILTY SAND	2698.2	22.8	26.0	98.3	95.2	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-26-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: BURKHALTER	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-26	1 (P100)	GRID 7 - N 1017667 ; E 1303724	BROWN SLIGHTLY MICACEOUS SILTY SAND	2683.2	22.8	23.6	98.3	96.7	98

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 07-28-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: BURKHALTER	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
07-28	1 (P101)	GRID 7 - N 1017486 ; E 1303776	BROWN SLIGHTLY MICACEOUS SILTY SAND	2676.3	25.4	27.9	94.4	91.6	97
07-28	2 (P102)	GRID 6 - N 1017514 ; E 1304674	BROWN SLIGHTLY MICACEOUS SILTY SAND	2671.2	25.4	28.3	94.4	94.5	100+
07-28	3 (P103)	GRID 5 - N 1017382 ; E 1304694	BROWN SLIGHTLY MICACEOUS SILTY SAND	2678.6	25.4	28.4	94.4	91.0	96
07-28	4 (P104)	GRID 5 - N 1017432 ; E 1303629	BROWN SLIGHTLY MICACEOUS SILTY SAND	2673.0	25.4	26.6	94.4	94.8	100+

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 08-02-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: NICHOLS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
08-02	1 (P105)	GRID 8 - N 1017321 ; E 1303459	BROWN SLIGHTLY MICACEOUS SILTY SAND	2702.0	25.5	29.2	98.2	94.3	96
08-02	2 (P106)	GRID 8 - N 10174277 ; E 1303462	BROWN SLIGHTLY MICACEOUS SILTY SAND	2708.6	25.5	28.6	98.2	96.3	98
08-02	3 (P107)	GRID 5 - N 1017350 ; E 1303567	BROWN SLIGHTLY MICACEOUS SILTY SAND	2682.4	25.5	29.9	98.2	94.8	97
08-02	4	GRID 5 - NORTHWEST QUADRANT	BROWN SLIGHTLY MICACEOUS SILTY SAND	4TH LIFT	25.5	30.8	98.2	91.4	93
08-02	5 (P109)	GRID5 - N 1017333 ; E 1303655	BROWN SLIGHTLY MICACEOUS SILTY SAND	2679.9	25.5	25.5	98.2	99.6	100+

REMARKS: TEST NO. 1, NO. 2, NO.3 AND NO. 5 MEET OR EXCEED SPECIFIED REQUIREMENTS. TEST NO. 4 DOES NOT. TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 08-04-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: NICHOLS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
08-04	1 (P100)	RE-TEST OF TEST NO. 1 (P100) ON 07-26-11	BROWN SLIGHTLY MICACEOUS SILTY SAND	2675.7	25.5	28.2	98.2	96.1	98
08-04	2 (P110)	GRID 7 - N 1017614 ; E 1303072	BROWN SLIGHTLY MICACEOUS SILTY SAND	2670.1	25.5	26.6	98.2	97.3	99
08-04	3 (P111)	GRID 4 - N 1017383 ; E 1303728	BROWN SLIGHTLY MICACEOUS SILTY SAND	2680.3	25.5	28.6	98.2	95.4	97
08-04	4 (P112)	GRID 4 - N 1017457 ; E 1303707	BROWN SLIGHTLY MICACEOUS SILTY SAND	2675.2	25.5	27.0	98.2	96.6	98
08-04	5 (P113)	GRID 5 - N 1017366 ; E 1303610	BROWN SLIGHTLY MICACEOUS SILTY SAND	2676.3	25.5	26.5	98.2	97.7	99
08-04	5 (P114)	GRID 5 - N 1017317 ; E 1303576	BROWN SLIGHTLY MICACEOUS SILTY SAND	2689.6	25.5	27.6	98.2	94.2	96
08-04	6 (P115)	GRID 5 - N 1017325 ; E 1303506	BROWN SLIGHTLY MICACEOUS SILTY SAND	2701.3	25.5	26.9	98.2	95.8	98

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 08-10-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: BURKHALTER	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
08-10	1 (P117)	GRID 5 - N 1017424 ; E 1303531	BROWN SLIGHTLY MICACEOUS SANDY SILT	2678.3	25.4	27.6	94.4	93.7	99
08-10	2 (P116)	GRID 8 - N 1017442 ; E 1303453	BROWN SLIGHTLY MICACEOUS SANDY SILT	2694.7	25.4	27.5	94.4	94.3	100
08-10	3 (P108)	GRID 8 - N 1017406 ; E 1303480	BROWN SLIGHTLY MICACEOUS SANDY SILT	2693.3	25.4	30.1	94.4	91.5	97
08-10	4 (P118)	GRID 6 - N 1017476 ; E 1303514	BROWN SLIGHTLY MICACEOUS SANDY SILT	2675.7	25.4	31.9	94.4	90.4	96
08-10	5 (P119)	GRID 8 - N 1017489 ; E 1303438	BROWN SLIGHTLY MICACEOUS SANDY SILT	2691.4	25.4	31.6	94.4	90.9	96

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 08-11-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: NICHOLS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
08-11	1 (P120)	GRID 6 - N 1017470 ; E 1303493	BROWN SLIGHTLY MICACEOUS SILTY SAND	2681.2	25.5	28.5	98.2	95.0	97
08-11	2 (P121)	GRID 8 - N 1017482 ; E 1303439	BROWN SLIGHTLY MICACEOUS SILTY SAND	2692.3	25.5	29.5	98.2	94.7	96
08-11	3 (P122)	GRID 8 - N 1017404 ; E 1303432	BROWN SLIGHTLY MICACEOUS SILTY SAND	2704.8	25.5	28.3	98.2	94.9	97
08-11	4 (P123)	GRID 8 - N 1017656 ; E 1303435	BROWN SLIGHTLY MICACEOUS SILTY SAND	2679.6	25.5	28.2	98.2	96.1	98
08-11	5 (P124)	GRID 6 - N 1017678 ; E 1303695	BROWN SLIGHTLY MICACEOUS SILTY SAND	2678.2	25.5	27.7	98.2	97.5	99
08-11	6	RE-TEST OF TEST NO. 4 ON 08-02-11 - GRID 5 - N 1017335 ; E 1303430	BROWN SLIGHTLY MICACEOUS SILTY SAND	2679.9	25.5	26.3	98.2	95.6	97

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
TEST LOCATIONS AND ELEVATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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REPORT OF IN-PLACE DENSITY TESTING

PROJECT NAME: ASHE COUNTY LANDFILL	PROJECT NO: 3477	DATE: 08-12-11
PROJECT LOCATION: CRUMPLER, NORTH CAROLINA	CLIENT NAME: HUNTER CONSTRUCTION GROUP	SHEET 1 OF 1
SPECIFIED COMPACTION: 95% OF STANDARD PROCTOR	TEST METHOD: ASTM D-2937	
ENGINEER: BOBBY L. BARNES, P.E.	TECHNICIAN: NICHOLS	

TEST DATE	TEST NO.	TEST LOCATION	SOIL DESCRIPTION	FILL ELEVATION	OPT. MOISTURE (%)	FIELD MOISTURE (%)	MDD (PCF)	DRY DENSITY (PCF)	COMP %
08-12	1 (P125)	GRID 6 - N 1017480 ; E 1303576	BROWN SLIGHTLY MICACEOUS SILTY SAND	LIFT 3	25.5	30.3	98.2	93.6	95
08-12	2 (P126)	GRID 6 - N 1017579 ; E 1303632	BROWN SLIGHTLY MICACEOUS SILTY SAND	LIFT 4	25.5	30.1	98.2	93.1	95
08-12	3 (P127)	GRID 6 - N 1017558 ; E 1303598	BROWN SLIGHTLY MICACEOUS SILTY SAND	LIFT 3	25.5	31.5	98.2	93.1	95
08-12	4 (P128)	GRID 6 - N 1017558 ; E 1303598	BROWN SLIGHTLY MICACEOUS SILTY SAND	LIFT 4	25.5	30.9	98.2	93.7	95

REMARKS: TEST RESULTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
TEST LOCATIONS FROM CLIENT'S EQUIPMENT. (P#)=PRODUCTION AREA TEST NO.

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: August 30, 2010

DATE TESTED: August 31, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-44A
SAMPLE TYPE: UDT

SAMPLE LOCATION: TEST STRIP #1, 1ST 6-INCH LIFT
SAMPLE DESCRIPTION: LIGHT BROWN SILTY SAND

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	5.875	5.89
90 deg	5.893	5.731
180 deg	5.955	5.749
270 deg	5.757	5.74
AVERAGE	5.870	5.778

Length/Diam Ratio: 0.81

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.227	7.185
top 90	7.23	7.2
mid 0	7.209	7.225
mid 90	7.243	7.223
bottom 0	7.218	7.243
bottom 90	7.239	7.228
AVERAGE	7.228	7.217

SAMPLE WEIGHT (grams): Before: 465.4; After: 473.7

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	460.2	376.1	8.2	22.9%
After:	479.4	A	6.6	A

	Before	After
WET DENSITY (pcf):	120.6	125.1
DRY DENSITY (pcf):	98.2	A
SATURATION (%):	86%	A

(assumed SG= 2.70)

Notes: 1.5 CM X 1.5 CM X 1.7 CM PARTICLE FOUND IN SAMPLE POST-TEST

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87.1 INFLUENT PRES.(psi): 77.1 EFFLUENT PRES.(psi): 75.8

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. $\bar{K}_{20}$ cm/sec
8/31/2010	9:20:00	10:20:00	3600	1.9	22.4	1.9	21.7	114.072	113.299	28.6	20	0.8211	9.92E-08
	10:20:00	11:20:53	3605	1.9	21.7	1.9	21.5	113.299	113.078	29	20	0.8139	2.82E-08
	11:20:53	12:20:00	3925	1.9	21.5	2.0	21.4	113.078	112.858	29.3	20	0.8087	2.58E-08
	12:20:00	13:24:00	5400	2.0	21.4	2.2	21.3	112.858	112.526	29.7	20	0.8019	2.79E-08
	13:24:00	14:20:00	7200	2.2	21.3	2.3	21.1	112.526	112.195	30.4	19	0.7901	2.07E-08
9/1/2010	14:20:00	15:20:00	53640	2.3	21.1	3.3	20.0	112.195	109.877	28	19	0.8318	2.07E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.38E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: September 17, 2010

DATE TESTED: September 20, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-65
SAMPLE TYPE: UDT

SAMPLE LOCATION: SW corner Test Pad, 2nd Lift
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.267	3.301
90 deg	3.339	3.235
180 deg	3.415	3.257
270 deg	3.319	3.322
AVERAGE	3.335	3.279

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.307	7.284
top 90	7.259	7.31
mid 0	7.251	7.289
mid 90	7.268	7.29
bottom 0	7.248	7.308
bottom 90	7.291	7.271
AVERAGE	7.271	7.292

Length/Diam Ratio: 0.46

SAMPLE WEIGHT: (grams) Before: 270.9 After: 277.1

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	421.6	347.2	8.5	22.0%
After:	283.2	228.6	6.6	24.6%

	Before	After
WET DENSITY (pcf):	122.1	126.3
DRY DENSITY (pcf):	100.1	101.4
SATURATION (%):	87%	100%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.7 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/19/2010	14:41:00	18:02:00	12060	2.3	22.7	2.5	22.4	71.759	71.207	31.3	22	0.7753	1.77E-08
	18:02:00	21:25:00	12180	2.5	22.4	2.7	22.1	71.207	70.655	30.7	22	0.7851	1.78E-08
overnite	21:25:00	7:45:00	37200	2.7	22.1	3.5	21.3	70.655	68.888	26.6	21	0.8579	2.08E-08
	7:45:00	13:24:00	12420	3.5	21.3	3.8	21.1	68.888	68.336	26.7	21	0.856	1.97E-08
	13:24:00	17:19:00	14100	3.8	21.1	4.0	20.8	68.336	67.784	28.3	21	0.8264	1.69E-08
	17:19:00	20:28:00	11340	4.0	20.8	4.2	20.6	67.784	67.343	29.8	21	0.7984	1.64E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 1.75E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	September 30, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	September 21, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-66	SAMPLE LOCATION:	Test Pad 3rd Lift, West Side Center
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After	SAMPLE DIAM. (centimeters)	Before	After
0 deg	4.803	4.82	top 0	7.251	7.203
90 deg	4.606	4.779	top 90	7.223	7.125
180 deg	4.623	4.669	mid 0	7.211	7.195
270 deg	4.72	4.601	mid 90	7.212	7.263
AVERAGE	4.688	4.717	bottom 0	7.199	7.228
			bottom 90	7.212	7.281
Length/Diam Ratio:	0.65		AVERAGE	7.218	7.216

SAMPLE WEIGHT (grams)		MOISTURE CONTENT (percent)		Wet Wt.	Dry Wt.	Tare	M.C.
Before:	369.7	Before:		461.3	380.0	6.6	21.8%
After:	381.3	After:		387.2	304.3	6.6	27.8%

	Before	After
WET DENSITY (pcf):	120.3	123.4
DRY DENSITY (pcf):	98.8	96.5
SATURATION (%):	83%	101%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017174.3, E 1304036.2
Elev. 2717.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/30/2010	8:20:00	10:20:00	7200	2.2	22.6	2.6	22.2	92.860	91.977	25.6	20	0.8774	6.08E-08
	10:20:00	11:20:00	7200	2.6	22.2	3.0	21.8	91.977	91.149	27.1	19	0.8484	5.57E-08
	11:20:00	13:20:00	7200	3.0	21.8	3.5	21.4	91.149	90.100	27	19	0.8502	7.14E-08
RESET	17:12:45	7:37:45	51900	2.0	23.0	5.0	20.0	93.522	86.898	22.4	19	0.9443	6.98E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.75E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	September 24, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	September 21, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-67	SAMPLE LOCATION:	Retest of IPD #7, 1st Production Lift
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.205	3.414
90 deg	3.209	3.136
180 deg	3.181	3.134
270 deg	3.157	3.171
AVERAGE	3.188	3.214

Length/Diam Ratio: 0.44

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.27	7.335
top 90	7.227	7.223
mid 0	7.258	7.193
mid 90	7.291	7.238
bottom 0	7.313	7.178
bottom 90	7.237	7.185
AVERAGE	7.266	7.225

SAMPLE WEIGHT: (grams) Before: 250.0 After: 254.4

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	501.1	402.1	6.5	25.0%
After:	262.1	206.8	8.2	27.8%

	Before	After
WET DENSITY (pcf):	118.1	120.5
DRY DENSITY (pcf):	94.4	94.3
SATURATION (%):	86%	95%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.6 INFLUENT PRES.(psi): 78.6 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/24/2010	9:20:00	10:35:00	4500	2.0	23.0	2.3	22.8	65.387	64.780	27.5	20	0.841	6.19E-08
	10:35:00	11:55:00	4500	2.3	22.8	2.6	22.4	64.780	64.007	28	20	0.8318	7.87E-08
	11:55:00	13:10:00	4500	2.6	22.4	2.9	22.0	64.007	63.289	28.3	20	0.8264	7.35E-08
	13:10:00	14:25:00	4500	2.9	22.0	3.2	21.7	63.289	62.627	28.8	20	0.8175	6.79E-08
	14:25:00	15:40:00	4500	3.2	21.7	3.5	21.4	62.627	61.965	29	19	0.8139	6.83E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.01E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	September 24, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	September 21, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-68	SAMPLE LOCATION:	retest of IPD-8, 1st Production lift
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.068	4.108
90 deg	4.207	4.044
180 deg	4.216	4.135
270 deg	4.23	4.248
AVERAGE	4.180	4.134

Length/Diam Ratio: 0.58

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.397	7.231
top 90	7.255	7.165
mid 0	7.241	7.222
mid 90	7.227	7.21
bottom 0	7.25	7.217
bottom 90	7.229	7.216
AVERAGE	7.267	7.210

SAMPLE WEIGHT: (grams)	
Before:	323.5
After:	327.1

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	400.2	315.5	8.4	27.6%
After:	340.1	264.3	13.7	30.2%

	Before	After
WET DENSITY (pcf):	116.5	121.0
DRY DENSITY (pcf):	91.3	92.9
SATURATION (%):	88%	100%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.9 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/24/2010	8:00:00	9:15:00	4500	2.0	23.0	2.3	22.7	86.489	85.881	27.6	21	0.8392	6.02E-08
	9:15:00	11:20:00	7500	2.3	22.7	2.7	22.2	85.881	84.777	28.2	21	0.8282	6.55E-08
	11:20:00	12:35:00	4500	2.7	22.2	2.9	21.9	84.777	84.225	28.7	20	0.8193	5.45E-08
	12:35:00	13:50:00	4500	2.9	21.9	3.2	21.5	84.225	83.508	29	20	0.8139	7.10E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.28E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	September 24, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	September 21, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-69	SAMPLE LOCATION:	Retest of IPD-11, 1st Production Lift
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.743	4.527
90 deg	4.827	4.618
180 deg	4.73	4.741
270 deg	4.62	4.668
AVERAGE	4.730	4.639

Length/Diam Ratio: 0.65

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.266	7.295
top 90	7.3	7.272
mid 0	7.19	7.223
mid 90	7.248	7.154
bottom 0	7.217	7.209
bottom 90	7.274	7.155
AVERAGE	7.249	7.218

SAMPLE WEIGHT: (grams)	
Before:	365.4
After:	367.9

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	423.7	332.6	8.2	28.1%
After:	376.1	292.4	8.4	29.5%

	Before	After
WET DENSITY (pcf):	116.8	121.0
DRY DENSITY (pcf):	91.2	93.5
SATURATION (%):	89%	99%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/27/2010	11:23:15	12:08:15	2700	2.5	23.1	2.7	22.9	93.081	92.639	20.5	20	0.9881	8.93E-08
	12:08:15	13:43:15	5700	2.7	22.9	3.2	22.5	92.639	91.646	22.2	20	0.9487	9.21E-08
	13:43:15	14:43:15	3600	3.2	22.5	3.5	22.2	91.646	91.038	21.4	20	0.9669	9.17E-08
	14:43:15	15:39:15	3360	3.5	22.2	3.7	22.0	91.038	90.486	21.4	20	0.9669	8.99E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.08E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	October 6, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 4, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-78	SAMPLE LOCATION:	IPD-19, Grid 3 SW Quad, 2nd Lift
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.494	5.519
90 deg	5.367	5.573
180 deg	5.535	5.366
270 deg	5.616	5.298
AVERAGE	5.503	5.439

Length/Diam Ratio: 0.77

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.148	7.104
top 90	7.102	7.176
mid 0	7.142	7.164
mid 90	7.201	7.139
bottom 0	7.209	7.152
bottom 90	7.178	7.074
AVERAGE	7.163	7.135

SAMPLE WEIGHT: (grams) Before: 425.1 After: 432.1

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	384.8	307.9	8.5	25.7%
After:	438.4	343.7	6.6	28.1%

	Before	After
WET DENSITY (pcf):	119.7	124.0
DRY DENSITY (pcf):	95.2	96.8
SATURATION (%):	90%	102%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017285.1, E 1303996.3
Elev. 2708.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.3 INFLUENT PRES.(psi): 79.3 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/6/2010	12:36:15	17:36:15	18000	2.3	22.5	3.1	21.7	113.741	111.919	24.1	21	0.9077	5.02E-08
	17:36:15	7:35:15	50340	3.1	21.7	5.2	19.4	111.919	107.117	18.4	20	1.0403	5.58E-08
10/7	7:35:15	9:35:15	7200	5.2	19.4	5.5	19.2	107.117	106.565	19.9	20	1.0025	4.43E-08
	9:35:15	11:37:15	7320	5.5	19.2	5.7	18.9	106.565	106.013	22.4	20	0.9443	4.13E-08
	11:37:15	17:52:15	22500	5.7	18.9	6.5	18.0	106.013	104.136	26.9	19	0.8521	4.17E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.24E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	November 12, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	November 3, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-131	SAMPLE LOCATION:	IPD-55, NW Quad Grid 2 Lift 4 (Test Pad Lift 4)
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.455	4.455
90 deg	4.503	4.503
180 deg	4.499	4.499
270 deg	4.429	4.429
AVERAGE	4.472	4.472

Length/Diam Ratio: 0.62

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.255	7.255
top 90	7.289	7.289
mid 0	7.228	7.228
mid 90	7.222	7.222
bottom 0	7.267	7.267
bottom 90	7.255	7.255
AVERAGE	7.253	7.253

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	347.5	Before:	222.6	180.1	8.3	24.7%
After:	354.8	After:	362.9	275.6	8.5	32.7%

	Before	After
WET DENSITY (pcf):	117.4	119.9
DRY DENSITY (pcf):	94.1	90.4
SATURATION (%):	85%	102%

(assumed SG= 2.70)

Notes: Test Pad - Lift 4

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/12/10	13:02:00	14:02:00	3600	2.4	22.9	2.5	22.7	92.970	92.639	22.2	21	0.9487	4.61E-08
	14:02:00	15:01:00	3540	2.5	22.7	2.7	22.6	92.639	92.308	22.8	21	0.9355	4.64E-08
	15:01:00	17:00:00	7140	2.7	22.6	2.9	22.3	92.308	91.756	22.2	21	0.9487	3.91E-08
reset	17:05:00	19:27:00	8520	2.5	22.8	2.8	22.5	92.805	92.142	19.9	21	1.0025	4.13E-08
	19:27:00	22:29:00	10920	2.8	22.5	3.1	22.1	92.142	91.314	18.5	21	1.0377	4.20E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.30E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **September 9, 2010**
DATE TESTED: **September 11, 2010**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-50**
SAMPLE TYPE: **UDT**
SAMPLE LOCATION: **NW Quadrant Grid 3, 1st Production Lift** FPO-1
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.269	5.269
90 deg	5.213	5.213
180 deg	5.075	5.075
270 deg	5.188	5.188
AVERAGE	5.186	5.186

Length/Diam Ratio: 0.72

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.257	7.257
top 90	7.192	7.192
mid 0	7.222	7.222
mid 90	7.228	7.228
bottom 0	7.216	7.216
bottom 90	7.25	7.25
AVERAGE	7.228	7.228

SAMPLE WEIGHT: (grams) Before: 412.0 After: 424.6

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	470.0	386.3	8.3	22.1%
After:	432.5	341.2	8.4	27.4%

	Before	After
WET DENSITY (pcf):	120.9	124.6
DRY DENSITY (pcf):	99.0	97.8
SATURATION (%):	85%	102%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017409.4, E 1303950.2
Elev. 2690.2

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87.4 INFLUENT PRES.(psi): 77.4 EFFLUENT PRES.(psi): 76.2

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/11/2010	10:00:00	10:45:00	2700	2.0	23.0	2.2	22.8	107.590	107.149	23.2	21	0.9268	8.08E-08
	10:45:00	12:00:00	4500	2.2	22.8	2.5	22.5	107.149	106.486	23.9	21	0.9118	7.19E-08
	12:00:00	13:15:00	4500	2.5	22.5	2.7	22.3	106.486	106.045	22.8	20	0.9355	4.95E-08
	13:15:00	14:45:00	5400	2.7	22.3	3.0	22.0	106.045	105.382	22.3	20	0.9465	6.29E-08
	14:45:00	16:00:00	4500	3.0	22.0	3.2	21.8	105.382	104.941	22.3	20	0.9465	5.06E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.43E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **September 9, 2010**

DATE TESTED: **September 11, 2010**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-51**
SAMPLE TYPE: **UDT**

SAMPLE LOCATION: **SE Quad Grid 3, 1st Production Lift** IPD-2
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	6.085	6.085
90 deg	6.14	6.14
180 deg	6.083	6.083
270 deg	6.113	6.113
AVERAGE	6.105	6.105

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.245	7.245
top 90	7.229	7.229
mid 0	7.216	7.216
mid 90	7.24	7.24
bottom 0	7.232	7.232
bottom 90	7.216	7.216
AVERAGE	7.230	7.230

Length/Diam Ratio: 0.84

SAMPLE WEIGHT: (grams) Before: 482.2 After: 504.7

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	438.1	362.8	8.2	21.2%
After:	512.2	403.9	8.2	27.4%

	Before	After
WET DENSITY (pcf):	120.1	125.7
DRY DENSITY (pcf):	99.1	98.7
SATURATION (%):	82%	104%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017258.9, E 1304046.1
Elev. 2711.9

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87.6 INFLUENT PRES.(psi): 77.6 EFFLUENT PRES.(psi): 76.2

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/11/2010	12:00:00	12:45:00	2700	2.0	23.0	2.2	22.8	121.658	121.216	23.7	20	0.9161	8.31E-08
	12:45:00	13:45:00	3600	2.2	22.8	2.4	22.6	121.216	120.775	23.2	20	0.9268	6.33E-08
	13:45:00	14:45:00	3600	2.4	22.6	2.6	22.4	120.775	120.333	22.7	20	0.9377	6.43E-08
	14:45:00	15:46:00	3660	2.6	22.4	2.9	22.2	120.333	119.781	22.3	20	0.9465	8.01E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.27E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: September 10, 2010

DATE TESTED: September 12, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-52
SAMPLE TYPE: UDT

SAMPLE LOCATION: Near IPD #3 of 9-10-10, 1st Production Lift
SAMPLE DESCRIPTION: brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.101	4.395
90 deg	4.16	4.339
180 deg	4.209	4.183
270 deg	4.262	4.075
AVERAGE	4.183	4.248

Length/Diam Ratio: 0.58

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.242	7.237
top 90	7.235	7.251
mid 0	7.235	7.249
mid 90	7.219	7.255
bottom 0	7.223	7.277
bottom 90	7.238	7.275
AVERAGE	7.232	7.257

SAMPLE WEIGHT (grams): Before: 329.0; After: 338.2

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	454.3	357.8	8.3	27.6%
After:	343.9	266.4	6.6	29.8%

	Before	After
WET DENSITY (pcf):	119.5	120.1
DRY DENSITY (pcf):	93.7	92.5
SATURATION (%):	93%	98%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017540.9, E 1303786.3
Elev. 2672.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.8 INFLUENT PRES.(psi): 76.8 EFFLUENT PRES.(psi): 75.9

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/12/2010	12:44:15	17:33:30	17355	2.0	22.7	2.5	22.2	86.157	85.053	30	20	0.7967	2.75E-08
	17:33:30	19:56:30	8580	2.5	22.2	2.7	22.1	85.053	84.722	28.2	20	0.8282	1.75E-08
	19:56:30	22:00:30	7440	2.7	22.1	2.8	21.9	84.722	84.391	27	20	0.8502	2.08E-08
overnite	22:00:30	7:30:30	34200	2.8	21.9	3.7	21.0	84.391	82.404	23.2	20	0.9268	3.00E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.40E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 29, 2010

DATE TESTED: December 5, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-53R
SAMPLE TYPE: UDT

SAMPLE LOCATION: RE-TEST IPD #4 of 9-11-10, 1st Production Lift
SAMPLE DESCRIPTION: brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.886	4.883
90 deg	4.878	4.88
180 deg	4.852	4.875
270 deg	4.885	4.876
AVERAGE	4.875	4.879

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.255	7.292
top 90	7.238	7.293
mid 0	7.232	7.23
mid 90	7.243	7.293
bottom 0	7.246	7.288
bottom 90	7.231	7.292
AVERAGE	7.241	7.281

Length/Diam Ratio: 0.67

SAMPLE WEIGHT: (grams) Before: 385.8 After: 402.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	383.8	308.4	0.0	24.4%
After:	402.8	308.8	0.0	30.4%

	Before	After
WET DENSITY (pcf):	120.0	123.8
DRY DENSITY (pcf):	96.4	94.9
SATURATION (%):	88%	106%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.2 INFLUENT PRES.(psi): 79.2 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
1/11/2010	8:30:00	10:11:00	6060	2.2	23.0	2.7	22.5	107.369	106.265	20	22	1	9.05E-08
	10:11:00	17:02:00	24720	2.7	22.5	4.6	20.6	106.265	102.070	20	21	1	8.65E-08
	17:02:00	20:16:00	11700	4.6	20.6	5.7	19.8	102.070	99.973	20	21	1	9.42E-08
overnight	20:16:00	7:25:00	40200	5.7	19.8	8.8	16.7	99.973	93.128	20	20	1	9.36E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.12E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: September 10, 2010

DATE TESTED: September 13, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-54
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD #5 on 9-10-10, 1st Production Lift
SAMPLE DESCRIPTION: brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.191	4.141
90 deg	4.171	4.126
180 deg	4.129	4.236
270 deg	4.093	4.176
AVERAGE	4.146	4.170

Length/Diam Ratio: 0.57

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.262	7.291
top 90	7.267	7.294
mid 0	7.276	7.294
mid 90	7.236	7.279
bottom 0	7.237	7.31
bottom 90	7.242	7.289
AVERAGE	7.253	7.293

SAMPLE WEIGHT (grams): Before: 334.7; After: 344.6

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	365.1	295.1	8.2	24.4%
After:	350.7	277.5	6.6	27.0%

	Before	After
WET DENSITY (pcf):	122.0	123.5
DRY DENSITY (pcf):	98.0	97.2
SATURATION (%):	92%	99%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017556.7, E 1303709.4
Elev. 2669.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.9 INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/13/2010	10:25:00	11:55:00	5400	2.0	23.0	2.2	22.8	86.489	86.047	25.9	21	0.8714	3.73E-08
	11:55:00	13:25:00	5400	2.2	22.8	2.5	22.6	86.047	85.495	27.4	21	0.8428	4.54E-08
	13:25:00	15:55:00	7200	2.5	22.6	2.7	22.3	85.495	84.943	28.9	20	0.8157	3.32E-08
overnite	15:55:00	7:25:00	57600	2.7	22.3	4.9	20.0	84.943	79.975	23.9	20	0.9118	4.31E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.98E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **September 11, 2010**

DATE TESTED: **September 14, 2010**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-55**
SAMPLE TYPE: **UDT**

SAMPLE LOCATION: **IPD-6 on 9-10-10, 1st Production Lift**
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.606	4.589
90 deg	4.614	4.451
180 deg	4.491	4.556
270 deg	4.47	4.626
AVERAGE	4.545	4.556

Length/Diam Ratio: 0.63

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.252	7.181
top 90	7.242	7.227
mid 0	7.222	7.229
mid 90	7.218	7.256
bottom 0	7.264	7.283
bottom 90	7.225	7.265
AVERAGE	7.237	7.240

SAMPLE WEIGHT: (grams) Before: 359.1 After: 368.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	528.2	428.5	8.2	23.7%
After:	375.7	295.9	8.3	27.7%

	Before	After
WET DENSITY (pcf):	119.9	122.8
DRY DENSITY (pcf):	96.9	96.1
SATURATION (%):	87%	99%

(assumed SG= 2.70)

Notes: GPS coordinates
N 1017424.1, E 13037825.3
Elev. 2682.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.9 INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 75.9

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/14/2010	12:14:00	15:14:00	10800	2.0	23.0	2.2	22.7	93.522	92.970	30.8	20	0.7834	2.15E-08
	15:14:00	18:14:00	10800	2.2	22.7	2.6	22.3	92.970	92.087	30.7	20	0.7851	3.48E-08
	18:14:00	21:14:00	10800	2.6	22.3	2.9	22.0	92.087	91.370	29.4	20	0.807	2.93E-08
overnite	21:14:00	7:30:00	36960	2.9	22.0	4.1	20.8	91.370	88.775	24.8	20	0.8934	3.49E-08
9/15	7:30:00	10:32:00	10920	4.1	20.8	4.4	20.5	88.775	88.113	26.5	19	0.8598	2.96E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.21E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **October 29, 2010**

DATE TESTED: **December 5, 2010**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-58R**
SAMPLE TYPE: **UDT**

SAMPLE LOCATION: **RE-TEST IPD #9 of 9-16-10, 1st Production Lift**
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.096	5.232
90 deg	5.111	5.277
180 deg	5.18	5.236
270 deg	5.09	5.283
AVERAGE	5.119	5.257

Length/Diam Ratio: 0.71

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.252	7.294
top 90	7.218	7.293
mid 0	7.202	7.328
mid 90	7.243	7.338
bottom 0	7.246	7.303
bottom 90	7.21	7.294
AVERAGE	7.229	7.308

SAMPLE WEIGHT: (grams) Before: 394.9 After: 424.9

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	405.3	328.1	8.4	24.1%
After:	424.9	322.3	0.0	31.8%

	Before	After
WET DENSITY (pcf):	117.3	120.3
DRY DENSITY (pcf):	94.5	91.2
SATURATION (%):	83%	101%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017541.4, E 1303638.6
Elev. 2668.5

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.2 INFLUENT PRES.(psi): 79.2 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
1/11/2010	8:30:00	10:10:00	6000	1.9	23.0	2.4	22.5	107.701	106.597	20	20	1	9.75E-08
	10:10:00	17:01:00	24660	2.4	22.5	4.3	20.6	106.597	102.401	20	20	1	9.24E-08
	17:01:00	20:15:00	11640	4.3	20.6	5.4	19.8	102.401	100.304	20	19	1	1.01E-07
overnight	20:15:00	7:24:00	40140	5.4	19.8	8.5	16.7	100.304	93.459	20	18	1	9.99E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.77E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 29, 2010

DATE TESTED: December 5, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-122
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-10 SW Quad Grid 4 Lift 1
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.232	4.419
90 deg	4.274	4.413
180 deg	4.292	4.268
270 deg	4.42	4.285
AVERAGE	4.305	4.346

Length/Diam Ratio: 0.60

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.222	7.174
top 90	7.245	7.194
mid 0	7.23	7.221
mid 90	7.243	7.201
bottom 0	7.216	7.183
bottom 90	7.228	7.229
AVERAGE	7.231	7.200

SAMPLE WEIGHT: (grams) Before: 352.8 After: 360.1

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	255.7	204.9	8.2	25.8%
After:	368.2	290.8	8.3	27.4%

	Before	After
WET DENSITY (pcf):	124.6	127.0
DRY DENSITY (pcf):	99.0	99.7
SATURATION (%):	99%	107%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017375.9, E 1303759.1
Elev.

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.9 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
12/5/10	20:27:00	7:58:00	41460	2.0	23.0	2.7	22.5	86.489	85.164	7.7	20	1.39	2.50E-08
o/n	7:58:00	11:28:00	12600	2.7	22.5	2.9	22.3	85.164	84.722	12	20	1.2301	2.45E-08
	11:28:00	15:29:00	14460	2.9	22.3	3.1	22.1	84.722	84.281	15.9	19	1.1085	1.94E-08
o/n	15:29:00	8:24:00	60900	3.1	22.1	3.9	21.0	84.281	82.183	13.5	19	1.181	2.36E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.31E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **September 23, 2010**

DATE TESTED: **October 4, 2010**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-72**
SAMPLE TYPE: **UDT**

SAMPLE LOCATION: **Retest of IPD-12, 1st Production Lift**
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.314	3.153
90 deg	3.375	3.231
180 deg	3.36	3.292
270 deg	3.258	3.372
AVERAGE	3.327	3.262

Length/Diam Ratio: 0.46

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.226	7.224
top 90	7.23	7.166
mid 0	7.255	7.205
mid 90	7.207	7.209
bottom 0	7.197	7.188
bottom 90	7.201	7.23
AVERAGE	7.219	7.204

SAMPLE WEIGHT: (grams) Before: 255.2 After: 262.4

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	489.2	388.2	8.2	26.6%
After:	268.7	206.9	6.6	30.9%

	Before	After
WET DENSITY (pcf):	117.0	123.2
DRY DENSITY (pcf):	92.4	94.2
SATURATION (%):	87%	105%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 90.2 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/4/2010	7:52:05	8:52:05	3600	2.5	22.5	2.8	22.2	71.317	70.655	19.4	22	1.0149	9.54E-08
	8:52:05	9:52:45	3600	2.8	22.2	3.1	21.9	70.655	69.992	19.4	22	1.0149	9.63E-08
	9:52:45	10:52:45	3600	3.1	21.9	3.4	21.7	69.992	69.440	18.4	21	1.0403	8.29E-08
	10:52:45	13:06:45	8040	3.4	21.7	4.0	21.0	69.440	68.005	20.9	21	0.9785	9.21E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 8.96E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **September 21, 2010**

DATE TESTED: **September 30, 2010**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-71**
SAMPLE TYPE: **UDT**

SAMPLE LOCATION: **Retest of IPD-13 Location**
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.929	3.992
90 deg	3.792	3.896
180 deg	3.821	3.772
270 deg	3.812	3.814
AVERAGE	3.839	3.869

Length/Diam Ratio: 0.53

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.181	7.169
top 90	7.225	7.214
mid 0	7.233	7.189
mid 90	7.201	7.209
bottom 0	7.264	7.166
bottom 90	7.252	7.198
AVERAGE	7.226	7.191

SAMPLE WEIGHT: (grams) Before: 302.2 After: 309.4

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	356.5	292.7	8.2	22.4%
After:	317.3	247.5	8.4	29.2%

	Before	After
WET DENSITY (pcf):	119.8	122.9
DRY DENSITY (pcf):	97.9	95.2
SATURATION (%):	84%	102%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.8 INFLUENT PRES.(psi): 78.8 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/30/2010	7:30:00	9:00:00	5400	2.0	23.0	2.3	22.7	79.455	78.737	24.4	20	0.9015	6.53E-08
	9:00:00	10:50:00	6600	2.3	22.7	2.7	22.3	78.737	77.854	25.6	20	0.8774	6.47E-08
	10:50:00	12:50:00	7200	2.7	22.3	3.1	21.9	77.854	77.026	27.1	20	0.8484	5.44E-08
RESET	17:13:00	7:35:00	51720	2.0	23.0	4.2	20.8	79.455	74.597	22.4	20	0.9443	4.97E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.53E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: September 23, 2010

DATE TESTED: October 4, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-74
SAMPLE TYPE: UDT

SAMPLE LOCATION: Retest of IPD-14
SAMPLE DESCRIPTION: brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.858	3.725
90 deg	3.769	3.774
180 deg	3.86	3.804
270 deg	3.808	3.772
AVERAGE	3.824	3.769

Length/Diam Ratio: 0.53

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.24	7.188
top 90	7.29	7.179
mid 0	7.255	7.159
mid 90	7.229	7.229
bottom 0	7.247	7.204
bottom 90	7.222	7.262
AVERAGE	7.247	7.204

SAMPLE WEIGHT (grams): Before: 293.1; After: 302.1

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	400.3	318.6	6.6	26.2%
After:	310.0	240.3	8.2	30.0%

	Before	After
WET DENSITY (pcf):	116.0	122.8
DRY DENSITY (pcf):	91.9	94.4
SATURATION (%):	85%	103%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.8 INFLUENT PRES.(psi): 78.8 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/4/2010	14:10:25	16:10:25	7200	2.0	23.0	2.6	22.5	79.455	78.240	22.9	21	0.9333	8.36E-08
	16:10:25	17:10:25	3600	2.6	22.5	2.8	22.3	78.240	77.799	22.5	21	0.9421	6.20E-08
	17:10:25	18:10:25	3600	2.8	22.3	3.0	22.1	77.799	77.357	21.8	21	0.9577	6.34E-08
10/5	18:10:25	7:47:25	49020	3.0	22.1	5.9	19.2	77.357	70.954	17.2	20	1.072	7.91E-08
	7:47:25	8:47:25	3600	5.9	19.2	6.1	19.0	70.954	70.512	17.6	19	1.0613	7.71E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.43E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **September 16, 2010**

DATE TESTED: **September 22, 2010**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-64**
SAMPLE TYPE: **UDT**

SAMPLE LOCATION: **IPD #15 on 9-16-10, 1st Production Lift**
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.631	3.658
90 deg	3.647	3.563
180 deg	3.518	3.508
270 deg	3.481	3.634
AVERAGE	3.569	3.591

Length/Diam Ratio: 0.49

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.212	7.17
top 90	7.22	7.199
mid 0	7.224	7.22
mid 90	7.22	7.205
bottom 0	7.214	7.183
bottom 90	7.198	7.281
AVERAGE	7.215	7.210

SAMPLE WEIGHT (grams): Before: 304.9; After: 318.8

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	446.8	364.0	6.6	23.2%
After:	326.4	254.3	8.3	29.3%

	Before	After
WET DENSITY (pcf):	130.4	135.8
DRY DENSITY (pcf):	105.9	105.0
SATURATION (%):	106%	131%

(assumed SG= 2.70)

Notes: GPS Coords.
N1017386.5, E1303604.6
Elev. 2673.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.8 INFLUENT PRES.(psi): 78.8 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/22/2010	11:31:15	14:31:15	10800	2.0	23.0	3.2	21.7	79.455	76.695	28.5	22	0.8229	1.07E-07
	14:31:15	16:02:15	5460	3.2	21.7	3.8	21.1	76.695	75.370	27.8	21	0.8355	1.06E-07
	16:02:15	17:32:15	5400	3.8	21.1	4.3	20.5	75.370	74.156	28.1	21	0.83	9.95E-08
reset	17:43:00	20:28:00	9900	2.0	23.0	3.1	22.0	79.455	77.136	28.3	22	0.8264	9.85E-08
9/23	20:28:00	7:39:00	40260	3.1	22.0	6.9	18.1	77.136	68.636	26.3	20	0.8636	9.98E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 1.00E-07

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **September 23, 2010**

DATE TESTED: **October 4, 2010**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-73**
SAMPLE TYPE: **UDT**

SAMPLE LOCATION: **Retest of IPD-15**
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.282	4.201
90 deg	4.285	4.279
180 deg	4.333	4.268
270 deg	4.272	4.258
AVERAGE	4.293	4.252

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.241	7.17
top 90	7.241	7.181
mid 0	7.205	7.198
mid 90	7.229	7.176
bottom 0	7.244	7.196
bottom 90	7.155	7.139
AVERAGE	7.219	7.177

Length/Diam Ratio: 0.59

SAMPLE WEIGHT: (grams) Before: 333.3 After: 342.0

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	428.3	340.3	8.3	26.5%
After:	349.8	269.8	8.3	30.6%

	Before	After
WET DENSITY (pcf):	118.4	124.1
DRY DENSITY (pcf):	93.6	95.1
SATURATION (%):	89%	107%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.9 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/4/2010	10:08:15	11:38:15	5400	2.0	23.0	2.4	22.6	86.489	85.661	19.4	20	1.0149	8.61E-08
	11:38:15	13:13:15	5700	2.4	22.6	2.8	22.3	85.661	84.833	21.3	20	0.9692	7.86E-08
	13:13:15	14:51:15	5880	2.8	22.3	3.2	21.8	84.833	83.839	22.2	20	0.9487	9.05E-08
	14:51:15	15:22:15	5460	3.2	21.8	3.5	21.4	83.839	83.011	22.8	20	0.9355	8.09E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 8.57E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	September 28, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	September 24, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-75	SAMPLE LOCATION:	IPD test #16 SW Quad Grid 1, 1st Prod. Lift
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)		Before	After
	0 deg	4.92	4.946
	90 deg	4.954	4.943
	180 deg	4.999	4.974
	270 deg	4.998	4.952
	AVERAGE	4.968	4.954

Length/Diam Ratio: 0.69

SAMPLE DIAM. (centimeters)		Before	After
	top 0	7.233	7.221
	top 90	7.231	7.223
	mid 0	7.215	7.283
	mid 90	7.207	7.246
	bottom 0	7.218	7.22
	bottom 90	7.233	7.24
	AVERAGE	7.223	7.239

SAMPLE WEIGHT (grams)		MOISTURE CONTENT (percent)		Wet Wt.	Dry Wt.	Tare	M.C.
Before:	387.2	Before:		476.1	373.6	8.4	28.1%
After:	400.1	After:		408.0	315.3	8.2	30.2%

	Before	After
WET DENSITY (pcf):	118.8	122.5
DRY DENSITY (pcf):	92.7	94.1
SATURATION (%):	93%	103%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016896.1, E 1304077.6
Elev. 2724.6

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.1 INFLUENT PRES.(psi): 79.1 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/28/2010	9:20:00	10:20:00	3600	2.4	22.7	2.6	22.4	99.839	99.232	21.8	20	0.9577	8.85E-08
	10:20:00	11:50:00	5400	2.6	22.4	3.0	22.0	99.232	98.348	23.4	20	0.9225	8.33E-08
	11:50:00	14:20:00	9000	3.0	22.0	3.7	21.3	98.348	96.858	25.6	20	0.8774	8.12E-08
	14:20:00	15:50:00	5400	3.7	21.3	4.0	20.9	96.858	96.030	25.5	19	0.8794	7.62E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 8.05E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	September 28, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	September 24, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-76	SAMPLE LOCATION:	IPD-17, NW Quad Grid 1, 1st Prod. Lift
SAMPLE TYPE:	UDT perm	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.437	3.492
90 deg	3.429	3.431
180 deg	3.599	3.454
270 deg	3.542	3.536
AVERAGE	3.502	3.478

Length/Diam Ratio: 0.48

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.225	7.22
top 90	7.213	7.173
mid 0	7.213	7.164
mid 90	7.264	7.191
bottom 0	7.28	7.221
bottom 90	7.226	7.205
AVERAGE	7.237	7.196

SAMPLE WEIGHT: (grams)	
Before:	267.1
After:	274.1

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	330.9	268.3	6.6	23.9%
After:	280.2	213.6	6.6	32.2%

	Before	After
WET DENSITY (pcf):	115.8	121.0
DRY DENSITY (pcf):	93.4	91.5
SATURATION (%):	80%	103%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017010.7, E 1304089.7
Elev. 2723.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.7 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/28/2010	9:20:00	10:20:00	3600	2.0	23.0	2.3	22.8	72.421	71.814	21.6	21	0.9623	8.72E-08
	10:20:00	11:50:00	5400	2.3	22.8	2.7	22.4	71.814	70.986	23.2	21	0.9268	7.71E-08
	11:50:00	14:35:00	9900	2.7	22.4	3.4	21.7	70.986	69.440	25	20	0.8893	7.66E-08
	14:35:00	16:05:00	5400	3.4	21.7	3.7	21.3	69.440	68.667	25.6	20	0.8774	7.04E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.57E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	September 29, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	September 24, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-77	SAMPLE LOCATION:	IPD-18, SW Quad Grid 2, 1st Prod. Lift
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	2.954	2.995
90 deg	2.925	2.972
180 deg	3.005	2.903
270 deg	2.995	2.908
AVERAGE	2.970	2.945

Length/Diam Ratio: 0.41

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.257	7.198
top 90	7.197	7.256
mid 0	7.203	7.279
mid 90	7.218	7.26
bottom 0	7.21	7.251
bottom 90	7.236	7.241
AVERAGE	7.220	7.248

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	232.6	Before:	516.1	409.5	6.6	26.5%
After:	239.2	After:	247.0	194.3	8.4	28.3%

	Before	After
WET DENSITY (pcf):	119.4	122.9
DRY DENSITY (pcf):	94.4	95.8
SATURATION (%):	91%	101%
(assumed SG= 2.70)		

Notes: GPS Coords.
N 1017107.6, E 1304079.0
Elev. 2719.7

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.6 INFLUENT PRES.(psi): 78.6 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/29/2010	8:00:00	9:30:00	5400	3.5	21.5	3.8	21.2	62.075	61.468	17.8	21	1.056	6.21E-08
	9:30:00	11:00:00	5400	3.8	21.2	4.0	20.9	61.468	60.861	19	21	1.025	6.09E-08
	11:00:00	12:30:00	5400	4.0	20.9	4.3	20.6	60.861	60.198	18.7	21	1.0325	6.76E-08
	12:30:00	14:00:00	5400	4.3	20.6	4.5	20.4	60.198	59.701	18.8	20	1.03	5.11E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.99E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 29, 2010

DATE TESTED: December 3, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-121
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-20 NW Quad Grid 3 Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.925	4.483
90 deg	5.067	4.894
180 deg	5.08	5.015
270 deg	4.94	5.079
AVERAGE	5.003	4.868

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.217	7.232
top 90	7.222	7.219
mid 0	7.188	7.247
mid 90	7.227	7.243
bottom 0	7.222	7.284
bottom 90	7.246	7.263
AVERAGE	7.220	7.248

Length/Diam Ratio: 0.69

SAMPLE WEIGHT (grams): Before: 401.7; After: 406.7

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	308.7	244.5	8.3	27.2%
After:	414.4	321.4	8.2	29.7%

	Before	After
WET DENSITY (pcf):	122.4	126.4
DRY DENSITY (pcf):	96.3	97.5
SATURATION (%):	98%	110%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017393.6, E 1303943.8
Elev.
delayed due to request of client

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.1 INFLUENT PRES.(psi): 79.1 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
12/3/10	12:54:00	16:39:00	13500	2.0	23.0	2.2	22.8	100.556	100.115	17.3	21	1.0693	1.86E-08
12/4	16:39:00	18:19:00	92400	2.2	22.8	3.7	21.4	100.115	96.913	10.4	20	1.2867	2.42E-08
12/5	18:19:00	12:15:00	64560	3.7	21.4	4.6	20.4	96.913	94.816	10.5	20	1.2831	2.32E-08
	12:15:00	17:44:00	19740	4.6	20.4	5.0	20.1	94.816	94.043	10.1	19	1.2976	2.87E-08
	17:44:00	20:28:00	9840	5.0	20.1	5.1	20.0	94.043	93.822	9	19	1.338	1.71E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.35E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 5, 2010

DATE TESTED: October 7, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-80
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-21, SE Quad Grid 7, 2nd Lift
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.514	4.398
90 deg	4.476	4.426
180 deg	4.424	4.405
270 deg	4.452	4.362
AVERAGE	4.467	4.398

Length/Diam Ratio: 0.62

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.223	7.144
top 90	7.158	7.242
mid 0	7.176	7.214
mid 90	7.186	7.128
bottom 0	7.227	7.158
bottom 90	7.211	7.188
AVERAGE	7.197	7.179

SAMPLE WEIGHT (grams): Before: 347.8; After: 350.1

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	373.0	289.9	8.3	29.5%
After:	357.8	275.0	8.3	31.0%

	Before	After
WET DENSITY (pcf):	119.5	122.8
DRY DENSITY (pcf):	92.3	93.7
SATURATION (%):	96%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017494.8, E 1303822.7

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/7/2010	9:20:00	10:20:00	3780	2.0	23.0	2.3	22.7	93.522	92.915	22.7	21	0.9333	7.91E-08
	10:20:00	11:20:53	20820	2.3	22.7	3.1	21.3	92.915	90.431	26.9	21	0.856	5.48E-08
	11:20:53	12:20:00	13560	3.1	21.3	4.2	20.4	90.431	88.278	24.5	20	0.8913	7.79E-08
	12:20:00	13:24:00	36480	4.2	20.4	6.1	18.4	88.278	83.918	19.9	20	1.0124	6.92E-08
	13:24:00	14:20:00	8760	6.1	18.4	6.6	18.0	83.918	82.924	22.3	19	0.9465	6.33E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.63E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 6, 2010

DATE TESTED: October 31, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-103
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-22, NE Quadrant Grid 4 Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.023	3.993
90 deg	3.991	3.99
180 deg	4.026	3.933
270 deg	4.04	3.961
AVERAGE	4.020	3.969

Length/Diam Ratio: 0.56

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.212	7.197
top 90	7.211	7.145
mid 0	7.22	7.182
mid 90	7.168	7.17
bottom 0	7.204	7.208
bottom 90	7.22	7.142
AVERAGE	7.206	7.174

SAMPLE WEIGHT: (grams) Before: 314.1 After: 317.9

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	400.3	312.1	8.2	29.0%
After:	325.7	253.2	8.2	29.6%

	Before	After
WET DENSITY (pcf):	119.6	123.7
DRY DENSITY (pcf):	92.7	95.4
SATURATION (%):	96%	104%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 90.2 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/31/10	15:26:00	20:02:00	16560	2.6	22.7	3.4	21.8	85.495	83.618	20.7	21	0.9833	5.86E-08
	20:02:00	8:34:00	45120	3.4	21.8	5.6	19.6	83.618	78.816	16.9	20	1.0802	6.30E-08
	14:15:00	7:44:00	62940	2.0	23.0	5.2	19.9	86.489	79.478	16.7	21	1.0859	6.49E-08
	7:44:00	15:53:00	18540	5.2	19.9	6.0	19.0	79.478	77.657	18.7	20	1.0325	5.74E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.20E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **October 6, 2010**

DATE TESTED: **October 7, 2010**
TESTED BY: **blb**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-102**
SAMPLE TYPE: **UDT**

SAMPLE LOCATION: **IPD-23, SE Quad Grid 6, 2nd Lift**
SAMPLE DESCRIPTION: **brown slightly micaceous sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.648	4.644
90 deg	4.654	4.647
180 deg	4.628	4.629
270 deg	4.636	4.636
AVERAGE	4.642	4.639

Length/Diam Ratio: 0.64

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.297	7.293
top 90	7.287	7.289
mid 0	7.284	7.283
mid 90	7.282	7.287
bottom 0	7.285	7.288
bottom 90	7.281	7.281
AVERAGE	7.286	7.287

SAMPLE WEIGHT (grams): Before: 369.3; After: 376.6

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	387.7	305.2	0.0	27.0%
After:	388.8	300.5	0.0	29.4%

	Before	After
WET DENSITY (pcf):	119.1	121.5
DRY DENSITY (pcf):	93.8	93.9
SATURATION (%):	92%	100%

(assumed SG= 2.70)

Notes: GPS Coords. Not available @ time of report

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.9 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/7	8:00:00	9:15:00	4500	2.0	23.5	2.4	23.1	87.041	86.157	27.2	19	0.8392	9.58E-08
	9:15:00	11:20:00	7500	2.4	23.1	3.0	22.5	86.157	84.833	27.7	18	0.8282	8.62E-08
	11:20:00	12:35:00	4500	3.0	22.5	3.4	22.1	84.833	83.949	27.6	18	0.8193	9.60E-08
	12:35:00	13:50:00	4500	3.4	22.1	3.8	21.7	83.949	83.066	27.8	18	0.8139	9.64E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.36E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	October 11, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 6, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-81	SAMPLE LOCATION:	IPD-24, SW Quad Grid 2, 2nd Lift
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.781	3.708
90 deg	3.704	3.635
180 deg	3.634	3.648
270 deg	3.64	3.723
AVERAGE	3.690	3.679

Length/Diam Ratio: 0.51

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.248	7.196
top 90	7.228	7.248
mid 0	7.213	7.233
mid 90	7.231	7.217
bottom 0	7.299	7.197
bottom 90	7.207	7.203
AVERAGE	7.238	7.216

SAMPLE WEIGHT: (grams)	
Before:	282.5
After:	289.6

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	497.8	386.2	8.2	29.5%
After:	297.5	225.3	8.5	33.3%

	Before	After
WET DENSITY (pcf):	116.2	120.2
DRY DENSITY (pcf):	89.7	90.2
SATURATION (%):	91%	103%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017118.7, E 1304104.2
Elev. 2720.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.8 INFLUENT PRES.(psi): 78.8 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/11/10	11:10:30	12:31:30	4860	2.1	22.7	2.4	22.4	79.013	78.351	25.2	21	0.8853	6.25E-08
	12:31:30	14:45:30	8040	2.4	22.4	2.9	21.9	78.351	77.302	28	21	0.8318	5.68E-08
	14:45:30	16:16:30	6060	2.9	21.9	3.2	21.6	77.302	76.529	28.3	21	0.8264	5.58E-08
	16:16:30	13:24:00	4500	3.2	21.6	3.5	21.3	76.529	75.922	28.1	21	0.83	5.99E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.87E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	October 14, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 12, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-89	SAMPLE LOCATION:	IPD-25 (retest) NW Quad Grid 1 Lift 2
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.523	3.598
90 deg	3.551	3.531
180 deg	3.56	3.572
270 deg	3.56	3.586
AVERAGE	3.549	3.572

Length/Diam Ratio: 0.49

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.199	7.214
top 90	7.197	7.203
mid 0	7.174	7.224
mid 90	7.168	7.249
bottom 0	7.185	7.267
bottom 90	7.216	7.239
AVERAGE	7.190	7.233

SAMPLE WEIGHT (grams)	
Before:	279.9
After:	291.2

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	485.3	387.0	6.6	25.9%
After:	297.2	240.5	6.6	24.2%

	Before	After
WET DENSITY (pcf):	121.3	123.9
DRY DENSITY (pcf):	96.4	99.7
SATURATION (%):	93%	95%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016998.8, 1304108.2
Elev. 2723.9

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.7 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Pipette Readings Initial out	Pipette Readings Final in	Pipette Readings Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/14/10	11:13:00	14:13:30	10800	2.0	23.0	2.4	22.5	72.421	71.427	22.8	20	0.9355	4.71E-08
	14:13:30	17:13:30	10800	2.4	22.5	2.8	22.1	71.427	70.544	23.3	20	0.9247	4.19E-08
	17:13:30	22:29:30	11760	2.8	22.1	3.1	21.8	70.544	69.882	21.4	20	0.9669	3.05E-08
	22:29:30	9:34:30	39900	3.1	21.8	4.2	20.5	69.882	67.232	18.4	19	1.0403	3.97E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.98E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: November 8, 2010

DATE TESTED: November 10, 2010
TESTED BY: blb
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-134
SAMPLE TYPE: UDT

SAMPLE LOCATION: Retest- IPD-26 SW Quad Grid 1 Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.422	4.418
90 deg	4.426	4.42
180 deg	4.405	4.418
270 deg	4.434	4.431
AVERAGE	4.422	4.422

Length/Diam Ratio: 0.61

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.223	7.255
top 90	7.221	7.238
mid 0	7.226	7.232
mid 90	7.227	7.246
bottom 0	7.226	7.223
bottom 90	7.228	7.251
AVERAGE	7.225	7.241

SAMPLE WEIGHT (grams): Before: 344.9; After: 362.6

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	343.2	277.4	0.0	23.7%
After:	328.3	253.3	0.0	29.6%

	Before	After
WET DENSITY (pcf):	118.8	124.3
DRY DENSITY (pcf):	96.0	95.9
SATURATION (%):	85%	106%

(assumed SG= 2.70)

Notes: GPS Coords. Not available at time of reporting

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/9/2010	11:26:00	16:30:00	18240	2.2	22.0	3.5	20.8	92.198	89.438	14.6	21	1.1469	9.29E-08
	16:30:00	21:16:00	17160	3.5	20.8	4.5	19.8	89.438	87.230	14.5	20	1.181	8.37E-08
o/n	21:16:00	7:26:00	36600	4.5	19.8	6.6	17.7	87.230	82.593	14.6	19	1.1469	8.32E-08
reset	7:30:00	9:30:00	7200	2.0	22.0	2.6	21.5	92.418	91.259	14.6	21	1.1469	9.78E-08
	9:30:00	11:30:00	7200	2.6	21.5	3.1	21.0	91.259	90.155	14.6	21	1.1469	9.43E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 8.97E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **October 7, 2010**

DATE TESTED: **October 10, 2010**
TESTED BY: **blb**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-94**
SAMPLE TYPE: **UDT**

SAMPLE LOCATION: **IPD-27, SE Quad Grid 4, 2nd Lift**
SAMPLE DESCRIPTION: **brown slightly micaceous sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.438	4.457
90 deg	4.519	4.459
180 deg	4.432	4.457
270 deg	4.469	4.468
AVERAGE	4.465	4.460

Length/Diam Ratio: 0.61

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.315	7.294
top 90	7.279	7.282
mid 0	7.234	7.249
mid 90	7.284	7.289
bottom 0	7.318	7.272
bottom 90	7.325	7.293
AVERAGE	7.293	7.280

SAMPLE WEIGHT (grams): Before: 359.9; After: 364.4

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	428.6	340.3	6.6	26.5%
After:	341.4	268.2	8.3	28.2%

	Before	After
WET DENSITY (pcf):	120.5	122.5
DRY DENSITY (pcf):	95.3	95.6
SATURATION (%):	93%	100%

(assumed SG= 2.70)

Notes: GPS Coords. Not available @ time of report

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/6/2010	10:43:05	17:55:05	25920	2.0	23.0	4.2	20.5	93.522	88.334	24.1	20	0.9077	9.70E-08
overnight	17:55:05	8:55:05	53990	4.2	20.5	8.8	15.8	88.334	78.011	18.4	19	1.0403	1.16E-07
10/7	10:54:00	12:15:30	4890	2.0	23.0	2.4	22.6	93.522	92.639	22.7	21	0.9377	8.83E-08
(reset)	12:15:30	18:08:00	22350	2.4	22.6	4.5	20.5	92.639	88.002	26.9	20	0.8521	9.50E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.54E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 7, 2010

DATE TESTED: October 10, 2010
TESTED BY: blb
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-95
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-28, NW Quad Grid 4, 2nd Lift
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.525	4.498
90 deg	4.509	4.51
180 deg	4.488	4.492
270 deg	4.459	4.461
AVERAGE	4.495	4.490

Length/Diam Ratio: 0.62

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.312	7.3
top 90	7.31	7.302
mid 0	7.268	7.286
mid 90	7.277	7.288
bottom 0	7.304	7.301
bottom 90	7.298	7.301
AVERAGE	7.295	7.296

SAMPLE WEIGHT (grams): Before: 362.5; After: 368.2

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	400.0	316.1	0.0	26.5%
After:	388.0	306.8	8.3	27.2%

	Before	After
WET DENSITY (pcf):	120.4	122.4
DRY DENSITY (pcf):	95.2	96.2
SATURATION (%):	93%	98%

(assumed SG= 2.70)

Notes: GPS Coords. Not available @ time of report

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/10	10:45:00	17:58:00	25980	1.8	23.5	2.8	22.5	94.295	92.087	24.1	21	0.9077	4.03E-08
overnight	17:58:00	8:55:00	53820	2.8	22.5	4.6	20.7	92.087	88.113	18.4	20	1.0403	4.15E-08
10/11	8:55:00	12:15:00	12000	4.6	20.7	5.0	20.3	88.113	87.230	22.7	20	0.9377	3.83E-08
	12:15:00	18:08:00	21180	5.0	20.3	5.8	19.5	87.230	85.463	26.9	19	0.8521	4.00E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.00E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 7, 2010

DATE TESTED: October 10, 2010
TESTED BY: blb
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-96
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-29, SW Quad Grid 6, 2nd Lift
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.445	4.439
90 deg	4.468	4.46
180 deg	4.458	4.461
270 deg	4.455	4.452
AVERAGE	4.457	4.453

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.292	7.299
top 90	7.299	7.287
mid 0	7.286	7.292
mid 90	7.287	7.288
bottom 0	7.301	7.294
bottom 90	7.292	7.289
AVERAGE	7.293	7.292

Length/Diam Ratio: 0.61

SAMPLE WEIGHT (grams): Before: 355.1; After: 362.5

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	398.7	317.7	0.0	25.5%
After:	388.2	303.2	0.0	28.0%

	Before	After
WET DENSITY (pcf):	119.1	121.7
DRY DENSITY (pcf):	94.9	95.1
SATURATION (%):	89%	98%

(assumed SG= 2.70)

Notes: GPS Coords. Not available @ time of report

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/10	10:45:00	17:58:15	25995	2.0	24.0	3.3	22.7	94.626	91.756	24.1	21	0.9077	5.19E-08
overnight	17:58:15	8:55:15	53835	3.3	22.7	5.6	20.4	91.756	86.678	18.4	20	1.0403	5.31E-08
10/11	8:55:15	12:15:15	12015	5.6	20.4	6.2	19.9	86.678	85.463	22.7	19	0.9377	5.32E-08
	12:15:15	18:08:15	21195	6.2	19.9	7.1	18.9	85.463	83.366	26.9	19	0.8521	4.83E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.16E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 7, 2010

DATE TESTED: October 10, 2010
TESTED BY: blb
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-97
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-30, NW Quad Grid 5, 2nd Lift
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.868	4.865
90 deg	4.852	4.86
180 deg	4.862	4.859
270 deg	4.868	4.861
AVERAGE	4.863	4.861

Length/Diam Ratio: 0.67

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.302	7.293
top 90	7.299	7.289
mid 0	7.301	7.288
mid 90	7.292	7.289
bottom 0	7.297	7.294
bottom 90	7.292	7.289
AVERAGE	7.297	7.290

SAMPLE WEIGHT (grams): Before: 393.7; After: 398.8

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	400.0	316.4	0.0	26.4%
After:	388.2	303.2	0.0	28.0%

	Before	After
WET DENSITY (pcf):	120.9	122.7
DRY DENSITY (pcf):	95.6	95.8
SATURATION (%):	93%	100%

(assumed SG= 2.70)

Notes: GPS Coords. Not available @ time of report

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/10	10:45:00	17:58:30	26010	2.2	24.0	3.8	22.4	94.406	90.873	24.1	19	0.9077	7.02E-08
overnight	17:58:30	8:55:30	53850	3.8	22.4	6.5	19.7	90.873	84.911	18.4	18	1.0403	6.91E-08
10/11	8:55:30	12:15:30	12030	2.0	24.0	2.7	23.2	94.626	92.970	22.7	19	0.9377	7.26E-08
(RESET)	12:15:30	18:08:30	21210	2.7	23.2	4.1	21.9	92.970	89.990	26.9	19	0.8521	6.90E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.02E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 7, 2010

DATE TESTED: October 10, 2010
TESTED BY: blb
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-98
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-31, NE Quad Grid 5, 2nd Lift
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.338	4.32
90 deg	4.342	4.338
180 deg	4.346	4.341
270 deg	4.368	4.359
AVERAGE	4.349	4.340

Length/Diam Ratio: 0.60

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.292	7.293
top 90	7.288	7.301
mid 0	7.294	7.303
mid 90	7.297	7.302
bottom 0	7.296	7.299
bottom 90	7.293	7.301
AVERAGE	7.293	7.300

SAMPLE WEIGHT (grams): Before: 348.9; After: 352.9

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	402.2	317.7	0.0	26.6%
After:	358.1	279.7	0.0	28.0%

	Before	After
WET DENSITY (pcf):	119.9	121.3
DRY DENSITY (pcf):	94.7	94.7
SATURATION (%):	92%	97%

(assumed SG= 2.70)

Notes: GPS Coords. Not available @ time of report

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/10	10:45:00	17:58:30	26010	2.0	24.0	3.9	22.1	94.626	90.431	24.1	21	0.9077	7.43E-08
overnight	17:58:30	8:55:30	53850	3.9	22.1	6.8	19.2	90.431	84.028	18.4	20	1.0403	6.66E-08
10/11	8:55:30	12:15:30	12030	6.8	19.2	7.5	18.5	84.028	82.482	22.7	19	0.9377	6.80E-08
	12:15:30	18:08:30	21210	7.5	18.5	8.8	17.2	82.482	79.612	26.9	19	0.8521	6.68E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.82E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 8, 2010

DATE TESTED: October 12, 2010
TESTED BY: blb
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-99
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-32, NW Quad Grid 7, 2nd Lift
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.067	4.107
90 deg	4.207	4.044
180 deg	4.215	4.134
270 deg	4.23	4.248
AVERAGE	4.180	4.133

Length/Diam Ratio: 0.58

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.297	7.281
top 90	7.254	7.265
mid 0	7.241	7.252
mid 90	7.228	7.254
bottom 0	7.25	7.238
bottom 90	7.228	7.216
AVERAGE	7.250	7.251

SAMPLE WEIGHT (grams): Before: 331.2; After: 332.0

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	400.2	315.5	8.5	27.6%
After:	340.1	265.8	8.8	28.9%

	Before	After
WET DENSITY (pcf):	119.8	121.4
DRY DENSITY (pcf):	93.9	94.2
SATURATION (%):	94%	99%

(assumed SG= 2.70)

Notes: GPS Coords. Not available @ time of report

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.9 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/12	8:00:00	9:15:00	4500	2.0	23.0	2.3	22.7	86.489	85.881	27.6	21	0.8392	5.96E-08
	9:15:00	11:20:00	7500	2.3	22.7	2.7	22.2	85.881	84.777	28.2	21	0.8282	6.48E-08
	11:20:00	12:35:00	4500	2.7	22.2	2.9	21.9	84.777	84.225	28.7	20	0.8193	5.39E-08
	12:35:00	13:50:00	4500	2.9	21.9	3.2	21.5	84.225	83.508	29	20	0.8139	7.02E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.21E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 8, 2010

DATE TESTED: October 12, 2010
TESTED BY: blb
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-100
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-33, NE Quad Grid 6, 2nd Lift
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.848	4.844
90 deg	4.855	4.848
180 deg	4.827	4.809
270 deg	4.836	4.838
AVERAGE	4.842	4.835

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.297	7.292
top 90	7.288	7.289
mid 0	7.284	7.282
mid 90	7.282	7.287
bottom 0	7.285	7.288
bottom 90	7.281	7.281
AVERAGE	7.286	7.287

Length/Diam Ratio: 0.66

SAMPLE WEIGHT: (grams) Before: 382.1 After: 389.3

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	388.2	305.1	0.0	27.2%
After:	389.3	300.4	0.0	29.6%

	Before	After
WET DENSITY (pcf):	118.2	120.5
DRY DENSITY (pcf):	92.9	93.0
SATURATION (%):	90%	98%

(assumed SG= 2.70)

Notes: GPS Coords. Not available @ time of report

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.9 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/12	8:00:00	9:15:00	4500	2.0	23.5	2.3	23.2	87.041	86.433	27.6	18	0.8392	6.86E-08
	9:15:00	11:20:00	7500	2.3	23.2	2.7	22.8	86.433	85.495	28.2	18	0.8282	6.33E-08
	11:20:00	12:35:00	4500	2.7	22.8	3.0	22.5	85.495	84.833	28.7	18	0.8193	7.44E-08
	12:35:00	13:50:00	4500	3.0	22.5	3.3	22.2	84.833	84.170	29	17	0.8139	7.44E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.02E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	October 13, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 8, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-84	SAMPLE LOCATION:	IPD-34, SE Quad Grid 1, 1st Lift
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.106	4.106
90 deg	4.107	4.107
180 deg	4.101	4.101
270 deg	4.101	4.104
AVERAGE	4.104	4.105

Length/Diam Ratio: 0.57

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.2	7.202
top 90	7.229	7.151
mid 0	7.229	7.204
mid 90	7.183	7.167
bottom 0	7.194	7.155
bottom 90	7.17	7.233
AVERAGE	7.201	7.185

SAMPLE WEIGHT: (grams) Before: 314.2 After: 328.1

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	451.9	360.6	8.4	25.9%
After:	336.1	258.2	8.4	31.2%

	Before	After
WET DENSITY (pcf):	117.4	123.1
DRY DENSITY (pcf):	93.2	93.8
SATURATION (%):	87%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016905.0, E 1304186.2
Elev. 2745.5

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 90.2 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/13/10	11:07:00	12:52:00	6300	2.0	23.0	2.6	22.3	86.489	84.998	24.4	21	0.9015	1.14E-07
	12:52:00	11:20:53	6300	2.6	22.3	3.2	21.6	84.998	83.618	24.2	21	0.9056	1.08E-07
	11:20:53	12:20:00	3600	3.2	21.6	3.5	21.3	83.618	82.956	24.8	20	0.8934	9.05E-08
	12:20:00	13:24:00	3600	3.5	21.3	3.9	21.0	82.956	82.238	24.9	20	0.8913	9.86E-08
reset o/n	17:20:30	7:43:30	51780	2.0	23.0	6.6	18.4	86.489	76.332	22.5	20	0.9421	1.04E-07

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 1.00E-07

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 29, 2010

DATE TESTED: November 3, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-126
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-34 (retest), SE Quad Grid 1 Lift 1
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.043	4.19
90 deg	4.167	4.132
180 deg	4.167	4.092
270 deg	4.079	4.142
AVERAGE	4.114	4.139

Length/Diam Ratio: 0.57

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.248	7.248
top 90	7.224	7.261
mid 0	7.23	7.264
mid 90	7.243	7.269
bottom 0	7.236	7.244
bottom 90	7.257	7.242
AVERAGE	7.240	7.255

SAMPLE WEIGHT (grams): Before: 324.1; After: 336.1

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	312.7	250.9	6.6	25.3%
After:	342.5	264.2	6.6	30.4%

	Before	After
WET DENSITY (pcf):	119.5	122.6
DRY DENSITY (pcf):	95.3	94.0
SATURATION (%):	89%	104%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016905.0, E 1304186.2
Elev., same as original test

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 90.2 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/3/2010	12:12:00	14:13:00	7260	2.5	23.1	2.8	22.9	86.047	85.440	17.8	21	1.056	4.67E-08
	14:13:00	16:13:00	7200	2.8	22.9	3.1	22.6	85.440	84.833	19.3	21	1.0174	4.57E-08
	16:13:00	20:24:00	15060	3.1	22.6	3.7	22.0	84.833	83.563	18.4	20	1.0403	4.72E-08
o/n	20:24:00	7:35:00	40260	3.7	22.0	5.2	20.5	83.563	80.196	17	20	1.077	4.99E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.74E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	October 28, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 26, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-119	SAMPLE LOCATION:	IPD-35 Retest
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.011	2.934
90 deg	3.039	2.958
180 deg	2.994	2.944
270 deg	2.976	2.946
AVERAGE	3.005	2.946

Length/Diam Ratio: 0.41

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.258	7.24
top 90	7.284	7.245
mid 0	7.29	7.274
mid 90	7.222	7.316
bottom 0	7.239	7.368
bottom 90	7.328	7.249
AVERAGE	7.270	7.282

SAMPLE WEIGHT (grams)	
Before:	232.3
After:	239.7

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	366.7	289.2	6.6	27.4%
After:	246.0	187.9	6.7	32.1%

	Before	After
WET DENSITY (pcf):	116.3	122.0
DRY DENSITY (pcf):	91.2	92.4
SATURATION (%):	87%	105%

(assumed SG= 2.70)

Notes: GPS Coords. and Elev.
Same as original IPD - 35

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 90.2 INFLUENT PRES.(psi): 78.6 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Pipette Readings Initial out	Pipette Readings Final in	Pipette Readings Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/28/10	12:42:00	15:42:00	10800	3.4	21.9	3.6	21.7	62.682	62.130	24.9	21	0.8913	2.34E-08
	15:42:00	17:23:00	6180	3.6	21.7	3.8	21.5	62.130	61.799	24.5	21	0.8995	2.49E-08
	17:23:00	20:06:00	9660	3.8	21.5	4.0	21.3	61.799	61.302	22.3	21	0.9465	2.53E-08
overnite	20:06:00	7:40:00	41640	4.0	21.3	4.9	20.3	61.302	59.205	16.6	20	1.0887	2.92E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.55E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	October 19, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 17, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-106	SAMPLE LOCATION:	IPD-36 Retest, SE Quad Grid 2, 1st Lift
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.43	3.428
90 deg	3.329	3.353
180 deg	3.293	3.334
270 deg	3.432	3.364
AVERAGE	3.371	3.370

Length/Diam Ratio: 0.47

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.227	7.209
top 90	7.181	7.159
mid 0	7.211	7.214
mid 90	7.221	7.226
bottom 0	7.205	7.209
bottom 90	7.207	7.232
AVERAGE	7.209	7.208

SAMPLE WEIGHT (grams)	
Before:	267.2
After:	274.0

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	445.4	357.6	8.3	25.1%
After:	281.7	218.8	8.2	29.9%

	Before	After
WET DENSITY (pcf):	121.2	124.4
DRY DENSITY (pcf):	96.9	95.8
SATURATION (%):	92%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017060.4, E 1304172.2
Elev.

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.7 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/20/10	7:50:30	9:20:30	5400	2.0	23.0	2.2	22.9	72.421	72.090	20.6	21	0.9857	3.13E-08
	9:20:30	10:50:30	5400	2.2	22.9	2.3	22.8	72.090	71.869	21.2	21	0.9715	2.06E-08
	10:50:30	13:50:30	10800	2.3	22.8	2.5	22.5	71.869	71.317	20.8	21	0.9809	2.62E-08
	13:50:30	16:50:30	10800	2.5	22.5	2.8	22.3	71.317	70.765	22.3	21	0.9465	2.55E-08
overnite	16:50:30	7:50:30	54000	2.8	22.3	3.9	21.1	70.765	68.226	18.2	21	1.0454	2.65E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.60E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	November 4, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 29, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-125	SAMPLE LOCATION:	IPD-37 (retest), NE Quad Grid 2 Lift 1
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.366	3.393
90 deg	3.28	3.457
180 deg	3.331	3.372
270 deg	3.438	3.323
AVERAGE	3.354	3.386

Length/Diam Ratio: 0.46

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.208	7.286
top 90	7.205	7.247
mid 0	7.208	7.267
mid 90	7.221	7.272
bottom 0	7.263	7.282
bottom 90	7.254	7.248
AVERAGE	7.227	7.267

SAMPLE WEIGHT (grams)	
Before:	264.9
After:	274.0

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	364.4	292.2	8.4	25.4%
After:	281.8	218.2	8.3	30.3%

	Before	After
WET DENSITY (pcf):	120.2	121.8
DRY DENSITY (pcf):	95.8	93.5
SATURATION (%):	91%	102%

(assumed SG= 2.70)

Notes:

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.7 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/4/2010	11:19:00	14:20:00	10860	2.5	23.0	3.0	22.7	71.869	70.986	18.9	21	1.0274	4.33E-08
	14:20:00	16:21:00	7260	3.0	22.7	3.3	22.4	70.986	70.379	18.8	21	1.03	4.51E-08
	16:21:00	20:21:00	14400	3.3	22.4	3.9	21.8	70.379	69.054	16.6	21	1.0887	5.31E-08
o/n	20:21:00	7:40:00	40680	3.9	21.8	5.4	20.4	69.054	65.797	13.7	20	1.1746	5.16E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.85E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	November 5, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 29, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-120	SAMPLE LOCATION:	IPD-38 (retest) SW Quad Grid 2 Lift 3
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.633	3.68
90 deg	3.694	3.583
180 deg	3.612	3.611
270 deg	3.598	3.638
AVERAGE	3.634	3.628

Length/Diam Ratio: 0.50

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.202	7.22
top 90	7.243	7.276
mid 0	7.239	7.254
mid 90	7.256	7.241
bottom 0	7.254	7.244
bottom 90	7.265	7.246
AVERAGE	7.243	7.247

SAMPLE WEIGHT: (grams) Before: 293.1 After: 299.0

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	479.3	383.5	8.2	25.5%
After:	305.2	237.5	6.6	29.3%

	Before	After
WET DENSITY (pcf):	122.2	124.7
DRY DENSITY (pcf):	97.3	96.5
SATURATION (%):	94%	106%

(assumed SG= 2.70)

Notes: GPS Coords. and Elev.
Same as original IPD - 38

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.7 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/5/2010	13:30:00	19:40:00	22200	2.3	22.9	2.7	22.5	71.979	71.096	16.5	20	1.0915	2.42E-08
o/n	19:40:00	10:45:00	54300	2.7	22.5	3.5	21.7	71.096	69.330	14.3	19	1.159	2.14E-08
	10:45:00	20:09:00	33840	3.5	21.7	4.0	21.2	69.330	68.226	13.6	19	1.1777	2.23E-08
o/n	20:09:00	8:45:00	45360	4.0	21.2	4.7	20.6	68.226	66.846	10	19	1.3012	2.34E-08
o/n	8:45:00	8:45:00	86400	4.7	20.6	5.9	19.5	66.846	64.251	11.3	18	1.2545	2.29E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.25E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	October 24, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 17, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-107	SAMPLE LOCATION:	IPD-39, NW Quad Grid 2, Lift 3
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.37	4.494
90 deg	4.514	4.352
180 deg	4.326	4.385
270 deg	4.346	4.467
AVERAGE	4.389	4.425

Length/Diam Ratio: 0.61

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.214	7.246
top 90	7.207	7.263
mid 0	7.234	7.268
mid 90	7.237	7.247
bottom 0	7.24	7.206
bottom 90	7.219	7.242
AVERAGE	7.225	7.245

SAMPLE WEIGHT: (grams)	
Before:	347.6
After:	359.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	504.5	404.3	6.6	25.2%
After:	367.7	285.4	8.2	29.7%

	Before	After
WET DENSITY (pcf):	120.6	123.1
DRY DENSITY (pcf):	96.3	94.9
SATURATION (%):	91%	103%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017173.4, E 1304039.6
Elev. Same as original

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Pipette Readings Initial out	Pipette Readings Final in	Pipette Readings Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/22/10	17:21:00	7:23:00	50520	2.0	23.0	4.8	20.7	93.522	87.947	17.1	21	1.0747	6.35E-08
	7:23:00	16:14:00	31860	4.8	20.7	6.1	19.4	87.947	85.022	24.3	20	0.9036	4.66E-08
	16:14:00	12:38:00	73440	6.1	19.4	9.3	16.3	85.022	78.011	22.1	18	0.9509	5.42E-08
reset o/n	12:41:00	13:24:00	67980	2.0	23.0	5.3	19.7	93.522	86.291	21.9	20	0.9554	5.50E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.48E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	October 18, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 13, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-92	SAMPLE LOCATION:	IPD-40, SW Quad Grid 1, 3rd Lift
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.167	4.178
90 deg	4.182	4.2
180 deg	4.13	4.167
270 deg	4.24	4.139
AVERAGE	4.180	4.171

Length/Diam Ratio: 0.58

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.127	7.201
top 90	7.222	7.175
mid 0	7.214	7.258
mid 90	7.216	7.216
bottom 0	7.229	7.226
bottom 90	7.231	7.246
AVERAGE	7.207	7.220

SAMPLE WEIGHT: (grams)	
Before:	316.5
After:	330.7

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	478.3	390.9	8.3	22.8%
After:	338.8	259.5	8.2	31.6%

	Before	After
WET DENSITY (pcf):	115.9	120.9
DRY DENSITY (pcf):	94.3	91.9
SATURATION (%):	78%	102%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016890.7, E 1304075.1
Elev. 2726.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.9 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/18/10	7:13:15	9:13:15	7200	2.4	22.8	3.0	22.3	85.826	84.612	20.4	20	0.9904	9.04E-08
	9:13:15	11:13:15	7200	3.0	22.3	3.5	21.9	84.612	83.618	22.5	20	0.9421	7.13E-08
	11:13:15	13:13:15	7200	3.5	21.9	4.0	21.4	83.618	82.569	24.6	20	0.8975	7.26E-08
	13:13:15	18:06:15	13920	4.0	21.4	4.8	20.5	82.569	80.637	25.3	20	0.8833	6.93E-08
	18:06:15	7:55:15	50400	4.8	20.5	8.0	17.4	80.637	73.682	20.2	18	0.9952	8.22E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.47E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 13, 2010

DATE TESTED: October 28, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-93
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-41 NW Quad Grid 1 Lift 3
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	5.019	5.07
90 deg	5.038	5.024
180 deg	5.074	5.082
270 deg	5.089	5.095
AVERAGE	5.055	5.068

Length/Diam Ratio: 0.70

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.225	7.248
top 90	7.225	7.216
mid 0	7.238	7.247
mid 90	7.234	7.266
bottom 0	7.239	7.258
bottom 90	7.228	7.241
AVERAGE	7.232	7.246

SAMPLE WEIGHT (grams): Before: 398.2; After: 410.8

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	462.6	370.1	6.6	25.4%
After:	418.8	326.6	8.3	29.0%

	Before	After
WET DENSITY (pcf):	119.7	122.7
DRY DENSITY (pcf):	95.4	95.2
SATURATION (%):	90%	101%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016995.6, E 1304061.7
Elev. 2722.9

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 90.2 INFLUENT PRES.(psi): 79.1 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/28/10	12:38:00	14:53:00	8100	2.5	23.0	2.8	22.8	100.004	99.397	24.4	20	0.9015	3.77E-08
	14:53:00	17:21:00	8880	2.8	22.8	3.0	22.5	99.397	98.900	24.5	20	0.8995	2.82E-08
	17:21:00	20:07:00	10080	3.0	22.5	3.4	22.2	98.900	98.072	22.3	19	0.9465	4.39E-08
overnite	20:07:00	7:35:00	41220	3.4	22.2	4.7	21.0	98.072	95.312	16.7	19	1.0859	4.19E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.80E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 13, 2010

DATE TESTED: December 2, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-104
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-42 NW Quad Grid 6 Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.758	3.728
90 deg	3.767	3.705
180 deg	3.766	3.723
270 deg	3.779	3.726
AVERAGE	3.768	3.721

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.174	7.113
top 90	7.162	7.131
mid 0	7.164	7.169
mid 90	7.153	7.157
bottom 0	7.176	7.108
bottom 90	7.161	7.16
AVERAGE	7.165	7.140

Length/Diam Ratio: 0.53

SAMPLE WEIGHT (grams): Before: 286.3; After: 292.7

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	118.2	93.8	8.2	28.5%
After:	300.8	231.5	8.3	31.0%

	Before	After
WET DENSITY (pcf):	117.7	122.7
DRY DENSITY (pcf):	91.5	93.6
SATURATION (%):	92%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017626.4, E 1303513.1
Elev. 2669.2
delayed per request of client

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.8 INFLUENT PRES.(psi): 78.8 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
12/5/10	20:25:00	7:57:00	41520	2.0	23.0	4.0	21.1	79.455	75.094	7.5	21	1.3962	7.99E-08
o/n	7:57:00	9:57:00	7200	4.0	21.1	4.4	20.8	75.094	74.376	11.2	20	1.258	7.06E-08
	9:57:00	12:20:00	7440	4.4	20.8	4.6	20.5	74.376	73.769	12.2	20	1.2234	5.67E-08
	12:20:00	13:24:00	7200	4.6	20.5	5.1	20.1	73.769	72.886	13.8	20	1.1714	8.25E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.95E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 19, 2010

DATE TESTED: October 21, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-108
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-43, SE Quad Grid 1, Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.832	4.862
90 deg	4.83	4.855
180 deg	4.941	4.812
270 deg	4.935	4.867
AVERAGE	4.885	4.849

Length/Diam Ratio: 0.68

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.244	7.264
top 90	7.226	7.198
mid 0	7.226	7.207
mid 90	7.234	7.208
bottom 0	7.215	7.218
bottom 90	7.247	7.213
AVERAGE	7.232	7.218

SAMPLE WEIGHT (grams): Before: 378.0; After: 388.0

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	403.6	313.9	8.2	29.3%
After:	393.7	298.6	6.7	32.6%

	Before	After
WET DENSITY (pcf):	117.6	122.1
DRY DENSITY (pcf):	90.9	92.1
SATURATION (%):	93%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016891.6, E 1304159.7
Elev. 2738.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.1 INFLUENT PRES.(psi): 79.1 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/21/10	11:38:15	12:23:15	2700	2.3	23.0	2.5	22.8	100.225	99.784	21.8	21	0.9577	8.41E-08
	12:23:15	13:53:15	5400	2.5	22.8	3.0	22.4	99.784	98.735	22.9	20	0.9333	9.80E-08
	13:53:15	15:23:15	5400	3.0	22.4	3.5	21.9	98.735	97.631	24.1	20	0.9077	1.01E-07
	15:23:15	13:24:15	5580	3.5	21.9	4.0	21.4	97.631	96.527	24.6	20	0.8975	9.82E-08
overnite	13:24:15	7:56:15	54000	4.0	21.4	8.8	16.6	96.527	85.984	18.4	19	1.0403	1.20E-07

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.99E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 19, 2010

DATE TESTED: October 22, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-110
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-44 NE Quad Grid 1 Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	5.468	5.38
90 deg	5.482	5.376
180 deg	5.448	5.428
270 deg	5.446	5.38
AVERAGE	5.461	5.391

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.213	7.182
top 90	7.245	7.257
mid 0	7.233	7.175
mid 90	7.202	7.221
bottom 0	7.295	7.246
bottom 90	7.292	7.147
AVERAGE	7.247	7.205

Length/Diam Ratio: 0.75

SAMPLE WEIGHT (grams): Before: 421.7; After: 430.9

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	444.5	349.0	8.3	28.0%
After:	437.2	331.6	6.6	32.5%

	Before	After
WET DENSITY (pcf):	116.9	122.4
DRY DENSITY (pcf):	91.3	92.4
SATURATION (%):	89%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016966.7, E 1304177.8
Elev. 2740.8

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 90.2 INFLUENT PRES.(psi): 79.3 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/22/10	13:23:00	14:23:00	3600	2.0	23.0	2.2	22.9	114.624	114.238	23.4	21	0.9225	5.18E-08
	14:23:00	15:23:00	3600	2.2	22.9	2.4	22.7	114.238	113.851	22.5	21	0.9421	5.31E-08
	15:23:00	7:25:00	57720	2.4	22.7	4.4	20.5	113.851	109.214	17.1	21	1.0747	4.64E-08
	7:25:00	16:16:00	31860	4.4	20.5	5.6	19.3	109.214	106.565	24.3	20	0.9036	4.17E-08
reset o/n	12:42:00	7:33:00	67860	2.3	23.0	4.9	20.1	114.293	108.276	21.9	21	0.9554	4.56E-08

ddedit

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.67E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	October 26, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	October 19, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-101	SAMPLE LOCATION:	IPD-45 SE Quad Grid 2 Lift 2
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	5.234	5.149
90 deg	5.186	5.095
180 deg	5.142	5.184
270 deg	5.317	5.212
AVERAGE	5.220	5.160

Length/Diam Ratio: 0.72

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.218	7.224
top 90	7.209	7.23
mid 0	7.194	7.225
mid 90	7.194	7.217
bottom 0	7.209	7.223
bottom 90	7.205	7.223
AVERAGE	7.205	7.224

SAMPLE WEIGHT: (grams)	
Before:	405.7
After:	418.2

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	415.6	334.6	8.2	24.8%
After:	424.7	330.9	6.7	28.9%

	Before	After
WET DENSITY (pcf):	119.0	123.5
DRY DENSITY (pcf):	95.3	95.7
SATURATION (%):	87%	103%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017103.2, E 1304147.6
Elev. 2730.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.2 INFLUENT PRES.(psi): 79.2 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/26/10	9:56:00	11:57:00	7260	2.3	22.8	2.7	22.5	107.038	106.210	22.8	21	0.9355	5.71E-08
	11:57:00	15:57:00	14400	2.7	22.5	3.5	21.7	106.210	104.499	24.8	20	0.8934	5.75E-08
reset	17:30:15	7:40:00	51240	2.0	23.0	4.8	20.2	107.590	101.353	23.2	20	0.9268	6.16E-08
10/27	7:40:00	9:44:00	7440	4.8	20.2	5.3	19.8	101.353	100.414	22.8	20	0.9355	6.67E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.03E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 19, 2010

DATE TESTED: October 26, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-111
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-46 NE Quad Grid 1 Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.328	4.189
90 deg	4.31	4.215
180 deg	4.407	4.276
270 deg	4.336	4.279
AVERAGE	4.345	4.240

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.295	7.216
top 90	7.158	7.193
mid 0	7.16	7.216
mid 90	7.188	7.161
bottom 0	7.223	7.194
bottom 90	7.141	7.201
AVERAGE	7.194	7.197

Length/Diam Ratio: 0.60

SAMPLE WEIGHT: (grams) Before: 329.8 After: 338.6

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	434.4	348.0	8.2	25.4%
After:	344.9	268.3	6.7	29.3%

	Before	After
WET DENSITY (pcf):	116.6	122.6
DRY DENSITY (pcf):	92.9	94.8
SATURATION (%):	84%	102%

(assumed SG= 2.70)

