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JOYCE ENGINEERING, INC.

Waste Industry Experts

Henderson Building
Suite 203
2301 W Meadowview Rd
Greensboro, NC 27407

tel: 336/323-0092
fax: 336/323-0093

www.JoyceEngineering.com

November 21, 2005

Mr. Geoffrey H. Little, Environmental Engineer
North Carolina Department of Environmental and Natural Resources
Division of Waste Management, Solid Waste Section
401 Oberlin Rd., Ste. 150
1646 Mail Service Center
Raleigh, NC 27699-1646

RE: Construction Quality Assurance Certification Report
Davidson County Landfill, Partial Closure
NC DENR Permit #29-06
Lexington, Davidson County, North Carolina
JEI Project 379.00, Task 35

Dear Geof:

This letter is to certify that to the best of my knowledge and belief, the Partial Closure (Area 1 and Area 3) of the Davidson County MSW Landfill has been constructed in conformance with the plans and specifications.

The enclosed certification report presents an accumulation of field, laboratory, and other quality assurance data for the construction. It is our understanding that the enclosed construction quality assurance documentation was compiled in accordance with North Carolina Solid Waste Regulations, 15A NCAC 13B (January 1, 1997) and fulfills the submittal requirements listed in the General Permit Conditions (Permit Module I) of Permit 29-06.

On behalf of Davidson County, we would like to thank you in advance for your prompt assistance in reviewing this construction quality assurance certification report.

Sincerely,
JOYCE ENGINEERING, INC.

NORTH CAROLINA PROFESSIONAL SEAL 27446 ENGINEER EVAN E. ANDREWS 11/21/05

Evan Andrews, P.E.