Notes: GPS Coords.
N1017252.6, E 1304123.8
Elev. 2732.8

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/26/10	10:27:00	11:37:00	4200	2.3	23.0	2.5	22.6	93.191	92.529	22.8	22	0.9355	7.50E-08
	11:37:00	13:07:00	5400	2.5	22.6	2.7	22.4	92.529	92.087	23.9	22	0.9118	3.81E-08
	13:07:00	14:42:00	5700	2.7	22.4	3.0	22.2	92.087	91.535	24.6	22	0.8975	4.47E-08
overnite	14:42:00	7:43:00	54720	3.0	22.2	5.0	20.0	91.535	86.898	23.2	21	0.9268	4.16E-08
	7:43:00	9:50:00	7620	5.0	20.0	5.3	19.8	86.898	86.291	22.9	20	0.9333	4.05E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.12E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 23, 2010

DATE TESTED: October 28, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-114
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-47 SE Quad Grid 1 Lift 3
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.124	4.081
90 deg	4.143	4.068
180 deg	4.2	4.126
270 deg	4.131	4.158
AVERAGE	4.150	4.108

Length/Diam Ratio: 0.57

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.214	7.241
top 90	7.278	7.2
mid 0	7.254	7.234
mid 90	7.24	7.288
bottom 0	7.254	7.297
bottom 90	7.286	7.087
AVERAGE	7.254	7.225

SAMPLE WEIGHT: (grams) Before: 316.4 After: 324.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	355.2	274.3	8.3	30.4%
After:	332.7	249.3	8.2	34.6%

	Before	After
WET DENSITY (pcf):	115.2	120.4
DRY DENSITY (pcf):	88.3	89.5
SATURATION (%):	90%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N1016866.6; E1304167.1
Elev. 2742.4

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.9 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Pipette Readings Initial out	Pipette Readings Final in	Pipette Readings Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct	Hyd. Cond. K_{20} cm/sec
10/28/10	12:41:00	14:56:00	8100	2.5	23.0	2.8	22.8	85.937	85.329	24.4	21	0.9015	3.58E-08
	14:56:00	11:20:53	7560	2.8	22.8	3.1	22.5	85.329	84.667	24.5	21	0.8995	4.21E-08
	11:20:53	12:20:00	10080	3.1	22.5	3.5	22.1	84.667	83.784	22.3	21	0.9465	4.47E-08
	12:20:00	13:24:00	41220	3.5	22.1	5.0	20.4	83.784	80.361	16.7	20	1.0859	4.99E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.43E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 23, 2010

DATE TESTED: October 30, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-115
SAMPLE TYPE: UDT

SAMPLE LOCATION: IDP-48, NE Quadrant, Grid 1, Lift 3
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)

	Before	After
0 deg	5.1	5.015
90 deg	5.131	5.028
180 deg	5.14	5.066
270 deg	5.097	5.06
AVERAGE	5.117	5.042

Length/Diam Ratio: 0.71

SAMPLE DIAM. (centimeters)

	Before	After
top 0	7.215	7.205
top 90	7.221	7.231
mid 0	7.221	7.223
mid 90	7.208	7.201
bottom 0	7.217	7.207
bottom 90	7.213	7.217
AVERAGE	7.216	7.214

SAMPLE WEIGHT: (grams) Before: 398.4 After: 407.2

MOISTURE CONTENT: (percent)

	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	463.1	363.6	8.3	28.0%
After:	413.3	318.7	6.6	30.3%

	Before	After
WET DENSITY (pcf):	118.9	123.3
DRY DENSITY (pcf):	92.9	94.7
SATURATION (%):	93%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016966.3, E 1304192.7
Elev. 2746.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.2 INFLUENT PRES.(psi): 79.2 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
10/30/10	23:17:00	12:46:00	48480	3.0	22.6	4.9	21.0	106.045	102.125	19.2	21	1.0198	4.43E-08
	12:46:00	15:28:00	9720	4.9	21.0	5.2	20.6	102.125	101.408	21.8	20	0.9577	3.88E-08
	15:28:00	20:00:00	16320	5.2	20.6	5.8	20.0	101.408	100.083	20.7	20	0.9833	4.43E-08
	20:13:00	8:34:00	44460	2.0	23.0	3.7	21.3	107.590	103.837	16.9	21	1.0803	4.82E-08
	8:34:00	7:42:00	88800	3.7	21.3	6.7	18.4	103.837	97.268	16.7	20	1.0859	4.46E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.40E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 24, 2010

DATE TESTED: November 6, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-116
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-49 SE Quad Grid 2 Lift 3
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.529	4.508
90 deg	4.427	4.569
180 deg	4.407	4.506
270 deg	4.474	4.47
AVERAGE	4.459	4.513

Length/Diam Ratio: 0.62

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.221	7.255
top 90	7.221	7.239
mid 0	7.219	7.226
mid 90	7.227	7.253
bottom 0	7.225	7.199
bottom 90	7.225	7.25
AVERAGE	7.223	7.237

SAMPLE WEIGHT (grams): Before: 341.7; After: 357.4

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	382.2	297.0	8.3	29.5%
After:	365.4	273.0	8.2	34.9%

	Before	After
WET DENSITY (pcf):	116.7	120.2
DRY DENSITY (pcf):	90.1	89.1
SATURATION (%):	92%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017099.4, E 1304148.9
Elev. 2730.5

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/6/2010	12:36:00	17:42:00	18360	3.4	22.0	4.6	20.9	90.928	88.334	14.6	20	1.1469	8.99E-08
	17:42:00	22:26:00	17040	4.6	20.9	5.7	19.7	88.334	85.794	13.5	19	1.181	1.00E-07
o/n	22:26:00	8:36:00	33000	5.7	19.7	7.8	17.7	85.794	81.268	10.9	19	1.2686	1.04E-07
reset	7:43:00	9:43:00	7200	2.0	23.0	2.6	22.5	93.522	92.308	14.1	21	1.1621	1.05E-07
	9:43:00	11:44:00	7260	2.6	22.5	3.1	22.0	92.308	91.259	16.8	20	1.0803	8.45E-08
	11:44:00	17:29:00	20700	3.1	22.0	4.5	20.6	91.259	88.113	19.1	20	1.0223	8.61E-08
o/n	17:29:00	8:41:00	51120	4.5	20.6	8.0	17.0	88.113	80.274	14.3	19	1.156	1.05E-07

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.50E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: October 24, 2010

DATE TESTED: November 6, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-117
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-50 NE Quad Grid 2 Lift 3
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)

	Before	After
0 deg	3.368	3.323
90 deg	3.354	3.336
180 deg	3.438	3.383
270 deg	3.342	3.463
AVERAGE	3.376	3.376

SAMPLE DIAM. (centimeters)

	Before	After
top 0	7.295	7.198
top 90	7.262	7.227
mid 0	7.245	7.27
mid 90	7.227	7.247
bottom 0	7.244	7.239
bottom 90	7.267	7.229
AVERAGE	7.257	7.235

Length/Diam Ratio: 0.47

SAMPLE WEIGHT (grams): Before: 262.7; After: 270.5

MOISTURE CONTENT (percent)

	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	458.9	363.1	6.6	26.9%
After:	278.6	209.6	8.3	34.3%

	Before	After
WET DENSITY (pcf):	117.5	121.7
DRY DENSITY (pcf):	92.6	90.6
SATURATION (%):	88%	108%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017196.6, E 1304123.6
Elev. 2729.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.7 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/7/2010	12:34:00	17:44:00	18600	2.9	22.8	3.3	22.3	71.207	70.213	14.6	21	1.1469	3.22E-08
	17:44:00	23:28:00	16980	3.3	22.3	3.8	21.8	70.213	69.164	13.5	21	1.181	3.89E-08
o/n	23:28:00	8:39:00	33060	3.8	21.8	4.7	21.0	69.164	67.232	11	20	1.265	4.03E-08
	8:39:00	14:58:00	22740	4.7	21.0	5.3	20.4	67.232	65.963	19.3	20	1.0174	3.17E-08
	14:58:00	18:26:00	12480	5.3	20.4	5.5	20.1	65.963	65.355	19.2	19	1.0198	2.81E-08
o/n	18:26:00	8:43:00	51420	5.5	20.1	6.9	18.7	65.355	62.264	14.4	19	1.1529	4.04E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.51E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	November 10, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	November 3, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-128	SAMPLE LOCATION:	IPD-52, NE Quad Grid 1 Lift 4
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.043	4.016
90 deg	4.074	4.125
180 deg	4.099	4.153
270 deg	4.177	4.125
AVERAGE	4.098	4.105

Length/Diam Ratio: 0.57

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.226	7.168
top 90	7.257	7.274
mid 0	7.227	7.272
mid 90	7.225	7.232
bottom 0	7.249	7.24
bottom 90	7.236	7.262
AVERAGE	7.237	7.241

SAMPLE WEIGHT: (grams)	
Before:	314.1
After:	327.5

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	352.2	273.2	6.6	29.6%
After:	302.2	229.7	0.0	31.6%

	Before	After
WET DENSITY (pcf):	116.3	120.9
DRY DENSITY (pcf):	89.7	91.9
SATURATION (%):	91%	102%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017005.5, E 1304178.7
Elev. 2739.4

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 90.2 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/10/10	13:06:00	15:10:00	7440	2.4	22.8	2.7	22.5	85.771	85.164	23	21	0.931	4.01E-08
	15:10:00	17:12:00	7320	2.7	22.5	3.0	22.2	85.164	84.557	21.5	21	0.965	4.26E-08
overnight	17:12:00	7:46:00	52440	3.0	22.2	5.0	20.2	84.557	80.085	19	20	1.025	4.79E-08
	7:46:00	10:51:00	11100	5.0	20.2	5.4	19.7	80.085	79.136	19	19	1.025	4.97E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.51E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	November 9, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	November 3, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-127	SAMPLE LOCATION:	IPD-51, SE Quad, Grid 1 Lift 4
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous silty sand

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.357	3.294
90 deg	3.319	3.292
180 deg	3.357	3.323
270 deg	3.342	3.388
AVERAGE	3.344	3.324

Length/Diam Ratio: 0.46

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.28	7.269
top 90	7.25	7.26
mid 0	7.267	7.212
mid 90	7.266	7.264
bottom 0	7.244	7.289
bottom 90	7.286	7.219
AVERAGE	7.266	7.252

SAMPLE WEIGHT: (grams) Before: 258.4 After: 265.3

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	461.2	352.2	8.2	31.7%
After:	273.3	203.9	8.3	35.5%

	Before	After
WET DENSITY (pcf):	116.4	120.6
DRY DENSITY (pcf):	88.4	89.0
SATURATION (%):	94%	107%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016910.3, E 1304155.8
Elev. 2737.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.7 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/9/2010	11:47:00	13:46:00	7140	2.0	23.0	2.5	22.5	72.421	71.317	22.4	22	0.9443	7.40E-08
	13:46:00	15:47:00	7260	2.5	22.5	2.9	22.0	71.317	70.323	24.1	21	0.9077	6.39E-08
	15:47:00	18:53:00	11160	2.9	22.0	3.6	21.3	70.323	68.833	20	21	1	7.00E-08
o/n	18:53:00	7:54:00	46860	3.6	21.3	6.2	18.7	68.833	63.092	15.3	20	1.126	7.63E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.11E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	November 12, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	November 11, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-137	SAMPLE LOCATION:	IPD-53 SE Quad Grid 2 Lift 4
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.281	5.326
90 deg	5.281	5.304
180 deg	5.274	5.29
270 deg	5.338	5.353
AVERAGE	5.294	5.318

Length/Diam Ratio: 0.73

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.196	7.203
top 90	7.2	7.265
mid 0	7.218	7.27
mid 90	7.237	7.23
bottom 0	7.257	7.225
bottom 90	7.218	7.293
AVERAGE	7.221	7.248

SAMPLE WEIGHT: (grams)	
Before:	413.6
After:	427.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	506.0	396.9	8.3	28.1%
After:	436.0	330.0	8.4	33.0%

	Before	After
WET DENSITY (pcf):	119.1	121.7
DRY DENSITY (pcf):	93.0	91.5
SATURATION (%):	93%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017109.1, E 1304153.1
Elev. 2732.7

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.2 INFLUENT PRES.(psi): 79.2 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/12/10	12:53:00	16:52:00	14340	2.3	22.9	2.7	22.5	107.149	106.265	22.2	20	0.9487	3.20E-08
	16:52:00	9:20:00	59280	2.7	22.5	4.5	20.9	106.265	102.512	15	20	1.1347	4.02E-08
	9:20:00	12:05:00	9900	4.5	20.9	4.7	20.6	102.512	101.960	17.4	19	1.0667	3.40E-08
	12:05:00	14:35:00	9000	4.7	20.6	5.0	20.4	101.960	101.463	20.1	19	0.9976	3.16E-08
	14:35:00	17:35:00	10800	5.0	20.4	5.2	20.1	101.463	100.856	18.5	19	1.0377	3.37E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.43E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: November 3, 2010

DATE TESTED: November 11, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-130
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-54, NE Quad Grid 2 Lift 4
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.101	3.174
90 deg	3.177	3.1
180 deg	3.031	3.089
270 deg	3.139	3.14
AVERAGE	3.112	3.126

Length/Diam Ratio: 0.43

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.208	7.146
top 90	7.166	7.193
mid 0	7.19	7.222
mid 90	7.255	7.216
bottom 0	7.243	7.182
bottom 90	7.195	7.175
AVERAGE	7.210	7.189

SAMPLE WEIGHT (grams): Before: 232.2; After: 241.8

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	314.3	243.0	8.3	30.4%
After:	249.8	185.8	8.3	36.1%

	Before	After
WET DENSITY (pcf):	114.1	119.0
DRY DENSITY (pcf):	87.5	87.4
SATURATION (%):	89%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017233.4, E 1304113.6
Elev. 2728.8

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.6 INFLUENT PRES.(psi): 78.6 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/11/10	11:07:00	13:11:00	7440	2.0	23.0	2.3	22.7	65.387	64.725	22	21	0.9531	4.55E-08
	13:11:00	15:15:00	7440	2.3	22.7	2.7	22.5	64.725	64.062	22.4	21	0.9443	4.55E-08
	15:15:00	17:29:00	8040	2.7	22.5	3.0	22.1	64.062	63.234	21.3	20	0.9692	5.47E-08
	17:29:00	7:43:00	51240	3.0	22.1	5.2	19.9	63.234	58.377	14	19	1.1651	6.34E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.23E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	November 12, 2010
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	November 3, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-131	SAMPLE LOCATION:	IPD-55, NW Quad Grid 2 Lift 4 (Test Pad Lift 4)
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)		Before	After
	0 deg	4.455	4.455
	90 deg	4.503	4.503
	180 deg	4.499	4.499
	270 deg	4.429	4.429
	AVERAGE	4.472	4.472

Length/Diam Ratio: 0.62

SAMPLE DIAM.: (centimeters)		Before	After
	top 0	7.255	7.255
	top 90	7.289	7.289
	mid 0	7.228	7.228
	mid 90	7.222	7.222
	bottom 0	7.267	7.267
	bottom 90	7.255	7.255
	AVERAGE	7.253	7.253

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)		Wet Wt.	Dry Wt.	Tare	M.C.
Before:	347.5	Before:		222.6	180.1	8.3	24.7%
After:	354.8	After:		362.9	275.6	8.5	32.7%

	Before	After
WET DENSITY (pcf):	117.4	119.9
DRY DENSITY (pcf):	94.1	90.4
SATURATION (%):	85%	102%

(assumed SG= 2.70)

Notes: Test Pad - Lift 4

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/12/10	13:02:00	14:02:00	3600	2.4	22.9	2.5	22.7	92.970	92.639	22.2	21	0.9487	4.61E-08
	14:02:00	15:01:00	3540	2.5	22.7	2.7	22.6	92.639	92.308	22.8	21	0.9355	4.64E-08
	15:01:00	17:00:00	7140	2.7	22.6	2.9	22.3	92.308	91.756	22.2	21	0.9487	3.91E-08
reset	17:05:00	19:27:00	8520	2.5	22.8	2.8	22.5	92.805	92.142	19.9	21	1.0025	4.13E-08
	19:27:00	22:29:00	10920	2.8	22.5	3.1	22.1	92.142	91.314	18.5	21	1.0377	4.20E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.30E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: November 3, 2010

DATE TESTED: December 7, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-133
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-56, NW Quad Grid 7 Lift 1
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.574	3.539
90 deg	3.574	3.569
180 deg	3.53	3.571
270 deg	3.594	3.583
AVERAGE	3.568	3.566

Length/Diam Ratio: 0.49

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.24	7.192
top 90	7.183	7.196
mid 0	7.229	7.181
mid 90	7.231	7.204
bottom 0	7.221	7.198
bottom 90	7.221	7.208
AVERAGE	7.221	7.197

SAMPLE WEIGHT (grams): Before: 279.8; After: 285.2

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	346.6	272.2	6.6	28.0%
After:	291.5	222.0	6.6	32.3%

	Before	After
WET DENSITY (pcf):	119.5	122.8
DRY DENSITY (pcf):	93.4	92.8
SATURATION (%):	94%	107%

(assumed SG= 2.70)

Notes: GPS Coords
N 1017693.6, E 1303644.2
Elev. 2672.9

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.7 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
12/7/10	12:45:00	14:45:00	7200	2.2	23.0	2.3	22.9	72.200	71.979	18.4	20	1.0403	1.76E-08
	14:45:00	16:45:00	7200	2.3	22.9	2.4	22.8	71.979	71.759	16.9	20	1.0802	1.83E-08
o/n	16:45:00	0:20:30	27630	2.4	22.8	2.8	22.4	71.759	70.875	16.2	20	1.0999	1.96E-08
	0:20:30	8:06:00	27630	2.8	22.4	3.2	22.0	70.875	70.047	15.4	20	1.1231	1.90E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 1.87E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	November 12, 2010
PROJECT NO:	3477	TESTED BY:	blb
DATE RECEIVED:	November 3, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-134	SAMPLE LOCATION:	IPD-57 SW Quad Grid 1 Lift 4
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)		Before	After
	0 deg	3.868	3.862
	90 deg	3.871	3.868
	180 deg	3.865	3.866
	270 deg	3.861	3.858
	AVERAGE	3.866	3.864

Length/Diam Ratio: 0.53

SAMPLE DIAM.: (centimeters)		Before	After
	top 0	7.228	7.232
	top 90	7.231	7.235
	mid 0	7.226	7.231
	mid 90	7.232	7.235
	bottom 0	7.225	7.234
	bottom 90	7.229	7.232
	AVERAGE	7.229	7.233

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)		Wet Wt.	Dry Wt.	Tare	M.C.
Before:	304.7		Before:	348.8	272.1	0.0	28.2%
After:	311.1		After:	311.1	236.3	0.0	31.7%

	Before	After
WET DENSITY (pcf):	119.9	122.3
DRY DENSITY (pcf):	93.5	92.9
SATURATION (%):	95%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016932.5, E 1304107.0
ELEV. - N/A

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
######	7:22:00	11:20:00	14280	2.0	22.0	2.9	21.1	92.418	90.431	21	24	0.976	6.33E-08
	11:20:00	12:25:00	3900	2.9	21.1	3.2	20.9	90.431	89.879	21	23	0.976	6.52E-08
	12:25:00	14:25:00	7200	3.2	20.9	3.7	20.5	89.879	88.886	21	23	0.976	6.42E-08
	14:25:00	16:25:00	7200	3.7	20.5	4.1	20.0	88.886	87.892	21	23	0.976	6.49E-08
overnight	16:25:00	7:25:00	54000	4.1	20.0	7.3	16.7	87.892	80.716	21	22	0.976	6.56E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.50E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	November 12, 2010 (REVISED)
PROJECT NO:	3477	TESTED BY:	blb
DATE RECEIVED:	November 9, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-135	SAMPLE LOCATION:	IPD-58 NW Quad Grid 1 Lift 4
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.221	4.218
90 deg	4.216	4.222
180 deg	4.225	4.221
270 deg	4.228	4.225
AVERAGE	4.223	4.222

Length/Diam Ratio: 0.58

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.232	7.235
top 90	7.228	7.231
mid 0	7.229	7.235
mid 90	7.231	7.236
bottom 0	7.235	7.236
bottom 90	7.231	7
AVERAGE	7.231	7.196

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	335.1	Before:	342.2	266.4	0.0	28.5%
After:	341.2	After:	341.2	258.2	0.0	32.1%

	Before	After
WET DENSITY (pcf):	120.6	124.1
DRY DENSITY (pcf):	93.9	93.9
SATURATION (%):	97%	109%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1016964.9, E 1304071.5
Elev. 2724.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
######	7:22:15	11:20:15	14280	2.0	21.2	3.0	20.2	91.535	89.327	21	21	0.976	7.85E-08
	11:20:15	12:25:15	3900	3.0	20.2	3.3	20.0	89.327	88.720	21	21	0.976	8.03E-08
	12:25:15	14:25:15	7200	3.3	20.0	3.8	19.5	88.720	87.671	21	21	0.976	7.58E-08
	14:25:15	16:25:15	7200	3.8	19.5	4.3	19.1	87.671	86.678	21	21	0.976	7.26E-08
overnight	16:25:15	7:25:15	54000	4.3	19.1	7.7	15.7	86.678	79.170	21	20	0.976	7.70E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.64E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	November 13, 2010 (REVISED)
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	November 9, 2010	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-136	SAMPLE LOCATION:	IPD-59, SW Quad Grid 2 Lift 4
SAMPLE TYPE:	UDT	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)		Before	After
	0 deg	4.393	4.402
	90 deg	4.262	4.437
	180 deg	4.301	4.382
	270 deg	4.356	4.273
	AVERAGE	4.328	4.374

Length/Diam Ratio: 0.60

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.279	7.272
top 90	7.256	7.286
mid 0	7.24	7.262
mid 90	7.299	7.224
bottom 0	7.292	7.255
bottom 90	7.259	7.366
AVERAGE	7.271	7.278

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	344.7	Before:	446.3	352.1	6.6	27.3%
After:	353.6	After:	361.6	276.6	8.2	31.7%

	Before	After
WET DENSITY (pcf):	119.7	121.3
DRY DENSITY (pcf):	94.1	92.2
SATURATION (%):	93%	103%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017075.4, E 1304056.5
ELEV. - 2721.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/13/10	12:37:00	14:37:00	7200	2.0	23.0	2.3	22.7	86.489	85.826	20.3	20	0.9928	5.05E-08
	14:37:00	17:37:00	10800	2.3	22.7	2.7	22.3	85.826	84.943	18.6	20	1.0351	4.72E-08
	17:37:00	20:12:00	9300	2.7	22.3	3.0	22.0	84.943	84.281	16.9	19	1.0802	4.33E-08
o/n	20:12:00	11:23:00	54660	3.0	22.0	5.0	20.2	84.281	80.141	16.6	19	1.0887	4.78E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.72E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: November 12, 2010

DATE TESTED: December 8, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-141
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-60 N half N side Grid 8 Lift 1
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.327	4.271
90 deg	4.274	4.283
180 deg	4.227	4.254
270 deg	4.286	4.225
AVERAGE	4.279	4.258

Length/Diam Ratio: 0.59

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.218	7.225
top 90	7.179	7.158
mid 0	7.21	7.199
mid 90	7.238	7.233
bottom 0	7.208	7.223
bottom 90	7.214	7.228
AVERAGE	7.211	7.211

SAMPLE WEIGHT: (grams) Before: 336.7 After: 340.6

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	321.2	249.2	8.3	29.9%
After:	348.4	267.0	8.2	31.5%

	Before	After
WET DENSITY (pcf):	120.3	122.3
DRY DENSITY (pcf):	92.6	93.0
SATURATION (%):	98%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017601.6, E 1303416.2
Elev. 2687.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.9 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
12/8/10	11:28:00	12:28:00	3600	2.0	23.0	2.2	22.9	86.489	86.102	19.3	20	1.0174	5.98E-08
	12:28:00	11:20:53	3600	2.2	22.9	2.4	22.7	86.102	85.771	20	20	1	5.06E-08
	11:20:53	12:20:00	3600	2.4	22.7	2.5	22.6	85.771	85.550	20.5	20	0.9881	3.34E-08
	12:20:00	13:24:00	7200	2.5	22.6	2.7	22.4	85.550	85.053	19.2	20	1.0198	3.90E-08
	13:24:00	14:20:00	29730	2.7	22.4	3.6	21.5	85.053	83.066	17.5	20	1.064	4.00E-08
	14:20:00	15:20:00	29730	3.6	21.5	4.5	20.5	83.066	81.024	16.6	19	1.0887	4.31E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.88E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: November 12, 2010

DATE TESTED: December 2, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-142
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-61, NW Quad, Grid 7 Lift 4
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.416	5.365
90 deg	5.444	5.322
180 deg	5.402	5.338
270 deg	5.434	5.316
AVERAGE	5.424	5.335

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.27	7.208
top 90	7.24	7.089
mid 0	7.219	7.175
mid 90	7.228	7.18
bottom 0	7.249	7.174
bottom 90	7.231	7.201
AVERAGE	7.240	7.171

Length/Diam Ratio: 0.75

SAMPLE WEIGHT: (grams) Before: 424.6 After: 428.0

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	334.6	258.6	8.3	30.4%
After:	436.0	336.6	8.2	30.3%

	Before	After
WET DENSITY (pcf):	118.7	124.0
DRY DENSITY (pcf):	91.1	95.2
SATURATION (%):	96%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017695.5, E 1303459.8
Elev. 2674.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.3 INFLUENT PRES.(psi): 79.3 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Pipette Readings Initial out	Pipette Readings Final in	Pipette Readings Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
12/2/10	16:30:00	20:07:00	13020	2.7	22.7	3.0	22.4	113.520	112.858	12.8	21	1.2035	3.24E-08
o/n	20:07:00	8:07:00	43200	3.0	22.4	3.9	21.6	112.858	110.981	12.4	21	1.2168	2.83E-08
	8:07:00	10:07:00	7200	3.9	21.6	4.0	21.4	110.981	110.650	15.2	21	1.1289	2.80E-08
	10:07:00	13:07:00	10800	4.0	21.4	4.2	21.2	110.650	110.208	17.4	21	1.0667	2.36E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.81E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **November 12, 2010**

DATE TESTED: **November 30, 2010**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-145**
SAMPLE TYPE: **UDT**

SAMPLE LOCATION: **IPD-62, NW Quad Grid 7 Lift 3**
SAMPLE DESCRIPTION: **brown slightly micaceous sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.017	3.992
90 deg	4.055	3.989
180 deg	4.04	3.94
270 deg	4.097	3.983
AVERAGE	4.052	3.976

Length/Diam Ratio: 0.56

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.193	7.167
top 90	7.224	7.183
mid 0	7.194	7.161
mid 90	7.202	7.117
bottom 0	7.185	7.087
bottom 90	7.204	7.18
AVERAGE	7.200	7.149

SAMPLE WEIGHT (grams): Before: 311.9; After: 314.8

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	314.2	244.5	6.6	29.3%
After:	322.8	246.7	8.2	31.9%

	Before	After
WET DENSITY (pcf):	118.0	123.1
DRY DENSITY (pcf):	91.3	93.3
SATURATION (%):	93%	107%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017695.5, E 1303459.8
Elev. 2673.5

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.9 INFLUENT PRES.(psi): 78.9 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/30/10	12:37:00	14:37:00	7200	2.2	23.0	2.3	22.9	86.268	86.047	16.6	22	1.0887	1.74E-08
	14:37:00	23:39:00	32520	2.3	22.9	3.0	22.2	86.047	84.501	16.7	21	1.0859	2.72E-08
	23:39:00	8:11:00	30720	3.0	22.2	3.6	21.6	84.501	83.177	15	21	1.1347	2.62E-08
	8:11:00	10:11:00	7200	3.6	21.6	3.8	21.5	83.177	82.845	17	21	1.0774	2.68E-08
	10:11:00	12:11:00	7200	3.8	21.5	3.9	21.3	82.845	82.514	18	21	1.0507	2.62E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.66E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: November 12, 2010

DATE TESTED: November 30, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-144
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-63, NW Quad Grid 7 Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	5.412	5.377
90 deg	5.504	5.404
180 deg	5.442	5.4
270 deg	5.485	5.399
AVERAGE	5.461	5.395

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.292	7.228
top 90	7.2	7.139
mid 0	7.187	7.123
mid 90	7.219	7.161
bottom 0	7.264	7.214
bottom 90	7.233	7.18
AVERAGE	7.233	7.174

Length/Diam Ratio: 0.76

SAMPLE WEIGHT (grams): Before: 425.2; After: 428.2

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	271.7	209.7	8.2	30.8%
After:	436.1	333.9	8.3	31.4%

	Before	After
WET DENSITY (pcf):	118.3	122.6
DRY DENSITY (pcf):	90.5	93.3
SATURATION (%):	96%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017695.5, E 1303459.8
Elev. 2673.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 90.2 INFLUENT PRES.(psi): 79.3 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/30/10	12:36:00	14:36:00	7200	2.3	22.9	2.5	22.7	114.182	113.741	16.6	21	1.0887	3.54E-08
	14:36:00	16:36:00	7200	2.5	22.7	2.8	22.4	113.741	113.078	16.4	21	1.0943	5.37E-08
	16:36:00	23:37:00	25260	2.8	22.4	3.8	21.5	113.078	110.981	16.6	21	1.0887	4.88E-08
o/n	23:37:00	8:09:00	30720	3.8	21.5	4.9	20.3	110.981	108.442	15	20	1.1347	5.17E-08
	8:09:00	10:09:00	7200	4.9	20.3	5.1	20.0	108.442	107.890	17	20	1.0774	4.62E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.01E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: November 24, 2010

DATE TESTED: November 30, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-143
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-64(re-test), SE Quad Grid 3 Lift 1
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	6.974	7.027
90 deg	7.09	7.065
180 deg	6.99	7.066
270 deg	6.896	7.041
AVERAGE	6.988	7.050

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.232	7.229
top 90	7.178	7.304
mid 0	7.158	7.294
mid 90	7.232	7.231
bottom 0	7.234	7.253
bottom 90	7.202	7.252
AVERAGE	7.206	7.261

Length/Diam Ratio: 0.97

SAMPLE WEIGHT (grams): Before: 547.0; After: 567.0

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	356.8	284.2	8.3	26.3%
After:	520.6	395.1	6.7	32.3%

	Before	After
WET DENSITY (pcf):	119.8	121.3
DRY DENSITY (pcf):	94.9	91.7
SATURATION (%):	91%	104%

(assumed SG= 2.70)

Notes: GPS Coords
N 1017382.3, E 1304056.9
Elev. 2719.2

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.7 INFLUENT PRES.(psi): 79.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/30/10	12:34:00	14:59:00	8100	2.3	23.0	2.6	22.7	142.428	141.711	16.1	20	1.1028	5.30E-08
	14:59:00	16:50:00	6660	2.6	22.7	2.9	22.4	141.711	141.159	16.5	20	1.0915	4.93E-08
	16:50:00	23:34:00	24240	2.9	22.4	3.7	21.7	141.159	139.503	16.5	20	1.0915	4.10E-08
o/n	23:34:00	8:04:00	30600	3.7	21.7	4.7	20.5	139.503	137.019	14.9	20	1.1377	5.15E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.87E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: November 15, 2010

DATE TESTED: November 21, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-139
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-65, NE Quad Grid 3 Lift 1
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.572	4.53
90 deg	4.616	4.544
180 deg	4.552	4.556
270 deg	4.624	4.545
AVERAGE	4.591	4.544

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.19	7.191
top 90	7.246	7.211
mid 0	7.244	7.182
mid 90	7.216	7.197
bottom 0	7.224	7.193
bottom 90	7.212	7.213
AVERAGE	7.222	7.198

Length/Diam Ratio: 0.64

SAMPLE WEIGHT: (grams) Before: 349.5 After: 358.3

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	325.5	250.3	8.2	31.1%
After:	364.6	272.3	6.6	34.7%

	Before	After
WET DENSITY (pcf):	116.0	121.0
DRY DENSITY (pcf):	88.5	89.8
SATURATION (%):	93%	107%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017467.2, E 1303995.2
Elev. 2708.6

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/21/10	11:38:00	17:25:00	20820	2.0	23.0	3.0	21.9	93.522	91.204	19	20	1.025	6.25E-08
overnight	17:25:00	8:03:00	52680	3.0	21.9	5.4	19.5	91.204	85.905	19	19	1.025	5.89E-08
11/22/10	8:03:00	16:47:00	31440	5.4	19.5	6.9	18.2	85.905	82.814	19	19	1.025	6.04E-08
overnight	16:47:00	8:01:00	54840	6.9	18.2	9.2	15.8	82.814	77.625	19	18	1.025	6.12E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.07E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED November 15, 2010

DATE TESTED: November 21, 2010
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-140
SAMPLE TYPE: UDT

SAMPLE LOCATION: IPD-66 NE Quad Grid 7 Lift 1
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.624	4.708
90 deg	4.82	4.709
180 deg	4.836	4.831
270 deg	4.8	4.843
AVERAGE	4.770	4.773

Length/Diam Ratio: 0.66

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.23	7.183
top 90	7.194	7.136
mid 0	7.208	7.163
mid 90	7.23	7.188
bottom 0	7.29	7.239
bottom 90	7.236	7.134
AVERAGE	7.231	7.174

SAMPLE WEIGHT: (grams) Before: 361.5 After: 372.0

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	319.3	244.0	8.5	32.0%
After:	380.0	281.7	8.5	36.0%

	Before	After
WET DENSITY (pcf):	115.2	120.4
DRY DENSITY (pcf):	87.3	88.5
SATURATION (%):	93%	107%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017539.0, E 1303891.8
Elev. 2693.6

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.1 INFLUENT PRES.(psi): 79.1 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
11/21/10	11:40:00	17:25:00	20700	2.0	23.0	2.6	22.4	100.556	99.232	19	21	1.025	3.51E-08
overnight	17:25:00	8:05:00	52800	2.6	22.4	4.0	20.8	99.232	95.920	19	20	1.025	3.52E-08
	8:05:00	12:05:00	14400	4.0	20.8	4.5	20.4	95.920	94.926	19	20	1.025	3.96E-08
	12:05:00	16:48:00	16980	4.5	20.4	4.9	19.9	94.926	93.932	19	20	1.025	3.40E-08
overnight	16:48:00	8:02:00	54840	4.9	19.9	6.5	18.1	93.932	90.179	19	19	1.025	4.08E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.74E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED:

DATE TESTED: June 6, 2011
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-149A
SAMPLE TYPE: Shelby

SAMPLE LOCATION: IPD-67, Grid 3, SE Quad, Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.386	4.355
90 deg	4.292	4.433
180 deg	4.399	4.462
270 deg	4.46	4.458
AVERAGE	4.384	4.427

Length/Diam Ratio: 0.61

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.219	7.258
top 90	7.266	7.149
mid 0	7.272	7.188
mid 90	7.204	7.207
bottom 0	7.187	7.239
bottom 90	7.229	7.112
AVERAGE	7.230	7.192

SAMPLE WEIGHT (grams): Before: 341.4; After: 354.1

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	99.4	80.5	6.7	25.6%
After:	362.4	281.6	8.3	29.6%

	Before	After
WET DENSITY (pcf):	118.4	122.9
DRY DENSITY (pcf):	94.3	94.9
SATURATION (%):	88%	103%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017442.02
E 1303981.18
Elev. 2701.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/7/2011	13:19:00	14:02:00	2580	2.0	23.0	2.2	22.8	93.522	93.026	32.4	21	0.7579	7.72E-08
	14:02:00	15:18:00	4560	2.2	22.8	2.6	22.4	93.026	92.253	33.3	21	0.744	6.72E-08
	15:18:00	16:48:00	5460	2.6	22.4	3.0	21.9	92.253	91.204	33.9	21	0.7349	7.60E-08
	16:48:00	7:29:00	52800	3.0	21.9	7.7	17.7	91.204	81.378	26.2	19	0.8656	9.22E-08
6/8													

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.81E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 3, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 2, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-156	SAMPLE LOCATION:	IPD-68, NE Quad Grid 3, Lift 2
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	6.394	6.443
90 deg	6.237	6.396
180 deg	6.255	6.301
270 deg	6.343	6.25
AVERAGE	6.307	6.348

Length/Diam Ratio: 0.87

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.234	7.311
top 90	7.244	7.246
mid 0	7.213	7.264
mid 90	7.239	7.251
bottom 0	7.221	7.268
bottom 90	7.239	7.227
AVERAGE	7.232	7.261

SAMPLE WEIGHT: (grams) Before: 500.3 After: 517.0

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	216.8	172.8	8.2	26.7%
After:	525.1	402.5	8.4	31.1%

	Before	After
WET DENSITY (pcf):	120.6	122.8
DRY DENSITY (pcf):	95.1	93.7
SATURATION (%):	94%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017561.40
E 1303874.10
Elev. 2699.4

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.5 INFLUENT PRES.(psi): 79.5 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/3/2011	16:34:00	17:58:00	5640	2.5	22.2	2.7	21.9	127.256	126.649	31.5	20	0.7721	4.55E-08
	17:58:00	9:33:00	56100	2.7	21.9	6.0	18.6	126.649	119.418	27.6	19	0.8392	6.11E-08
6/4	9:33:00	18:23:00	31800	6.0	18.6	7.6	16.9	119.418	115.775	33.3	19	0.744	5.03E-08
reset	18:29:00	10:52:00	58980	2.0	23.0	5.6	19.7	128.692	121.074	29.2	20	0.8105	5.82E-08
6/5	10:52:00	17:17:00	23100	5.6	19.7	6.9	18.5	121.074	118.314	32.3	19	0.7595	5.26E-08
6/6	17:17:00	7:39:00	48120	6.9	18.5	9.8	15.9	118.314	112.297	25.7	18	0.8754	6.59E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.68E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 16, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 13, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-167	SAMPLE LOCATION:	IPD-69, SE Quad Grid 3 Lift 3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.546	3.609
90 deg	3.578	3.614
180 deg	3.526	3.56
270 deg	3.54	3.547
AVERAGE	3.548	3.583

Length/Diam Ratio: 0.49

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.165	7.16
top 90	7.206	7.231
mid 0	7.201	7.233
mid 90	7.177	7.147
bottom 0	7.186	7.216
bottom 90	7.204	7.229
AVERAGE	7.190	7.203

SAMPLE WEIGHT: (grams)	
Before:	276.7
After:	288.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	255.8	200.4	8.4	28.9%
After:	296.8	228.3	8.2	31.1%

	Before	After
WET DENSITY (pcf):	119.9	123.5
DRY DENSITY (pcf):	93.1	94.2
SATURATION (%):	96%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017331.6
E 1304053.1
Elev. 2715.9

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.7 INFLUENT PRES.(psi): 78.7 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/16/2011	11:16:00	12:16:00	3600	2.0	23.0	2.4	22.6	72.421	71.483	27.5	20	0.841	1.21E-07
	12:16:00	13:16:00	3600	2.4	22.6	2.8	22.2	71.483	70.710	28.4	20	0.8246	9.91E-08
	13:16:00	15:16:00	7200	2.8	22.2	3.4	21.5	70.710	69.275	29.8	20	0.8001	9.07E-08
	15:16:00	19:58:00	16920	3.4	21.5	4.7	20.1	69.275	66.294	29.8	19	0.8001	8.28E-08
o/n	19:58:00	7:51:00	42780	4.7	20.1	7.8	17.1	66.294	59.504	24.8	18	0.8934	8.99E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.06E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 17, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 14, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-168	SAMPLE LOCATION:	IPD-70, NE Quad Grid 3 Lift 3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.614	3.692
90 deg	3.636	3.605
180 deg	3.698	3.624
270 deg	3.657	3.656
AVERAGE	3.651	3.644

Length/Diam Ratio: 0.50

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.211	7.239
top 90	7.249	7.219
mid 0	7.233	7.292
mid 90	7.244	7.243
bottom 0	7.233	7.237
bottom 90	7.236	7.263
AVERAGE	7.234	7.249

SAMPLE WEIGHT: (grams) Before: 289.8 After: 302.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	326.8	260.1	8.3	26.5%
After:	309.0	238.1	6.6	30.6%

	Before	After
WET DENSITY (pcf):	120.5	125.7
DRY DENSITY (pcf):	95.3	96.2
SATURATION (%):	93%	110%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017458.4
E 1303580.3
Elev. 2704.4

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.8 INFLUENT PRES.(psi): 78.8 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/17/2011	19:26:00	7:22:00	42960	2.5	22.4	4.2	20.7	78.185	74.432	26.2	21	0.8656	3.96E-08
	7:22:00	20:32:00	47400	4.2	20.7	6.0	18.9	74.432	70.512	27.6	20	0.8392	3.83E-08
o/n	20:32:00	9:06:00	45240	6.0	18.9	7.7	17.3	70.512	66.924	24	19	0.9097	4.20E-08
	9:06:00	18:15:00	32940	7.7	17.3	8.8	16.3	66.924	64.606	27.1	18	0.8484	3.63E-08
reset o/n	18:18:00	7:57:00	49140	2.0	23.0	3.9	21.1	79.455	75.260	24.1	21	0.9077	4.01E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.92E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: May 26, 2011

DATE TESTED: May 28, 2011
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-153
SAMPLE TYPE: Shelby

SAMPLE LOCATION: IPD-71, Grid 7, SE Quad, Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.177	5.08
90 deg	5.144	5.128
180 deg	5.187	5.174
270 deg	5.225	5.182
AVERAGE	5.183	5.141

Length/Diam Ratio: 0.72

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.168	7.188
top 90	7.254	7.092
mid 0	7.252	7.16
mid 90	7.193	7.186
bottom 0	7.234	7.125
bottom 90	7.242	7.193
AVERAGE	7.224	7.157

SAMPLE WEIGHT: (grams) Before: 394.7 After: 401.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	321.0	246.9	8.4	31.1%
After:	410.0	308.9	8.4	33.6%

	Before	After
WET DENSITY (pcf):	116.0	121.3
DRY DENSITY (pcf):	88.5	90.7
SATURATION (%):	93%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017561.40
E 1303874.10
Elev. 2699.4

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.2 INFLUENT PRES.(psi): 79.2 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
5/28/2011	8:08:00	13:46:00	20280	2.0	23.0	3.0	22.0	107.590	105.382	27.9	21	0.8336	4.93E-08
	13:46:00	17:16:00	12600	3.0	22.0	3.6	21.3	105.382	103.947	29.5	20	0.8053	5.07E-08
5/29	17:16:00	9:09:00	57180	3.6	21.3	6.0	18.3	103.947	97.985	25.1	20	0.8873	5.30E-08
	9:09:00	10:53:00	6240	6.0	18.3	6.3	18.0	97.985	97.323	26.4	19	0.8617	5.42E-08
5/30	10:53:00	11:13:00	87600	6.3	18.0	10.0	13.6	97.323	88.381	28.3	18	0.8264	5.26E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.26E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	May 30, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	May 27, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-154	SAMPLE LOCATION:	IPD-72, Grid 7, SE Quad, Lift 3 (South end)
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.926	5.926
90 deg	6.053	6.053
180 deg	5.966	5.966
270 deg	5.951	5.951
AVERAGE	5.974	5.974

Length/Diam Ratio: 0.83

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.155	7.155
top 90	7.137	7.137
mid 0	7.236	7.236
mid 90	7.209	7.209
bottom 0	7.264	7.264
bottom 90	7.239	7.239
AVERAGE	7.207	7.207

SAMPLE WEIGHT: (grams)	
Before:	453.6
After:	461.4

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	213.4	165.2	8.5	30.8%
After:	469.1	353.2	8.1	33.6%

	Before	After
WET DENSITY (pcf):	116.2	118.2
DRY DENSITY (pcf):	88.9	88.5
SATURATION (%):	93%	100%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017547.16
E 1303901.9
Elev. 2699.7

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.4 INFLUENT PRES.(psi): 79.4 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/1/2011	9:58:00	11:12:00	4440	2.9	22.5	3.3	22.1	120.167	119.174	30.9	20	0.7818	9.70E-08
	11:12:00	12:38:00	5160	3.3	22.1	3.8	21.6	119.174	118.070	32.3	20	0.7595	9.09E-08
	12:38:00	13:59:00	4860	3.8	21.6	4.3	21.1	118.070	117.021	33.8	20	0.7364	8.97E-08
	13:59:00	15:30:00	5460	4.3	21.1	4.8	20.5	117.021	115.862	34.2	19	0.7305	8.83E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.15E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: May 27, 2011

DATE TESTED: May 29, 2011
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-155
SAMPLE TYPE: Shelby

SAMPLE LOCATION: IPD-73, SE Quad Grid 7 Lift 3 (North end)
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	5.476	5.415
90 deg	5.41	5.417
180 deg	5.39	5.32
270 deg	5.438	5.329
AVERAGE	5.429	5.370

Length/Diam Ratio: 0.75

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.264	7.254
top 90	7.264	7.242
mid 0	7.231	7.19
mid 90	7.262	7.235
bottom 0	7.249	7.222
bottom 90	7.247	7.256
AVERAGE	7.253	7.233

SAMPLE WEIGHT (grams): Before: 419.3; After: 427.7

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	257.4	198.8	8.1	30.7%
After:	435.4	327.8	8.3	33.7%

	Before	After
WET DENSITY (pcf):	116.7	121.0
DRY DENSITY (pcf):	89.3	90.5
SATURATION (%):	93%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017566.90
E 1303860.0
Elev. 2694.5

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.2 INFLUENT PRES.(psi): 79.2 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/1/2011	11:30:00	12:36:00	3960	2.0	23.0	2.4	22.7	107.590	106.762	32.3	20	0.7595	8.77E-08
	12:36:00	15:00:00	8640	2.4	22.7	3.0	22.0	106.762	105.437	34.4	20	0.7276	6.22E-08
	15:00:00	17:11:00	7860	3.0	22.0	3.5	21.4	105.437	104.168	35.8	20	0.7078	6.46E-08
	17:11:00	18:43:00	5560	3.5	21.4	4.0	21.0	104.168	103.119	34.8	19	0.7218	7.78E-08
o/n	18:43:00	7:52:00	47340	4.0	21.0	7.2	17.1	103.119	95.336	29.1	18	0.8122	7.97E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.11E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 8, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 7, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-158	SAMPLE LOCATION:	IPD-74, Grid 8 NW Quad Lift 1
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.26	5.248
90 deg	5.223	5.195
180 deg	5.115	5.219
270 deg	5.178	5.168
AVERAGE	5.194	5.208

Length/Diam Ratio: 0.72

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.225	7.164
top 90	7.22	7.128
mid 0	7.201	7.194
mid 90	7.207	7.18
bottom 0	7.24	7.192
bottom 90	7.223	7.205
AVERAGE	7.219	7.177

SAMPLE WEIGHT: (grams) Before: 407.4 After: 420.6

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	312.8	240.1	8.3	31.4%
After:	428.8	309.8	8.4	39.5%

	Before	After
WET DENSITY (pcf):	119.6	124.6
DRY DENSITY (pcf):	91.1	89.4
SATURATION (%):	100%	120%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017531.6
E 1303418.9
Elev. 2690.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.2 INFLUENT PRES.(psi): 79.2 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/9/2011	10:29:00	11:16:00	2820	2.0	23.0	2.3	22.7	107.590	106.873	30.8	21	0.7834	1.08E-07
	11:16:00	12:39:00	4980	2.3	22.7	2.8	22.2	106.873	105.769	32	20	0.7641	9.29E-08
	12:39:00	14:47:00	7680	2.8	22.2	3.5	21.3	105.769	104.057	33.4	20	0.7425	9.19E-08
	14:47:00	20:09:00	19320	3.5	21.3	5.4	19.4	104.057	99.862	27.6	20	0.8392	1.04E-07
o/n	20:09:00	7:49:00	42060	5.4	19.4	9.1	15.8	99.862	91.803	24.9	18	0.8913	1.04E-07

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.82E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: June 7, 2011

DATE TESTED: June 10, 2011
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-160
SAMPLE TYPE: Shelby

SAMPLE LOCATION: IPD-75, Grid 8 NW Quad Lift 2 (South end)
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.588	4.614
90 deg	4.607	4.63
180 deg	4.563	4.606
270 deg	4.616	4.617
AVERAGE	4.594	4.617

Length/Diam Ratio: 0.64

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.176	7.236
top 90	7.173	7.185
mid 0	7.177	7.197
mid 90	7.177	7.191
bottom 0	7.186	7.183
bottom 90	7.178	7.195
AVERAGE	7.178	7.198

SAMPLE WEIGHT: (grams) Before: 364.0 After: 374.6

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	333.5	266.7	8.5	25.9%
After:	382.6	302.4	8.2	27.3%

	Before	After
WET DENSITY (pcf):	122.3	124.5
DRY DENSITY (pcf):	97.1	97.8
SATURATION (%):	95%	102%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017531.6
E 1303418.9
Elev. 2690.8

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87 INFLUENT PRES.(psi): 77 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/11/2011	18:48:00	20:24:00	5760	2.2	22.8	2.3	22.6	93.081	92.750	29.4	20	0.807	2.57E-08
	20:24:00	22:19:00	6900	2.3	22.6	2.5	22.4	92.750	92.308	28	20	0.8318	2.96E-08
o/n	22:19:00	8:33:00	36840	2.5	22.4	3.4	21.5	92.308	90.321	25.8	20	0.8734	2.65E-08
	8:33:00	17:15:00	31320	3.4	21.5	4.1	21.0	90.321	88.996	30.6	19	0.8019	1.94E-08
o/n	17:15:00	7:54:00	52740	4.1	21.0	5.2	20.0	88.996	86.678	25.1	19	0.8873	2.28E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.46E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 8, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 7, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-157	SAMPLE LOCATION:	IPD-76, Grid 8 SW Quad Lift 1
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.345	5.451
90 deg	5.344	5.487
180 deg	5.401	5.524
270 deg	5.393	5.48
AVERAGE	5.371	5.486

Length/Diam Ratio: 0.75

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.111	7.182
top 90	7.204	7.185
mid 0	7.22	7.173
mid 90	7.204	7.132
bottom 0	7.215	7.202
bottom 90	7.21	7.163
AVERAGE	7.194	7.173

SAMPLE WEIGHT: (grams) Before: 420.6 After: 433.9

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	304.5	236.1	6.6	29.8%
After:	441.5	330.5	8.4	34.5%

	Before	After
WET DENSITY (pcf):	120.3	122.2
DRY DENSITY (pcf):	92.7	90.9
SATURATION (%):	98%	109%

(assumed SG= 2.70)

Notes: GPS Coordinates
N 1017416.9
E 1303441.5
Elev. 2690.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.3 INFLUENT PRES.(psi): 79.3 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/9/2011	11:14:00	13:38:00	8640	2.3	22.7	2.9	21.9	113.962	112.416	32.6	21	0.7548	7.33E-08
	13:38:00	20:05:00	23220	2.9	21.9	4.7	20.0	112.416	108.276	27.6	20	0.8392	8.34E-08
o/n	20:05:00	7:50:00	41700	4.7	20.0	7.9	17.0	108.276	101.431	24.9	19	0.8913	8.58E-08
	7:50:00	10:05:00	8100	7.9	17.0	8.5	16.4	101.431	100.162	27	18	0.8502	8.13E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 8.10E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: June 7, 2011

DATE TESTED: June 11, 2011
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-161
SAMPLE TYPE: Shelby

SAMPLE LOCATION: IPD-77, Grid 8 SW Quad Lift 2
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.449	5.349
90 deg	5.372	5.351
180 deg	5.413	5.356
270 deg	5.379	5.339
AVERAGE	5.403	5.349

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.215	7.153
top 90	7.193	7.187
mid 0	7.203	7.164
mid 90	7.181	7.137
bottom 0	7.214	7.223
bottom 90	7.216	7.16
AVERAGE	7.204	7.171

Length/Diam Ratio: 0.75

SAMPLE WEIGHT: (grams) Before: 423.4 After: 430.2

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	320.3	250.6	8.4	28.8%
After:	438.2	334.1	8.2	31.9%

	Before	After
WET DENSITY (pcf):	120.0	124.3
DRY DENSITY (pcf):	93.2	94.2
SATURATION (%):	96%	109%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017416.9
E 1303441.5
Elev. 2690.8

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87.3 INFLUENT PRES.(psi): 77.3 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/11/2011	22:19:00	8:35:00	36960	2.0	23.0	3.5	21.7	114.624	111.533	25.8	21	0.8734	3.88E-08
o/n	8:35:00	12:32:00	14220	3.5	21.7	4.0	21.3	111.533	110.539	29.7	21	0.8019	3.03E-08
	12:32:00	17:16:00	17040	4.0	21.3	4.5	20.7	110.539	109.325	30.5	21	0.7884	3.07E-08
o/n	17:16:00	7:53:00	52620	4.5	20.7	6.5	18.9	109.325	105.130	25.1	20	0.8873	3.96E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.48E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 8, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 7, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-159	SAMPLE LOCATION:	IPD-78, Grid 8 NW Quad Lift 2 (North end)
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.665	4.713
90 deg	4.713	4.618
180 deg	4.666	4.697
270 deg	4.666	4.793
AVERAGE	4.678	4.705

Length/Diam Ratio: 0.65

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.191	7.185
top 90	7.234	7.227
mid 0	7.228	7.247
mid 90	7.232	7.232
bottom 0	7.199	7.257
bottom 90	7.233	7.259
AVERAGE	7.220	7.235

SAMPLE WEIGHT: (grams) Before: 373.4 After: 383.5

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	164.7	131.9	8.2	26.5%
After:	390.0	301.0	8.5	30.4%

	Before	After
WET DENSITY (pcf):	121.7	123.8
DRY DENSITY (pcf):	96.2	94.9
SATURATION (%):	95%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017596.9
E 1303418.6
Elev. 2686.7

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89 INFLUENT PRES.(psi): 79 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/9/2011	11:26:00	13:23:00	7020	2.0	23.0	2.3	22.7	93.522	92.915	32.6	20	0.7548	3.63E-08
	13:23:00	20:10:00	24420	2.3	22.7	3.1	21.7	92.915	90.873	27.6	20	0.8392	3.96E-08
overnite	20:10:00	7:51:00	42060	3.1	21.7	4.4	20.5	90.873	88.113	24.9	19	0.8913	3.39E-08
	7:51:00	13:54:00	21780	4.4	20.5	5.0	19.9	88.113	86.788	31.9	19	0.7657	2.76E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.43E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 13, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 13, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-162	SAMPLE LOCATION:	IPD-79, SW Quad Grid 8 Lift 1 (South end)
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.058	5.094
90 deg	5.093	5.135
180 deg	5.118	5.083
270 deg	5.081	4.984
AVERAGE	5.088	5.074

Length/Diam Ratio: 0.71

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.124	7.252
top 90	7.13	7.033
mid 0	7.095	7.061
mid 90	7.215	7.288
bottom 0	7.17	7.273
bottom 90	7.108	7.097
AVERAGE	7.140	7.167

SAMPLE WEIGHT: (grams) Before: 387.7 After: 393.5

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	265.9	201.6	6.6	33.0%
After:	401.4	297.9	8.3	35.7%

	Before	After
WET DENSITY (pcf):	118.8	120.0
DRY DENSITY (pcf):	89.3	88.4
SATURATION (%):	100%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017307.4
E 1303474.9
Elev. 2709.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87.2 INFLUENT PRES.(psi): 77.2 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/13/2011	16:29:00	17:14:00	2700	2.4	22.9	2.7	22.6	107.038	106.376	29.1	21	0.8122	1.06E-07
	17:14:00	19:48:00	9240	2.7	22.6	3.5	21.8	106.376	104.609	27.8	21	0.8355	8.62E-08
o/n	19:48:00	7:54:00	43560	3.5	21.8	7.5	18.0	104.609	95.998	23.8	20	0.914	1.03E-07
6/14	7:54:00	10:05:00	7860	7.5	18.0	8.1	17.4	95.998	94.673	24.2	19	0.9056	9.12E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.66E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 16, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 10, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-165	SAMPLE LOCATION:	IPD-80, SW Quad Grid 8 Lift 2
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	5.256	5.167
90 deg	5.292	5.18
180 deg	5.345	5.245
270 deg	5.222	5.253
AVERAGE	5.279	5.211

Length/Diam Ratio: 0.73

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.195	7.195
top 90	7.205	7.206
mid 0	7.231	7.152
mid 90	7.192	7.226
bottom 0	7.154	7.26
bottom 90	7.274	7.132
AVERAGE	7.209	7.195

SAMPLE WEIGHT: (grams)	
Before:	407.6
After:	413.6

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	347.8	267.8	6.6	30.6%
After:	421.8	319.1	8.4	33.1%

	Before	After
WET DENSITY (pcf):	118.1	121.9
DRY DENSITY (pcf):	90.4	91.6
SATURATION (%):	96%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017307.4
E 1303474.9
Elev. 2709.5

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): INFLUENT PRES.(psi): 77.2 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/16/2011	9:51:00	11:52:00	7260	2.0	23.0	2.4	22.6	107.590	106.652	27	21	0.8502	5.95E-08
	11:52:00	13:54:00	7320	2.4	22.6	2.8	22.1	106.652	105.713	29	20	0.8139	5.70E-08
	13:54:00	20:00:00	21960	2.8	22.1	4.0	20.7	105.713	102.843	29.8	20	0.8001	5.82E-08
o/n	20:00:00	7:52:00	43260	4.0	20.7	6.5	18.3	102.843	97.433	24.8	19	0.8934	6.48E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.99E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 14, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 13, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-163	SAMPLE LOCATION:	IPD-81, NW Quad Grid 5 Lift 2
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.848	3.827
90 deg	3.806	3.827
180 deg	3.8	3.857
270 deg	3.802	3.831
AVERAGE	3.814	3.836

Length/Diam Ratio: 0.52

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.192	7.32
top 90	7.276	7.28
mid 0	7.245	7.245
mid 90	7.252	7.327
bottom 0	7.3	7.332
bottom 90	7.332	7.233
AVERAGE	7.266	7.290

SAMPLE WEIGHT: (grams) Before: 304.0 After: 309.6

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	157.0	121.8	6.6	30.6%
After:	317.7	237.0	8.3	35.3%

	Before	After
WET DENSITY (pcf):	120.0	120.7
DRY DENSITY (pcf):	91.9	89.3
SATURATION (%):	99%	107%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017352.6
E 1303523.8
Elev. 2689.5

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.8 INFLUENT PRES.(psi): 76.8 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/14/2011	12:04:00	12:55:00	3060	2.0	23.0	2.3	22.7	79.455	78.737	27.6	21	0.8392	1.04E-07
	12:55:00	14:18:00	4980	2.3	22.7	2.8	22.2	78.737	77.744	28.5	20	0.8229	8.73E-08
	14:18:00	15:44:00	5160	2.8	22.2	3.2	21.7	77.744	76.640	29.4	20	0.807	9.31E-08
	15:44:00	19:48:00	14640	3.2	21.7	4.6	20.2	76.640	73.493	27.8	20	0.8355	9.96E-08
o/n	19:48:00	7:55:00	43620	4.6	20.2	8.5	16.6	73.493	65.213	23.8	18	0.914	1.04E-07

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.61E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 14, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 13, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-164	SAMPLE LOCATION:	IPD-82, NW Quad Grid 5 L2
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.297	3.307
90 deg	3.321	3.254
180 deg	3.242	3.336
270 deg	3.345	3.36
AVERAGE	3.301	3.314

Length/Diam Ratio: 0.46

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.079	7.282
top 90	7.202	7.23
mid 0	7.235	7.258
mid 90	7.182	7.225
bottom 0	7.199	7.201
bottom 90	7.238	7.174
AVERAGE	7.189	7.228

SAMPLE WEIGHT: (grams) Before: 255.0 After: 260.4

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	203.8	151.6	6.7	36.0%
After:	268.7	200.6	8.5	35.5%

	Before	After
WET DENSITY (pcf):	118.8	119.5
DRY DENSITY (pcf):	87.3	88.2
SATURATION (%):	105%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017352.6
E 1303323.8
Elev. 2690.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.6 INFLUENT PRES.(psi): 76.6 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/14/2011	12:08:00	14:16:00	7680	2.0	23.0	2.4	22.5	65.387	64.393	28.4	20	0.8246	6.01E-08
	14:16:00	15:46:00	5400	2.4	22.5	2.6	22.3	64.393	63.897	29.5	19	0.8053	4.22E-08
	15:46:00	19:49:00	14580	2.6	22.3	3.2	21.6	63.897	62.517	27.8	19	0.8355	4.58E-08
o/n	19:49:00	7:57:00	43680	3.2	21.6	5.0	19.9	62.517	58.708	23.8	18	0.914	4.81E-08
reset	8:19:00	13:15:00	17760	2.0	23.0	2.7	22.3	65.387	63.841	28.1	19	0.83	4.09E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.43E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: June 14, 2011

DATE TESTED: June 17, 2011
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-169
SAMPLE TYPE: Shelby

SAMPLE LOCATION: IPD-84, SW Quad Grid 3 Lift 3
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.973	3.938
90 deg	3.99	3.968
180 deg	3.91	3.955
270 deg	3.869	3.888
AVERAGE	3.936	3.937

Length/Diam Ratio: 0.55

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.184	7.23
top 90	7.187	7.156
mid 0	7.168	7.196
mid 90	7.188	7.225
bottom 0	7.196	7.207
bottom 90	7.159	7.207
AVERAGE	7.180	7.204

SAMPLE WEIGHT: (grams) Before: 309.6 After: 318.5

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	283.8	226.7	6.6	25.9%
After:	326.4	251.8	8.2	30.6%

	Before	After
WET DENSITY (pcf):	121.3	123.9
DRY DENSITY (pcf):	96.3	94.9
SATURATION (%):	93%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017304.8
E 1304017.2
Elev. 2708.5

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/19/2011	9:25:00	12:28:00	10980	2.0	23.0	2.3	22.7	86.489	85.771	23.7	22	0.9161	3.04E-08
	12:28:00	15:02:00	9240	2.3	22.7	2.5	22.4	85.771	85.274	25.7	22	0.8754	2.41E-08
	15:02:00	18:07:00	11100	2.5	22.4	2.8	22.1	85.274	84.612	27	22	0.8502	2.61E-08
o/n	18:07:00	7:58:00	49860	2.8	22.1	4.3	20.6	84.612	81.355	24	21	0.9097	3.13E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.80E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 17, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 14, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-170	SAMPLE LOCATION:	IPD-85, NW Quad Grid 3 Lift 3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.941	4.917
90 deg	4.828	4.8
180 deg	4.833	4.78
270 deg	4.871	4.889
AVERAGE	4.868	4.847

Length/Diam Ratio: 0.67

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.29	7.241
top 90	7.252	7.207
mid 0	7.212	7.214
mid 90	7.231	7.248
bottom 0	7.251	7.286
bottom 90	7.32	7.261
AVERAGE	7.259	7.243

SAMPLE WEIGHT: (grams)	
Before:	381.9
After:	392.4

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	267.7	210.6	8.2	28.2%
After:	400.7	304.6	8.4	32.4%

	Before	After
WET DENSITY (pcf):	118.3	122.7
DRY DENSITY (pcf):	92.3	92.6
SATURATION (%):	92%	107%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017388.3
E 1303943.8
Elev. 2693.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 89.1 INFLUENT PRES.(psi): 79.1 EFFLUENT PRES.(psi): 78

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/19/2011	14:59:00	18:02:00	10980	2.0	23.0	2.6	22.5	100.556	99.342	27	21	0.8502	5.01E-08
o/n	18:02:00	7:59:00	50220	2.6	22.5	5.2	20.0	99.342	93.656	24	20	0.9097	5.69E-08
	7:59:00	9:59:00	7200	5.2	20.0	5.6	19.5	93.656	92.718	25.3	19	0.8833	6.58E-08
	9:59:00	12:03:00	7440	5.6	19.5	6.0	19.2	92.718	92.000	25.5	19	0.8794	4.89E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.54E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 20, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 15, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-171	SAMPLE LOCATION:	IPD-86, NE Quad Grid 4 Lift 3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.574	3.503
90 deg	3.56	3.476
180 deg	3.494	3.554
270 deg	3.497	3.555
AVERAGE	3.531	3.522

Length/Diam Ratio: 0.48

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.351	7.299
top 90	7.386	7.382
mid 0	7.331	7.34
mid 90	7.372	7.314
bottom 0	7.399	7.315
bottom 90	7.294	7.285
AVERAGE	7.356	7.323

SAMPLE WEIGHT: (grams)	
Before:	285.9
After:	292.4

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	185.4	145.0	8.2	29.5%
After:	300.2	224.9	8.2	34.7%

	Before	After
WET DENSITY (pcf):	118.9	123.1
DRY DENSITY (pcf):	91.8	91.3
SATURATION (%):	95%	111%
(assumed SG= 2.70)		

Notes: GPS Coords.
N 1017379.0
E 1303877.5
Elev. 2689.9

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.8 INFLUENT PRES.(psi): 76.8 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/21/2011	10:47:00	11:47:00	3600	2.2	22.7	2.5	22.5	78.903	78.351	30.4	22	0.7901	5.84E-08
	11:47:00	13:47:00	7200	2.5	22.5	2.9	21.9	78.351	77.247	32.4	22	0.7579	5.66E-08
	13:47:00	16:03:00	8160	2.9	21.9	3.5	21.2	77.247	75.812	33.5	22	0.741	6.45E-08
	16:03:00	19:13:00	11400	3.5	21.2	4.3	20.3	75.812	73.990	32.1	21	0.7626	6.16E-08
o/n	19:13:00	7:43:00	45000	4.3	20.3	7.2	17.3	73.990	67.421	26.6	20	0.8579	6.71E-08
	7:43:00	13:33:00	24600	7.2	17.3	8.5	16.0	67.421	64.551	30.6	19	0.7867	5.27E-08
	13:33:00	18:09:00	16560	8.5	16.0	9.4	15.0	64.551	62.453	31.1	18	0.7785	5.88E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.01E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 21, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 15, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-172	SAMPLE LOCATION:	IPD-87, SE Quad Grid 4 Lift 3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.651	4.6
90 deg	4.611	4.583
180 deg	4.661	4.63
270 deg	4.644	4.6
AVERAGE	4.642	4.603

Length/Diam Ratio: 0.64

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.249	7.228
top 90	7.18	7.228
mid 0	7.227	7.256
mid 90	7.231	7.259
bottom 0	7.237	7.15
bottom 90	7.297	7.186
AVERAGE	7.237	7.218

SAMPLE WEIGHT: (grams) Before: 359.0 After: 369.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	185.1	144.7	8.1	29.6%
After:	376.2	281.7	6.6	34.4%

	Before	After
WET DENSITY (pcf):	117.4	122.6
DRY DENSITY (pcf):	90.6	91.2
SATURATION (%):	93%	109%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017316.8
E 1303869.5
Elev. 2695.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87.1 INFLUENT PRES.(psi): 77.1 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/21/2011	10:47:00	11:47:00	3600	2.2	22.7	2.4	22.4	100.060	99.452	30.5	22	0.7884	6.79E-08
	11:47:00	13:47:00	7200	2.4	22.4	2.9	21.9	99.452	98.293	32.5	21	0.7564	6.28E-08
	13:47:00	15:53:00	7560	2.9	21.9	3.5	21.2	98.293	96.968	33.8	21	0.7364	6.73E-08
	15:53:00	19:15:00	12120	3.5	21.2	4.3	20.3	96.968	94.981	32.1	21	0.7626	6.64E-08
o/n	19:15:00	7:44:00	44940	4.3	20.3	7.5	17.2	94.981	88.136	26.7	20	0.856	7.26E-08
	7:44:00	13:33:00	20940	7.5	17.2	8.8	16.0	88.136	85.321	30.6	19	0.7867	6.21E-08
	13:33:00	18:08:00	16500	8.8	16.0	9.8	14.9	85.321	83.003	31	18	0.7801	6.64E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.69E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 21, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 15, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-173	SAMPLE LOCATION:	IPD-88, SW Quad Grid 4 Lift 2
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.226	3.248
90 deg	3.269	3.285
180 deg	3.286	3.289
270 deg	3.27	3.221
AVERAGE	3.263	3.261

Length/Diam Ratio: 0.45

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.202	7.218
top 90	7.194	7.218
mid 0	7.214	7.225
mid 90	7.242	7.208
bottom 0	7.238	7.199
bottom 90	7.207	7.223
AVERAGE	7.216	7.215

SAMPLE WEIGHT: (grams) Before: 258.5 After: 267.6

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	232.3	188.1	8.2	24.6%
After:	275.7	216.8	8.2	28.2%

	Before	After
WET DENSITY (pcf):	120.9	125.3
DRY DENSITY (pcf):	97.1	97.7
SATURATION (%):	90%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017354.2
E 1303763.7
Elev. 2683.1

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.7 INFLUENT PRES.(psi): 76.7 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/21/2011	10:44:00	11:44:00	3600	2.2	22.7	2.4	22.5	71.924	71.483	30.4	22	0.7901	4.88E-08
	11:44:00	13:44:00	7200	2.4	22.5	2.7	22.1	71.483	70.655	32.4	22	0.7579	4.43E-08
	13:44:00	15:44:00	7200	2.7	22.1	3.1	21.7	70.655	69.827	33.6	22	0.7395	4.37E-08
	15:44:00	19:10:00	12360	3.1	21.7	3.8	20.9	69.827	68.115	32.1	21	0.7626	5.53E-08
o/n	19:10:00	7:41:00	45060	3.8	20.9	6.5	18.3	68.115	62.264	26.6	20	0.8579	6.18E-08
	7:41:00	13:24:00	20580	6.5	18.3	7.6	17.3	62.264	59.946	30.5	19	0.7884	5.25E-08
	13:24:00	18:09:00	17100	7.6	17.3	8.5	16.4	59.946	57.959	31.1	18	0.7785	5.54E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.62E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: Ashe County Landfill
PROJECT NO: 3477
DATE RECEIVED: June 20, 2011

DATE TESTED: June 28, 2011 (revised 7/25/11 to correct GPS coord. Reported)
TESTED BY: TOB
CHECKED BY: Bobby Barnes

SAMPLE NO.: 3477-174(backup)
SAMPLE TYPE: Shelby
SAMPLE LOCATION: IPD-89(retest), SW Quad Grid 4 L3
SAMPLE DESCRIPTION: brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.5	3.488
90 deg	3.472	3.452
180 deg	3.467	3.447
270 deg	3.515	3.502
AVERAGE	3.489	3.472

Length/Diam Ratio: 0.48

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.238	7.259
top 90	7.222	7.181
mid 0	7.216	7.21
mid 90	7.253	7.197
bottom 0	7.26	7.132
bottom 90	7.229	7.234
AVERAGE	7.236	7.202

SAMPLE WEIGHT: (grams) Before: 269.4 After: 279.2

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	293.7	229.8	8.1	28.8%
After:	287.2	218.5	8.2	32.7%

	Before	After
WET DENSITY (pcf):	117.2	123.2
DRY DENSITY (pcf):	91.0	92.9
SATURATION (%):	91%	108%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017261.6
E 1303876.2
Elev. 2703.8

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.7 INFLUENT PRES.(psi): 76.7 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/28/2011	9:42:00	10:27:00	2700	2.0	23.0	2.3	22.7	72.421	71.759	29.1	21	0.8122	1.07E-07
	10:27:00	12:27:00	7200	2.3	22.7	2.7	22.0	71.759	70.489	31.4	20	0.7737	7.40E-08
	12:27:00	15:27:00	10800	2.7	22.0	4.0	20.8	70.489	67.784	33.7	20	0.738	1.03E-07
	15:27:00	19:32:00	14700	4.0	20.8	5.4	19.4	67.784	64.693	29.8	19	0.8001	9.81E-08
reset o/n	19:47:00	7:55:00	43680	2.0	23.0	6.2	18.9	72.421	63.258	26.7	20	0.856	1.02E-07

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.44E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 28, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 20, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-175 (backup)	SAMPLE LOCATION:	IPD-90(retest), NW Quad Grid 4 Lift 3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.328	3.357
90 deg	3.452	3.366
180 deg	3.489	3.442
270 deg	3.411	3.458
AVERAGE	3.420	3.406

Length/Diam Ratio: 0.47

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.265	7.147
top 90	7.252	7.133
mid 0	7.305	7.21
mid 90	7.26	7.226
bottom 0	7.246	7.242
bottom 90	7.289	7.199
AVERAGE	7.270	7.193

SAMPLE WEIGHT: (grams)	
Before:	265.1
After:	271.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	319.5	248.4	8.2	29.6%
After:	279.8	211.3	8.1	33.7%

	Before	After
WET DENSITY (pcf):	116.6	122.6
DRY DENSITY (pcf):	90.0	91.7
SATURATION (%):	91%	109%
(assumed SG= 2.70)		

Notes: GPS Coords.
N 1017305.1
E 1303776.6
Elev. 2689.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.7 INFLUENT PRES.(psi): 76.7 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/28/2011	10:38:00	11:23:00	2700	2.2	22.7	2.4	22.5	71.814	71.372	30.6	21	0.7867	6.82E-08
	11:23:00	12:53:00	5400	2.4	22.5	2.8	22.0	71.372	70.434	32	21	0.7641	7.11E-08
	12:53:00	14:53:00	7200	2.8	22.0	3.3	21.5	70.434	69.385	33.6	21	0.7395	5.85E-08
	14:53:00	19:34:00	16860	3.3	21.5	4.3	20.3	69.385	66.901	29.8	20	0.8001	6.57E-08
	19:34:00	7:57:00	44580	4.3	20.3	7.0	17.9	66.901	61.215	26.7	19	0.856	6.47E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.54E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 24, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 20, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-177	SAMPLE LOCATION:	IPD-91, SE Quad Grid 5 Lift 1
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.721	4.693
90 deg	4.674	4.661
180 deg	4.673	4.659
270 deg	4.705	4.736
AVERAGE	4.693	4.687

Length/Diam Ratio: 0.65

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.174	7.134
top 90	7.224	7.198
mid 0	7.217	7.221
mid 90	7.161	7.176
bottom 0	7.175	7.211
bottom 90	7.227	7.179
AVERAGE	7.196	7.187

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	376.6	Before:	285.3	233.0	8.3	23.3%
After:	387.4	After:	395.5	309.1	8.3	28.7%

	Before	After
WET DENSITY (pcf):	123.2	127.2
DRY DENSITY (pcf):	99.9	98.8
SATURATION (%):	91%	110%

(assumed SG= 2.70)

Notes: GPS Coords. RETEST OF IPD-83
N 1017310.9
E 1303635.1
Elev. 2680.7

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): INFLUENT PRES.(psi): 77.1 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/24/2011	10:35:00	11:35:00	3600	2.2	22.7	2.5	22.4	100.004	99.397	28.9	21	0.8157	7.22E-08
	11:35:00	14:10:00	9300	2.5	22.4	3.1	21.6	99.397	97.796	31.6	21	0.7705	7.04E-08
	14:10:00	16:10:00	7200	3.1	21.6	3.6	21.0	97.796	96.582	32.7	21	0.7533	6.84E-08
	16:10:00	11:21:00	69060	3.6	21.0	8.2	16.5	96.582	86.536	27.9	20	0.8336	6.94E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.01E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	June 29, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 27, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-181	SAMPLE LOCATION:	IPD-93, NE Quad Grid 3 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	2.9	2.792
90 deg	2.873	2.926
180 deg	2.774	2.863
270 deg	2.803	2.92
AVERAGE	2.838	2.875

Length/Diam Ratio: 0.39

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.209	7.223
top 90	7.223	7.262
mid 0	7.228	7.177
mid 90	7.25	7.199
bottom 0	7.258	7.205
bottom 90	7.14	7.237
AVERAGE	7.218	7.217

SAMPLE WEIGHT: (grams)	
Before:	218.3
After:	230.4

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	320.2	248.3	6.7	29.8%
After:	236.8	181.1	6.7	31.9%

	Before	After
WET DENSITY (pcf):	117.4	122.3
DRY DENSITY (pcf):	90.5	92.7
SATURATION (%):	93%	105%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017447.3
E 1404002.8
Elev. 2709.6

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.5 INFLUENT PRES.(psi): 76.5 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
6/30/2011	10:14:00	11:29:00	4500	2.1	22.9	2.3	22.7	58.077	57.636	28	20	0.8318	4.49E-08
	11:29:00	13:59:00	9000	2.3	22.7	2.6	22.4	57.636	56.973	30.3	20	0.7917	3.24E-08
	13:59:00	15:44:00	6300	2.6	22.4	2.8	22.2	56.973	56.532	31.4	20	0.7737	3.04E-08
	15:44:00	20:57:00	18780	2.8	22.2	3.4	21.6	56.532	55.207	32	19	0.7641	3.07E-08
o/n	20:57:00	8:08:00	40260	3.4	21.6	4.6	20.6	55.207	52.833	27.4	19	0.8428	2.93E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.07E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	July 1, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 27, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-182	SAMPLE LOCATION:	IPD-94, SE Quad Grid 3 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.321	4.394
90 deg	4.377	4.322
180 deg	4.351	4.275
270 deg	4.279	4.343
AVERAGE	4.332	4.334

Length/Diam Ratio: 0.60

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.237	7.197
top 90	7.237	7.295
mid 0	7.232	7.27
mid 90	7.222	7.211
bottom 0	7.236	7.158
bottom 90	7.28	7.228
AVERAGE	7.241	7.227

SAMPLE WEIGHT: (grams)	
Before:	333.7
After:	350.1

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	258.1	205.2	8.3	26.9%
After:	358.3	275.4	8.2	31.0%

	Before	After
WET DENSITY (pcf):	116.8	123.0
DRY DENSITY (pcf):	92.1	93.8
SATURATION (%):	87%	105%

(assumed SG= 2.70)

Notes: GPS Coords
N 1017344.9
E 1304061.5
Elev. 2719.5

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87 INFLUENT PRES.(psi): 77 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
7/1/2011	14:50:00	18:44:00	14040	2.0	23.0	3.2	21.9	93.522	90.983	32.6	21	0.7548	7.08E-08
	18:44:00	21:54:00	11400	3.2	21.9	4.1	21.1	90.983	89.051	30.6	21	0.7867	7.09E-08
	21:54:00	12:20:00	39060	4.1	21.1	7.2	18.3	89.051	82.648	28.1	20	0.83	7.59E-08
	12:20:00	13:24:00	29640	7.2	18.3	9.3	16.2	82.648	77.901	33.3	19	0.744	7.11E-08
reset o/n	17:14:00	14:20:00	61260	2.0	23.0	7.0	18.2	93.522	82.648	29.3	20	0.8087	7.81E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.40E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	July 1, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 27, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-183	SAMPLE LOCATION:	IPD-95, SW Quad Grid 3 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.021	4.015
90 deg	4.079	4.017
180 deg	4.105	4.078
270 deg	4.047	4.088
AVERAGE	4.063	4.050

Length/Diam Ratio: 0.56

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.224	7.198
top 90	7.198	7.194
mid 0	7.183	7.231
mid 90	7.229	7.16
bottom 0	7.212	7.169
bottom 90	7.14	7.242
AVERAGE	7.198	7.199

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	322.4	Before:	384.2	300.6	6.6	28.4%
After:	328.9	After:	336.8	257.9	8.3	31.6%

	Before	After
WET DENSITY (pcf):	121.7	124.6
DRY DENSITY (pcf):	94.8	94.6
SATURATION (%):	99%	109%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017310.8
E 1304025.0
Elev. 2708.7

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.9 INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
7/1/2011	13:43:00	18:53:00	18600	2.2	22.5	2.7	21.9	85.771	84.557	32.6	21	0.7548	2.61E-08
	18:53:00	21:56:00	10980	2.7	21.9	2.9	21.7	84.557	84.060	30.6	21	0.7867	1.90E-08
o/n	21:56:00	8:47:00	39060	2.9	21.7	3.6	20.9	84.060	82.404	28.2	21	0.8282	1.90E-08
o/n	8:47:00	10:11:00	91440	3.6	20.9	5.1	19.3	82.404	78.981	29.3	20	0.8087	1.69E-08
o/n	10:11:00	10:49:00	88680	5.1	19.3	6.5	17.9	78.981	75.890	30.4	19	0.7901	1.60E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 1.77E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	July 1, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 27, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-184	SAMPLE LOCATION:	IPD-96, NW Quad Grid 3 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.894	3.791
90 deg	3.768	3.84
180 deg	3.875	3.872
270 deg	3.902	3.817
AVERAGE	3.860	3.830

Length/Diam Ratio: 0.54

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.167	7.215
top 90	7.228	7.158
mid 0	7.228	7.264
mid 90	7.221	7.201
bottom 0	7.174	7.154
bottom 90	7.251	7.209
AVERAGE	7.212	7.200

SAMPLE WEIGHT: (grams) Before: 298.8 After: 309.5

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	247.3	194.3	8.5	28.5%
After:	315.6	240.2	6.6	32.3%

	Before	After
WET DENSITY (pcf):	118.3	123.9
DRY DENSITY (pcf):	92.1	93.7
SATURATION (%):	93%	109%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017375.5
E 1303945.4
Elev. 2694.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.9 INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
7/2/2011	9:20:00	10:20:00	4020	2.0	23.0	2.5	22.5	86.489	85.440	31.5	22	0.7721	9.98E-08
	10:20:00	11:20:53	18780	2.5	22.5	4.1	20.6	85.440	81.521	32.5	22	0.7564	8.06E-08
	11:20:53	12:20:00	10020	4.1	20.6	4.9	19.7	81.521	79.589	31.1	21	0.7785	7.94E-08
	12:20:00	13:24:00	50550	4.9	19.7	8.7	15.9	79.589	71.309	30.3	20	0.7917	7.33E-08
	13:24:00	14:20:00	12000	8.7	15.9	9.4	15.1	71.309	69.597	32.6	18	0.7548	6.51E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.46E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	July 3, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 27, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-185	SAMPLE LOCATION:	IPD-97, SE Quad Grid 4 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.33	3.405
90 deg	3.407	3.384
180 deg	3.393	3.32
270 deg	3.332	3.372
AVERAGE	3.366	3.370

Length/Diam Ratio: 0.47

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.192	7.126
top 90	7.169	7.124
mid 0	7.199	7.171
mid 90	7.189	7.161
bottom 0	7.203	7.161
bottom 90	7.208	7.223
AVERAGE	7.193	7.161

SAMPLE WEIGHT: (grams)	
Before:	258.7
After:	266.8

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	250.6	197.9	6.5	27.5%
After:	272.1	208.0	6.5	31.8%

	Before	After
WET DENSITY (pcf):	118.1	122.7
DRY DENSITY (pcf):	92.6	93.1
SATURATION (%):	91%	106%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017289.1
E 1303840.5
Elev. 2696.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.7 INFLUENT PRES.(psi): 76.7 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
7/4/2011	14:16:00	22:41:00	30300	2.1	22.8	3.0	21.7	72.090	69.882	28.9	21	0.8157	3.17E-08
	22:41:00	7:50:00	32940	3.0	21.7	4.0	20.7	69.882	67.674	27.1	20	0.8484	3.13E-08
7/5/2011	7:50:00	12:20:00	16200	4.0	20.7	4.5	20.3	67.674	66.625	27.1	20	0.8484	3.10E-08
	12:20:00	15:20:00	18000	4.5	20.3	5.1	19.8	66.625	65.411	28.9	20	0.8157	3.16E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.14E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	July 4, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	June 27, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-186	SAMPLE LOCATION:	IPD-98, SW Quad Grid 4 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	2.48	2.605
90 deg	2.528	2.713
180 deg	2.608	2.586
270 deg	2.589	2.492
AVERAGE	2.551	2.599

Length/Diam Ratio: 0.35

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.165	7.251
top 90	7.25	7.238
mid 0	7.241	7.129
mid 90	7.228	7.242
bottom 0	7.235	7.234
bottom 90	7.257	7.251
AVERAGE	7.229	7.224

SAMPLE WEIGHT: (grams) Before: 196.5 After: 207.7

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	257.4	202.6	6.7	28.0%
After:	213.9	161.2	6.6	34.1%

	Before	After
WET DENSITY (pcf):	117.1	121.7
DRY DENSITY (pcf):	91.5	90.8
SATURATION (%):	90%	107%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017280.2
E 1303760.3
Elev. 2690.2

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.4 INFLUENT PRES.(psi): 76.4 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
7/6/2011	9:55:00	11:25:00	5400	2.0	23.0	2.1	22.9	51.319	51.099	26.9	20	0.8521	1.95E-08
	11:25:00	13:38:00	7980	2.1	22.9	2.3	22.8	51.099	50.767	30	20	0.7967	1.86E-08
	13:38:00	12:20:00	27840	2.3	22.8	2.7	22.2	50.767	49.663	29.5	19	0.8053	1.83E-08
	12:20:00	13:24:00	37800	2.7	22.2	3.4	21.6	49.663	48.283	27.3	19	0.8447	1.81E-08
	13:24:00	14:20:00	40080	3.4	21.6	3.9	21.0	48.283	47.014	30.9	18	0.7818	1.49E-08
	14:20:00	15:20:00	47100	3.9	21.0	4.6	20.4	47.014	45.579	27.7	18	0.8373	1.58E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 1.68E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	July 26, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	July 22, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-187	SAMPLE LOCATION:	IPD-99, SE Quad Grid 7 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown slightly micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.313	4.262
90 deg	4.288	4.265
180 deg	4.359	4.26
270 deg	4.272	4.291
AVERAGE	4.308	4.270

Length/Diam Ratio: 0.60

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.229	7.218
top 90	7.178	7.137
mid 0	7.191	7.181
mid 90	7.219	7.228
bottom 0	7.209	7.223
bottom 90	7.254	7.174
AVERAGE	7.213	7.194

SAMPLE WEIGHT: (grams) Before: 327.9 After: 341.2

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	311.0	243.1	8.4	28.9%
After:	349.1	263.0	8.1	33.8%

	Before	After
WET DENSITY (pcf):	116.3	122.8
DRY DENSITY (pcf):	90.2	91.8
SATURATION (%):	90%	109%

(assumed SG= 2.70)

Notes: IPD-99
GPS Coords.: N 1017546.1, E 1303897.8
Elev. 2698.2

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.9 INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
7/27/2011	10:12:00	12:15:00	7380	3.0	22.0	3.9	21.3	84.281	82.459	30.4	20	0.7901	1.11E-07
	12:15:00	16:56:00	16860	3.9	21.3	5.8	19.5	82.459	78.429	35.8	19	0.7078	1.00E-07
o/n	16:56:00	7:40:00	53040	5.8	19.5	10.2	15.1	78.429	68.714	29.9	17	0.7984	9.47E-08
reset	7:58:00	10:44:00	9900	2.0	23.0	3.1	22.1	86.489	84.281	32.7	20	0.7533	9.36E-08
	10:44:00	13:49:00	11100	3.1	22.1	4.1	21.1	84.281	82.073	36	19	0.705	8.02E-08
	13:49:00	15:39:00	6600	4.1	21.1	4.7	20.5	82.073	80.748	37.6	19	0.705	8.27E-08
	15:39:00	18:11:00	9120	4.7	20.5	5.6	19.5	80.748	78.650	36.2	19	0.705	9.68E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 8.83E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 1, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	July 26, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-188	SAMPLE LOCATION:	SE Quad Grid 7 Lift 4, IPD-100
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. micaceous sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.319	4.514
90 deg	4.451	4.58
180 deg	4.478	4.42
270 deg	4.376	4.374
AVERAGE	4.406	4.472

Length/Diam Ratio: 0.61

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.189	7.187
top 90	7.191	7.152
mid 0	7.196	7.152
mid 90	7.192	7.137
bottom 0	7.195	7.166
bottom 90	7.201	7.133
AVERAGE	7.194	7.155

SAMPLE WEIGHT (grams): Before: 334.1; After: 348.2

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	178.1	139.7	8.2	29.2%
After:	336.8	255.4	8.1	32.9%

	Before	After
WET DENSITY (pcf):	116.5	120.9
DRY DENSITY (pcf):	90.1	91.0
SATURATION (%):	91%	104%

(assumed SG= 2.70)

Notes: IPD-100
GPS Coords.:
N 1017667.0, E 1303724.4
El. 2683.2

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.3 INFLUENT PRES.(psi): 78.3 EFFLUENT PRES.(psi): 77

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/1/2011	8:34:00	10:04:00	5400	3.0	22.4	4.0	21.5	112.858	110.760	27.7	25	0.8373	1.47E-07
	10:04:00	11:54:00	6600	4.0	21.5	4.7	20.8	110.760	109.159	28.3	25	0.8264	9.18E-08
	11:54:00	12:54:00	7200	4.7	20.8	5.6	20.0	109.159	107.338	28.9	24	0.8157	9.60E-08
	12:54:00	14:24:00	5400	5.6	20.0	6.3	19.4	107.338	105.847	29.7	24	0.8019	1.05E-07
	14:24:00	16:20:00	6960	6.3	19.4	7.2	18.6	105.847	104.026	30.2	23	0.7934	9.97E-08
	16:20:00	18:18:00	7080	7.2	18.6	8.0	17.8	104.026	102.259	31	23	0.7801	9.51E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.89E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 2, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	July 29, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-189	SAMPLE LOCATION:	NW Quad Grid 7 Lift 3, IPD-101
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.191	3.147
90 deg	3.165	3.124
180 deg	3.153	3.174
270 deg	3.086	3.191
AVERAGE	3.149	3.159

Length/Diam Ratio: 0.44

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.275	7.265
top 90	7.204	7.136
mid 0	7.198	7.196
mid 90	7.23	7.234
bottom 0	7.237	7.263
bottom 90	7.213	7.203
AVERAGE	7.226	7.216

SAMPLE WEIGHT (grams): Before: 241.1; After: 249.5

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	190.7	149.1	8.5	29.6%
After:	257.4	192.9	8.3	34.9%

	Before	After
WET DENSITY (pcf):	116.6	120.6
DRY DENSITY (pcf):	89.9	89.3
SATURATION (%):	91%	106%

(assumed SG= 2.70)

Notes: IPD-101
GPS Coords.
N 1017486.3, E 1303775.6
El. 2676.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): INFLUENT PRES.(psi): 76.6 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/2/2011	90:45:00	11:20:00	5700	2.2	22.7	2.6	22.2	64.780	63.786	32.4	20	0.7579	7.19E-08
	11:20:00	13:20:00	7600	2.6	22.2	3.2	21.7	63.786	62.627	34.5	20	0.7262	6.13E-08
	13:20:00	15:28:00	7680	3.2	21.7	3.8	21.0	62.627	61.192	36.4	20	0.7	7.39E-08
	15:28:00	18:38:00	11400	3.8	21.0	4.7	19.9	61.192	58.984	36	19	0.705	7.95E-08
o/n	18:38:00	7:55:00	47820	4.7	19.9	8.6	16.0	58.984	50.373	29.7	17	0.8019	9.26E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.68E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 2, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	July 29, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-190	SAMPLE LOCATION:	NE Quad Grid 6 Lift 3, IPD-102
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	5.279	5.246
90 deg	5.224	5.209
180 deg	5.268	5.152
270 deg	5.27	5.149
AVERAGE	5.260	5.189

Length/Diam Ratio: 0.73

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.135	7.238
top 90	7.283	7.234
mid 0	7.304	7.203
mid 90	7.293	7.21
bottom 0	7.205	7.275
bottom 90	7.259	7.225
AVERAGE	7.247	7.231

SAMPLE WEIGHT (grams)	
Before:	415.4
After:	416.0

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	319.9	244.8	8.1	31.7%
After:	423.9	317.2	8.2	34.5%

	Before	After
WET DENSITY (pcf):	119.5	121.9
DRY DENSITY (pcf):	90.7	90.6
SATURATION (%):	100%	108%

(assumed SG= 2.70)

Notes: IPD-102
GPS Coords.
N 1017414.3, E 1303674.4
El. 2671.9

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87.1 INFLUENT PRES.(psi): 77.1 EFFLUENT PRES.(psi): 75.8

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/2/2011	13:20:00	14:22:00	3720	2.3	22.3	2.5	22.2	113.520	113.189	35.3	22	0.7147	3.21E-08
	14:22:00	18:34:00	15120	2.5	22.2	3.2	21.5	113.189	111.643	36	22	0.705	3.67E-08
o/n	18:34:00	7:55:00	48060	3.2	21.5	4.9	19.6	111.643	107.669	29.6	21	0.8036	3.47E-08
	7:55:00	9:55:00	7200	4.9	19.6	5.1	19.4	107.669	107.172	29.7	21	0.8019	2.95E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.32E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 2, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	July 29, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-191	SAMPLE LOCATION:	NE Quad Grid 5 Lift 3, IPD-103
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.741	3.668
90 deg	3.814	3.755
180 deg	3.835	3.788
270 deg	3.741	3.748
AVERAGE	3.783	3.740

Length/Diam Ratio: 0.52

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.228	7.234
top 90	7.231	7.204
mid 0	7.218	7.201
mid 90	7.22	7.206
bottom 0	7.248	7.247
bottom 90	7.182	7.186
AVERAGE	7.221	7.213

SAMPLE WEIGHT: (grams)	
Before:	294.2
After:	299.3

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	391.2	307.6	8.3	27.9%
After:	307.3	232.7	8.2	33.2%

	Before	After
WET DENSITY (pcf):	118.6	122.3
DRY DENSITY (pcf):	92.7	91.8
SATURATION (%):	92%	107%

(assumed SG= 2.70)

Notes: IPD-103
GPS Coords.
N 1017382.2, E 1303093.9
El. 2678.6

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.6 INFLUENT PRES.(psi): 76.6 EFFLUENT PRES.(psi): 75.8

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/2/2011	11:27:00	13:23:00	6960	2.9	22.3	3.4	21.7	77.688	76.529	34.6	21	0.7247	6.49E-08
	13:23:00	16:23:00	10800	3.4	21.7	4.3	21.0	76.529	74.763	36.2	20	0.7022	6.29E-08
	16:23:00	12:20:00	7980	4.3	21.0	4.9	20.5	74.763	73.548	36	20	0.705	6.00E-08
	12:20:00	13:24:00	48120	4.9	20.5	7.6	18.2	73.548	67.918	29.6	19	0.8036	5.51E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.07E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 4, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	July 29, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-192	SAMPLE LOCATION:	NW Quad Grid 5 Lift 3, IPD-104
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.145	4.029
90 deg	4.144	4.088
180 deg	4.173	4.127
270 deg	4.116	4.085
AVERAGE	4.145	4.082

Length/Diam Ratio: 0.57

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.175	7.196
top 90	7.256	7.207
mid 0	7.251	7.183
mid 90	7.24	7.25
bottom 0	7.204	7.202
bottom 90	7.217	7.209
AVERAGE	7.224	7.208

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	319.7	Before:	285.3	220.9	8.1	30.3%
After:	328.4	After:	336.4	253.3	8.2	33.9%

	Before	After
WET DENSITY (pcf):	117.5	123.1
DRY DENSITY (pcf):	90.2	91.9
SATURATION (%):	94%	110%

(assumed SG= 2.70)

Notes: IPD-104
GPS Coords.
N 1017431.9, E 1303629.4
El. 2673.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.9 INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/4/2011	13:45:00	15:46:00	7260	2.3	22.9	3.2	22.0	85.992	84.060	35.9	21	0.7064	1.00E-07
	15:46:00	17:43:00	7020	3.2	22.0	4.0	21.2	84.060	82.293	35.8	20	0.7078	9.70E-08
	17:43:00	20:31:00	10080	4.0	21.2	5.2	20.1	82.293	79.754	34.1	20	0.732	1.03E-07
o/n	20:31:00	7:53:00	40920	5.2	20.1	9.0	16.3	79.754	71.364	30	19	0.7967	9.81E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.96E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 4, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 2, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-193	SAMPLE LOCATION:	West Half Grid 8 Lift 3, IPD-105
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.908	4.763
90 deg	4.824	4.772
180 deg	4.921	4.867
270 deg	4.839	4.788
AVERAGE	4.873	4.798

Length/Diam Ratio: 0.67

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.234	7.164
top 90	7.238	7.192
mid 0	7.242	7.216
mid 90	7.24	7.231
bottom 0	7.282	7.207
bottom 90	7.254	7.203
AVERAGE	7.248	7.202

SAMPLE WEIGHT: (grams)	
Before:	378.5
After:	384.0

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	251.4	195.5	8.4	29.9%
After:	391.9	297.2	8.2	32.8%

	Before	After
WET DENSITY (pcf):	117.5	122.7
DRY DENSITY (pcf):	90.5	92.4
SATURATION (%):	93%	107%

(assumed SG= 2.70)

Notes: GPS Coords.
N 1017321.4, E 1303458.6
El. 2702.0

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87.1 INFLUENT PRES.(psi): 77.1 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/4/2011	13:35:00	15:44:00	7740	2.3	22.9	2.9	22.3	100.170	98.735	36	21	0.705	7.01E-08
	15:44:00	17:42:00	7080	2.9	22.3	3.5	21.6	98.735	97.355	35.8	20	0.7078	7.50E-08
	17:42:00	20:32:00	10020	3.5	21.6	4.4	20.7	97.355	95.368	34.1	20	0.732	8.04E-08
o/n	20:32:00	7:54:00	40860	4.4	20.7	7.8	17.5	95.368	88.081	30	19	0.7967	8.27E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.70E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 4, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 2, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-194	SAMPLE LOCATION:	West Half (2nd) Grid 8 Lift 3, IPD-106
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.337	4.348
90 deg	4.359	4.304
180 deg	4.249	4.26
270 deg	4.235	4.204
AVERAGE	4.295	4.279

Length/Diam Ratio: 0.59

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.252	7.208
top 90	7.229	7.138
mid 0	7.229	7.17
mid 90	7.262	7.226
bottom 0	7.253	7.251
bottom 90	7.259	7.182
AVERAGE	7.247	7.196

SAMPLE WEIGHT: (grams)	
Before:	329.4
After:	342.0

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	393.9	313.3	8.3	26.4%
After:	349.9	263.6	8.3	33.8%

	Before	After
WET DENSITY (pcf):	116.1	122.7
DRY DENSITY (pcf):	91.8	91.7
SATURATION (%):	85%	109%

(assumed SG= 2.70)

Notes: IPD-106
GPS Coords.
N 1017276.9, E 1303461.9
El. 2708.6

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87 INFLUENT PRES.(psi): 77 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/4/2011	13:40:00	15:47:00	7620	2.4	22.8	3.4	21.9	92.915	90.762	35.8	21	0.7078	1.04E-07
	15:47:00	17:44:00	7020	3.4	21.9	4.2	21.1	90.762	88.996	35.8	21	0.7078	9.44E-08
	17:44:00	20:33:00	10140	4.2	21.1	5.4	19.9	88.996	86.346	34.1	20	0.732	1.04E-07
o/n	20:33:00	7:55:00	40920	5.4	19.9	8.8	15.4	86.346	77.625	30	19	0.7967	9.88E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 1.00E-07

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 6, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 2, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-195	SAMPLE LOCATION:	IPD-107, SW Quad Grid 5 Lift 3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.98	4.012
90 deg	4.032	3.982
180 deg	4.018	3.882
270 deg	4.014	3.971
AVERAGE	4.011	3.962

Length/Diam Ratio: 0.55

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.177	7.237
top 90	7.258	7.15
mid 0	7.273	7.187
mid 90	7.214	7.234
bottom 0	7.263	7.249
bottom 90	7.273	7.205
AVERAGE	7.243	7.210

SAMPLE WEIGHT: (grams)	
Before:	307.3
After:	315.1

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	378.0	293.3	8.5	29.7%
After:	323.0	244.0	8.2	33.5%

	Before	After
WET DENSITY (pcf):	116.1	121.6
DRY DENSITY (pcf):	89.5	91.1
SATURATION (%):	91%	106%

(assumed SG= 2.70)

Notes: IPD-107
GPS Coords.
N 1017350.4, E 1303567.1
Elev. 2682.4

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.5 INFLUENT PRES.(psi): 76.5 EFFLUENT PRES.(psi): 75.6

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/9/2011	8:38:00	10:08:00	5400	2.0	23.0	2.5	22.6	86.489	85.550	27.7	22	0.8373	7.43E-08
	10:08:00	11:39:00	5460	2.5	22.6	2.9	22.3	85.550	84.722	28.8	21	0.8175	6.40E-08
	11:39:00	13:09:00	5400	2.9	22.3	3.3	21.8	84.722	83.729	29.7	21	0.8019	7.70E-08
	13:09:00	14:39:00	5400	3.3	21.8	3.7	21.4	83.729	82.845	30.3	21	0.7917	6.83E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.09E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 24, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 23, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-210	SAMPLE LOCATION:	IPD-108, SEQ-S, Grid 8 Lift 4 (S.Half)
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.902	3.885
90 deg	4.1	3.998
180 deg	4.106	4.061
270 deg	4.023	4.059
AVERAGE	4.033	4.001

Length/Diam Ratio: 0.55

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.32	7.336
top 90	7.288	7.268
mid 0	7.294	7.301
mid 90	7.314	7.343
bottom 0	7.293	7.342
bottom 90	7.31	7.268
AVERAGE	7.303	7.310

SAMPLE WEIGHT (grams)	
Before:	323.3
After:	331.5

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	331.3	260.1	6.6	28.1%
After:	337.9	258.6	6.6	31.5%

	Before	After
WET DENSITY (pcf):	119.5	123.3
DRY DENSITY (pcf):	93.3	93.8
SATURATION (%):	94%	107%

(assumed SG= 2.70)

Notes: IPD-108
GPS Coords.
N 1017406.1, E 1303480.3
El. 2693.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): INFLUENT PRES.(psi): 76.5 EFFLUENT PRES.(psi): 75.6

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/25/2011	8:09:00	10:16:00	7620	2.0	23.0	3.0	22.1	86.489	84.391	27.7	21	0.8373	1.16E-07
	10:16:00	12:31:00	8100	3.0	22.1	3.9	21.3	84.391	82.569	30.9	21	0.7818	9.09E-08
	12:31:00	17:04:00	16380	3.9	21.3	5.6	19.5	82.569	78.705	31.3	20	0.7753	9.79E-08
	17:04:00	19:48:00	9840	5.6	19.5	6.6	18.5	78.705	76.387	31.5	19	0.7721	1.01E-07
reset o/n	19:51:00	7:26:00	41700	2.0	23.0	6.4	18.7	86.489	76.829	28.2	20	0.8282	1.02E-07
	7:26:00	15:20:00	40920	6.4	18.7	10.3	14.7	76.829	68.217	31.1	18	0.7785	9.77E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.96E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 6, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 2, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-196	SAMPLE LOCATION:	IPD-109, SEQ G5 L3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.532	4.56
90 deg	4.486	4.579
180 deg	4.569	4.536
270 deg	4.539	4.502
AVERAGE	4.532	4.544

Length/Diam Ratio: 0.62

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.267	7.245
top 90	7.279	7.211
mid 0	7.243	7.271
mid 90	7.288	7.184
bottom 0	7.29	7.264
bottom 90	7.268	7.22
AVERAGE	7.273	7.233

SAMPLE WEIGHT: (grams)	
Before:	365.8
After:	375.7

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	512.2	408.8	8.3	25.8%
After:	383.3	297.1	8.2	29.8%

	Before	After
WET DENSITY (pcf):	121.3	125.6
DRY DENSITY (pcf):	96.4	96.8
SATURATION (%):	93%	109%

(assumed SG= 2.70)

Notes: IPD-109
GPS Coords.
N 1017332.7, E 1303655.4
Elev. 2679.9

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.4 INFLUENT PRES.(psi): 76.4 EFFLUENT PRES.(psi): 75.4

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/7/2011	17:24:00	20:48:00	11760	2.5	21.8	3.5	20.8	91.646	89.438	32	20	0.7641	7.94E-08
o/n	20:48:00	7:53:00	39900	3.5	20.8	6.5	17.9	89.438	82.924	28.8	19	0.8175	7.76E-08
	7:53:00	9:58:00	7500	6.5	17.9	7.1	17.4	82.924	81.710	29.2	18	0.8105	7.99E-08
	9:58:00	10:58:00	3600	7.1	17.4	7.3	17.2	81.710	81.213	29.1	18	0.8122	6.89E-08
reset	11:01:00	13:47:00	9960	2.0	23.0	2.8	22.2	93.522	91.811	30.5	20	0.7884	7.32E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.49E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 9, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 4, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-198	SAMPLE LOCATION:	IPD-110, NW Quad Grid 7 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.379	4.367
90 deg	4.447	4.35
180 deg	4.446	4.364
270 deg	4.426	4.314
AVERAGE	4.425	4.349

Length/Diam Ratio: 0.61

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.225	7.255
top 90	7.393	7.292
mid 0	7.356	7.246
mid 90	7.249	7.249
bottom 0	7.243	7.239
bottom 90	7.351	7.288
AVERAGE	7.303	7.262

SAMPLE WEIGHT (grams): Before: 351.0; After: 353.2

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	209.8	162.6	8.2	30.6%
After:	360.9	272.0	8.2	33.7%

	Before	After
WET DENSITY (pcf):	118.2	122.4
DRY DENSITY (pcf):	90.6	91.6
SATURATION (%):	96%	108%

(assumed SG= 2.70)

Notes: IPD-110
GPS Coords.
N 1017350.4, E 1303567.1
Elev. 2682.4

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.9 INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 75.9

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/9/2011	11:13:00	13:03:00	6600	2.1	22.8	2.4	22.6	93.191	92.584	29.7	21	0.8019	3.78E-08
	13:03:00	15:03:00	7200	2.4	22.6	2.7	22.3	92.584	91.977	30.5	21	0.7884	3.43E-08
	15:03:00	20:35:00	19920	2.7	22.3	3.3	21.6	91.977	90.542	32.5	21	0.7564	2.84E-08
	20:35:00	7:43:00	40080	3.3	21.6	4.3	20.4	90.542	88.168	28	21	0.8318	2.62E-08
	7:43:00	16:34:00	31860	4.3	20.4	5.1	19.6	88.168	86.346	33	20	0.7486	2.33E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.81E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 9, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 5, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-199	SAMPLE LOCATION:	IPD-111, SWQ G4 L4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.564	4.417
90 deg	4.495	4.579
180 deg	4.544	4.647
270 deg	4.64	4.547
AVERAGE	4.561	4.548

Length/Diam Ratio: 0.63

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.213	7.211
top 90	7.248	7.172
mid 0	7.198	7.161
mid 90	7.241	7.252
bottom 0	7.241	7.243
bottom 90	7.271	7.183
AVERAGE	7.235	7.204

SAMPLE WEIGHT: (grams)	
Before:	353.1
After:	366.7

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	319.9	252.7	8.3	27.5%
After:	374.8	283.6	8.3	33.1%

	Before	After
WET DENSITY (pcf):	117.6	123.5
DRY DENSITY (pcf):	92.2	92.8
SATURATION (%):	90%	110%

(assumed SG= 2.70)

Notes: IPD-111
GPS Coords.
N 1017382.8, E 1303728.1
El. 2680.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.7 INFLUENT PRES.(psi): 76.7 EFFLUENT PRES.(psi): 75.7

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/11/2011	8:35:00	10:13:00	5880	2.0	23.0	2.6	22.3	93.522	92.087	28.5	20	0.8229	1.09E-07
'	10:13:00	12:46:00	9180	2.6	22.3	3.5	21.4	92.087	90.100	29.3	20	0.8087	9.71E-08
	12:46:00	15:46:00	10800	3.5	21.4	4.4	20.5	90.100	88.113	28.7	20	0.8193	8.55E-08
	15:46:00	21:12:00	19560	4.4	20.5	5.9	18.9	88.113	84.690	29.2	19	0.8105	8.30E-08
reset	21:17:00	7:55:00	38280	2.0	23.0	5.0	20.0	93.522	86.843	27.7	20	0.8373	8.19E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 8.69E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **August 4, 2011**
DATE TESTED: **August 11, 2011**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-200**
SAMPLE TYPE: **Shelby**
SAMPLE LOCATION: **IPD-112, NW Quad Grid 4 Lift 4**
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.72	4.808
90 deg	4.776	4.815
180 deg	4.769	4.803
270 deg	4.842	4.712
AVERAGE	4.777	4.785

Length/Diam Ratio: 0.66

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.242	7.218
top 90	7.191	7.149
mid 0	7.196	7.177
mid 90	7.249	7.244
bottom 0	7.242	7.229
bottom 90	7.23	7.245
AVERAGE	7.225	7.210

SAMPLE WEIGHT (grams): Before: 367.9; After: 380.1

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	262.0	207.8	6.7	27.0%
After:	388.2	294.6	8.3	32.7%

	Before	After
WET DENSITY (pcf):	117.3	121.5
DRY DENSITY (pcf):	92.4	91.5
SATURATION (%):	88%	105%

(assumed SG= 2.70)

Notes: IPD-112
GPS Coords.
N 1017456.6, E 1303706.7
El. 2675.2

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): INFLUENT PRES.(psi): 76.8 EFFLUENT PRES.(psi): 75.7

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/11/2011	8:58:00	10:13:00	5400	2.0	23.0	2.5	22.5	100.556	99.452	28.5	21	0.8229	8.93E-08
	10:13:00	12:46:00	9180	2.5	22.5	3.6	21.5	99.452	97.189	29.3	21	0.8087	1.08E-07
	12:46:00	15:47:00	10860	3.6	21.5	4.6	20.5	97.189	94.981	28.7	20	0.8193	9.20E-08
	15:47:00	21:12:00	19500	4.6	20.5	6.3	18.8	94.981	91.172	29.2	19	0.8105	9.03E-08
reset	21:19:00	8:01:00	38580	2.0	23.0	5.4	19.8	100.556	93.215	27.5	20	0.841	8.77E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.44E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **August 4, 2011**
DATE TESTED: **August 12, 2011**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-201**
SAMPLE TYPE: **Shelby**
SAMPLE LOCATION: **IPD-113, NE Quad Grid 5 Lift 4**
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	3.613	3.574
90 deg	3.583	3.611
180 deg	3.623	3.64
270 deg	3.665	3.597
AVERAGE	3.621	3.606

Length/Diam Ratio: 0.50

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.173	7.179
top 90	7.172	7.13
mid 0	7.217	7.161
mid 90	7.207	7.227
bottom 0	7.171	7.216
bottom 90	7.207	7.162
AVERAGE	7.191	7.179

SAMPLE WEIGHT (grams): Before: 277.3; After: 286.8

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	388.9	304.7	8.4	28.4%
After:	295.0	223.0	8.4	33.6%

	Before	After
WET DENSITY (pcf):	117.7	122.7
DRY DENSITY (pcf):	91.7	91.9
SATURATION (%):	91%	108%

(assumed SG= 2.70)

Notes: IPD-113
GPS Coords.
N 1017366.1, E 1303610.2
El. 2676.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.7 INFLUENT PRES.(psi): 76.7 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/12/2011	11:57:00	15:25:00	12480	2.1	22.9	2.8	22.1	72.145	70.544	29.3	20	0.8087	5.87E-08
o/n	15:25:00	11:39:00	72840	2.8	22.1	6.2	18.8	70.544	63.147	29.5	19	0.8053	4.94E-08
	11:39:00	19:48:00	29340	6.2	18.8	7.4	17.5	63.147	60.443	28.8	17	0.8175	4.92E-08
reset o/n	19:49:00	9:23:00	48840	2.0	23.0	4.3	20.7	72.421	67.343	26	19	0.8694	5.22E-08
	9:23:00	18:04:00	31260	4.3	20.7	6.0	19.3	67.343	63.920	31.2	18	0.7769	5.23E-08
o/n	18:04:00	8:15:00	51060	6.0	19.3	8.5	17.0	63.920	58.676	25.5	17	0.8794	5.95E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.33E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 13, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 4, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-202	SAMPLE LOCATION:	IPD-114, SE Quad Grid 5 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.79	4.67
90 deg	4.603	4.748
180 deg	4.638	4.735
270 deg	4.709	4.636
AVERAGE	4.685	4.697

Length/Diam Ratio: 0.65

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.221	7.24
top 90	7.141	7.185
mid 0	7.182	7.226
mid 90	7.181	7.178
bottom 0	7.221	7.242
bottom 90	7.193	7.181
AVERAGE	7.190	7.209

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	359.5	Before:	157.6	125.4	8.1	27.5%
After:	372.2	After:	380.2	287.7	8.3	33.1%

	Before	After
WET DENSITY (pcf):	118.0	121.2
DRY DENSITY (pcf):	92.6	91.1
SATURATION (%):	90%	105%

(assumed SG= 2.70)

Notes: IPD-114
GPS Coords.
N 1017317.2, E 1303575.7
El. 2689.6

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): INFLUENT PRES.(psi): 77.1 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/18/2011	10:18:00	11:47:00	5340	2.8	22.6	3.2	22.2	99.287	98.348	26.5	21	0.8598	7.97E-08
	11:47:00	17:35:00	20880	3.2	22.2	4.9	20.5	98.348	94.595	29.2	21	0.8105	7.87E-08
	17:35:00	20:28:00	10380	4.9	20.5	5.8	19.6	94.595	92.663	27.5	20	0.841	8.71E-08
	20:28:00	8:15:00	42420	5.8	19.6	9.3	16.2	92.663	84.990	25.3	19	0.8833	9.38E-08
	8:15:00	10:15:00	7200	9.3	16.2	9.8	15.7	84.990	83.886	25.8	18	0.8734	8.27E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 8.56E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT: **Ashe County Landfill**
PROJECT NO: **3477**
DATE RECEIVED: **August 4, 2011**
DATE TESTED: **August 14, 2011**
TESTED BY: **TOB**
CHECKED BY: **Bobby Barnes**

SAMPLE NO.: **3477-203**
SAMPLE TYPE: **Shelby**
SAMPLE LOCATION: **IPD-115, NW Quad Grid 5 Lift 4**
SAMPLE DESCRIPTION: **brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH (centimeters)	Before	After
0 deg	4.477	4.448
90 deg	4.431	4.397
180 deg	4.442	4.367
270 deg	4.344	4.411
AVERAGE	4.424	4.406

Length/Diam Ratio: 0.61

SAMPLE DIAM. (centimeters)	Before	After
top 0	7.227	7.134
top 90	7.228	7.132
mid 0	7.207	7.19
mid 90	7.245	7.097
bottom 0	7.237	7.199
bottom 90	7.205	7.167
AVERAGE	7.225	7.153

SAMPLE WEIGHT (grams): Before: 337.8; After: 348.3

MOISTURE CONTENT (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	245.0	191.7	8.4	29.1%
After:	356.2	268.6	8.2	33.6%

	Before	After
WET DENSITY (pcf):	116.3	122.8
DRY DENSITY (pcf):	90.1	91.9
SATURATION (%):	90%	109%

(assumed SG= 2.70)

Notes: IPD-115
GPS Coords.
N 1017325.3, E 1303506.0
El. 2701.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.9 INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 75.9

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/15/2011	9:46:00	12:43:00	10620	3.0	22.4	4.0	21.5	91.811	89.603	26.6	21	0.8579	9.76E-08
	12:43:00	14:53:00	7800	4.0	21.5	4.8	20.7	89.603	87.892	27.1	20	0.8484	1.04E-07
	14:53:00	16:43:00	6600	4.8	20.7	5.5	20.0	87.892	86.346	26.9	20	0.8521	1.14E-07
	16:43:00	20:04:00	12600	5.5	20.0	6.9	18.7	86.346	83.310	28.6	19	0.8211	1.16E-07
reset:o/n	20:37:00	13:37:00	61200	2.0	23.0	8.4	16.6	93.522	79.446	25.1	20	0.8873	1.17E-07
8/17:reset	8:40:00	10:30:00	6600	2.0	23.0	2.6	22.5	93.522	92.308	26.3	21	0.8636	8.49E-08
	10:30:00	13:27:00	10620	2.6	22.5	3.6	21.5	92.308	90.155	27	21	0.8502	9.38E-08
	13:27:00	16:24:00	10620	3.6	21.5	4.5	20.5	90.155	88.002	28	20	0.8318	9.40E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.75E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 16, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 10, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-204	SAMPLE LOCATION:	IPD-116, NEQ(S. half) Grid 8 Lift 3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.29	4.188
90 deg	4.294	4.259
180 deg	4.263	4.27
270 deg	4.21	4.27
AVERAGE	4.264	4.247

Length/Diam Ratio: 0.59

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.236	7.199
top 90	7.182	7.074
mid 0	7.191	7.112
mid 90	7.185	7.259
bottom 0	7.217	7.214
bottom 90	7.247	7.202
AVERAGE	7.210	7.177

SAMPLE WEIGHT: (grams)	
Before:	327.7
After:	333.9

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	376.2	287.6	8.6	31.8%
After:	341.8	256.8	8.1	34.2%

	Before	After
WET DENSITY (pcf):	117.5	121.3
DRY DENSITY (pcf):	89.2	90.4
SATURATION (%):	96%	107%

(assumed SG= 2.70)

Notes: IPD-116
GPS Coords.
N 1017441.8, E 1303452.9
El. 2694.7

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.8 INFLUENT PRES.(psi): 76.8 EFFLUENT PRES.(psi): 75.8

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Head Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/16/2011	13:04:00	14:11:00	4020	2.5	22.3	3.0	21.7	92.142	90.983	28.1	22	0.83	1.24E-07
	14:11:00	15:31:00	4400	3.0	21.7	3.5	21.2	90.983	89.824	29	21	0.8139	1.13E-07
	15:31:00	20:39:00	18480	3.5	21.2	5.4	19.1	89.824	85.463	29.8	21	0.8001	1.02E-07
o/n	20:39:00	8:16:00	41820	5.4	19.1	9.3	15.3	85.463	76.907	26.1	19	0.8675	1.04E-07
reset	8:24:00	10:31:00	7620	2.0	23.0	2.9	22.1	93.522	91.590	25.5	22	0.8794	1.15E-07
	10:31:00	13:33:00	10920	2.9	22.1	3.9	21.1	91.590	89.327	27.4	21	0.8428	9.18E-08
	13:33:00	17:46:00	15180	3.9	21.1	5.3	19.7	89.327	86.236	29.7	21	0.8019	8.85E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.97E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 19, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 10, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-206	SAMPLE LOCATION:	IPD-117, NW Quad Grid 5 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.523	4.542
90 deg	4.52	4.48
180 deg	4.571	4.516
270 deg	4.607	4.514
AVERAGE	4.555	4.513

Length/Diam Ratio: 0.63

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.152	7.195
top 90	7.195	7.229
mid 0	7.245	7.225
mid 90	7.213	7.204
bottom 0	7.226	7.232
bottom 90	7.251	7.218
AVERAGE	7.214	7.217

SAMPLE WEIGHT: (grams)	
Before:	353.4
After:	361.2

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	342.0	262.8	6.6	30.9%
After:	367.5	273.5	6.6	35.2%

	Before	After
WET DENSITY (pcf):	118.5	122.1
DRY DENSITY (pcf):	90.5	90.3
SATURATION (%):	97%	110%

(assumed SG= 2.70)

Notes: IPD-117
GPS Coords.
N 1017423.8, E 1303531.1
El. 2678.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87 INFLUENT PRES.(psi): 77 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/19/2011	13:34:00	16:40:00	11160	2.5	22.2	3.3	21.3	92.142	90.266	26.9	20	0.8521	7.85E-08
	16:40:00	20:10:00	12600	3.3	21.3	4.1	20.4	90.266	88.334	27.6	20	0.8392	7.20E-08
o/n	20:10:00	9:15:00	47100	4.1	20.4	7.1	17.4	88.334	81.765	26.8	19	0.854	7.00E-08
	9:15:00	13:38:00	15780	7.1	17.4	8.0	16.5	81.765	79.778	30.7	18	0.7851	6.12E-08
reset	13:43:00	19:45:00	21720	2.0	23.0	3.5	21.5	93.522	90.210	29.5	20	0.8053	6.68E-08
o/n	19:45:00	8:59:00	47640	3.5	21.5	6.4	18.5	90.210	83.697	26	19	0.8694	6.83E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.66E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 19, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 10, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-207	SAMPLE LOCATION:	IPD-118, SW Quad Grid 6 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.43	3.433
90 deg	3.474	3.392
180 deg	3.514	3.405
270 deg	3.451	3.397
AVERAGE	3.467	3.407

Length/Diam Ratio: 0.48

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.243	7.071
top 90	7.266	7.217
mid 0	7.255	7.255
mid 90	7.22	7.182
bottom 0	7.21	7.175
bottom 90	7.248	7.263
AVERAGE	7.240	7.194

SAMPLE WEIGHT: (grams)	
Before:	265.7
After:	272.3

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	317.6	248.0	8.2	29.0%
After:	280.5	212.1	8.4	33.6%

	Before	After
WET DENSITY (pcf):	116.2	122.8
DRY DENSITY (pcf):	90.1	91.9
SATURATION (%):	90%	109%

(assumed SG= 2.70)

Notes: IPD-118
GPS Coords.
N 1017475.9, E 1303513.9
El. 2675.7

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.7 INFLUENT PRES.(psi): 76.7 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/22/2011	10:03:00	11:34:00	5460	2.0	23.0	2.5	22.5	72.421	71.317	27.6	21	0.8392	8.96E-08
	11:34:00	13:19:00	6300	2.5	22.5	3.0	22.0	71.317	70.213	28.5	21	0.8229	7.74E-08
	13:19:00	15:22:00	7380	3.0	22.0	3.6	21.5	70.213	68.999	29.1	20	0.8122	7.29E-08
	15:22:00	18:33:00	11460	3.6	21.5	4.5	20.6	68.999	67.067	30.7	20	0.7851	7.39E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.84E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 23, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 10, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-208A	SAMPLE LOCATION:	IPD-119, SE Quad (N half) Grid 8 Lift 3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.727	4.745
90 deg	4.731	4.737
180 deg	4.733	4.734
270 deg	4.723	4.738
AVERAGE	4.729	4.739

Length/Diam Ratio: 0.66

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.181	7.194
top 90	7.188	7.191
mid 0	7.185	7.188
mid 90	7.184	7.183
bottom 0	7.193	7.185
bottom 90	7.194	7.184
AVERAGE	7.188	7.188

SAMPLE WEIGHT: (grams)	
Before:	357.2
After:	371.4

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	288.5	224.7	8.3	29.5%
After:	371.4	277.8	0.0	33.7%

	Before	After
WET DENSITY (pcf):	116.2	120.6
DRY DENSITY (pcf):	89.8	90.2
SATURATION (%):	91%	105%

(assumed SG= 2.70)

Notes: IPD-119 (backup tube used due to sample irregularity)
GPS Coords.
N 1017488.7, E 1303438.2
El. 2691.4

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 88.3 INFLUENT PRES.(psi): 78.3 EFFLUENT PRES.(psi): 76.9

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/24/2011	9:28:00	11:30:00	7320	1.8	23.2	2.6	22.2	122.099	120.112	27.2	26	0.8464	1.00E-07
	11:30:00	13:15:00	6300	2.6	22.2	3.3	21.4	120.112	118.456	27.7	25	0.8374	9.76E-08
	13:15:00	16:45:00	12600	3.3	21.4	5.0	19.9	118.456	114.923	29.1	25	0.8123	1.03E-07
o/n	16:45:00	8:10:00	55500	5.0	19.9	10.8	14.0	114.923	102.007	27.1	23	0.8482	9.64E-08
reset	8:10:00	17:30:00	33600	2.2	21.6	6.2	17.6	119.891	111.059	28.7	24	0.8014	9.65E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.84E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	**Ashe County Landfill**	DATE TESTED:	**August 23, 2011**
PROJECT NO:	**3477**	TESTED BY:	**TOB**
DATE RECEIVED:	**August 11, 2011**	CHECKED BY:	**Bobby Barnes**

SAMPLE NO.:	**3477-209**	SAMPLE LOCATION:	**IPD-120, SW Quad Grid 6 Lift 3**
SAMPLE TYPE:	**Shelby**	SAMPLE DESCRIPTION:	**brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)		Before	After
	0 deg	4.049	4.04
	90 deg	4.049	4.1
	180 deg	4.037	4.065
	270 deg	4.087	4.016
	AVERAGE	4.056	4.055

Length/Diam Ratio: 0.56

SAMPLE DIAM.: (centimeters)		Before	After
	top 0	7.142	7.129
	top 90	7.195	7.244
	mid 0	7.207	7.211
	mid 90	7.184	7.181
	bottom 0	7.197	7.152
	bottom 90	7.252	7.22
	AVERAGE	7.196	7.190

SAMPLE WEIGHT: (grams)		
	Before:	314.5
	After:	323.0

MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	325.3	256.4	8.4	27.8%
After:	330.8	249.0	8.1	34.0%

	Before	After
WET DENSITY (pcf):	119.0	122.5
DRY DENSITY (pcf):	93.2	91.4
SATURATION (%):	93%	109%
(assumed SG= 2.70)		

Notes: IPD-120
GPS Coords.
N 1017469.9, E 1303492.7
El. 2681.2

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.6 INFLUENT PRES.(psi): 76.6 EFFLUENT PRES.(psi): 75.7

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/23/2011	12:07:00	14:14:00	7620	2.0	22.9	2.4	22.5	86.323	85.495	28.4	21	0.8246	4.72E-08
	14:14:00	16:10:00	6960	2.4	22.5	2.6	22.2	85.495	84.888	29.4	21	0.807	3.74E-08
	16:10:00	19:23:00	11580	2.6	22.2	3.0	21.7	84.888	83.894	29.9	21	0.7984	3.67E-08
reset	9:26:00	10:30:00	3840	2.2	22.9	2.4	22.7	86.157	85.716	26.5	21	0.8598	5.21E-08
	10:30:00	14:20:00	9960	2.4	22.7	2.9	22.3	85.716	84.722	29.3	21	0.8087	4.28E-08
	14:20:00	15:20:00	7860	2.9	22.3	3.2	21.9	84.722	83.894	30.3	21	0.7934	4.49E-08
	15:20:00	16:20:00	5880	3.2	21.9	3.5	21.5	83.894	83.177	30.5	21	0.7884	5.21E-08
	16:20:00	17:20:00	53280	3.5	21.5	5.4	19.6	83.177	79.037	26.5	20	0.8598	3.73E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.43E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	August 24, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 11, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-211	SAMPLE LOCATION:	IPD-121, NW Quad (S. Half), Grid 8 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.792	3.817
90 deg	3.834	3.776
180 deg	3.836	3.801
270 deg	3.836	3.832
AVERAGE	3.825	3.807

Length/Diam Ratio: 0.53

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.257	7.196
top 90	7.288	7.166
mid 0	7.217	7.146
mid 90	7.255	7.2
bottom 0	7.241	7.22
bottom 90	7.257	7.141
AVERAGE	7.253	7.178

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	294.6	Before:	310.5	237.6	8.5	31.8%
After:	303.6	After:	311.6	234.5	8.3	34.1%

	Before	After
WET DENSITY (pcf):	116.4	123.0
DRY DENSITY (pcf):	88.3	91.8
SATURATION (%):	95%	110%

(assumed SG= 2.70)

Notes: IPD-121
GPS Coords.
N 1017482.4, E 1303439.3
El. 2692.3

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.7 INFLUENT PRES.(psi): 76.7 EFFLUENT PRES.(psi): 75.9

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/25/2011	8:16:00	10:17:00	7260	2.0	23.0	2.7	22.5	79.455	78.185	27.8	21	0.8355	7.90E-08
	10:17:00	12:32:00	8100	2.7	22.5	3.2	22.1	78.185	77.192	30.9	20	0.7818	5.26E-08
	12:32:00	17:05:00	16380	3.2	22.1	4.1	21.1	77.192	74.984	31.3	20	0.7753	5.85E-08
	17:05:00	19:52:00	10020	4.1	21.1	4.7	20.4	74.984	73.604	31.5	20	0.7721	6.10E-08
o/n	19:52:00	7:27:00	41040	4.7	20.4	7.0	18.2	73.604	68.636	28.2	19	0.8282	6.01E-08
	7:27:00	15:20:00	37320	7.0	18.2	9.0	16.1	68.636	64.109	31.1	17	0.7785	6.06E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.00E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	**Ashe County Landfill**	DATE TESTED:	**August 28, 2011**
PROJECT NO:	**3477**	TESTED BY:	**TOB**
DATE RECEIVED:	**August 11, 2011**	CHECKED BY:	**Bobby Barnes**

SAMPLE NO.:	**3477-212**	SAMPLE LOCATION:	**IPD-122, SEQ (N. half) Grid 8 Lift 4**
SAMPLE TYPE:	**Shelby**	SAMPLE DESCRIPTION:	**brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	3.516	3.501
90 deg	3.532	3.524
180 deg	3.513	3.537
270 deg	3.505	3.506
AVERAGE	3.517	3.517

Length/Diam Ratio: 0.49

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.243	7.164
top 90	7.241	7.161
mid 0	7.249	7.201
mid 90	7.223	7.19
bottom 0	7.239	7.177
bottom 90	7.252	7.205
AVERAGE	7.241	7.183

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)		Wet Wt.	Dry Wt.	Tare	M.C.
Before:	272.0		Before:	221.5	175.9	8.3	27.2%
After:	281.7		After:	289.5	219.0	8.1	33.4%

	Before	After
WET DENSITY (pcf):	117.3	123.4
DRY DENSITY (pcf):	92.2	92.5
SATURATION (%):	89%	110%

(assumed SG= 2.70)

Notes: IPD-212
GPS Coords.
N 1017404.2, E 1303432.2
El. 2704.8

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.5 INFLUENT PRES.(psi): 76.5 EFFLUENT PRES.(psi): 75.8

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/28/2011	8:36:00	17:00:00	30240	2.0	23.0	3.6	21.4	72.421	68.833	31.1	20	0.7785	5.14E-08
	17:00:00	8:14:00	54840	3.6	21.4	6.0	19.0	68.833	63.534	26.7	19	0.856	4.92E-08
o/n	8:14:00	11:16:00	10920	6.0	19.0	6.5	18.6	63.534	62.540	26.5	18	0.8598	4.88E-08
	11:16:00	14:31:00	11700	6.5	18.6	7.0	18.0	62.540	61.381	28	18	0.8318	5.23E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 5.04E-08

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Engineering & Testing Laboratories, PC

HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	**Ashe County Landfill**	DATE TESTED:	**August 31, 2011**
PROJECT NO:	**3477**	TESTED BY:	**TOB**
DATE RECEIVED:	**August 11, 2011**	CHECKED BY:	**Bobby Barnes**

SAMPLE NO.:	**3477-213**	SAMPLE LOCATION:	**IPD-123, NE Quad (N. half) Grid 8 Lift 4**
SAMPLE TYPE:	**Shelby**	SAMPLE DESCRIPTION:	**brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)		Before	After
	0 deg	4.905	4.71
	90 deg	4.907	4.788
	180 deg	4.744	4.801
	270 deg	4.874	4.744
	AVERAGE	4.858	4.761

Length/Diam Ratio: 0.67

SAMPLE DIAM.: (centimeters)		Before	After
	top 0	7.239	7.207
	top 90	7.189	7.141
	mid 0	7.212	7.132
	mid 90	7.261	7.217
	bottom 0	7.227	7.219
	bottom 90	7.217	7.143
	AVERAGE	7.224	7.177

SAMPLE WEIGHT: (grams)			MOISTURE CONTENT: (percent)		Wet Wt.	Dry Wt.	Tare	M.C.
	Before:	370.9		Before:	309.1	237.8	8.5	31.1%
	After:	376.0		After:	384.2	288.2	8.2	34.3%

	Before	After
WET DENSITY (pcf):	116.3	121.9
DRY DENSITY (pcf):	88.7	90.8
SATURATION (%):	93%	108%
(assumed SG= 2.70)		

Notes: IPD-123
GPS Coords.
N 1017655.6, E 1303434.8
El. 2679.6

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 87.1 INFLUENT PRES.(psi): 77.1 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/31/2011	16:15:00	17:15:00	3600	2.3	22.5	2.8	22.1	99.673	98.735	30.3	21	0.7917	1.11E-07
	17:15:00	20:47:00	12720	2.8	22.1	4.1	20.7	98.735	95.754	29.6	20	0.8036	1.03E-07
	20:47:00	7:10:00	37380	4.1	20.7	7.5	17.3	95.754	88.192	26.7	19	0.856	1.00E-07
o/n	7:10:00	20:23:00	47580	7.5	17.3	11.3	13.3	88.192	79.580	31.6	18	0.7705	8.87E-08
reset	20:23:00	14:20:00	48960	2.0	23.0	6.0	19.1	100.556	91.835	29.4	20	0.807	7.97E-08
	14:20:00	15:20:00	17340	6.0	19.1	7.3	17.8	91.835	89.020	34.1	19	0.732	7.01E-08
	15:20:00	16:20:00	67260	7.3	17.8	12.0	13.2	89.020	78.697	28.1	18	0.83	8.11E-08
	16:20:00		21840	2.0	23.0	3.6	21.2	100.556	96.748	32.2	21	0.761	7.17E-08
			14460	3.6	21.2	4.8	20.0	96.748	94.208	31.3	20	0.7753	7.60E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 7.47E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	**Ashe County Landfill**	DATE TESTED:	**August 31, 2011**
PROJECT NO:	**3477**	TESTED BY:	**TOB**
DATE RECEIVED:	**August 11, 2011**	CHECKED BY:	**Bobby Barnes**

SAMPLE NO.:	**3477-214**	SAMPLE LOCATION:	**IPD-124, NE Quad Grid 6 Lift 4**
SAMPLE TYPE:	**Shelby**	SAMPLE DESCRIPTION:	**brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)		Before	After
	0 deg	4.062	4.062
	90 deg	4.026	4.065
	180 deg	3.99	4.089
	270 deg	4.086	4.107
	AVERAGE	4.041	4.081

Length/Diam Ratio: 0.56

SAMPLE DIAM.: (centimeters)		Before	After
	top 0	7.242	7.202
	top 90	7.178	7.16
	mid 0	7.158	7.205
	mid 90	7.223	7.275
	bottom 0	7.23	7.251
	bottom 90	7.24	7.127
	AVERAGE	7.212	7.203

SAMPLE WEIGHT: (grams)			MOISTURE CONTENT: (percent)		Wet Wt.	Dry Wt.	Tare	M.C.
	Before:	303.4		Before:	280.8	221.4	8.3	27.9%
	After:	320.0		After:	328.3	248.6	8.3	33.2%

	Before	After
WET DENSITY (pcf):	114.7	120.1
DRY DENSITY (pcf):	89.7	90.2
SATURATION (%):	86%	103%
(assumed SG= 2.70)		

Notes: IPD-124
GPS Coords.
N 1017677.8, E 1303694.5
El. 2678.2

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 76

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/2/2011	10:56:00	15:04:00	14880	2.0	23.0	3.7	21.7	86.489	83.121	34.1	21	0.732	8.86E-08
o/n	15:04:00	9:49:00	67500	3.7	21.7	10.3	15.1	83.121	68.604	28.1	19	0.83	1.07E-07
reset	9:53:00	15:57:00	21840	2.0	23.0	4.4	20.6	86.489	81.189	32.1	21	0.7626	1.00E-07
	15:57:00	20:01:00	14640	4.4	20.6	5.8	19.2	81.189	78.098	31.3	20	0.7753	9.32E-08
o/n	20:01:00	10:12:00	51060	5.8	19.2	10.2	14.7	78.098	68.273	29.4	18	0.807	9.64E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 9.92E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	**Ashe County Landfill**	DATE TESTED:	**August 31, 2011**
PROJECT NO:	**3477**	TESTED BY:	**TOB**
DATE RECEIVED:	**August 11, 2011**	CHECKED BY:	**Bobby Barnes**

SAMPLE NO.:	**3477-215**	SAMPLE LOCATION:	**IPD-125, SE Quad Grid 6 Lift 3**
SAMPLE TYPE:	**Shelby**	SAMPLE DESCRIPTION:	**brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

		Before	After
SAMPLE LENGTH: (centimeters)	0 deg	3.77	3.77
	90 deg	3.736	3.736
	180 deg	3.768	3.768
	270 deg	3.741	3.741
	AVERAGE	3.754	3.754
	Length/Diam Ratio:	0.52	

		Before	After
SAMPLE DIAM.: (centimeters)	top 0	7.243	7.243
	top 90	7.31	7.31
	mid 0	7.288	7.288
	mid 90	7.242	7.242
	bottom 0	7.211	7.211
	bottom 90	7.28	7.28
	AVERAGE	7.262	7.262

				Wet Wt.	Dry Wt.	Tare	M.C.
SAMPLE WEIGHT: (grams)	Before:	294.4	MOISTURE CONTENT: (percent) Before:	316.0	244.2	8.4	30.4%
	After:	300.3	After:	300.3	227.4	0.0	32.1%

	Before	After
WET DENSITY (pcf):	118.2	120.6
DRY DENSITY (pcf):	90.6	91.3
SATURATION (%):	96%	102%
(assumed SG= 2.70)		

Notes: IPD-125
GPS Coords.
N 1017480.1, E 1303576.4
El. (not provided)

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): INFLUENT PRES.(psi): 76.4 EFFLUENT PRES.(psi): 75.6

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
8/31/2011	16:19:00	20:49:00	16200	2.0	22.8	2.5	22.2	79.179	77.964	29.6	21	0.8036	3.15E-08
	20:49:00	7:09:00	37200	2.5	22.2	3.9	20.9	77.964	74.984	26.7	20	0.856	3.68E-08
	7:09:00	20:28:00	47940	3.9	20.9	5.4	19.2	74.984	71.561	31.6	20	0.7705	3.08E-08
	20:28:00	13:24:00	49980	5.4	19.2	6.9	17.9	71.561	68.415	29.4	19	0.807	2.98E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 3.22E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	**Ashe County Landfill**	DATE TESTED:	**September 9, 2011**
PROJECT NO:	**3477**	TESTED BY:	**TOB**
DATE RECEIVED:	**August 12, 2011**	CHECKED BY:	**Bobby Barnes**

SAMPLE NO.:	**3477-216**	SAMPLE LOCATION:	**IPD-126 SE Quad Grid 6 Lift 4**
SAMPLE TYPE:	**Shelby**	SAMPLE DESCRIPTION:	**brown sl. mic. sandy silt**

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)		Before	After
	0 deg	4.763	4.763
	90 deg	4.839	4.839
	180 deg	4.93	4.93
	270 deg	4.939	4.939
	AVERAGE	4.868	4.868

Length/Diam Ratio: 0.67

SAMPLE DIAM.: (centimeters)		Before	After
	top 0	7.172	7.172
	top 90	7.245	7.245
	mid 0	7.239	7.239
	mid 90	7.215	7.215
	bottom 0	7.278	7.278
	bottom 90	7.242	7.242
	AVERAGE	7.232	7.232

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)		Wet Wt.	Dry Wt.	Tare	M.C.
Before:	380.3		Before:	192.9	148.4	8.5	31.8%
After:	388.5		After:	388.5	289.4	0.0	34.2%

	Before	After
WET DENSITY (pcf):	118.7	121.3
DRY DENSITY (pcf):	90.1	90.4
SATURATION (%):	99%	107%

(assumed SG= 2.70)

Notes: IPD-126
GPS Coords.
N 1017579.2, E 1303631.7
El.

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.9 INFLUENT PRES.(psi): 76.9 EFFLUENT PRES.(psi): 75.8

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/9/2011	15:46:00	11:05:00	69540	2.7	21.7	5.8	18.5	98.348	91.393	27.2	19	0.8465	4.79E-08
9/10	11:05:00	19:24:00	29940	5.8	18.5	7.0	17.1	91.393	88.523	28.9	18	0.8157	4.67E-08
9/11	19:24:00	12:38:00	62040	7.0	17.1	9.8	14.5	88.523	82.616	28.5	18	0.8229	4.92E-08
9/12	12:40:00	7:58:00	69480	2.0	23.0	5.3	19.6	100.556	93.160	24.1	20	0.9077	5.36E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 4.93E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	September 9, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 12, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-217	SAMPLE LOCATION:	IPD-127 NW Quad Grid 6 Lift 3
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)	Before	After
0 deg	4.586	4.586
90 deg	4.609	4.609
180 deg	4.565	4.565
270 deg	4.494	4.494
AVERAGE	4.564	4.564

Length/Diam Ratio: 0.63

SAMPLE DIAM.: (centimeters)	Before	After
top 0	7.221	7.221
top 90	7.233	7.233
mid 0	7.273	7.273
mid 90	7.193	7.193
bottom 0	7.21	7.21
bottom 90	7.224	7.224
AVERAGE	7.226	7.226

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)	Wet Wt.	Dry Wt.	Tare	M.C.
Before:	354.4	Before:	229.0	177.4	8.3	30.5%
After:	360.7	After:	360.7	270.6	0.0	33.3%

	Before	After
WET DENSITY (pcf):	118.2	120.3
DRY DENSITY (pcf):	90.6	90.3
SATURATION (%):	96%	104%

(assumed SG= 2.70)

Notes: IPD-127
GPS Coords.
N 1017557.7, E 1303598.1
El.

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.7 INFLUENT PRES.(psi): 76.7 EFFLUENT PRES.(psi): 75.7

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/9/2011	11:05:00	13:40:00	8700	2.2	22.7	2.7	22.1	92.915	91.756	27.5	20	0.841	6.12E-08
	13:40:00	11:08:00	77880	2.7	22.1	7.2	17.3	91.756	81.489	27.3	19	0.8447	6.49E-08
	11:08:00	19:26:00	29880	7.2	17.3	8.9	15.6	81.489	77.735	28.9	17	0.8157	6.49E-08
	19:27:00	12:41:00	62040	2.0	23.0	6.0	19.1	93.522	84.746	28.5	20	0.8229	6.59E-08
	12:41:00	7:59:00	69480	6.0	19.1	10.3	14.8	84.746	75.306	24.1	18	0.9077	7.78E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 6.83E-08

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HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D 5084 (Method C - Falling Head w/ Increasing Tail)

PROJECT:	Ashe County Landfill	DATE TESTED:	September 9, 2011
PROJECT NO:	3477	TESTED BY:	TOB
DATE RECEIVED:	August 12, 2011	CHECKED BY:	Bobby Barnes

SAMPLE NO.:	3477-218	SAMPLE LOCATION:	IPD-128 NW Quad Grid 6 Lift 4
SAMPLE TYPE:	Shelby	SAMPLE DESCRIPTION:	brown sl. mic. sandy silt

SAMPLE DIMENSIONS AND PROPERTIES

SAMPLE LENGTH: (centimeters)		Before	After
	0 deg	4.299	4.299
	90 deg	4.295	4.295
	180 deg	4.226	4.226
	270 deg	4.238	4.238
	AVERAGE	4.265	4.265

Length/Diam Ratio: 0.59

SAMPLE DIAM.: (centimeters)		Before	After
	top 0	7.253	7.253
	top 90	7.176	7.176
	mid 0	7.191	7.191
	mid 90	7.243	7.243
	bottom 0	7.263	7.263
	bottom 90	7.233	7.233
	AVERAGE	7.227	7.227

SAMPLE WEIGHT: (grams)		MOISTURE CONTENT: (percent)		Wet Wt.	Dry Wt.	Tare	M.C.
Before:	325.3	Before:		182.6	141.6	8.4	30.8%
After:	329.8	After:		329.8	248.7	0.0	32.6%

	Before	After
WET DENSITY (pcf):	116.1	117.7
DRY DENSITY (pcf):	88.8	88.8
SATURATION (%):	92%	98%

(assumed SG= 2.70)

Notes: IPD-128
GPS Coords.
N 1017557.7, E 1303598.1
El.

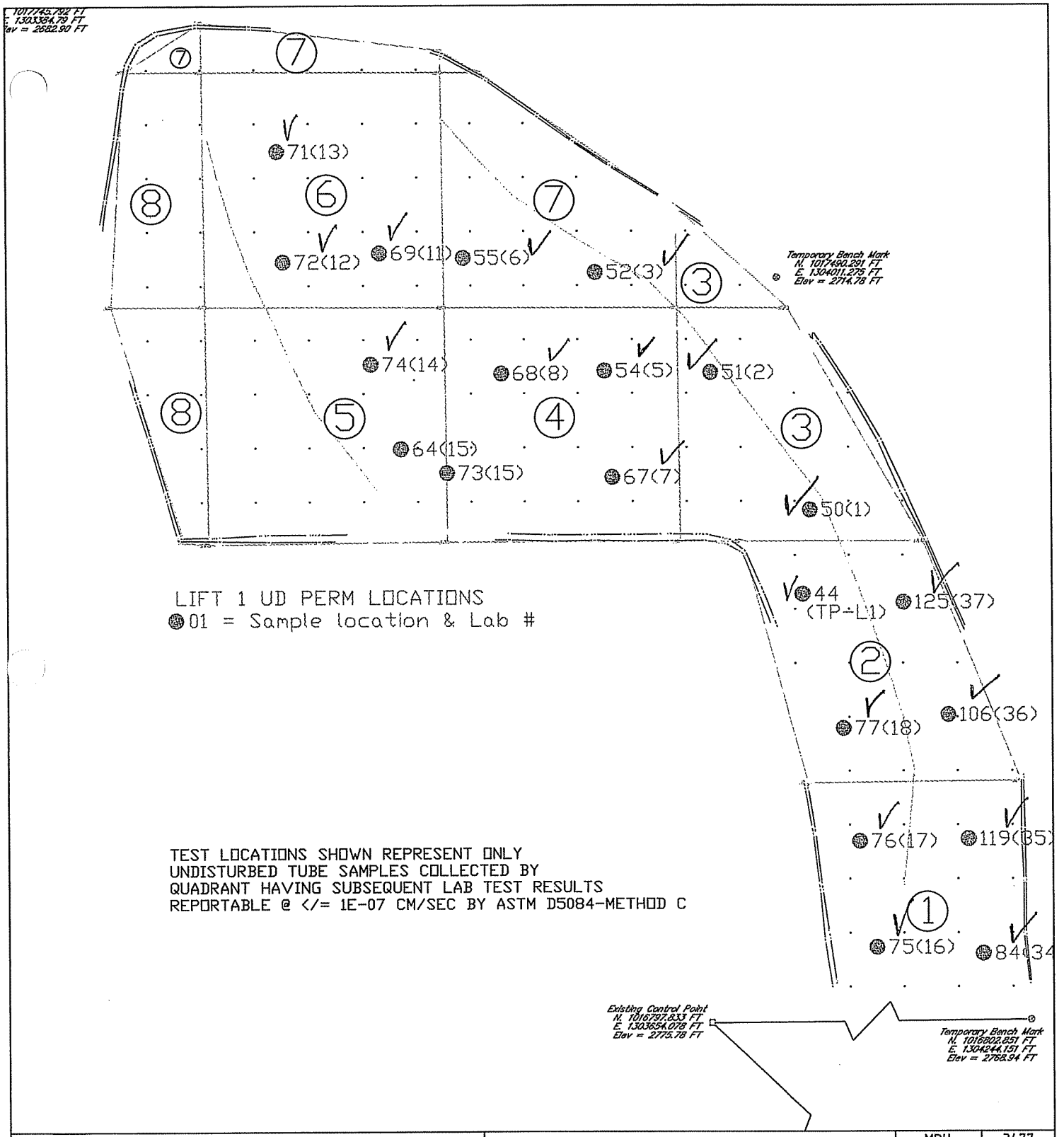
HYDRAULIC CONDUCTIVITY TESTING MEASUREMENTS

CONFINING PRES.(psi): 86.7 INFLUENT PRES.(psi): 76.7 EFFLUENT PRES.(psi): 75.7

Date	Time Start	Time End	Elapsed Time (sec)	Pipette Readings Initial in	Initial out	Final in	Final out	Head Initial cm	Final cm	Temp. °C	Gradient	Temp. Correct.	Hyd. Cond. K_{20} cm/sec
9/9/2011	11:07:00	13:30:00	8580	2.0	22.8	2.4	22.5	93.302	92.529	27.5	22	0.841	3.84E-08
	13:30:00	11:08:00	77880	2.4	22.5	4.9	19.8	92.529	86.843	27.3	21	0.8447	3.24E-08
	11:08:00	19:28:00	30000	4.9	19.8	5.7	18.9	86.843	84.966	28.9	20	0.8157	2.80E-08
	19:28:00	12:42:00	62040	5.7	18.9	7.4	17.3	84.966	81.323	28.5	19	0.8229	2.74E-08
	12:42:00	8:01:00	69540	7.4	17.3	9.0	15.6	81.323	77.625	24.1	19	0.9077	2.86E-08

Pipette Length, cm:	27.6	27.6
Pipette Volume, cc:	25	25
Pipette Area, cm^2:	0.9058	0.9058

HYDRAULIC CONDUCTIVITY (K_{20}) = 2.91E-08



LIFT 1 UD PERMEABILITY TESTS LOCATION PLAN (as of 11-6-10)	ASHE CO. LANDFILL CRUMPLER, NORTH CAROLINA	MDH DRAWN BY	3477 PROJ. NO
		BLB CHECKED BY	1 OF 1 SHEET
Unifour	FOR: HUNTER CONSTUCTION CO.	11/3/10 DATE	3477-L1(rev) DRAWING #
		NOT TO SCALE	

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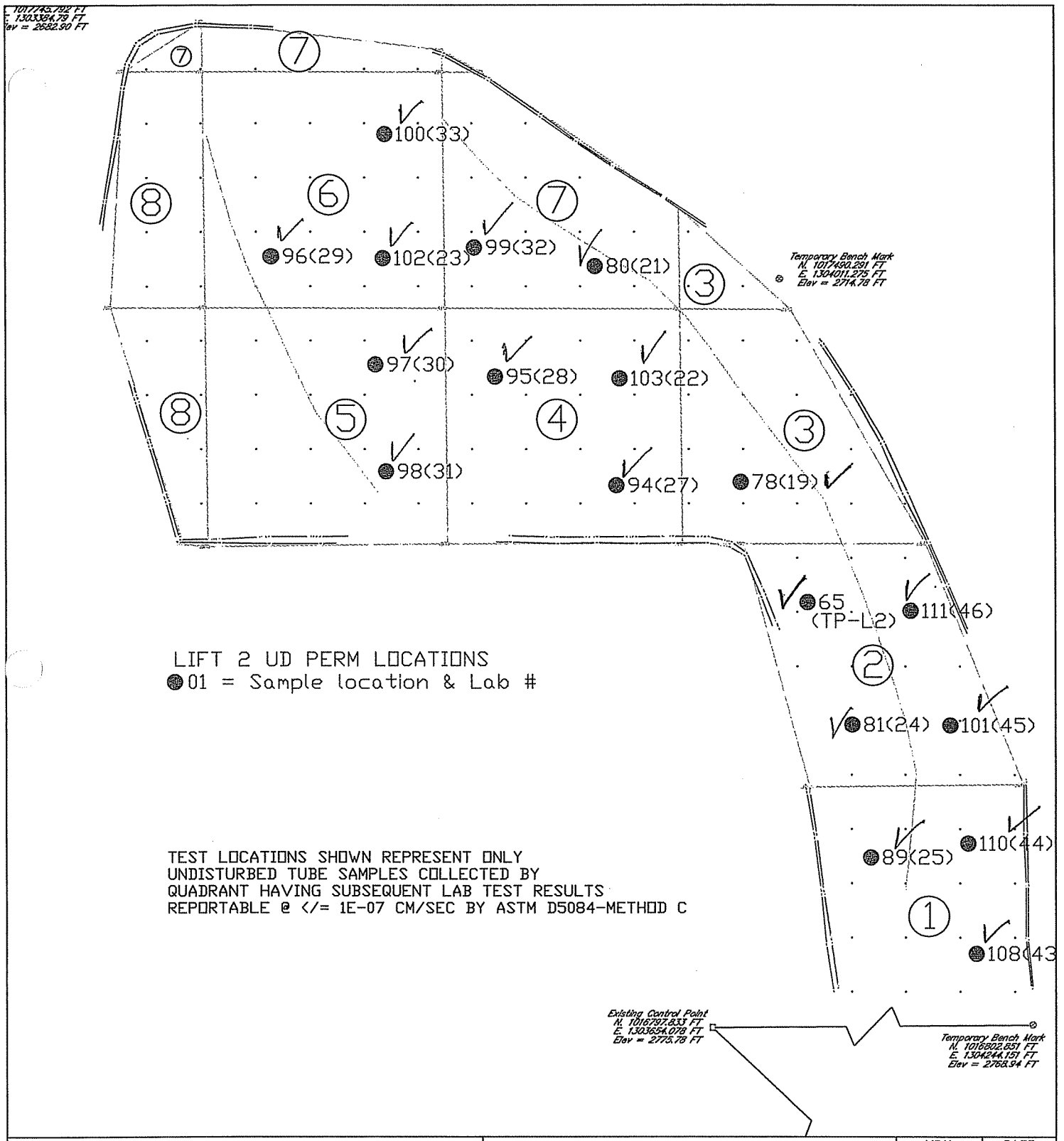

LIFT 2 UD PERMEABILITY TESTS LOCATION PLAN (as of 11-6-10)	ASHE CO. LANDFILL CRUMPLER, NORTH CAROLINA	MDH DRAWN BY	3477 PROJ. NO
		BLB CHECKED BY	1 OF 1 SHEET
Unifour	FOR: HUNTER CONSTUCTION CO.	11/6/10 DATE	3477-L2 DRAWING #
		NOT TO SCALE	

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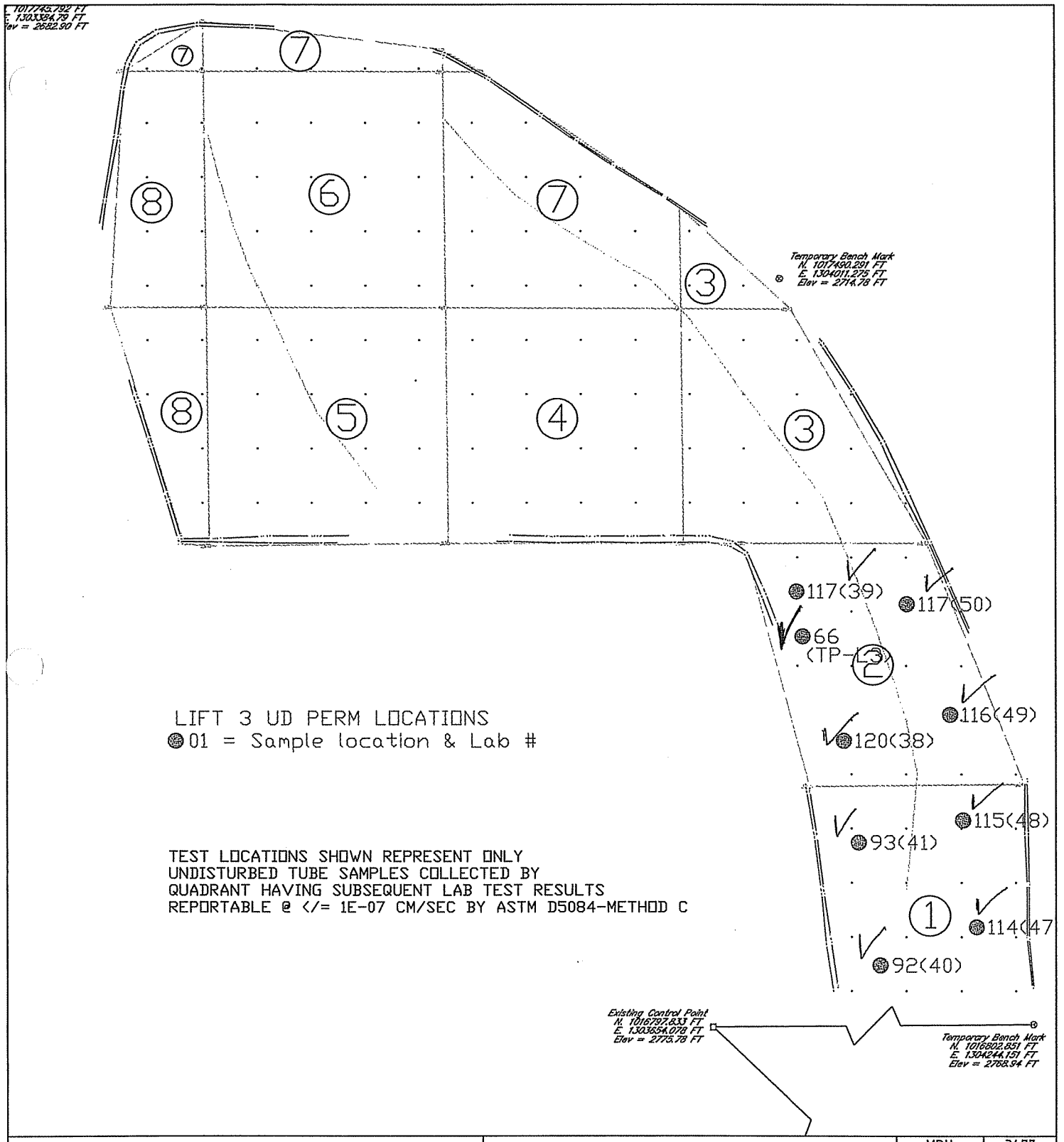

LIFT 3 UD PERMEABILITY TESTS LOCATION PLAN	ASHE CO. LANDFILL CRUMPLER, NORTH CAROLINA	MDH DRAWN BY	3477 PROJ. NO
		BLB CHECKED BY	1 OF 1 SHEET
Unifour	FOR: HUNTER CONSTUCTION CO.	10/27/10 DATE	3477-L1 DRAWING #
		NOT TO SCALE	

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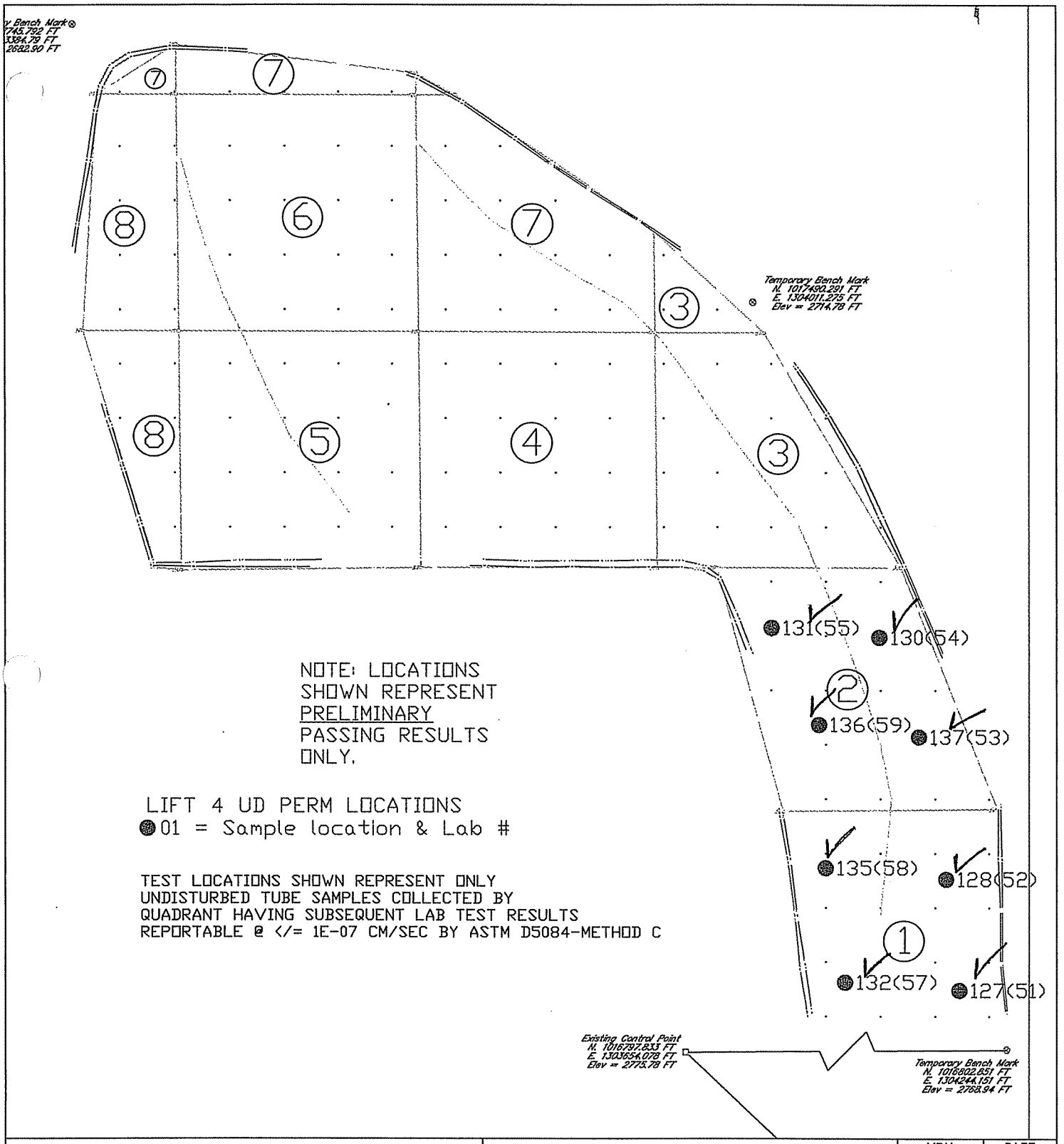

NOTE: LOCATIONS SHOWN REPRESENT PRELIMINARY PASSING RESULTS ONLY.

LIFT 4 UD PERM LOCATIONS
●01 = Sample location & Lab #

TEST LOCATIONS SHOWN REPRESENT ONLY UNDISTURBED TUBE SAMPLES COLLECTED BY QUADRANT HAVING SUBSEQUENT LAB TEST RESULTS REPORTABLE @ </= 1E-07 CM/SEC BY ASTM D5084-METHOD C

LIFT 4 UD PERMEABILITY TESTS LOCATION PLAN (as of 11-14-10)	ASHE CO. LANDFILL CRUMPLER, NORTH CAROLINA	MDH DRAWN BY	3477 PROJ. NO
		BLB CHECKED BY	1 OF 1 SHEET
Unifour	FOR: HUNTER CONSTUCTION CO.	11/14/10 DATE	3477-L4 DRAWING #
		NOT TO SCALE	

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Appendix A

FLEXIBLE WALL PERMEABILITY TEST

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INTEGRITY IN TESTING

PERMOMETER METHOD

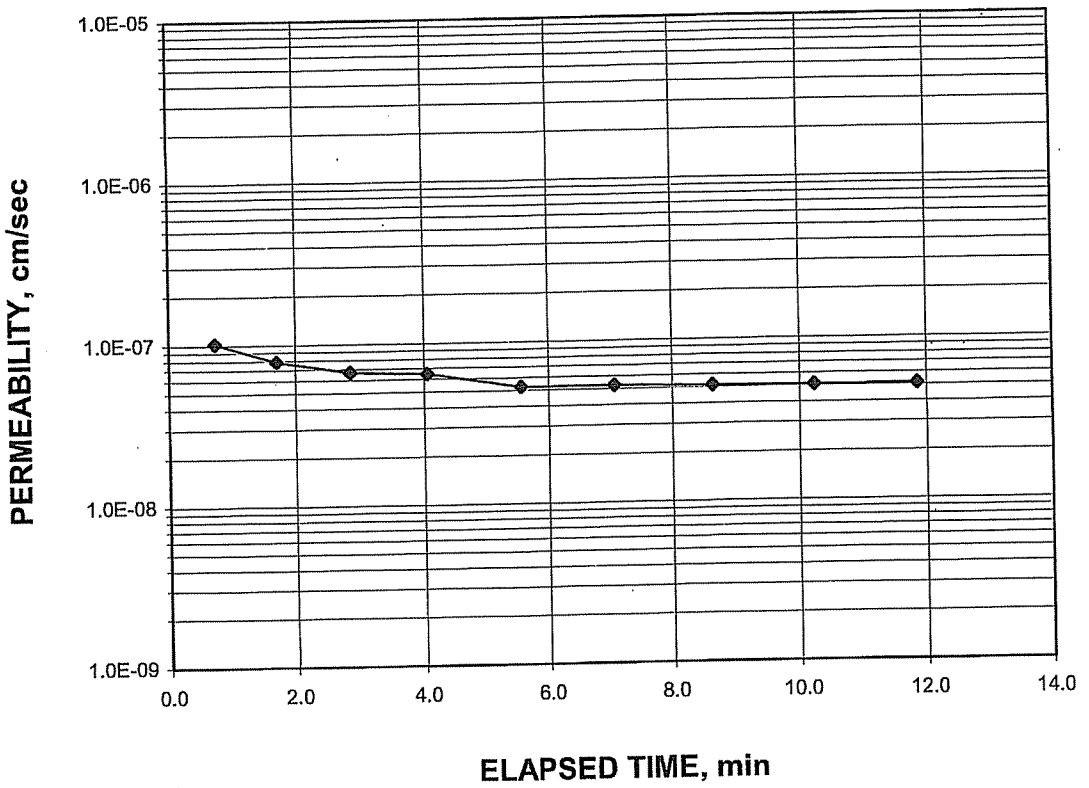
ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 3
Client Project	ASHE CO. LF.	Depth (ft.)	LIFT 1
Project No.	2010-712-04	Sample No.	1
Lab ID No.	2010-712-04-06		

Visual Description: ORANGE/BROWN SILT

AVERAGE PERMEABILITY = 5.1E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 5.1E-10 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: TMS Date: 9/16/2010 Checked By: MBS Date: 9-30-10

DCN: CT-22A DATE:2-2-10 REVISED BY: SERVER\Data Drive\2010 PROJECTS\2010-712 MESCO\[2010-712-04-06 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

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INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 3
Client Project	ASHE CO. LF.	Depth (ft.)	LIFT 1
Project No.	2010-712-04	Sample No.	1
Lab ID No.	2010-712-04-06		

Specific Gravity	2.70	Assumed
Sample Condition		Undisturbed

Visual Description: ORANGE/BROWN SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	809	814
Wt. of Tare & WS (gm.)	317.90	412.58
Wt. of Tare & DS (gm.)	284.09	351
Wt. of Tare (gm.)	115.61	111.9
Wt. of Water (gm.)	33.81	61.58
Wt. of DS (gm.)	168.48	239.10
Moisture Content (%)	**20.1**	**25.8**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	618.84	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	618.84	648.15
Length 1 (in.)	3.129	3.089
Length 2 (in.)	3.103	3.091
Length 3 (in.)	3.130	3.083
Top Diameter (in.)	2.830	2.879
Middle Diameter (in.)	2.841	2.875
Bottom Diameter (in.)	2.833	2.856
Average Length (in.)	3.12	3.09
Average Area (in.^{2})	6.31	6.47
Sample Volume (cm^3)	322.73	327.33
Unit Wet Wt. (gm./ cm^3)	1.918	1.980
Unit Wet Wt. (pcf)	119.7	123.6
Unit Dry Wt. (pcf)	99.7	98.3
Unit Dry Wt. (gm./ cm^3)	1.597	1.575
Void Ratio, e	0.691	0.715
Porosity, n	0.409	0.417
Pore Volume (cm^3)	131.8	136.4
Total Wt. Of Sample After Test		641.98

Tested By: TMS Date: 9/16/2010 Checked By: MDS Date: 9-20-10

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FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

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INTEGRITY IN TESTING

Client	MESCO	Boring No.	ACRE 3
Client Project	ASHE CO. LF.	Depth (ft.)	LIFT 1
Project No.	2010-712-04	Sample No.	1
Lab ID No.	2010-712-04-06		

Test Pressures

Cell Pressure(psi)	60.0
Back Pressure(psi)	50.0
Eff. Cons. Pressure(psi)	10.0
Response (%)	96

Final Sample Dimensions

Sample Length (cm), L	7.84
Sample Area (cm^2), A	41.74
Pipette Area (cm^2), a_p	0.03142
Annulus Area (cm^2), a_a	0.76712
Equilibrium Level (cm), R_{eq}	1.4

AVERAGE PERMEABILITY = 5.1E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 5.1E-10 m/sec @ 20°C

DATE		TIME			ELAPSED TIME t	PIPETTE READI NG R_p	INCREMENT GRADIENT i	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(sec)	(min)	(min)	(cm)	(cm/cm)	(°C)	(cm/sec)
9/17/2010	16	7	44	7.73	0.000	10.3	14.8	25.4	NA
9/17/2010	16	8	28	8.47	0.733	10.2	14.7	25.4	1.0E-07
9/17/2010	16	9	26	9.43	1.700	10.1	14.5	25.4	7.8E-08
9/17/2010	16	10	35	10.58	2.850	10.0	14.3	25.4	6.7E-08
9/17/2010	16	11	47	11.78	4.050	9.9	14.2	25.4	6.5E-08
9/17/2010	16	13	17	13.28	5.550	9.8	14.0	25.4	5.2E-08
9/17/2010	16	14	48	14.80	7.067	9.7	13.8	25.4	5.2E-08
9/17/2010	16	16	22	16.37	8.633	9.6	13.7	25.4	5.1E-08
9/17/2010	16	17	58	17.97	10.233	9.5	13.5	25.4	5.1E-08
9/17/2010	16	19	35	19.58	11.850	9.4	13.3	25.4	5.1E-08

Tested By: TMS Date: 9/16/2010 Checked By: MDS Date: 9-20-10

DCN: CT-22A DATE:2-2-10 REVISION:SERVER\Data Drive\2010 PROJECTS\2010-712 MESCO\[2010-712-04-06 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

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INTEGRITY IN TESTING

PERMOMETER METHOD

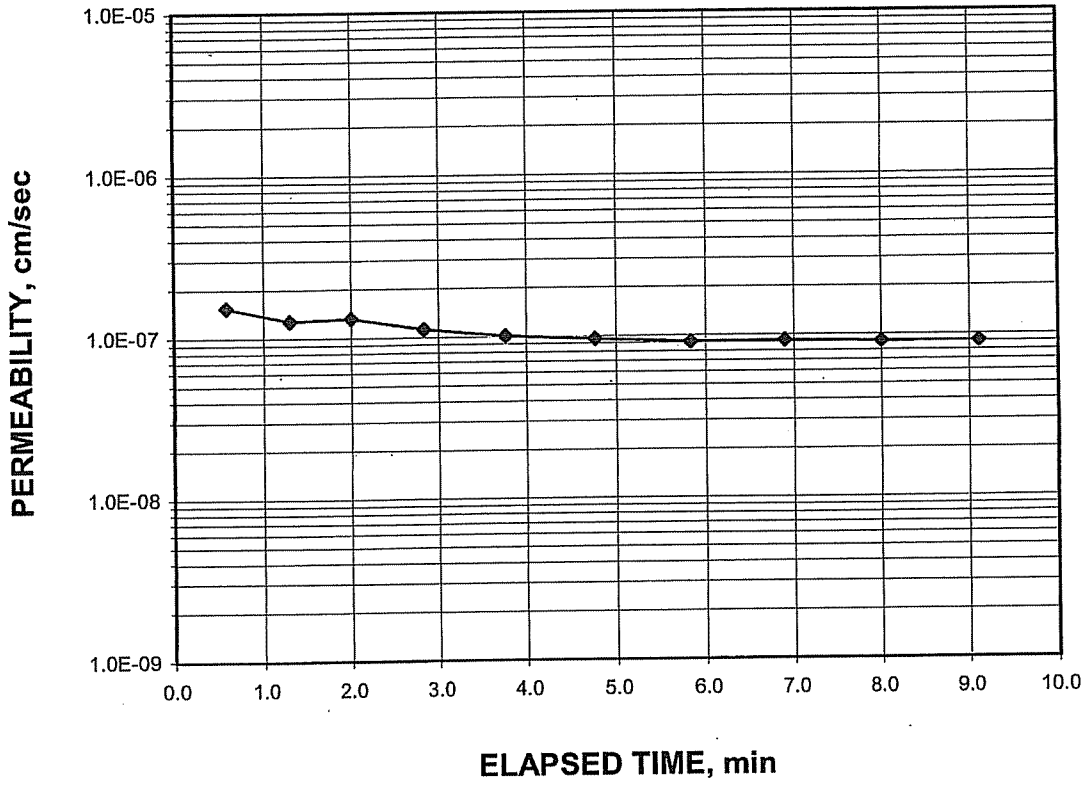
ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 3
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 1
Project No.	2010-712-04	Sample No.	2
Lab ID No.	2010-712-04-02		

Visual Description: ORANGE/BROWN SILT

AVERAGE PERMEABILITY = 9.1E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 9.1E-10 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: TMS Date: 9/15/2010 Checked By: GJM Date: 9-16-10

DCN: CT-22A DATE:2-2-10 REVISIONS\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-04-02 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY

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PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 3
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 1
Project No.	2010-712-04	Sample No.	2
Lab ID No.	2010-712-04-02		

Specific Gravity	2.70	Assumed
Sample Condition		Undisturbed

Visual Description: ORANGE/BROWN SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	810	813
Wt. of Tare & WS (gm.)	480.53	407.05
Wt. of Tare & DS (gm.)	414.56	344.39
Wt. of Tare (gm.)	114.97	112.61
Wt. of Water (gm.)	65.97	62.66
Wt. of DS (gm.)	299.59	231.78
Moisture Content (%)	**22.0**	**27.0**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	649.58	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	649.58	676.27
Length 1 (in.)	3.270	3.270
Length 2 (in.)	3.214	3.198
Length 3 (in.)	3.262	3.266
Top Diameter (in.)	2.854	2.865
Middle Diameter (in.)	2.865	2.863
Bottom Diameter (in.)	2.854	2.855
Average Length (in.)	3.25	3.24
Average Area (in.^{2})	6.41	6.43
Sample Volume (cm^3)	341.44	341.82
Unit Wet Wt. (gm./ cm^3)	1.902	1.978
Unit Wet Wt. (pcf)	118.8	123.5
Unit Dry Wt. (pcf)	97.3	97.2
Unit Dry Wt. (gm./ cm^3)	1.559	1.557
Void Ratio, e	0.732	0.734
Porosity, n	0.423	0.423
Pore Volume (cm^3)	144.3	144.7
Total Wt. Of Sample After Test		667.39

Tested By: TMS Date: 9/15/2010 Checked By: GEM Date: 9-16-10

DCN: CT-22A DATE:2-2-10 REVISION\\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-04-02 Permometer.xls]Sheet1

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ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 3
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 1
Project No.	2010-712-04	Sample No.	2
Lab ID No.	2010-712-04-02		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	60.0	Sample Length (cm), L	8.24
Back Pressure(psi)	50.0	Sample Area (cm^2), A	41.48
Eff. Cons. Pressure(psi)	10.0	Pipette Area (cm^2), a_p	0.03142
Response (%)	95	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.4

AVERAGE PERMEABILITY = 9.1E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 9.1E-10 m/sec @ 20°C

DATE	TIME			ELAPSED TIME	PIPETTE READI NG	INCREMENT GRADIENT	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
				t	R_p	i		
(mm/dd/yy)	(hr)	(min)	(sec)	(min)	(min)	(cm)	(cm/cm)	(°C)	(cm/sec)
9/15/2010	11	17	36	17.60	0.000	9.5	12.8	24.2	NA
9/15/2010	11	18	11	18.18	0.583	9.4	12.7	24.2	1.5E-07
9/15/2010	11	18	54	18.90	1.300	9.3	12.5	24.2	1.3E-07
9/15/2010	11	19	36	19.60	2.000	9.2	12.4	24.2	1.3E-07
9/15/2010	11	20	26	20.43	2.833	9.1	12.2	24.2	1.1E-07
9/15/2010	11	21	22	21.37	3.767	9.0	12.0	24.2	1.0E-07
9/15/2010	11	22	22	22.37	4.767	8.9	11.9	24.2	9.6E-08
9/15/2010	11	23	26	23.43	5.833	8.8	11.7	24.2	9.1E-08
9/15/2010	11	24	30	24.50	6.900	8.7	11.6	24.2	9.2E-08
9/15/2010	11	25	36	25.60	8.000	8.6	11.4	24.2	9.0E-08
9/15/2010	11	26	43	26.72	9.117	8.5	11.3	24.2	9.0E-08

Tested By: TMS Date: 9/15/2010 Checked By: GM Date: 9-16-10

DCN: CT-22A DATE:2-2-10 REVISION\\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-04-02 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

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INTEGRITY IN TESTING

PERMOMETER METHOD

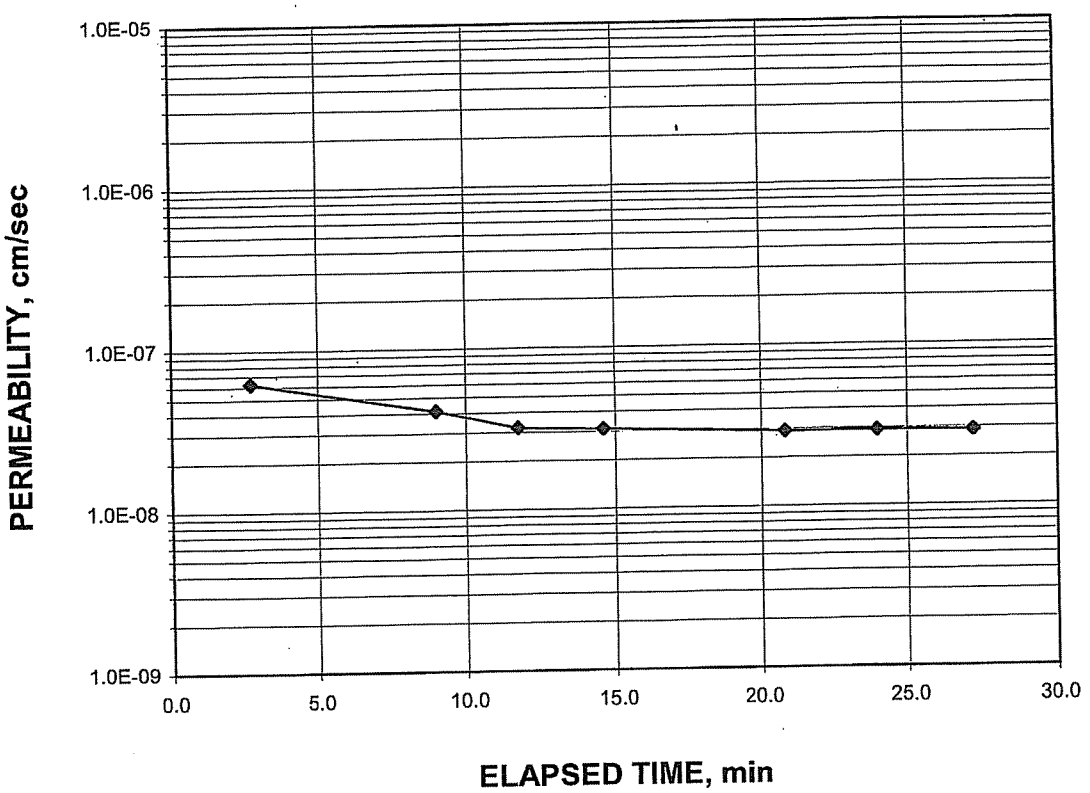
ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 7
Client Project	ASHE CO. LF.	Depth (ft.)	LIFT 1
Project No.	2010-712-04	Sample No.	3
Lab ID No.	2010-712-04-07		

Visual Description: ORANGE/BROWN SILT

AVERAGE PERMEABILITY = 2.9E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 2.9E-10 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: TMS Date: 9/16/2010 Checked By: [illegible] Date: 9-20-10

DCN: CT-22A DATE:2-2-10 REVISION:7 SERVER\Data Drive\2010 PROJECTS\2010-712 MESCO\[2010-712-04-07 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY T

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INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 7
Client Project	ASHE CO. LF.	Depth (ft.)	LIFT 1
Project No.	2010-712-04	Sample No.	3
Lab ID No.	2010-712-04-07		

Specific Gravity	2.70	Assumed
Sample Condition		Undisturbed

Visual Description: ORANGE/BROWN SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	814	801
Wt. of Tare & WS (gm.)	430.36	535.28
Wt. of Tare & DS (gm.)	362.52	440.13
Wt. of Tare (gm.)	112.34	106.99
Wt. of Water (gm.)	67.84	95.15
Wt. of DS (gm.)	250.18	333.14
Moisture Content (%)	**27.1**	**28.6**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	795.63	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	795.63	804.67
Length 1 (in.)	4.024	3.947
Length 2 (in.)	3.969	3.930
Length 3 (in.)	4.004	3.967
Top Diameter (in.)	2.832	2.874
Middle Diameter (in.)	2.833	2.834
Bottom Diameter (in.)	2.825	2.811
Average Length (in.)	4.00	3.95
Average Area (in.^{2})	6.29	6.33
Sample Volume (cm^3)	412.21	409.73
Unit Wet Wt. (gm./ cm^3)	1.930	1.964
Unit Wet Wt. (pcf)	120.5	122.6
Unit Dry Wt. (pcf)	94.8	95.4
Unit Dry Wt. (gm./ cm^3)	1.518	1.528
Void Ratio, e	0.778	0.767
Porosity, n	0.438	0.434
Pore Volume (cm^3)	180.4	177.9
Total Wt. Of Sample After Test		805.59

Tested By: TMS Date: 9/16/2010 Checked By: [illegible] Date: 9-20-10

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FLEXIBLE WALL PERMEABILITY TEST

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PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 7
Client Project	ASHE CO. LF.	Depth (ft.)	LIFT 1
Project No.	2010-712-04	Sample No.	3
Lab ID No.	2010-712-04-07		

Test Pressures

Cell Pressure(psi)	60.0
Back Pressure(psi)	50.0
Eff. Cons. Pressure(psi)	10.0
Response (%)	95

Final Sample Dimensions

Sample Length (cm), L	10.03
Sample Area (cm^2), A	40.86
Pipette Area (cm^2), a_p	0.03142
Annulus Area (cm^2), a_a	0.76712
Equilibrium Level (cm), R_{eq}	1.4

AVERAGE PERMEABILITY = 2.9E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 2.9E-10 m/sec @ 20°C

DATE	TIME				ELAPSED TIME t	PIPETTE READI NG R_p	INCREMENT GRADIENT i	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(sec)	(min)	(min)	(cm)	(cm/cm)	(°C)	(cm/sec)
9/17/2010	15	29	26	29.43	0.000	11.8	13.5	25.4	NA
9/17/2010	15	32	8	32.13	2.700	11.6	13.3	25.4	6.2E-08
9/17/2010	15	38	25	38.42	8.983	11.3	12.9	25.4	4.1E-08
9/17/2010	15	41	10	41.17	11.733	11.2	12.8	25.4	3.2E-08
9/17/2010	15	44	2	44.03	14.600	11.1	12.6	25.4	3.1E-08
9/17/2010	15	50	16	50.27	20.833	10.9	12.4	25.4	2.9E-08
9/17/2010	15	53	25	53.42	23.983	10.8	12.2	25.4	2.9E-08
9/17/2010	15	56	38	56.63	27.200	10.7	12.1	25.4	2.9E-08

Tested By: TMS Date: 9/16/2010 Checked By: DMCT Date: 9-20-10

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FLEXIBLE WALL PERMEABILITY TEST

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PERMOMETER METHOD

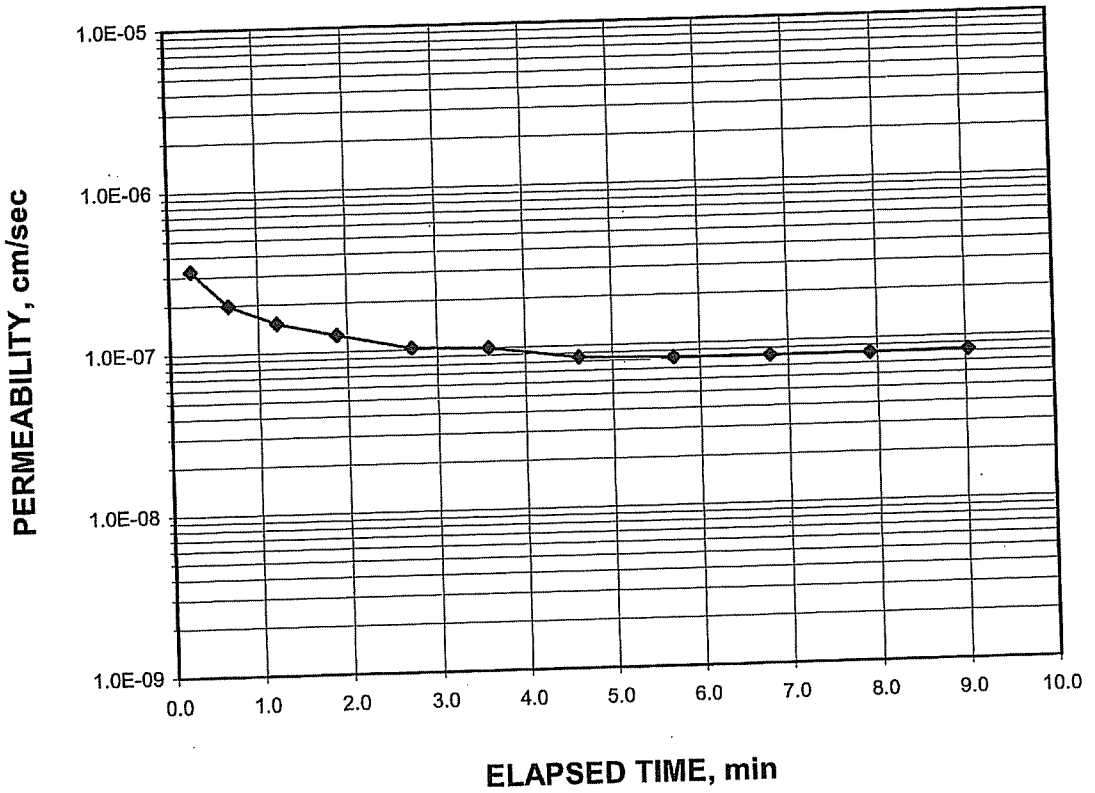
ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 3
Client Project	ASHE CO. LF.	Depth (ft.)	LIFT 2
Project No.	2010-712-08	Sample No.	19
Lab ID No.	2010-712-08-03		

Visual Description: BROWN SANDY SILT

AVERAGE PERMEABILITY = 8.1E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 8.1E-10 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: TMS Date: 10/12/2010 Checked By: GBM Date: 10-13-10

DCN: CT-22A DATE:2-2-10 REVISION:5 Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-08-03 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

Geotechnics INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 3
Client Project	ASHE CO. LF.	Depth (ft.)	LIFT 2
Project No.	2010-712-08	Sample No.	19
Lab ID No.	2010-712-08-03		

Specific Gravity	2.70	Assumed
Sample Condition		Undisturbed

Visual Description: BROWN SANDY SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	805	800
Wt. of Tare & WS (gm.)	316.91	414.75
Wt. of Tare & DS (gm.)	275.29	347.73
Wt. of Tare (gm.)	107.58	104.16
Wt. of Water (gm.)	41.62	67.02
Wt. of DS (gm.)	167.71	243.57
Moisture Content (%)	**24.8**	**27.5**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	614.16	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	614.16	627.44
Length 1 (in.)	3.046	3.056
Length 2 (in.)	3.048	3.004
Length 3 (in.)	3.051	3.046
Top Diameter (in.)	2.872	2.845
Middle Diameter (in.)	2.846	2.795
Bottom Diameter (in.)	2.851	2.770
Average Length (in.)	3.05	3.04
Average Area (in.^{2})	6.41	6.17
Sample Volume (cm^3)	320.09	307.01
Unit Wet Wt. (gm./ cm^3)	1.919	2.044
Unit Wet Wt. (pcf)	119.8	127.6
Unit Dry Wt. (pcf)	96.0	100.0
Unit Dry Wt. (gm./ cm^3)	1.537	1.603
Void Ratio, e	0.756	0.685
Porosity, n	0.431	0.406
Pore Volume (cm^3)	137.8	124.8
Total Wt. Of Sample After Test		621.79

Tested By: TMS Date: 10/12/2010 Checked By: GM Date: 10-13-10

DCN: CT-22A DATE:2-2-10 REVISION: 5 \\Server\data drive\2010 INVOICES\SEP INvoices\[RI-10-XXX Sep Wolftrap LF JEi.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

Geotechnics
INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	ACRE 3
Client Project	ASHE CO. LF.	Depth (ft.)	LIFT 2
Project No.	2010-712-08	Sample No.	19
Lab ID No.	2010-712-08-03		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	60.0	Sample Length (cm), L	7.71
Back Pressure(psi)	50.0	Sample Area (cm^2), A	39.82
Eff. Cons. Pressure(psi)	10.0	Pipette Area (cm^2), a_p	0.03142
Response (%)	96	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.4

AVERAGE PERMEABILITY = 8.1E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 8.1E-10 m/sec @ 20°C

DATE (mm/dd/yy)	TIME (hr)	(min)	(sec)	(min)	ELAPSED TIME t (min)	PIPETTE READI NG R_p (cm)	INCREMENT GRADIENT i (cm/cm)	TEMP. (°C)	INCREMENTAL PERMEABILITY @ 20°C (cm/sec)
10/12/2010	8	32	12	32.20	0.000	10.5	15.4	22.2	NA
10/12/2010	8	32	27	32.45	0.250	10.4	15.2	22.2	3.3E-07
10/12/2010	8	32	52	32.87	0.667	10.3	15.1	22.2	2.0E-07
10/12/2010	8	33	25	33.42	1.217	10.2	14.9	22.2	1.5E-07
10/12/2010	8	34	5	34.08	1.883	10.1	14.7	22.2	1.3E-07
10/12/2010	8	34	55	34.92	2.717	10.0	14.6	22.2	1.0E-07
10/12/2010	8	35	47	35.78	3.583	9.9	14.4	22.2	9.9E-08
10/12/2010	8	36	49	36.82	4.617	9.8	14.2	22.2	8.4E-08
10/12/2010	8	37	54	37.90	5.700	9.7	14.1	22.2	8.1E-08
10/12/2010	8	39	0	39.00	6.800	9.6	13.9	22.2	8.1E-08
10/12/2010	8	40	7	40.12	7.917	9.5	13.7	22.2	8.1E-08
10/12/2010	8	41	14	41.23	9.033	9.4	13.6	22.2	8.2E-08

Tested By: TMS Date: 10/12/2010 Checked By: GEM Date: 10-13-10

DCN: CT-22A DATE:2-2-10 REVISION: 5 \\Server\data drive\2010 INVOICES\SEP, INvoices\[RI-10-XXX Sep Wolftrap LF JEI.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

Geotechnics
INTEGRITY IN TESTING

PERMOMETER METHOD

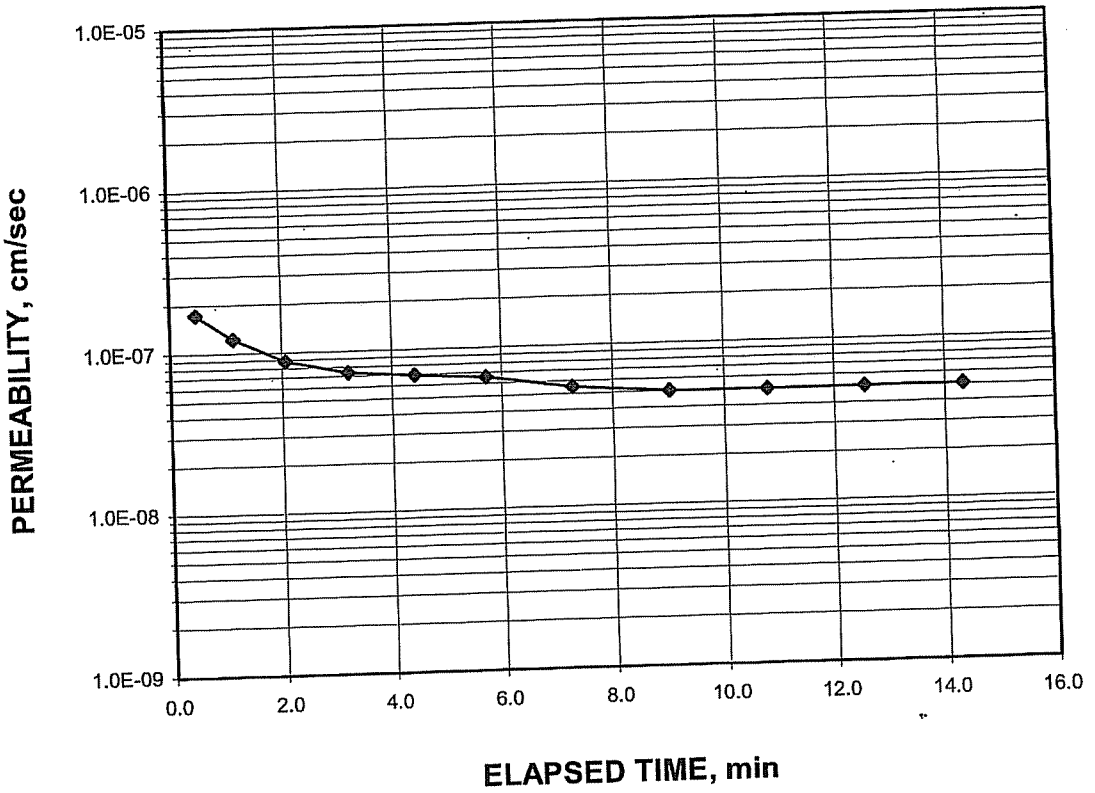
ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 6
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 2
Project No.	2010-712-09	Sample No.	33
Lab ID No.	2010-712-09-01		

Visual Description: BROWN SANDY SILT

AVERAGE PERMEABILITY = 5.0E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 5.0E-10 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: TMS Date: 10/20/2010 Checked By: MMS Date: 10-21-10

DCN: CT-22A DATE:2-2-10 REVISION:5 rver\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-09-01 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY

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INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 6
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 2
Project No.	2010-712-09	Sample No.	33
Lab ID No.	2010-712-09-01		

Specific Gravity 2.70 Assumed
Sample Condition Undisturbed

Visual Description: BROWN SANDY SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	803	814
Wt. of Tare & WS (gm.)	438.92	417.5
Wt. of Tare & DS (gm.)	369.15	350.81
Wt. of Tare (gm.)	104.03	111.97
Wt. of Water (gm.)	69.77	66.69
Wt. of DS (gm.)	265.12	238.84
Moisture Content (%)	**26.3**	**27.9**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	631.98	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	631.98	640.02
Length 1 (in.)	3.211	3.115
Length 2 (in.)	3.203	3.146
Length 3 (in.)	3.224	3.170
Top Diameter (in.)	2.825	2.833
Middle Diameter (in.)	2.830	2.816
Bottom Diameter (in.)	2.823	2.803
Average Length (in.)	3.21	3.14
Average Area (in.^{2})	6.27	6.23
Sample Volume (cm^3)	330.22	321.15
Unit Wet Wt. (gm./ cm^3)	1.914	1.993
Unit Wet Wt. (pcf)	119.5	124.4
Unit Dry Wt. (pcf)	94.6	97.2
Unit Dry Wt. (gm./ cm^3)	1.515	1.558
Void Ratio, e	0.782	0.733
Porosity, n	0.439	0.423
Pore Volume (cm^3)	144.9	135.8
Total Wt. Of Sample After Test		638.30

Tested By: TMS Date: 10/20/2010 Checked By: [illegible] Date: 10-21-10

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FLEXIBLE WALL PERMEABILITY

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PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 6
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 2
Project No.	2010-712-09	Sample No.	33
Lab ID No.	2010-712-09-01		

Test Pressures

Cell Pressure(psi)	60.0
Back Pressure(psi)	50.0
Eff. Cons. Pressure(psi)	10.0
Response (%)	100

Final Sample Dimensions

Sample Length (cm), L	7.98
Sample Area (cm^2), A	40.22
Pipette Area (cm^2), a_p	0.03142
Annulus Area (cm^2), a_a	0.76712
Equilibrium Level (cm), R_{eq}	1.4

AVERAGE PERMEABILITY = 5.0E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 5.0E-10 m/sec @ 20°C

DATE	TIME			ELAPSED TIME	PIPETTE READI NG	INCREMENT GRADIENT	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
				t	R_p	i		
(mm/dd/yy)	(hr)	(min)	(sec)	(min)	(cm)	(cm/cm)	(°C)	(cm/sec)
10/20/2010	9	13	17	13.28	0.000	10.5	14.9	23.8	NA
10/20/2010	9	13	45	13.75	0.467	10.4	14.7	23.8	1.7E-07
10/20/2010	9	14	25	14.42	1.133	10.3	14.6	23.8	1.2E-07
10/20/2010	9	15	21	15.35	2.067	10.2	14.4	23.8	8.8E-08
10/20/2010	9	16	29	16.48	3.200	10.1	14.2	23.8	7.3E-08
10/20/2010	9	17	42	17.70	4.417	10.0	14.1	23.8	6.9E-08
10/20/2010	9	19	0	19.00	5.717	9.9	13.9	23.8	6.5E-08
10/20/2010	9	20	34	20.57	7.283	9.8	13.7	23.8	5.5E-08
10/20/2010	9	22	18	22.30	9.017	9.7	13.6	23.8	5.0E-08
10/20/2010	9	24	4	24.07	10.783	9.6	13.4	23.8	5.0E-08
10/20/2010	9	25	50	25.83	12.550	9.5	13.2	23.8	5.1E-08
10/20/2010	9	27	37	27.62	14.333	9.4	13.1	23.8	5.1E-08

Tested By: TMS Date: 10/20/2010 Checked By: [illegible] Date: 10-21-10

DCN: CT-22A DATE:2-2-10 REVISION\\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-09-01 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

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INTEGRITY IN TESTING

PERMOMETER METHOD

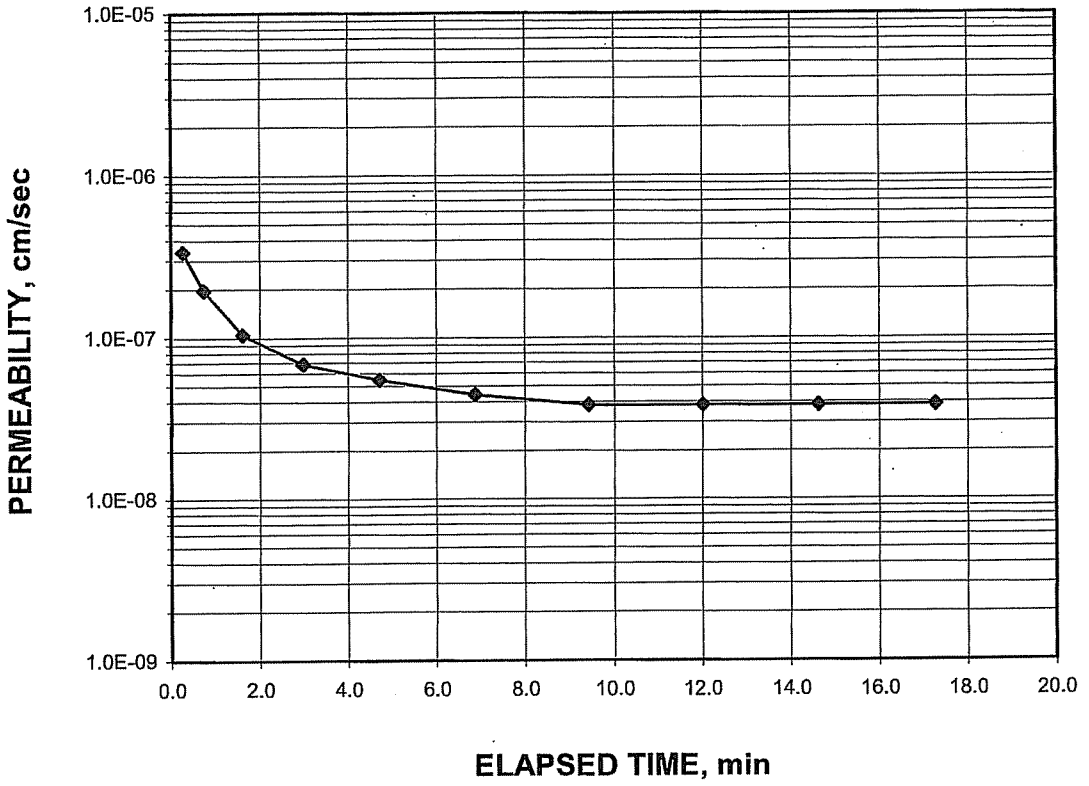
ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 8
Client Project	ASHE CO. LF	Depth (ft.)	SLOPE LIFT 1C
Project No.	2010-712-13	Sample No.	60
Lab ID No.	2010-712-13-01		

Visual Description: BROWN SANDY SILT

AVERAGE PERMEABILITY = 3.8E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 3.8E-10 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: TMS Date: 11/18/2010 Checked By: GEM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION:8 rver\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-01 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY

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INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 8
Client Project	ASHE CO. LF	Depth (ft.)	SLOPE LIFT 1C
Project No.	2010-712-13	Sample No.	60
Lab ID No.	2010-712-13-01		

Specific Gravity	2.70	Assumed
Sample Condition		Undisturbed

Visual Description: BROWN SANDY SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	806	803
Wt. of Tare & WS (gm.)	280.29	468.04
Wt. of Tare & DS (gm.)	240.14	380.32
Wt. of Tare (gm.)	102.18	103.98
Wt. of Water (gm.)	40.15	87.72
Wt. of DS (gm.)	137.96	276.34
Moisture Content (%)	**29.1**	**31.7**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	677.05	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	677.05	690.90
Length 1 (in.)	3.461	3.425
Length 2 (in.)	3.412	3.372
Length 3 (in.)	3.456	3.364
Top Diameter (in.)	2.864	2.849
Middle Diameter (in.)	2.843	2.858
Bottom Diameter (in.)	2.863	2.857
Average Length (in.)	3.44	3.39
Average Area (in.^{2})	6.41	6.40
Sample Volume (cm^3)	361.62	355.24
Unit Wet Wt. (gm./ cm^3)	1.872	1.945
Unit Wet Wt. (pcf)	116.9	121.4
Unit Dry Wt. (pcf)	90.5	92.2
Unit Dry Wt. (gm./ cm^3)	1.450	1.476
Void Ratio, e	0.862	0.829
Porosity, n	0.463	0.453
Pore Volume (cm^3)	167.4	161.0
Total Wt. Of Sample After Test		684.37

Tested By: TMS Date: 11/18/2010 Checked By: GEM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION\\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-01 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY

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INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 8
Client Project	ASHE CO. LF	Depth (ft.)	SLOPE LIFT 1C
Project No.	2010-712-13	Sample No.	60
Lab ID No.	2010-712-13-01		

Test Pressures

Cell Pressure(psi)	60.0
Back Pressure(psi)	50.0
Eff. Cons. Pressure(psi)	10.0
Response (%)	95

Final Sample Dimensions

Sample Length (cm), L	8.60
Sample Area (cm^2), A	41.29
Pipette Area (cm^2), a_p	0.03142
Annulus Area (cm^2), a_a	0.76712
Equilibrium Level (cm), R_{eq}	1.4

AVERAGE PERMEABILITY = 3.8E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 3.8E-10 m/sec @ 20°C

DATE		TIME		ELAPSED TIME t	PIPETTE READING R_p	INCREMENT GRADIENT i	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(sec)	(min)	(cm)	(cm/cm)	(°C)	(cm/sec)
11/18/2010	9	39	34	39.57	0.000	10.0	23.4	NA
11/18/2010	9	39	50	39.83	0.267	9.9	12.9	23.4	3.4E-07
11/18/2010	9	40	18	40.30	0.733	9.8	12.8	23.4	2.0E-07
11/18/2010	9	41	11	41.18	1.617	9.7	12.6	23.4	1.0E-07
11/18/2010	9	42	33	42.55	2.983	9.6	12.4	23.4	6.8E-08
11/18/2010	9	44	17	44.28	4.717	9.5	12.3	23.4	5.5E-08
11/18/2010	9	46	27	46.45	6.883	9.4	12.1	23.4	4.4E-08
11/18/2010	9	49	0	49.00	9.433	9.3	12.0	23.4	3.8E-08
11/18/2010	9	51	35	51.58	12.017	9.2	11.8	23.4	3.8E-08
11/18/2010	9	54	12	54.20	14.633	9.1	11.7	23.4	3.8E-08
11/18/2010	9	56	50	56.83	17.267	9.0	11.5	23.4	3.8E-08

Tested By: TMS Date: 11/18/2010 Checked By: GEM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION\\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-01 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

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INTEGRITY IN TESTING

PERMOMETER METHOD

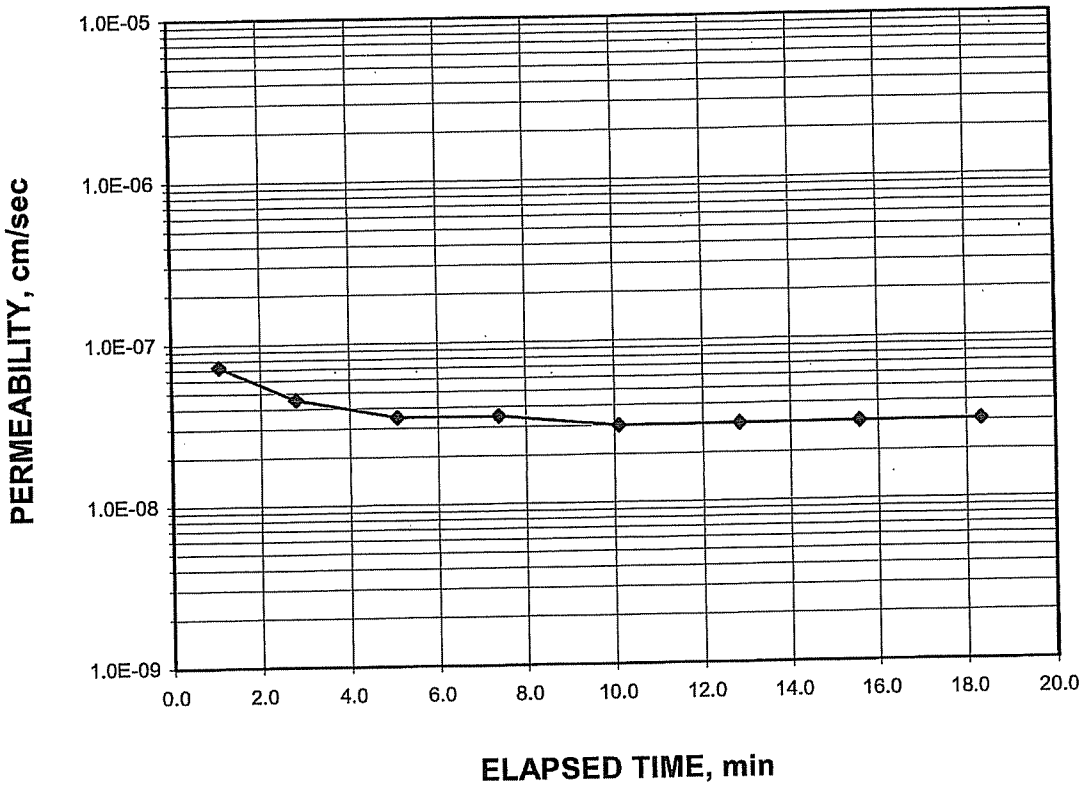
ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	NA
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 4
Project No.	2010-712-13	Sample No.	61
Lab ID No.	2010-712-13-02		

Visual Description: BROWN SILT

AVERAGE PERMEABILITY = 3.0E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 3.0E-10 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: TMS Date: 11/18/2010 Checked By: GEM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION:5 rver\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-02 Permometer.xls]Sheet1

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INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	NA
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 4
Project No.	2010-712-13	Sample No.	61
Lab ID No.	2010-712-13-02		

Specific Gravity	2.70	Assumed
Sample Condition		Undisturbed

Visual Description: BROWN SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	802	806
Wt. of Tare & WS (gm.)	588.19	468.19
Wt. of Tare & DS (gm.)	479.41	381.03
Wt. of Tare (gm.)	103.89	102.91
Wt. of Water (gm.)	108.78	87.16
Wt. of DS (gm.)	375.52	278.12
Moisture Content (%)	**29.0**	**31.3**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	721.11	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	721.11	734.37
Length 1 (in.)	3.674	3.596
Length 2 (in.)	3.655	3.584
Length 3 (in.)	3.639	3.589
Top Diameter (in.)	2.850	3.829
Middle Diameter (in.)	2.867	2.844
Bottom Diameter (in.)	2.849	2.837
Average Length (in.)	3.66	3.59
Average Area (in.^{2})	6.40	7.89
Sample Volume (cm^3)	383.63	464.26
Unit Wet Wt. (gm./ cm^3)	1.880	1.582
Unit Wet Wt. (pcf)	117.3	98.7
Unit Dry Wt. (pcf)	91.0	75.2
Unit Dry Wt. (gm./ cm^3)	1.458	1.204
Void Ratio, e	0.852	1.242
Porosity, n	0.460	0.554
Pore Volume (cm^3)	176.5	257.2
Total Wt. Of Sample After Test		725.66

Tested By: TMS Date: 11/18/2010 Checked By: CEM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION\\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-02 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY

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INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	NA
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 4
Project No.	2010-712-13	Sample No.	61
Lab ID No.	2010-712-13-02		

Test Pressures

Cell Pressure(psi)	60.0
Back Pressure(psi)	50.0
Eff. Cons. Pressure(psi)	10.0
Response (%)	95

Final Sample Dimensions

Sample Length (cm), L	9.12
Sample Area (cm^2), A	50.92
Pipette Area (cm^2), a_p	0.03142
Annulus Area (cm^2), a_a	0.76712
Equilibrium Level (cm), R_{eq}	1.4

AVERAGE PERMEABILITY = 3.0E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 3.0E-10 m/sec @ 20°C

DATE (mm/dd/yy)	TIME (hr)	(min)	(sec)	(min)	ELAPSED TIME t (min)	PIPETTE READING R_p (cm)	INCREMENT GRADIENT i (cm/cm)	TEMP. (°C)	INCREMENTAL PERMEABILITY @ 20°C (cm/sec)
11/18/2010	9	55	0	55.00	0.000	10.0	12.3	23.4	NA
11/18/2010	9	56	4	56.07	1.067	9.9	12.2	23.4	7.3E-08
11/18/2010	9	57	48	57.80	2.800	9.8	12.0	23.4	4.5E-08
11/18/2010	10	0	5	0.08	5.083	9.7	11.9	23.4	3.5E-08
11/18/2010	10	2	23	2.38	7.383	9.6	11.7	23.4	3.5E-08
11/18/2010	10	5	6	5.10	10.100	9.5	11.6	23.4	3.0E-08
11/18/2010	10	7	50	7.83	12.833	9.4	11.5	23.4	3.0E-08
11/18/2010	10	10	35	10.58	15.583	9.3	11.3	23.4	3.0E-08
11/18/2010	10	13	21	13.35	18.350	9.2	11.2	23.4	3.0E-08

Tested By: TMS Date: 11/18/2010 Checked By: GEM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-02 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

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PERMOMETER METHOD

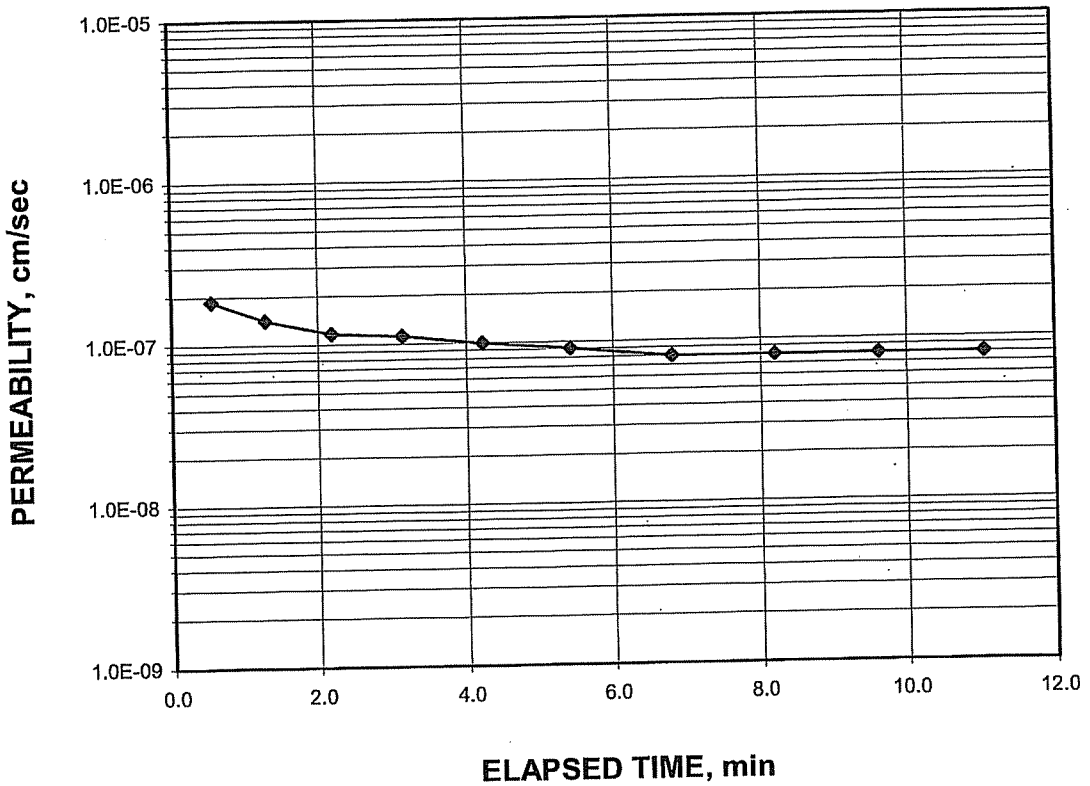
ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	NA
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 3
Project No.	2010-712-13	Sample No.	62
Lab ID No.	2010-712-13-03		

Visual Description: BROWN SILT

AVERAGE PERMEABILITY = 8.0E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 8.0E-10 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: TMS Date: 11/18/2010 Checked By: GEM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION:5 rver\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-03 Permometer.xls]Sheet1

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PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	NA
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 3
Project No.	2010-712-13	Sample No.	62
Lab ID No.	2010-712-13-03		

Specific Gravity	2.70	Assumed
Sample Condition		Undisturbed

Visual Description: BROWN SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	814	805
Wt. of Tare & WS (gm.)	510.36	528.81
Wt. of Tare & DS (gm.)	420.66	429.02
Wt. of Tare (gm.)	111.88	107.18
Wt. of Water (gm.)	89.70	99.79
Wt. of DS (gm.)	308.78	321.84
Moisture Content (%)	**29.0**	**31.0**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	756.59	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	756.59	768.06
Length 1 (in.)	3.891	3.835
Length 2 (in.)	3.875	3.811
Length 3 (in.)	3.887	3.831
Top Diameter (in.)	2.838	2.838
Middle Diameter (in.)	2.843	2.848
Bottom Diameter (in.)	2.836	2.847
Average Length (in.)	3.88	3.83
Average Area (in.^{2})	6.33	6.35
Sample Volume (cm^3)	402.94	398.34
Unit Wet Wt. (gm./ cm^3)	1.878	1.928
Unit Wet Wt. (pcf)	117.2	120.4
Unit Dry Wt. (pcf)	90.8	91.9
Unit Dry Wt. (gm./ cm^3)	1.455	1.472
Void Ratio, e	0.856	0.835
Porosity, n	0.461	0.455
Pore Volume (cm^3)	185.8	181.2
Total Wt. Of Sample After Test		766.68

Tested By: TMS Date: 11/18/2010 Checked By: GEM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION\\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-03 Permometer.xls]Sheet1

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PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	NA
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 3
Project No.	2010-712-13	Sample No.	62
Lab ID No.	2010-712-13-03		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	60.0	Sample Length (cm), L	9.72
Back Pressure(psi)	50.0	Sample Area (cm^2), A	40.99
Eff. Cons. Pressure(psi)	10.0	Pipette Area (cm^2), a_p	0.03142
Response (%)	95	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.4

AVERAGE PERMEABILITY = 8.0E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 8.0E-10 m/sec @ 20°C

DATE		TIME		ELAPSED TIME	PIPETTE READI NG	INCREMENT GRADIENT	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
				t	R_p	i		
(mm/dd/yy)	(hr)	(min)	(sec)	(min)	(min)	(cm)	(cm/cm)	(°C)	(cm/sec)
11/18/2010	10	9	31	9.52	0.000	10.0	11.6	23.5	NA
11/18/2010	10	10	4	10.07	0.550	9.9	11.4	23.5	1.9E-07
11/18/2010	10	10	48	10.80	1.283	9.8	11.3	23.5	1.4E-07
11/18/2010	10	11	42	11.70	2.183	9.7	11.2	23.5	1.2E-07
11/18/2010	10	12	39	12.65	3.133	9.6	11.0	23.5	1.1E-07
11/18/2010	10	13	44	13.73	4.217	9.5	10.9	23.5	9.9E-08
11/18/2010	10	14	56	14.93	5.417	9.4	10.8	23.5	9.1E-08
11/18/2010	10	16	19	16.32	6.800	9.3	10.6	23.5	8.0E-08
11/18/2010	10	17	43	17.72	8.200	9.2	10.5	23.5	8.0E-08
11/18/2010	10	19	8	19.13	9.617	9.1	10.3	23.5	8.0E-08
11/18/2010	10	20	34	20.57	11.050	9.0	10.2	23.5	8.0E-08

Tested By: TMS Date: 11/18/2010 Checked By: GEM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION\\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-03 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

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PERMOMETER METHOD

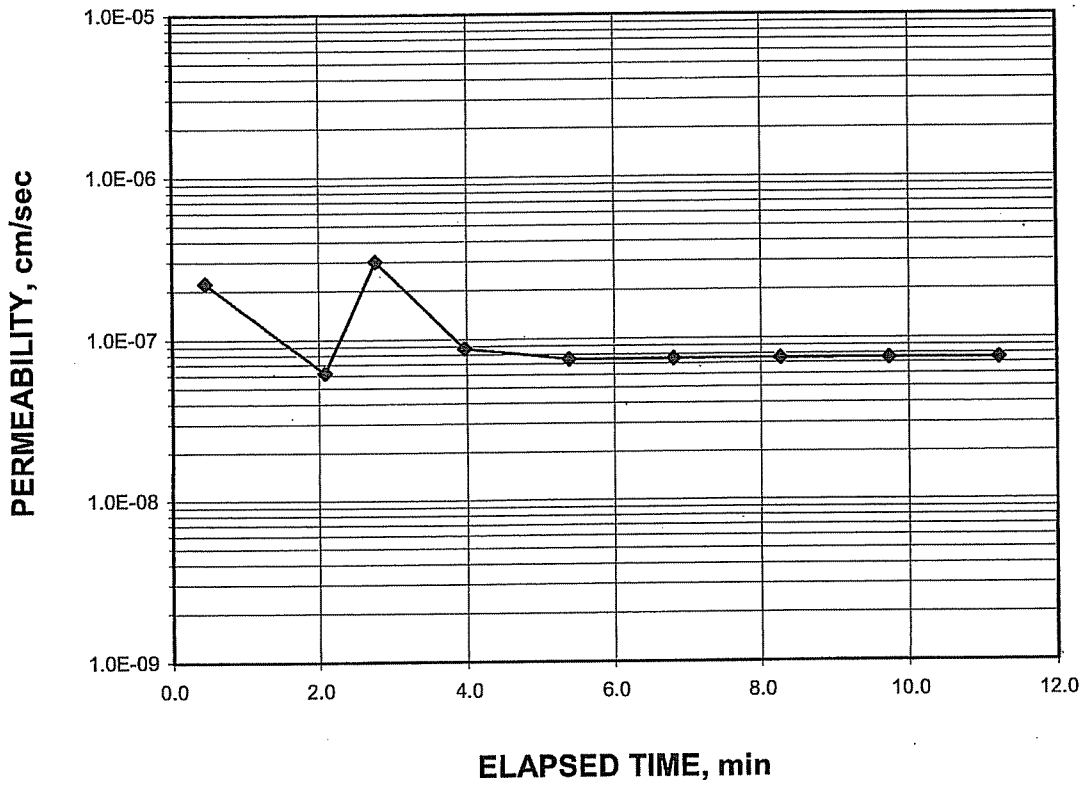
ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	NA
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 2
Project No.	2010-712-13	Sample No.	63
Lab ID No.	2010-712-13-04		

Visual Description: BROWN SILT

AVERAGE PERMEABILITY = 7.5E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 7.5E-10 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: TMS Date: 11/18/2010 Checked By: GZM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION:5 \\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-04 Permometer.xls]Sheet1

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PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	NA
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 2
Project No.	2010-712-13	Sample No.	63
Lab ID No.	2010-712-13-04		

Specific Gravity	2.70	Assumed
Sample Condition		Undisturbed

Visual Description: BROWN SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	805	802
Wt. of Tare & WS (gm.)	277.40	493.84
Wt. of Tare & DS (gm.)	238.06	400.49
Wt. of Tare (gm.)	107.19	103.9
Wt. of Water (gm.)	39.34	93.35
Wt. of DS (gm.)	130.87	296.59
Moisture Content (%)	**30.1**	**31.5**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	764.69	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	764.69	773.00
Length 1 (in.)	3.930	3.820
Length 2 (in.)	3.921	3.822
Length 3 (in.)	3.947	3.832
Top Diameter (in.)	2.832	2.863
Middle Diameter (in.)	2.809	2.801
Bottom Diameter (in.)	2.827	2.829
Average Length (in.)	3.93	3.82
Average Area (in.^{2})	6.26	6.29
Sample Volume (cm^3)	403.27	394.52
Unit Wet Wt. (gm./ cm^3)	1.896	1.959
Unit Wet Wt. (pcf)	118.4	122.3
Unit Dry Wt. (pcf)	91.0	93.0
Unit Dry Wt. (gm./ cm^3)	1.458	1.490
Void Ratio, e	0.852	0.812
Porosity, n	0.460	0.448
Pore Volume (cm^3)	185.5	176.8
Total Wt. Of Sample After Test		769.03

Tested By: TMS Date: 11/18/2010 Checked By: GEM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION\\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-04 Permometer.xls]Sheet1

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PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	NA
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 2
Project No.	2010-712-13	Sample No.	63
Lab ID No.	2010-712-13-04		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	60.0	Sample Length (cm), L	9.71
Back Pressure(psi)	50.0	Sample Area (cm^2), A	40.61
Eff. Cons. Pressure(psi)	10.0	Pipette Area (cm^2), a_p	0.03142
Response (%)	95	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.4

AVERAGE PERMEABILITY = 7.5E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 7.5E-10 m/sec @ 20°C

DATE (mm/dd/yy)	TIME (hr)	(min)	(sec)	ELAPSED TIME (min)	ELAPSED TIME t (min)	PIPETTE READING R_p (cm)	INCREMENT GRADIENT i (cm/cm)	TEMP. (°C)	INCREMENTAL PERMEABILITY @ 20°C (cm/sec)
11/18/2010	10	20	41	20.68	0.000	10.3	12.0	23.5	NA
11/18/2010	10	21	8	21.13	0.450	10.2	11.8	23.5	2.2E-07
11/18/2010	10	22	46	22.77	2.083	10.1	11.7	23.5	6.2E-08
11/18/2010	10	23	27	23.45	2.767	9.9	11.4	23.5	3.0E-07
11/18/2010	10	24	39	24.65	3.967	9.8	11.3	23.5	8.7E-08
11/18/2010	10	26	4	26.07	5.383	9.7	11.2	23.5	7.5E-08
11/18/2010	10	27	30	27.50	6.817	9.6	11.0	23.5	7.5E-08
11/18/2010	10	28	57	28.95	8.267	9.5	10.9	23.5	7.5E-08
11/18/2010	10	30	25	30.42	9.733	9.4	10.8	23.5	7.5E-08
11/18/2010	10	31	54	31.90	11.217	9.3	10.6	23.5	7.5E-08

Tested By: TMS Date: 11/18/2010 Checked By: GDM Date: 11-19-10

DCN: CT-22A DATE:2-2-10 REVISION\\Server\data drive\2010 PROJECTS\2010-712 MESCO\[2010-712-13-04 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

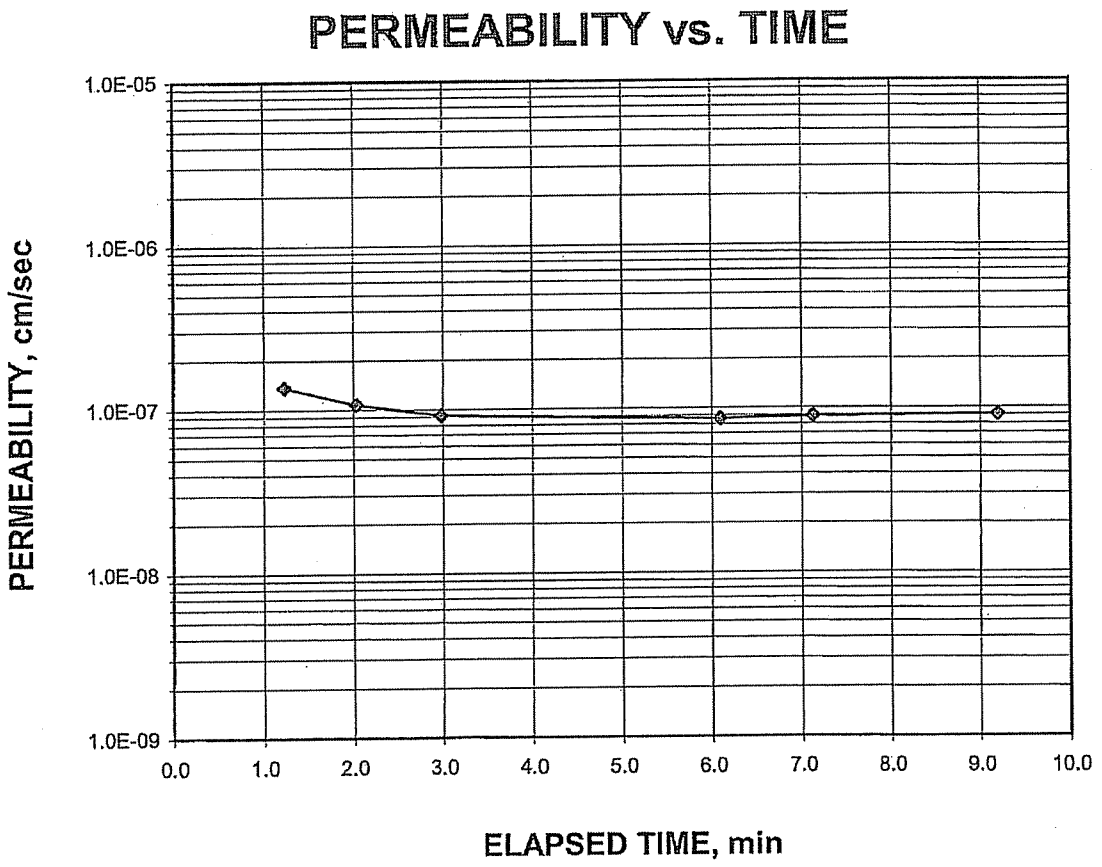
PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 3 SLOPE
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 4
Project No.	2011-793-01	Sample No.	NO. 93
Lab ID No.	2011-793-01-01		

Visual Description: BROWN SILTY CLAY

AVERAGE PERMEABILITY = 8.9E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 8.9E-10 m/sec @ 20°C



Tested By: MPS Date: 7/1/2011 Checked By: GEM Date: 7-7-11

DCN: CT-22A DATE:2-2-10\\BEVERLY\Data Drive\2011 PROJECTS\2011-792 PIED. GEO\[2011-792-01-01 Proctor wHeaders.XLS]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 3 SLOPE
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 4
Project No.	2011-793-01	Sample No.	NO. 93
Lab ID No.	2011-793-01-01		

Specific Gravity	2.70	Assumed
Sample Condition		Undisturbed

Visual Description: BROWN SILTY CLAY

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	819	Z-14
Wt. of Tare & WS (gm.)	250.26	286.2
Wt. of Tare & DS (gm.)	225.58	242.13
Wt. of Tare (gm.)	135.54	100.6
Wt. of Water (gm.)	24.68	44.07
Wt. of DS (gm.)	90.04	141.53
Moisture Content (%)	**27.4**	**31.1**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	577.80	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	577.80	594.71
Length 1 (in.)	3.007	2.971
Length 2 (in.)	2.996	2.980
Length 3 (in.)	3.015	2.994
Top Diameter (in.)	2.840	2.835
Middle Diameter (in.)	2.828	2.837
Bottom Diameter (in.)	2.835	2.846
Average Length (in.)	3.01	2.98
Average Area (in.^{2})	6.31	6.33
Sample Volume (cm^3)	310.75	309.37
Unit Wet Wt. (gm./ cm^3)	1.859	1.922
Unit Wet Wt. (pcf)	116.1	120.0
Unit Dry Wt. (pcf)	91.1	91.5
Unit Dry Wt. (gm./ cm^3)	1.459	1.466
Void Ratio, e	0.850	0.842
Porosity, n	0.459	0.457
Pore Volume (cm^3)	142.8	141.4
Total Wt. Of Sample After Test		594.54

Tested By: MPS Date: 7/1/2011 Checked By: GJM Date: 7-7-11

DCN: CT-22A DATE:2-2-10 [illegible] drive\2011 PROJECTS\2011-792 PIED. GEO\[2011-792-01-01 Proctor wHeaders.XLS]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST
PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 3 SLOPE
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 4
Project No.	2011-793-01	Sample No.	NO. 93
Lab ID No.	2011-793-01-01		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	50.0	Sample Length (cm), L	7.57
Back Pressure(psi)	40.0	Sample Area (cm^2), A	40.85
Eff. Cons. Pressure(psi)	10.0	Pipette Area (cm^2), a_p	0.03142
Response (%)	95	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.3

AVERAGE PERMEABILITY = 8.9E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 8.9E-10 m/sec @ 20°C

DATE		TIME			ELAPSED TIME t	PIPETTE READING R_p	INCREMENT GRADIENT i	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(sec)	(min)	(min)	(cm)	(cm/cm)	(°C)	(cm/sec)
7/6/2011	9	52	57	52.95	0.000	9.3	13.8	24.7	NA
7/6/2011	9	54	11	54.18	1.233	9.1	13.5	24.7	1.4E-07
7/6/2011	9	54	59	54.98	2.033	9.0	13.3	24.7	1.1E-07
7/6/2011	9	55	56	55.93	2.983	8.9	13.1	24.7	9.2E-08
7/6/2011	9	59	3	59.05	6.100	8.6	12.6	24.7	8.6E-08
7/6/2011	10	0	5	0.08	7.133	8.5	12.4	24.7	8.9E-08
7/6/2011	10	2	9	2.15	9.200	8.3	12.1	24.7	9.1E-08

Tested By: MPS Date: 7/1/2011 Checked By: GZM Date: 7-7-11

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FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

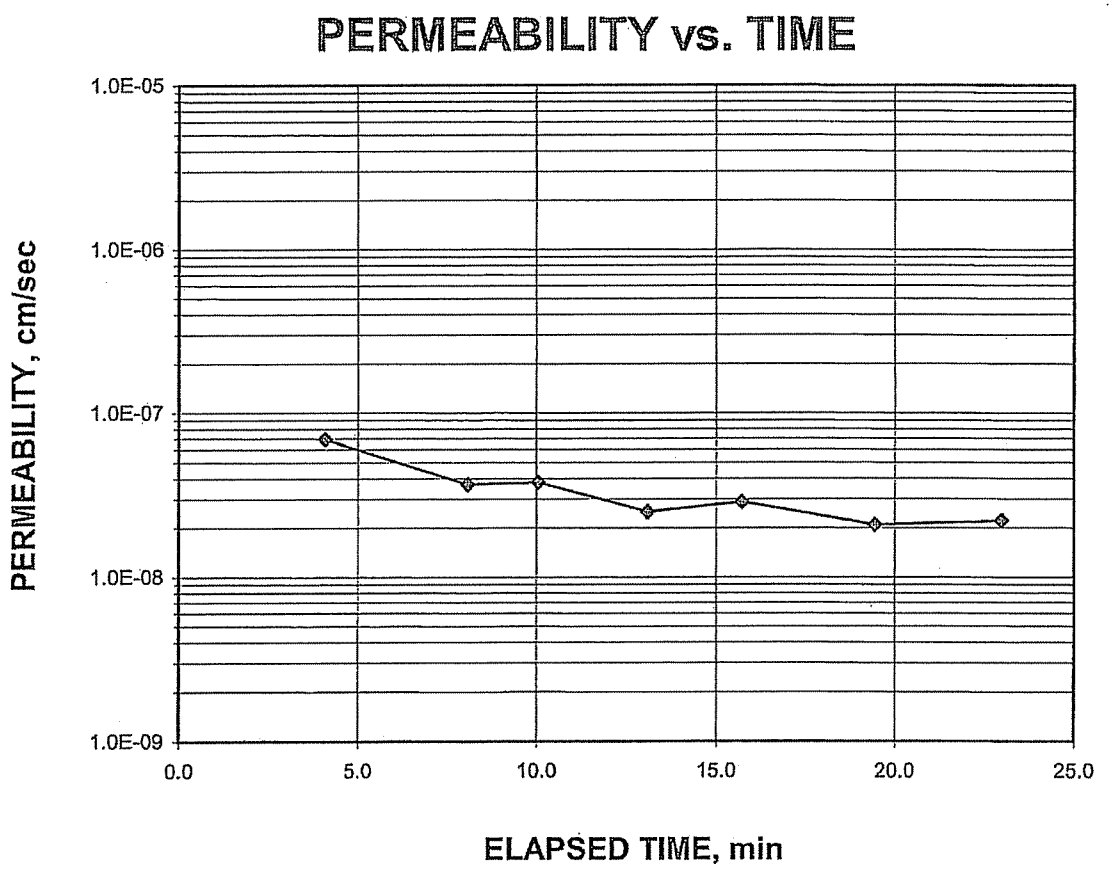
ASTM D 5084-03

(SOP-S22C)

Client	MESCO	Boring No.	GRID 3 SLOPE
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 4
Project No.	2011-793-01	Sample No.	NO. 95
Lab ID No.	2011-793-01-02		

Visual Description: BROWN CLAY

AVERAGE PERMEABILITY = 2.4E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 2.4E-10 m/sec @ 20°C



Tested By: MPS Date: 7/1/2011 Checked By: GDM Date: 7-6-11

DCN: CT-22A DATE: 9-2-10 REVISION: 15 PROJECTS\2011-793 MESCO ASHE CO\[2011-793-01-02 Permometer wHeader.xls]Sheet1

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PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 3 SLOPE
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 4
Project No.	2011-793-01	Sample No.	NO. 95
Lab ID No.	2011-793-01-02		

Specific Gravity	2.70	Assumed
Sample Condition		Undisturbed

Visual Description: BROWN CLAY

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	827	822
Wt. of Tare & WS (gm.)	367.31	333.86
Wt. of Tare & DS (gm.)	318.52	287.83
Wt. of Tare (gm.)	136.48	136.98
Wt. of Water (gm.)	48.79	46.03
Wt. of DS (gm.)	182.04	150.85
Moisture Content (%)	**26.8**	**30.5**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	606.00	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.) (gm.)	606.00	623.74
Length 1 (in.)	3.020	2.978
Length 2 (in.)	2.983	2.982
Length 3 (in.)	3.006	2.994
Top Diameter (in.)	2.827	2.845
Middle Diameter (in.)	2.836	2.852
Bottom Diameter (in.)	2.847	2.865
Average Length (in.)	3.00	2.98
Average Area (in.^{2})	6.32	6.40
Sample Volume (cm^3)	310.97	312.89
Unit Wet Wt. (gm./ cm^3)	1.949	1.993
Unit Wet Wt. (pcf)	121.6	124.4
Unit Dry Wt. (pcf)	95.9	95.3
Unit Dry Wt. (gm./ cm^3)	1.537	1.527
Void Ratio, e	0.757	0.768
Porosity, n	0.431	0.434
Pore Volume (cm^3)	134.0	135.9
Total Wt. Of Sample After Test		614.42

Tested By: MPS Date: 7/1/2011 Checked By: GM Date: 7-6-11

DCN: CT-22A DATES 2/4/11 REVISION 51 PROJECTS\2011-793 MESCO ASHE CO\[2011-793-01-02 Permometer wHeader.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST
PERMOMETER METHOD

ASTM D 5084-03
(SOP-S22C)

Client	MESCO	Boring No.	GRID 3 SLOPE
Client Project	ASHE CO. LF	Depth (ft.)	LIFT 4
Project No.	2011-793-01	Sample No.	NO. 95
Lab ID No.	2011-793-01-02		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	50.0	Sample Length (cm), L	7.58
Back Pressure(psi)	40.0	Sample Area (cm^2), A	41.27
Eff. Cons. Pressure(psi)	10.0	Pipette Area (cm^2), a_p	0.03142
Response (%)	95	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.3

AVERAGE PERMEABILITY = 2.4E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 2.4E-10 m/sec @ 20°C

DATE			TIME		ELAPSED TIME t	PIPETTE READI NG R_p	INCREMENT GRADIENT i	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(sec)	(min)	(min)	(cm)	(cm/cm)	(°C)	(cm/sec)
7/5/2011	3	17	46	17.77	0.000	10.6	16.0	25.5	NA
7/5/2011	3	21	51	21.85	4.083	10.2	15.3	25.6	7.0E-08
7/5/2011	3	25	51	25.85	8.083	10.0	15.0	25.6	3.7E-08
7/5/2011	3	27	49	27.82	10.050	9.9	14.8	25.6	3.8E-08
7/5/2011	3	30	50	30.83	13.067	9.8	14.6	25.6	2.5E-08
7/5/2011	3	33	30	33.50	15.733	9.7	14.5	25.6	2.9E-08
7/5/2011	3	37	13	37.22	19.450	9.6	14.3	25.6	2.1E-08
7/5/2011	3	40	46	40.77	23.000	9.5	14.1	25.6	2.2E-08

Tested By: MPS Date: 7/1/2011 Checked By: [illegible] Date: 7-6-11

2200 Westinghouse Blvd. - Suite 103 - Raleigh, NC 27604 - Phone (919) 876-0405 - Fax (919) 876-0460 - www.geotechnics.net

Geomembrane (HDPE)

CIVIL/SANITARY/ENVIRONMENTAL ENGINEERS
SOLID WASTE MANAGEMENT
Municipal Services
Engineering Company, P.A.
SITE PLANNING/SUBDIVISIONS
SUBSURFACE UTILITY ENGINEERING (SUE)

CERTIFICATION OF FLEXIBLE GEOMEMBRANE LINER
MUNICIPAL SOLID WASTE LANDFILL FACILITY – PHASE 4
ASHE COUNTY, NORTH CAROLINA

I, Jimmy D. Woodie, PE as Principal Engineer certify that the geomembrane liner has been properly installed and tested. Flexible Membrane Liner (FML) manufacturer's certification for the raw materials and manufactured product passed the minimal requirements. All non-destructive seam tests passed the requirements set forth in the Solid Waste Section approved plans. All field and independent laboratory destructive tests passed the Film Tear Bond in general accordance with the Solid Waste Section approved plans.

MUNCIPAL ENGINEERING SERVICES COMPANY, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 6282 ENGINEER JIMMY D. WOODIE

Jimmy D. Woodie, PE, NC Registration No. 6282

12/1/2011

Date

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

OFFICE COPY

7943 PECUE LANE SUITE A BATON ROUGE, LA 70809 TEL (225) 291–2700 FAX (225) 291-2788

TO: Hunter Construction Group, Inc.
118 Timber Road
Mooresville, SC 28115
Tel # : (704) 799 - 7570
ATTENTION: West P. Hunter

DATE: 3/12/10
JOB NAME: Ashe County, NC
MSW Landfill Phase 4 Project # G09083
TRANSMITTAL NUMBER: 02
ESI PROJECT NUMBER: 09-10-1286

WE ARE SENDING YOU [X] ATTACHED [ ] UNDER SEPARATE COVER VIA _____ THE FOLLOWING ITEMS:

[X] SHOP DRAWINGS [ ] PRINTS [ ] PLANS [ ] SAMPLES [ ] SPECIFICATIONS

[ ] COPY OF LETTER [ ] CHANGE ORDER [X] MQC DATA FOR AGRU LINER

COPIES	DATE	DRAWING NO.	REV.	DESCRIPTION	ACTION (*)
1	3/12/10			AGRU MQC DATA	AS/FA
1	3/12/10			Proposed Panel Layout of HDPE LINER	AS/FA

RECEIVED
MAR 16 2010
Municipal Engineering Services Company, PA

ACTION (*)

[X] AS - AS REQUESTED [X] FA - FOR APPROVAL [ ] _____

[ ] F – FILE [ ] RC - REVIEW & COMMENT [ ] _____

COMMENTS:

SENT VIA:

[X] E-MAIL [ ] MAIL [ ] OVERNIGHT AND DELIVERY [ ] OTHER

COPY TO:

[ ] FURNISH AS CORRECTED [ ] REVISE AND RESUBMIT

[ ] APPROVED [ ] REJECTED [ ] SUBMIT SPECIFIC ITEM

This review was performed only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Modifications or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Approval of a specific item does not include approval of the assembly of which the item is a component. Contractor is responsible for dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the work of all trades; and for performing all work in a safe and satisfactory manner.

MUNICIPAL ENGINEERING SERVICES CO., P.A.

Date 3/15/10 By _____

If enclosures are not as noted please notify us at once.

By Gregg Abney

ESI Ashe Cty LF doc 13279

Crumpler, NC

PO# 12778

45 rolls 60 HD microspike 45 left

check weld rod qty ordered

ROLL #	WIDTH	LENGTH	AREA		WGT	LOT#
(K)201601 .10	7	125	875	Ashe Cty LF ESI 45tot 1	3180	7291461
(K)201602 .10	7	125	875	Ashe Cty LF ESI 45tot 2	3185	7291461
(K)201603 .10	7	125	875	Ashe Cty LF ESI 45tot 3	3180	7291461
(K)201604 .10	7	125	875	Ashe Cty LF ESI 45tot 4	3175	7291461
(K)201605 .10	7	125	875	Ashe Cty LF ESI 45tot 5	3190	7291461
(K)201606 .10	7	125	875	Ashe Cty LF ESI 45tot 6	3185	7291461
(K)201707 .10	7	125	875	Ashe Cty LF ESI 45tot 7	3185	7291461
(K)201708 .10	7	125	875	Ashe Cty LF ESI 45tot 8	3045	7291461
(K)201709 .10	7	125	875	Ashe Cty LF ESI 45tot 9	3050	7291461
(K)201710 .10	7	125	875	Ashe Cty LF ESI 45tot 10	3040	7291461
(K)201711 .10	7	125	875	Ashe Cty LF ESI 45tot 11	3045	7291461
(K)201712 .10	7	125	875	Ashe Cty LF ESI 45tot 12	3040	7291461
(K)201713 .10	7	125	875	Ashe Cty LF ESI 45tot 13	3030	7291461
(K)201714 .10	7	125	875	Ashe Cty LF ESI 45tot 14	3045	7291461
(K)201715 .10	7	125	875	Ashe Cty LF ESI 45tot 15	3040	7291461
(K)201716 .10	7	125	875	Ashe Cty LF ESI 45tot 16	3045	7291461
(K)201717 .10	7	125	875	Ashe Cty LF ESI 45tot 17	3050	7291461
(K)201718 .10	7	125	875	Ashe Cty LF ESI 45tot 18	3040	7291461
(K)201719 .10	7	125	875	Ashe Cty LF ESI 45tot 19	3045	7291461
(K)201720 .10	7	125	875	Ashe Cty LF ESI 45tot 20	3050	7291461
(K)201721 .10	7	125	875	Ashe Cty LF ESI 45tot 21	3045	7291461
(K)201722 .10	7	125	875	Ashe Cty LF ESI 45tot 22	3050	7291461
(K)201723 .10	7	125	875	Ashe Cty LF ESI 45tot 23	3035	7291461
(K)201724 .10	7	125	875	Ashe Cty LF ESI 45tot 24	3040	7291461
(K)201725 .10	7	125	875	Ashe Cty LF ESI 45tot 25	3050	7291461
(K)201726 .10	7	125	875	Ashe Cty LF ESI 45tot 26	3050	7291461
(K)201727 .10	7	125	875	Ashe Cty LF ESI 45tot 27	3045	7291461
(K)201728 .10	7	125	875	Ashe Cty LF ESI 45tot 28	3050	7291461
(K)201729 .10	7	125	875	Ashe Cty LF ESI 45tot 29	3050	7291461
(K)201730 .10	7	125	875	Ashe Cty LF ESI 45tot 30	3055	7291461
(K)202101 .10	7	125	875	Ashe Cty LF ESI 45tot 31	3045	7291461
(K)202102 .10	7	125	875	Ashe Cty LF ESI 45tot 32	3050	7291461
(K)202103 .10	7	125	875	Ashe Cty LF ESI 45tot 33	3055	7291461
(K)202104 .10	7	125	875	Ashe Cty LF ESI 45tot 34	3050	7291461
(K)202105 .10	7	125	875	Ashe Cty LF ESI 45tot 35	3055	7291461
(K)202106 .10	7	125	875	Ashe Cty LF ESI 45tot 36	3070	7291461
(K)202107 .10	7	125	875	Ashe Cty LF ESI 45tot 37	3070	7291461
(K)202108 .10	7	125	875	Ashe Cty LF ESI 45tot 38	3060	7291461
(K)202109 .10	7	125	875	Ashe Cty LF ESI 45tot 39	3060	7291468
(K)202110 .10	7	125	875	Ashe Cty LF ESI 45tot 40	3060	7291468
(K)202111 .10	7	125	875	Ashe Cty LF ESI 45tot 41	3060	7291468
(K)202112 .10	7	125	875	Ashe Cty LF ESI 45tot 42	3075	7291468
(K)202113 .10	7	125	875	Ashe Cty LF ESI 45tot 43	3065	7291468
(K)202114 .10	7	125	875	Ashe Cty LF ESI 45tot 44	3060	7291468
(K)202115 .10	7	125	875	Ashe Cty LF ESI 45tot 45	3070	7291468

Geotechnics
.....GEOTECHNICAL AND GEOSYNTHETIC SERVICES

March 23, 2010

Project No.: L10013-01

Mr. Wayne Sullivan
Municipal Engineering Service Company
P.O. Box 97
Garner, NC 27529

RECEIVED
MAR 26 2010
Municipal Engineering Services Company, PA

Transmittal
Laboratory Test Results
Ashe County Landfill

Please find attached the laboratory test results for the above referenced project. The tests were performed in general accordance with the procedures referenced on the data tables as well as industry practice. The test results are believed to be representative of the samples that were submitted for testing and are indicative only of the specimens which were evaluated. We have no direct knowledge of the origin of the samples and imply no position with regard to the nature of the test results, i.e. pass/fail and no claims as to the suitability of the material for its intended use.

The test data and all associated project information provided shall be held in strict confidence and disclosed to other parties only with authorization by our Client. The test data submitted herein is considered integral with this report and is not to be reproduced except in whole and only with the authorization of the Client and Geotechnics. The remaining sample materials for this project will be retained for a minimum of 90 days as directed by the Geotechnics' Quality Program.

We are pleased to be of service and trust that our efforts have contributed to the success of your project. Should you have any questions or if we may be of further assistance, please contact our office.

Respectively submitted,
Geotechnics, Inc.

J.P. Kline, P.E.
Laboratory Director

GAI-LAP
Initials: **#: 14-96**
Date:

We understand that you have a choice in your laboratory services and we thank you for choosing Geotechnics.

544 Braddock Avenue • East Pittsburgh, PA 15112 • 412-823-7600 • FAX 412-823-8999 • www.geotechnics.net

CONFORMANCE TEST RESULTS

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-01
LAB ID NO.: L10013-01-01
MATERIAL: AGRU 60 MIL HDPE MICROSPIKE
ROLL NO: 201601-10

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
THICKNESS	D 5994	mils	67 65	69 61	67 60	66 61	66 59	**64.1**	3.51
ASPERITY HEIGHT	GRI GM-12 SHINY SIDE	mils	32 32	32 33	33 33	31 32	31 32	**32.1**	0.74
ASPERITY HEIGHT	GRI GM-12 DULL SIDE	mils	28 28	28 29	29 29	28 28	28 30	**28.5**	0.71
DENSITY	D 1505	g/cc	0.9473	0.9473	0.9473			**0.9473**	0.0001
CARBON BLACK CONTENT	D 1603	%	2.05	2.08				**2.07**	0.022
CARBON BLACK DISPERSION	D 5596	CATEGORY	1 1	1 1	1 1	1 1	1 1		
TENSILE PROPERTIES	D 6693								
STRENGTH AT YIELD		MD-ppi	150	170	160	156	174	**162**	9.95
		CD-ppi	186	187	175	162	159	**174**	13.07
STRENGTH AT BREAK		MD-ppi	150	212	209	156	197	**185**	29.80
		CD-ppi	192	187	175	171	159	**177**	13.02
ELONGATION AT YIELD Lo = 1.3"		MD%	19.5	21.1	20.8	18.4	18.6	**19.7**	1.24
		CD%	15.2	14.6	14.6	15.8	17.0	**15.4**	1.00
ELONGATION AT BREAK Lo = 2.0"		MD%	312	423	441	362	475	**403**	65.17
		CD%	399	420	332	404	385	**388**	33.71

CHECKED BY: BF DATE: 3-23-10

\\GEOSERVER\Data Drive\Synthetics\2010 SYNTHETICS\013 - MESCO - ASHE CO. LF\[L10013-01-01 MICRO ASHE CO.xls]Sheet1

L10013-01-01 3/23/2010

CONFORMANCE TEST RESULTS

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-01
LAB ID NO.: L10013-01-02
MATERIAL: AGRU 60 MIL HDPE MICROSPIKE
ROLL NO: 201711-10

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
THICKNESS	D 5994	mils	59 61	60 59	61 60	63 60	62 59	**60.4**	1.35
ASPERITY HEIGHT	GRI GM-12 SHINY SIDE	mils	28 33	30 33	31 34	32 34	34 32	**32.1**	1.97
ASPERITY HEIGHT	GRI GM-12 DULL SIDE	mils	32 27	30 28	29 27	28 29	28 27	**28.5**	1.58
DENSITY	D 1505	g/cc	0.9472	0.9471	0.9471			**0.9471**	0.0001
CARBON BLACK CONTENT	D 1603	%	2.27	2.28				**2.27**	0.009
CARBON BLACK DISPERSION	D 5596	CATEGORY	1 1	1 1	1 1	1 1	1 1		
TENSILE PROPERTIES	D 6693								
STRENGTH AT YIELD		MD-ppi	146	151	156	148	142	**149**	5.17
		CD-ppi	152	156	174	168	160	**162**	9.06
STRENGTH AT BREAK		MD-ppi	167	201	182	149	162	**172**	20.11
		CD-ppi	175	156	178	178	161	**169**	10.51
ELONGATION AT YIELD Lo = 1.3"		MD%	19.9	21.1	20.8	17.8	18.9	**19.7**	1.37
		CD%	16.1	17.2	14.5	13.9	15.3	**15.4**	1.30
ELONGATION AT BREAK Lo = 2.0"		MD%	392	425	370	403	429	**404**	24.32
		CD%	545	374	517	557	444	**487**	77.11

CHECKED BY: BF DATE: 3-23-10

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CONFORMANCE TEST RESULTS

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-01
LAB ID NO.: L10013-01-03
MATERIAL: AGRU 60 MIL HDPE MICROSPIKE
ROLL NO: 201722-10

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
THICKNESS	D 5994	mils	65	62	63	61	61	**60.7**	2.16
			60	59	59	58	59		
ASPERITY HEIGHT	GRI GM-12 SHINY SIDE	mils	33	30	32	33	31	**31.7**	1.16
			32	31	32	33	30		
ASPERITY HEIGHT	GRI GM-12 DULL SIDE	mils	28	29	28	29	27	**28.1**	0.74
			28	27	28	29	28		
DENSITY	D 1505	g/cc	0.9472	0.9472	0.9473			**0.9472**	0.0001
CARBON BLACK CONTENT	D 1603	%	2.08	2.09				**2.09**	0.006
CARBON BLACK DISPERSION	D 5596	CATEGORY	1	1	1	1	1		
			1	1	1	1	1		
TENSILE PROPERTIES	D 6693								
STRENGTH AT YIELD		MD-ppi	138	147	158	157	160	**152**	9.09
		CD-ppi	166	171	158	161	165	**164**	4.93
STRENGTH AT BREAK		MD-ppi	165	157	202	207	190	**184**	22.21
		CD-ppi	185	180	179	167	178	**178**	6.69
ELONGATION AT YIELD Lo = 1.3"		MD%	19.6	19.4	20.2	20.7	19.6	**19.9**	0.54
		CD%	14.3	15.1	16.2	14.4	15.2	**15.0**	0.76
ELONGATION AT BREAK Lo = 2.0"		MD%	447	373	444	422	421	**421**	29.62
		CD%	390	451	406	398	427	**414**	24.66

CHECKED BY: BF DATE: 3-23-10

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CONFORMANCE TEST RESULTS

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-01
LAB ID NO.: L10013-01-04
MATERIAL: AGRU 60 MIL HDPE MICROSPIKE
ROLL NO: 202102-10

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
THICKNESS	D 5994	mils	64 67	62 64	64 59	61 59	66 60	**62.6**	2.84
ASPERITY HEIGHT	GRI GM-12 SHINY SIDE	mils	34 32	34 31	33 33	34 30	33 32	**32.6**	1.35
ASPERITY HEIGHT	GRI GM-12 DULL SIDE	mils	27 29	28 30	27 29	27 28	30 29	**28.4**	1.17
DENSITY	D 1505	g/cc	0.9475	0.9474	0.9474			**0.9475**	0.0001
CARBON BLACK CONTENT	D 1603	%	2.24	2.25				**2.24**	0.007
CARBON BLACK DISPERSION	D 5596	CATEGORY	1 1	1 1	1 1	1 1	1 1		
TENSILE PROPERTIES	D 6693								
STRENGTH AT YIELD		MD-ppi	150	163	162	155	147	**155**	7.06
		CD-ppi	163	175	167	163	158	**165**	6.32
STRENGTH AT BREAK		MD-ppi	188	207	187	155	157	**179**	22.24
		CD-ppi	178	179	172	171	158	**172**	8.20
ELONGATION AT YIELD Lo = 1.3"		MD%	20.5	21.3	20.5	18.8	19.1	**20.0**	1.05
		CD%	13.9	13.9	15.3	15.9	14.5	**14.7**	0.88
ELONGATION AT BREAK Lo = 2.0"		MD%	435	389	414	346	384	**394**	33.58
		CD%	529	500	478	491	453	**490**	27.99

CHECKED BY: BF DATE: 3-23-10

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L10013-01-04 3/23/2010

CONFORMANCE TEST RESULTS

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-01
LAB ID NO.: L10013-01-05
MATERIAL: AGRU 60 MIL HDPE MICROSPIKE
ROLL NO: 202113-10

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
THICKNESS	D 5994	mils	63	64	60	61	60	**60.7**	1.77
			60	61	61	59	58		
ASPERITY HEIGHT	GRI GM-12 SHINY SIDE	mils	31	33	32	32	33	**32.7**	0.95
			34	33	34	33	32		
ASPERITY HEIGHT	GRI GM-12 DULL SIDE	mils	30	30	29	30	30	**30.0**	0.67
			29	30	31	30	31		
DENSITY	D 1505	g/cc	0.9474	0.9473	0.9473			**0.9473**	0.0001
CARBON BLACK CONTENT	D 1603	%	2.34	2.34				**2.34**	0.001
CARBON BLACK DISPERSION	D 5596	CATEGORY	1	1	1	1	1		
			1	1	1	1	1		
TENSILE PROPERTIES	D 6693								
STRENGTH AT YIELD		MD-ppi	140	150	156	157	142	**149**	7.75
		CD-ppi	149	154	160	167	174	**161**	10.15
STRENGTH AT BREAK		MD-ppi	177	186	196	187	160	**181**	13.29
		CD-ppi	149	162	160	167	174	**162**	9.46
ELONGATION AT YIELD Lo = 1.3"		MD%	20.8	21.1	21.4	21.1	19.2	**20.7**	0.88
		CD%	17.1	15.0	15.0	14.7	14.4	**15.2**	1.07
ELONGATION AT BREAK Lo = 2.0"		MD%	430	417	392	390	448	**415**	24.86
		CD%	337	413	461	437	405	**411**	46.61

CHECKED BY: BF DATE: 3-23-10

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agru america quality control dept.

quality certificate

ROLL # **201723-10** Lot #: **7291461** **Liner Type: MICROSPIKE™ HDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	1.39	mm	55	mil
	MAX:	1.59	mm	63	mil
	AVE:	1.50	mm	59	mil

Asperity ASTM D7466: 27/35 mil
ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.5 mm	60 mil
Length.....	125 m	410.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes 174

						TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc				.945
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190ºC /2160 g	g/10 min				.23
Carbon Black Content ASTM D4218	Range	%				2.18
Carbon Black Dispersion ASTM D5596	Category					10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	28	N/mm (kN/m)	160	ppi	2,708 psi
	Average Strength @ Break	31	N/mm (kN/m)	178	ppi	3,008 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%				16.50
Lo = 2.0" Break	Average Elongation @ Break	%				483.4
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.16
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	245.5	N			55.185 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	408.6	N			91.862 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	604.0	N			135.78 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs				ONGOING

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: **1-10-10**
Signature.....
Quality Control Department

60HDmic.FRM
REV 03
12/23/05

agru america quality control dept.

quality certificate

ROLL # **202115-10** Lot #: **7291468** **Liner Type: MICROSPIKE™ HDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	1.38	mm	54	mil
	MAX:	1.60	mm	63	mil
Asperity ASTM D7466: 29/33 mil	AVE:	1.45	mm	57	mil
ODD # : TOP EVEN #: BOTTOM					

Thickness.....	1.5 mm	60 mil	
Length.....	125 m	410.1 feet	
Width.....	7.00 m;	23.0 feet	
OIT(Standard) ASTM D3895	minutes	170	

						TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc				.948
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190ºC /2160 g	g/10 min				.23
Carbon Black Content ASTM D4218	Range	%				2.17
Carbon Black Dispersion ASTM D5596	Category					10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	26	N/mm (kN/m)	150	ppi	2,620 psi
	Average Strength @ Break	29	N/mm (kN/m)	166	ppi	2,912 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%				17.03
Lo = 2.0" Break	Average Elongation @ Break	%				469.3
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.66
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	226.5	N			50.926 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	422.8	N			95.052 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	588.2	N			132.24 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs				ONGOING

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: **1-11-10**

Signature.....

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ROLL # **201726-10** Lot #: **7291461** **Liner Type: MICROSPIKE™ HDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	1.38	mm	54	mil
	MAX:	1.52	mm	60	mil
Asperity ASTM D7466: 24/34 mil	AVE:	1.46	mm	57	mil
ODD # : TOP EVEN #: BOTTOM					

Thickness.....	1.5 mm	60 mil	
Length.....	125 m	410.1 feet	
Width.....	7.00 m;	23.0 feet	
OIT(Standard) ASTM D3895 minutes	174		

						TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc				.945
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min				.23
Carbon Black Content ASTM D4218	Range	%				2.21
Carbon Black Dispersion ASTM D5596	Category					10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	27	N/mm (kN/m)	156	ppi	2,722 psi
	Average Strength @ Break	29	N/mm (kN/m)	167	ppi	2,910 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%				16.81
Lo = 2.0" Break	Average Elongation @ Break	%				449.1
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.16
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	245.5	N			55.185 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	408.6	N			91.862 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	604.0	N			135.78 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs				ONGOING

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: **1-10-10**

Signature.....

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ROLL # **202113-10** Lot #: **7291468** **Liner Type: MICROSPIKE™ HDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.40	mm	55	mil
	MAX:	1.59	mm	63	mil
Asperity ASTM D7466: 29/35 mil	AVE:	1.49	mm	59	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.5	mm	60 mil
Length.....	125	m	410.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **170**

						TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc				.948
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min				.23
Carbon Black Content ASTM D4218	Range	%				2.17
Carbon Black Dispersion ASTM D5596	Category					10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	27	N/mm (kN/m)	154	ppi	2,620 psi
	Average Strength @ Break	30	N/mm (kN/m)	171	ppi	2,912 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%				17.03
Lo = 2.0" Break	Average Elongation @ Break	%				469.3
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.66
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	226.5	N			50.926 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	422.8	N			95.052 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	588.2	N			132.24 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs				ONGOING

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: **1-11-10**

Signature.....

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ROLL # **201719-10** Lot #: **7291461** **Liner Type: MICROSPIKE™ HDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.36	mm	54	mil
	MAX:	1.74	mm	69	mil
Asperity ASTM D7466: 30/30 mil	AVE:	1.53	mm	60	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.5	mm	60 mil
Length.....	125	m	410.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **174**

						TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc				.945
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min				.23
Carbon Black Content ASTM D4218	Range	%				2.30
Carbon Black Dispersion ASTM D5596	Category					10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	30	N/mm (kN/m)	170	ppi	2,816 psi
	Average Strength @ Break	33	N/mm (kN/m)	190	ppi	3,149 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%				17.42
Lo = 2.0" Break	Average Elongation @ Break	%				481.4
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.16
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	224.7	N			50.512 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	434.7	N			97.738 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	611.8	N			137.54 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs				ONGOING

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: **1-10-10**

Signature: [signature]
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ROLL # **201725-10** Lot #: **7291461** **Liner Type: MICROSPIKE™ HDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.37	mm	54	mil
	MAX:	1.62	mm	64	mil
Asperity ASTM D7466: 31/31 mil	AVE:	1.50	mm	59	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.5	mm	60 mil
Length.....	125	m	410.1 feet
Width.....	7.00	m;	23.0 feet
OIT(Standard) ASTM D3895 minutes	174		

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.945
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190ºC /2160 g	g/10 min		.23
Carbon Black Content ASTM D4218	Range	%		2.21
Carbon Black Dispersion ASTM D5596	Category			10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	28 N/mm (kN/m)	161 ppi	2,722 psi
	Average Strength @ Break	30 N/mm (kN/m)	172 ppi	2,910 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%		16.81
Lo = 2.0" Break	Average Elongation @ Break	%		449.1
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.16
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	245.5 N		55.185 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	408.6 N		91.862 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	604.0 N		135.78 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs		ONGOING

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: **1-10-10**

Signature: [signature]
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ROLL # **201730-10** Lot #: **7291461** **Liner Type: MICROSPIKE™ HDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.45	mm	57	mil
	MAX:	1.60	mm	63	mil
Asperity ASTM D7466: 29/31 mil	AVE:	1.49	mm	59	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.5	mm	60 mil
Length.....	125	m	410.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **174**

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			.945
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190ºC /2160 g	g/10 min			.23
Carbon Black Content ASTM D4218	Range	%			2.13
Carbon Black Dispersion ASTM D5596	Category				10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	28 N/mm (kN/m)	159 ppi	2,708	psi
	Average Strength @ Break	34 N/mm (kN/m)	193 ppi	3,291	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%		17.33	
Lo = 2.0" Break	Average Elongation @ Break	%		498.0	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.16	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	234.2 N		52.660	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	390.6 N		87.811	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	568.7 N		127.85	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED	
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs		ONGOING	

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: **1-10-10**

Signature: [signature]
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ROLL # **201601-10** Lot #: **7291461** **Liner Type: MICROSPIKE™ HDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	1.51	mm	59	mil
	MAX:	1.67	mm	66	mil
Asperity ASTM D7466: 29/31 mil	AVE:	1.58	mm	62	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.5 mm	60 mil
Length.....	125 m	410.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **174**

						TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc				.945
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190ºC /2160 g	g/10 min				.23
Carbon Black Content ASTM D4218	Range	%				2.34
Carbon Black Dispersion ASTM D5596	Category					10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	29	N/mm (kN/m)	165	ppi	2,657 psi
	Average Strength @ Break	30	N/mm (kN/m)	174	ppi	2,796 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%				18.13
Lo = 2.0" Break	Average Elongation @ Break	%				442.7
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.16
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	239.4	N			53.818 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	489.8	N			110.12 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	676.2	N			152.02 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs				ONGOING

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: **1-9-10**

Signature: [signature]
Quality Control Department

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ROLL # **201717-10** Lot #: **7291461** **Liner Type: MICROSPIKE™ HDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.39	mm	55	mil
	MAX:	1.65	mm	65	mil
	AVE:	1.49	mm	59	mil

Asperity ASTM D7466: 30/33 mil
ODD # : TOP EVEN #: BOTTOM

Thickness..... 1.5 mm 60 mil
Length..... 125 m 410.1 feet
Width..... 7.00 m; 23.0 feet

OIT(Standard) ASTM D3895 minutes 174

						TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc				.945
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190ºC /2160 g	g/10 min				.23
Carbon Black Content ASTM D4218	Range	%				2.18
Carbon Black Dispersion ASTM D5596	Category					10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	29	N/mm (kN/m)	165	ppi	2,816 psi
	Average Strength @ Break	32	N/mm (kN/m)	185	ppi	3,149 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%				17.42
Lo = 2.0" Break	Average Elongation @ Break	%				481.4
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.16
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	224.7	N			50.512 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	434.7	N			97.738 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	611.8	N			137.54 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs				ONGOING

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: 1-10-10

Signature.....

Quality Control Department

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ROLL # **201711-10** Lot #: **7291461** **Liner Type: MICROSPIKE™ HDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.40	mm	55	mil
	MAX:	1.60	mm	63	mil
	AVE:	1.49	mm	59	mil

Asperity ASTM D7466: 31/33 mil
ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.5 mm	60 mil
Length.....	125 m	410.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes 174

						TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc				.945
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190ºC /2160 g	g/10 min				.23
Carbon Black Content ASTM D4218	Range	%				2.23
Carbon Black Dispersion ASTM D5596	Category					10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	27	N/mm (kN/m)	154	ppi	2,619 psi
	Average Strength @ Break	30	N/mm (kN/m)	170	ppi	2,899 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%				16.73
Lo = 2.0" Break	Average Elongation @ Break	%				449.2
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.16
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	224.7	N			50.512 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	434.7	N			97.738 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	611.8	N			137.54 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs				ONGOING

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: **1-10-10**

Signature: [signature]
Quality Control Department

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ROLL # **201728-10** Lot #: **7291461** **Liner Type: MICROSPIKE™ HDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	1.41	mm	56	mil
	MAX:	1.57	mm	62	mil
	AVE:	1.49	mm	59	mil

Asperity ASTM D7466: 29/30 mil
ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.5	mm	60	mil
Length.....	125	m	410.1	feet
Width.....	7.00	m;	23.0	feet

OIT(Standard) ASTM D3895 minutes **174**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.945
MFI ASTM D1238 COND. E GRADE: **K307**	Melt Flow Index 190ºC /2160 g	g/10 min		.23
Carbon Black Content ASTM D4218	Range	%		2.13
Carbon Black Dispersion ASTM D5596	Category			10 In Cat 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	28 N/mm (kN/m)	160 ppi	2,722 psi
	Average Strength @ Break	30 N/mm (kN/m)	171 ppi	2,910 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Yield	%		16.81
	Average Elongation @ Break	%		449.1
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.16
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	245.5 N		55.185 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	408.6 N		91.862 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	604.0 N		135.78 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs		ONGOING

Customer: **Environmental Specialties**
PO: **12778 Ashe County Landfill**
Destination **Crumpler, NC**

Date: **1-10-10**

Signature.....
Quality Control Department

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CoA Date: 12/04/2009

Chevron Phillips Chemical Company LP

Certificate of Analysis

Shipped To: AGRU AMERICA INC
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: PALMER
Fax:

CPC Delivery #: 87967174
PO #: 005206
Weight: 210600 LB
Ship Date: 12/04/2009
Package: BULK
Mode: Hopper Car
Car #: CITX703214
Seal No: 272918

Product:
MARLEX POLYETHYLENE K307 BULK

Lot Number: 7291461

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.230	g/10mi
HLMI Flow Rate	ASTM D1238	21.00	g/10mi
nsity	D1505 or D4883	0.9370	g/cm3
ellet Count	P02.08.03	29.000	pel/g
Production Date		11/25/2009	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP.
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Troy Griffin
Quality Systems Coordinator

For CoA questions contact Customer Service Representative at +1-832-813-4637

CoA Date: 11/29/2009

Certificate of Analysis

Shipped To: AGRU AMERICA INC
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: PALMER
Fax:

CPC Delivery #: 87963604
PO #: 005204
Weight: 193600 LB
Ship Date: 11/29/2009
Package: BULK
Mode: Hopper Car
Car #: CEFX053863
Seal No: 272880

Product:
MARLEX POLYETHYLENE K307 BULK

Lot Number: 7291468

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.230	g/10mi
HLMI Flow Rate	ASTM D1238	21.00	g/10mi
nsity	D1505 or D4883	0.9370	g/cm3
ellet Count	P02.08.03	32.000	pel/g
roduction Date		11/26/2009	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP.
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Troy Griffin
Quality Systems Coordinator

For CoA questions contact Customer Service Representative at +1-832-813-4637

Chevron Phillips Chemical Company LP

Rex L. Bobsein, Ph.D., Polyethylene Materials and Applications Development
Room 109 PTC ■ Bartlesville, OK 74004■
918-661-0089 ■ bobserl@cpchem.com ■ Fax: 918-662-2550 ■ www.cpchem.com

January 16, 2006

Grant Palmer
Agru America
500 Garrison Road
Georgetown, SC 29440

Dear Grant:

This letter is to re-report the results of oven aging and UV aging testing (according to GRI-GM13 and GRI-GM17) on Agru America sheet samples that you provided to us in 2004. A graphical summary of the results was sent to you on 4/1/2005. The testing was performed by CPChem's Evaluation Laboratory in Bartlesville, OK. Oven-aging tests were completed 12/17/2004. UV-aging tests were completed on 12/13/2004.

GRI-GM13 (HDPE) and GRI-GM17 (LLDPE) durability testing was done according to the following procedures.

Test	Exposure	Method
Std. OIT	200°C, atmospheric pressure oxygen	D3895
HP-OIT	150°C, 500 psi oxygen	D5885
Oven Aging	90 days, 85°C	D5721
UV Aging	1600 UV hrs (Conditions were 20 hours UVA-340 at 75°C followed by 4 hrs dark with condensation at 60°C. Irradiance was 0.72 W/m^2 at 340nm.)	GRI-GM11

Oven Aging Results

Sample	Initial HP-OIT (min.)	HP-OIT Value after Oven Aging (min.)	% HP-OIT Retained	GRI-GM13 or GRI-GM17 % Retained Requirement
40 mil LLDPE Roll # 312588 from Marlex® 7104 Lot # CPN811170	514	396	77	60
60 mil HDPE Roll # 315103-04 from Marlex® K307 Lot # 71-3-1465	1461	1547	106	80

Sample	Initial Std. OIT (min.)	Std. OIT Value after Oven Aging (min.)	% Std. OIT Retained	GRI-GM13 or GRI-GM17 % Retained Requirement
40 mil LLDPE Roll # 312588 from Marlex® 7104 Lot # CPN811170	151	58	38	35
60 mil HDPE Roll # 315103-04 from Marlex® K307 Lot # 71-3-1465	201	127	63	55

UV Aging Results

Sample	Initial HP-OIT (min.)	HP-OIT Value after UV Aging (min.)	% HP-OIT Retained	GRI-GM13 or GRI-GM17 % Retained Requirement
40 mil LLDPE Roll # 312588 from Marlex® 7104 Lot # CPN811170	514	460	89	35
60 mil HDPE Roll # 315103-04 from Marlex® K307 Lot # 71-3-1465	1461	1513	104	50

According to these test results, the durability requirements are met.

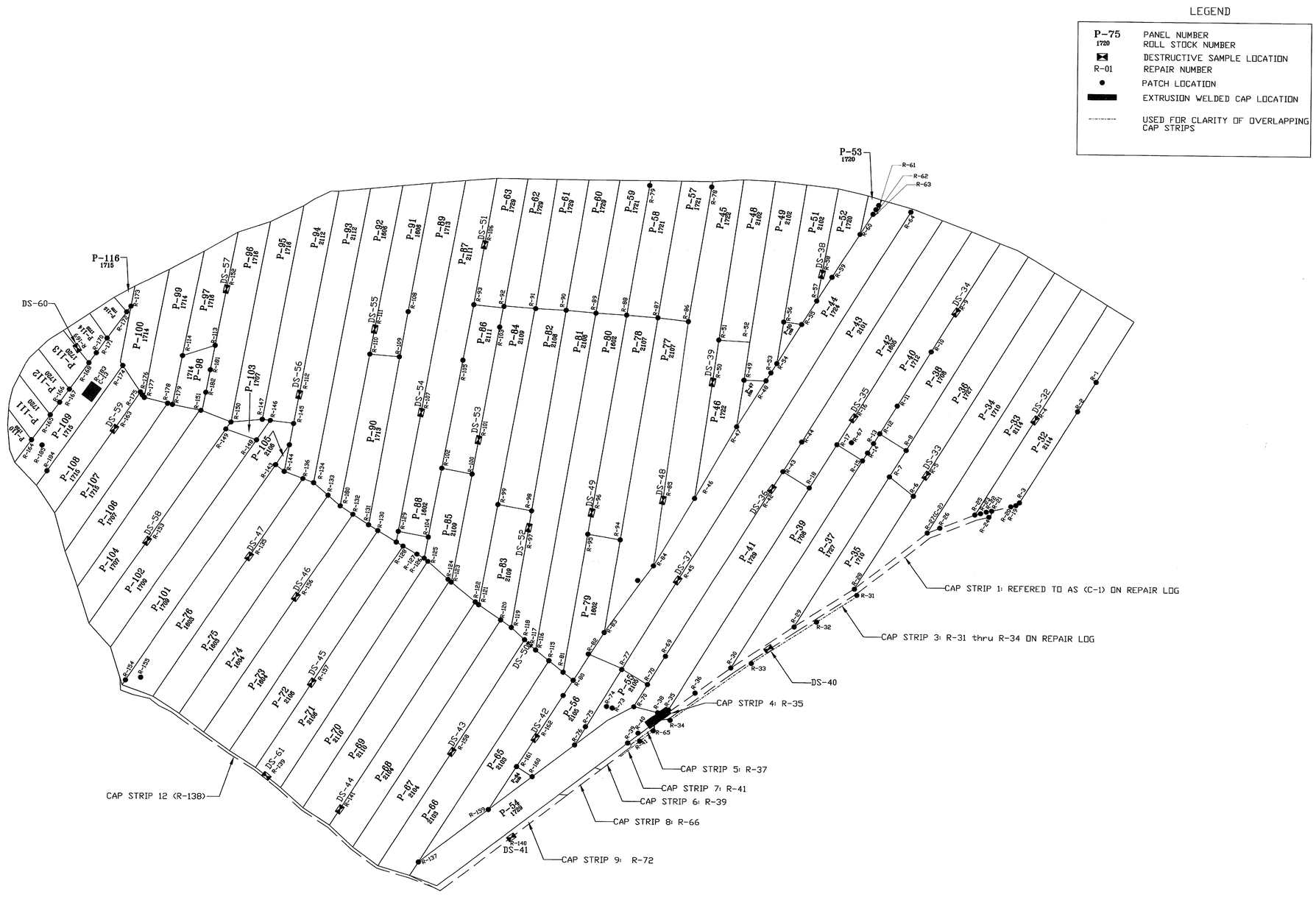
If you have any questions, please call me at 918-661-0089.

Sincerely,

Rex L. Bobsein

Rex L. Bobsein, Ph.D.
Polyethylene Materials and Applications Development

Any technical advice, recommendations, results, or analysis ("Information") contained herein, including, without limitation, Information as it may relate to the selection of a specific product ("Product") for your use and application, is given ***without warranty or guarantee*** *and is accepted at your sole risk. It is imperative that you test the Information (and Product, if applicable) to determine to your own satisfaction whether the Information (and Product, if applicable) are suitable for your intended use and application.* ***You expressly assume, and release Chevron Phillips Chemical Company, from all risk and liability, whether based in contract, tort or otherwise, in connection with the use of, or results obtained from, such Information (and Product, if applicable).***



SCALE-1"= 40'

40 0 40 80

60 MIL TEXTURED HDPE GEOMEMBRANE
AS-BUILT RECORD DRAWING

ENVIRONMENTAL SPECIALTIES INTERNATIONAL
7943 PECUE LANE SUITE A
BATON ROUGE, LOUISIANA 70809

NORTH

REV	DESCRIPTION	DATE	BY
1	Corrected DS 60 label	9/13/2011	AV

TITLE: ASHE COUNTY LANDFILL FACILITY
MUNICIPAL SOLID WASTE
CONSTRUCTION PLAN PHASE 4
CRUMPLER, NORTH CAROLINA

CHECKED BY:	DATE
DRAWN BY: AV	DATE 9-30-11
SCALE 1"=40'	
JOB NUMBER 09-10-1286	
SHEET NUMBER 1 OF 1	

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

ACCEPTANCE FOR WORK COMPLETED

PROJECT: Ashe County L.F
LOCATION Jefferson, NC
DATE: 11/16
PROJECT NO. 09-10-1286

Billing Information
Owner
Representative:_____

Owner:_____

Billing Address:_____

The undersigned, as owner or authorized agent for owner, states that he has inspected the below listed project and found it completed in accordance with engineering design specifications.

Material Type: __60m.HDPE Textured_____ Total Sq. Ft.: _86,403'_____
Material Type: __Double-Side Composite____ Total Sq. Ft.: _86,403_____
Material Type: _____ Total Sq. Ft.: _____
Material Type: _____ Total Sq. Ft.: _____
Material Type: _____ Total Sq. Ft.: _____
Material Type: _____ Total Sq. Ft.: _____
Material Type: _____ Total Sq. Ft.: _____
Material Type: _____ Total Sq. Ft.: _____
Material Type: _____ Total Sq. Ft.: _____
Material Type: _____ Total Sq. Ft.: _____
Rain Flap SF: _5,490_____ Textured/Smooth Weld: _____
Rain Flap Weld: __160_____ Tie-In Weld:__420_____
Boots: _____1_____

COMMENTS: Cap 840'

ESI Representative | Owner/Contractor | QA/QC

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

SUBGRADE ACCEPTANCE

PROJECT NAME: Ashe County L.F

PROJECT NUMBER: 09-10-1286

OWNER: _____

LOCATION: Jefferson, NC.

I, undersigned, a duly appointed representative of Environmental Specialties International, Inc., have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

The certification is based on observations of the subgrade only. No subterranean inspections or tests have been performed by Environmental Specialties International, Inc. and ESI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Environmental Specialties International, Inc. accepts no responsibility for conformance of the subgrade to this project's specifications.

Area Being Accepted :
11/11/10 Panels Deployment 1-31A

Date: 11/11/10

Signature:

Name: Khaophone Sackluxai

Title: QC

OWNERS REPRESENTATIVE:

Date: 11-16-2010

Signature:

Name: Jeff Hart

Title: Sup.

Company: Hunter Const.

Daily Panel Placement

Page 7

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** 11/11/10

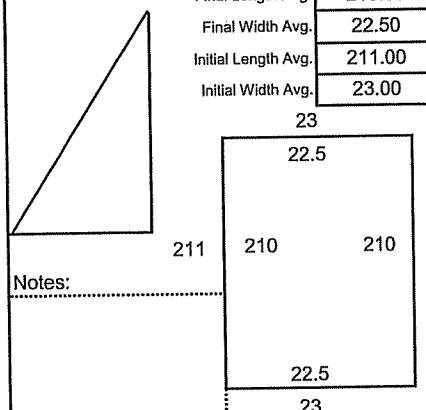
Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

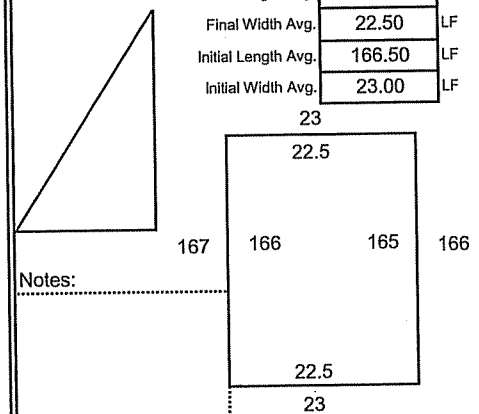
Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel #	Roll #	Final Length Avg.	Final Width Avg.	Initial Length Avg.	Initial Width Avg.	Initial SF	Final SF	Lineal Feet Trench
1	1728	210.00 LF	22.50 LF	211.00 LF	23.00 LF	4,853	4,725	
2	1728	165.50 LF	22.50 LF	166.50 LF	23.00 LF	3,830	3,724	
3	1711	43.00 LF	22.50 LF	44.00 LF	23.00 LF	1,012	968	
4	1711	206.50 LF	22.50 LF	207.50 LF	23.00 LF	4,773	4,646	
5	1711	137.00 LF	22.50 LF	138.00 LF	23.00 LF	3,174	3,083	
6	1717	67.50 LF	22.75 LF	68.50 LF	22.75 LF	1,558	1,536	
7	1717	206.50 LF	22.50 LF	207.50 LF	23.00 LF	4,773	4,646	
8	1717	135.00 LF	22.50 LF	136.00 LF	23.00 LF	3,128	3,038	

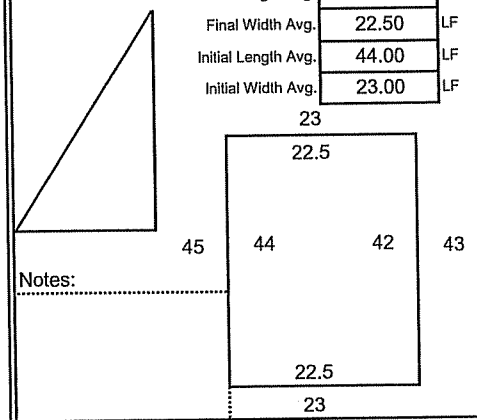
Panel # 1 — Notes:



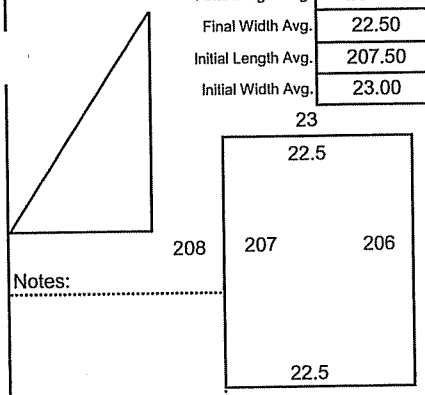
Panel # 2 — Notes:



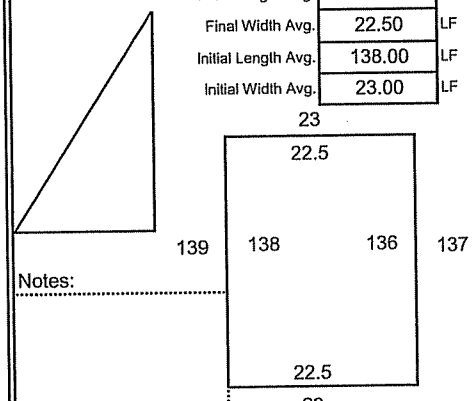
Panel # 3 — Notes:



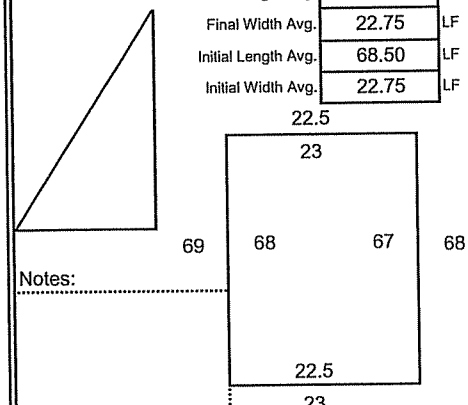
Panel # 4 — Notes:



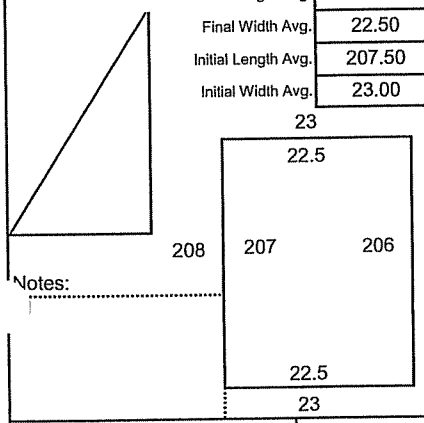
Panel # 5 — Notes:



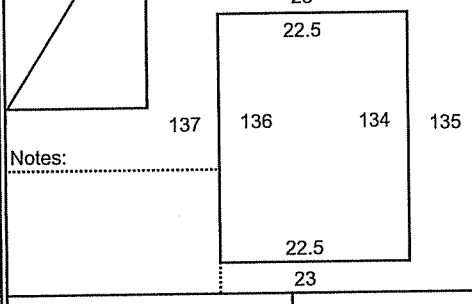
Panel # 6 — Notes:



Panel # 7 — Notes:



Panel # 8 — Notes:



Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	**26,364**	SF
Total Pay Area This Page	**26,364**	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	108,748	SF
Total Panel SF To Date	135,112	SF
Total Pay Area To Date Including Anchor Trench	**135,112**	
Initial Quantity Previous	118,743	SF
Initial Quantity This Page	27,100	SF
Initial Quantity To Date	145,843	SF

Daily Panel Placement

Page 8

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** 11/11/10

Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel # 9 — Roll # 1717

Final Length Avg.	63.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	64.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 66 / 65 / 62 / 63 / 22.5 / 23

Notes:

Initial SF	1,484	Lineal Feet Trench
Final SF	1,429	

Panel # 10 — Roll # 1601

Final Length Avg.	143.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	144.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 147 / 146 / 141 / 142 / 22.5 / 23

Notes:

Initial SF	3,324	Lineal Feet Trench
Final SF	3,229	

Panel # 11 — Roll # 1717

Final Length Avg.	49.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	50.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 51 / 50 / 48 / 49 / 22.5 / 23

Notes:

Initial SF	1,150	Lineal Feet Trench
Final SF	1,103	

Panel # 12 — Roll # 1601

Final Length Avg.	52.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	53.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 55 / 54 / 51 / 52 / 22.5 / 23

Notes:

Initial SF	1,231	Lineal Feet Trench
Final SF	1,181	

Panel # 13 — Roll # 1730

Final Length Avg.	141.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	142.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 142 / 141 / 141 / 142 / 22.5 / 23

Notes:

Initial SF	3,266	Lineal Feet Trench
Final SF	3,173	

Panel # 14 — Roll # 1601

Final Length Avg.	50.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	51.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 52 / 51 / 50 / 51 / 22.5 / 23

Notes:

Initial SF	1,185	Lineal Feet Trench
Final SF	1,136	

Panel # 15 — Roll # 1730

Final Length Avg.	142.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	143.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 142 / 141 / 143 / 144 / 22.5 / 23

Notes:

Initial SF	3,289	Lineal Feet Trench
Final SF	3,195	

Panel # 16 — Roll # 2115

Final Length Avg.	193.00	LF
Final Width Avg.	13.50	LF
Initial Length Avg.	194.00	LF
Initial Width Avg.	23.00	LF

23 / 17 / 194 / 193 / 193 / 194 / 10 / 23

Notes:

Initial SF	4,462	Lineal Feet Trench
Final SF	2,606	

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	**17,051**	SF
Total Pay Area This Page	**17,051**	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	135,112	SF
Total Panel SF To Date	152,162	SF
Total Pay Area To Date Including Anchor Trench	**152,162**	
Initial Quantity Previous	145,843	SF
Initial Quantity This Page	19,389	SF
Initial Quantity To Date	165,232	SF

Daily Panel Placement

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** 11/11/10

Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel # 17 — Roll # 1725

Final Length Avg.	169.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	170.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 171 / 170 / 169 / 170 / 22.5 / 23

Notes:

Initial SF	3,922	Lineal Feet Trench
Final SF	3,814	

Panel # 18 — Roll # 1725

Final Length Avg.	168.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	170.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 170 / 169 / 168 / 170 / 22.5 / 23

Notes:

Initial SF	3,910	Lineal Feet Trench
Final SF	3,791	

Panel # 19 — Roll # 1725

Final Length Avg.	169.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	170.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 169 / 168 / 171 / 172 / 22.5 / 23

Notes:

Initial SF	3,922	Lineal Feet Trench
Final SF	3,814	

Panel # 20 — Roll # 1725

Final Length Avg.	46.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	47.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 46 / 45 / 47 / 48 / 22.5 / 23

Notes:

Initial SF	1,081	Lineal Feet Trench
Final SF	1,035	

Panel # 21 — Roll # 1719

Final Length Avg.	125.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	126.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 127 / 126 / 125 / 126 / 22.5 / 23

Notes:

Initial SF	2,910	Lineal Feet Trench
Final SF	2,824	

Panel # 22 — Roll # 1719

Final Length Avg.	173.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	174.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 173 / 172 / 174 / 175 / 22.5 / 23

Notes:

Initial SF	4,002	Lineal Feet Trench
Final SF	3,893	

Panel # 23 — Roll # 1719

Final Length Avg.	75.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	76.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 75 / 74 / 77 / 78 / 22.5 / 23

Notes:

Initial SF	1,760	Lineal Feet Trench
Final SF	1,699	

Panel # 24 — Roll # 1730

Final Length Avg.	100.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	101.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 101 / 100 / 100 / 101 / 22.5 / 23

Notes:

Initial SF	2,323	Lineal Feet Trench
Final SF	2,250	

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	**23,119**	SF
Total Pay Area This Page	**23,119**	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	152,162	SF
Total Panel SF To Date	175,281	SF
Total Pay Area To Date Including Anchor Trench	**175,281**	
Initial Quantity Previous	165,232	SF
Initial Quantity This Page	23,828	SF
Initial Quantity To Date	189,060	SF

Daily Panel Placement

Page 10

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** _____

Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:** _____

Description (i.e. Phase #, Cell #, Pond # etc.) _____ **Roll Stock Width** _____

Panel # 25 — Roll # 2113

Final Length Avg.	180.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	181.50	LF
Initial Width Avg.	23.00	LF

23
22.5
178 177 184 185
22.5
23

Notes:

Initial SF	4,175	Lineal Feet Trench
Final SF	4,061	

Panel # 26 — Roll # 2113

Final Length Avg.	187.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	188.00	LF
Initial Width Avg.	23.00	LF

23
22.5
185 184 190 191
22.5
23

Notes:

Initial SF	4,324	Lineal Feet Trench
Final SF	4,208	

Panel # 27 — Roll # 1726

Final Length Avg.	198.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	199.50	LF
Initial Width Avg.	23.00	LF

23
22.5
187 185 211 212
22.5
23

Notes:

Initial SF	4,589	Lineal Feet Trench
Final SF	4,455	

Panel # 28 — Roll # 1726

Final Length Avg.		LF
Final Width Avg.		LF
Initial Length Avg.		LF
Initial Width Avg.		LF

19 8
8
8

Notes:

Initial SF	32	Lineal Feet Trench
Final SF	76	

Panel # 29 — Roll # 1726

Final Length Avg.	163.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	164.00	LF
Initial Width Avg.	23.00	LF

23
22.5
141 140 186 187
22.5
23

Notes:

Initial SF	3,772	Lineal Feet Trench
Final SF	3,668	

Panel # 30 — Roll # 2115

Final Length Avg.	108.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	109.00	LF
Initial Width Avg.	23.00	LF

23
22.5
77 76 140 141
22.5
23

Notes:

Initial SF	2,507	Lineal Feet Trench
Final SF	2,430	

Panel # 31 — Roll # 2115

Final Length Avg.		LF
Final Width Avg.		LF
Initial Length Avg.	5.00	LF
Initial Width Avg.		LF

10 10
18
70 10

Notes:

Initial SF	350	Lineal Feet Trench
Final SF	90	

Panel # 31A — Roll # 2115

Final Length Avg.		LF
Final Width Avg.		LF
Initial Length Avg.		LF
Initial Width Avg.		LF

4 10
10

Notes:

Initial SF	-	Lineal Feet Trench
Final SF	20	

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**19,007**	**SF**
Total Pay Area This Page	**19,007**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	175,281	SF
Total Panel SF To Date	194,288	SF
Total Pay Area To Date Including Anchor Trench	**194,288**	
Initial Quantity Previous	189,060	SF
Initial Quantity This Page	19,748	SF
Initial Quantity To Date	208,808	SF

Daily Panel Placement

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** _____

Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:** _____

Description (i.e. Phase #, Cell #, Pond # etc.) _____ **Roll Stock Width** _____

Panel #	Roll #	Final Length Avg.	Final Width Avg.	Initial Length Avg.	Initial Width Avg.	Initial SF	Final SF	Lineal Feet Trench
FLAP	1,718	161.50 LF	34.00 LF	160.00 LF	34.00 LF	5,440	5,491	
						-	-	
						-	-	
						-	-	
						-	-	
						-	-	
						-	-	
						-	-	
						-	-	

Notes:

34
34
160 162 161 160
34
34

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	5,491	SF
Total Pay Area This Page	5,491	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	194,288	SF
Total Panel SF To Date	199,779	SF
Total Pay Area To Date Including Anchor Trench	**199,779**	
Initial Quantity Previous	208,808	SF
Initial Quantity This Page	5,440	SF
Initial Quantity To Date	214,248	SF

Daily Panel Placement

Page 1

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** 07/26/11

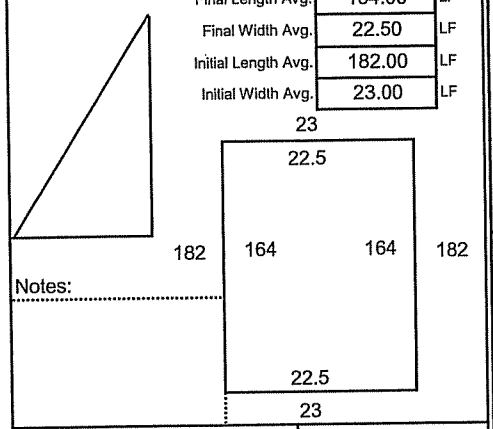
Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel # 32 — Roll # 2114

Final Length Avg.	164.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	182.00	LF
Initial Width Avg.	23.00	LF

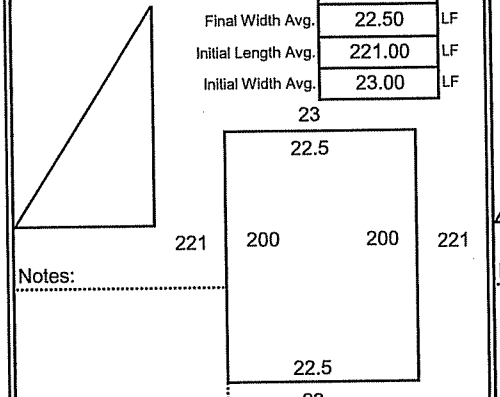


Notes:

Initial SF	4,186	Lineal Feet Trench
Final SF	3,690	

Panel # 33 — Roll # 2114

Final Length Avg.	200.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	221.00	LF
Initial Width Avg.	23.00	LF

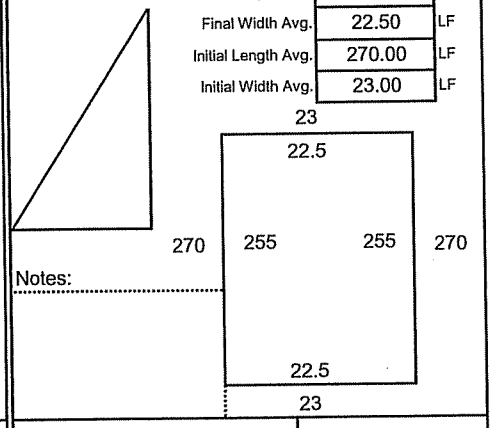


Notes:

Initial SF	5,083	Lineal Feet Trench
Final SF	4,500	

Panel # 34 — Roll # 1710

Final Length Avg.	255.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	270.00	LF
Initial Width Avg.	23.00	LF

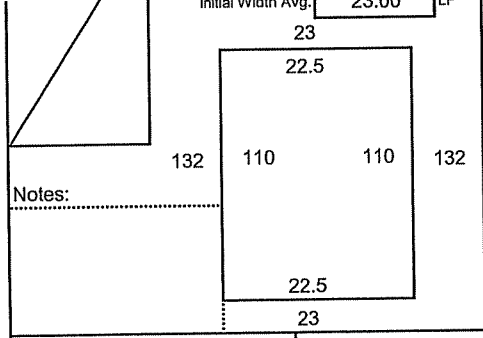


Notes:

Initial SF	6,210	Lineal Feet Trench
Final SF	5,738	

Panel # 35 — Roll # 1710

Final Length Avg.	110.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	132.00	LF
Initial Width Avg.	23.00	LF

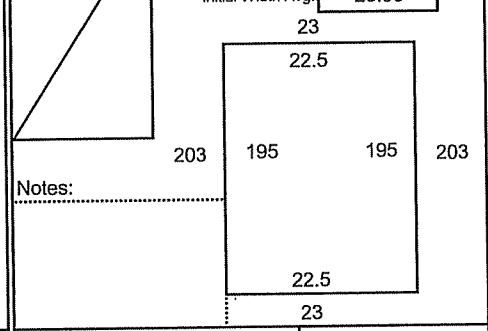


Notes:

Initial SF	3,036	Lineal Feet Trench
Final SF	2,475	

Panel # 36 — Roll # 1727

Final Length Avg.	195.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	203.00	LF
Initial Width Avg.	23.00	LF

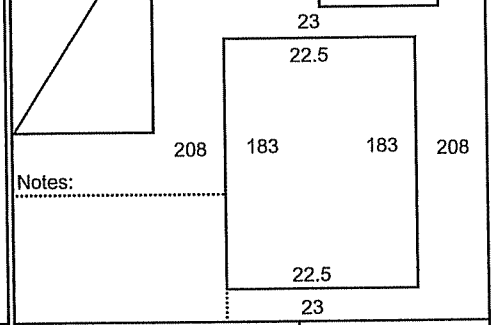


Notes:

Initial SF	4,669	Lineal Feet Trench
Final SF	4,388	

Panel # 37 — Roll # 1727

Final Length Avg.	183.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	208.00	LF
Initial Width Avg.	23.00	LF

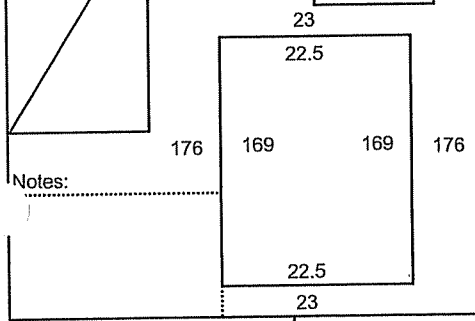


Notes:

Initial SF	4,784	Lineal Feet Trench
Final SF	4,118	

Panel # 38 — Roll # 1708

Final Length Avg.	169.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	176.00	LF
Initial Width Avg.	23.00	LF

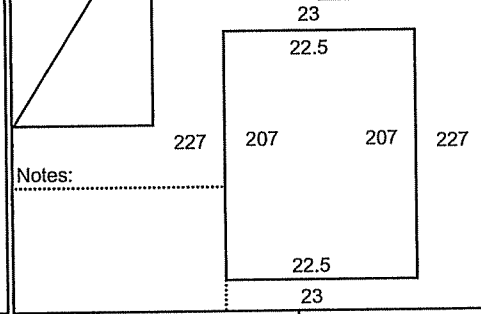


Notes:

Initial SF	4,048	Lineal Feet Trench
Final SF	3,803	

Panel # 39 — Roll # 1708

Final Length Avg.	207.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	227.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	5,221	Lineal Feet Trench
Final SF	4,658	

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**33,368**	**SF**
Total Pay Area This Page	**33,368**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	-	SF
Total Panel SF To Date	33,368	SF
Total Pay Area To Date Including Anchor Trench	**33,368**	
Initial Quantity Previous	-	SF
Initial Quantity This Page	37,237	SF
Initial Quantity To Date	37,237	SF

Daily Panel Placement

Page 2

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** 07/26/11

Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel #	Roll #	Final Length Avg.	Final Width Avg.	Initial Length Avg.	Initial Width Avg.	Initial SF	Final SF	Lineal Feet Trench
40	1712	187.00 LF	22.50 LF	193.00 LF	23.00 LF	4,439	4,208	
41	1712	215.00 LF	password 22.50 LF	219.00 LF	23.00 LF	5,037	4,838	
42	1605	223.00 LF	22.50 LF	231.00 LF	23.00 LF	5,313	5,018	
						-	-	
						-	-	
						-	-	
						-	-	
						-	-	

Panel 40 diagram: 23 / 22.5 / 193 187 187 193 / 22.5 / 23

Panel 41 diagram: 23 / 22.5 / 219 215 215 219 / 22.5 / 23

Panel 42 diagram: 23 / 22.5 / 231 223 223 231 / 22.5 / 23

Notes:

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	**14,063**	SF
Total Pay Area This Page	**14,063**	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	33,368	SF
Total Panel SF To Date	47,430	SF
Total Pay Area To Date Including Anchor Trench	**47,430**	
Initial Quantity Previous	37,237	SF
Initial Quantity This Page	14,789	SF
Initial Quantity To Date	52,026	SF

Daily Panel Placement

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** 07/27/11

Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel # Cap-1 — Roll # 1605

Final Length Avg.	287.00	LF
Final Width Avg.	4.00	LF
Initial Length Avg.	287.00	LF
Initial Width Avg.	5.00	LF

5 / 4 / 287 287 287 287 / 4 / 5

Notes:

Initial SF	1,435	Lineal Feet Trench
Final SF	1,148	

Panel # 43 — Roll # 2101

Final Length Avg.	402.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	411.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 411 402 402 411 / 22.5 / 23

Notes:

Initial SF	9,453	Lineal Feet Trench
Final SF	9,045	

Panel # 44 — Roll # 1724

Final Length Avg.	398.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	412.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 412 398 398 412 / 22.5 / 23

Notes:

Initial SF	9,476	Lineal Feet Trench
Final SF	8,955	

Panel # 45 — Roll # 1722

Final Length Avg.	266.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	270.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 270 266 266 270 / 22.5 / 23

Notes:

Initial SF	6,210	Lineal Feet Trench
Final SF	5,985	

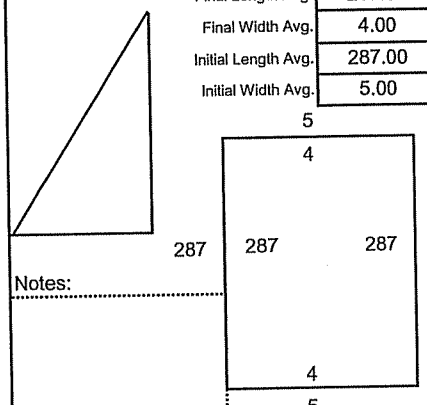
Panel # 46 — Roll # 1722

Final Length Avg.	82.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	86.00	LF
Initial Width Avg.	23.00	LF

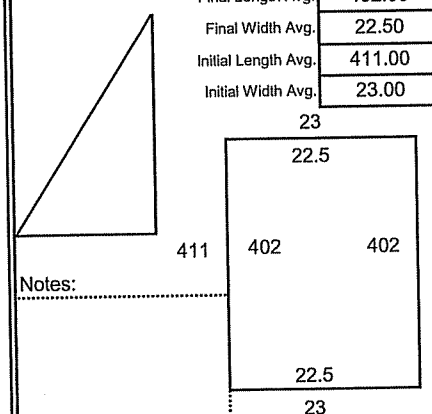
23 / 22.5 / 86 82 82 86 / 22.5 / 23

Notes:

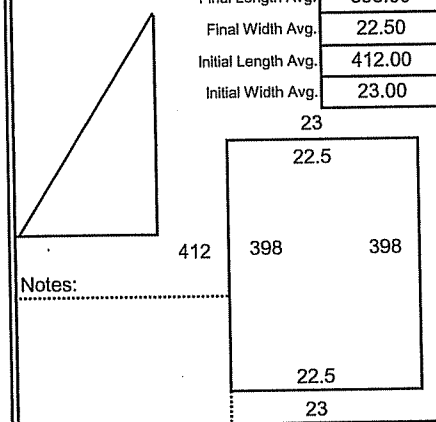
Initial SF	1,978	Lineal Feet Trench
Final SF	1,845	

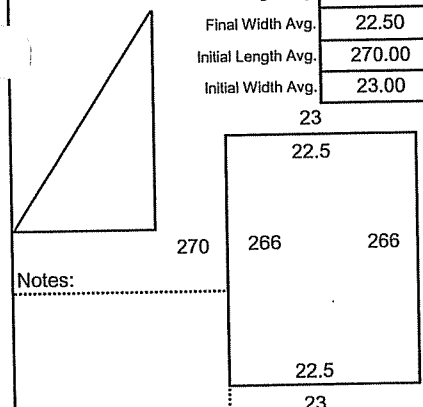


Panel # 47 — Roll # 1722



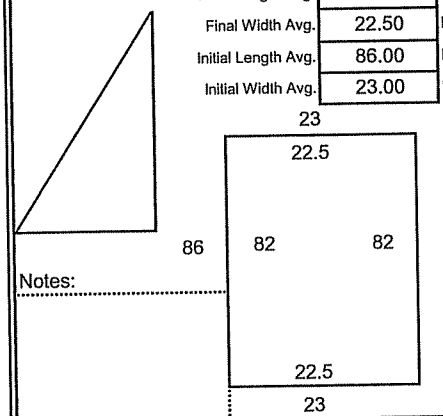
Final Length Avg.	38.00	LF
Final Width Avg.	8.00	LF
Initial Length Avg.	40.00	LF
Initial Width Avg.	17.00	LF



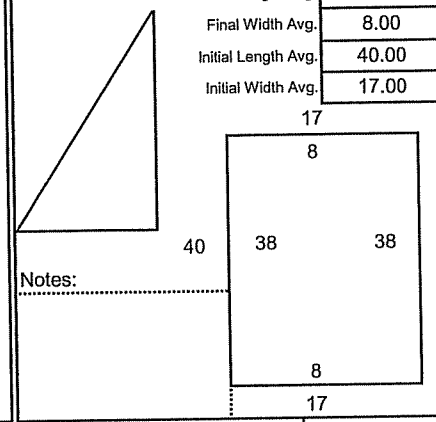


17 / 8 / 40 38 38 40 / 8 / 17

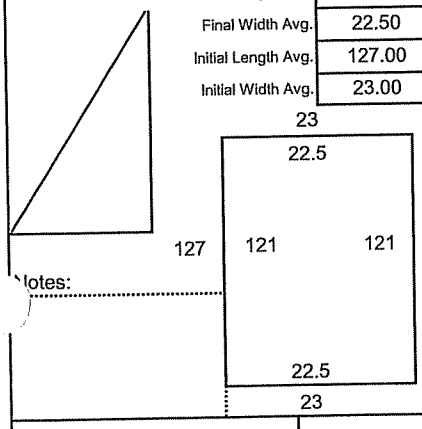
Notes:



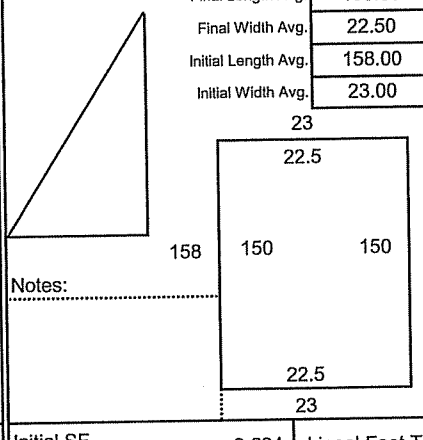
Initial SF	680	Lineal Feet Trench
Final SF	304	



Panel # 48 — Roll # 2102



Final Length Avg.	121.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	127.00	LF
Initial Width Avg.	23.00	LF



23 / 22.5 / 127 121 121 127 / 22.5 / 23

Notes:

Initial SF	2,921	Lineal Feet Trench
Final SF	2,723	

Panel # 49 — Roll # 2102

Final Length Avg.	150.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	158.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 158 150 150 158 / 22.5 / 23

Notes:

Initial SF	3,634	Lineal Feet Trench
Final SF	3,375	

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**33,380**	**SF**
Total Pay Area This Page	**33,380**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	47,430	SF
Total Panel SF To Date	80,810	SF
Total Pay Area To Date Including Anchor Trench	**80,810**	
Initial Quantity Previous	52,026	SF
Initial Quantity This Page	35,787	SF
Initial Quantity To Date	87,813	SF

Daily Panel Placement

Page 4

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** 07/27/11

Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel #	Roll #	Final Length Avg.	Final Width Avg.	Initial Length Avg.	Initial Width Avg.	Initial SF	Final SF	Lineal Feet Trench
50	1722	34.00 LF	7.00 LF	36.00 LF	15.00 LF	540	238	
51	2102	103.00 LF	22.50 LF	108.00 LF	23.00 LF	2,484	2,318	
52	1720	58.00 LF	22.50 LF	80.00 LF	23.00 LF	1,840	1,305	
53	1720	15.00 LF	6.00 LF	21.00 LF	8.00 LF	168	90	
						-	-	
						-	-	
						-	-	
						-	-	

Notes:

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	3,951	SF
Total Pay Area This Page	3,951	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	80,810	SF
Total Panel SF To Date	84,760	SF
Total Pay Area To Date Including Anchor Trench	**84,760**	
Initial Quantity Previous	87,813	SF
Initial Quantity This Page	5,032	SF
Initial Quantity To Date	92,845	SF

Daily Panel Placement

Page 5

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** 07/28/11

Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel #	Roll #	Final Length Avg.	Final Width Avg.	Initial Length Avg.	Initial Width Avg.	Initial SF	Final SF	Lineal Feet Trench
54	2105	217.00 LF	22.50 LF	221.00 LF	23.00 LF	5,083	4,883	
55	2105	44.00 LF	20.00 LF	58.00 LF	23.00 LF	1,334	880	
		LF	LF	LF	LF	-	-	
		LF	LF	LF	LF	-	-	
		LF	LF	LF	LF	-	-	
		LF	LF	LF	LF	-	-	
		LF	LF	LF	LF	-	-	
		LF	LF	LF	LF	-	-	

Panel 54 diagram: 23; 22.5; 221; 217; 217; 221; 22.5; 23

Panel 55 diagram: 23; 20; 58; 44; 44; 58; 20; 23

Notes:

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	5,763	SF
Total Pay Area This Page	5,763	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	84,760	SF
Total Panel SF To Date	90,523	SF
Total Pay Area To Date Including Anchor Trench	**90,523**	
Initial Quantity Previous	92,845	SF
Initial Quantity This Page	6,417	SF
Initial Quantity To Date	99,262	SF

Daily Panel Placement

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Deployment Date** 07/30/11

Superintendent: Randy Story **Material Type:** 60 mil Tx

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel # 56 — Roll # 2105

Final Length Avg.	102.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	111.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 111 102 102 111 / 22.5 / 23

Notes:

Initial SF	2,553	Lineal Feet Trench
Final SF	2,295	

Panel # 57 — Roll # 1721

Final Length Avg.	105.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	109.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 109 105 105 109 / 22.5 / 23

Notes:

Initial SF	2,507	Lineal Feet Trench
Final SF	2,363	

Panel # 58 — Roll # 1721

Final Length Avg.	103.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	107.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 107 103 103 107 / 22.5 / 23

Notes:

Initial SF	2,461	Lineal Feet Trench
Final SF	2,318	

Panel # 59 — Roll # 1721

Final Length Avg.	102.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	106.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 106 102 102 106 / 22.5 / 23

Notes:

Initial SF	2,438	Lineal Feet Trench
Final SF	2,295	

Panel # 60 — Roll # 1729

Final Length Avg.	100.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	104.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 104 100 100 104 / 22.5 / 23

Notes:

Initial SF	2,392	Lineal Feet Trench
Final SF	2,250	

Panel # 61 — Roll # 1729

Final Length Avg.	100.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	104.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 104 100 100 104 / 22.5 / 23

Notes:

Initial SF	2,392	Lineal Feet Trench
Final SF	2,250	

Panel # 62 — Roll # 1729

Final Length Avg.	98.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	102.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 102 98 98 102 / 22.5 / 23

Notes:

Initial SF	2,346	Lineal Feet Trench
Final SF	2,205	

Panel # 63 — Roll # 1729

Final Length Avg.	100.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	104.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 104 100 100 104 / 22.5 / 23

Notes:

Initial SF	2,392	Lineal Feet Trench
Final SF	2,250	

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	**18,225**	SF
Total Pay Area This Page	**18,225**	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	90,523	SF
Total Panel SF To Date	108,748	SF
Total Pay Area To Date Including Anchor Trench	**108,748**	
Initial Quantity Previous	99,262	SF
Initial Quantity This Page	19,481	SF
Initial Quantity To Date	118,743	SF

Daily Panel Placement

Page 1

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Deployment Date** 08/17/11

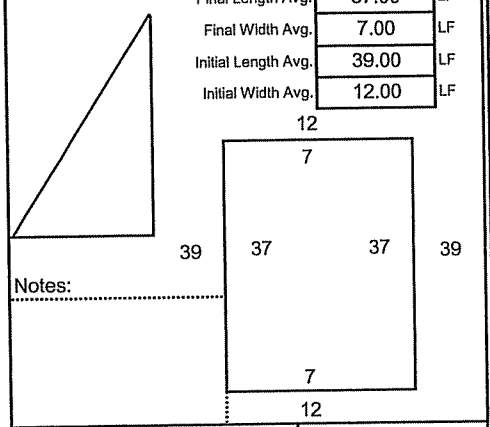
Superintendent: Ron Powell **Material Type:** 60 mil

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel # 64 — Roll # 2103

Final Length Avg.	37.00	LF
Final Width Avg.	7.00	LF
Initial Length Avg.	39.00	LF
Initial Width Avg.	12.00	LF

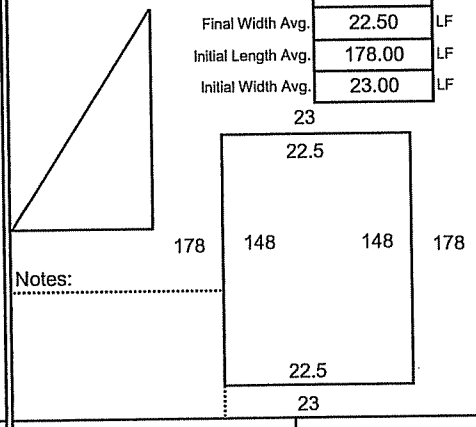


Notes:

Initial SF	468	Lineal Feet Trench
Final SF	259	

Panel # 65 — Roll # 2103

Final Length Avg.	148.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	178.00	LF
Initial Width Avg.	23.00	LF

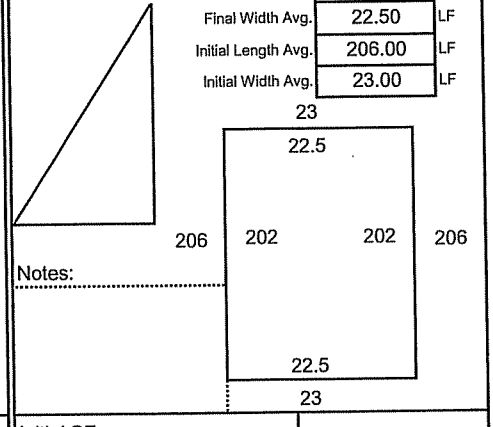


Notes:

Initial SF	4,094	Lineal Feet Trench
Final SF	3,330	

Panel # 66 — Roll # 2103

Final Length Avg.	202.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	206.00	LF
Initial Width Avg.	23.00	LF

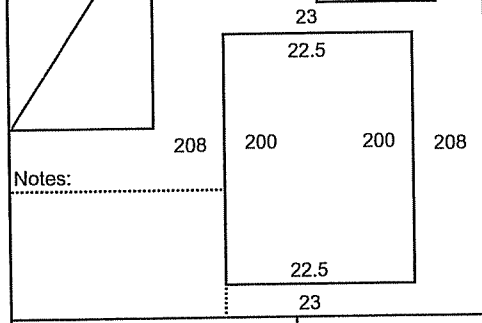


Notes:

Initial SF	4,738	Lineal Feet Trench
Final SF	4,545	

Panel # 67 — Roll # 2104

Final Length Avg.	200.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	208.00	LF
Initial Width Avg.	23.00	LF

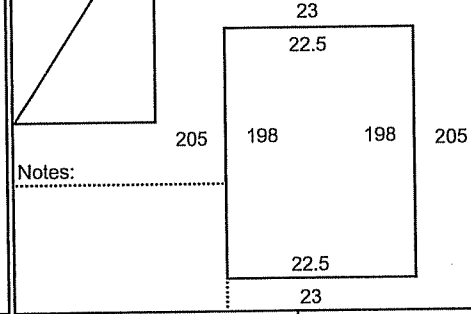


Notes:

Initial SF	4,784	Lineal Feet Trench
Final SF	4,500	

Panel # 68 — Roll # 2104

Final Length Avg.	198.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	205.00	LF
Initial Width Avg.	23.00	LF

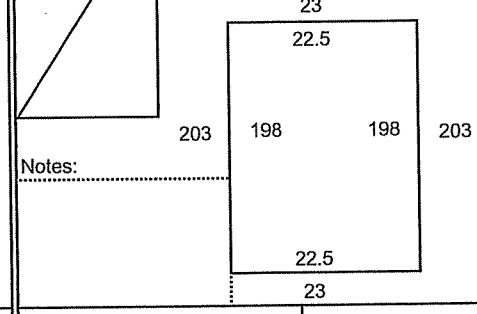


Notes:

Initial SF	4,715	Lineal Feet Trench
Final SF	4,455	

Panel # 69 — Roll # 2110

Final Length Avg.	198.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	203.00	LF
Initial Width Avg.	23.00	LF

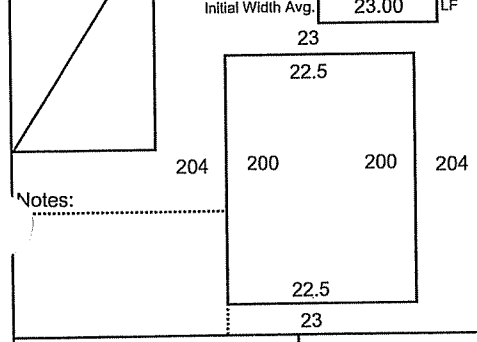


Notes:

Initial SF	4,669	Lineal Feet Trench
Final SF	4,455	

Panel # 70 — Roll # 2110

Final Length Avg.	200.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	204.00	LF
Initial Width Avg.	23.00	LF

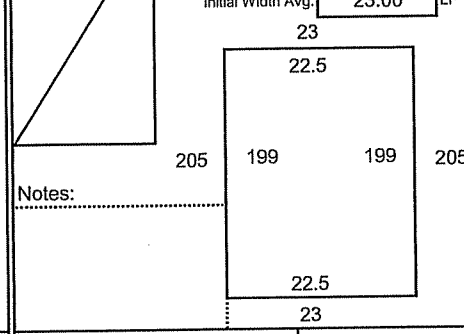


Notes:

Initial SF	4,692	Lineal Feet Trench
Final SF	4,500	

Panel # 71 — Roll # 2106

Final Length Avg.	199.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	205.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	4,715	Lineal Feet Trench
Final SF	4,478	

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**30,522**	**SF**
Total Pay Area This Page	**30,522**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	-	SF
Total Panel SF To Date	30,522	SF
Total Pay Area To Date Including Anchor Trench	**30,522**	
Initial Quantity Previous	-	SF
Initial Quantity This Page	32,875	SF
Initial Quantity To Date	32,875	SF

Daily Panel Placement

Page 2

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Deployment Date** 08/17/11

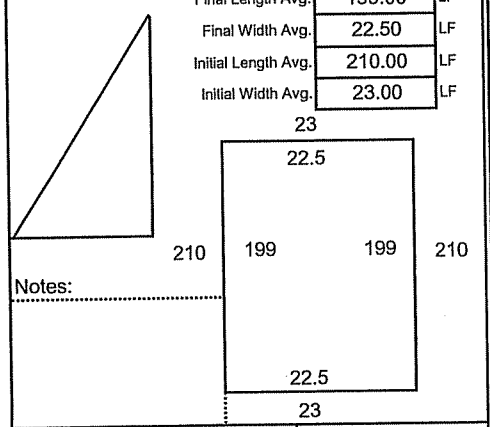
Superintendent: Ron Powell **Material Type:** 60 mil

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel # 72 — Roll # 2106

Final Length Avg.	199.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	210.00	LF
Initial Width Avg.	23.00	LF

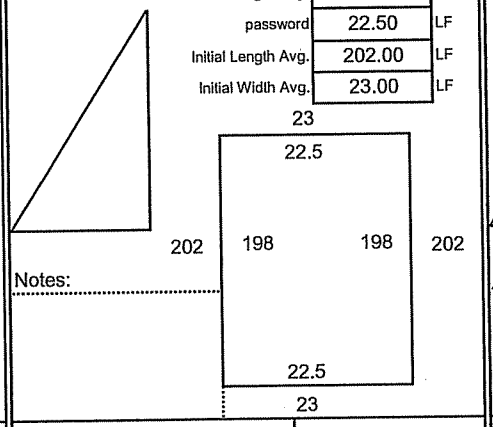


Notes:

Initial SF	4,830	Lineal Feet Trench
Final SF	4,478	

Panel # 73 — Roll # 1604

Final Length Avg.	198.00	LF
password	22.50	LF
Initial Length Avg.	202.00	LF
Initial Width Avg.	23.00	LF

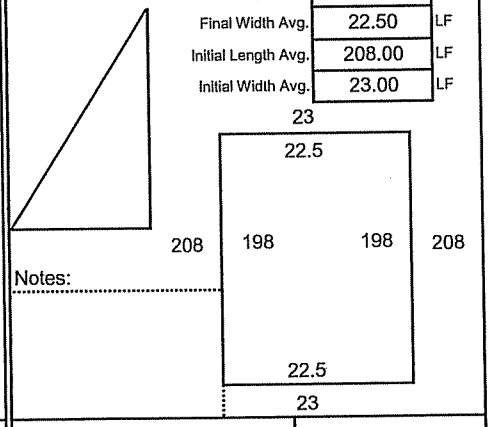


Notes:

Initial SF	4,646	Lineal Feet Trench
Final SF	4,455	

Panel # 74 — Roll # 1604

Final Length Avg.	198.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	208.00	LF
Initial Width Avg.	23.00	LF

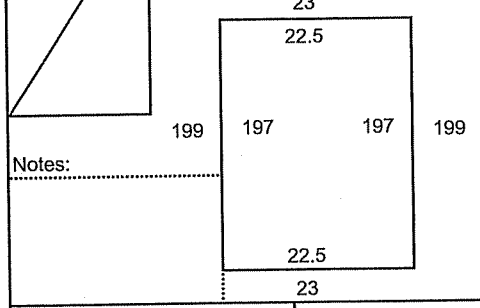


Notes:

Initial SF	4,784	Lineal Feet Trench
Final SF	4,455	

Panel # 75 — Roll # 1605

Final Length Avg.	197.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	199.00	LF
Initial Width Avg.	23.00	LF

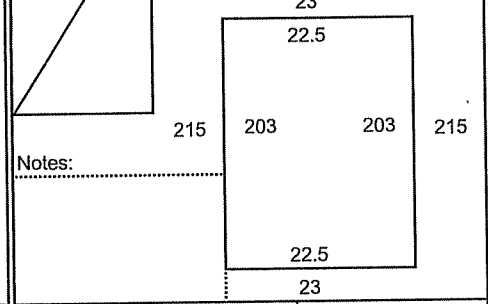


Notes:

Initial SF	4,577	Lineal Feet Trench
Final SF	4,433	

Panel # 76 — Roll # 1605

Final Length Avg.	203.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	215.00	LF
Initial Width Avg.	23.00	LF

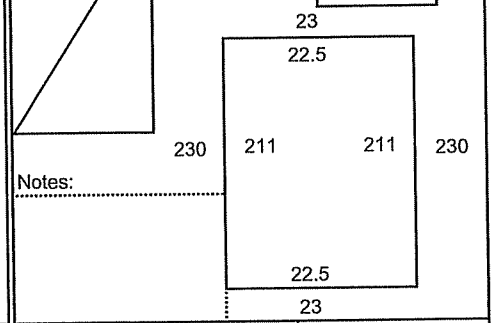


Notes:

Initial SF	4,945	Lineal Feet Trench
Final SF	4,568	

Panel # 77 — Roll # 2107

Final Length Avg.	211.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	230.00	LF
Initial Width Avg.	23.00	LF

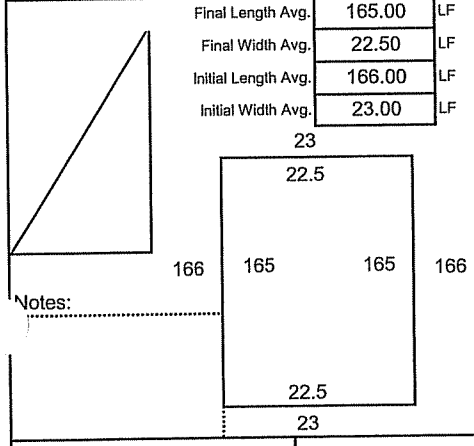


Notes:

Initial SF	5,290	Lineal Feet Trench
Final SF	4,748	

Panel # 78 — Roll # 2107

Final Length Avg.	165.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	166.00	LF
Initial Width Avg.	23.00	LF

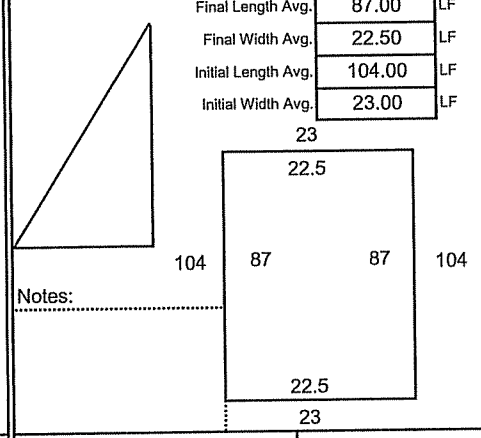


Notes:

Initial SF	3,818	Lineal Feet Trench
Final SF	3,713	

Panel # 79 — Roll # 1602

Final Length Avg.	87.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	104.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	2,392	Lineal Feet Trench
Final SF	1,958	

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**32,805**	**SF**
Total Pay Area This Page	**32,805**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	30,522	SF
Total Panel SF To Date	63,327	SF
Total Pay Area To Date Including Anchor Trench	**63,327**	
Initial Quantity Previous	32,875	SF
Initial Quantity This Page	35,282	SF
Initial Quantity To Date	68,157	SF

Daily Panel Placement

Page 3

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Deployment Date** 08/17/11

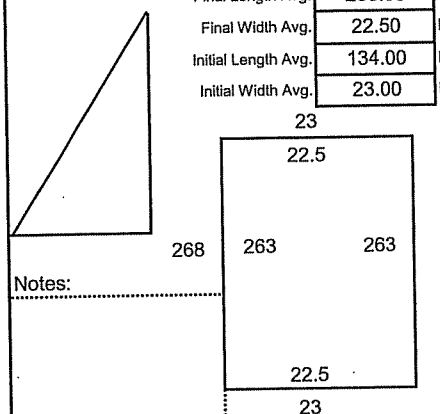
Superintendent: Ron Powell **Material Type:** 60 mil

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

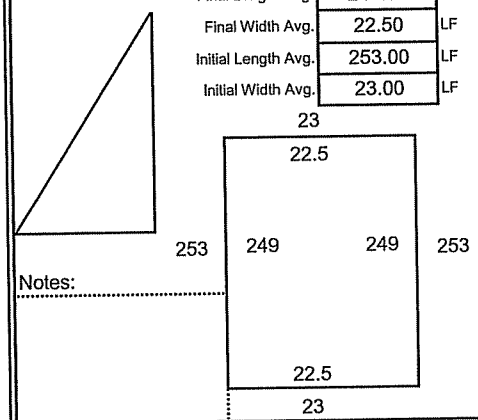
Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel #	Roll #	Final Length Avg.	Final Width Avg.	Initial Length Avg.	Initial Width Avg.	Initial SF	Final SF	Lineal Feet Trench
80	1602	263.00 LF	22.50 LF	134.00 LF	23.00 LF	3,082	5,918	
81	2108	249.00 LF	22.50 LF	253.00 LF	23.00 LF	5,819	5,603	
82	2108	150.00 LF	22.50 LF	154.00 LF	23.00 LF	3,542	3,375	
83	2109	83.00 LF	22.50 LF	88.00 LF	23.00 LF	2,024	1,868	
		- LF	- LF	- LF	- LF	-	-	
		- LF	- LF	- LF	- LF	-	-	
		- LF	- LF	- LF	- LF	-	-	
		- LF	- LF	- LF	- LF	-	-	

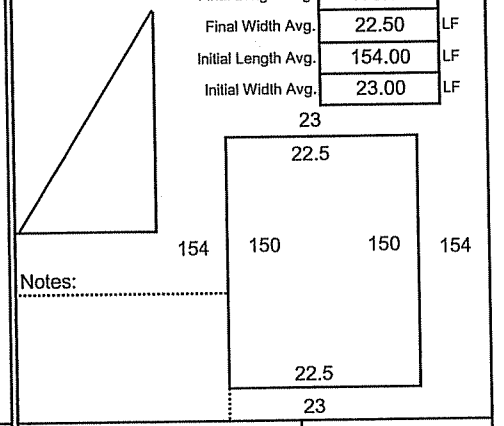
Panel # 80 — Notes:



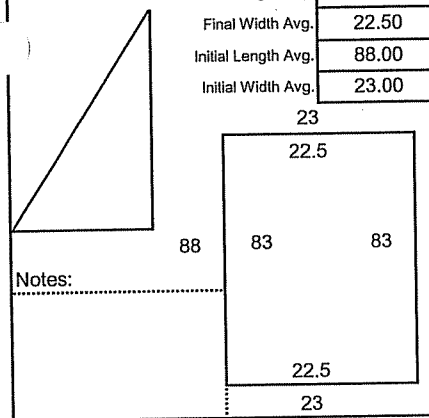
Panel # 81 — Notes:



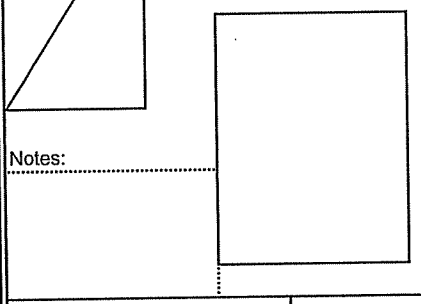
Panel # 82 — Notes:



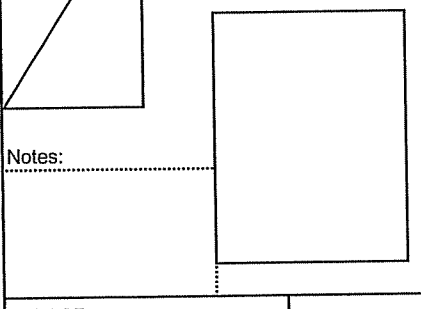
Panel # 83 — Notes:



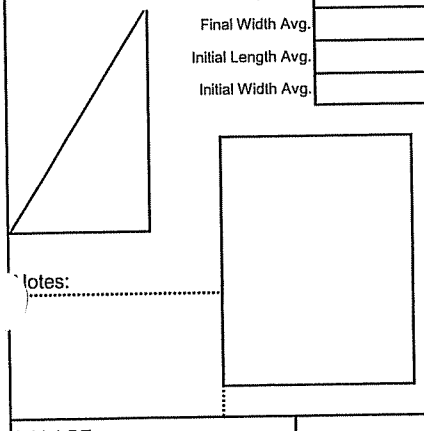
Panel # — Notes:



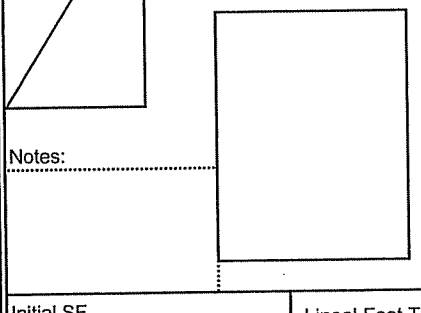
Panel # — Notes:



Panel # — Notes:



Panel # — Notes:



Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	**16,763**	SF
Total Pay Area This Page	**16,763**	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	63,327	SF
Total Panel SF To Date	80,089	SF
Total Pay Area To Date Including Anchor Trench	**80,089**	
Initial Quantity Previous	68,157	SF
Initial Quantity This Page	14,467	SF
Initial Quantity To Date	82,624	SF

Daily Panel Placement

Page 4

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Deployment Date** 08/18/11

Superintendent: Ron Powell **Material Type:** 60 mil

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel # 84 | Roll # 2109

Final Length Avg.	222.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	226.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 226 / 222 / 222 / 226 / 22.5 / 23

Notes:

Initial SF	5,198	Lineal Feet Trench
Final SF	4,995	

Panel # 85 | Roll # 2109

Final Length Avg.	76.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	82.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 82 / 76 / 76 / 82 / 22.5 / 23

Notes:

Initial SF	1,886	Lineal Feet Trench
Final SF	1,710	

Panel # 86 | Roll # 2111

Final Length Avg.	125.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	128.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 128 / 125 / 125 / 128 / 22.5 / 23

Notes:

Initial SF	2,944	Lineal Feet Trench
Final SF	2,813	

Panel # 87 | Roll # 2111

Final Length Avg.	277.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	285.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 285 / 277 / 277 / 285 / 22.5 / 23

Notes:

Initial SF	6,555	Lineal Feet Trench
Final SF	6,233	

Panel # 88 | Roll # 1602

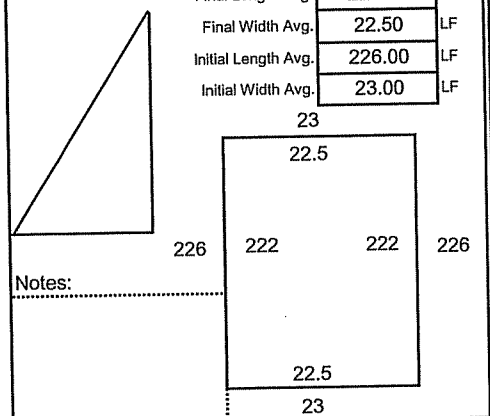
Final Length Avg.	10.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	17.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 17 / 10 / 10 / 17 / 22.5 / 23

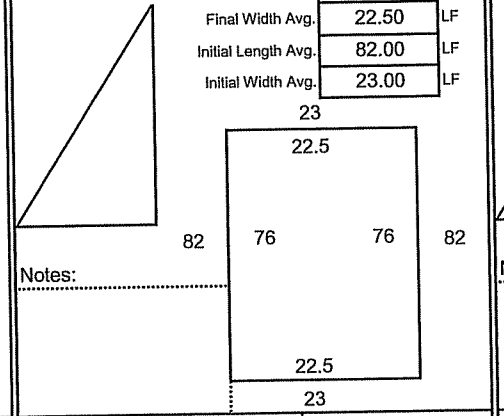
Notes:

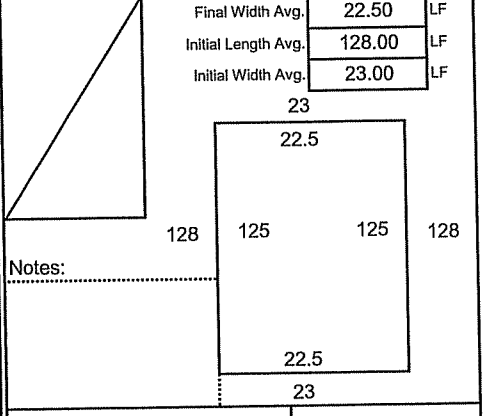
Initial SF	391	Lineal Feet Trench
Final SF	225	

Panel # 89 | Roll # 1703

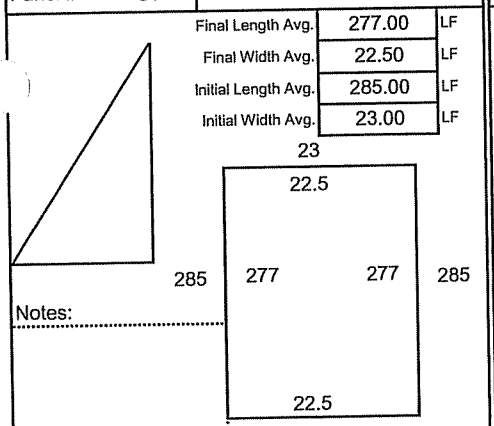


Final Length Avg.	271.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	272.00	LF
Initial Width Avg.	23.00	LF

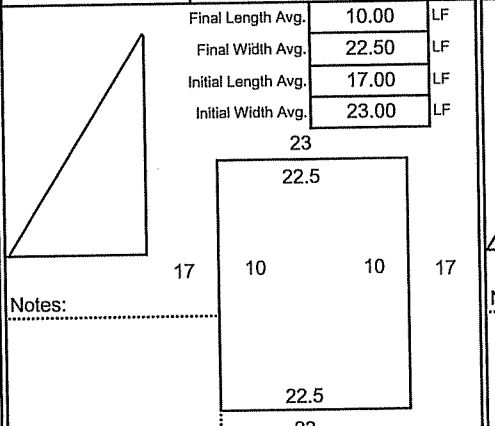




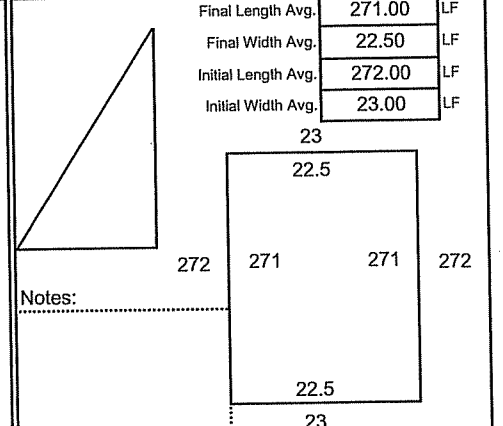
23 / 22.5 / 272 / 271 / 271 / 272 / 22.5 / 23



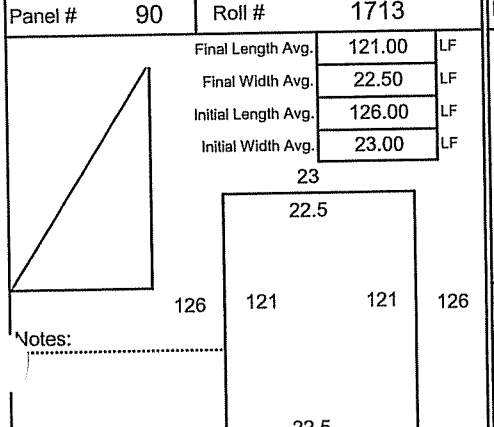
Notes:



Initial SF	6,256	Lineal Feet Trench
Final SF	6,098	



Panel # 90 | Roll # 1713



Final Length Avg.	121.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	126.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 126 / 121 / 121 / 126 / 22.5 / 23

Notes:

Initial SF	2,898	Lineal Feet Trench
Final SF	2,723	

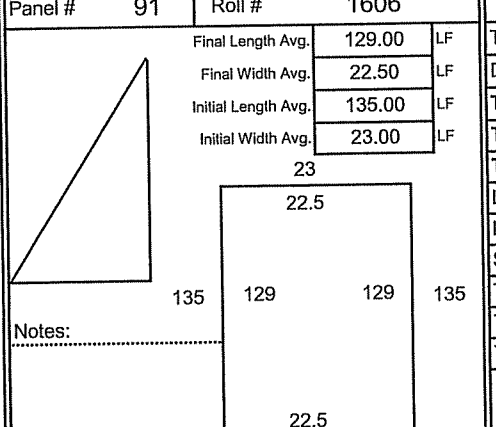
Panel # 91 | Roll # 1606

Final Length Avg.	129.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	135.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 135 / 129 / 129 / 135 / 22.5 / 23

Notes:

Initial SF	3,105	Lineal Feet Trench
Final SF	2,903	



Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**27,698**	**SF**
Total Pay Area This Page	**27,698**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	80,089	SF
Total Panel SF To Date	107,787	SF
Total Pay Area To Date Including Anchor Trench	**107,787**	
Initial Quantity Previous	82,624	SF
Initial Quantity This Page	29,233	SF
Initial Quantity To Date	111,857	SF

Daily Panel Placement

Page 5

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Deployment Date** 08/18/11

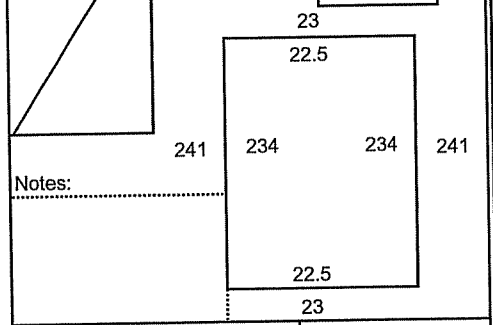
Superintendent: Ron Powell **Material Type:** 60 mil

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel # 92 | Roll # 1606

Final Length Avg.	234.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	241.00	LF
Initial Width Avg.	23.00	LF

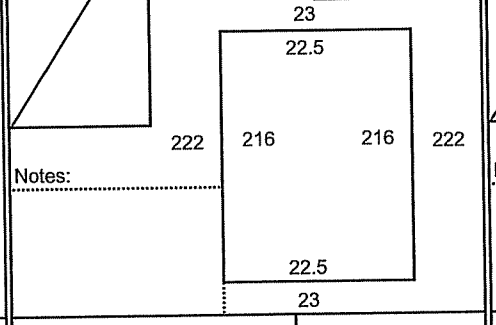


Notes:

Initial SF	5,543	Lineal Feet Trench
Final SF	5,265	

Panel # 93 | Roll # 2112

Final Length Avg.	216.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	222.00	LF
Initial Width Avg.	23.00	LF

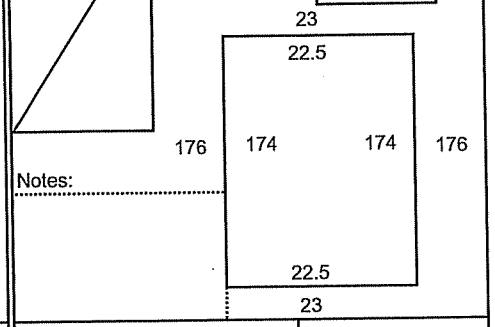


Notes:

Initial SF	5,106	Lineal Feet Trench
Final SF	4,860	

Panel # 94 | Roll # 2112

Final Length Avg.	174.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	176.00	LF
Initial Width Avg.	23.00	LF

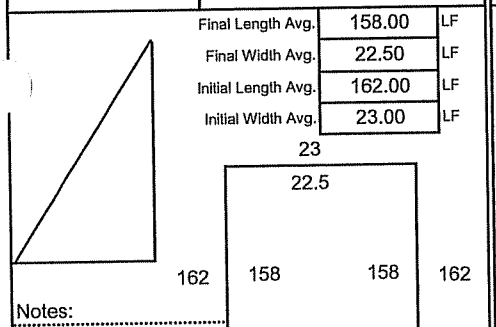


Notes:

Initial SF	4,048	Lineal Feet Trench
Final SF	3,915	

Panel # 95 | Roll # 1716

Final Length Avg.	158.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	162.00	LF
Initial Width Avg.	23.00	LF

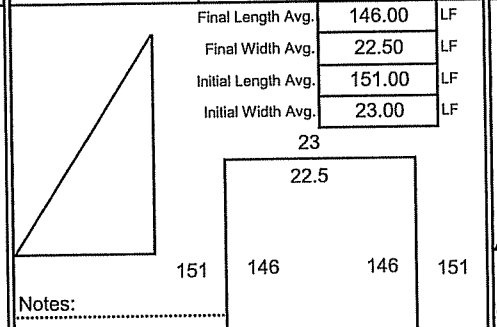


Notes:

Initial SF	3,726	Lineal Feet Trench
Final SF	3,555	

Panel # 96 | Roll # 1716

Final Length Avg.	146.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	151.00	LF
Initial Width Avg.	23.00	LF

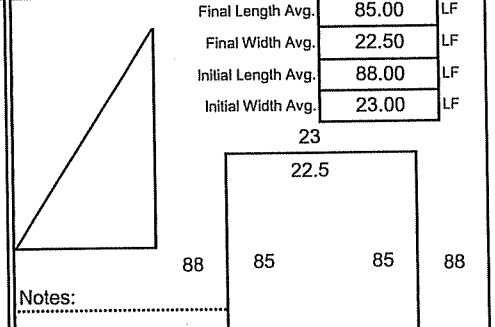


Notes:

Initial SF	3,473	Lineal Feet Trench
Final SF	3,285	

Panel # 97 | Roll # 1716

Final Length Avg.	85.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	88.00	LF
Initial Width Avg.	23.00	LF

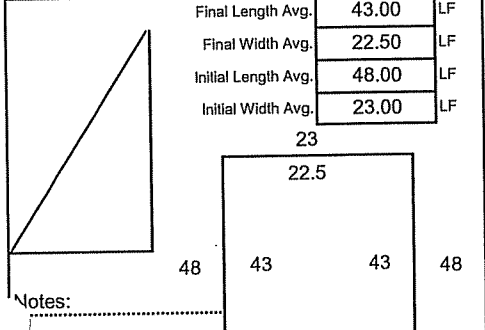


Notes:

Initial SF	2,024	Lineal Feet Trench
Final SF	1,913	

Panel # 98 | Roll # 1714

Final Length Avg.	43.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	48.00	LF
Initial Width Avg.	23.00	LF

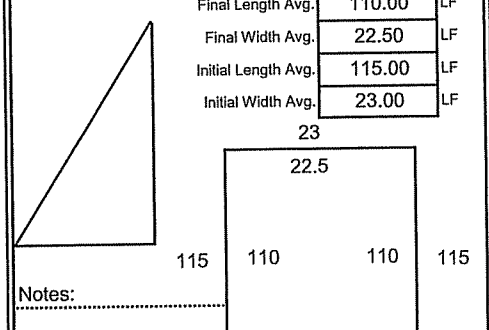


Notes:

Initial SF	1,104	Lineal Feet Trench
Final SF	968	

Panel # 99 | Roll # 1714

Final Length Avg.	110.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	115.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	2,645	Lineal Feet Trench
Final SF	2,475	

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**26,235**	**SF**
Total Pay Area This Page	**26,235**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	107,787	SF
Total Panel SF To Date	134,022	SF
Total Pay Area To Date Including Anchor Trench	**134,022**	
Initial Quantity Previous	111,857	SF
Initial Quantity This Page	27,669	SF
Initial Quantity To Date	139,526	SF

Daily Panel Placement

Page 6

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Deployment Date** 08/18/11

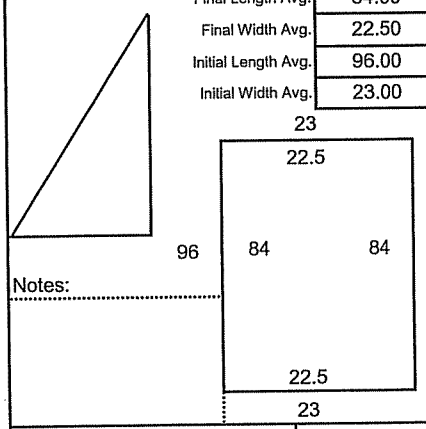
Superintendent: Ron Powell **Material Type:** 60 mil

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

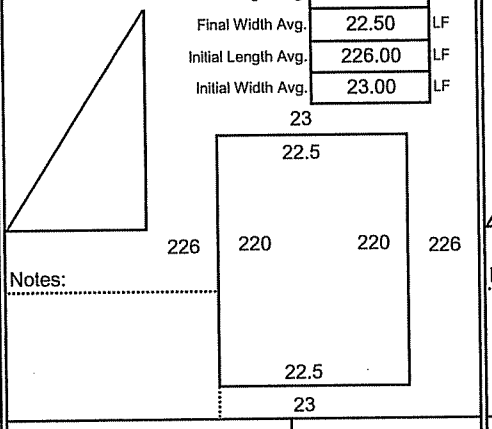
Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel #	Roll #	Final Length Avg.	Final Width Avg.	Initial Length Avg.	Initial Width Avg.	Initial SF	Final SF	Lineal Feet Trench
100	1714	84.00 LF	22.50 LF	96.00 LF	23.00 LF	2,208	1,890	
101	1709	220.00 LF	22.50 LF	226.00 LF	23.00 LF	5,198	4,950	
102	1709	186.00 LF	22.50 LF	190.00 LF	23.00 LF	4,370	4,185	
103	1707	12.00 LF	22.50 LF	17.00 LF	23.00 LF	391	270	
104	1707	171.00 LF	22.50 LF	181.00 LF	23.00 LF	4,163	3,848	
105	2106	19.00 LF	6.00 LF	23.00 LF	9.00 LF	207	114	
106	1707	148.00 LF	22.50 LF	159.00 LF	23.00 LF	3,657	3,330	
107	1715	123.00 LF	22.50 LF	134.00 LF	23.00 LF	3,082	2,768	

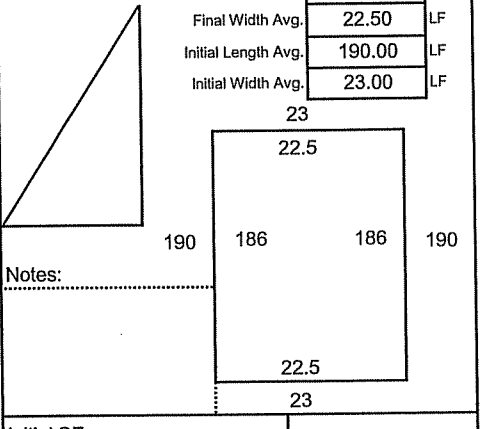
Panel # 100 — Notes:



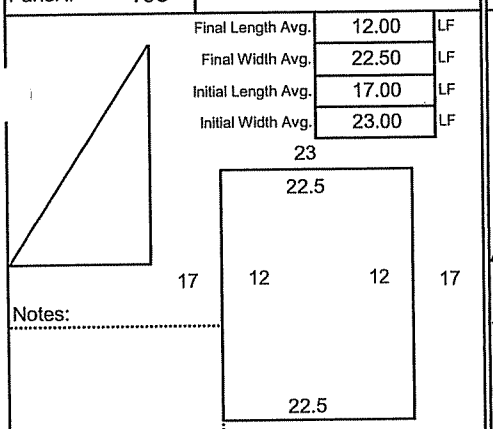
Panel # 101 — Notes:



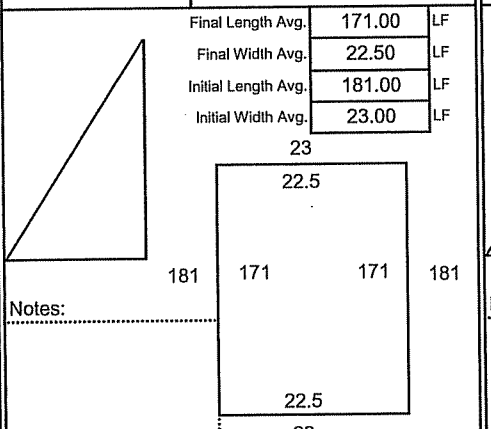
Panel # 102 — Notes:



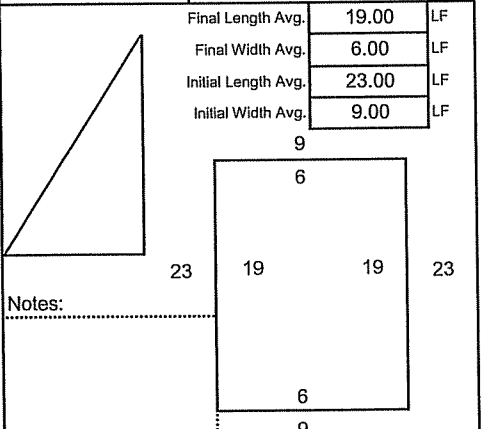
Panel # 103 — Notes:



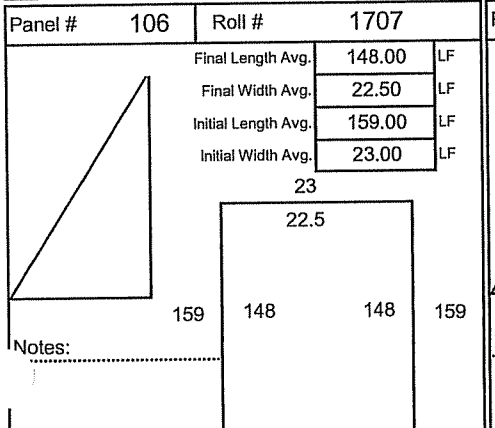
Panel # 104 — Notes:



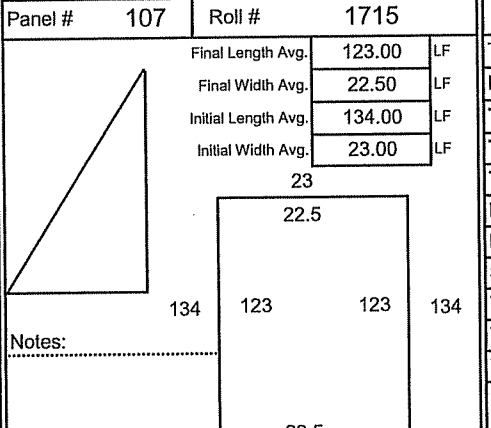
Panel # 105 — Notes:



Panel # 106 — Notes:



Panel # 107 — Notes:



Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	**21,354**	SF
Total Pay Area This Page	**21,354**	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	134,022	SF
Total Panel SF To Date	155,376	SF
Total Pay Area To Date Including Anchor Trench	**155,376**	
Initial Quantity Previous	139,526	SF
Initial Quantity This Page	23,276	SF
Initial Quantity To Date	162,802	SF

Daily Panel Placement

Page 7

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Deployment Date** 08/18/11

Superintendent: Ron Powell **Material Type:** 60 mil

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel #	Roll #	Final Length Avg.	Final Width Avg.	Initial Length Avg.	Initial Width Avg.	Initial SF	Final SF	Lineal Feet Trench
108	1715	112.00 LF	22.50 LF	117.00 LF	23.00 LF	2,691	2,520	
109	1715	122.00 LF	22.50 LF	138.00 LF	23.00 LF	3,174	2,745	
110	1720	21.00 LF	15.00 LF	27.00 LF	20.00 LF	540	315	
111	1720	34.00 LF	22.50 LF	36.00 LF	23.00 LF	828	765	
112	1720	37.00 LF	22.50 LF	40.00 LF	23.00 LF	920	833	
113	1720	34.00 LF	22.50 LF	36.00 LF	23.00 LF	828	765	
114	1720	27.00 LF	22.50 LF	30.00 LF	23.00 LF	690	608	
115	1720	19.00 LF	22.50 LF	22.00 LF	23.00 LF	506	428	

Notes:

Panel #	Top	Left	Right	Bottom	Left	Right
108	22.5	117	112	112	117	22.5
109	22.5	138	122	122	138	22.5
110	15	27	21	21	27	15
111	22.5	36	34	34	36	22.5
112	22.5	40	37	37	40	22.5
113	22.5	36	34	34	36	22.5
114	22.5	30	27	27	30	22.5
115	22.5	22	19	19	22	22.5

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	**8,978**	SF
Total Pay Area This Page	**8,978**	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	155,376	SF
Total Panel SF To Date	164,353	SF
Total Pay Area To Date Including Anchor Trench	**164,353**	
Initial Quantity Previous	162,802	SF
Initial Quantity This Page	10,177	SF
Initial Quantity To Date	172,979	SF

Daily Panel Placement

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Deployment Date** 08/18/11

Superintendent: Ron Powell **Material Type:** 60 mil

[X] **Primary** **Secondary** [ ] **Cell** [X] **Pond** [ ] **Cap** [ ] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width**

Panel #	Roll #	Final Length Avg.	Final Width Avg.	Initial Length Avg.	Initial Width Avg.	Initial SF	Final SF
116	1715	13.00 LF	11.00 LF	16.00 LF	14.00 LF	224	143
						-	-
						-	-
						-	-
						-	-
						-	-
						-	-

Notes: 14 / 11 / 16 13 13 16 / 11 / 14

Lineal Feet Trench

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	143	SF
Total Pay Area This Page	143	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	164,353	SF
Total Panel SF To Date	164,496	SF
Total Pay Area To Date Including Anchor Trench	**164,496**	
Initial Quantity Previous	172,979	SF
Initial Quantity This Page	224	SF
Initial Quantity To Date	173,203	SF

Panel Placement Summary

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Superintendent** Randy Story

Material Type: 60 mil Tx

Description:

Primary x
Secondary -

Cell x
Pond -
Cap -
Other -

Panel #	Roll Stock #	Deploy Date	Side 1 Length	Side 2 Length	AVG Length	Width 1	Width 2	AVG Width	Tri Angle Side 1	Tri Angle Side 2	Panel Total SF	LF in Trench	SF In Trench	Total SF (Pay Area)	Initial Square Feet	Material Waste	Waste %
										Totals From Previous Book				-			
										Totals to Date	199,779	-	-	199,779	214,248	14,489	7%
9	1717	11/11/10	65.00	62.00	63.50	22.50	22.50	22.50	-	-	1,429	-	-	1,429	1484	55	4%
10	1601	11/11/10	146.00	141.00	143.50	22.50	22.50	22.50	-	-	3,229	-	-	3,229	3324	95	3%
11	1717	11/11/10	50.00	48.00	49.00	22.50	22.50	22.50	-	-	1,103	-	-	1,103	1150	48	4%
12	1601	11/11/10	54.00	51.00	52.50	22.50	22.50	22.50	-	-	1,181	-	-	1,181	1231	49	4%
13	1730	11/11/10	141.00	141.00	141.00	22.50	22.50	22.50	-	-	3,173	-	-	3,173	3266	94	3%
14	1601	11/11/10	51.00	50.00	50.50	22.50	22.50	22.50	-	-	1,136	-	-	1,136	1185	48	4%
15	1730	11/11/10	141.00	143.00	142.00	22.50	22.50	22.50	-	-	3,195	-	-	3,195	3289	94	3%
16	2115	11/11/10	193.00	193.00	193.00	17.00	10.00	13.50	-	-	2,606	-	-	2,606	4462	1857	71%
17	1725	11/11/10	170.00	169.00	169.50	22.50	22.50	22.50	-	-	3,814	-	-	3,814	3922	108	3%
18	1725	11/11/10	169.00	168.00	168.50	22.50	22.50	22.50	-	-	3,791	-	-	3,791	3910	119	3%
19	1725	11/11/10	168.00	171.00	169.50	22.50	22.50	22.50	-	-	3,814	-	-	3,814	3922	108	3%
20	1725	11/11/10	45.00	47.00	46.00	22.50	22.50	22.50	-	-	1,035	-	-	1,035	1081	46	4%
21	1719	11/11/10	126.00	125.00	125.50	22.50	22.50	22.50	-	-	2,824	-	-	2,824	2910	86	3%
22	1719	11/11/10	172.00	174.00	173.00	22.50	22.50	22.50	-	-	3,893	-	-	3,893	4002	110	3%
23	1719	11/11/10	74.00	77.00	75.50	22.50	22.50	22.50	-	-	1,699	-	-	1,699	1760	61	4%
24	1730	11/11/10	100.00	100.00	100.00	22.50	22.50	22.50	-	-	2,250	-	-	2,250	2323	73	3%
25	2113		177.00	184.00	180.50	22.50	22.50	22.50	-	-	4,061	-	-	4,061	4175	113	3%
26	2113		184.00	190.00	187.00	22.50	22.50	22.50	-	-	4,208	-	-	4,208	4324	117	3%
27	1726		185.00	211.00	198.00	22.50	22.50	22.50	-	-	4,455	-	-	4,455	4589	134	3%
28	1726		-	-	-	-	-	-	19.00	8.00	76	-	-	76	32	-44	-58%
29	1726		140.00	186.00	163.00	22.50	22.50	22.50	-	-	3,668	-	-	3,668	3772	105	3%
30	2115		76.00	140.00	108.00	22.50	22.50	22.50	-	-	2,430	-	-	2,430	2507	77	3%
31	2115		-	-	-	-	-	-	10.00	18.00	90	-	-	90	350	260	289%
31A	2115		-	-	-	-	-	-	4.00	10.00	20	-	-	20			
FLAP	1718		162.00	161.00	161.50	34.00	34.00	34.00	-	-	5,491	-	-	5,491	5440	-51	-1%
-	-		-	-	-	-	-	-	-	-	-	-	-	-			

Panel Placement Summary

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Superintendent** Randy Story

Material Type: 60 mil Tx **Primary** x **Secondary** - **Cell** x **Pond** - **Cap** - **Other** -

Description:

Panel #	Roll Stock #	Deploy Date	Side 1 Length	Side 2 Length	AVG Length	Width 1	Width 2	AVG Width	Tri Angle Side 1	Tri Angle Side 2	Panel Total SF	LF in Trench	SF In Trench	Total SF (Pay Area)	Initial Square Feet	Material Waste	Waste %
							Totals From Previous Book							-			
							Totals to Date				199,779	-	-	199,779	214,248	14,489	7%
32	2114	7/26/11	164.00	164.00	164.00	22.50	22.50	22.50	-	-	3,690	-	-	3,690	4186	496	13%
33	2114	7/26/11	200.00	200.00	200.00	22.50	22.50	22.50	-	-	4,500	-	-	4,500	5083	583	13%
34	1710	7/26/11	255.00	255.00	255.00	22.50	22.50	22.50	-	-	5,738	-	-	5,738	6210	473	8%
35	1710	7/26/11	110.00	110.00	110.00	22.50	22.50	22.50	-	-	2,475	-	-	2,475	3036	561	23%
36	1727	7/26/11	195.00	195.00	195.00	22.50	22.50	22.50	-	-	4,388	-	-	4,388	4669	282	6%
37	1727	7/26/11	183.00	183.00	183.00	22.50	22.50	22.50	-	-	4,118	-	-	4,118	4784	667	16%
38	1708	7/26/11	169.00	169.00	169.00	22.50	22.50	22.50	-	-	3,803	-	-	3,803	4048	246	6%
39	1708	7/26/11	207.00	207.00	207.00	22.50	22.50	22.50	-	-	4,658	-	-	4,658	5221	564	12%
40	1712	7/26/11	187.00	187.00	187.00	22.50	22.50	22.50	-	-	4,208	-	-	4,208	4439	232	6%
41	1712	7/26/11	215.00	215.00	215.00	22.50	22.50	22.50	-	-	4,838	-	-	4,838	5037	200	4%
42	1605	7/26/11	223.00	223.00	223.00	22.50	22.50	22.50	-	-	5,018	-	-	5,018	5313	296	6%
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
Cap-1	1605	7/27/11	287.00	287.00	287.00	4.00	4.00	4.00	-	-	1,148	-	-	1,148	1435	287	25%
43	2101	7/27/11	402.00	402.00	402.00	22.50	22.50	22.50	-	-	9,045	-	-	9,045	9453	408	5%
44	1724	7/27/11	398.00	398.00	398.00	22.50	22.50	22.50	-	-	8,955	-	-	8,955	9476	521	6%
45	1722	7/27/11	266.00	266.00	266.00	22.50	22.50	22.50	-	-	5,985	-	-	5,985	6210	225	4%
46	1722	7/27/11	82.00	82.00	82.00	22.50	22.50	22.50	-	-	1,845	-	-	1,845	1978	133	7%
47	1722	7/27/11	38.00	38.00	38.00	8.00	8.00	8.00	-	-	304	-	-	304	680	376	124%
48	2102	7/27/11	121.00	121.00	121.00	22.50	22.50	22.50	-	-	2,723	-	-	2,723	2921	199	7%
49	2102	7/27/11	150.00	150.00	150.00	22.50	22.50	22.50	-	-	3,375	-	-	3,375	3634	259	8%
50	1722	7/27/11	34.00	34.00	34.00	7.00	7.00	7.00	-	-	238	-	-	238	540	302	127%
51	2102	7/27/11	103.00	103.00	103.00	22.50	22.50	22.50	-	-	2,318	-	-	2,318	2484	167	7%
52	1720	7/27/11	58.00	58.00	58.00	22.50	22.50	22.50	-	-	1,305	-	-	1,305	1840	535	41%
53	1720	7/27/11	15.00	15.00	15.00	6.00	6.00	6.00	-	-	90	-	-	90	168	78	87%

Panel Placement Summary

Project Name: Ashe County Lf **Job #** 09-10-12-86 **Superintendent** Randy Story

Material Type: 60 mil Tx **Primary** x **Cell** x

Description: **Secondary** - **Pond** -

Cap -

Other -

Panel #	Roll Stock #	Deploy Date	Side 1 Length	Side 2 Length	AVG Length	Width 1	Width 2	AVG Width	Tri Angle Side 1	Tri Angle Side 2	Panel Total SF	LF in Trench	SF In Trench	Total SF (Pay Area)	Initial Square Feet	Material Waste	Waste %
									Totals From Previous Book					-			
									Totals to Date		199,779	-	-	199,779	214,248	14,489	7%
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
54	2105	7/28/11	217.00	217.00	217.00	22.50	22.50	22.50	-	-	4,883	-	-	4,883	5083	201	4%
55	2105	7/28/11	44.00	44.00	44.00	20.00	20.00	20.00	-	-	880	-	-	880	1334	454	52%
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
56	2105	7/30/11	102.00	102.00	102.00	22.50	22.50	22.50	-	-	2,295	-	-	2,295	2553	258	11%
57	1721	7/30/11	105.00	105.00	105.00	22.50	22.50	22.50	-	-	2,363	-	-	2,363	2507	145	6%
58	1721	7/30/11	103.00	103.00	103.00	22.50	22.50	22.50	-	-	2,318	-	-	2,318	2461	144	6%
59	1721	7/30/11	102.00	102.00	102.00	22.50	22.50	22.50	-	-	2,295	-	-	2,295	2438	143	6%
60	1729	7/30/11	100.00	100.00	100.00	22.50	22.50	22.50	-	-	2,250	-	-	2,250	2392	142	6%
61	1729	7/30/11	100.00	100.00	100.00	22.50	22.50	22.50	-	-	2,250	-	-	2,250	2392	142	6%
62	1729	7/30/11	98.00	98.00	98.00	22.50	22.50	22.50	-	-	2,205	-	-	2,205	2346	141	6%
63	1729	7/30/11	100.00	100.00	100.00	22.50	22.50	22.50	-	-	2,250	-	-	2,250	2392	142	6%
1	1728	11/11/10	210.00	210.00	210.00	22.50	22.50	22.50	-	-	4,725	-	-	4,725	4853	128	3%
2	1728	11/11/10	166.00	165.00	165.50	22.50	22.50	22.50	-	-	3,724	-	-	3,724	3830	106	3%
3	1711	11/11/10	44.00	42.00	43.00	22.50	22.50	22.50	-	-	968	-	-	968	1012	45	5%
4	1711	11/11/10	207.00	206.00	206.50	22.50	22.50	22.50	-	-	4,646	-	-	4,646	4773	126	3%
5	1711	11/11/10	138.00	136.00	137.00	22.50	22.50	22.50	-	-	3,083	-	-	3,083	3174	92	3%
6	1717	11/11/10	68.00	67.00	67.50	23.00	22.50	22.75	-	-	1,536	-	-	1,536	1558	23	1%
7	1717	11/11/10	207.00	206.00	206.50	22.50	22.50	22.50	-	-	4,646	-	-	4,646	4773	126	3%
8	1717	11/11/10	136.00	134.00	135.00	22.50	22.50	22.50	-	-	3,038	-	-	3,038	3128	91	3%

Panel Placement Summary

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Superintendent** Ron Powell

Material Type: 60 mil **Primary** x **Secondary** - **Cell** x **Pond** - **Cap** - **Other** -

Description:

Panel #	Roll Stock #	Deploy Date	Side 1 Length	Side 2 Length	AVG Length	Width 1	Width 2	AVG Width	Tri Angle Side 1	Tri Angle Side 2	Panel Total SF	LF in Trench	SF In Trench	Total SF (Pay Area)	Initial Square Feet	Material Waste	Waste %
									Totals From Previous Book					-			
									Totals to Date		164,496	-	-	164,496	173,203	8,707	5%
64	2103	8/17/11	37.00	37.00	37.00	7.00	7.00	7.00	-	-	259	-	-	259	468	209	81%
65	2103	8/17/11	148.00	148.00	148.00	22.50	22.50	22.50	-	-	3,330	-	-	3,330	4094	764	23%
66	2103	8/17/11	202.00	202.00	202.00	22.50	22.50	22.50	-	-	4,545	-	-	4,545	4738	193	4%
67	2104	8/17/11	200.00	200.00	200.00	22.50	22.50	22.50	-	-	4,500	-	-	4,500	4784	284	6%
68	2104	8/17/11	198.00	198.00	198.00	22.50	22.50	22.50	-	-	4,455	-	-	4,455	4715	260	6%
69	2110	8/17/11	198.00	198.00	198.00	22.50	22.50	22.50	-	-	4,455	-	-	4,455	4669	214	5%
70	2110	8/17/11	200.00	200.00	200.00	22.50	22.50	22.50	-	-	4,500	-	-	4,500	4692	192	4%
71	2106	8/17/11	199.00	199.00	199.00	22.50	22.50	22.50	-	-	4,478	-	-	4,478	4715	238	5%
72	2106	8/17/11	199.00	199.00	199.00	22.50	22.50	22.50	-	-	4,478	-	-	4,478	4830	353	8%
73	1604	8/17/11	198.00	198.00	198.00	22.50	22.50	22.50	-	-	4,455	-	-	4,455	4646	191	4%
74	1604	8/17/11	198.00	198.00	198.00	22.50	22.50	22.50	-	-	4,455	-	-	4,455	4784	329	7%
75	1605	8/17/11	197.00	197.00	197.00	22.50	22.50	22.50	-	-	4,433	-	-	4,433	4577	145	3%
76	1605	8/17/11	203.00	203.00	203.00	22.50	22.50	22.50	-	-	4,568	-	-	4,568	4945	378	8%
77	2107	8/17/11	211.00	211.00	211.00	22.50	22.50	22.50	-	-	4,748	-	-	4,748	5290	543	11%
78	2107	8/17/11	165.00	165.00	165.00	22.50	22.50	22.50	-	-	3,713	-	-	3,713	3818	106	3%
79	1602	8/17/11	87.00	87.00	87.00	22.50	22.50	22.50	-	-	1,958	-	-	1,958	2392	435	22%
80	1602	8/17/11	263.00	263.00	263.00	22.50	22.50	22.50	-	-	5,918	-	-	5,918	3082	-2836	-48%
81	2108	8/17/11	249.00	249.00	249.00	22.50	22.50	22.50	-	-	5,603	-	-	5,603	5819	217	4%
82	2108	8/17/11	150.00	150.00	150.00	22.50	22.50	22.50	-	-	3,375	-	-	3,375	3542	167	5%
83	2109	8/17/11	83.00	83.00	83.00	22.50	22.50	22.50	-	-	1,868	-	-	1,868	2024	157	8%
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
84	2109	8/18/11	222.00	222.00	222.00	22.50	22.50	22.50	-	-	4,995	-	-	4,995	5198	203	4%
85	2109	8/18/11	76.00	76.00	76.00	22.50	22.50	22.50	-	-	1,710	-	-	1,710	1886	176	10%
86	2111	8/18/11	125.00	125.00	125.00	22.50	22.50	22.50	-	-	2,813	-	-	2,813	2944	132	5%
87	2111	8/18/11	277.00	277.00	277.00	22.50	22.50	22.50	-	-	6,233	-	-	6,233	6555	323	5%

Panel Placement Summary

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Superintendent** Ron Powell

Material Type: 60 mil **Primary** x **Secondary** - **Cell** x **Pond** - **Cap** - **Other** -

Description:

Panel #	Roll Stock #	Deploy Date	Side 1 Length	Side 2 Length	AVG Length	Width 1	Width 2	AVG Width	Tri Angle Side 1	Tri Angle Side 2	Panel Total SF	LF in Trench	SF In Trench	Total SF (Pay Area)	Initial Square Feet	Material Waste	Waste %
										Totals From Previous Book				-			
										Totals to Date	164,496	-	-	164,496	173,203	8,707	5%
88	1602	8/18/11	10.00	10.00	10.00	22.50	22.50	22.50	-	-	225	-	-	225	391	166	74%
89	1703	8/18/11	271.00	271.00	271.00	22.50	22.50	22.50	-	-	6,098	-	-	6,098	6256	159	3%
90	1713	8/18/11	121.00	121.00	121.00	22.50	22.50	22.50	-	-	2,723	-	-	2,723	2898	176	6%
91	1606	8/18/11	129.00	129.00	129.00	22.50	22.50	22.50	-	-	2,903	-	-	2,903	3105	203	7%
92	1606	8/18/11	234.00	234.00	234.00	22.50	22.50	22.50	-	-	5,265	-	-	5,265	5543	278	5%
93	2112	8/18/11	216.00	216.00	216.00	22.50	22.50	22.50	-	-	4,860	-	-	4,860	5106	246	5%
94	2112	8/18/11	174.00	174.00	174.00	22.50	22.50	22.50	-	-	3,915	-	-	3,915	4048	133	3%
95	1716	8/18/11	158.00	158.00	158.00	22.50	22.50	22.50	-	-	3,555	-	-	3,555	3726	171	5%
96	1716	8/18/11	146.00	146.00	146.00	22.50	22.50	22.50	-	-	3,285	-	-	3,285	3473	188	6%
97	1716	8/18/11	85.00	85.00	85.00	22.50	22.50	22.50	-	-	1,913	-	-	1,913	2024	112	6%
98	1714	8/18/11	43.00	43.00	43.00	22.50	22.50	22.50	-	-	968	-	-	968	1104	137	14%
99	1714	8/18/11	110.00	110.00	110.00	22.50	22.50	22.50	-	-	2,475	-	-	2,475	2645	170	7%
100	1714	8/18/11	84.00	84.00	84.00	22.50	22.50	22.50	-	-	1,890	-	-	1,890	2208	318	17%
101	1709	8/18/11	220.00	220.00	220.00	22.50	22.50	22.50	-	-	4,950	-	-	4,950	5198	248	5%
102	1709	8/18/11	186.00	186.00	186.00	22.50	22.50	22.50	-	-	4,185	-	-	4,185	4370	185	4%
103	1707	8/18/11	12.00	12.00	12.00	22.50	22.50	22.50	-	-	270	-	-	270	391	121	45%
104	1707	8/18/11	171.00	171.00	171.00	22.50	22.50	22.50	-	-	3,848	-	-	3,848	4163	316	8%
105	2106	8/18/11	19.00	19.00	19.00	6.00	6.00	6.00	-	-	114	-	-	114	207	93	82%
106	1707	8/18/11	148.00	148.00	148.00	22.50	22.50	22.50	-	-	3,330	-	-	3,330	3657	327	10%
107	1715	8/18/11	123.00	123.00	123.00	22.50	22.50	22.50	-	-	2,768	-	-	2,768	3082	315	11%
108	1715	8/18/11	112.00	112.00	112.00	22.50	22.50	22.50	-	-	2,520	-	-	2,520	2691	171	7%
109	1715	8/18/11	122.00	122.00	122.00	22.50	22.50	22.50	-	-	2,745	-	-	2,745	3174	429	16%
110	1720	8/18/11	21.00	21.00	21.00	15.00	15.00	15.00	-	-	315	-	-	315	540	225	71%
111	1720	8/18/11	34.00	34.00	34.00	22.50	22.50	22.50	-	-	765	-	-	765	828	63	8%
112	1720	8/18/11	37.00	37.00	37.00	22.50	22.50	22.50	-	-	833	-	-	833	920	88	11%
113	1720	8/18/11	34.00	34.00	34.00	22.50	22.50	22.50	-	-	765	-	-	765	828	63	8%
114	1720	8/18/11	27.00	27.00	27.00	22.50	22.50	22.50	-	-	608	-	-	608	690	83	14%
115	1720	8/18/11	19.00	19.00	19.00	22.50	22.50	22.50	-	-	428	-	-	428	506	79	18%

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Panel Placement Summary

Project Name: Ashe County Lf. **Job #** 09-10-1286 **Superintendent** Ron Powell

Material Type: 60 mil **Primary** x **Secondary** - **Cell** x **Pond** - **Cap** - **Other** -

Description:

Panel #	Roll Stock #	Deploy Date	Side 1 Length	Side 2 Length	AVG Length	Width 1	Width 2	AVG Width	Tri Angle Side 1	Tri Angle Side 2	Panel Total SF	LF in Trench	SF In Trench	Total SF (Pay Area)	Initial Square Feet	Material Waste	Waste %
							Totals From Previous Book							-			
							Totals to Date				164,496	-	-	164,496	173,203	8,707	5%
116	1715	8/18/11	13.00	13.00	13.00	11.00	11.00	11.00	-	-	143	-	-	143	224	81	57%
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
-	-		-	-	-	-	-	-	-	-	-	-	-	-			
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Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/26/11	32 / 33	183	3:55 PM	ST	2022	4.5	750		7/26/11	AT	4:34 / 30	4:39 / 30		P
Seam Notes														
7/26/11	33 / 34	213	4:05 PM	AC	2021	5	750		7/26/11	AT	4:43 / 30	4:48 / 30		P
Seam Notes														
7/26/11	35 / 36	22	4:37 PM	ST	2022	4.3	750		7/26/11	AT	4:55 / 30	5:00 / 30		P
Seam Notes														
7/26/11	37 / 38	22	4:55 PM	ST	2022	4.3	750		7/26/11	AT	5:53 / 30	5:58 / 30		P
Seam Notes														
7/26/11	35 / 37	132	5:00 PM	AC	2021	5	750		7/26/11	AT	5:32 / 30	5:37 / 29	1	P
Seam Notes														
7/26/11	34 / 35	82	5:02 PM	ST	2022	4.5	750		7/26/11	AT	5 25 / 30	5 30 / 29	1	P
Seam Notes														
7/26/11	34 / 36	195	5:18 PM	ST	2022	4.5	750		7/26/11	AT	6 04 / 30	6 09 / 30		P
Seam Notes														
7/26/11	36 / 37	23	5:20 PM	AC	2021	5	750		7/26/11	AT	5 47 / 30	5 52 / 28	2	P
Seam Notes														
7/26/11	36 / 38	169	5:23 PM	AC	2021	5	750		7/26/11	AT	6 06 / 30	6 11 / 30		P

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**
Extrusion LF Weld Total To Date 89
Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
Seam Notes														
7/26/11	41 / 42	22	6:00 PM	ST	2022	4.5	750		7/26/11	AT	7 02 / 30	7 07 / 30		P
Seam Notes														
7/26/11	39	40	22	6:10 PM	ST	2022	4.5	750	7/26/11	AT	6 27 / 30	6 32 / 30		P
Seam Notes														
7/26/11	39 / 41	197	6:10 PM	AC	2021	5	750		7/26/11	AT	6 56 / 30	7 01 / 30		P
Seam Notes														
7/26/11	37 / 39	182	6:25 PM	ST	2022	4.5	750		7/26/11	AT	7 11 / 30	7 16 / 30		P
Seam Notes														
7/26/11	39 / 42	38	6:38 PM	AC	2021	5	750		7/26/11	AT	7 00 / 30	7 05 / 30		P
Seam Notes														
7/26/11	40 / 42	185	6:45 PM	AC	2021	5	750		7/26/11	AT	7 30 / 30	7 35 / 30		P
Seam Notes														
7/26/11	37	40	23	7:00 PM	ST	2022	4.5	750	7/26/11	AT	7 22 / 30	7 27 / 29	1	P
Seam Notes														
7/26/11	38 / 40	165	7:04 PM	ST	2022	4.5	750		7/26/11	AT	7 43 / 30	7 48 / 30		P
Seam Notes														

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/26/11	38 / 40		:						7/26/11	AT	7 42 / 30	7 47 / 30		P
Seam Notes	Repair at 95' WoE													
7/26/11	38 / 40		:						7/26/11	AT	7 33 / 30	7 38 / 30		
Seam Notes	Repair at 142' WoE													
7/26/11	EX / 32	160	7:20 PM	AC	2021	3.5	750		7/27/11	AT	8 20 / 30	8 25 / 30		P
Seam Notes														
7/26/11	EX / 32		:						7/27/11	AT	8 10 / 30	8 15 / 30		
Seam Notes	Repair at 53' WoE													
7/26/11	EX / 32		:						7/27/11	AT	8 03 / 30	8 08 / 30		
Seam Notes	78' WoE													
7/27/11	EX / 39	61	9:00 AM	ST	2022	4.3	750			N/AT				
Seam Notes														
7/27/11	EX / 37	52	9:18 AM	ST	2022	4.3	750			N/AT				
Seam Notes														
7/27/11	EX / 35	57	9:36 AM	ST	2022	4.3	750			N/AT				
Seam Notes														
7/27/11	EX / 34	68	9:54 AM	ST	2022	4.3	750			N/AT				

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
Seam Notes														
7/27/11	EX / 33	38	10:12 AM	ST	2022	4.3	750			N/AT				
Seam Notes														
7/27/11	EX / 32	33	10:22 AM	ST	2022	4.3	750			N/AT				
Seam Notes														
7/27/11	C-1	34	68	10:15 AM	ST	2022	4.3	750		7/27/11	AT	11 35 / 30	11 40 / 30		P
Seam Notes														
7/27/11	C-1 / 33	41	10:30 AM	ST	2022	4.3	750			7/27/11	AT	12 42 / 30	12 47 / 30		P
Seam Notes														
7/27/11	C-1 / 32	12	10:40 AM	ST	2022	4.3	750			7/27/11	AT	2 04 / 30	2 09 / 30		P
Seam Notes														
7/27/11	C-1 / 39	57	10:25 AM	AC	2021	3.5	750			7/27/11	AT	11 05 / 30	11 10 / 30		P
Seam Notes														
7/27/11	C-1 / 37	53	10:43 AM	AC	2021	3.5	750			7/27/11	AT	11 24 / 30	11 29 / 30		P
Seam Notes														
7/27/11	C-1 / 35	55	11:05 AM	AC	2021	3.5	750			7/27/11	AT	11 40 / 30	11 45 / 30		P
Seam Notes														

Environmental Specialt[illegible] International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**
Extrusion LF Weld Total To Date 89
Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/27/11	C-1 / 33		:						7/27/11	AT	12 56 / 30	1 01 / 30		P
Seam Notes	Repair at 27' NEoSW													
7/27/11	41 / 43	187	1:35 PM	AC	2021	5	750		7/27/11	AT	2 25 / 30	2 30 / 30		P
Seam Notes														
7/27/11	42 / 43	219	2:00 PM	AC	2021	5	750		7/27/11	AT	2 47 / 30	2 52 / 30		P
Seam Notes														
7/27/11	42 / 43		:						7/27/11	AT	2 35 / 30	2 40 / 30		P
Seam Notes	Repair at 200' WoE													
7/27/11	41 / 43		:						7/27/11	AT	2 36 / 30	2 41 / 30		P
Seam Notes	Repair at 162' WoE													
	/		: PM											
Seam Notes														
7/27/11	EX / 32	9	2:10 PM	BN	519		470	470	7/27/11	VT				P
Seam Notes														
7/27/11	43 / 44	402	2:55 PM	AC	2021	5	750		7/27/11	AT	4 05 / 30	4 10 / 30		P
Seam Notes														
7/27/11	45 / 46	118	4:00 PM	AC	2021	5	750		7/27/11	AT	4 25 / 30	4 30 / 30		P

Environmental Specialt International Inc.

Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
Seam Notes														
7/27/11	46 / 48	22	4:32 PM	AC	2021	5	750		7/27/11	AT	4 43 / 30	4 48 / 30		P
Seam Notes														
7/27/11	45 / 48	121	4:36 PM	AC	2021	5	750		7/27/11	AT	4 59 / 30	5 04 / 30		P
Seam Notes														
7/27/11	47 / 49	17	5:00 PM	AC	2021	3.5	750		7/27/11	AT	5 15 / 30	5 20 / 30		P
Seam Notes														
7/27/11	46 / 47	38	5:15 PM	AC	2021	5	750		7/27/11	AT	5 24 / 30	5 29 / 30		P
Seam Notes														
7/27/11	46 / 49	28	5:20 PM	AC	2021	5	750		7/27/11	AT	6 04 / 30	6 09 / 30		P
Seam Notes														
7/27/11	48 / 49	121	5:25 PM	AC	2021	5	750		7/27/11	AT	6 05 / 30	6 10 / 30		P
Seam Notes														
7/27/11	50 / 51	15	5:50 PM	AC	2021	3.5	750		7/28/11	AT	8 05 / 30	8 10 / 29	1	P
Seam Notes														
7/27/11	49 / 50	31	5:55 PM	AC	2021	5	750		7/28/11	AT	6 49 / 30	6 54 / 30		P
Seam Notes														

Environmental Specialt[illegible] International Inc.
Seam Control Form

Project Name: Ashe County Lf
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Job # 09-10-1286
Primary x
Secondary
Pond
Cell x
Cap

Superintendent: Randy Story

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/27/11	49 / 51	102	6:00 PM	AC	2021	5	750		7/28/11	AT	8 38 / 30	8 43 / 30		P
Seam Notes														
7/27/11	44 / 45	56	5:40 PM	JL	2022	5	750		7/27/11	AT	6 11 / 30	6 16 / 30		P
Seam Notes														
7/27/11	44 / 46	56	5:51 PM	JL	2022	5	750		7/27/11	AT	6 21 / 30	6 26 / 30		P
Seam Notes														
7/27/11	44 / 47	40	6:00 PM	JL	2022	5	750		7/27/11	AT	6 25 / 30	6 30 / 30		P
Seam Notes														
7/27/11	44 / 49	15	6:07 PM	JL	2022	5	750		7/27/11	AT	6 40 / 30	6 45 / 30		P
Seam Notes														
7/27/11	44 / 49		:						7/27/11	AT	6 45 / 30	6 50 / 30		P
Seam Notes	Repair at 9' EoW													
7/27/11	44 / 50	34	6:14 PM	JL	2022	5	750		7/28/11	AT	8 00 / 30	8 05 / 29	1	P
Seam Notes														
7/27/11	51 / 52	86	6:22 PM	AC	2021	5	750		7/28/11	AT	9 10 / 30	9 15 / 30		P
Seam Notes														
7/27/11	44 / 51	19	6:30 PM	JL	2022	5	750		7/28/11	AT	8 40 / 30	8 45 / 30		P

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**
Extrusion LF Weld Total To Date 89
Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
Seam Notes														
7/27/11	44 / 52	61	6:33 PM	JL	2022	5	750		7/28/11	AT	9 36 / 30	9 41 / 30		P
Seam Notes														
7/27/11	44 / 52		:						7/28/11	AT	9 10 / 30	9 15 / 30		P
Seam Notes	Repair at 39' NEoSW													
7/27/11	52 / 53	30	6:40 PM	JL	2022	5	750		7/28/11	AT	8 51 / 30	8 56 / 30		P
Seam Notes														
7/27/11	44 / 53	30	6:45 PM	JL	2022	5	750		7/28/11	AT	8 52 / 30	8 57 / 30		P
Seam Notes														
7/28/11	EX / 54	109	10:15 AM	AC	2021	3.5	750		7/28/11	AT	11 50 / 30	11 55 / 29	1	P
Seam Notes														
7/28/11	41 / 54	24	11:25 AM	AC	2021	3.5	750		7/28/11	AT	1 01 / 30	1 06 / 30		P
Seam Notes														
7/28/11	EX / 54		:						7/28/11	AT	11 36 / 30	11 41 / 29	1	P
Seam Notes	Rerpair at 31' WoE													
7/28/11	43 / 55	22	2:20 PM	AC	2021	3.5	750		7/28/11	AT	3 47 / 30	3 52 / 30		P
Seam Notes														

Environmental Specialties International Inc.
Seam Control Form

Project Name: Ashe County Lf
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Job # 09-10-1286
Superintendent: Randy Story

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/28/11	41 / 55	19	2:30 PM	AC	2021	3.5	750		7/28/11	AT	3 30 / 30	3 35 / 30		P
Seam Notes														
7/28/11	54 / 55	44	2:35 PM	AC	2021	3.5	750		7/28/11	AT	4 09 / 30	4 14 / 29	1	P
Seam Notes														
7/29/11	EX / 54	80	10:30 AM	FZ	522		500	475	7/29/11	VT				P
Seam Notes														
7/30/11	44 / 56	22	9:00 AM	AC	2021	3	750		7/30/11	AT	9 13 / 30	9 18 / 29	1	P
Seam Notes														
7/30/11	55 / 56	56	9:10 AM	AC	2021	3.5	750		7/30/11	AT	9 53 / 30	9 58 / 30		P
Seam Notes														
7/30/11	54 / 56	37	9:25 AM	AC	2021	3.5	750		7/30/11	AT	10 05 / 30	10 10 / 30		P
Seam Notes														
7/30/11	57 / 58	104	10:10 AM	AC	2021	3.5	750		7/30/11	AT	11 20 / 30	11 25 / 30		P
Seam Notes														
7/30/11	45 / 57	104	10:40 AM	AC	2021	3.5	750		7/30/11	AT	11 13 / 30	11 18 / 29	1	P
Seam Notes														
7/30/11	58 / 59	101	11:05 AM	ST	2022	5	750		7/30/11	AT	12 45 / 30	12 50 / 30		P

Environmental Specialt[illegible] International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**
Extrusion LF Weld Total To Date 89
Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
Seam Notes														
7/30/11	59 / 60	100	11:25 AM	AC	2021	4.5	750		7/30/11	AT	12 52 / 30	12 57 / 30		P
Seam Notes														
7/30/11	60 / 61	99	11:30 AM	ST	2022	5	750		7/30/11	AT	12 53 / 30	12 58 / 30		P
Seam Notes														
7/30/11	61 / 62	98	11:45 AM	AC	2021	4.5	750		7/30/11	AT	1 00 / 30	1 05 / 30		P
Seam Notes														
7/30/11	62 / 63	98	11:45 AM	ST	2022	5	750		7/30/11	AT	1 05 / 30	1 10 / 30		P
Seam Notes														
8/17/11	56 / 65	77	9:45 AM	AC	2021	4.5	750		8/17/11	AT	10 00 / 30	10 5 / 29	1	P
Seam Notes														
8/17/11	64 / 65	38	10:10 AM	AC	2021	4.5	750		8/17/11	AT	10 21 / 30	10 26 / 30		P
Seam Notes														
8/17/11	65 / 66	177	10:23 AM	ST	2022	5	750		8/17/11	AT	11 03 / 30	11 08 / 30		P
Seam Notes														
8/17/11	54 / 64	39	10:30 AM	AC	2021	4.5	750		8/17/11	AT	10 39 / 30	10 44 / 30		P
Seam Notes														

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/17/11	56 / 64	12	10:50 AM	AC	2021	4.5	750		8/17/11	AT	11 04 / 30	11 09 / 30		P
Seam Notes														
8/17/11	66 / 67	199	11:00 AM	ST	2022	5	750		8/17/11	AT	11 46 / 30	11 51 / 30		P
Seam Notes														
8/17/11	54 / 65	65	11:05 AM	AC	2021	4.5	750		8/17/11	AT	11 24 / 30	11 29 / 30		P
Seam Notes														
8/17/11	67 / 68	197	11:20 AM	AC	2021	4.5	750		8/17/11	AT	11 52 / 30	11 57 / 29	1	P
Seam Notes														
8/17/11	68 / 69	197	11:30 AM	ST	2022	5	750		8/17/11	AT	12 54 / 30	12 59 / 30		P
Seam Notes														
8/17/11	69 / 70	198	12:40 PM	AC	2021	4.5	750		8/17/11	AT	1 16 / 30	1 21 / 30		P
Seam Notes														
8/17/11	71 / 72	197	12:45 PM	ST	2022	5	750		8/17/11	AT	1 20 / 30	1 25 / 30		P
Seam Notes														
8/17/11	70 / 71	199	1:20 PM	AC	2021	4.5	750		8/17/11	AT	1 53 / 30	1 58 / 30		P
Seam Notes														
8/17/11	72 / 73	196	1:22 PM	ST	2022	5	750		8/17/11	AT	2 00 / 30	2 05 / 30		P

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
Seam Notes														
8/17/11	73 / 74	195	2:00 PM	AC	2021	4.5	750		8/17/11	AT	2 29 / 30	2 34 / 30		P
Seam Notes														
8/17/11	74 / 75	195	2:02 PM	ST	2022	5	750		8/17/11	AT	3 08 / 30	3 13 / 30		P
Seam Notes														
8/17/11	75 / 76	195	2:40 PM	AC	2021	4.5	750		8/17/11	AT	2 54 / 30	2 59 / 30		P
Seam Notes														
8/17/11	45 / 77	182	2:38 PM	ST	2022	4.5	750		8/17/11	AT	4 05 / 30	4 10 / 30		P
Seam Notes														
8/17/11	77 / 79	64	3:17 PM	ST	2022	5	750		8/17/11	AT	3 57 / 30	4 02 / 30		P
Seam Notes														
8/17/11	78 / 79	22	3:25 PM	AC	2021	4.5	750		8/17/11	AT	3 38 / 30	3 43 / 30		P
Seam Notes														
8/17/11	77 / 78	166	3:28 PM	ST	2022	5	750		8/17/11	AT	4 22 / 30	4 27 / 30		P
Seam Notes														
8/17/11	79 / 80	104	3:40 PM	AC	2021	4.5	750		8/17/11	AT	4 02 / 30	4 07 / 30		P
Seam Notes														

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/17/11	78 / 80	164	3:53 PM	AC	2021	4.5	750		8/17/11	AT	4 24 / 30	4 29 / 30		P
Seam Notes														
8/17/11	56 / 79	22	4:18 PM	ST	2022	4.5	750		8/17/11	AT	4 51 / 30	4 56 / 30		P
Seam Notes														
8/17/11	80 / 81	253	4:20 PM	AC	2021	4.5	750		8/17/11	AT	5 03 / 30	5 08 / 30		P
Seam Notes														
8/17/11	44 / 79	23	4:23 PM	ST	2022	4.5	750		8/17/11	AT	4 47 / 30	4 52 / 30		P
Seam Notes														
8/17/11	43 / 77	60	4:31 PM	ST	2022	4.5	750		8/17/11	AT	4 46 / 30	4 51 / 30		P
Seam Notes														
8/17/11	82 / 83	22	4:39 PM	ST	2022	4.5	750		8/18/11	AT				
Seam Notes														
8/17/11	81 / 83	88	4:44 PM	ST	2022	5	750		8/17/11	AT	5 05 / 30	5 10 / 30		P
Seam Notes														
8/17/11	81 / 82	150	5:05 PM	ST	2022	5	750		8/17/11	AT	5 26 / 30	5 31 / 30		P
Seam Notes														
8/17/11	68 / 83	19	5:20 PM	AC	2021	3.5	750		8/17/11	AT	5 36 / 30	5 41 / 30		P

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
Notes :														
8/17/11	67 83	10	5 24 PM	AC	2021	3.5	750		8/17/11	AT	5 36 / 30	5 41 / 30		P
Notes :														
6/17/11	67 81	13	5 27 PM	AC	2021	3.5	750		8/17/11	AT	5 36 / 30	5 41 / 30		P
Notes :														
6/17/11	66 81	11	5 29 PM	AC	2021	3.5	750		8/17/11	AT	5 36 / 30	5 41 / 30		P
Notes :														
8/17/11	66 80	12	5 32 PM	AC	2021	3.5	750		8/17/11	AT	5 36 / 30	5 41 / 30		P
Notes :														
8/17/11	65 80	13	5 33 PM	AC	2021	3.5	750		8/17/11	AT	5 36 / 30	5 41 / 30		P
Notes :														
8/17/11	65 79	10	5 37 PM	AC	2021	3.5	750		8/17/11	AT	5 36 / 30	5 41 / 30		P
Notes :														
8/17/11	57 77	22	5 40 PM	ST	2022	4.5	750		8/18/11	AT	8 34 / 30	8 39 / 30		P
Notes :														
8/17/11	58 78	22	5 45 PM	ST	2022	4.5	750		8/18/11	AT	8 33 / 30	8 38 / 30		P
Notes :														
8/17/11	59 80	22	5 48	ST	2022	4.5	750		8/18/11	AT	8 20	8 25		P

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.		Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/17/11	59	80	22	PM	ST	2022	4.5	750		8/18/11	AT	30	30		P
Notes															
8/17/11	60	81	22	5 51 PM	ST	2022	4.5	750		8/18/11	AT	8 12 / 30	8 17 / 29	1	P
Notes															
8/17/11	61	82	22	5 54 PM	ST	2022	4.5	750		8/18/11	AT	8 11 / 30	8 16 / 30		P
Notes															
8/18/11	83	84	76	8 15 AM	ST	2022	4.5	750		8/18/11	AT	8 57 / 30	9 02 / 30		P
Notes															
8/18/11	82	84	147	8 30 AM	ST	2022	4.5	750		8/18/11	AT	8 59 / 30	9 04 / 30		P
Notes															
8/18/11	85	86	22	8 28 AM	FZ	2021	3.5	750		8/18/11	AT	9 35 / 30	9 40 / 30		P
Notes															
8/18/11	84	85	82	8 36 AM	FZ	2021	4.5	750		8/18/11	AT	9 18 / 30	9 22 / 30		P
Notes															
8/18/11	84	86	126	9 50 AM	FZ	2021	4.5	750		8/18/11	AT	9 43 / 30	9 48 / 30		P
Notes															
8/18/11	84	86		:						8/18/11	AT	10 46 / 30	10 51 / 30		P
Notes	Repair at 110' EoW														

Environmental Specialties International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**
Extrusion LF Weld Total To Date 89
Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/18/11	87 88	22	9 35 AM	FZ	2021	3.5	750		8/18/11	AT	10 12 / 30	10 17 / 30		P
Notes														
8/18/11	85 88	16	9 44 AM	ST	2022	4.5	750		8/18/11	AT	10 02 / 30	10 07 / 30		P
Notes														
8/18/11	88 89	8	9 44 AM	FZ	2021	4.5	750		8/18/11	AT	10 15 / 30	10 20 / 30		P
Notes														
8/18/11	87 89	272	9 45 AM	FZ	2021	4.5	750		8/18/11	AT	11 02 / 30	11 07 / 30		P
Notes														
8/18/11	85 87	52	9 47 AM	ST	2022	4.5	750		8/18/11	AT	10 27 / 30	10 32 / 29	1	P
Notes														
8/18/11	86 87	124	9 57 AM	ST	2022	4.5	750		8/18/11	AT	10 56 / 30	11 01 / 30		P
Notes														
8/18/11	86 87		:						8/18/11	AT	10 50 / 30	10 55 / 30		P
Notes	Repair at 81' EoW													
8/18/11	90 91	22	10 38 AM	FZ	2021	3.5	750		8/18/11	AT	11 44 / 30	11 49 / 30		
Notes														
8/18/11	63 87	96	10 40	ST	2021	4.5	750		8/18/11	AT	11 30	11 35	1	P

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
			AM								30	29		
Notes														
8/18/11	89 90	126	10 50 AM	ST	2022	4.5	750		8/18/11	AT	11 20 / 30	11 25 / 30		P
Notes														
8/18/11	90 92	114	11 10 AM	ST	2022	4.5	750		8/18/11	AT	11 42 / 30	11 47 / 30		P
Notes														
8/18/11	89 91	131	11 10 AM	FZ	2021	4.5	750		8/18/11	AT	12 54 / 30	12 59 / 30		P
Notes														
8/18/11	89 91		:						8/18/11	AT	1 02 / 30	1 07 / 30		P
Notes	Repair at 97' EoW													
8/18/11	91 92	127	11 30 AM	ST	2022	4.5	750		8/18/11	AT	12 51 / 30	12 56 / 30		P
Notes														
8/18/11	92 93	222	12 45 PM	FZ	2021	4.5	750		8/18/11	AT	1 36 / 30	1 41 / 30		P
Notes														
8/18/11	93 94	175	1 05 PM	ST	2022	4.5	750		8/18/11	AT	1 39 / 30	1 44 / 29	1	P
Notes														
8/18/11	94 95	162	1 45 PM	FZ	2021	4.5	750		8/18/11	AT	2 40 / 30	2 45 / 30		P
Notes														

Environmental Specialt[illegible] International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**
Extrusion LF Weld Total To Date 89
Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/18/11	95 96	151	2 05 PM	ST	2022	4.5	750		8/18/11	AT	2 42 / 30	2 47 / 29	1	P
Notes														
8/18/11	96 97	86	2 20 PM	FZ	2021	4.5	750		8/18/11	AT	3 05 / 30	3 10 / 30		P
Notes														
8/18/11	96 98	48	2 40 PM	ST	2022	4.5	750		8/18/11	AT	3 03 / 30	3 08 / 30		P
Notes														
8/18/11	97 98	21	2 45 PM	FZ	2021	3.5	750		8/18/11	AT	3 16 / 30	3 21 / 29	1	P
Notes														
3/18/11	98 99	37	2 55 PM	FZ	2021	4.5	750		8/18/11	AT	3 11 / 30	3 16 / 30		P
Notes														
3/18/11	97 99	78	3 02 PM	FZ	2021	4.5	750		8/18/11	AT	3 33 / 30	3 38 / 30		P
Notes														
3/18/11	99 100	96	3 12 PM	ST	2022	4.5	750		8/18/11	AT	3 41 / 30	3 46 / 30		P
Notes														
8/18/11	75 93	15	3 30 PM	FZ	2021	3.5	750		8/18/11	AT	3 51 / 30	3 56 / 30		P
Notes														
8/18/11	75 92	14	3 35	FZ	2021	3.5	750		8/18/11	AT	3 51	3 56		P

Environmental Special(International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**
Extrusion LF Weld Total To Date 89
Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
			PM								30	30		
Seam Notes														
8/18/11	74 92	12	3 38 PM	FZ	2021	3.5	750		8/18/11	AT	4 02 / 30	4 07 / 30		P
Seam Notes														
8/18/11	74 90	11	3 40 PM	FZ	2021	3.5	750		8/18/11	AT	4 02 / 30	4 07 / 30		P
Seam Notes														
8/18/11	73 90	14	3 41 PM	FZ	2021	3.5	750		8/18/11	AT	4 03 / 30	4 08 / 30		P
Seam Notes														
8/18/11	73 89	8	3 45 PM	FZ	2021	3.5	750		8/18/11	AT	4 03 / 30	4 08 / 30		P
Seam Notes														
8/18/11	72 89	16	3 46 PM	FZ	2021	3.5	750		8/18/11	AT	4 03 / 30	4 08 / 30		P
Seam Notes														
8/18/11	71 88	18	3 50 PM	FZ	2021	3.5	750		8/18/11	AT	4 03 / 30	4 08 / 30		P
Seam Notes														
8/18/11									8/18/11	AT	4 15 / 30	4 20 / 29	1	P
Seam Notes	Repair at 4' SoN													
8/18/11	71 85	4	3 59 PM	FZ	2021	3.5	750		8/18/11	AT	4 15 / 30	4 20 / 29	1	P

Environmental Specialt International Inc.

Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.		Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
Seam Notes															
8/18/11	70	85	19	4 00 PM	FZ	2021	3.5	750		8/18/11	AT	4 15 / 30	4 20 / 29	1	P
Seam Notes															
8/18/11	69	85	1	4 02 PM	FZ	2021	3.5	750		8/18/11	AT	4 25 / 30	4 30 / 30		P
Seam Notes															
8/18/11	69	84	21	4 04 PM	FZ	2021	3.5	750		8/18/11	AT	4 26 / 30	4 31 / 30		P
Seam Notes															
8/18/11	68	84	1	4 06 PM	FZ	2021	3.5	750		8/18/11	AT	4 32 / 30	4 37 / 30		P
Seam Notes															
8/18/11	62	84	22	4 00 PM	ST	2022	4	750		8/18/11	AT	4 43 / 30	4 48 / 30		P
Seam Notes															
8/18/11	63	86	22	4 04 PM	ST	2022	4	750		8/18/11	AT	4 45 / 30	4 50 / 29	1	P
Seam Notes															
8/18/11	76	101	198	5 00 PM	FZ	2021	4.5	750		8/18/11	AT	5 34 / 30	5 39 / 30		P
Seam Notes															
8/18/11	101	102	189	5 14 PM	ST	2022	4.5	750		8/18/11	AT	5 48 / 30	5 53 / 30		P
Seam Notes															

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.		Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/18/11	101	105	19	5 35 PM	FZ	2021	4.5	750		8/18/11	AT	5 40 / 30	5 45 / 29	1	P
Seam Notes															
8/18/11	102	103	22	5 38 PM	FZ	2021	4.5	750		8/18/11	AT	5 54 / 30	5 59 / 30		P
Seam Notes															
8/18/11	101	103	17	5 45 PM	ST	2022	4.5	750		8/18/11	AT	6 00 / 30	6 05 / 30		P
Seam Notes															
8/18/11	102	104	176	5 46 PM	FZ	2021	4.5	750		8/18/11	AT	6 19 / 30	6 24 / 30		P
Seam Notes															
8/18/11	104	106	159	6 00 PM	ST	2022	4.5	750		8/18/11	AT	6 21 / 30	6 26 / 30		P
Seam Notes															
8/18/11	103	104	6	6 00 PM	FZ	2021	4.5	750		8/18/11	AT	6 29 / 30	6 34 / 30		P
Seam Notes															
8/18/11	106	107	134	6 25 PM	FZ	2021	4.5	750		8/18/11	AT	6 47 / 30	6 52 / 30		P
Seam Notes															
8/18/11	107	108	110	6 30 PM	ST	2022	4.5	750		8/18/11	AT	6 50 / 30	6 55 / 30		P
Seam Notes															
8/18/11	108	109	109	6 50	FZ	2021	4.5	750		8/18/11	AT	7 13	7 18		P

Environmental Specialists International Inc.
Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story
Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined
Extrusion LF Weld Total To Date 89
Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.		Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
[illegible]	[illegible]	[illegible]	[illegible]	PM	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	30	30		[illegible]
Seam Notes															
8/18/11	100	109	45	7 00 PM	ST	2022	4.5	750		8/18/11	AT	7 12 / 30	7 17 / 30		P
Seam Notes															
8/18/11	113	114	30	7 10 PM	ST	2022	4.5	750		8/18/11	AT	7 36 / 30	7 41 / 29	1	P
Seam Notes															
8/18/11	112	113	36	7 10 PM	FZ	2021	4.5	750		8/18/11	AT	7 30 / 30	7 35 / 30		P
Seam Notes															
8/18/11	111	112	36	7 20 PM	FZ	2021	4.5	750		8/18/11	AT	7 29 / 30	7 34 / 29	1	P
Seam Notes															
8/18/11	114	115	22	7 20 PM	ST	2022	4.5	750		8/18/11	AT	7 43 / 30	7 48 / 30		P
Seam Notes															
8/18/11	115	116	14	7 25 PM	ST	2022	4.5	750		8/18/11	AT	7 50 / 30	7 55 / 29	1	P
Seam Notes															
8/18/11	110	111	27	7 25 PM	FZ	2021	4.5	750		8/18/11	AT	7 59 / 30	8 04 / 30		P
Seam Notes															
8/18/11	76	105	15	7 40 PM	FZ	2021	3.5	750		8/19/11	AT	1 46 / 30	1 51 / 29	1	P

Environmental Special[illegible]s International Inc.

Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.		Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
Seam Notes															
8/18/11	93	101	16	7 45 PM	FZ	2021	3.5	750		8/19/11	N/AT				
Seam Notes															
8/18/11	93	105	21	7 50 PM	FZ	2021	3.5	750		8/19/11	AT	1 45 / 30	1 50 / 30		P
Seam Notes															
8/18/11	94	101	15	7 25 PM	ST	2022	4	750		8/19/11	AT	1 24 / 30	1 29 / 30		P
Seam Notes															
8/18/11	94	103	2	7 37 PM	ST	2022	4	750		8/19/11	AT	1 24 / 30	1 29 / 30		P
Seam Notes															
8/18/11	95	103	23	7 38 PM	ST	2022	4	750		8/19/11	AT	1 07 / 30	1 12 / 29	1	P
8/18/11	96	104	22	7 44 PM	ST	2022	4	750		8/19/11	AT	1 09 / 30	1 14 / 30		P
Seam Notes															
8/18/11	76	93	13	7 55 PM	FZ	2021	3.5	750		8/19/11	AT	2 05 / 30	2 10 / 29	1	P
Seam Notes															
8/18/11	98	104	2	7 50 PM	ST	2022	4	750			N/AT				
Seam Notes															
8/18/11	98	106	20	7 51	ST	2022	4	750		8/20/11	AT	8 30	8 35		P

Environmental Special[illegible] International Inc.

Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 Total LF of Welding to Date Combined

Extrusion LF Weld Total To Date 89

Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.		Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
[illegible]	[illegible]	[illegible]	[illegible]	PM	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	30	30		[illegible]
Seam Notes															
8/18/11	99	106	3	7 56 PM	ST	2022	4	750		8/20/11	AT	7 40 / 30	7 45 / 30		P
Seam Notes															
8/18/11	99	107	16	7 57 PM	ST	2022	4	750		8/20/11	AT	7 40 / 30	7 45 / 30		P
Seam Notes															
8/18/11	100	107	5	8 00 PM	ST	2022	4	750			N/AT				
Seam Notes	No Overlap.														
8/18/11	100	108	23	7 58 PM	FZ	2021	3.5	750		8/20/11	AT	7 30 / 30	7 35 / 30		P
Seam Notes															
8/19/11	100	116	15	10 15 AM	ST	2022	4	750		8/19/11	AT	12 42 / 30	12 47 / 30		P
8/19/11	109	116	4	10 16 AM	ST	2022	4	750		8/19/11	AT	12 42 / 30	12 47 / 30		P
Seam Notes															
8/19/11	109	115	22	10 20 AM	ST	2022	4	750		8/19/11	AT	12 42 / 30	12 47 / 30		P
Seam Notes															
8/19/11	109	114	22	10 26 AM	ST	2022	4	750		8/19/11	AT	12 05 / 30	12 10 / 29	1	P
Seam Notes															

Environmental Special[illegible]s International Inc.

Seam Control Form

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By Yuannia Quesada
Other

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Air Pressure Test	35	PSI
Air Pressure Hold Time	5	Minutes
Allowable Air Pressure Loss	3	PSI

9,300 **Total LF of Welding to Date Combined**
Extrusion LF Weld Total To Date 89
Fusion LF Weld Total To Date: 9,211

Weld Date	Seam No.		Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/19/11	109	113	22	10 32 AM	ST	2022	4	750		8/19/11	AT	11 16 / 30	11 21 / 29	1	P
Seam Notes															
8/19/11	109	112	22	10 38 PM	ST	2022	4	750		8/19/11	AT	11 28 / 30	11 33 / 29	1	P
Seam Notes															
8/19/11	109	111	22	10 44 PM	ST	2022	4	750		8/19/11	AT	11 00 / 30	11 05 / 30		P
Seam Notes															
8/19/11	109	110	20	10 50 AM	ST	2022	4	750		8/19/11	AT	11 00 / 30	11 05 / 30		P
Seam Notes															
8/19/11	109	112								8/19/11	AT	11 40 / 30	11 45 / 29	1	P
Seam Notes	Repair at 14' WoE														
8/19/11	54	66	12	1 00 PM	BN	519		470	470	8/20/11	VT				P

Environmental Specia[illegible]s International Inc.

Destructive Sample Information

Project Name: Ashe County Lf **Job #** 09-10-1286 **Superintendent:** Randy Story

Material Type: 60 mil Tx **Primary** x **Pond** **Peel Test Extrusion Minimum** 78 PPI

Job Description: **Secondary** **Cell** x **Peel Test Fusion Minimum** 91 PPI

Reported By: Yuannia Quesada **Cap** **Shear Test Minimum** 120 PPI

Other:

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A / B	Coupon 2 A / B	Coupon 3 A / B	Coupon 4 A / B	Coupon 5 A / B	Test Results
32	32 / 33	7/26/11	ST	2022	4.5	750		Peel	111 / 114	114 / 114	123 / 115	115 / 118	112 / 118	P
								Shear	154	159	154	145	151	
	DS Location and Notes	100' WoE												
33	34 / 36	7/26/11	ST	2022	4.5	750		Peel	100 / 122	107 / 121	120 / 113	127 / 102	122 / 109	P
								Shear	163	160	161	165	160	
	DS Location and Notes	177' WoE												
34	38 / 40	7/26/11	ST	2022	4.5	750		Peel	120 / 116	113 / 111	111 / 122	112 / 127	117 / 122	P
								Shear	167	162	163	163	161	
	DS Location and Notes	60' WoE												
35	40 / 42	7/26/11	AC	2021	5	750		Peel	111 / 105	108 / 109	108 / 114	112 / 108	107 / 109	P
								Shear	159	158	155	154	156	
	DS Location and Notes	163' WoE												
36	41 / 43	7/27/11	AC	2021	5	750		Peel	103 / 110	106 / 112	112 / 118	103 / 108	116 / 113	P
								Shear	152	158	148	147	152	
	DS Location and Notes	19' WoE												
37	43 / 44	7/27/11	AC	2021	5	750		Peel	104 / 114	113 / 113	117 / 110	117 / 115	116 / 115	P
								Shear	151	145	150	148	147	
	DS Location and Notes	325' WoE												
38	51 / 52	7/27/11	AC	2021	5	750		Peel	116 / 122	110 / 112	106 / 106	108 / 109	110 / 109	P
								Shear	152	148	154	147	153	
	DS Location and Notes	65' SWoNE												
39	45 / 46	7/27/11	AC	2021	5	750		Peel	104 / 106	104 / 108	108 / 107	97 / 103	110 / 109	P
								Shear	144	141	146	145	148	
	DS Location and Notes	28' SWoNE												
40	C-1 / C-3	7/28/11	ST	522		500	470	Peel	139	129	129	140	134	P
								Shear	163	159	158	157	162	
	DS Location and Notes	78' EoW												
41	C-9 / 54	7/29/11	FZ	519		480	480	Peel	106	112	108	110	87	P
								Shear	150	148	148	148	137	

Environmental Specia s International Inc.

Destructive Sample Information

Project Name: Ashe County Lf **Job #** 09-10-1286 **Superintendent:** Randy Story

Material Type: 60 mil Tx **Primary** x **Pond** **Peel Test Extrusion Minimum** 78 PPI

Job Description: **Secondary** **Cell** x **Peel Test Fusion Minimum** 91 PPI

Reported By: Yuannia Quesada **Cap** **Shear Test Minimum** 120 PPI

Other:

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A B	Coupon 2 A B	Coupon 3 A B	Coupon 4 A B	Coupon 5 A B	Test Results
41	DS Location and Notes	67' EoW												
42	56 / 65	8/17/11	AC	2021	4.5	750		Peel	121 : 123	160 : 123	122 : 120	93 : 109	113 : 125	P
								Shear	156	156	156	152	155	
	DS Location and Notes	33' EoW												
43	66 / 67	8/17/11	AC	2021	4.5	750		Peel	119 : 128	109 : 123	115 : 119	120 : 131	111 : 135	P
								Shear	159	153	156	151	157	
	DS Location and Notes	100' EoW												
44	68 / 69	8/17/11	ST	2022	5	750		Peel	114 : 113	110 : 108	112 : 113	102 : 119	107 : 121	P
								Shear	147	149	143	149	154	
	DS Location and Notes	14' EoW												
45	71 / 72	8/17/11	ST	2022	5	750		Peel	107 : 137	111 : 119	121 : 125	112 : 120	115 : 110	P
								Shear	156	154	154	155	163	
	DS Location and Notes	75' EoW												
46	73 / 74	8/17/11	AC	2021	4.5	750		Peel	116 : 110	109 : 110	109 : 120	104 : 106	110 : 112	P
								Shear	166	167	168	167	174	
	DS Location and Notes	115' EoW												
47	75 / 76	8/17/11	AC	2021	4.5	750		Peel	142 : 140	147 : 120	135 : 120	139 : 124	129 : 120	P
								Shear	207	204	198	202	199	
	DS Location and Notes	126' EoW												
48	45 / 77	8/17/11	ST	2022	4.5	750		Peel	122 : 128	116 : 131	123 : 132	112 : 136	104 : 136	P
								Shear	155	153	155	154	154	
	DS Location and Notes	48' EoW												
49	78 / 80	8/17/11	AC	2021	4.5	750		Peel	123 : 115	125 : 112	124 : 110	112 : 107	117 : 110	P
								Shear	150	150	154	153	152	
	DS Location and Notes	16' EoW												
50	66 / 81	8/17/11	AC	2021	3.5	750		Peel	131 : 129	130 : 125	130 : 126	130 : 130	126 : 125	P
								Shear	130	130	134	131	133	
	DS Location and Notes	7' NoS												

Environmental Specia[illegible]s International Inc.

Destructive Sample Information

Project Name: Ashe County Lf **Job #** 09-10-1286 **Superintendent:** Randy Story

Material Type: 60 mil Tx **Primary** x **Pond** **Peel Test Extrusion Minimum** 78 PPI

Job Description: **Secondary** **Cell** x **Peel Test Fusion Minimum** 91 PPI

Reported By: Yuannia Quesada **Cap** **Shear Test Minimum** 120 PPI

Other:

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A / B	Coupon 2 A / B	Coupon 3 A / B	Coupon 4 A / B	Coupon 5 A / B	Test Results
51	63 / 87	8/18/11	ST	2022	4.5	750		Peel	110 / 125	110 / 135	115 / 125	110 / 135	110 / 125	P
								Shear	150	150	150	150	149	
	DS Location and Notes	50' WoE												
52	81 / 83	8/18/11	ST	2022	4.5	750		Peel	110 / 120	110 / 129	110 / 134	110 / 125	113 / 130	P
								Shear	160	157	155	155	160	
	DS Location and Notes	74' EoW												
53	84 / 86	8/18/11	FZ	2021	4.5	750		Peel	122 / 115	120 / 120	125 / 125	120 / 120	120 / 120	P
								Shear	150	150	150	150	150	
	DS Location and Notes	25' EoW												
54	87 / 89	8/18/11	FZ	2021	4.5	750		Peel	120 / 110	120 / 110	115 / 105	110 / 105	110 / 110	P
								Shear	150	150	155	155	150	
	DS Location and Notes	175' EoW												
55	91 / 92	8/18/11	ST	2022	4.5	750		Peel	125 / 125	125 / 130	120 / 125	125 / 125	130 / 125	P
								Shear	165	165	165	165	165	
	DS Location and Notes	15' EoW												
56	93 / 94	8/18/11	ST	2022	4.5	750		Peel	112 / 126	115 / 128	112 / 109	118 / 111	112 / 109	P
								Shear	177	176	177	175	175	
	DS Location and Notes	153' WoE												
57	96 / 97	8/18/11	ST	2022	4.5	750		Peel	115 / 111	120 / 105	112 / 112	123 / 116	112 / 111	P
								Shear	158	156	159	154	157	
	DS Location and Notes	42' WoE												
58	102 / 104	8/18/11	FZ	2021	4.5	750		Peel	132 / 106	131 / 105	114 / 118	112 / 114	117 / 115	P
								Shear	158	155	153	153	157	
	DS Location and Notes	75' EoW												
59	107 / 108	8/18/11	ST	2022	4.5	750		Peel	109 / 115	106 / 112	102 / 110	106 / 110	106 / 107	P
								Shear	156	154	154	150	155	
	DS Location and Notes	75' EoW												
60	113 / 114	8/18/11	ST	2022	4.5	750		Peel	119 / 112	117 / 121	118 / 129	119 / 117	113 / 119	P
								Shear	159	159	159	158	162	

Environmental Speci[illegible]s International Inc.

Destructive Sample Information

Project Name: Ashe County Lf **Job #** 09-10-1286 **Superintendent:** Randy Story

Material Type: 60 mil Tx

Job Description:

Reported By: Yuannia Quesada

Other:

Primary x
Secondary

Pond
Cell x
Cap

Peel Test Extrusion Minimum 78 PPI
Peel Test Fusion Minimum 91 PPI
Shear Test Minimum 120 PPI

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A / B	Coupon 2 A / B	Coupon 3 A / B	Coupon 4 A / B	Coupon 5 A / B	Test Results
	DS Location and Notes	16' SoN												
61	71 / C-12	8/19/11	ST	523		550	550	Peel	78	107	114	137	101	P
								Shear	147	148	143	144	143	
	DS Location and Notes	10' SoN												
								Peel						P
								Shear						
	DS Location and Notes													
								Peel						P
								Shear						
	DS Location and Notes													
								Peel						P
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						P
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													

Environmental Specialties International Inc.

Destructive Sample Information

Project Name: Ashe County Lf **Job #** 09-10-1286 **Superintendent:** Randy Story

Material Type: 60 mil Tx **Primary** x **Pond** **Peel Test Extrusion Minimum** 78 PPI

Job Description: **Secondary** **Cell** x **Peel Test Fusion Minimum** 91 PPI

Reported By: Yuannia Quesada **Cap** **Shear Test Minimum** 120 PPI

Other:

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A / B	Coupon 2 A / B	Coupon 3 A / B	Coupon 4 A / B	Coupon 5 A / B	Test Results
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						P
								Shear						
	DS Location and Notes													
								Peel						P
								Shear						
	DS Location and Notes													
								Peel						
								Shear						

Environmental Speci es International Inc.

Destructive Sample Information

Project Name: Ashe County Lf **Job #** 09-10-1286 **Superintendent:** Randy Story

Material Type: 60 mil Tx

Job Description:

Reported By: Yuannia Quesada

Other:

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Peel Test Extrusion Minimum	78	**PPI**
Peel Test Fusion Minimum	91	**PPI**
Shear Test Minimum	120	**PPI**

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A / B	Coupon 2 A / B	Coupon 3 A / B	Coupon 4 A / B	Coupon 5 A / B	Test Results
	DS Location and Notes													
	/							Peel						
								Shear						
	DS Location and Notes													
	/							Peel						
								Shear						
	DS Location and Notes													
	/							Peel						
								Shear						
	DS Location and Notes													
	/							Peel						
								Shear						
	DS Location and Notes													
	/							Peel						
								Shear						
	DS Location and Notes													
	/							Peel						
								Shear						
	DS Location and Notes													
	/							Peel						
								Shear						
	DS Location and Notes													
	/							Peel						
								Shear						
	DS Location and Notes													
	/							Peel						
								Shear						
	DS Location and Notes													

Environmental Specialties International Inc.

Destructive Sample Information

Project Name: Ashe County Lf **Job #** 09-10-1286 **Superintendent:** Randy Story

Material Type: 60 mil Tx **Primary** x **Pond** **Peel Test Extrusion Minimum** 78 **PPI**

Job Description: **Secondary** **Cell** x **Peel Test Fusion Minimum** 91 **PPI**

Reported By: Yuannia Quesada **Cap** **Shear Test Minimum** 120 **PPI**

Other:

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A / B	Coupon 2 A / B	Coupon 3 A / B	Coupon 4 A / B	Coupon 5 A / B	Test Results
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													
								Peel						
								Shear						
	DS Location and Notes													

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
1	AT	EX/32		53' WoE	P	3	x	2		7/27/11	BN	519	VT	P	7/28/11
2	AT	EX/32		78' WoE	P	2	x	1		7/27/11	BN	519	VT	P	7/28/11
3	BO	EX		BoS	P	4	x	5		7/27/11	BN	519	VT	P	7/28/11
4	DS	32/33		100' WoE	P	5	x	2		7/27/11	BN	519	VT	P	7/28/11
5	DS	34/36		177' WoE	P	5	x	2		7/27/11	BN	519	VT	P	7/28/11
6	SJ	34/35/36		Intersection	P	1	x	1		7/27/11	BN	519	VT	P	7/28/11
7	SJ	35/36/37		Intersection	P	1	x	1		7/27/11	BN	519	VT	P	7/28/11
8	SJ	36/37/38		Intersection	P	1	x	1		7/27/11	BN	519	VT	P	7/28/11
9	DS	38/40		60' WoE	P	5	x	2		7/27/11	BN	519	VT	P	7/28/11
10	BO	38/40		95' WoE	P	2	x	2		7/27/11	BN	519	VT	P	7/28/11
11	BO	38/40		142' WoE	P	2	x	2		7/27/11	BN	519	VT	P	7/28/11
12	SJ	37/38/40		Intersection	P	2	x	1		7/27/11	BN	519	VT	P	7/28/11
13	BO	37/40		8' EoW	B		x		10	7/27/11	BN	519	VT	P	7/28/11
14	BO	37/40		19' EoW	B		x		10	7/27/11	BN	519	VT	P	7/28/11
15	SJ	37/39/40		Intersection	P	2	x	2		7/27/11	BN	519	VT	P	7/28/11
16	DS	40/42		163' WoE	P	5	x	2		7/27/11	BN	519	VT	P	7/28/11
17	SJ	39/40/42		Intersection	P	2	x	2		7/27/11	BN	519	VT	P	7/28/11
18	SJ	39/41/42		Intersection	P	1	x	1		7/27/11	BN	519	VT	P	7/28/11
19	SJ	EX/32		158' WoE	P	2	x	1		7/27/11	BN	519	VT	P	7/28/11
20	SJ	EX/32		Intersection	P	3	x	2		7/27/11	BN	519	VT	P	7/28/11

Environmental Specialties International Inc.
Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
21	SJ	EX/32/C1		Intersection	P	6	x	4		7/27/11	BN	519	VT	P	7/28/11
22	Seam	EX/32		Seam	P	1	x	1		7/27/11	BN	519	VT	P	7/28/11
23	BO	C-1/32		4' NWoSE	P	1	x	1		7/27/11	BN	519	VT	P	7/28/11
24	DO		32	3' EoW-3' SoN	B		x		8	7/27/11	BN	519	VT	P	7/28/11
25	SJ	C1/32/33		Intersection	P	1	x	1		7/27/11	BN	519	VT	P	7/28/11
26	AT	C1/33		27' NEoSW	P	4	x	1		7/27/11	BN	519	VT	P	7/28/11
27	SJ	C1/33/34		Intersection	C-2	10	x	6		7/27/11	BN	519	VT	P	7/28/11
28	SJ	C1/34/35		Intersection	P	5	x	2		7/27/11	BN	519	VT	P	7/28/11
29	SJ	C1/35/37		Intersection	P	5	x	2		7/27/11	ST	522	VT	P	7/28/11
30	SJ	C1/37/39		Intersection	P	5	x	2		7/27/11	ST	522	VT	P	7/28/11
31	CF	EX/C1		TIE IN	C-3	35	x	2		7/27/11	ST	522	VT	P	7/28/11
32	CF	EX/C1		TIE IN	C-3	57	x	2		7/27/11	BN	519	VT	P	7/28/11
33	CF	EX/C1		TIE IN	C-3	81	x	2		7/28/11	BN	522	VT	P	7/29/11
34	CF	EX/C1		TIE IN	C-3	115	x	2		7/28/11	ST	522	VT	P	7/29/11
35	SJ	EX/C1	C3/39/41	Intersection	C-4	19	x	6		7/28/11	ST	522	VT	P	7/29/11
36	SJ	C1/39		Intersection	P	2	x	2		7/28/11	ST	522	VT	P	7/29/11
37	CF	EX/C4		TIE IN	C-5	21	x	2		7/28/11	ST	522	VT	P	7/29/11
38	SJ	EX/C4/41		Intersection	P	6	x	2		7/28/11	ST	522	VT	P	7/29/11
39	CF	EX/54		TIE IN	C-6	28	x	5		7/28/11	BN	522	VT	P	7/29/11
40	SJ	EX/41/54	C-5	Intersection	P	1	x	1		7/28/11	BN	522	VT	P	7/29/11

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
41	CF	EX/C-6		TIE IN	C-7	34	x	1		7/28/11	ST	522	VT	P	7/29/11
42	DS	41/43		19' WoE	P	5	x	2		7/28/11	BN	518	VT	P	7/29/11
43	SJ	41/42/43		Intersection	P	2	x	2		7/28/11	BN	518	VT	P	7/29/11
44	BO	42/43		200' WoE	P	1	x	1		7/28/11	BN	518	VT	P	7/29/11
45	DS	43/44		325' WoE	P	5	x	2		7/28/11	BN	518	VT	P	7/29/11
46	SJ	44/45/46		Intersection	P	7	x	3		7/28/11	BN	522	VT	P	7/29/11
47	SJ	44/46/47		Intersection	P	4	x	2		7/28/11	BN	518	VT	P	7/29/11
48	SJ	44/47/49		Intersection	P	4	x	2		7/28/11	BN	518	VT	P	7/29/11
49	SJ	46/47/49		Intersection	P	1	x	1		7/28/11	BN	518	VT	P	7/29/11
50	DS	45/46		28' SWoNE	P	5	x	2		7/28/11	BN	518	VT	P	7/29/11
51	SJ	45/46/48		Intersection	P	2	x	1		7/28/11	BN	518	VT	P	7/29/11
52	SJ	46/48/49		Intersection	P	1	x	1		7/28/11	BN	518	VT	P	7/29/11
53	BO	44/49		9' EoW	P	3	x	1		7/28/11	BN	518	VT	P	7/29/11
54	SJ	44/49/50		Intersection	P	2	x	2		7/28/11	BN	518	VT	P	7/29/11
55	SJ	44/50/51		Intersection	P	3	x	2		7/28/11	BN	518	VT	P	7/29/11
56	SJ	49/50/51		Intersection	P	1	x	1		7/28/11	BN	518	VT	P	7/29/11
57	SJ	44/51/52		Intersection	P	3	x	2		7/28/11	BN	518	VT	P	7/29/11
58	DS	51/52		65' SWoNE	P	5	x	2		7/28/11	BN	518	VT	P	7/29/11
59	BO	44/52		39' NEoSW	P	1	x	1		7/28/11	BN	518	VT	P	7/29/11
60	SJ	44/52/53		Intersection	P	5	x	2		7/28/11	BN	518	VT	P	7/29/11

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
	Spark	*W=West	B--Extrusion Bead
	Air Lance	*E=East	
LF Welded			
#REF!			

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
61	BO	44/53		5' SWoNE	P	1	x	1		7/28/11	BN	518	VT	P	7/29/11
62	BO	44/53		7' SWoNE	B		x		48	7/28/11	BN	518	VT	P	7/29/11
63	BO	44/53		10' SWoNE	P	1	x	1		7/28/11	BN	518	VT	P	7/29/11
64	BO	43/44		BoS	P	5	x	2		7/28/11	BN	518	VT	P	7/29/11
65	SJ	54/C5/C7	C8	Intersection	P	2	x	1		7/28/11	BN	518	VT	P	7/29/11
66	CF	EX/54		29' WoE	C-8	31	x	2		7/28/11	FZ	522	VT	P	7/29/11
67	DO		40	7' NoS-4' EoW	P	1	x	1		7/28/11	BN	518	VT	P	7/29/11
68	DS	C1/C3		78' EoW	P	5	x	2		7/29/11	FZ	522	VT	P	7/29/11
69	BO	41/43		162' WoE	P	6	x	2		7/29/11	FZ	522	VT	P	7/29/11
70	SJ	41/43/55		Intersection	P	2	x	2		7/29/11	FZ	522	VT	P	7/29/11
71	SJ	41/54/55		Intersection	P	2	x	2		7/29/11	FZ	522	VT	P	7/29/11
72	CF	EX/54		TIE IN	C-9	168	x	2		7/29/11	FZ	522	VT	P	7/29/11
73	DO		54	7' NoS-28' EoW	P	1	x	1		7/29/11	FZ	522	VT	P	7/29/11
74	DO		54	10' NoS-28' EoW	P	1	x	1		7/29/11	FZ	522	VT	P	7/30/11
75	DO	55/56		37' WoE	P	3	x	3		7/30/11	FZ	522	VT	P	7/30/11
76	SJ	54/55/56		Intersection	C-10	13	x	5		7/30/11	FZ	522	VT	P	7/30/11
77	SJ	3/44/55/56		Intersection	P	2	x	2		7/30/11	FZ	522	VT	P	7/30/11
78	BO	45/57		4' SWoNE	P	1	x	1		7/30/11	FZ	522	VT	P	7/30/11
79	BO	58/59		5' SWoNE	P	2	x	1		7/30/11	FZ	522	VT	P	7/30/11
80	SJ	56/65/79		INTER	P	5	x	4		8/18/11	BN	519	VT	P	8/19/11

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes				
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
81	SJ	65/79/80		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
82	SJ	43/56/79		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
83	SJ	43/77/79		INTER	P	2	x	2		8/18/11	BN	519	VT	P	8/19/11
84	SJ	43/45/77		INTER	P	6	x	5		8/18/11	BN	519	VT	P	8/19/11
85	DS	45/77		48' EoW	P	6	x	2		8/18/11	BN	519	VT	P	8/19/11
86	SJ	45/57/77		INTER	P	8	x	2		8/18/11	BN	519	VT	P	8/19/11
87	SJ	57/58/77/	/78	INTER	P	2	x	2		8/18/11	BN	519	VT	P	8/19/11
88	SJ	58/59/78	/80	INTER	P	2	x	1		8/18/11	BN	519	VT	P	8/19/11
89	SJ	59/60/80	/81	INTER	P	2	x	1		8/18/11	BN	519	VT	P	8/19/11
90	SJ	60/61/81	/82	INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
91	SJ	61/62/82	/84	INTER	P	5	x	2		8/18/11	BN	519	VT	P	8/19/11
92	SJ	62/63/84	/86	INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
93	SJ	63/86/87		INTER	P	7	x	5		8/18/11	BN	519	VT	P	8/19/11
94	SJ	77/78/79		INTER	P	2	x	2		8/18/11	BN	519	VT	P	8/19/11
95	SJ	78/79/80		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
96	DS	78/80		16' EoW	P	6	x	2		8/18/11	BN	519	VT	P	8/19/11
97	DS	81/83		74' EoW	P	5	x	2		8/18/11	BN	519	VT	P	8/19/11
98	SJ	81/82/83		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
99	SJ	82/83/84		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
100	SJ	84/85/86		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
101	DS	84/86		25' EoW	P	5	x	2		8/18/11	BN	519	VT	P	8/19/11
102	SJ	85/86/87		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
103	BO	84/86		110' EoW	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
104	SJ	85/87/88		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
105	BO	86/87		81' EoW	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
106	DS	63/87		50' WoE	P	5	x	2		8/18/11	BN	519	VT	P	8/19/11
107	DS	87/89		175' EoW	P	5	x	2		8/18/11	BN	519	VT	P	8/19/11
108	BO	89/91		97' EoW	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
109	SJ	89/90/91		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
110	SJ	90/91/92		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
111	DS	91/92		15' EoW	P	5	x	2		8/18/11	BN	519	VT	P	8/19/11
112	DS	93/94		153' WoE	P	5	x	2		8/18/11	BN	519	VT	P	8/19/11
113	SJ	96/97/98		INTER	P	3	x	2		8/18/11	BN	519	VT	P	8/19/11
114	SJ	97/98/99		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
115	SJ	65/66/80		INTER	B	1	x	1		8/18/11	BN	519	VT	P	8/19/11
116	SJ	66/80/81		INTER	B	1	x	1		8/18/11	BN	519	VT	P	8/19/11
117	DS	66/81		7' NoS	P	6	x	2		8/18/11	BN	519	VT	P	8/19/11
118	SJ	66/67/81		INTER	B	1	x	1		8/18/11	BN	519	VT	P	8/19/11
119	SJ	67/81/83		INTER	B	1	x	1		8/18/11	BN	519	VT	P	8/19/11
120	SJ	67/68/83		INTER	B	1	x	1		8/18/11	BN	519	VT	P	8/19/11

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
121	SJ	68/83/84		INTER	P	5	x	3		8/18/11	BN	519	VT	P	8/19/11
122	SJ	68/69/84		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
123	SJ	69/84/85		INTER	P	2	x	1		8/18/11	BN	519	VT	P	8/19/11
124	SJ	69/70/85		INTER	P	2	x	2		8/18/11	BN	519	VT	P	8/19/11
125	SJ	70/85/88		INTER	B	1	x	1		8/18/11	BN	519	VT	P	8/19/11
126	SJ	70/71/88		INTER	B	1	x	1		8/18/11	BN	519	VT	P	8/19/11
127	BO	71/88		4' SoN	P	2	x	1		8/18/11	BN	519	VT	P	8/19/11
128	SJ	71/72/88	/89	INTER	B	2	x	1		8/18/11	BN	519	VT	P	8/19/11
129	SJ	87/88/89		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
130	SJ	72/73/89		INTER	B	1	x	1		8/18/11	BN	519	VT	P	8/19/11
131	SJ	73/89/90		INTER	B	1	x	1		8/18/11	BN	519	VT	P	8/19/11
132	SJ	73/74/90		INTER	P	1	x	1		8/18/11	BN	519	VT	P	8/19/11
133	SJ	74/75/92		INTER	P	4	x	2		8/18/11	BN	519	VT	P	8/19/11
134	SJ	75/92/93		INTER	B	1	x	1		8/18/11	BN	519	VT	P	8/19/11
135	DS	75/76		126' EoW	P	6	x	2		8/18/11	BN	519	VT	P	8/19/11
136	SJ	75/76/93		INTER	P	1	x	1		8/19/11	ST	523	VT	P	8/19/11
137	SJ	54/65/66		INTER	C-11	13	x	4		8/19/11	BN	519	VT	P	8/19/11
138	CF	EX854-76		TIE-IN	C-12	236	x	2		8/19/11	BN/ST	519/523	VT	P	8/19/11
139	DS	71/C-12		10' SoN	P	5	x	2		8/19/11	BN	519	VT	P	8/19/11
140	DS	C-9/54		67' EoW	P	5	x	2		8/19/11	BN	519	VT	P	8/19/11

Environmental Specialties International Inc.
Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
141	DS	68/69		14' EoW	P	6	x	2		8/19/11	BN	519	VT	P	8/19/11
142	SJ	76/93/105		INTER	P	2	x	2		8/19/11	ST	523	VT	P	8/19/11
143	SJ	76/101	/105	INTER	P	3	x	2		8/19/11	ST	523	VT	P	8/19/11
144	SJ	93/105	/101	INTER	P	7	x	2		8/19/11	ST	523	VT	P	8/19/11
145	SJ	93/94/101		INTER	P	8	x	3		8/19/11	ST	523	VT	P	8/19/11
146	SJ	94/101	/103	INTER	B	2	x	1		8/19/11	ST	523	VT	P	8/19/11
147	SJ	94/95/103		INTER	P	1	x	1		8/19/11	ST	523	VT	P	8/19/11
148	SJ	101/102	/103	INTER	P	1	x	1		8/19/11	ST	523	VT	P	8/19/11
149	SJ	102/103	/104	INTER	P	1	x	1		8/19/11	ST	523	VT	P	8/19/11
150	SJ	95/96/103	/104	INTER	P	1	x	1		8/19/11	ST	523	VT	P	8/19/11
151	SJ	/98/104/106		INTER 96/98/104/106	P	1	x	1		8/19/11	ST	523	VT	P	8/20/11
152	DS	96/97		42' WoE	P	6	x	2		8/19/11	ST	523	VT	P	8/20/11
153	DS	102/104		75' EoW	P	6	x	2		8/19/11	ST	523	VT	P	8/20/11
154	BO	76/101		4' EoW	P	1	x	1		8/19/11	ST	523	VT	P	8/20/11
155	DO		76	10' SoN-13' EoW	P	2	x	2		8/19/11	ST	523	VT	P	8/20/11
156	DS	73/74		120 E o W	P	5	x	2		8/19/11	BN	519	VT	P	8/20/11
157	DS	71/72		75' EoW	P	5	x	2		8/19/11	BN	519	VT	P	8/20/11
158	DS	66/67		100' EoW	P	6	x	2		8/19/11	BN	519	VT	P	8/20/11
159	SJ	54/64/65		INTER	P	6	x	2		8/19/11	BN	519	VT	P	8/20/11
160	SJ	54/56/64		INTER	P	5	x	4		8/19/11	BN	519	VT	P	8/20/11

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	LF Welded
3069	#REF!

Test Type	Abbrv.	Repair Types
Vacuum	*S=South	C--Cap Strip
Air Pressure	*N=North	P--Patch
Spark	*W=West	B--Extrusion Bead
Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
161	SJ	56/64/65		INTER	P	5	x	4		8/19/11	BN	519	VT	P	8/20/11
162	DS	56/65		25' EoW	P	6	x	2		8/19/11	BN	519	VT	P	8/20/11
163	DS	107/108		75' EoW	P	5	x	2		8/19/11	ST	523	VT	P	8/20/11
164	SJ	109/110	/111	INTER	P	2	x	2		8/19/11	ST	523	VT	P	8/20/11
165	SJ	109/111	/112	INTER	P	1	x	1		8/19/11	ST	523	VT	P	8/20/11
166	BO	109/112		14' WoE	P	5	x	2		8/19/11	ST	523	VT	P	8/20/11
167	SJ	109/112	/113	INTER	P	1	x	1		8/19/11	ST	523	VT	P	8/20/11
168	SJ	109/113	/114	INTER	P	1	x	1		8/19/11	ST	523	VT	P	8/20/11
169	DS	113/114		16' SoN	P	5	x	2		8/19/11	ST	523	VT	P	8/20/11
170	LL	109/114		16' WoE	P	7	x	2		8/19/11	ST	523	VT	P	8/20/11
171	SJ	109/114	/115	INTER	P	1	x	1		8/20/11	ST	522	VT	P	8/20/11
172	SJ	109/115	/116	INTER	P	1	x	1		8/20/11	ST	522	VT	P	8/20/11
173	SJ	100/109	/116	INTER	P	2	x	2		8/20/11	ST	522	VT	P	8/20/11
174	SJ	100/108	/109	INTER	P	5	x	4		8/20/11	ST	522	VT	P	8/20/11
175	SJ	100/107	/108	INTER	P	4	x	4		8/20/11	ST	522	VT	P	8/20/11
176	LL	100/107		Seam	B	5	x			8/20/11	ST	522	VT	P	8/20/11
177	SJ	99/100	/107	INTER	P	2	x	2		8/20/11	ST	522	VT	P	8/20/11
178	SJ	99/106	/107	INTER	P	1	x	1		8/20/11	ST	522	VT	P	8/20/11
179	SJ	98/99	/106	INTER	P	2	x	1		8/20/11	ST	522	VT	P	8/21/11
180	SJ	90/92/74		INTER	P	2	X	1		8/21/11	ST	522	VT	P	8/21/11

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	LF Welded
3069	#REF!

Test Type	Abbrv.	Repair Types
Vacuum	*S=South	C--Cap Strip
Air Pressure	*N=North	P--Patch
Spark	*W=West	B--Extrusion Bead
Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
181	BO	96/98		15' WoE	B		x		6	8/20/11	ST	522	VT	P	8/20/11
182	DO	96/98		37' WoE	B		x		7	8/20/11	ST	522	VT	P	8/20/11
183	PB		109	1' NoS-24' WoE	C-13	12	x	9		8/20/11	ST	522	VT	P	8/20/11
184	WR	108/109		95' WoE	P	11	x	3		8/20/11	ST	522	VT	P	8/20/11
185	WR		109	4' SoN	P	1	x	1		8/20/11	ST	522	VT	P	8/20/11
186							x								
187							x								
188							x								
189							x								
190							x								
191							x								
192							x								
193							x								
194							x								
195							x								
196							x								
197							x								
198							x								
199							x								
200							x								

Environmental Specialties International Inc.
Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
201						x							
202						x							
203						x							
204						x							
205						x							
206						x							
207						x							
208						x							
209						x							
210						x							
211						x							
212						x							
213						x							
214						x							
215						x							
216						x							
217						x							
218						x							
219						x							
220						x							

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	LF Welded
3069	#REF!

Test Type	Abbrv.	Repair Types
Vacuum	*S=South	C--Cap Strip
Air Pressure	*N=North	P--Patch
Spark	*W=West	B--Extrusion Bead
Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
221						x							
222						x							
223						x							
224						x							
225						x							
226						x							
227						x							
228						x							
229						x							
230						x							
231						x							
232						x							
233						x							
234						x							
235						x							
236						x							
237						x							
238						x							
239						x							
240						x							

Environmental Specialties International Inc.
Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
241						x							
242						x							
243						x							
244						x							
245						x							
246						x							
247						x							
248						x							
249						x							
250						x							
251						x							
252						x							
253						x							
254						x							
255						x							
256						x							
257						x							
258						x							
259						x							
260						x							

Environmental Specialties International Inc.

Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary x **Pond**

Secondary **Cell** x

Cap

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
261						x							
262						x							
263						x							
264						x							
265						x							
266						x							
267						x							
268						x							
269						x							
270						x							
271						x							
272						x							
273						x							
274						x							
275						x							
276						x							
277						x							
278						x							
279						x							
280						x							

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
	Spark	*W=West	B--Extrusion Bead
	Air Lance	*E=East	
LF Welded			
#REF!			

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
281						x							
282						x							
283						x							
284						x							
285						x							
286						x							
287						x							
288						x							
289						x							
290						x							
291						x							
292						x							
293						x							
294						x							
295						x							
296						x							
297						x							
298						x							
299						x							
300						x							

Environmental Specialties International Inc.

Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary x **Pond**

Secondary **Cell** x

Cap

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
301						x							
302						x							
303						x							
304						x							
305						x							
306						x							
307						x							
308						x							
309						x							
310						x							
311						x							
312						x							
313						x							
314						x							
315						x							
316						x							
317						x							
318						x							
319						x							
320						x							

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
321						x							
322						x							
323						x							
324						x							
325						x							
326						x							
327						x							
328						x							
329						x							
330						x							
331						x							
332						x							
333						x							
334						x							
335						x							
336						x							
337						x							
338						x							
339						x							
340						x							

Environmental Specialties International Inc.
Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
341						x							
342						x							
343						x							
344						x							
345						x							
346						x							
347						x							
348						x							
349						x							
350						x							
351						x							
352						x							
353						x							
354						x							
355						x							
356						x							
357						x							
358						x							
359						x							
360						x							

Environmental Specialties International Inc.
Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
	Spark	*W=West	B--Extrusion Bead
	Air Lance	*E=East	
LF Welded			
#REF!			

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
361						x							
362						x							
363						x							
364						x							
365						x							
366						x							
367						x							
368						x							
369						x							
370						x							
371						x							
372						x							
373						x							
374						x							
375						x							
376						x							
377						x							
378						x							
379						x							
380						x							

Environmental Specialties International Inc.
Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
381						x							
382						x							
383						x							
384						x							
385						x							
386						x							
387						x							
388						x							
389						x							
390						x							
391						x							
392						x							
393						x							
394						x							
395						x							
396						x							
397						x							
398						x							
399						x							
400						x							

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286

Primary	x	Pond	
Secondary		Cell	x
		Cap	

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	LF Welded
3069	#REF!

Test Type	Abbrv.	Repair Types
Vacuum	*S=South	C--Cap Strip
Air Pressure	*N=North	P--Patch
Spark	*W=West	B--Extrusion Bead
Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
401						x							
402						x							
403						x							
404						x							
405						x							
406						x							
407						x							
408						x							
409						x							
410						x							
411						x							
412						x							
413						x							
414						x							
415						x							
416						x							
417						x							
418						x							
419						x							
420						x							

Environmental Specialties International Inc.
Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary [x] **Pond** [ ]

Secondary [ ] **Cell** [x]

Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
421						x							
422						x							
423						x							
424						x							
425						x							
426						x							
427						x							
428						x							
429						x							
430						x							
431						x							
432						x							
433						x							
434						x							
435						x							
436						x							
437						x							
438						x							
439						x							
440						x							

Environmental Specialties International Inc.
Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary x **Pond**

Secondary **Cell** x

Cap

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
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3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
	Spark	*W=West	B--Extrusion Bead
	Air Lance	*E=East	
LF Welded			
#REF!			

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
441						x							
442						x							
443						x							
444						x							
445						x							
446						x							
447						x							
448						x							
449						x							
450						x							
451						x							
452						x							
453						x							
454						x							
455						x							
456						x							
457						x							
458						x							
459						x							
460						x							

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary [x] Pond [ ]
Secondary [ ] Cell [x]
Cap [ ]

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
461						x							
462						x							
463						x							
464						x							
465						x							
466						x							
467						x							
468						x							
469						x							
470						x							
471						x							
472						x							
473						x							
474						x							
475						x							
476						x							
477						x							
478						x							
479						x							
480						x							

Environmental Specialties International Inc.
Repair Report

Project Name:
Material Type: 60 mil Tx
Job Description:
Reported by : Yuannia Quesada
Other:

Job # : 09-10-1286
Primary: x
Secondary:
Pond:
Cell: x
Cap:

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
3069	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
#REF!	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)	Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
481						x							
482						x							
483						x							
484						x							
485						x							
486						x							
487						x							
488						x							
489						x							
490						x							
491						x							
492						x							
493						x							
494						x							
495						x							
496						x							
497						x							
498						x							
499						x							
500						x							

Environmental Specialties International Inc.
Repair Report

Project Name

Material Type: 60 mil Tx

Job Description:

Reported by : Yuannia Quesada

Other:

Job # : 09-10-1286

Primary	x	**Pond**	
Secondary		**Cell**	x
		Cap	

Superintendent: Randy Story

Damage Codes

CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	LF Welded
3069	#REF!

Test Type	Abbrv.	Repair Types
Vacuum	*S=South	C--Cap Strip
Air Pressure	*N=North	P--Patch
Spark	*W=West	B--Extrusion Bead
Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
501							x								
502							x								
503							x								
504							x								
505							x								
506							x								
507							x								
508							x								
509							x								
510							x								
511							x								
512							x								
513							x								

Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Primary x
Secondary
Pond
Cell x
Cap

Peel Test Extrusion Minimum 78 PPI
Peel Test Fusion Minimum 91 PPI
Shear Test Minimum 120 PPI

Job Description:
Reported By : Yuannia Quesada
Other :

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM / PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
7/26/11	3:06	ST	2022	4.5	750		92	Peel	119	117	113	113	112	116					P
S TO S	PM							Shear	156		151								
7/26/11	3:25	AC	2021	5	750		92	Peel	98	98	116	100	114	102					P
S TO S	PM							Shear	151		153								
7/26/11	4:35	ST	2022	4.3	750		92	Peel	104	110	107	112	117	120					P
T TO T	PM							Shear	130		130								
7/27/11	8:15	BN	519		480	480	70	Peel		83		81		98					P
S TO S	AM							Shear	159		163								
7/27/11	8:40	ST	2022	4	750		70	Peel	136	143	134	132	138	132					P
T TO T	AM							Shear	152		152								
7/27/11	10:25	AC	2021	3.5	750		91	Peel	94	104	110	102	110	104					P
T TO T	AM							Shear	136		137								
7/27/11	1:00	AC	2021	5	750		90	Peel	96	107	102	99	110	113					P
S TO S	PM							Shear	176		173								
7/27/11	1:10	BN	519		470	470	90	Peel		123		119		105					P
S TO S	PM							Shear	178		172								
7/27/11	4:30	AC	2021	3.5	750		90	Peel	110	103	104	105	104	108					P
T TO T	PM							Shear	118		125								
7/27/11	5:00	ST	522		500	475	90	Peel		114		110		121					P
T TO T	PM							Shear	130		130								
7/27/11	5:30	JL	2022	5.5	750		90	Peel	110	110	104	113	105	115					P
S TO T	PM							Shear	134		132								
7/28/11	7:30	ST	522		500	475	80	Peel		80		92		96					P
S TO T	AM							Shear	158		158								
7/28/11	8:15	BN	519		470	470	80	Peel		108		118		87					P
S TO S	AM							Shear											
7/28/11	10:00	AC	2021	3.5	750		90	Peel	131	126	133	136	131	127					P
T TO T	AM							Shear	167		160								
7/28/11	12:35	ST	522		500	470	90	Peel		117		113		110					P
T TO T	PM							Shear	133		134								
7/28/11	12:35	BN	518		490	490	90	Peel		113		107		83					P
T TO S	PM							Shear	142		140								

Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Primary x
Secondary
Pond
Cell x
Cap

Peel Test Extrusion Minimum 78 PPI
Peel Test Fusion Minimum 91 PPI
Shear Test Minimum 120 PPI

Job Description:
Reported By : Yuannia Quesada
Other :

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM / PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
7/29/11	7:45	FZ	522		500	475	70	Peel		141		99		129					P
T TO T	AM							Shear	150		147								
7/29/11	12:40	FZ	522		480	470	90	Peel		112		101		114					P
T TO T	PM							Shear	151		142								
7/30/11	8:45	AC	2021	3.5	750		90	Peel	109	116	103	117	112	107					P
S TO S	AM							Shear	163		157								
7/30/11	8:50	AC	2021	3	750		90	Peel	121	131	109	133	118	131					P
T TO T	AM							Shear	136		130								
7/30/11	9:07	FZ	522		475	475	90	Peel		111		113		107					P
T TO T	AM							Shear	130		135								
7/30/11	11:00	ST	2022	5	750		90	Peel	105	100	100	100	106	119					P
S TO S	AM							Shear	137		138								
								Peel											
								Shear											
								Peel											
								Shear											
								Peel											
								Shear											
								Peel											
								Shear											
								Peel											
								Shear											
								Peel											
								Shear											
								Peel											
								Shear											
								Peel											
								Shear											
								Peel											
								Shear											
								Peel											
								Shear											

Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf

Material Type: 60 mil Tx

Job Description:

Reported By : Yuannia Quesada

Other :

Job # 09-10-1286

Primary x

Secondary

Superintendent: Randy Story

Pond

Cell x

Cap

Peel Test Extrusion Minimum 78 **PPI**

Peel Test Fusion Minimum 91 **PPI**

Shear Test Minimum 120 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date Liner Type	Time AM / PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A : B	Coupon 2 A : B	Coupon 3 A : B	Coupon 4 A : B	Coupon 5 A : B	Test Results
								Peel						
								Shear						
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Material Type: 60 mil Tx
Job Description:
Reported By : Yuannia Quesada
Other :

Job # 09-10-1286
Primary x
Secondary

Superintendent: Randy Story
Pond
Cell x
Cap

Peel Test Extrusion Minimum 78 **PPI**
Peel Test Fusion Minimum 91 **PPI**
Shear Test Minimum 120 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date Liner Type	Time AM	Time PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
									Peel											
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By : Yuannia Quesada
Other :

Primary	x
Secondary	

Pond	
Cell	x
Cap	

Peel Test Extrusion Minimum	78	**PPI**
Peel Test Fusion Minimum	91	**PPI**
Shear Test Minimum	120	**PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A | B	Coupon 2 A | B	Coupon 3 A | B	Coupon 4 A | B	Coupon 5 A | B	Test Results
								Peel						
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf

Job # 09-10-1286

Superintendent: Randy Story

Material Type: 60 mil Tx

Primary x
Secondary

Pond
Cell x
Cap

Peel Test Extrusion Minimum 78 **PPI**
Peel Test Fusion Minimum 91 **PPI**
Shear Test Minimum 120 **PPI**

Job Description:

Reported By : Yuannia Quesada

Other :

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A | B	Coupon 2 A | B	Coupon 3 A | B	Coupon 4 A | B	Coupon 5 A | B	Test Results
								Peel						
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By : Yuannia Quesada
Other :

Primary	x
Secondary	

Pond	
Cell	x
Cap	

Peel Test Extrusion Minimum	78	**PPI**
Peel Test Fusion Minimum	91	**PPI**
Shear Test Minimum	120	**PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM	Time PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By : Yuannia Quesada
Other :

Primary	x
Secondary	

Pond	
Cell	x
Cap	

Peel Test Extrusion Minimum	78	**PPI**
Peel Test Fusion Minimum	91	**PPI**
Shear Test Minimum	120	**PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM	Time PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Primary x
Secondary

Pond
Cell x
Cap

Peel Test Extrusion Minimum 78 **PPI**
Peel Test Fusion Minimum 91 **PPI**
Shear Test Minimum 120 **PPI**

Job Description:
Reported By : Yuannia Quesada
Other :

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A B	Coupon 2 A B	Coupon 3 A B	Coupon 4 A B	Coupon 5 A B	Test Results
								Peel						
TO								Shear						
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf

Job # 09-10-1286

Superintendent: Randy Story

Material Type: 60 mil Tx

Primary x
Secondary

Pond
Cell x
Cap

Peel Test Extrusion Minimum 78 **PPI**
Peel Test Fusion Minimum 91 **PPI**
Shear Test Minimum 120 **PPI**

Job Description:

Reported By : Yuannia Quesada

Other :

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A B	Coupon 2 A B	Coupon 3 A B	Coupon 4 A B	Coupon 5 A B	Test Results
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By : Yuannia Quesada
Other :

Primary	x
Secondary	

Pond	
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Cap	

Peel Test Extrusion Minimum	78	**PPI**
Peel Test Fusion Minimum	91	**PPI**
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By : Yuannia Quesada
Other :

Primary	x
Secondary	

Pond	
Cell	x
Cap	

Peel Test Extrusion Minimum	78	**PPI**
Peel Test Fusion Minimum	91	**PPI**
Shear Test Minimum	120	**PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

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								Peel						
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By : Yuannia Quesada
Other :

Primary	x
Secondary	

Pond	
Cell	x
Cap	

Peel Test Extrusion Minimum	78	**PPI**
Peel Test Fusion Minimum	91	**PPI**
Shear Test Minimum	120	**PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A | B	Coupon 2 A | B	Coupon 3 A | B	Coupon 4 A | B	Coupon 5 A | B	Test Results
								Peel						
TO								Shear						
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf

Job # 09-10-1286

Superintendent: Randy Story

Material Type: 60 mil Tx

Primary x
Secondary

Pond
Cell x
Cap

Peel Test Extrusion Minimum 78 PPI
Peel Test Fusion Minimum 91 PPI
Shear Test Minimum 120 PPI

Job Description:

Reported By : Yuannia Quesada

Other :

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A B	Coupon 2 A B	Coupon 3 A B	Coupon 4 A B	Coupon 5 A B	Test Results
								Peel						
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Environmental Specialties International Inc.
Preweld Test Report

Project Name: Ashe County Lf
Job # 09-10-1286
Superintendent: Randy Story

Material Type: 60 mil Tx
Job Description:
Reported By : Yuannia Quesada
Other :

Primary	x
Secondary	

Pond	
Cell	x
Cap	

Peel Test Extrusion Minimum	78	**PPI**
Peel Test Fusion Minimum	91	**PPI**
Shear Test Minimum	120	**PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A | B	Coupon 2 A | B	Coupon 3 A | B	Coupon 4 A | B	Coupon 5 A | B	Test Results
								Peel						
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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-813-01
LAB ID NO.: 2011-813-01-01
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-32

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	116.9	SE1	<10
2	111.0	SE1	<10
3	115.9	SE1	<10
4	112.3	SE1	<10
5	114.7	SE1	<10
AVERAGE	**114.2**		
STD. DEV.	2.46		
INSIDE TRACK (WELD "B")			
1	112.9	SE1	<10
2	114.5	SE1	<10
3	115.9	SE1	<10
4	112.0	SE1	<10
5	111.9	SE1	<10
AVERAGE	**113.4**		
STD. DEV.	1.73		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	178.2	BRK
2	163.1	BRK
3	167.9	BRK
4	164.8	BRK
5	170.9	BRK
AVERAGE	**169.0**	
STD. DEV.	5.96	

CHECKED BY: GEM DATE: 8-1-11

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\\Server\data drive\2011 PROJECTS\2011-813 MESCO ASHE\[2011-813-01-01 PEEL & 2011-813-01-01

8/1/2011

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INTEGRITY IN TESTING

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-813-01
LAB ID NO.: 2011-813-01-02
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-33

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	123.6	SE1	<10
2	121.0	SE1	<10
3	131.6	SE1	<10
4	122.6	SE1	<10
5	121.3	SE1	<10
AVERAGE	**124.0**		
STD. DEV.	4.36		
INSIDE TRACK (WELD "B")			
1	112.2	SE1	<10
2	114.7	SE1	<10
3	114.9	SE1	<10
4	109.3	SE1	<10
5	114.7	SE1	<10
AVERAGE	**113.2**		
STD. DEV.	2.43		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	175.3	BRK
2	175.7	BRK
3	165.1	BRK
4	176.5	BRK
5	173.0	BRK
AVERAGE	**173.1**	
STD. DEV.	4.67	

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INTEGRITY IN TESTING

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-813-01
LAB ID NO.: 2011-813-01-03
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-34

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	126.0	SE1	<10
2	128.9	SE1	<10
3	116.1	SE1	<10
4	122.3	SE1	<10
5	137.3	SE1	<10
AVERAGE	**126.1**		
STD. DEV.	7.87		
INSIDE TRACK (WELD "B")			
1	117.9	SE1	<10
2	117.0	SE1	<10
3	125.0	SE1	<10
4	122.6	SE1	<10
5	117.4	SE1	<10
AVERAGE	**120.0**		
STD. DEV.	3.60		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	180.8	BRK
2	169.7	BRK
3	177.3	BRK
4	180.0	BRK
5	173.0	BRK
AVERAGE	**176.2**	
STD. DEV.	4.72	

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INTEGRITY IN TESTING

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-813-01
LAB ID NO.: 2011-813-01-04
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-35

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	122.3	SE1	<10
2	115.8	SE1	<10
3	121.8	SE1	<10
4	119.7	SE1	<10
5	119.7	SE1	<10
AVERAGE	**119.9**		
STD. DEV.	2.56		
INSIDE TRACK (WELD "B")			
1	112.8	SE1	<10
2	110.5	SE1	<10
3	119.5	SE1	<10
4	113.5	SE1	<10
5	111.2	SE1	<10
AVERAGE	**113.5**		
STD. DEV.	3.56		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	176.2	BRK
2	173.5	BRK
3	174.7	BRK
4	173.7	BRK
5	172.3	BRK
AVERAGE	**174.1**	
STD. DEV.	1.46	

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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-813-01
LAB ID NO.: 2011-813-01-05
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-36

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	111.8	SE1	<10
2	114.1	SE1	<10
3	113.7	SE1	<10
4	119.5	SE1	<10
5	120.6	SE1	<10
AVERAGE	**115.9**		
STD. DEV.	3.87		
INSIDE TRACK (WELD "B")			
1	104.4	SE1	<10
2	113.7	SE1	<10
3	124.3	SE1	<10
4	107.5	SE1	<10
5	103.9	SE1	<10
AVERAGE	**110.8**		
STD. DEV.	8.52		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	180.1	BRK
2	176.6	BRK
3	176.3	BRK
4	177.7	BRK
5	173.5	BRK
AVERAGE	**176.8**	
STD. DEV.	2.39	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-813-01
LAB ID NO.: 2011-813-01-06
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-37

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	136.5	SE1	<10
2	130.6	SE1	<10
3	137.2	SE1	<10
4	131.4	SE1	<10
5	136.1	SE1	<10
AVERAGE	**134.4**		
STD. DEV.	3.11		
INSIDE TRACK (WELD "B")			
1	116.0	SE1	<10
2	124.5	SE1	<10
3	120.1	SE1	<10
4	123.6	SE1	<10
5	122.4	SE1	<10
AVERAGE	**121.3**		
STD. DEV.	3.40		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	183.3	BRK
2	179.5	BRK
3	175.9	BRK
4	177.4	BRK
5	176.5	BRK
AVERAGE	**178.5**	
STD. DEV.	3.00	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-813-01
LAB ID NO.: 2011-813-01-07
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-38

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	128.9	SE1	<10
2	122.6	SE1	<10
3	119.7	SE1	<10
4	124.1	SE1	<10
5	128.4	SE1	<10
AVERAGE	**124.7**		
STD. DEV.	3.91		
INSIDE TRACK (WELD "B")			
1	188.7	SE1	<10
2	117.7	SE1	<10
3	113.3	SE1	<10
4	117.5	SE1	<10
5	111.9	SE1	<10
AVERAGE	**129.8**		
STD. DEV.	33.01		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	176.0	BRK
2	173.2	BRK
3	172.8	BRK
4	172.6	BRK
5	166.9	BRK
AVERAGE	**172.3**	
STD. DEV.	3.32	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-813-01
LAB ID NO.: 2011-813-01-08
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-39

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	116.6	SE1	<10
2	120.7	SE1	<10
3	115.5	SE1	<10
4	128.8	SE1	<10
5	128.3	SE1	<10
AVERAGE	**122.0**		
STD. DEV.	6.31		
INSIDE TRACK (WELD "B")			
1	120.8	SE1	<10
2	119.5	SE1	<10
3	121.4	SE1	<10
4	125.9	SE1	<10
5	117.7	SE1	<10
AVERAGE	**121.1**		
STD. DEV.	3.05		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	168.7	BRK
2	169.0	BRK
3	169.7	BRK
4	166.2	BRK
5	169.2	BRK
AVERAGE	**168.6**	
STD. DEV.	1.37	

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DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL
CLIENT PROJ. NO.: NA
PROJECT NO.: 2011-813-01
LAB ID NO.: 2011-813-01-09
MATERIAL: 60 MIL HDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DS-40

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	110.7	SE1	<10
2	126.8	SE1	<10
3	121.5	SE1	<10
4	125.2	SE1	<10
5	131.8	SE1	<10
AVERAGE	**123.2**		
STD. DEV.	7.91		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	159.7	SE2
2	159.1	SE2
3	159.6	SE2
4	157.2	SE2
5	159.0	SE2
AVERAGE	**158.9**	
STD. DEV.	1.01	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL
CLIENT PROJ. NO.:
PROJECT NO.:
LAB ID NO.: 2011-793-03
MATERIAL: 2011-793-03-01
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DS-41

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	97.7	SE3	<10
2	112.4	SE3	<10
3	124.1	SE3	<10
4	93.5	SE3	<10
5	95.4	SE3	<10
AVERAGE	**104.6**		
STD. DEV.	13.20		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	166.7	SE1
2	162.1	SE1
3	122.3	SE1
4	159.1	SE1
5	162.9	SE1
AVERAGE	**154.6**	
STD. DEV.	18.27	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-02
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-42

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	122.0	SE1	<10
2	127.8	SE1	<10
3	138.5	SE1	<10
4	108.9	SE1	<10
5	121.6	SE1	<10
AVERAGE	**123.8**		
STD. DEV.	10.75		
INSIDE TRACK (WELD "B")			
1	134.5	SE1	<10
2	128.0	SE1	<10
3	138.4	SE1	<10
4	135.5	SE1	<10
5	132.6	SE1	<10
AVERAGE	**133.8**		
STD. DEV.	3.86		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	165.7	BRK
2	175.8	BRK
3	152.4	BRK
4	164.5	BRK
5	157.0	BRK
AVERAGE	**163.1**	
STD. DEV.	8.97	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-03
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-43

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	128.3	SE1	<10
2	135.4	SE1	<10
3	130.7	SE1	<10
4	134.5	SE1	<10
5	131.0	SE1	<10
AVERAGE	**132.0**		
STD. DEV.	2.92		
INSIDE TRACK (WELD "B")			
1	122.1	SE1	<10
2	126.0	SE1	<10
3	130.4	SE1	<10
4	124.1	SE1	<10
5	135.1	SE1	<10
AVERAGE	**127.5**		
STD. DEV.	5.22		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	186.4	BRK
2	186.0	BRK
3	187.9	BRK
4	187.2	BRK
5	185.1	BRK
AVERAGE	**186.5**	
STD. DEV.	1.08	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-04
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-44

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	126.9	SE1	<10
2	120.5	SE1	<10
3	124.5	SE1	<10
4	142.5	SE1	<10
5	125.6	SE1	<10
AVERAGE	**128.0**		
STD. DEV.	8.45		
INSIDE TRACK (WELD "B")			
1	135.7	SE1	<10
2	127.0	SE1	<10
3	115.7	SE1	<10
4	121.8	SE1	<10
5	118.4	SE1	<10
AVERAGE	**123.7**		
STD. DEV.	7.91		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	181.7	BRK
2	184.3	BRK
3	173.0	BRK
4	176.0	BRK
5	183.6	BRK
AVERAGE	**179.7**	
STD. DEV.	4.97	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-05
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-45

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	133.1	SE1	<10
2	127.7	SE1	<10
3	125.0	SE1	<10
4	121.9	SE1	<10
5	116.7	SE1	<10
AVERAGE	**124.9**		
STD. DEV.	6.15		
INSIDE TRACK (WELD "B")			
1	117.4	SE1	<10
2	115.9	SE1	<10
3	108.4	SE1	<10
4	118.3	SE1	<10
5	126.4	SE1	<10
AVERAGE	**117.3**		
STD. DEV.	6.42		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	177.8	BRK
2	176.6	BRK
3	176.2	BRK
4	176.7	BRK
5	174.6	BRK
AVERAGE	**176.4**	
STD. DEV.	1.16	

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ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-06
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-46

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	120.1	SE1	<10
2	127.6	SE1	<10
3	129.9	SE1	<10
4	129.9	SE1	<10
5	125.8	SE1	<10
AVERAGE	**126.7**		
STD. DEV.	4.05		
INSIDE TRACK (WELD "B")			
1	146.0	SE1	<10
2	115.6	SE1	<10
3	115.6	SE1	<10
4	117.0	SE1	<10
5	115.4	SE1	<10
AVERAGE	**121.9**		
STD. DEV.	13.48		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	188.0	BRK
2	191.5	BRK
3	187.9	BRK
4	189.2	BRK
5	190.6	BRK
AVERAGE	**189.4**	
STD. DEV.	1.59	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-07
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-47

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	123.6	SE1	<10
2	129.7	SE1	<10
3	137.6	SE1	<10
4	124.7	SE1	<10
5	128.0	SE1	<10
AVERAGE	**128.7**		
STD. DEV.	5.54		
INSIDE TRACK (WELD "B")			
1	118.2	SE1	<10
2	129.6	SE1	<10
3	120.5	SE1	<10
4	122.4	SE1	<10
5	120.8	SE1	<10
AVERAGE	**122.3**		
STD. DEV.	4.35		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	182.1	BRK
2	187.1	BRK
3	193.4	BRK
4	189.2	BRK
5	188.7	BRK
AVERAGE	**188.1**	
STD. DEV.	4.08	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-08
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-48

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	145.6	SE1	<10
2	148.0	SE1	<10
3	149.6	SE1	<10
4	146.8	SE1	<10
5	137.5	SE1	<10
AVERAGE	**145.5**		
STD. DEV.	4.71		
INSIDE TRACK (WELD "B")			
1	140.7	SE1	<10
2	128.9	SE1	<10
3	117.0	SE1	<10
4	128.2	SE1	<10
5	125.1	SE1	<10
AVERAGE	**128.0**		
STD. DEV.	8.54		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	174.3	BRK
2	180.6	BRK
3	177.4	BRK
4	183.0	BRK
5	181.2	BRK
AVERAGE	**179.3**	
STD. DEV.	3.45	

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INTEGRITY IN TESTING

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-09
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-49

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	117.4	SE1	<10
2	116.9	SE1	<10
3	115.0	SE1	<10
4	108.6	SE1	<10
5	103.1	SE1	<10
AVERAGE	**112.2**		
STD. DEV.	6.18		
INSIDE TRACK (WELD "B")			
1	112.0	SE1	<10
2	147.3	SE1	<10
3	137.0	SE1	<10
4	101.3	SE1	<10
5	106.3	SE1	<10
AVERAGE	**120.8**		
STD. DEV.	20.20		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	166.3	BRK
2	182.4	BRK
3	192.5	BRK
4	188.1	BRK
5	177.1	BRK
AVERAGE	**181.3**	
STD. DEV.	10.19	

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DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-10
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION TEXTURED

SAMPLE I.D.: DS-50

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	140.2	SE1	<10
2	143.5	SE1	<10
3	145.3	SE1	<10
4	142.8	SE1	<10
5	149.8	SE1	<10
AVERAGE	**144.3**		
STD. DEV.	3.57		
INSIDE TRACK (WELD "B")			
1	150.8	SE1	<10
2	144.3	SE1	<10
3	133.9	SE1	<10
4	140.7	SE1	<10
5	136.7	SE1	<10
AVERAGE	**141.3**		
STD. DEV.	6.62		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	158.0	BRK
2	159.4	BRK
3	158.3	BRK
4	153.1	BRK
5	154.7	BRK
AVERAGE	**156.7**	
STD. DEV.	2.67	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-11
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-51

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	133.9	SE1	<10
2	150.0	SE1	<10
3	140.3	SE1	<10
4	123.0	SE1	<10
5	138.6	SE1	<10
AVERAGE	**137.2**		
STD. DEV.	9.85		
INSIDE TRACK (WELD "B")			
1	125.3	SE1	<10
2	134.3	SE1	<10
3	127.4	SE1	<10
4	117.6	SE1	<10
5	126.3	SE1	<10
AVERAGE	**126.2**		
STD. DEV.	5.95		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	166.9	BRK
2	173.9	BRK
3	174.5	BRK
4	183.2	BRK
5	171.0	BRK
AVERAGE	**173.9**	
STD. DEV.	6.01	

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-12
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-52

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	123.8	SE1	<10
2	141.9	SE1	<10
3	140.5	SE1	<10
4	137.0	SE1	<10
5	130.5	SE1	<10
AVERAGE	**134.7**		
STD. DEV.	7.54		
INSIDE TRACK (WELD "B")			
1	131.8	SE1	<10
2	129.5	SE1	<10
3	154.0	SE1	<10
4	131.5	SE1	<10
5	125.9	SE1	<10
AVERAGE	**134.5**		
STD. DEV.	11.13		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	176.3	BRK
2	179.2	BRK
3	173.0	BRK
4	166.5	BRK
5	170.4	BRK
AVERAGE	**173.1**	
STD. DEV.	4.96	

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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-13
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-53

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	121.4	SE1	<10
2	122.0	SE1	<10
3	132.2	SE1	<10
4	137.7	SE1	<10
5	148.3	SE1	<10
AVERAGE	**132.3**		
STD. DEV.	11.29		
INSIDE TRACK (WELD "B")			
1	120.2	SE1	<10
2	120.5	SE1	<10
3	129.8	SE1	<10
4	127.2	SE1	<10
5	130.0	SE1	<10
AVERAGE	**125.5**		
STD. DEV.	4.87		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	176.6	BRK
2	173.9	BRK
3	166.1	BRK
4	167.7	BRK
5	170.2	BRK
AVERAGE	**170.9**	
STD. DEV.	4.34	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-14
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-54

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	119.6	SE1	<10
2	112.9	SE1	<10
3	117.0	SE1	<10
4	130.0	SE1	<10
5	126.1	SE1	<10
AVERAGE	**121.1**		
STD. DEV.	6.90		
INSIDE TRACK (WELD "B")			
1	153.3	SE1	<10
2	137.2	SE1	<10
3	150.1	SE1	<10
4	134.1	SE1	<10
5	128.4	SE1	<10
AVERAGE	**140.6**		
STD. DEV.	10.66		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	186.4	BRK
2	194.2	BRK
3	183.9	BRK
4	194.0	BRK
5	191.4	BRK
AVERAGE	**190.0**	
STD. DEV.	4.63	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-15
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-55

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	145.3	SE1	<10
2	128.2	SE1	<10
3	141.1	SE1	<10
4	126.4	SE1	<10
5	130.0	SE1	<10
AVERAGE	**134.2**		
STD. DEV.	8.45		
INSIDE TRACK (WELD "B")			
1	124.1	SE1	<10
2	124.1	SE1	<10
3	129.8	SE1	<10
4	129.7	SE1	<10
5	134.5	SE1	<10
AVERAGE	**128.4**		
STD. DEV.	4.41		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	202.4	BRK
2	215.1	BRK
3	212.2	BRK
4	208.5	BRK
5	201.5	BRK
AVERAGE	**207.9**	
STD. DEV.	5.96	

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DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-16
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-56

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	127.0	SE1	<10
2	126.5	SE1	<10
3	122.6	SE1	<10
4	121.6	SE1	<10
5	126.8	SE1	<10
AVERAGE	**124.9**		
STD. DEV.	2.59		
INSIDE TRACK (WELD "B")			
1	126.9	SE1	<10
2	162.2	SE1	<10
3	117.2	SE1	<10
4	131.5	SE1	<10
5	126.8	SE1	<10
AVERAGE	**132.9**		
STD. DEV.	17.18		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	196.4	BRK
2	184.4	BRK
3	203.2	BRK
4	199.0	BRK
5	201.3	BRK
AVERAGE	**196.9**	
STD. DEV.	7.42	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-17
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-57

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	127.2	SE1	<10
2	145.5	SE1	<10
3	128.0	SE1	<10
4	120.9	SE1	<10
5	123.6	SE1	<10
AVERAGE	**129.0**		
STD. DEV.	9.63		
INSIDE TRACK (WELD "B")			
1	121.4	SE1	<10
2	114.9	SE1	<10
3	128.0	SE1	<10
4	127.1	SE1	<10
5	119.8	SE1	<10
AVERAGE	**122.2**		
STD. DEV.	5.42		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	203.1	BRK
2	208.7	BRK
3	203.2	BRK
4	211.2	BRK
5	205.4	BRK
AVERAGE	**206.3**	
STD. DEV.	3.55	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-18
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-58

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	117.4	SE1	<10
2	132.3	SE1	<10
3	126.7	SE1	<10
4	150.7	SE1	<10
5	126.9	SE1	<10
AVERAGE	**130.8**		
STD. DEV.	12.35		
INSIDE TRACK (WELD "B")			
1	153.3	SE1	<10
2	135.4	SE1	<10
3	142.8	SE1	<10
4	145.4	SE1	<10
5	156.2	SE1	<10
AVERAGE	**146.6**		
STD. DEV.	8.34		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	198.7	BRK
2	210.2	BRK
3	198.1	BRK
4	208.5	BRK
5	206.1	BRK
AVERAGE	**204.3**	
STD. DEV.	5.60	

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ASTM D 6392 & 4437 w/NSF 54

CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-19
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-59

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	141.9	SE1	<10
2	128.8	SE1	<10
3	131.1	SE1	<10
4	153.4	SE1	<10
5	125.9	SE1	<10
AVERAGE	**136.2**		
STD. DEV.	11.35		
INSIDE TRACK (WELD "B")			
1	135.9	SE1	<10
2	137.8	SE1	<10
3	132.8	SE1	<10
4	140.2	SE1	<10
5	148.0	SE1	<10
AVERAGE	**138.9**		
STD. DEV.	5.74		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	207.8	BRK
2	211.8	BRK
3	206.7	BRK
4	215.5	BRK
5	207.4	BRK
AVERAGE	**209.8**	
STD. DEV.	3.74	

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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL

CLIENT PROJ. NO.:
PROJECT NO.: 2011-793-03
LAB ID NO.: 2011-793-03-20
MATERIAL: 60-MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-60

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	121.2	SE1	<10
2	132.0	SE1	<10
3	127.0	SE1	<10
4	151.0	SE1	<10
5	138.7	SE1	<10
AVERAGE	**134.0**		
STD. DEV.	11.49		
INSIDE TRACK (WELD "B")			
1	119.4	SE1	<10
2	121.8	SE1	<10
3	133.5	SE1	<10
4	118.4	SE1	<10
5	140.7	SE1	<10
AVERAGE	**126.8**		
STD. DEV.	9.85		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	202.8	BRK
2	201.7	BRK
3	204.7	BRK
4	205.5	BRK
5	205.1	BRK
AVERAGE	**204.0**	
STD. DEV.	1.63	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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CLIENT: MESCO
CLIENT PROJECT: ASHE CO. LANDFILL
CLIENT PROJ. NO.:
PROJECT NO.:
LAB ID NO.: 2011-793-03
MATERIAL: 2011-793-03-21
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DS-61

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	132.1	SE3	<10
2	129.3	SE3	<10
3	125.5	SE3	<10
4	127.3	SE3	<10
5	112.2	SE3	<10
AVERAGE	**125.3**		
STD. DEV.	7.71		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	196.9	SE1
2	191.5	SE1
3	197.7	SE1
4	192.3	SE1
5	190.0	SE1
AVERAGE	**193.7**	
STD. DEV.	3.42	

CHECKED BY: GEM DATE: 8-24-11

C:\Excel\Templates\[HDP&S-DFusion.xls]Sheet1
\\Server\data drive\2011 PROJECTS\2011-793 MESCO ASHE CO\[2011-793-03-01 HD- 2011-793-03

8/24/2011

CONFORMANCE TEST RESULTS

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-01
LAB ID NO.: L10013-01-01
MATERIAL: AGRU 60 MIL HDPE MICROSPIKE
ROLL NO: 201601-10

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
THICKNESS	D 5994	mils	67	69	67	66	66		
			65	61	60	61	59	**64.1**	3.51
ASPERITY	GRI GM-12	mils	32	32	33	31	31		
HEIGHT	SHINY SIDE		32	33	33	32	32	**32.1**	0.74
ASPERITY	GRI GM-12	mils	28	28	29	28	28		
HEIGHT	DULL SIDE		28	29	29	28	30	**28.5**	0.71
DENSITY	D 1505	g/cc	0.9473	0.9473	0.9473			**0.9473**	0.0001
CARBON BLACK CONTENT	D 1603	%	2.05	2.08				**2.07**	0.022
CARBON BLACK	D 5596	CATEGORY	1	1	1	1	1		
DISPERSION			1	1	1	1	1		
TENSILE PROPERTIES	D 6693								
STRENGTH AT YIELD		MD-ppi	150	170	160	156	174	**162**	9.95
		CD-ppi	186	187	175	162	159	**174**	13.07
STRENGTH AT BREAK		MD-ppi	150	212	209	156	197	**185**	29.80
		CD-ppi	192	187	175	171	159	**177**	13.02
ELONGATION AT YIELD		MD%	19.5	21.1	20.8	18.4	18.6	**19.7**	1.24
Lo = 1.3"		CD%	15.2	14.6	14.6	15.8	17.0	**15.4**	1.00
ELONGATION AT BREAK		MD%	312	423	441	362	475	**403**	65.17
Lo = 2.0"		CD%	399	420	332	404	385	**388**	33.71

CHECKED BY: BF DATE: 3-23-10

\\GEOSERVER\Data Drive\Synthetics\2010 SYNTHETICS\013 - MESCO - ASHE CO. LF\[L10013-01-01 MICRO ASHE CO.xls]Sheet1 L10013-01-01 3/23/2010

CONFORMANCE TEST RESULTS

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-01
LAB ID NO.: L10013-01-02
MATERIAL: AGRU 60 MIL HDPE MICROSPIKE
ROLL NO: 201711-10

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
THICKNESS	D 5994	mils	59	60	61	63	62		
			61	59	60	60	59	**60.4**	1.35
ASPERITY	GRI GM-12	mils	28	30	31	32	34		
HEIGHT	SHINY SIDE		33	33	34	34	32	**32.1**	1.97
ASPERITY	GRI GM-12	mils	32	30	29	28	28		
HEIGHT	DULL SIDE		27	28	27	29	27	**28.5**	1.58
DENSITY	D 1505	g/cc	0.9472	0.9471	0.9471			**0.9471**	0.0001
CARBON BLACK CONTENT	D 1603	%	2.27	2.28				**2.27**	0.009
CARBON BLACK DISPERSION	D 5596	CATEGORY	1	1	1	1	1		
			1	1	1	1	1		
TENSILE PROPERTIES	D 6693								
STRENGTH AT YIELD		MD-ppi	146	151	156	148	142	**149**	5.17
		CD-ppi	152	156	174	168	160	**162**	9.06
STRENGTH AT BREAK		MD-ppi	167	201	182	149	162	**172**	20.11
		CD-ppi	175	156	178	178	161	**169**	10.51
ELONGATION AT YIELD		MD%	19.9	21.1	20.8	17.8	18.9	**19.7**	1.37
Lo = 1.3"		CD%	16.1	17.2	14.5	13.9	15.3	**15.4**	1.30
ELONGATION AT BREAK		MD%	392	425	370	403	429	**404**	24.32
Lo = 2.0"		CD%	545	374	517	557	444	**487**	77.11

CHECKED BY: BF DATE: 3-23-10

\\GEOSERVER\Data Drive\Synthetics\2010 SYNTHETICS\013 - MESCO - ASHE CO. LF\[L10013-01-02 MICRO ASHE CO.xls]Sheet1 L10013-01-02 3/23/2010

CONFORMANCE TEST RESULTS

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-01
LAB ID NO.: L10013-01-03
MATERIAL: AGRU 60 MIL HDPE MICROSPIKE
ROLL NO: 201722-10

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
THICKNESS	D 5994	mils	65	62	63	61	61		
			60	59	59	58	59	**60.7**	2.16
ASPERITY	GRI GM-12	mils	33	30	32	33	31		
HEIGHT	SHINY SIDE		32	31	32	33	30	**31.7**	1.16
ASPERITY	GRI GM-12	mils	28	29	28	29	27		
HEIGHT	DULL SIDE		28	27	28	29	28	**28.1**	0.74
DENSITY	D 1505	g/cc	0.9472	0.9472	0.9473			**0.9472**	0.0001
CARBON BLACK CONTENT	D 1603	%	2.08	2.09				**2.09**	0.006
CARBON BLACK	D 5596	CATEGORY	1	1	1	1	1		
DISPERSION			1	1	1	1	1		
TENSILE PROPERTIES	D 6693								
STRENGTH AT YIELD		MD-ppi	138	147	158	157	160	**152**	9.09
		CD-ppi	166	171	158	161	165	**164**	4.93
STRENGTH AT BREAK		MD-ppi	165	157	202	207	190	**184**	22.21
		CD-ppi	185	180	179	167	178	**178**	6.69
ELONGATION AT YIELD		MD%	19.6	19.4	20.2	20.7	19.6	**19.9**	0.54
Lo = 1.3"		CD%	14.3	15.1	16.2	14.4	15.2	**15.0**	0.76
ELONGATION AT BREAK		MD%	447	373	444	422	421	**421**	29.62
Lo = 2.0"		CD%	390	451	406	398	427	**414**	24.66

CHECKED BY: BF DATE: 3-23-10

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CONFORMANCE TEST RESULTS

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-01
LAB ID NO.: L10013-01-04
MATERIAL: AGRU 60 MIL HDPE MICROSPIKE
ROLL NO: 202102-10

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
THICKNESS	D 5994	mils	64	62	64	61	66		
			67	64	59	59	60	**62.6**	2.84
ASPERITY	GRI GM-12	mils	34	34	33	34	33		
HEIGHT	SHINY SIDE		32	31	33	30	32	**32.6**	1.35
ASPERITY	GRI GM-12	mils	27	28	27	27	30		
HEIGHT	DULL SIDE		29	30	29	28	29	**28.4**	1.17
DENSITY	D 1505	g/cc	0.9475	0.9474	0.9474			**0.9475**	0.0001
CARBON BLACK CONTENT	D 1603	%	2.24	2.25				**2.24**	0.007
CARBON BLACK DISPERSION	D 5596	CATEGORY	1	1	1	1	1		
			1	1	1	1	1		
TENSILE PROPERTIES	D 6693								
STRENGTH AT YIELD		MD-ppi	150	163	162	155	147	**155**	7.06
		CD-ppi	163	175	167	163	158	**165**	6.32
STRENGTH AT BREAK		MD-ppi	188	207	187	155	157	**179**	22.24
		CD-ppi	178	179	172	171	158	**172**	8.20
ELONGATION AT YIELD		MD%	20.5	21.3	20.5	18.8	19.1	**20.0**	1.05
Lo = 1.3"		CD%	13.9	13.9	15.3	15.9	14.5	**14.7**	0.88
ELONGATION AT BREAK		MD%	435	389	414	346	384	**394**	33.58
Lo = 2.0"		CD%	529	500	478	491	453	**490**	27.99

CHECKED BY: BF DATE: 3-23-10

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CONFORMANCE TEST RESULTS

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-01
LAB ID NO.: L10013-01-05
MATERIAL: AGRU 60 MIL HDPE MICROSPIKE
ROLL NO: 202113-10

TEST	ASTM METHOD	UNITS	SPECIMEN NO./ 1	2	3	4	5	AVE	STD
THICKNESS	D 5994	mils	63	64	60	61	60		
			60	61	61	59	58	**60.7**	1.77
ASPERITY HEIGHT	GRI GM-12 SHINY SIDE	mils	31	33	32	32	33		
			34	33	34	33	32	**32.7**	0.95
ASPERITY HEIGHT	GRI GM-12 DULL SIDE	mils	30	30	29	30	30		
			29	30	31	30	31	**30.0**	0.67
DENSITY	D 1505	g/cc	0.9474	0.9473	0.9473			**0.9473**	0.0001
CARBON BLACK CONTENT	D 1603	%	2.34	2.34				**2.34**	0.001
CARBON BLACK DISPERSION	D 5596	CATEGORY	1	1	1	1	1		
			1	1	1	1	1		
TENSILE PROPERTIES	D 6693								
STRENGTH AT YIELD		MD-ppi	140	150	156	157	142	**149**	7.75
		CD-ppi	149	154	160	167	174	**161**	10.15
STRENGTH AT BREAK		MD-ppi	177	186	196	187	160	**181**	13.29
		CD-ppi	149	162	160	167	174	**162**	9.46
ELONGATION AT YIELD Lo = 1.3"		MD%	20.8	21.1	21.4	21.1	19.2	**20.7**	0.88
		CD%	17.1	15.0	15.0	14.7	14.4	**15.2**	1.07
ELONGATION AT BREAK Lo = 2.0"		MD%	430	417	392	390	448	**415**	24.86
		CD%	337	413	461	437	405	**411**	46.61

CHECKED BY: BF DATE: 3-23-10

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Geocomposite

License No. C-0281

CIVIL/SANITARY/ENVIRONMENTAL ENGINEERS

SOLID WASTE MANAGEMENT

Municipal Services Engineering Company, P.A.

SITE PLANNING/SUBDIVISIONS

SUBSURFACE UTILITY ENGINEERING (SUE)

CERTIFICATION OF GEOCOMPOSITE
MUNICIPAL SOLID WASTE LANDFILL FACILITY – PHASE 4
ASHE COUNTY, NORTH CAROLINA

I, Jimmy D. Woodie, PE as Principal Engineer certify that the geocomposite has been properly tested and installed. Geocomposite manufacturer's certification for the manufactured product passed the minimal requirements, in general accordance with the Solid Waste Section approved plans.

MUNICIPAL ENGINEERING SERVICES COMPANY, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 6282 ENGINEER JIMMY D. WOODIE

Jimmy D. Woodie, PE, NC Registration No. 6282

12/1/2011

Date

PO Box 97, Garner, North Carolina 27529 (919) 772-5393

PO Box 349, Boone, NC 28607 (828) 262-1767

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.
7943 PECUE LANE SUITE A BATON ROUGE, LA 70809 TEL (225) 291–2700 FAX (225) 291-2788

TO: Hunter Construction Group, Inc.
118 Timber Road
Mooresville, SC 28115
Tel # : (704) 799 - 7570
ATTENTION: West P. Hunter

DATE: 4/05/10
JOB NAME: Ashe County, NC
MSW Landfill Phase 4 Project # G09083
TRANSMITTAL NUMBER: 03
ESI PROJECT NUMBER: 09-10-1286

WE ARE SENDING YOU [X] ATTACHED [ ] UNDER SEPARATE COVER VIA _____ THE FOLLOWING ITEMS:

[X] SHOP DRAWINGS [ ] PRINTS [ ] PLANS [ ] SAMPLES [ ] SPECIFICATIONS

[ ] COPY OF LETTER [ ] CHANGE ORDER [X] MQC DATA FOR AGRU LINER

COPIES	DATE	DRAWING NO.	REV.	DESCRIPTION	ACTION (*)
1	4/05/10			SKAPS MQC DATA	AS/FA

ACTION (*)

[X] AS - AS REQUESTED [X] FA - FOR APPROVAL [ ] _____

[ ] F – FILE [ ] RC - REVIEW & COMMENT [ ] _____

COMMENTS:

SENT VIA:

[X] E-MAIL [ ] MAIL [ ] OVERNIGHT [ ] HAND DELIVERY [ ] OTHER

COPY TO: _____ BY: Gregg Abney

If enclosures are not as noted, please notify us at once.....

SKAPS Industries

Engineered Synthetic Products, Inc.

April 2, 2010
Environmental Specialties International
7943 Pecue Lane, Suite A
Baton Rouge, LA 70809

Ref. : Ashe County Landfill, NC
Customer P.O. # 12779
Transnet 270-2-7.1

We certify that the Transnet 270-2-7.1 drainage composite, meets the project requirements as stated in the specifications. The properties listed in this section are:

Property	Test Method	Unit	Required Value	Qualifier
Geonet[4]				
Mass per Unit Area	ASTM D 5261	lbs/ft^2	0.194	Minimum
Thickness	ASTM D 5199	mil	270 ± 20	Range
Carbon Black	ASTM D 4218	%	2.0	Minimum
Tensile Strength	ASTM D 5035	lbs/in	50	Minimum
Melt Flow	ASTM D 1238[3]	g/10 min	1.0	Maximum
Density	ASTM D 1505	g/cm^3	0.94	Minimum
Transmissivity[1]	ASTM D 4716	m^2/sec	1.0×10^{-3}	MARV[6]
Composite				
Ply Adhesion	ASTM D 7005	lb/in	2.0	MARV
Transmissivity[2]	ASTM D 4716	m^2/sec	3.0×10^{-5}	MARV
Geotextile[4 & 5]				
Fabric Weight	ASTM D 5261	oz/yd^2	7.1	MARV
Grab Strength	ASTM D 4632	lbs	205	MARV
Grab Elongation	ASTM D 4632	%	50	MARV
Tear Strength	ASTM D 4533	lbs	75	MARV
Puncture Resistance	ASTM D 4833	lbs	95	MARV
Mullen Burst Strength	ASTM D 3786	psi	350	MARV
Water Flow Rate	ASTM D 4491	gpm/ft^2	110	MARV
Permittivity	ASTM D 4491	sec^{-1}	1.5	MARV
Permeability	ASTM D 4491	cm/sec	0.35	MARV
AOS	ASTM D 4751	US Sieve	70	MARV
UV Resistance	ASTM D 4355	%/hrs	70/500	MARV

Notes:

1 Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 0.1 and a confining pressure of 15000 psf between steel plates after 15 minutes.

2 Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 15000 psf between sand & liner after 100 hours.

3 Condition 190/2.16

4 Geotextile and Geonet properties are prior to lamination.

5 Geotextile data is provided by the supplier.

6 MARV is statistically defined as mean minus two standard deviations and it is the value which is exceeded by 97.5% of all the test data.

Sincerely,

Nilay Patel

Nilay Patel
QA Manager

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 **Fax:** 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m^2/sec)
			Top	Bottom	Minimum	Average	
1	352110001	352110001 - N	3521.011	3521.027	2.22	3.02	9.21×10^{-5}
2	352110002	352110002 - N	3521.011	3521.027			
3	352110003	352110003 - N	3521.011	3521.027			
4	352110004	352110004 - N	3521.011	3521.027			
5	352110005	352110005 - N	3521.011	3521.027			
6	352110006	352110006 - N	3521.011	3521.027			
7	352110007	352110007 - N	3521.011	3521.027			
8	352110008	352110008 - N	3521.024	3521.002			
9	352110009	352110009 - N	3521.024	3521.002			
10	352110010	352110010 - N	3521.024	3521.002	2.65	3.42	
11	352110011	352110011 - N	3521.024	3521.002			
12	352110012	352110012 - N	3521.024	3521.002			
13	352110013	352110013 - N	3521.024	3521.002			
14	352110014	352110014 - N	3521.024	3521.002			
15	352110015	352110015 - N	3521.005	3521.019			
16	352110016	352110016 - N	3521.005	3521.019			
17	352110017	352110017 - N	3521.005	3521.019			
18	352110018	352110018 - N	3521.005	3521.019			
19	352110019	352110019 - N	3521.005	3521.019			
20	352110020	352110020 - N	3521.005	3521.019	2.26	3.07	
21	352110021	352110021 - N	3521.005	3521.019			
22	352110022	352110022 - N	3521.020	3521.008			
23	352110023	352110023 - N	3521.020	3521.008			
24	352110024	352110024 - N	3521.020	3521.008			
25	352110025	352110025 - N	3521.020	3521.008			
26	352110026	352110026 - N	3521.020	3521.008			
27	352110027	352110027 - N	3521.020	3521.008			

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 15000 psf between sand & liner after 100 hours.

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 **Fax:** 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m^2/sec)
352110001 - N	PSPX002072	0.9602	0.250	263	2.28	91	2.32×10^{-3}
352110002 - N	PSPX002072	0.9602					
352110003 - N	PSPX002072	0.9602					
352110004 - N	PSPX002072	0.9602					
352110005 - N	PSPX002072	0.9602					
352110006 - N	PSPX002072	0.9602					
352110007 - N	PSPX002072	0.9602					
352110008 - N	PSPX002072	0.9602					
352110009 - N	PSPX002072	0.9602					
352110010 - N	PSPX002072	0.9602	0.257	274	2.61	96	
352110011 - N	PSPX002072	0.9602					
352110012 - N	PSPX002072	0.9602					
352110013 - N	PSPX002072	0.9602					
352110014 - N	PSPX002072	0.9602					
352110015 - N	PSPX002072	0.9602					
352110016 - N	PSPX002072	0.9602					
352110017 - N	PSPX002072	0.9602					
352110018 - N	PSPX002072	0.9602					
352110019 - N	PSPX002072	0.9602					
352110020 - N	PSPX002072	0.9602	0.248	265	2.32	93	
352110021 - N	PSPX002072	0.9602					
352110022 - N	PSPX002072	0.9602					
352110023 - N	PSPX002072	0.9602					
352110024 - N	PSPX002072	0.9602					
352110025 - N	PSPX002072	0.9602					
352110026 - N	PSPX002072	0.9602					
352110027 - N	PSPX002072	0.9602					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 0.1 and a confining pressure of 15000 psf between steel plates after 15 minutes.

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 Fax: 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m^2/sec)
			Top	Bottom	Minimum	Average	
1	352110028	352110028 - N	3521.020	3521.008			
2	352110029	352110029 - N	3521.001	3521.015			
3	352110030	352110030 - N	3521.001	3521.015	2.61	3.49	
4	352110031	352110031 - N	3521.001	3521.015			
5	352110032	352110032 - N	3521.001	3521.015			
6	352110033	352110033 - N	3521.001	3521.015			
7	352110034	352110034 - N	3521.001	3521.015			
8	352110035	352110035 - N	3521.001	3521.015			9.43×10^{-5}
9	352110036	352110036 - N	3521.026	3521.004			
10	352110037	352110037 - N	3521.026	3521.004			
11	352110038	352110038 - N	3521.026	3521.004			
12	352110039	352110039 - N	3521.026	3521.004			
13	352110040	352110040 - N	3521.026	3521.004	2.31	3.12	
14	352110041	352110041 - N	3521.026	3521.004			
15	352110042	352110042 - N	3521.026	3521.004			
16	352110043	352110043 - N	3521.009	3521.023			
17	352110044	352110044 - N	3521.009	3521.023			
18	352110045	352110045 - N	3521.009	3521.023			
19	352110046	352110046 - N	3521.009	3521.023			
20	352110047	352110047 - N	3521.009	3521.023			
21	352110048	352110048 - N	3521.009	3521.023			
22	352110049	352110049 - N	3521.009	3521.023			
23	352110050	352110050 - N	3521.018	3521.012	2.58	3.58	
24	352110051	352110051 - N	3521.018	3521.012			
25	352110052	352110052 - N	3521.018	3521.012			
26	352110053	352110053 - N	3521.018	3521.012			
27	352110054	352110054 - N	3521.018	3521.012			

* Transmissivity measured using water at 21 $\pm$ 2 °C (70 $\pm$ 4 °F) with a gradient of 1.0 and a confining pressure of 15000 psf between sand & liner after 100 hours.

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 **Fax:** 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m^2/sec)
352110028 - N	PSPX002072	0.9602					
352110029 - N	PSPX002072	0.9602					
352110030 - N	PSPX002072	0.9602	0.255	272	2.58	95	
352110031 - N	PSPX002072	0.9602					
352110032 - N	PSPX002072	0.9602					
352110033 - N	PSPX002072	0.9602					
352110034 - N	PSPX002072	0.9602					
352110035 - N	PSPX002072	0.9602					2.41×10^{-3}
352110036 - N	PSPX002072	0.9602					
352110037 - N	PSPX002072	0.9602					
352110038 - N	PSPX002072	0.9602					
352110039 - N	PSPX002072	0.9602					
352110040 - N	PSPX002072	0.9602	0.251	261	2.35	90	
352110041 - N	PSPX002072	0.9602					
352110042 - N	PSPX002072	0.9602					
352110043 - N	PSPX002072	0.9602					
352110044 - N	PSPX002072	0.9602					
352110045 - N	PSPX002072	0.9602					
352110046 - N	PSPX002072	0.9602					
352110047 - N	PSPX002072	0.9602					
352110048 - N	PSPX002072	0.9602					
352110049 - N	PSPX002072	0.9602					
352110050 - N	PSPX002072	0.9602	0.258	269	2.53	94	
352110051 - N	PSPX002072	0.9602					
352110052 - N	PSPX002072	0.9602					
352110053 - N	PSPX002072	0.9602					
352110054 - N	PSPX002072	0.9602					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 0.1 and a confining pressure of 15000 psf between steel plates after 15 minutes.

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 Fax: 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m^2/sec)
			Top	Bottom	Minimum	Average	
1	352110055	352110055 - N	3521.018	3521.012			
2	352110056	352110056 - N	3521.018	3521.012			
3	352110057	352110057 - N	3521.007	3521.025			
4	352110058	352110058 - N	3521.007	3521.025			
5	352110059	352110059 - N	3521.007	3521.025			
6	352110060	352110060 - N	3521.007	3521.025	2.34	3.16	
7	352110061	352110061 - N	3521.007	3521.025			
8	352110062	352110062 - N	3521.007	3521.025			
9	352110063	352110063 - N	3521.007	3521.025			
10	352110064	352110064 - N	3521.022	3521.010			
11	352110065	352110065 - N	3521.022	3521.010			
12	352110066	352110066 - N	3521.022	3521.010			
13	352110067	352110067 - N	3521.022	3521.010			
14	352110068	352110068 - N	3521.022	3521.010			
15	352110069	352110069 - N	3521.022	3521.010			
16	352110070	352110070 - N	3521.022	3521.010	2.55	3.41	9.26×10^{-5}
17	352110071	352110071 - N	3521.003	3521.017			
18	352110072	352110072 - N	3521.003	3521.017			
19	352110073	352110073 - N	3521.003	3521.017			
20	352110074	352110074 - N	3521.003	3521.017			
21	352110075	352110075 - N	3521.003	3521.017			
22	352110076	352110076 - N	3521.003	3521.017			
23	352110077	352110077 - N	3521.003	3521.017			
24	352110078	352110078 - N	3521.016	3521.006			
25	352110079	352110079 - N	3521.016	3521.006			
26	352110080	352110080 - N	3521.016	3521.006	2.24	3.20	
27	352110081	352110081 - N	3521.016	3521.006			

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 15000 psf between sand & liner after 100 hours.

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 **Fax:** 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m^2/sec)
352110055 - N	PSPX002072	0.9602					
352110056 - N	PSPX002072	0.9602					
352110057 - N	PSPX002072	0.9602					
352110058 - N	PSPX002072	0.9602					
352110059 - N	PSPX002072	0.9602					
352110060 - N	PSPX002072	0.9602	0.253	264	2.38	92	
352110061 - N	PSPX002072	0.9602					
352110062 - N	PSPX002072	0.9602					
352110063 - N	PSPX002072	0.9602					
352110064 - N	PSPX002072	0.9602					
352110065 - N	PSPX002072	0.9602					
352110066 - N	PSPX002072	0.9602					
352110067 - N	PSPX002072	0.9602					
352110068 - N	PSPX002072	0.9602					
352110069 - N	PSPX002072	0.9602					
352110070 - N	PSPX002072	0.9602	0.256	276	2.50	95	2.35×10^{-3}
352110071 - N	PSPX002072	0.9602					
352110072 - N	PSPX002072	0.9602					
352110073 - N	PSPX002072	0.9602					
352110074 - N	PSPX002072	0.9602					
352110075 - N	PSPX002072	0.9602					
352110076 - N	PSPX002072	0.9602					
352110077 - N	PSPX002072	0.9602					
352110078 - N	PSPX002072	0.9602					
352110079 - N	PSPX002072	0.9602					
352110080 - N	PSPX002072	0.9602	0.249	266	2.27	91	
352110081 - N	PSPX002072	0.9602					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 0.1 and a confining pressure of 15000 psf between steel plates after 15 minutes.

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 Fax: 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m^2/sec)
			Top	Bottom	Minimum	Average	
1	352110082	352110082 - N	3521.016	3521.006			
2	352110083	352110083 - N	3521.016	3521.006			
3	352110084	352110084 - N	3521.016	3521.006			
4	352110085	352110085 - N	3521.013	3521.021			
5	352110086	352110086 - N	3521.013	3521.021			
6	352110087	352110087 - N	3521.013	3521.021			
7	352110088	352110088 - N	3521.013	3521.021			
8	352110089	352110089 - N	3521.013	3521.021			
9	352110090	352110090 - N	3521.013	3521.021	2.50	3.68	
10	352110091	352110091 - N	3521.013	3521.021			
11	352110092	352110092 - N	3521.039	3521.029			
12	352110093	352110093 - N	3521.039	3521.029			
13	352110094	352110094 - N	3521.039	3521.029			
14	352110095	352110095 - N	3521.039	3521.029			
15	352110096	352110096 - N	3521.039	3521.029			
16	352110097	352110097 - N	3521.039	3521.029			
17	352110098	352110098 - N	3521.039	3521.029			
18	352110099	352110099 - N	3521.030	3521.042			
19	352110100	352110100 - N	3521.030	3521.042	2.33	3.25	
20	352110101	352110101 - N	3521.030	3521.042			
21	352110102	352110102 - N	3521.030	3521.042			
22	352110103	352110103 - N	3521.030	3521.042			
23	352110104	352110104 - N	3521.030	3521.042			
24	352110105	352110105 - N	3521.030	3521.042			9.40×10^{-5}
25	352110106	352110106 - N	3521.045	3521.014			
26	352110107	352110107 - N	3521.045	3521.014			
27	352110108	352110108 - N	3521.045	3521.014			

* Transmissivity measured using water at 21 $\pm$ 2 °C (70 $\pm$ 4 °F) with a gradient of 1.0 and a confining pressure of 15000 psf between sand & liner after 100 hours.

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 **Fax:** 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m^2/sec)
352110082 - N	PSPX002072	0.9602					
352110083 - N	PSPX002072	0.9602					
352110084 - N	PSPX002072	0.9602					
352110085 - N	PSPX002072	0.9602					
352110086 - N	PSPX002072	0.9602					
352110087 - N	PSPX002072	0.9602					
352110088 - N	PSPX002072	0.9602					
352110089 - N	PSPX002072	0.9602					
352110090 - N	PSPX002072	0.9602	0.259	271	2.47	93	
352110091 - N	PSPX002072	0.9602					
352110092 - N	PSPX002072	0.9602					
352110093 - N	PSPX002072	0.9602					
352110094 - N	PSPX002072	0.9602					
352110095 - N	PSPX002072	0.9602					
352110096 - N	PSPX002072	0.9602					
352110097 - N	PSPX002072	0.9602					
352110098 - N	PSPX002072	0.9602					
352110099 - N	PSPX002072	0.9602					
352110100 - N	PSPX002072	0.9602	0.252	260	2.30	90	
352110101 - N	PSPX002072	0.9602					
352110102 - N	PSPX002072	0.9602					
352110103 - N	PSPX002072	0.9602					
352110104 - N	PSPX002072	0.9602					
352110105 - N	PSPX002072	0.9602					2.38×10^{-3}
352110106 - N	PSPX002072	0.9602					
352110107 - N	PSPX002072	0.9602					
352110108 - N	PSPX002072	0.9602					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 0.1 and a confining pressure of 15000 psf between steel plates after 15 minutes.

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 Fax: 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m^2/sec)
			Top	Bottom	Minimum	Average	
1	352110109	352110109 - N	3521.045	3521.014			
2	352110110	352110110 - N	3521.045	3521.014	2.47	3.56	
3	352110111	352110111 - N	3521.045	3521.014			
4	352110112	352110112 - N	3521.045	3521.014			
5	352110113	352110113 - N	3521.032	3521.038			
6	352110114	352110114 - N	3521.032	3521.038			
7	352110115	352110115 - N	3521.032	3521.038			
8	352110116	352110116 - N	3521.032	3521.038			
9	352110117	352110117 - N	3521.032	3521.038			
10	352110118	352110118 - N	3521.032	3521.038			
11	352110119	352110119 - N	3521.032	3521.038			
12	352110120	352110120 - N	3521.037	3521.033	2.30	3.04	
13	352110121	352110121 - N	3521.037	3521.033			
14	352110122	352110122 - N	3521.037	3521.033			
15	352110123	352110123 - N	3521.037	3521.033			
16	352110124	352110124 - N	3521.037	3521.033			
17	352110125	352110125 - N	3521.037	3521.033			
18	352110126	352110126 - N	3521.037	3521.033			
19	352110127	352110127 - N	3521.028	3521.044			
20	352110128	352110128 - N	3521.028	3521.044			
21	352110129	352110129 - N	3521.028	3521.044			
22	352110130	352110130 - N	3521.028	3521.044	2.66	3.50	
23	352110131	352110131 - N	3521.028	3521.044			
24	352110132	352110132 - N	3521.028	3521.044			
25	352110133	352110133 - N	3521.028	3521.044			
26	352110134	352110134 - N	3521.041	3521.035			
27	352110135	352110135 - N	3521.041	3521.035			

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 15000 psf between sand & liner after 100 hours.

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 **Fax:** 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m^2/sec)
352110109 - N	PSPX002072	0.9602					
352110110 - N	PSPX002072	0.9602	0.257	273	2.63	96	
352110111 - N	PSPX002072	0.9602					
352110112 - N	PSPX002072	0.9602					
352110113 - N	PSPX002072	0.9602					
352110114 - N	PSPX002072	0.9602					
352110115 - N	PSPX002072	0.9602					
352110116 - N	PSPX002072	0.9602					
352110117 - N	PSPX002072	0.9602					
352110118 - N	PSPX002072	0.9602					
352110119 - N	PSPX002072	0.9602					
352110120 - N	PSPX002072	0.9602	0.248	267	2.36	92	
352110121 - N	PSPX002072	0.9602					
352110122 - N	PSPX002072	0.9602					
352110123 - N	PSPX002072	0.9602					
352110124 - N	PSPX002072	0.9602					
352110125 - N	PSPX002072	0.9602					
352110126 - N	PSPX002072	0.9602					
352110127 - N	PSPX002072	0.9602					
352110128 - N	PSPX002072	0.9602					
352110129 - N	PSPX002072	0.9602					
352110130 - N	PSPX002072	0.9602	0.254	275	2.60	94	
352110131 - N	PSPX002072	0.9602					
352110132 - N	PSPX002072	0.9602					
352110133 - N	PSPX002072	0.9602					
352110134 - N	PSPX002072	0.9602					
352110135 - N	PSPX002072	0.9602					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 0.1 and a confining pressure of 15000 psf between steel plates after 15 minutes.

APPROVED 5 QA

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SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geocomposite manufacturer, hereby certify the following for the material delievered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m^2/sec)
			Top	Bottom	Minimum	Average	
1	352110136	352110136 - N	3521.041	3521.035			
2	352110137	352110137 - N	3521.041	3521.035			
3	352110138	352110138 - N	3521.041	3521.035			
4	352110139	352110139 - N	3521.041	3521.035			
5	352110140	352110140 - N	3521.041	3521.035	2.38	3.11	9.18×10^{-5}
6	352110141	352110141 - N	3521.034	3521.046			
7	352110142	352110142 - N	3521.034	3521.046			
8	352110143	352110143 - N	3521.034	3521.046			
9	352110144	352110144 - N	3521.034	3521.046			
10	352110145	352110145 - N	3521.034	3521.046			
11	352110146	352110146 - N	3521.034	3521.046			
12	352110147	352110147 - N	3521.034	3521.046			
13	352110148	352110148 - N	3521.040	3521.031			
14	352110149	352110149 - N	3521.040	3521.031			
15	352110150	352110150 - N	3521.040	3521.031	2.54	3.44	
16	352110151	352110151 - N	3521.040	3521.031			
17	352110152	352110152 - N	3521.040	3521.031			
18	352110153	352110153 - N	3521.040	3521.031			
19	352110154	352110154 - N	3521.040	3521.031			
20	352110155	352110155 - N	3521.036	3521.043			

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 15000 psf between sand & liner after 100 hours.

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 **Fax:** 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : **TN270-2-7.1**
Project : **Ashe County Landfill, NC**

We, the Geonet Manufacturer, hereby ceritify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft^2)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m^2/sec)
352110136 - N	PSPX002072	0.9602					
352110137 - N	PSPX002072	0.9602					
352110138 - N	PSPX002072	0.9602					
352110139 - N	PSPX002072	0.9602					
352110140 - N	PSPX002072	0.9602	0.250	262	2.41	91	2.30×10^{-3}
352110141 - N	PSPX002072	0.9602					
352110142 - N	PSPX002072	0.9602					
352110143 - N	PSPX002072	0.9602					
352110144 - N	PSPX002072	0.9602					
352110145 - N	PSPX002072	0.9602					
352110146 - N	PSPX002072	0.9602					
352110147 - N	PSPX002072	0.9602					
352110148 - N	PSPX002072	0.9602					
352110149 - N	PSPX002072	0.9602					
352110150 - N	PSPX002072	0.9602	0.256	270	2.55	95	
352110151 - N	PSPX002072	0.9602					
352110152 - N	PSPX002072	0.9602					
352110153 - N	PSPX002072	0.9602					
352110154 - N	PSPX002072	0.9602					
352110155 - N	PSPX002072	0.9602					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 0.1 and a confining pressure of 15000 psf between steel plates after 15 minutes.

APPROVED 5 QA

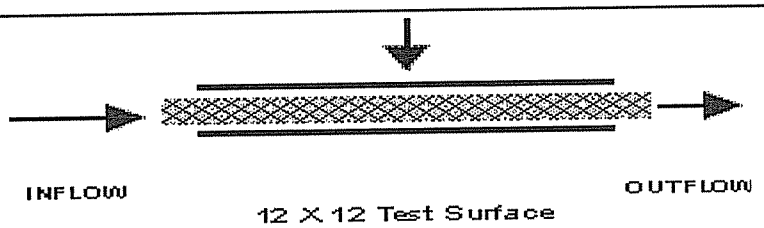
571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 Fax: 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

ASTM D 4716

Client:	Environmental Specialties International	**Job #**	3521
Project:	Ashe County Landfill, NC		
Product:	TN270-2-7.1		

Test Configuration:



Test Information:

Boundary Conditions:	Sand Geocomposite Liner	**Normal Load:** **Gradient:** **Seating Time:** **Flow Direction:**	15000 psf 1.0 ft 100 hours MD

Test Results:

Roll No.	Pressure (psf)	Gradient, ft	Transmissivity, m^2/sec 100 hours
352110001	15000	1.0	9.21×10^{-5}
352110035			9.43×10^{-5}
352110070			9.26×10^{-5}
352110105			9.40×10^{-5}
352110140			9.18×10^{-5}

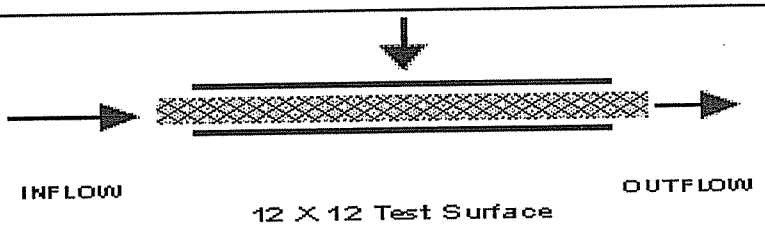
571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 **Fax:** 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

ASTM D 4716

Client:	Environmental Specialties International	**Job #**	3521
Project:	Ashe County Landfill, NC		
Product:	TN270-2-7.1		

Test Configuration:



Test Information:

Boundary Conditions:	Steel Plate Geonet Steel Plate	**Normal Load:**	15000 psf
		Gradient:	0.1 ft
		Seating Time:	15 minutes
		Flow Direction:	MD

Test Results:

Roll No.	Pressure (psf)	Gradient, ft	Transmissivity, m^2/sec 15 minutes
352110001 - N	15000	0.1	2.32×10^{-3}
352110035 - N			2.41×10^{-3}
352110070 - N			2.35×10^{-3}
352110105 - N			2.38×10^{-3}
352110140 - N			2.30×10^{-3}

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 **Fax:** 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

POLYETHYLENE RESIN CERTIFICATION

Customer Name : Environmental Specialties International
Project Name : Ashe County Landfill, NC
Geocomposite Manufacturer : SKAPS Industries
Geocomposite Production Plant : Commerce, GA
Geocomposite Brand Name : TN270-2-7.1

We, the Geonet Manufacturer, hereby certify the following for the material delivered to the above referenced project:

Resin Supplier	Resin Production Plant	Resin Brand Name	Resin Lot Number	Property	Test Method	Units	Resin Supplier Value	Tested Value*
Chevron Phillips Chemical Company	Chevron, TX	HDPE	PSPX002072	Density	ASTM D 1505	gm/cc	0.9550	0.9551
				Melt Flow Index	ASTM D 1238[(a)]	gm/10 min	0.39	0.10

(a) Condition 190/2.16
* Data from SKAPS Quality Control

APPROVED 5 QA

571 Industrial Parkway, Commerce, GA 30529 **Phone:** 706-336-7000 **Fax:** 706-336-7007 **Email:** skaps@skaps.com

SKAPS Industries

Engineered Synthetic Products, Inc.

Product : TN270-2-7.1
Project : Ashe County Landfill, NC

We, the Geocomposite Manufacturer, hereby certify the following for the material delivered to the above referenced project :

GEOCOMP ROLL#	FABRIC ROLL#	WEIGHT oz/sq yd	MD TENSILE lbs.	MD ELONG %	XMD TENSILE lbs.	XMD ELONG %	MD TRAP lbs.	XMD TRAP lbs.	PUNCTURE lbs.	MULLEN lbs.	AOS us sieve	WATER-FLOW gpm/sq	PERM-ABL cm/sec	PERM-ITY sec^{-1}
352110001	3521.011	7.21	205	68	220	75	86	98	121	380	70	115	0.46	1.54
	3521.027	7.45	215	71	230	83	82	95	115	371	70	115	0.46	1.54
352110035	3521.001	7.24	207	66	222	79	84	92	117	373	70	115	0.46	1.54
	3521.015	7.34	213	74	228	81	86	98	121	380	70	115	0.46	1.54
352110070	3521.022	7.28	209	65	224	77	82	95	115	371	70	115	0.46	1.54
	3521.010	7.21	205	68	220	75	86	98	121	380	70	115	0.46	1.54
352110105	3521.030	7.23	206	67	221	76	88	100	123	376	70	115	0.46	1.54
	3521.042	7.20	208	69	223	78	80	90	119	374	70	115	0.46	1.54
352110140	3521.041	7.20	208	69	223	78	80	90	119	374	70	115	0.46	1.54
	3521.035	7.38	212	73	227	80	88	100	123	376	70	115	0.46	1.54

571 Industrial Parkway, Commerce, GA 30529 Phone: 706-336-7000 Fax: 706-336-7007 Email: skaps@skaps.com

PRODUCT DATA SHEET

GEOTEX® 401

GEOTEX 401 is a polypropylene, staple fiber, needlepunched nonwoven geotextile produced by Propex, and will meet the following Minimum Average Roll Values (MARV) when tested in accordance with the methods listed below. The fibers are needled to form a stable network that retains dimensional stability relative to each other. The geotextile is resistant to ultraviolet degradation and to biological and chemical environments normally found in soils.

GEOTEX 401 conforms to the property values listed below.[1] Propex performs internal Manufacturing Quality Control (MQC) tests that have been accredited by the Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP).

PROPERTY	TEST METHOD	ENGLISH	METRIC
Mechanical			
Tensile Strength (Grab)	ASTM D-4632	115 lbs	512 N
Elongation	ASTM D-4632	50%	50%
Puncture	ASTM D-4833	65 lbs	289 N
CBR Puncture	ASTM D-6241	310 lbs	1379 N
Mullen Burst	ASTM D-3786	210 psi	1448 kPa
Trapezoidal Tear	ASTM D-4533	50 lbs	222 N
Endurance			
UV Resistance % Retained at 500 hrs	ASTM D-4355	70%	70%
Hydraulic			
Apparent Opening Size (AOS)[3]	ASTM D-4751	70 US Std. Sieve	0.212 mm
Permittivity	ASTM D-4491	2.0 sec^{-1}	2.0 sec^{-1}
Water Flow Rate	ASTM D-4491	140 gpm/ft^2	5704 $l/min/m^2$
Roll Sizes		12.5 ft x 360 ft 15 ft x 360 ft	3.81 m x 109.8 m 4.57 m x 109.8 m

NOTES:

1. The property values listed above are effective 06/2009 and are subject to change without notice.
2. Values shown are in weaker principal direction. Minimum average roll values (MARV) are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.
3. Maximum average roll value.

PROPEX® | THE ADVANTAGE CREATORS.™

GEOSYNTHETICS

Propex Operating Company, LLC
6025 Lee Highway, Suite 425
PO Box 22788
Chattanooga, TN 37422

PH: 423 899 0444
PH: 800 621 1273
FAX: 423 899 7619
www.geotextile.com

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Geotechnics
.....GEOTECHNICAL AND GEOSYNTHETIC SERVICES

RECEIVED
JUN 28 2010
Municipal Engineering Services Company, PA

June 22, 2010

Project No.: L10013-02

Mr. Wayne Sullivan
Municipal Engineering Service Company
P.O. Box 97
Garner, NC 27529

Transmittal
Laboratory Test Results
Ashe County Landfill

Please find attached the laboratory test results for the above referenced project. The tests were performed in general accordance with the procedures referenced on the data tables as well as industry practice. The test results are believed to be representative of the samples that were submitted for testing and are indicative only of the specimens which were evaluated. We have no direct knowledge of the origin of the samples and imply no position with regard to the nature of the test results, i.e. pass/fail and no claims as to the suitability of the material for its intended use.

The test data and all associated project information provided shall be held in strict confidence and disclosed to other parties only with authorization by our Client. The test data submitted herein is considered integral with this report and is not to be reproduced except in whole and only with the authorization of the Client and Geotechnics. The remaining sample materials for this project will be retained for a minimum of 90 days as directed by the Geotechnics' Quality Program.

We are pleased to be of service and trust that our efforts have contributed to the success of your project. Should you have any questions or if we may be of further assistance, please contact our office.

Respectively submitted,
Geotechnics, Inc.

J.P. Kline, P.E.
Laboratory Director

GAI-LAP
Initials: JPK #: 14-96
Date: 6-22-10

We understand that you have a choice in your laboratory services and we thank you for choosing Geotechnics.

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INTEGRITY IN TESTING

CONFORMANCE TEST RESULTS

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-02
LAB ID NO.: L10013-02-01
MATERIAL: SKAPS TN 270-2-7.1 GEOCOMPOSITE
ROLL NO: 352110001

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
Geonet									
THICKNESS	D 5199	inches	0.2705 0.2772	0.2780 0.2776	0.2823 0.2786	0.2780 0.2798	0.2782 0.2803	**0.2781**	0.0031
Geocomposite									
THICKNESS	D 5199	inches	0.3660 0.3670	0.3510 0.3570	0.3470 0.3470	0.3470 0.3320	0.3440 0.3300	**0.3488**	0.0123
PLY ADHESION	D 7005								
	SIDE "A"	MD-lb/in	6.7	7.1	5.6	4.3	5.2	**5.74**	1.131
	SIDE"B"	MD-lb/in	8.5	11.0	8.2	5.6	5.6	**7.79**	2.278

CHECKED BY: BF DATE: 6-2-10

\\GEOSERVER\Data Drive\Synthetics\2010 SYNTHETICS\013 - MESCO - ASHE CO. LF\[L10013-02-01 COMP ASHE CO.xls]Sheet1 L10013-02-01 6/2/2010

TRANSMISSIVITY TEST RESULTS
ASTM D 4716-00

geotechnics
INTEGRITY IN TESTING

CLIENT: MESCO
PROJECT: ASHE COUNTY LANDFILL

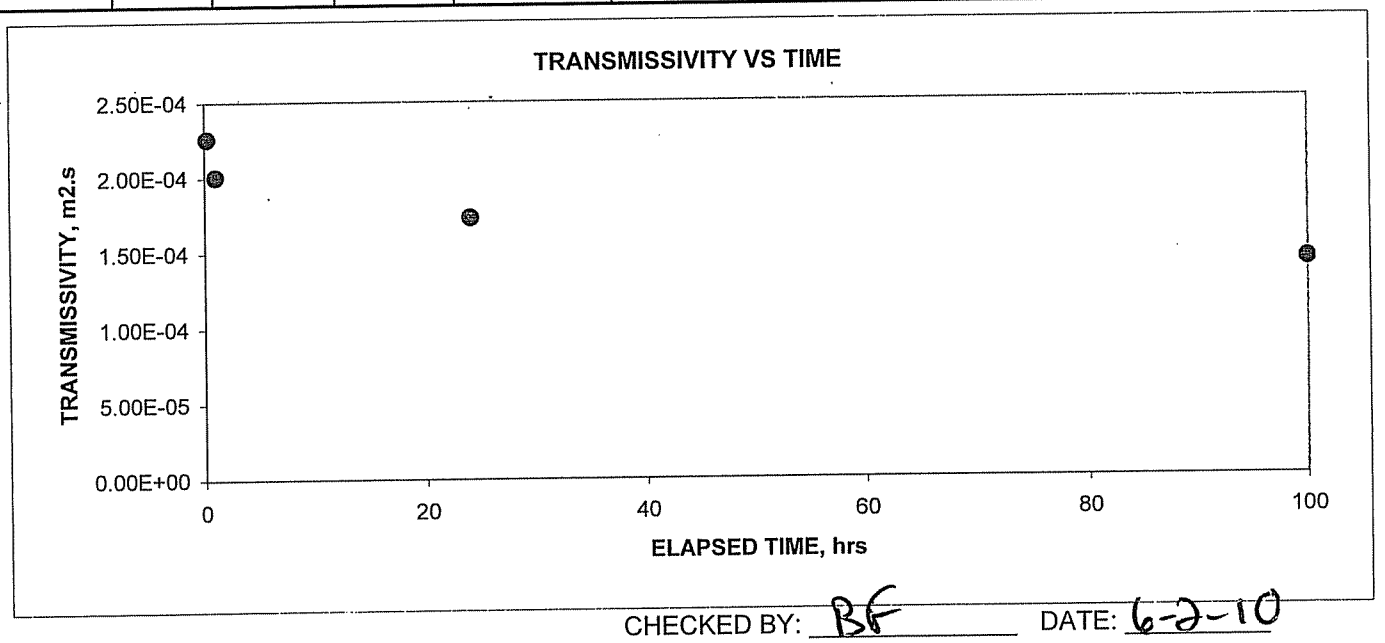
MATERIAL: SKAPS TN 270-2-7.1

TEST SECTION: OTTOWA SAND
GEOCOMPOSITE-MD
60-MIL AGRU MICROSPIKE LINER

PROJECT NO.: L10013-02
LAB I.D. NO.: L10013-02-01
ROLL NO.: 352110001
REPLICATE NO.: 1 of 1

15,000 psf NORMAL COMPRESSIVE STRESS

ELAPSED TIME (hrs)	MANOMETERS RES. (in)	MANOMETERS WEIR (in)	HYDR. GRAD.	COLLECTION DATA VOLUME (ml)	COLLECTION DATA TIME (sec.)	WATER TEMP °C	AVERAGE FLOW RATE (l/s-m)	AVERAGE FLOW RATE (gpm/ft)	CALCULATED TRANSMISSIVITY (m2/sec)
0.25	1.50	0.30	0.10	880 880 875	120 120 120	21.4	2.26E-02	0.109	2.26E-04
1	1.50	0.30	0.10	780 780 780	120 120 120	21.4	2.01E-02	0.097	2.01E-04
24	1.50	0.30	0.10	670 670 670	120 120 120	21.2	1.73E-02	0.084	1.73E-04
100	1.50	0.30	0.10	550 550 550	120 120 120	21.0	1.43E-02	0.069	1.43E-04



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C:\My Documents\EXCEL\Templates\[Trans100hr1Load1Grad.xls]Sheet1
\\GEOSERVER\Data Drive\Synthetics\2010 SYNTHETICS\013 - MESCO - ASHE CO. LF\[L10013-02-01 TRANS ASHE CO.xls]Rep1 L10013-02-01 6/2/2010

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INTEGRITY IN TESTING

CONFORMANCE TEST RESULTS

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-02
LAB ID NO.: L10013-02-02
MATERIAL: SKAPS TN 270-2-7.1 GEOCOMPOSITE
ROLL NO: 352110037

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
Geonet									
THICKNESS	D 5199	inches	0.2865	0.2853	0.2825	0.2785	0.2817		
			0.2786	0.2811	0.2798	0.2843	0.2868	**0.2825**	0.0031
Geocomposite									
THICKNESS	D 5199	inches	0.3480	0.3460	0.3430	0.3600	0.3590		
			0.3410	0.3450	0.3480	0.3550	0.3630	**0.3508**	0.0078
PLY ADHESION	D 7005								
	SIDE "A"	MD-lb/in	3.4	4.0	4.7	2.6	5.5	**4.02**	1.155
	SIDE"B"	MD-lb/in	8.1	5.4	6.4	4.6	9.4	**6.76**	1.953

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INTEGRITY IN TESTING

CONFORMANCE TEST RESULTS

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-02
LAB ID NO.: L10013-02-03
MATERIAL: SKAPS TN 270-2-7.1 GEOCOMPOSITE
ROLL NO: 352110073

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
Geonet									
THICKNESS	D 5199	inches	0.2738	0.2754	0.2791	0.2762	0.2782		
			0.2786	0.2779	0.2750	0.2784	0.2807	**0.2773**	0.0021
Geocomposite									
THICKNESS	D 5199	inches	0.3410	0.3520	0.3540	0.3530	0.3600		
			0.3400	0.3530	0.3560	0.3590	0.3570	**0.3525**	0.0069
PLY ADHESION	D 7005								
	SIDE "A"	MD-lb/in	3.8	4.7	6.1	4.6	7.3	**5.29**	1.398
	SIDE"B"	MD-lb/in	9.2	7.4	7.2	7.9	8.3	**7.99**	0.812

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CONFORMANCE TEST RESULTS

CLIENT: MESCO
CLIENT PROJECT: ASHE COUNTY LANDFILL
PROJECT NO.: L10013-02
LAB ID NO.: L10013-02-04
MATERIAL: SKAPS TN 270-2-7.1 GEOCOMPOSITE
ROLL NO: 352110109

TEST	ASTM METHOD	UNITS	SPECIMEN NO. 1	2	3	4	5	AVE	STD
Geonet									
THICKNESS	D 5199	inches	0.2775	0.2797	0.2750	0.2803	0.2725		
			0.2775	0.2825	0.2788	0.2778	0.2811	**0.2783**	0.0029
Geocomposite									
THICKNESS	D 5199	inches	0.3330	0.3410	0.3380	0.3450	0.3610		
			0.3460	0.3380	0.3360	0.3440	0.3560	**0.3438**	0.0088
PLY ADHESION	D 7005								
	SIDE "A"	MD-lb/in	3.9	4.9	3.0	7.1	7.3	**5.21**	1.911
	SIDE"B"	MD-lb/in	7.0	9.1	6.5	8.2	9.1	**7.95**	1.204

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Leachate Collection
System

License No. C-0281

CIVIL/SANITARY/ENVIRONMENTAL ENGINEERS

SOLID WASTE MANAGEMENT

Municipal Services

Engineering Company, P.A.

SITE PLANNING/SUBDIVISIONS

SUBSURFACE UTILITY ENGINEERING (SUE)

CERTIFICATION OF LEACHATE COLLECTION SYSTEM
MUNICIPAL SOLID WASTE LANDFILL FACILITY – PHASE 4
ASHE COUNTY, NORTH CAROLINA

I, Jimmy D. Woodie, PE as Principal Engineer certify that the leachate collection system has been properly installed and tested in general accordance with the Solid Waste Section approved plans.

The drainage medium consisted of NC DOT No. 57 stone and No. 5 stone, which were visually observed and approved.

The filter fabric surrounding the No. 57 stone was 8 oz. Non-woven geotextile which was approved according to the manufacturer's specifications, which met the Solid Waste Section approved plans.

The leachate main line was leak tested from the sump to the leachate lagoon and passed the leak test.

MUNICIPAL ENGINEERING SERVICES COMPANY, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 6282 ENGINEER JIMMY D. WOODIE

Jimmy D. Woodie, PE, NC Registration No. 6282

12/1/2011

Date

PO Box 97, Garner, North Carolina 27529 (919) 772-5393

PO Box 349, Boone, NC 28607 (828) 262-1767

Hshe Co. Landfill

For more information and technical assistance contact:

Performance Pipe, a division of
Chevron Phillips Chemical Company LP
P.O. Box 269006
Plano, TX 75026-9006
972.527.0662

8" IPS SDR17, 12" IPS SDR17
32" IPS SDR17

RECEIVED
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Municipal Engineering Services
Company, PA

DriscoPlex®
PE3608 / (PE3408) Pipe
Pipe and Fittings Data Sheet

Typical material Physical Properties of DriscoPlex® PE3608 / (PE3408)

High Density Polyethylene Materials

Property	Unit	Test Procedure	Typical Value
Material Designation	---	PPI TR-4	PE3608
Cell Classification	---	ASTM D3350	345464C
Pipe Properties			
Density	gms / cm^3	ASTM D1505	0.955 (black)
Melt Index Condition 190 / 2.16	gms / 10 minutes	ASTM D1238	0.08
Hydrostatic Design Basis 73°F (23°C)	psi	ASTM D2837	1600
Hydrostatic Design Basis 140°F (60°C)	psi	ASTM D2837	800
Color: UV Stabilizer [C] [E]	---	ASTM D3350	Min 2% carbon Black Color UV Stabilizer
Material Properties			
Flexural Modulus 2% Secant - 16:1 span; depth, 0.5 in / min	psi	ASTM D790	>110,000
Tensile Strength at Yield	psi	ASTM D638 Type IV	3200
Elongation at Break 2 in / min., Type IV bar	%	ASTM D638	>700
Elastic Modulus	psi	ASTM D638	>150,000
Hardness	Shore D	ASTM D2240	62
PENT	hrs	ASTM F1473	>100
Thermal Properties			
Vicat Softening Temperature	°F	ASTM D1525	256
Brittleness Temperature	°F	ASTM D746	-103
Thermal Expansion	in / in / °F	ASTM D696	1.0×10^{-4}

Revision Date September, 2006

Bulletin: PP 109

Another quality product from Chevron Phillips Chemical Company LP The Woodlands, Texas

Before using the piping product, the user is advised and cautioned to make its own determination and assessment of the safety and suitability of the piping product for the specific use in question and is further advised against relying on the information contained herein as it may relate to any specific use or application. It is the ultimate responsibility of the user to ensure that the piping product is suited and the information is applicable to the user's specific application. This data sheet provides typical physical property information for polyethylene resins used to manufacture the piping product. It is intended for comparing polyethylene piping resins. It is not a product specification, and it does not establish minimum or maximum values or manufacturing tolerances for resins or for the piping product. These typical physical property values were determined using compression-molded plaques prepared from resin. Values obtained from tests of specimens taken from the piping product can vary from these typical values. Performance Pipe does not make, and expressly disclaims, all warranties, of merchantability or fitness for a particular purpose, regardless of whether oral or written, express or implied, allegedly arising from any usage of trade or from any course of dealing in connection with the use of information contained herein or the piping product itself. The user expressly assumes all risk and liability, whether based in contract, tort or otherwise, in connection with th

For more information and technical
assistance contact:

Performance Pipe, a division of
evron Phillips Chemical Company LP
O. Box 269006
no, TX 75026-9006
.527.0662

SUGGESTED INDUSTRIES AND APPLICATIONS

Potable Water Mains	Horizontal Directional Drilling (HDD)	Marine Service
Sliplining	Water transmission Lines	Pipe Bursting
Industrial Water Mains	Ash, Tailings & Abrasives	Mining
Municipal Water Utilities	Open-cut and Bury	Culverts
Rural Water Distribution	River Crossings	Plow-in
Mun. & Ind. Sewer	Trenchless Technologies	Crude oil
Fire Main Piping	Rural Water Distribution	Plow-in

Butt Fusion Conditions

- 60-90 psig (4.14-6.21 bar) interfacial fusion pressure.
- 400-450° (204-232°C) heater surface temperature range.
- Please refer to Performance Pipe's PE3608 (PE3408) fusion procedure, Bulletin PP 750.

Available Sizes

- ¾" through 54" IPS
- 4" through 36" DIPS

Specification Data

The resin, pipe and fitting listed may comply with one or more of the standards below.

Applicable Standards	DriscoPlex® Pipe Series	PE3608 (PE3408)	PE4710 (d_f)
ASTM F714, NSF 61, ASTM D3035	4000, 4100, 4200, 4300, 4400, 4500, 4600, 4700	0.5	0.63
AWWA C906, AWWA C901	4000, 4100, 4200, 4300, 4400, 4500, 4600, 4700	0.5	0.63
FMA, AWWA, F714	1500, 1600	0.5	—
API 15LE, ASTM D2513	6400	0.5	0.63

Another quality product from
Chevron Phillips Chemical Company LP
The Woodlands, Texas

Before using the piping product, the user is advised and cautioned to make its own determination and assessment of the safety and suitability of the piping product for the specific use in question and is further advised against relying on the information contained herein as it may relate to any specific use or application. It is the ultimate responsibility of the user to ensure that the piping product is suited and the information is applicable to the user's specific application. This data sheet provides typical physical property information for polyethylene resins used to manufacture the piping product. It is intended for comparing polyethylene piping resins. It is not a product specification, and it does not establish minimum or maximum values or manufacturing tolerances for resins or for the piping product. These typical physical property values were determined using compression-molded plaques prepared from resin. Values obtained from tests of specimens taken from the piping product can vary from these typical values. Performance Pipe does not make, and expressly disclaims, all warranties, of merchantability or fitness for a particular purpose, regardless of whether oral or written, express or implied, allegedly arising from any usage of trade or from any course of dealing in connection with the use of information contained herein or the piping product itself. The user expressly assumes all risk and liability, whether based in contract, tort or otherwise, in connection with th

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evron Phillips Chemical Company LP
). Box 269006
10, TX 75026-9006
.J.527.0662

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NOTICE: This data sheet provides tpical physical property information for polyethylene resins used to manufacture PERFORMANCE PIPE polyethylene piping products. It is intended for comparing polyethylene piping resins. It is not a product specification, and it does not establish minimum or maximum values or manufacturing tolerances for resins or for piping products. Some of these typical physical property values were determined using compression molded plaques. Values obtained from tests of specimens taken from piping product can vary from these typical values. Performance Pipe has made every reasonable effort to ensure the accuracy of this data sheet, but this data sheet may not provide all necessary information, particularly with respect to special or unusual applications. The data sheet may be changed from time to time without notice. Contact Performance Pipe to determine if you have the most recent edition.

Another quality product from
Chevron Phillips Chemical Company LP
The Woodlands, Texas

Before using the piping product, the user is advised and cautioned to make its own determination and assessment of the safety and suitability of the piping product for the specific use in question and is further advised against relying on the information contained herein as it may relate to any specific use or application. It is the ultimate responsibility of the user to ensure that the piping product is suited and the information is applicable to the user's specific application. This data sheet provides typical physical property information for polyethylene resins used to manufacture the piping product. It is intended for comparing polyethylene piping resins. It is not a product specification, and it does not establish minimum or maximum values or manufacturing tolerances for resins or for the piping product. These typical physical property values were determined using compression-molded plaques prepared from resin. Values obtained from tests of specimens taken from the piping product can vary from these typical values. Performance Pipe does not make, and expressly disclaims, all warranties, of merchantability or fitness for a particular purpose, regardless of whether oral or written, express or implied, allegedly arising from any usage of trade or from any course of dealing in connection with the use of information contained herein or the piping product itself. The user expressly assumes all risk and liability, whether based in contract, tort or otherwise, in connection with th

PERFORMANCE PIPE
A Division of Chevron Phillips Chemical Company LP

PE3608 (PE3408)

IPS Size and Dimension Data

DriscoPlex® Municipal & Industrial & Energy Series/IPS Pipe Data

Pressure Ratings are calculated using 0.50 design factor for HDS at 73°F as listed in PPI TR-4 for PE 3608 materials.
Temperature, Chemical, and Environmental use considerations may require use of additional design factors.

Pressure Rating		100 psi DR 17.0			80 psi DR 21.0			65 psi DR 26.0			50 psi DR 32.5			
IPS Pipe Size	Nominal OD (in)	Minimum Wall (in)	Average ID (in)	Weight (lbs/ft)	Minimum Wall (in)	Average ID (in)	Weight (lbs/ft)	Minimum Wall (in)	Average ID (in)	Weight (lbs/ft)	Minimum Wall (in)	Average ID (in)	Weight (lbs/ft)	IPS Pipe Size
[illegible]	1.660	[illegible]			[illegible]			[illegible]			[illegible]			[illegible]
[illegible]	1.900	[illegible]			[illegible]			[illegible]			[illegible]			[illegible]
[illegible]	2.375	0.145	2.078	0.43	[illegible]			[illegible]			[illegible]			[illegible]
[illegible]	3.500	0.206	3.063	0.93	[illegible]	4.046	1.26	[illegible]	6.084	2.23	[illegible]	6.193	1.80	[illegible]
[illegible]	4.500	0.265	3.938	1.54	[illegible]	5.957	2.73	[illegible]	7.921	3.79	[illegible]	8.063	3.05	[illegible]
[illegible]	6.625	0.390	5.798	3.34	[illegible]	7.754	4.64	[illegible]	9.877	5.87	[illegible]	10.048	4.75	[illegible]
[illegible]	8.625	0.507	7.550	5.65	[illegible]	9.668	7.21	[illegible]	11.711	8.26	[illegible]	11.919	6.67	[illegible]
[illegible]	10.750	0.632	9.410	8.78	[illegible]	11.463	10.13	[illegible]	12.859	9.96	[illegible]	13.085	8.05	[illegible]
[illegible]	12.750	0.750	11.160	12.36	[illegible]	13.586	12.22	[illegible]	14.896	13.01	[illegible]	14.957	10.50	[illegible]
[illegible]	14.000	[illegible]	12.253	14.91	[illegible]	14.385	15.96	[illegible]	16.533	16.47	[illegible]	16.826	13.30	[illegible]
[illegible]	16.000	[illegible]	14.005	19.46	[illegible]	16.185	20.19	[illegible]	16.670	20.34	[illegible]	18.696	16.41	[illegible]
[illegible]	18.000	[illegible]	15.755	24.64	[illegible]	17.982	24.93	[illegible]	20.206	24.61	[illegible]	20.565	19.86	[illegible]
[illegible]	20.000	[illegible]	17.507	30.41	[illegible]	19.778	30.18	[illegible]	22.043	29.30	[illegible]	22.435	23.62	[illegible]
[illegible]	22.000	[illegible]	19.267	36.80	[illegible]	21.677	35.91	[illegible]	23.880	34.39	[illegible]	24.304	27.74	[illegible]
[illegible]	24.000	[illegible]	21.007	43.81	[illegible]	23.375	42.14	[illegible]	25.717	39.88	[illegible]	26.173	32.19	[illegible]
[illegible]	26.000	[illegible]	22.759	51.39	[illegible]	25.174	48.86	[illegible]	27.554	45.78	[illegible]	28.043	36.93	[illegible]
[illegible]	28.000	[illegible]	24.508	59.62	[illegible]	26.971	56.12	[illegible]	29.390	52.10	[illegible]	29.912	42.04	[illegible]
[illegible]	30.000	[illegible]	26.258	68.45	[illegible]	28.769	63.84	[illegible]	31.227	58.81	[illegible]	31.782	47.43	[illegible]
[illegible]	32.000	[illegible]	28.010	77.86	[illegible]	30.568	72.06	[illegible]	33.064	65.94	[illegible]	33.651	53.20	36
[illegible]	34.000	[illegible]	29.760	87.91	[illegible]	32.365	80.78	[illegible]	34.870	89.71	[illegible]	39.261	72.37	[illegible]
[illegible]	36.000	[illegible]	31.510	98.57	[illegible]	37.750	109.97	[illegible]	44.086	117.18	[illegible]	44.069	94.56	48
[illegible]	42.000	[illegible]	36.761	134.16	[illegible]	43.154	143.65	[illegible]	49.597	148.33	[illegible]	50.477	119.70	54
[illegible]	48.000	[illegible]	42.013	175.23	[illegible]	49.549	181.75							
[illegible]	54.000													

Performance Pipe can produce to specialized pipe dimensions. Check with your Performance Pipe contact for availability of dimensions not listed.

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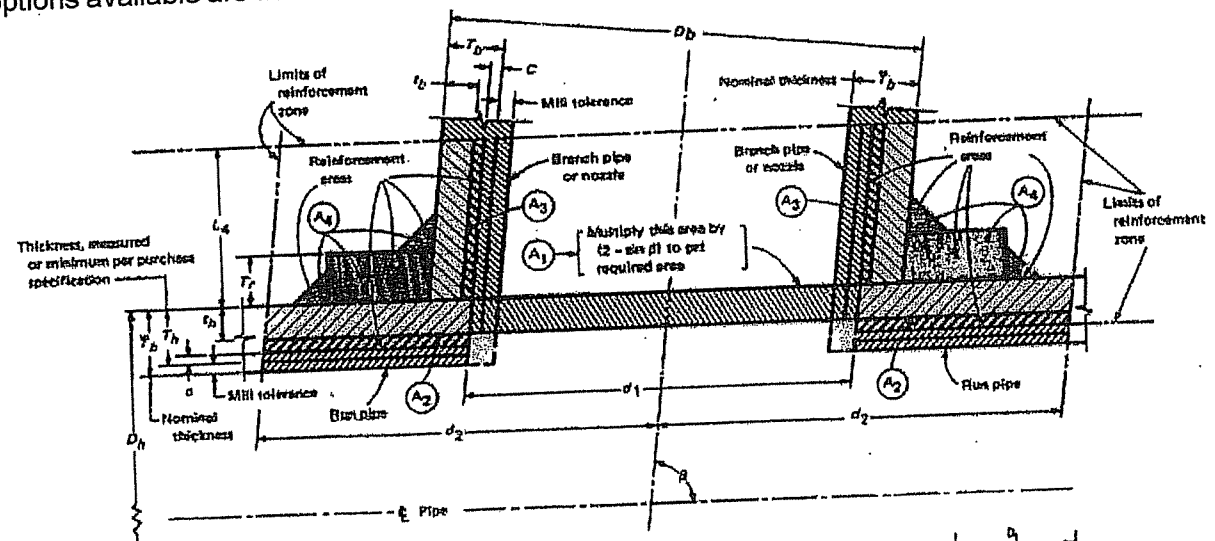
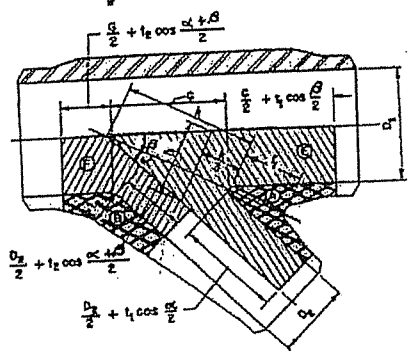
Lateral Wye Design Information and End Options

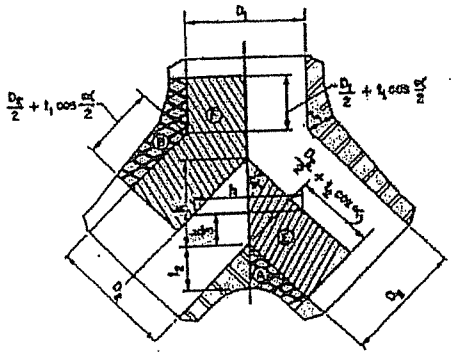
The intersection of the branch into the main produces an elliptical hole (oval). The hoop of the pipe main is more severely breached than a line tee with its circular hole. The derating of the wye is based on geometry and the stress intensification at the intersection joint.

As the angle goes from a 90° tee to a 60° to 45° to 30° wye, the derating factor becomes more severe as the loss in "hoop" increases accordingly. The loss in pressure capacity or the reinforcement necessary to keep full pressure rating is determined in ASME B31.3, Paragraph #304.3.3, which includes the "beta" angle of the wye. The pressure capacity of an unreinforced 45° lateral wye using a 2:1 safety factor is about 45% of the pressure rating of the straight pipe used for its fabrication.

End options available are whatever may be required for the project, such as butt-end, flanged, DIMJA, etc.







$$S_A \geq \frac{p(E + \frac{1}{2}A)}{A}$$

$$S_B \geq \frac{p(F + \frac{1}{2}B)}{A}$$

45° LATERAL WYE

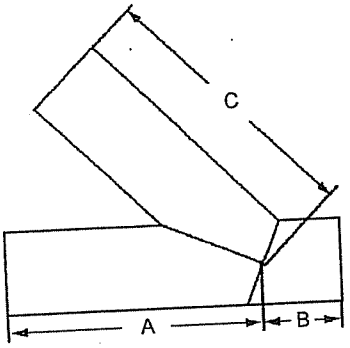
NOMENCLATURE

A, B	-	METAL AREA, (sq. in.)
D1, D2	-	INSIDE DIAMETER OF FITTINGS, (in.)
E, F	-	INDICATED PRESSURE AREA, (sq. in.)
G, h, k	-	INDICATED LENGTHS, (in.)
P	-	DESIGN PRESSURE, AT DESIGN TEMPERATURE, (psi)
S_A, S_B	-	ALLOWABLE STRESS AT DESIGN TEMPERATUE, (psi)
t1, t2	-	INDICATED METAL THICKNESS, (in.)
t3	-	AVERAGE METAL, THICKNESS OF FLAT SURFACE, (in.)
αβ	-	INDICATED ANGLES

$$S_A \geq \frac{p(E + \frac{1}{2}A)}{A}$$

$$S_B \geq \frac{p(F + \frac{1}{2}B)}{A}$$

45° TRUE WYE



IPS Fabricated 45° Lateral Wye Unreinforced

(Dimensions in Inches)

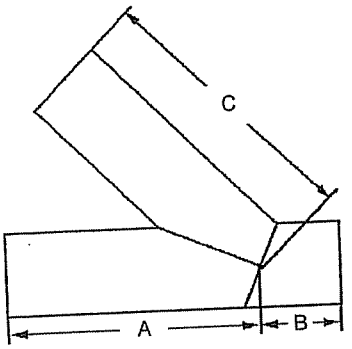
IPS Size	A	B	C	SDR	WPR (psi)	Weight (lbs)
2"	18.0	6.0	14.0	7 9 11	200 160 128	3 2 2
3"	18.0	7.0	14.0	7 9 11	200 160 128	7 6 5
4"	22.0	7.0	22.0	7 9 11	200 160 128	16 14 12
6"	28.0	7.0	28.0	7 9 11	200 160 128	42 33 30
8"	30.0	8.0	30.0	7 9 11	200 160 128	74 59 51
10"	31.0	8.0	31.0	7 9 11 17	200 160 128 80	119 98 79 55
12"	33.0	11.0	33.0	7 9 11 17	200 160 128 80	181 148 124 84
14"	42.0	11.0	42.0	7 9 11 17	200 160 128 80	271 217 181 123
16"	44.0	13.0	44.0	7 9 11 17	200 160 128 80	383 311 258 174
18"	57.0	14.0	57.0	7 9 11 17	200 160 128 80	605 493 415 280

• IPS 45° Lateral Wyes Continued Next Page •

Other sizes and DR's not listed are available - Call For Quick Quote

Sizes 24" and smaller meet AWWA C906 fitting requirements, sizes 26" and larger are quoted per fitting.

WPR represents the long term hydrostatic pressure capacity of the fabricated wye with a 1.5:1 safety factor. To achieve a 2:1 safety factor like that of the straight pipe the WPR will be reduced.



IPS Fabricated 45° Lateral Wye Unreinforced (continued)

(Dimensions in Inches)

IPS Size	A	B	C	SDR	WPR (psi)	Weight (lbs)
20"	65.0	14.0	65.0	7 9 11 17	200 160 128 80	838 675 563 382
22"	67.0	14.0	67.0	7 9 11 17	200 160 128 80	1044 845 710 477
24"	69.0	15.0	69.0	7 9 11 17	200 160 128 80	1272 1033 861 583
26"	70.0	17.0	70.0	9 11 17	100 80 50	1272 1071 723
28"	71.0	18.0	71.0	9 11 17	100 80 50	1495 1256 832
30"	90.0	18.0	90.0	11 17	80 50	1759 1191
32"	91.0	19.0	91.0	11 17	80 50	2030 1365
34"	93.0	20.0	93.0	11 17	80 50	2344 1575
36"	95.0	20.0	95.0	11 17	80 50	2683 1807
42"	109.0	25.0	109.0	17 21	50 40	2835 2310
48"	113.0	26.0	113.0	21 26	40 32	3045 2479
54"	118.0	29.0	118.0	26 32.5	32 25	3412 2742

Other sizes and DR's not listed are available - Call For Quick Quote

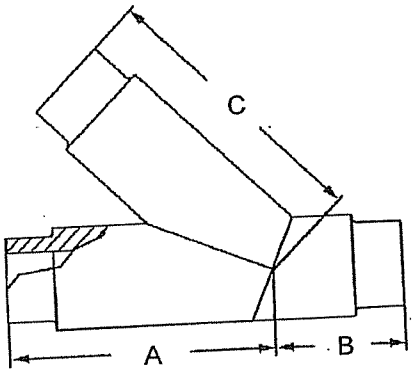
Sizes 24" and smaller meet AWWA C906 fitting requirements, sizes 26" and larger are quoted per fitting.

WPR represents the long term hydrostatic pressure capacity of the fabricated wye with a 1.5:1 safety factor. To achieve a 2:1 safety factor like that of the straight pipe the WPR will be reduced.

IPS HDPE PE Reinforced 45° Lateral Wye

Fully Pressure Rated With Full Flow ID

(Dimensions in Inches)

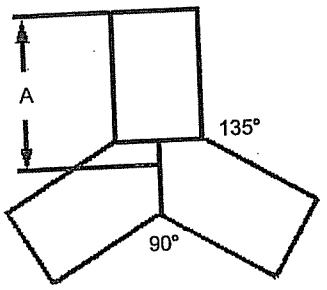


These fittings offer a full pressure rating without restricting the ID flow or lowering the fitting WPR design factor!

IPS Nominal Size	Feedstock OD	A	B	C	SDR	WPR (psi)
4"	6.625	28.0	13.0	28.0	9 11 17	200 160 100
6"	8.625	30.0	14.0	30.0	9 11 17	200 160 100
8"	10.750	31.0	14.5	31.0	9 11 17	200 160 100
10"	12.750	33.0	17.5	33.0	9 11 17	200 160 100
12"	14.000	42.0	19.0	42.0	9 11 17	200 160 100
14"	16.000	44.0	21.0	44.0	9 11 17	200 160 100
16"	18.000	57.0	22.0	57.0	9 11 17	200 160 100
18"	20.000	65.0	22.0	65.0	9 11 17	200 160 100
20"	22.000	67.0	22.0	67.0	9 11 17	200 160 100
22"	24.000	69.0	23.0	69.0	9 11 17	200 160 100
24"	26.000	70.0	23.0	70.0	9 11 17	200 160 100

WPR represents the long term hydrostatic pressure capacity of the Reinforced Fabricated Wye with a 2:1 design factor.

IPPI's HDPE Design-Flow® Pipe Fittings are designed to meet AWWA C901/C906 fitting requirements and are manufactured from PPI and NSF listed resins in accordance with the material specifications listed in ASTM D3350 with a cell classification of 345464C or better. Suitable for butt welding to pipe manufactured to ASTM D2513, D3035, F714 with similar resins.



IPS Fabricated True Equal Wye Unreinforced

(Dimensions in Inches)

IPS Size	A	SDR	WPR (psi)	Weight (lbs)
4"	9.0	11	128	6
6"	12.0	11	128	17
8"	16.0	11	128	36
10"	20.0	11	128	69
12"	24.0	11	128	115
14"	28.0	11	80	161
16"	32.0	11	80	246
18"	36.0	11	80	348
20"	40.0	11	80	475
22"	44.0	11	80	631
24"	48.0	11	80	816

Other sizes and DR's not listed are available - Call For Quick Quote

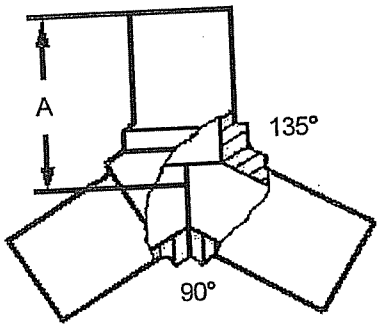
Sizes 24" and smaller meet AWWA C906 fitting requirements, sizes 26" and larger are quoted per fitting.

WPR represents the long term hydrostatic pressure capacity of the fabricated tee with a 1.5:1 safety factor. To achieve a 2:1 safety factor like that of the straight pipe the WPR will be reduced.

IPS HDPE PE Reinforced True Equal Wye

Fully Pressure Rated With Full Flow ID

(Dimensions in Inches)

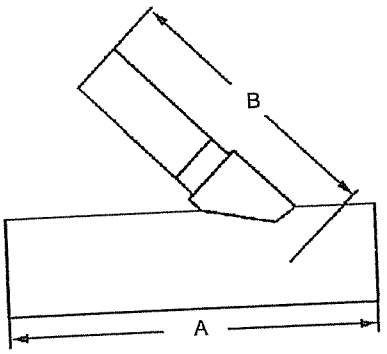


These fittings offer a full pressure rating without restricting the ID flow or lowering the fitting WPR design factor!

IPS Nominal Size	Feedstock OD	A	SDR	WPR (psi)
4"	6.625	12.0	9 11 17	200 160 100
6"	8.625	16.0	9 11 17	200 160 100
8"	10.750	20.0	9 11 17	200 160 100
10"	12.750	24.0	9 11 17	200 160 100
12"	14.000	28.0	9 11 17	200 160 100
14"	16.000	32.0	9 11 17	200 160 100
16"	20.000	40.0	9 11 17	200 160 100
18"	22.000	44.0	9 11 17	200 160 100
20"	24.000	48.0	9 11 17	200 160 100
22"	26.000	48.0	11 17	160 100
24"	28.000	48.0	11 17	160 100

WPR represents the long term hydrostatic pressure capacity of the Reinforced Fabricated Wye with a 2:1 design factor.

IPPI's HDPE Design-Flow® Pipe Fittings are designed to meet AWWA C901/C906 fitting requirements and are manufactured from PPI and NSF listed resins in accordance with the material specifications listed in ASTM D3350 with a cell classification of 345464C or better. Suitable for butt welding to pipe manufactured to ASTM D2513, D3035, F714 with similar resins.



IPS Branch Saddle
45° Lateral Reducing Wye
Full Pressure Rated

(Dimensions in Inches)

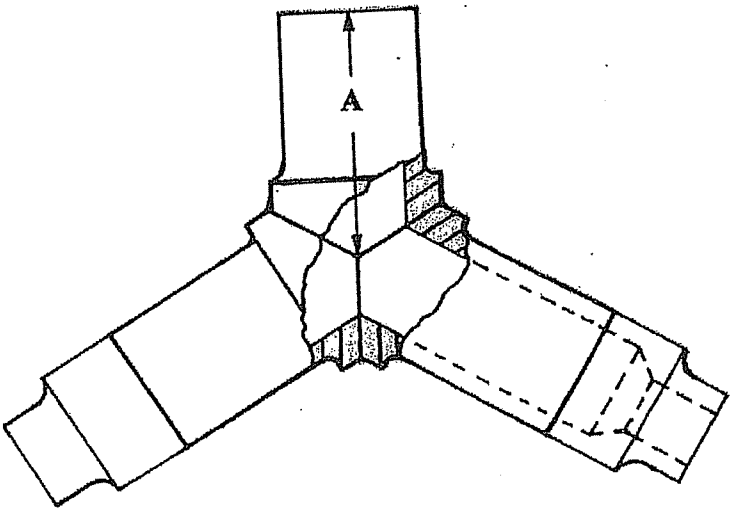
IPS Size	A	B	SDR	WPR	Weight (lbs)
8 x 4	38.0	30.0	11	160	37
10 x 4	39.0	31.0	11	160	51
12 x 4	44.0	33.0	11	160	87
10 x 6	39.0	31.0	11	160	72
12 x 6	44.0	33.0	11	160	96
14 x 6	53.0	42.0	11	160	129
12 x 8	44.0	33.0	11	160	109
14 x 8	53.0	42.0	11	160	143

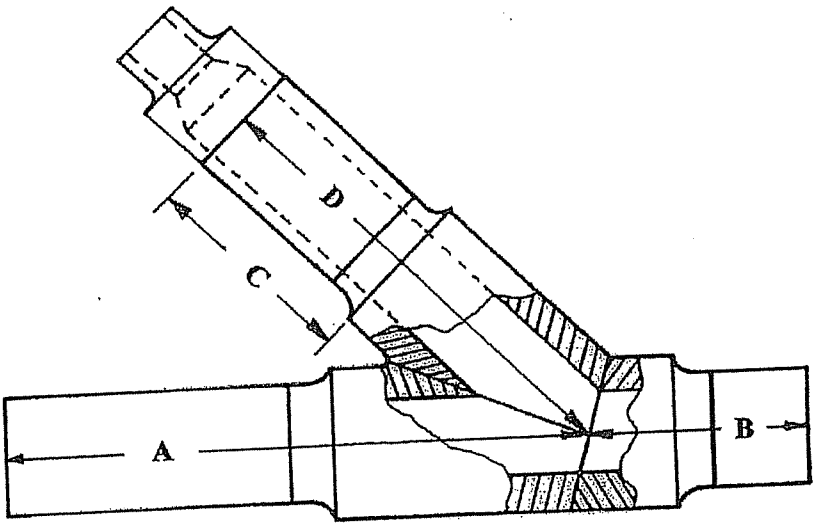
Other sizes and DR's not listed are available - Call For Quick Quote

Sizes 24" and smaller meet AWWA C906 fitting requirements, sizes 26" and larger are quoted per fitting.

Reducing Outlet Wyes

Due to the complexity of the concave/convex elliptical (oval) heater plates required to make unreinforced or poly-reinforced reducing outlet wyes, it is standard practice to add a compact reducer to the outlet branch of the line-size wye in order to provide a reduced outlet branch. Call for a Quick Quote on the reduced outlet wye fabrications. Refer to the sketches below for design illustrations:





Erosion Control
BLANKET

PC42 TRM

Specification Sheet

The ErosionControlBlanket PC42 is a composite turf reinforcement mat made of 67% polypropylene fiber and 33% coconut fiber designed for critical slope and channel applications requiring permanent erosion control and turf reinforcement. The matting is sewn together on 1.5 inch (38.1 mm) centers. The PC42 meets all requirements established in the FHWA FP-03 as a Type 5 A, B and C turf reinforcement matting for use on slopes with gradients up to 0.5:1 (h:v), channels, and shorelines. The PC42 comes packaged in clear shrink-wrap with a brown band and includes installation instructions.

Product Nomenclature & Properties

PC = 67% polypropylene fiber and 33% coconut fiber matrix
4 = polypropylene/coconut fiber matrix applied at a rate of 0.75 lbs/yd^2 (400 g/m^2)
2 = top permanent UV stabilized black net with a mesh size of 0.53 x 0.5 in (1.34 x 1.27 cm)
= bottom permanent UV stabilized black net with a mesh size of 0.626 x 0.626 in (1.59 x 1.59 cm)
= permanent UV stabilized black thread

Index & Bench Scale Testing

Test Description	Test Method	Test Results C-TRM (with organic fiber)	Test Results Permanent TRM (without organic fiber)
Mass per Unit Area	ASTM D6475	13.76 oz/yd^2	9.23 oz/yd^2
UV Stability at 500 hours	ASTM D 4355	90%	84%
Tensile Strength	ASTM D6818	31.3 lb/in @ 31.0% MD 21.4 lb/in @ 27.9% TD	27.4 lb/in @ % MD 18.1 lb/in @ % TD
Thickness	ASTM D6525	0.390 in	0.332 in
Light Penetration / Ground Cover	ASTM D6567	20.3% / 79.7%	20.2% / 79.8%
Unvegetated Bench-Scale Shear Stress (not to be used as a design value)	ASTM D7207	3.3 lbs/ft^2 @ ½ in. soil loss	3.3 lbs/ft^2 @ ½ in. soil loss

*Soil Loss Ratio = Soil Loss Bare Soil / Soil Loss with RECP = 1 / C-Factor (Note: Soil loss is based on regression analysis)

Design Values

- "C" factor = 0.001
- Unvegetated Maximum Permissible Shear Stress = 3.2 lbs/ft^2 (153.6 Pa)
- Vegetated Maximum Permissible Shear Stress = 12 lbs/ft^2 (576 Pa)
- Maximum Flow Velocity Unvegetated = 9.5 ft/s (2.9 m/s)
- Maximum Flow Velocity Vegetated = 16 ft/s (5.06 m/s)
- Unvegetated Manning's "n" = 0.03 (The hydraulic roughness coefficient will vary for vegetated conditions based on vegetation stand height and density)

Standard Roll Details

Width	2.44m (8ft)	4.88m (16ft)
Standard Length	25.7m (84.3ft)	25.7m (84.3ft)
Area	62.7m^2 (75yd^2)	125.4m^2 (150yd^2)
Weight ±10%	28kg (61lb)	56kg (122lb)

"Big Daddy" Roll Details – Please contact ErosionControlBlanket for Confirmation of Roll Sizes

Width	2.44m (8ft)	4.88m (16ft)
Standard Length	102.8m (337.5ft)	102.8m (337.5ft)
Area	250.8m^2 (300yd^2)	500m^2 (600yd^2)
Weight ±10%	112kg (244 lb)	224kg (488 lb)

PHONE: (866) 317-3346 • www.erosioncontrolblanket.com • FAX: (204) 231-8134

Erosion Control BLANKET

C32

Specification Sheet

The ErosionControlBlanket C32 is a long-term double net 100% coconut fiber erosion control blanket designed for use on extreme slope and channel applications requiring erosion control for up to 36 months depending on moisture, light, and environmental conditions. The blanket is sewn together on 1.5 inch (38.1 mm) centers. The C32 meets all requirements established in the FHWA FP-03 as a Type 4 erosion control blanket for use on slopes with gradients not exceeding 1:1 (h:v) and has been tested by the National Transportation Product Evaluation Program (NTPEP). The C32 comes packaged in clear shrink-wrap with an orange band and includes installation instructions.

Product Nomenclature & Properties

C = 100% coconut fiber matrix
3 = coconut fiber matrix applied at a rate of 0.5 lbs/yd^2 (270 g/m^2)
2 = top & bottom stabilized photodegradable black net with a mesh size of 0.626 x 0.626 in (1.59 x 1.59 cm)
= UV stabilized photodegradable thread to ensure consistent functional longevity

Index & Bench Scale Testing

Test Description	Test Method	Test Results
Mass per Unit Area	ASTM D6475	7.31 oz/yd^2
Tensile Strength	ASTM D6818	24.0 lbs/in @ 22.1% MD 17.3 lbs/in @ 35.3% TD
Thickness	ASTM D6525	0.268 in
Light Penetration / Ground Cover	ASTM D6567	15.9% / 84.1%
Water Absorption	ASTM D 1117 & ECTCTASC 00197	199%
Unvegetated Bench-Scale Rain Splash and Runoff (not to be used as a design value)	ASTM D7101	Soil Loss Ratio* = 13.54 Soil Loss Ratio*= 18.69 Soil Loss Ratio*= 25.80
Unvegetated Bench-Scale Shear Stress (not to be used as design value)	ASTM D7207	2.75 lbs/ft^2 @ ½ in. soil loss
Seed Germination and Plant Growth Under Bench-Scale Conditions	ASTM D7322	266% Improvement (increased biomass)

*Soil Loss Ratio = Soil Loss Bare Soil / Soil Loss with RECP = 1 / C-Factor (Note: Soil loss is based on regression analysis)

Design Values

- "C" factor = 0.002
- Maximum Permissible Shear Stress = 2.25 lbs/ft^2 (108 Pa)
- Maximum Permissible Velocity = 10 ft/sec (3.05 m/s)
- Manning's "n" = 0.03

Standard Roll Details

Width	2.44m (8ft)	4.88m (16ft)
Standard Length	41.1m (135ft)	41.1m (135ft)
Area	100.0m^2 (120yd^2)	200.0m^2 (240yd^2)
Weight ±10%	30kg (67lb)	60kg (134lb)

"Big Daddy" Roll Details

Width	2.44m (8ft)	4.88m (16ft)
Standard Length	171.5m (562.5ft)	171.5m (562.5ft)
Area	418m^2 (500yd^2)	836.1m^2 (1000yd^2)
Weight ±10%	127kg (279lb)	254kg (558lb)

QDOR PERFORMANCE VERIFIED

PHONE: (866) 317-3346 • www.erosioncontrolblanket.com • FAX: (204) 331-8134

Certification

ENGINEER'S CERTIFICATION
MUNICIPAL SOLID WASTE LANDFILL FACILITY – PHASE 4
ASHE COUNTY, NORTH CAROLINA

AS-BUILT:

I, Jimmy D. Woodie, PE, as a duly registered Professional Engineer in the State of North Carolina having been authorized to observe the construction of the lined Municipal Solid Waste Landfill for Ashe County hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the approved plans and specifications.

CONSTRUCTION QUALITY ASSURANCE (CQA):

The construction was observed and completed in general accordance with the approved CQA plan, the conditions of the permit-to-construct, the requirements of Rule. 1624, and acceptable engineering practices.

MUNICIPAL ENGINEERING SERVICES COMPANY, P.A.

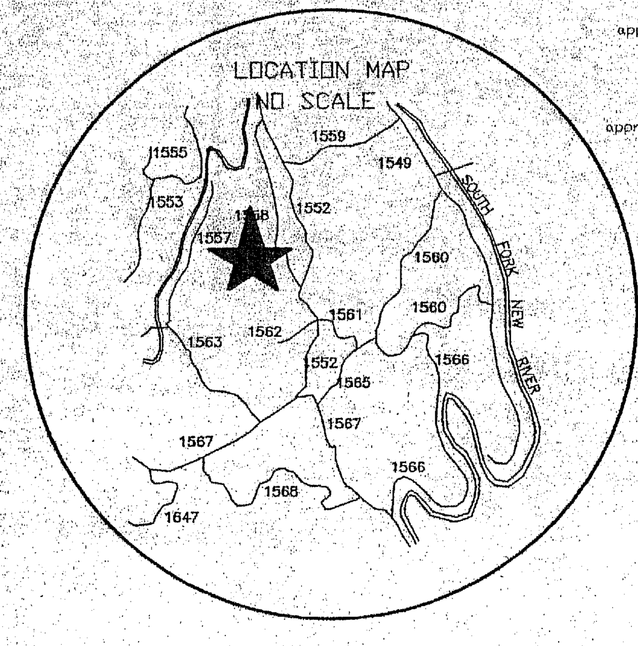
NORTH CAROLINA PROFESSIONAL SEAL 6282 ENGINEER JIMMY D. WOODIE

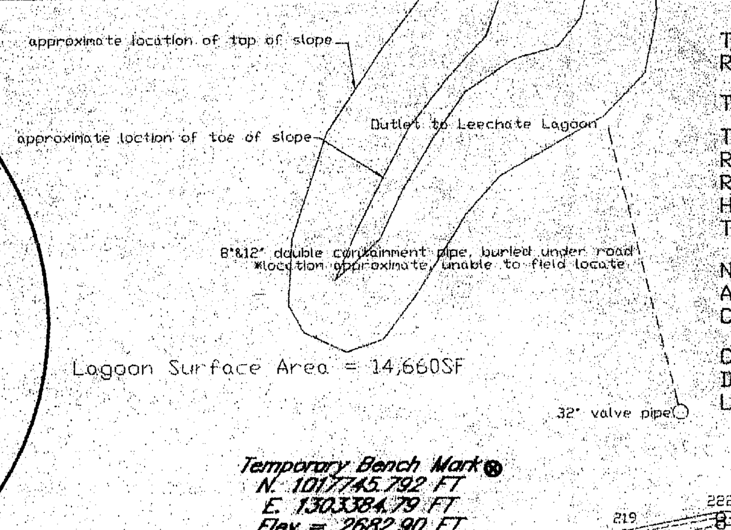
Jimmy D. Woodie, PE, NC Registration No. 6282

12/1/2011

Date

As-Built





THIS PLAT IS SUBJECT TO ANY EASEMENTS, AGREEMENT, OR RIGHTS-OF-WAY OF RECORD PRIOR TO DATE THIS PLAT.

THIS PLAT NOT FOR RECORDATION.

THIS PLAT WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT, WHICH MAY REVEAL ADDITIONAL CONVEYANCES, EASEMENTS, RIGHTS-OF-WAY, OR BUILDING RESTRICTION LINES, NOT SHOWN HEREON. ALL PROPERTY OWNERSHIPS WERE TAKEN FROM CURRENT TAX RECORDS ONLY.

NOTE, PORTION OF ELEVATIONS SHOWN TAKEN AT BASE OF HOLE AUGURED IN THE COHESIVE SOIL LINER ALREADY IN PLACE, BY HUNTER CONSTRUCTION GROUP INC. UNDER THE SUPERVISION OF MUNICIPAL ENGINEERING.

COORDIANTES AND ELEVATIONS RELATIVE TO INFORMATION TAKEN FROM CONSTRUCTION DRAWINGS PREPARED BY MUNICIPAL ENGINEERING TITLED "MUNICIPAL SOLID WASTE LANDFILL FACILITY ASHE COUNTY NORTH CAROLINA, DATED AUGUST 24, 2009.

NOTE, TOPOGRAPHIC GRID SURVEY ONLY, NO BOUNDARY WORK COMPLETED.

I, THOMAS D. HERMAN CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION, FROM AN ACTUAL GROUND TOPOGRAPHIC SURVEY PERFORMED UNDER MY SUPERVISION.

Thomas D. Herman Oct. 21/2010

P.L.S. L - 2633

Last Revised Oct 3/2011

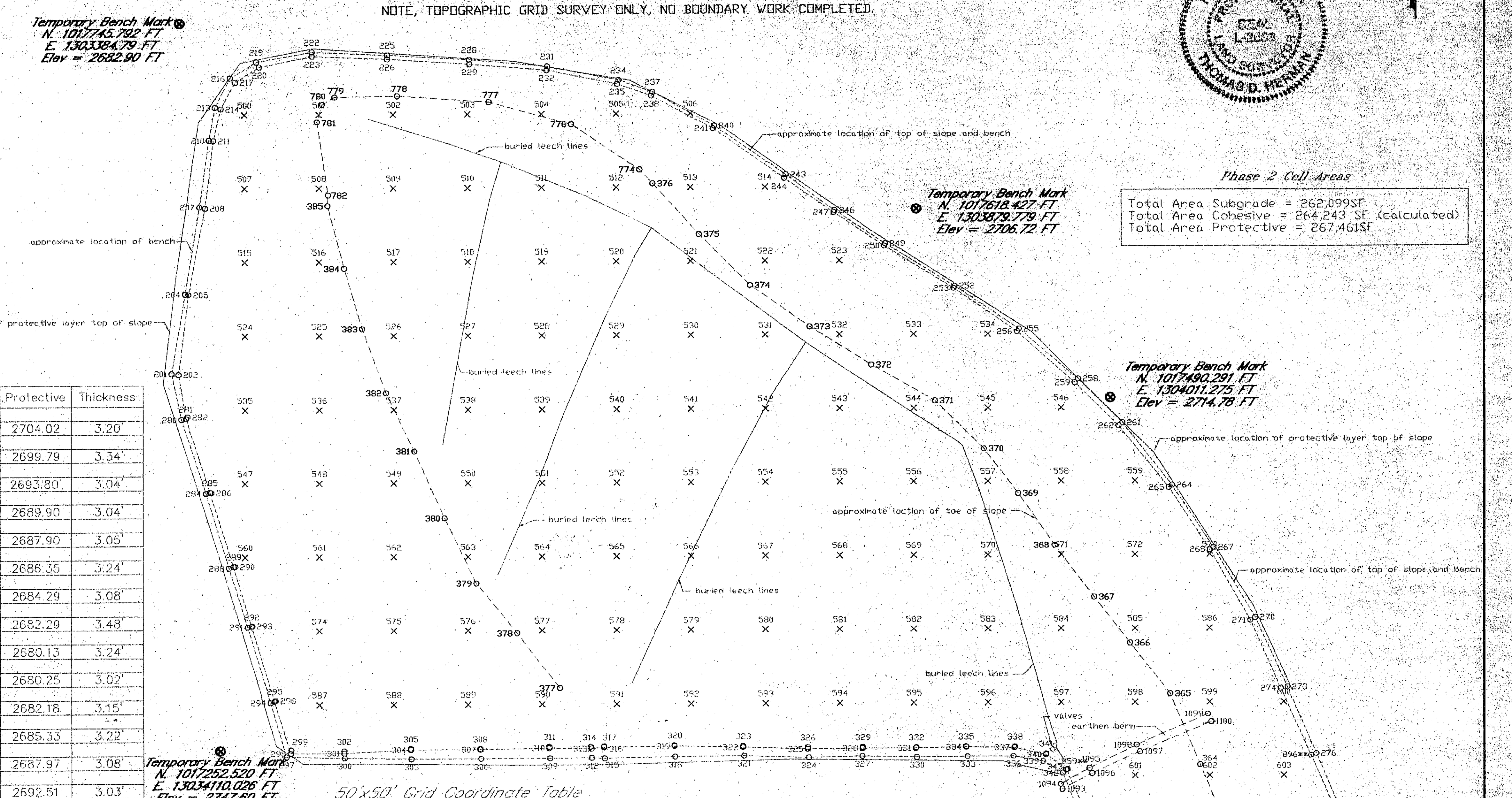
NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-2633 THOMAS D. HERMAN

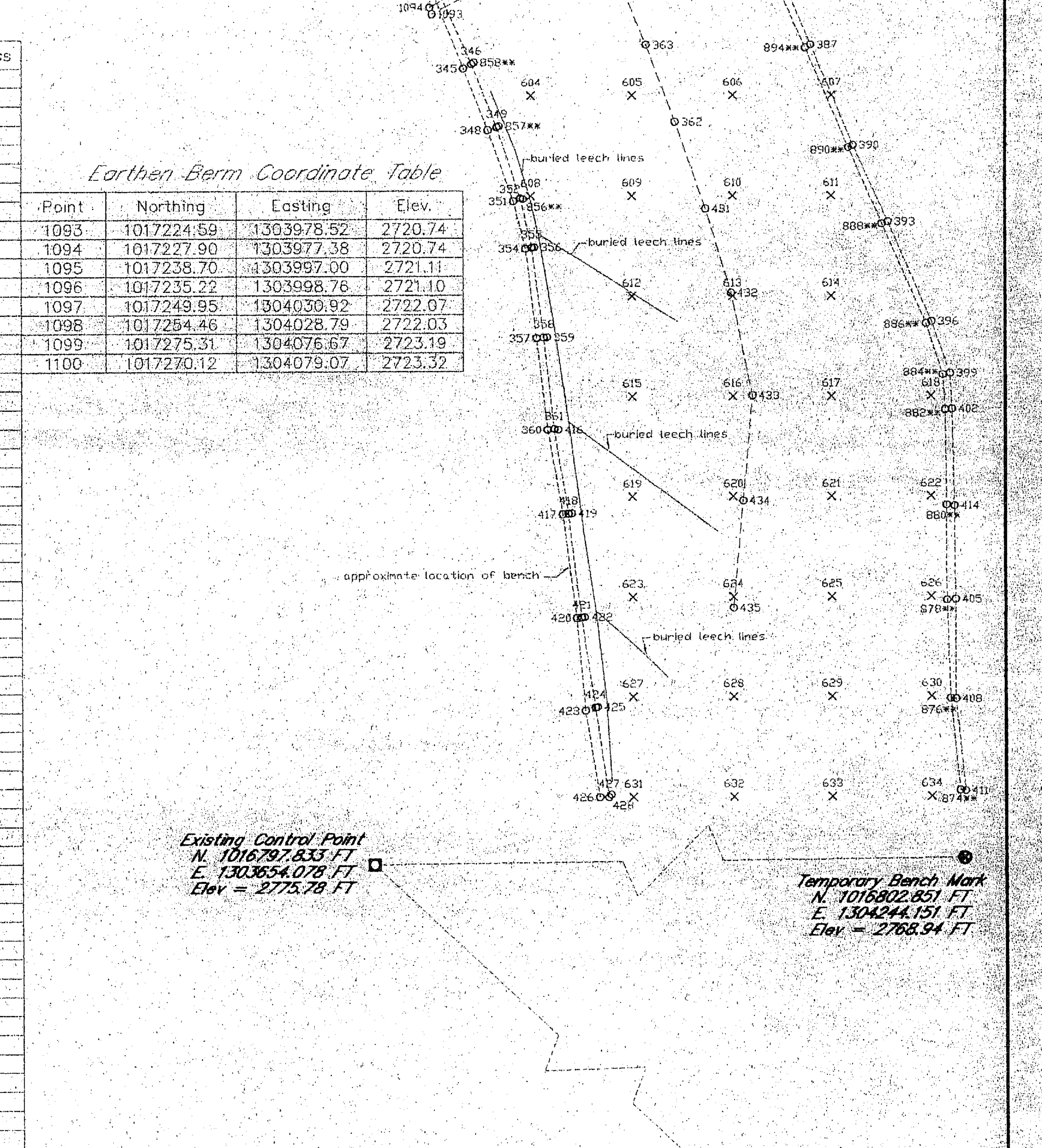
LEGEND:

- × = 50'x50' Grid Point
- ○ = Breakline Point
- = Temporary Bench Mark
- = Existing Bench Mark
- = N.C.G.S. Monument
- = Approximate location of Bench
- = Approximate location of Toe of Slope

Phase 2 Cell Areas

Total Area Subgrade = 262,099SF
Total Area Cohesive = 264,243 SF (calculated)
Total Area Protective = 267,461SF





Bench Coordinate Table

Point	Northing	Easting	Subgrade	Cohesive	Thickness	Protective	Thickness
201	1017508.48	1303378.87	2698.38	TRENCH	---		
202	1017507.89	1303383.51	2698.06	2700.82	2.76'****	2704.02	3.20'
204	1017562.17	1303387.94	2694.34	TRENCH	---		
205	1017561.86	1303390.15	2694.23	2696.45	2.22'****	2699.79	3.34'
207	1017621.10	1303397.70	2688.73	TRENCH	---		
208	1017620.37	1303401.38	2688.74	2690.76	2.02'****	2693.80	3.04'
210	1017666.39	1303404.12	2684.18	TRENCH	---		
211	1017666.05	1303407.11	2684.14	2686.86	2.72'****	2689.90	3.04'
213	1017688.69	1303408.21	2682.44	TRENCH	---		
214	1017687.67	1303412.02	2682.28	2684.85	2.57'****	2687.90	3.05'
216	1017708.41	1303418.20	2680.79	TRENCH	---		
217	1017705.53	1303421.67	2680.63	2683.11	2.48'****	2686.35	3.24'
219	1017719.38	1303435.88	2679.01	TRENCH	---		
220	1017715.88	1303437.85	2679.01	2681.21	2.20'****	2684.29	3.08'
222	1017725.99	1303473.27	2676.29	TRENCH	---		
223	1017723.12	1303473.32	2676.27	2678.81	2.54'****	2682.29	3.48'
225	1017723.76	1303523.78	2674.77	TRENCH	---		
226	1017721.13	1303523.81	2674.60	2676.89	2.29'****	2680.13	3.24'
228	1017720.67	1303578.98	2674.89	TRENCH	---		
229	1017717.60	1303579.19	2674.83	2677.23	2.40'****	2680.25	3.02'
231	1017715.89	1303631.59	2676.65	TRENCH	---		
232	1017713.28	1303631.24	2676.55	2679.03	2.48'****	2682.18	3.15'
234	1017706.34	1303679.47	2680.10	TRENCH	---		
235	1017703.69	1303678.63	2679.96	2682.11	2.15'****	2685.33	3.22'
237	1017698.18	1303702.30	2682.49	TRENCH	---		
238	1017695.67	1303701.33	2682.56	2684.89	2.33'****	2687.97	3.08'
240	1017675.11	1303743.87	2687.12	TRENCH	---		
241	1017673.31	1303742.98	2687.10	2689.48	2.38'****	2692.51	3.03'
243	1017641.86	1303792.07	2692.10	TRENCH	---		
244	1017639.46	1303790.97	2691.90	2694.11	2.21'****	2697.12	3.01'
246	1017617.54	1303824.58	2695.78	TRENCH	---		
247	1017616.21	1303823.99	2695.82	2697.88	2.06'****	2700.96	3.08'
249	1017594.95	1303858.67	2698.55	TRENCH	---		
250	1017593.45	1303857.96	2698.58	2700.71	2.13'****	2703.72	3.01'
252	1017566.11	1303905.47	2702.82	TRENCH	---		
253	1017564.68	1303904.80	2702.54	2704.68	2.14'****	2707.71	3.03'
255	1017537.05	1303948.93	2704.92	TRENCH	---		
256	1017535.23	1303947.64	2704.84	2707.57	2.73'****	2710.61	3.04'
258	1017503.01	1303989.40	2709.74	TRENCH	---		
259	1017500.40	1303987.26	2709.89	2712.23	2.34'****	2715.30	3.07'
261	1017473.24	1304019.31	2714.36	TRENCH	---		
262	1017471.08	1304016.71	2714.23	2716.26	2.03'****	2719.67	3.41'
264	1017430.53	1304052.64	2719.99	TRENCH	---		
265	1017428.99	1304050.52	2719.88	2721.98	2.10'****	2724.98	3.00'
267	1017388.18	1304080.33	2724.60	TRENCH	---		
268	1017386.68	1304077.94	2724.45	2726.89	2.44'****	2729.92	3.03'
270	1017340.72	1304108.56	2730.33	TRENCH	---		
271	1017338.86	1304105.34	2730.08	2732.62	2.54'****	2735.73	3.11'
273	1017293.58	1304130.32	2735.21	TRENCH	---		
274	1017292.56	1304125.77	2734.76	2736.93	2.17'****	2739.98	3.05'
276	1017248.51	1304150.20	2738.71	TRENCH	---		
896**	1017247.13	1304146.65	2738.26	2740.43	2.17'	2743.41	2.98'
280	1017477.38	1303385.23	2701.48	BENCH	---		
281	1017478.02	1303388.22	2701.81	BENCH	---		
282	1017479.24	1303389.23	2699.57	2702.02	2.45'****	2705.22	3.20'
284	1017427.12	1303401.56	2706.15	BENCH	---		
285	1017427.80	1303404.17	2706.30	BENCH	---		
286	1017427.59	1303405.21	2704.48	2706.56	2.08'****	2709.88	3.32'
288	1017376.43	1303416.99	2710.31	BENCH	---		
289	1017377.37	1303419.96	2710.99	BENCH	---		
290	1017377.46	1303421.13	2708.92	2710.97	2.05'****	2714.30	3.33'
291	1017336.35	1303429.59	2714.34	BENCH	---		
292	1017336.73	1303432.12	2714.58	BENCH	---		
293	1017337.14	1303432.60	2712.83	2714.83	2.00'****	2718.05	3.22'
294	1017285.11	1303444.99	2719.25	BENCH	---		
295	1017286.12	1303447.63	2719.00	BENCH	---		
296	1017286.54	1303448.44	2716.98	2718.99	2.01'****	2722.47	3.48'
297	1017248.24	1303455.62	2721.96	BENCH	---		
298	1017250.60	1303458.40	2722.05	BENCH	---		
299	1017252.90	1303458.75	2720.09	2722.17	2.08'****	2726.13	3.96'
300	1017247.28	1303494.70	2725.83	BENCH	---		
301	1017250.69	1303494.46	2725.27	BENCH	---		
302	1017252.13	1303494.38	2722.93	2724.95	2.02'****		
303	1017246.63	1303539.57	2716.96	BENCH	---		
304	1017252.97	1303539.24	2716.76	BENCH	---		
305	1017253.63	1303539.20	2714.23	2716.31	2.08'****	2719.39	3.08'
306	1017246.66	1303586.48	2704.68	BENCH	---		
307	1017252.92	1303586.19	2704.69	BENCH	---		
308	1017253.34	1303585.85	2702.34	2704.51	2.17'****	2707.61	3.10'
309	1017246.79	1303632.88	2691.67	BENCH	---		
310	1017253.80	1303632.40	2691.75	BENCH	---		
311	1017254.76	1303632.43	2689.47	2691.49	2.02'****	2694.92	3.43'
312	1017246.96	1303660.84	2690.62	BENCH	---		
313	1017253.32	1303660.63	2690.47	BENCH	---		
314	1017254.65	1303660.28	2687.66	2690.02	2.36'****	2693.40	3.38'
315	1017246.58	1303669.62	2690.89	BENCH	---		
316	1017254.21	1303669.04	2690.63	BENCH	---		
317	1017254.93	1303669.18	2687.98	2690.15	2.17'****	2693.47	3.32'
318	1017247.60	1303716.85	2690.99	BENCH	---		
319	1017254.86	1303716.49	2690.67	BENCH	---		
320	1017255.40	1303716.47	2688.86	2690.88	2.02'****	2693.92	3.04'
321	1017248.01	1303763.31	2692.66	BENCH	---		
322	1017253.86	1303762.44	2692.93	BENCH	---		
323	1017254.66	1303762.52	2690.93	2692.97	2.04'****	2696.83	3.86'
324	1017246.55	1303806.90	2698.47	BENCH	---		
325	1017252.47	1303806.19	2698.35	BENCH	---		
326	1017253.60	1303806.21	2695.91	2698.05	2.14'****	2701.20	3.15'
327	1017247.41	1303842.82	2703.07	BENCH	---		
328	1017252.78	1303842.99	2703.09	BENCH	---		
329	1017253.63	1303843.17	2700.38	2702.64	2.26'****	2705.67	3.03'
330	1017246.54	1303879.66	2705.82	BENCH	---		
331	1017252.82	1303879.01	2705.67	BENCH	---		
332	1017253.37	1303879.33	2703.53	2705.54	2.01'****	2708.55	3.01'
333	1017246.93	1303913.93	2708.34	BENCH	---		
334	1017253.38	1303913.03	2708.17	BENCH	---		
335	1017253.87	1303913.01	2705.79	2707.91	2.12'****	2710.93	3.02'
336	1017247.08	1303945.05	2709.93	BENCH	---		
337	1017252.96	1303945.64	2709.86	BENCH	---		
338	1017253.58	1303946.14	2707.34	2709.55	2.21'****	2712.60	3.05'
339	1017243.46	1303965.32	2711.10	BENCH	---		
340	1017248.02	1303967.26	2711.35	BENCH	---		
341	1017248.73	1303967.47	2709.08	2711.26	2.18'****		
342	1017235.44	1303978.95	2712.70	BENCH	---		
343	1017237.66	1303981.24	2712.61	BENCH	---		
859**	1017237.97	1303982.14	2710.21	2712.63	2.42'		
345	1017197.32	1303994.29	2714.72	BENCH	---	2718.99	4.27'
346	1017199.50	1303998.31	2714.59	BENCH	---	---	
858**	1017200.35	1303999.44	2712.41	2714.73	2.32'	2718.76	4.03'
348	1017166.52	1304006.39	2716.71	BENCH	---	2720.07	3.36'
349	1017167.95	1304010.81	2716.97	BENCH	---	---	
857**	1017168.48	1304011.95	2714.44	2716.68	2.24'	2720.23	3.55'
351	1017130.99	1304019.21	2718.94	BENCH	---	2722.00	3.06'
352	1017132.55	1304022.65	2719.00	BENCH	---	---	
856**	1017132.16	1304023.98	2716.72	2718.82	2.10'	2722.27	3.45'
354	1017107.52	1304025.25	2719.68	BENCH	---	2722.76	3.08'
355	1017107.97	1304028.30	2719.73	BENCH	---	---	
356	1017108.17	1304029.52	2717.61	2719.72	2.11'	2722.88	3.16'
357	1017062.81	1304030.68	2720.88	BENCH	---	2724.56	3.68'
358	1017063.18	1304034.14	2721.11	BENCH	---		
359	1017063.27	1304035.91	2718.54	2720.98	2.44'	2724.08	3.10'
360	1017017.18	1304036.06	2721.71	BENCH	---	2726.53	4.82'
361	1017017.54	1304039.29	2721.66	BENCH	---	---	
387	1017208.86	1304167.23	2741.80	TRENCH	---		
894**	1017207.33	1304164.48	2741.13	2743.21	2.08'	2746.07	2.86'
390	1017158.54	1304188.91	2745.29	TRENCH	---		
890**	1017157.45	1304186.53	2745.06	2747.18	2.12'	2750.08	2.90'
393	1017120.47	1304206.43	2748.00	TRENCH	---		
888**	1017119.45	1304203.44	2747.77	2749.95	2.18'	2752.90	2.95'
396	1017070.62	1304228.17	2751.95	TRENCH	---		
886**	1017069.52	1304225.46	2751.65	2753.94	2.29'	2757.58	3.64'
399	1017044.76	1304237.45	2753.42	TRENCH	---		
884**	1017044.05	1304233.84	2753.37	2755.79	2.42'	2758.92	3.13'
402	1017027.00	1304238.36	2754.59	TRENCH	---		
882**	1017026.73	1304234.98	2754.26	2756.43	2.17'	2759.41	3.31'
405	1016932.03	1304240.02	2761.20	TRENCH	---		
878**	1016931.59	1304235.73	2760.25	2762.35	2.10'	2765.79	2.98'
408	1016882.17	1304240.04	2764.24	TRENCH	---		
876**	1016882.43	1304237.44	2763.76	2765.89	2.13'	2769.01	3.12'
411	1016836.26	1304244.75	2767.29	TRENCH	---		
874**	1016836.57	1304242.15	2766.62	2768.72	2.10'	2771.36	2.64'
414	1016978.61	1304239.55	2757.95	TRENCH	---		
880**	1016979.04	1304235.63	2757.16	2759.27	2.11'	2762.39	3.12'
416	1017017.22	1304041.25	2719.36	2721.83	2.47'	2725.11	3.28'
417	1016975.03	1304043.49	2722.80	BENCH	---	2726.01	3.21'
418	1016975.18	1304046.19	2723.19	BENCH	---	---	
419	1016975.39	1304047.85	2720.54	2722.97	2.43'	2726.28	3.31'
420	1016922.98	1304050.13	2724.52	BENCH	---	2727.91	3.39'
421	1016923.12	1304052.48	2724.58	BENCH	---	---	
422	1016923.40	1304053.93	2722.16	2724.69	2.53'	2727.64	2.95'
423	1016876.84	1304054.36	2726.19	BENCH	---	2729.70	3.51'
424	1016878.43	1304059.16	2725.93	BENCH	---	---	
425	1016878.65	1304060.21	2723.80	2725.95	2.15'	2729.56	3.61'
426	1016833.58	1304061.20	2727.82	BENCH	---	2731.89	4.07'
427	1016833.55	1304065.69	2727.68	BENCH	---	---	
428	1016834.86	1304066.87	2725.66	2727.91	2.26'	2732.09	4.18'

50'x50' Grid Coordinate Table

Point	Northing	Easting	Subgrade	Cohesive	Thickness	Protective	Thickness
500	1017683.55	1303427.86	2678.32	2680.89	2.57'	2684.10	3.21'
501	1017683.55	1303477.86	2665.84	2669.58	3.74'		
502	1017683.55	1303527.86	2664.73	2667.22	2.49'	2670.58	3.36'
503	1017683.55	1303577.86	2664.71	2667.52	2.81'	2671.38	3.86'
504	1017683.55	1303627.86	2666.59	2669.02	2.43'	2672.18	3.16'
505	1017683.55	1303677.86	2673.45	2676.17	2.72'	2679.30	3.13'
506	1017683.55	1303727.86	2685.08	2688.19	3.11'	2691.26	3.07'
507	1017633.55	1303427.86	2680.67	2682.80	2.13'	2686.12	3.32'
508	1017633.55	1303477.86	2667.50	2669.94	2.44'	2673.38	3.44'
509	1017633.55	1303527.86	2664.83	2666.93	2.10'	2670.75	3.82'
510	1017633.55	1303577.86	2665.53	2667.68	2.15'	2670.70	3.02'
511	1017633.55	1303627.86	2666.49	2668.59	2.10'	2671.84	3.25'
512	1017633.55	1303677.86	2667.28	2669.63	2.35'	2672.65	3.02'
513	1017633.55	1303727.86	2673.72	2676.19	2.47'	2679.46	3.27'
514	1017633.55	1303777.86	2686.73	2688.97	2.24'	2692.31	3.34'
515	1017583.55	1303427.86	2683.96	2686.21	2.25'	2689.52	3.31'
516	1017583.55	1303477.86	2671.73	2673.75	2.02'	2676.81	3.06'
517	1017583.55	1303527.86	2666.03	2668.25	2.22'	2671.31	3.06'
518	1017583.55	1303577.86	2666.54	2668.86	2.32'	2671.87	3.01'
519	1017583.55	1303627.86	2666.81	2668.98	2.17'	2672.21	3.19'
520	1017583.55	1303677.86	2667.63	2669.70	2.07'	2673.35	3.23'
521	1017583.55	1303727.86	2668.53	2670.82	2.29'	2674.13	3.31'
522	1017583.55	1303777.86	2676.14	2678.24	2.10'	2681.37	3.13'
523	1017583.55	1303827.86	2688.22	2690.32	2.10'	2693.58	3.26'
524	1017533.55	1303427.86	2687.59	2689.83	2.24'	2692.91	3.08'
525	1017533.55	1303477.86	2676.01	2678.09	2.08'	2681.30	3.21'
526	1017533.55	1303527.86	2667.14	2669.42	2.28'	2672.68	3.26'
527	1017533.55	1303577.86	2667.21	2669.54	2.33'	2672.57	3.03'
528	1017533.55	1303627.86	2667.78	2670.32	2.54'	2673.45	3.13'
529	1017533.55	1303677.86	2668.57	2670.94	2.37'	2674.01	3.07'
530	1017533.55	1303727.86	2669.58	2671.97	2.39'	2675.62	3.65'
531	1017533.55	1303777.86	2671.31	2673.98	2.67'	2677.73	3.75'
532	1017533.55	1303827.86	2676.34	2678.70	2.36'	2681.77	3.07'
533	1017533.55	1303877.86	2688.23	2690.34	2.11'	2693.55	3.21'
534	1017533.55	1303927.86	2700.09	2702.34	2.25'	2706.14	3.80'
535	1017483.55	1303427.86	2692.56	2694.82	2.26'	2698.02	3.20'
536	1017483.55	1303477.86	2681.28	2683.43	2.15'	2686.68	3.25'
537	1017483.55	1303527.86	2668.98	2671.33	2.35'	2675.03	3.70'
538	1017483.55	1303577.86	2668.35	2670.77	2.42'	2673.90	3.13'
539	1017483.55	1303627.86	2669.01	2671.75	2.74'	2674.77	3.02'
540	1017483.55	1303677.86	2670.35	2672.92	2.57'	2676.00	3.08'
541	1017483.55	1303727.86	2672.55	2674.83	2.28'	2678.24	3.41'
542	1017483.55	1303777.86	2675.00	2677.21	2.21'	2680.35	3.14'
543	1017483.55	1303827.86	2677.07	2679.53	2.46'	2682.72	3.19'
544	1017483.55	1303877.86	2679.34	2682.38	3.04'	2685.96	3.58'
545	1017483.55	1303927.86	2690.46	2692.74	2.28'	2695.85	3.11'
546	1017483.55	1303977.86	2704.93	2706.95	2.02'	2710.08	3.13'
547	1017433.55	1303427.86	2699.61	2701.74	2.13'	2704.95	3.21'
548	1017433.55	1303477.86	2687.96	2690.19	2.23'	2693.26	3.07'
549	1017433.55	1303527.86	2675.37	2677.68	2.31'	2680.82	3.14'
550	1017433.55	1303577.86	2669.76	2672.16	2.40'	2675.21	3.05'
551	1017433.55	1303627.86	2671.11	2673.43	2.32'	2676.73	3.30'
552	1017433.55	1303677.86	2673.27	2675.55	2.28'	2678.62	3.07'
553	1017433.55	1303727.86	2675.62	2677.75	2.13'	2681.04	3.29'
554	1017433.55	1303777.86	2678.16	2680.43	2.27'	2683.46	3.03'
555	1017433.55	1303827.86	2680.73	2682.97	2.24'	2685.98	3.01'
556	1017433.55	1303877.86	2683.39	2685.51	2.12'	2689.18	3.67'
557	1017433.55	1303927.86	2686.26	2688.61	2.35'	2691.86	3.25'
558	1017433.55	1303977.86	2698.21	2700.45	2.24'	2703.87	3.42'
559	1017433.55	1304027.86	2713.24	2715.64	2.40'	2718.83	3.19'
560	1017383.55	1303427.86	2706.75	2708.84	2.09'	2712.10	3.26'
561	1017383.55	1303477.86	2695.29	2697.33	2.04'	2700.61	3.28'
562	1017383.55	1303527.86	2682.99	2685.37	2.38'	2688.55	3.18'
563	1017383.55	1303577.86	2672.14	2674.84	2.70'	2678.84	4.00'
564	1017383.55	1303627.86	2673.66	2675.82	2.16'	2679.35	3.53'
565	1017383.55	1303677.86	2676.22	2678.29	2.07'	2681.36	3.07'
566	1017383.55	1303727.86	2678.33	2680.67	2.34'	2684.06	3.39'
567	1017383.55	1303777.86	2681.30	2684.53	3.23'	2687.56	3.03'
568	1017383.55	1303827.86	2684.42	2686.46	2.04'	2689.66	3.20'
569	1017383.55	1303877.86	2687.35	2689.41	2.06'	2692.67	3.26'
570	1017383.55	1303927.86	2690.50	2692.73	2.23'	2695.76	3.03'
571	1017383.55	1303977.86	2693.32	2696.14	2.82'	2699.39	3.25'
572	1017383.55	1304027.86	2709.41	2711.46	2.05'	2714.75	3.29'
573	1017383.55	1304077.86	2724.42	2726.62	2.20'	2729.71	3.09'
574	1017333.55	1303477.86	2702.88	2705.23	2.35'	2708.77	3.54'
575	1017333.55	1303527.86	2692.95	2695.02	2.07'	2698.27	3.25'
576	1017333.55	1303577.86	2682.66	2684.73	2.07'	2687.85	3.12'
577	1017333.55	1303627.86	2676.76	2679.17	2.41'	2683.13	3.96'
578	1017333.55	1303677.86	2678.70	2681.10	2.40'	2684.28	3.18'
579	1017333.55	1303727.86	2681.14	2683.30	2.16'	2686.61	3.31'
580	1017333.55	1303777.86	2684.71	2686.79	2.08'	2690.11	3.32'
581	1017333.55	1303827.86	2688.72	2690.85	2.13'	2694.02	3.17'
582	1017333.55	1303877.86	2691.68	2693.99	2.31'	2797.32	3.33'
583	1017333.55	1303927.86	2695.09	2697.15	2.06'	2700.78	3.63'
584	1017333.55	1303977.86	2699.20	2701.38	2.18'	2704.89	3.51'
585	1017333.55	1304027.86	2706.24	2708.27	2.03'	2711.35	3.08'
586	1017333.55	1304077.86	2722.04	2724.05	2.01'	2727.18	3.13'
587	1017283.55	1303477.86	2712.98*	2715.10	2.12'	2718.80	3.70'
588	1017283.55	1303527.86	2707.06	2709.12	2.06'	2712.22	3.10'
589	1017283.55	1303577.86	2696.47	2698.75	2.28'	2701.75	3.00'
590	1017283.55	1303627.86	2685.75	2687.89	2.14'	2691.17	3.28'
591	1017283.55	1303677.86	2684.41	2686.52	2.11'	2689.63	3.11'
592	1017283.55	1303727.86	2685.60	2688.10	2.50'	2691.32	3.22'
593	1017283.55	1303777.86	2689.06	2691.15	2.09'	2694.44	3.29'
594	1017283.55	1303827.86	2693.68	2695.78	2.10'	2699.24	3.46'
595	1017283.55	1303877.86	2698.50	2700.64	2.14'	2703.92	3.28'
596	1017283.55	1303927.86	2702.86	2704.94	2.08'	2708.00	3.06'
597	1017283.55	1303977.86	2706.32	2708.46	2.14'	2711.48	3.02'
598	1017283.55	1304027.86	2708.87	2711.24	2.37'	2714.51	3.27'
599	1017283.55	1304077.86	2718.77	2721.42	2.65'	2624.43	3.01'
600	1017283.55	1304127.86	2734.92	2739.94	5.02'	2740.06	5.14'***
601	1017233.55	1304027.86	2712.97	2715.15	2.18'	2718.06	2.91'
602	1017233.55	1304077.86	2715.41	2717.92	2.51'	2720.62	2.70'
603	1017233.55	1304127.86	2731.42	2733.49	2.07'	2736.80	3.31'
604	1017183.55	1304027.86	2714.89*	2717.10	2.21'	2720.29	3.19'
605	1017183.55	1304077.86	2716.61*	2718.74	2.13'	2721.82	3.08'
606	1017183.55	1304127.86	2727.80	2729.87	2.07'	2733.04	3.17'
607	1017183.55	1304177.86	2743.66	TRENCH	---	2748.47	4.81' (total)
608	1017133.55	1304027.86	2716.90	2718.93	2.03'	2722.38	3.45'
609	1017133.55	1304077.86	2718.09	2720.21	2.12'	2723.57	3.36'
610	1017133.55	1304127.86	2724.04*	2726.17	2.13'	2729.15	2.98'
611	1017133.55	1304177.86	2740.62	2742.72	2.10'	2745.94	3.22'
612	1017083.55	1304077.86	2719.43	2721.51	2.08'	2724.68	3.12'
613	1017083.55	1304127.86	2720.91	2723.56	2.65'	2726.77	3.21'
614	1017083.55	1304177.86	2737.06	2739.36	2.30'	2742.72	3.36'
615	1017033.55	1304077.86	2720.71	2722.82	2.11'	2726.07	3.25'
616	1017033.55	1304127.86	2722.01	2724.08	2.07'	2727.62	3.54'
617	1017033.55	1304177.86	2734.96	2737.56	2.60'	2740.83	3.27'
618	1017033.55	1304227.86	2751.67	2754.08	2.41'	2757.06	2.98'
619	1016983.55	1304077.86	2722.07	2724.09	2.02'	2727.23	3.14'
620	1016983.55	1304127.86	2723.47	2725.72	2.25'	2729.32	3.60'
621	1016983.55	1304177.86	2738.29	2740.35	2.06'	2743.56	3.21'
622	1016983.55	1304227.86	2754.70	2756.74	2.04'	2760.03	3.29'
623	1016933.55	1304077.86	2723.21	2725.26	2.05'	2728.59	3.33'
624	1016933.55	1304127.86	2725.84	2727.86	2.02'	2731.34	3.48'
625	1016933.55	1304177.86	2740.90	2742.95	2.05'	2746.31	3.36'
626	1016933.55	1304227.86	2757.67	2759.76	2.09'	2762.90	3.14'
627	1016883.55	1304077.86	2724.22	2726.39	2.17'	2730.08	3.69'
628	1016883.55	1304127.86	2729.04	2731.10	2.06'	2734.70	3.60'
629	1016883.55	1304177.86	2743.41	2745.44	2.03'	2748.86	3.42'
630	1016883.55	1304227.86	2760.38	2762.40	2.02'	2765.62	3.22'
631	1016833.55	1304077.86	2727.39	2729.40	2.01'	2733.41	4.01'
632	1016833.55	1304127.86	2732.72*	2734.74	2.02'	2738.71	3.97'
633	1016833.55	1304177.86	2745.49	2747.59	2.10'	2750.54	2.95'
634	1016833.55	1304227.86	2762.35	2764.37	2.02'	2767.41	3.04'

Earthen Berm Coordinate Table

Point	Northing	Easting	Elev.
1093	1017224.59	1303978.52	2720.74
1094	1017227.90	1303977.38	2720.74
1095	1017238.70	1303997.00	2721.11
1096	1017235.22	1303998.76	2721.10
1097	1017249.95	1304030.92	2722.07
1098	1017254.46	1304028.79	2722.03
1099	1017275.31	1304076.67	2723.19
1100	1017270.12	1304079.07	2723.32

N.C.G.S. Monument "Houck"
N. 1015978.769 FT
E. 1304525.340 FT
Elev = 2831.88 FT

*Revised Subgrade Elevation for Reaugered Hole
**Revised Bench Toe/Top Slope for Reaugered Hole
***Thickness to Subgrade
****Measured to bottom of Augered Hole

60 0 60 120 180
GRAPHIC SCALE - FEET

Toe of Slope Coordinate Table

Point	Northing	Easting	Subgrade	Cohesive	Thickness	Protective	Thickness
362	1017170.41	1304099.15	2717.92	2720.27	2.35'	2723.46	3.19'
363	1017208.84	1304084.72	2716.03	2718.68	2.65'	2721.78	3.10'
364	1017240.91	1304071.47	2714.01	2716.72	2.71'	2719.85	3.13'
365	1017289.20	1304051.33	2710.49	2713.31	2.82'****	2716.32	3.01'
366	1017323.63	1304024.49	2705.15	2707.49	2.34'****	2710.71	3.22'
367	1017354.81	1304000.23	2698.70	2701.32	2.62'****	2704.66	3.34'
368	1017390.03	1303973.44	2692.66	2695.34	2.68'****	2698.69	3.35'
369	1017425.36	1303948.34	2688.47	2691.11	2.64'****	2694.71	3.60'
370	1017455.68	1303925.14	2684.98	2687.81	2.83'****	2691.32	3.51'
371	1017488.54	1303892.26	2681.24	2684.13	2.89'****	2687.55	3.42'
372	1017513.03	1303849.24	2676.78	2679.72	2.94'****	2683.01	3.29'
373	1017539.01	1303807.80	2673.49	2676.15	2.66'****	2679.35	3.20'
374	1017567.10	1303767.60	2670.13	2672.67	2.54'****	2676.24	3.57'
375	1017601.76	1303733.36	2668.51	2671.34	2.83'****	2675.12	3.78'
376	1017636.26	1303702.15	2667.82	2670.92	3.10'****	2674.12	3.20'
377	1017294.45	1303639.54	2681.91	2684.61	2.70'****	2688.63	4.02'
378	1017331.65	1303610.88	2676.65	2679.40	2.75'****	2683.58	4.18'
379	1017365.61	1303583.48	2673.64	2676.33	2.69'****	2680.39	4.06'
380	1017409.75	1303561.99	2671.11	2673.85	2.74'****	2677.24	3.39'
381	1017455.30	1303541.54	2669.52	2672.11	2.59'****	2675.45	3.34'
382	1017494.97	1303522.57	2668.46	2671.46	3.00'****	2675.00	3.54'
383	1017538.42	1303506.67	2668.21	2670.78	2.57'****	2674.02	3.24'
384	1017579.25	1303494.61	2667.80	2670.22	2.42'****	2673.27	3.05'
385	1017621.63	1303483.63	2667.20	2670.01	2.81'****	2673.01	3.00'
431	1017126.98	1304114.29	2719.42	2721.69	2.27'	2725.04	3.35'
432	1017085.16	1304127.07	2720.61	2723.37	2.76'	2726.68	3.31'
433	1017033.98	1304137.88	2722.31	2725.49	3.18'	2728.64	3.15'
434	1016981.45	1304133.08	2724.03	2726.72	2.69'	2729.74	3.02'
435	1016927.87	1304127.82	2725.42	2728.25	2.83'	2731.60	3.35'
774	1017645.52	1303693.45	2667.58	2670.70	3.12'****	2674.01	3.31'
776	1017676.49	1303647.64	2665.48	2669.54	4.06'****	2672.67	3.13'
777	1017691.76	1303592.22	2666.25	2668.94	2.69'****	2672.70	3.76'
778	1017696.07	1303530.54	2665.26	2668.54	3.28'****	2673.97	5.43'
779	1017695.31	1303488.39	2665.28	2669.26	3.98'****		
780	1017690.38	1303480.06	2665.88	2669.08	3.20'****		
781	1017678.49	1303476.65	2666.08	2669.08	3.00'****		
782	1017629.02	1303483.95	2666.81	2669.62	2.81'****	2672.63	3.01'

Revisions

> ***See map dated 25 JUL 11 for all previous revisions***

> 29 JUL 11, Provide top of cohesive layer and thickness for additionally completed work.

> 16 AUG 11, Provide top of cohesive layer and thickness for additionally completed work.

> 14 SEP 11, Provide top of protective layer and thickness at northern end of cell.

> 19 SEP 11, Show additional protective layer points, surface areas, leech lines, and lagoon.

> 28 SEP 11, Provide cohesive and protective layer elevations and thicknesses at top of slope and bench points along northen end of cell.

> 03 OCT 11, Provide cohesive and protective layer elevations and thicknesses at toe of slope along northen end of cell.

TOPOGRAPHIC GRID SURVEY FOR

MUNICIPAL SOLID WASTE LANDFILL FACILITY ASHE COUNTY

Township: Chestnut Hill — Ashe County, N.C.

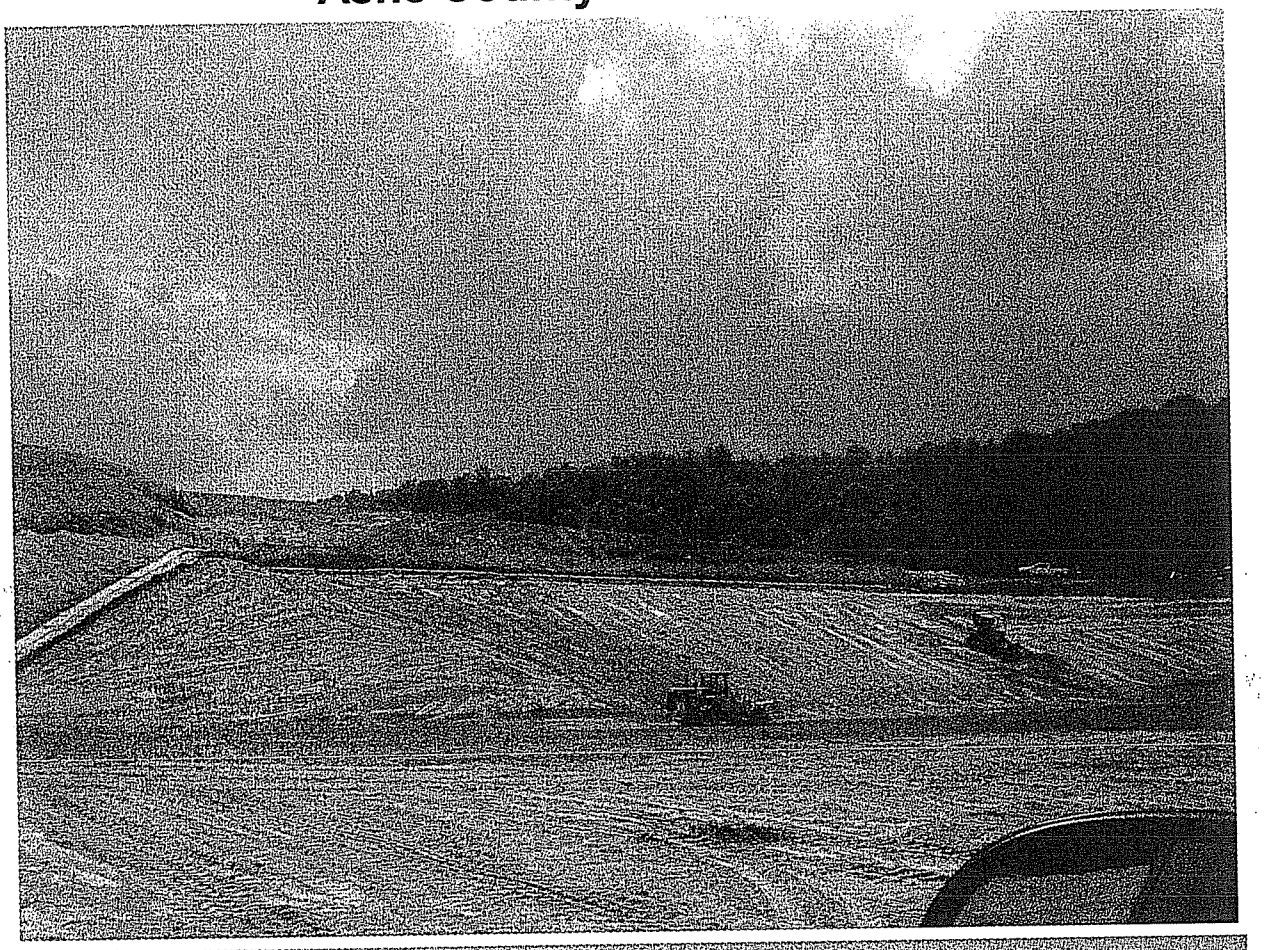
Scale: 1" = 60' — Date: 21 OCT 10

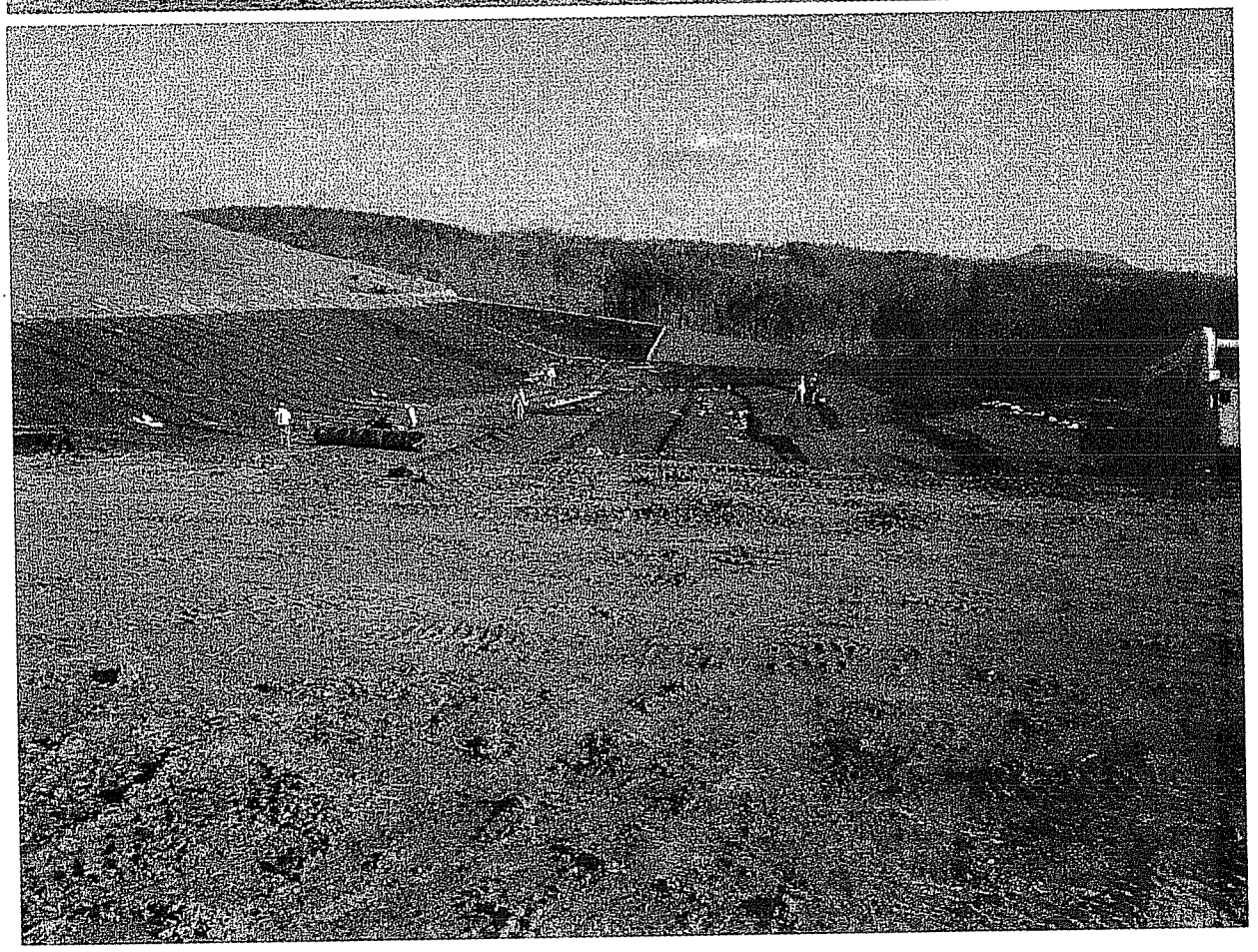
Map prepared by: Thomas Herman Company, PLLC
Professional Land Surveyor
P.O. Box 519
131 West Main Street
Jefferson, N.C. 28640
(336) 846 - 3352

Job # 101005-Subgrade

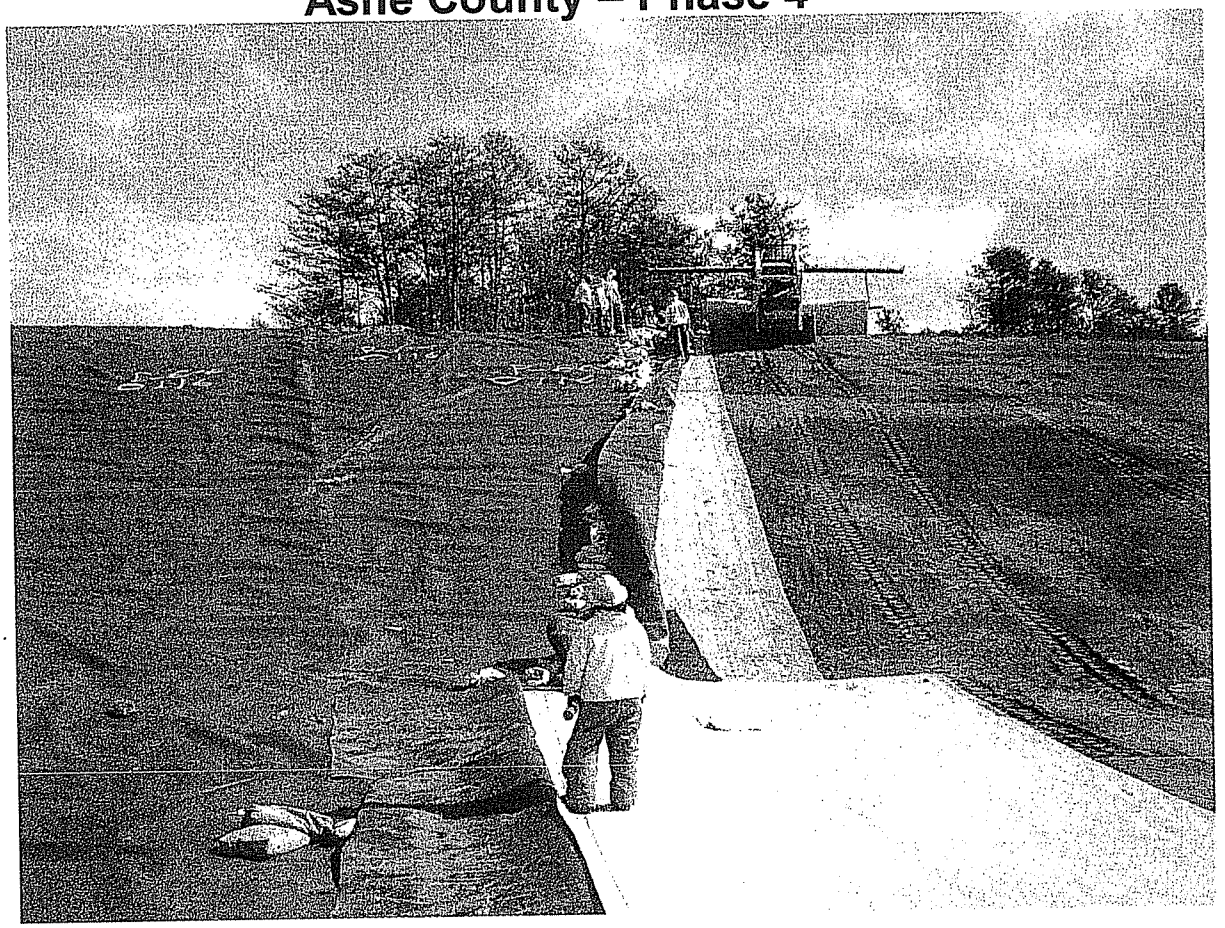
Photographs

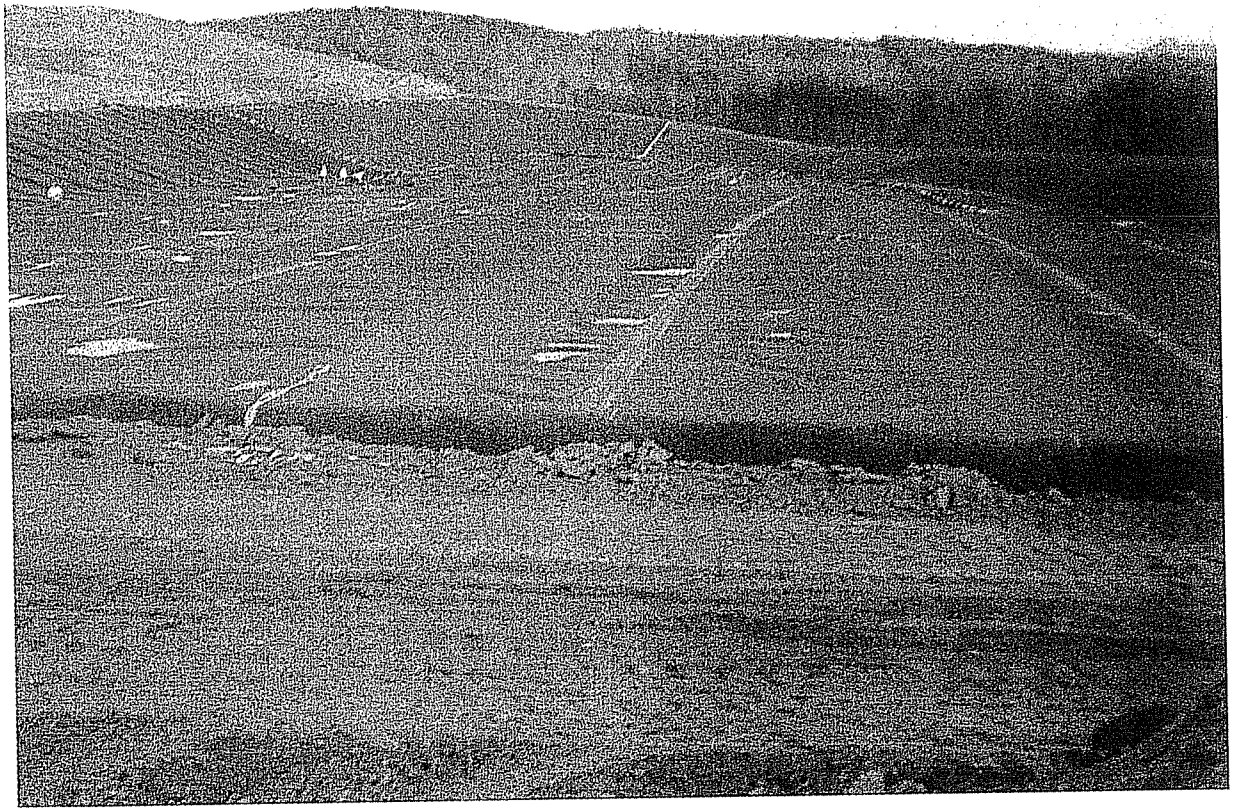
Ashe County – Phase 4



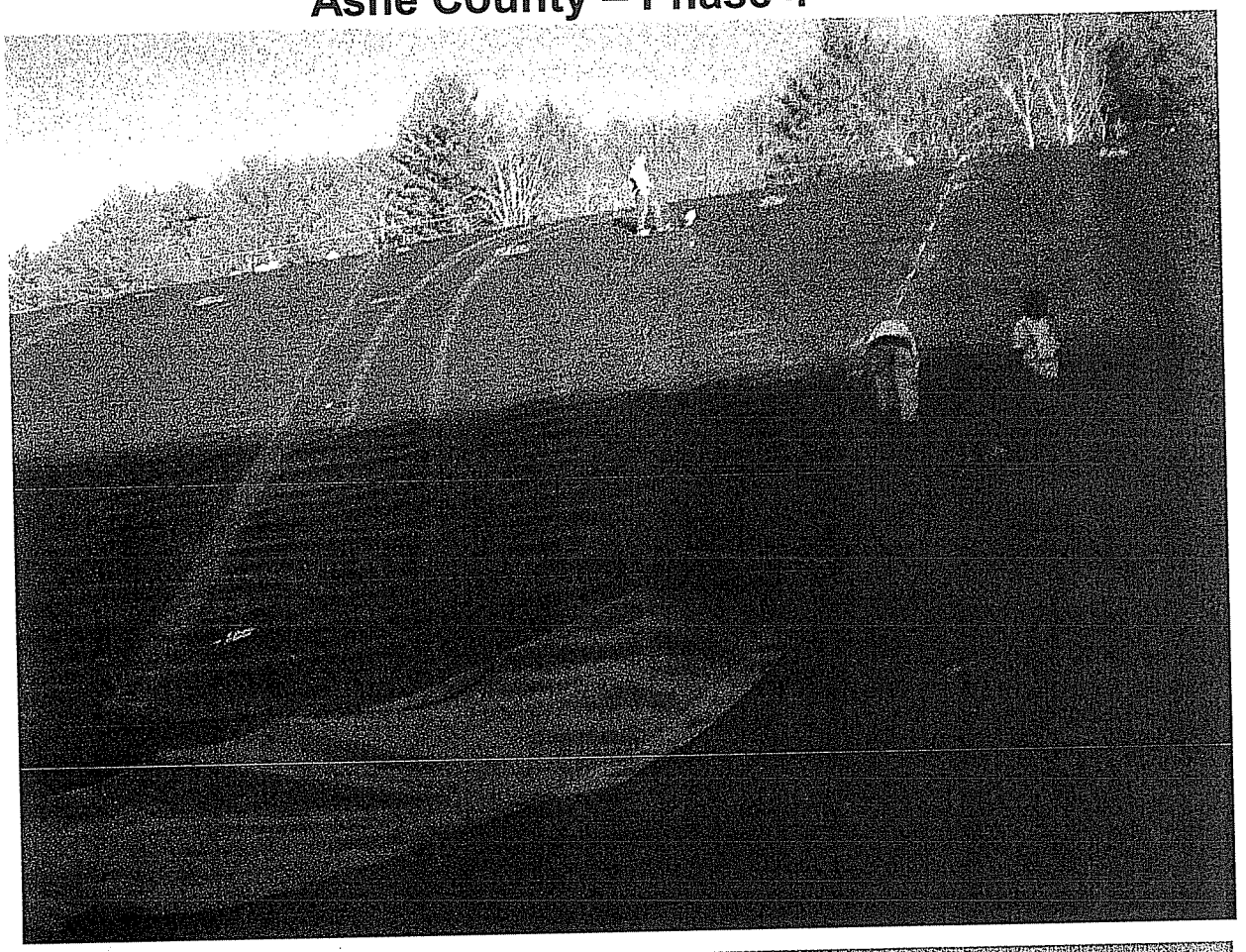


Ashe County – Phase 4

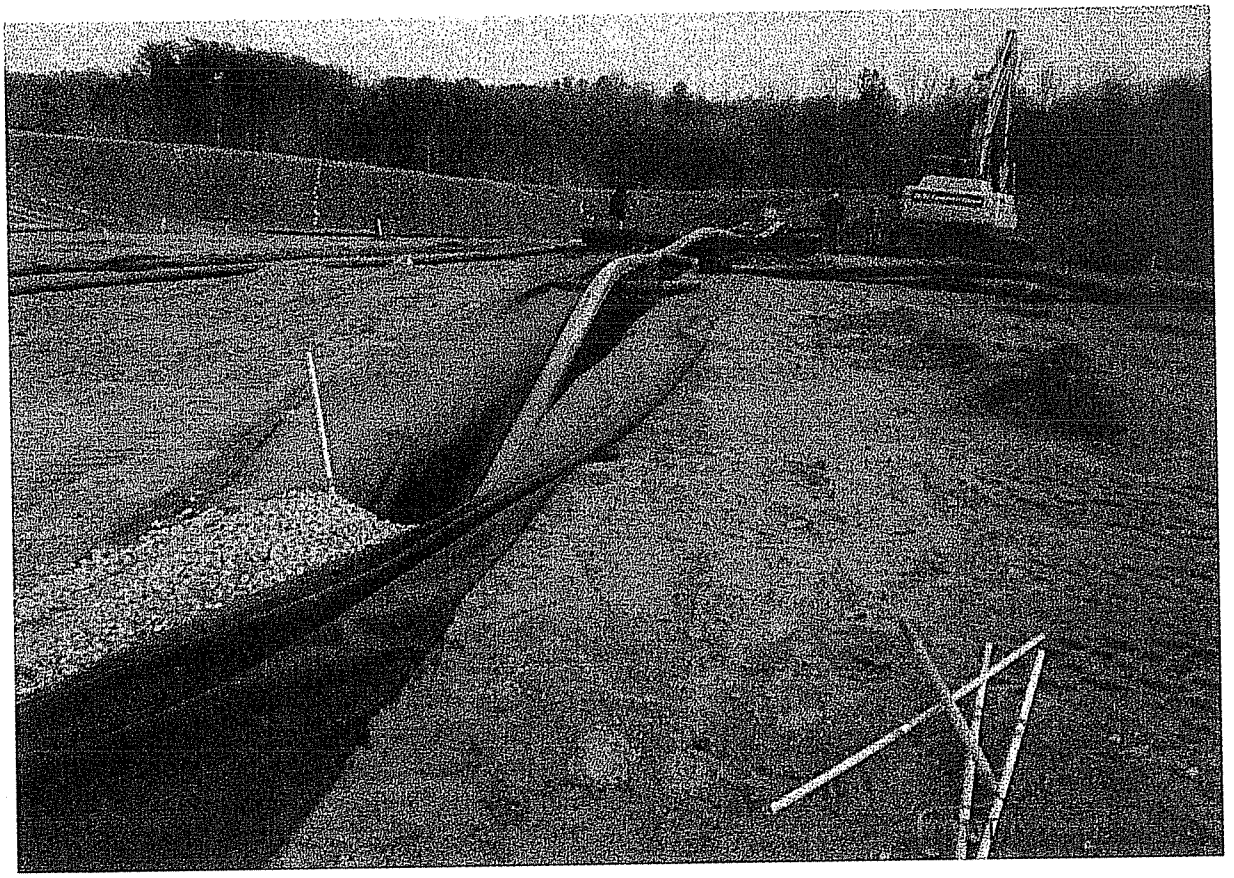
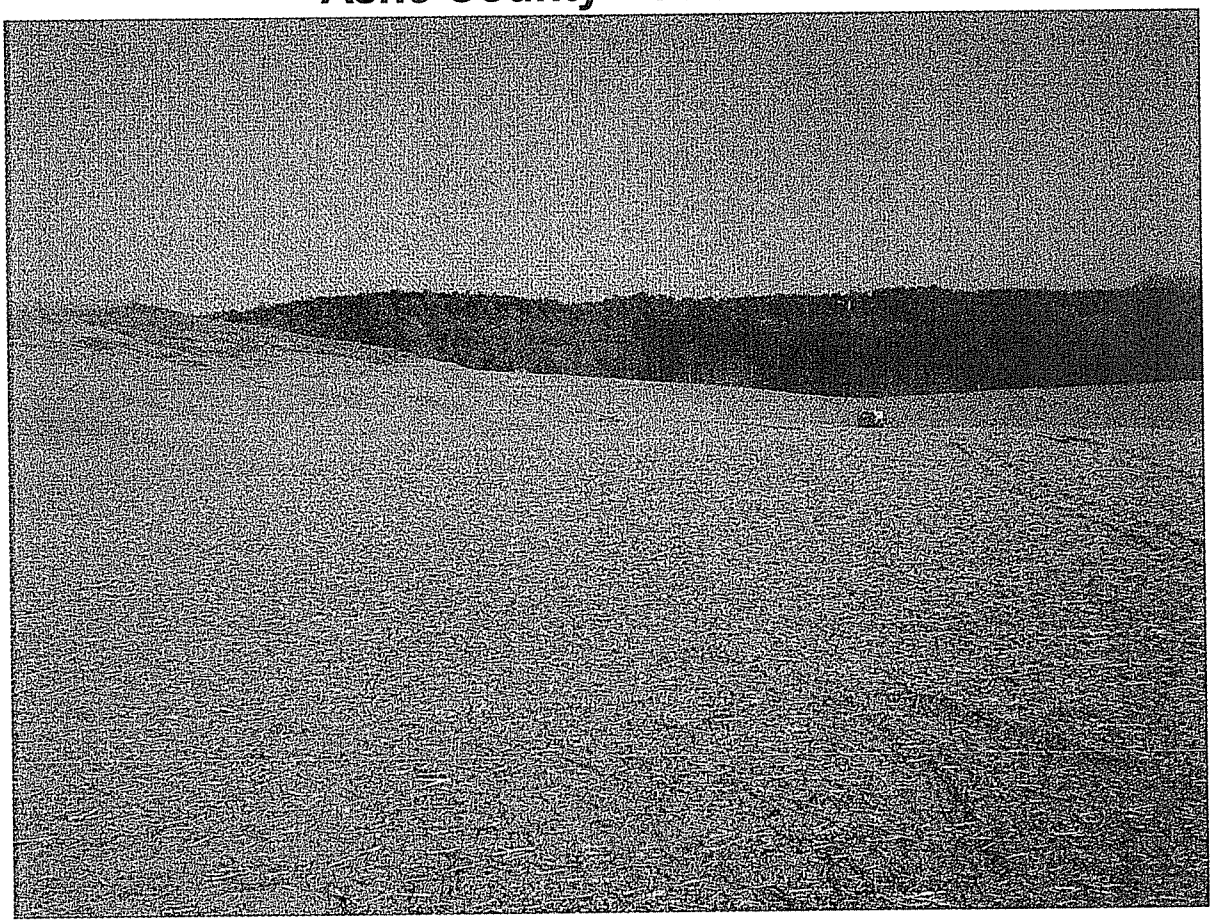




Ashe County – Phase 4



Ashe County – Phase 4



Ashe County – Phase 4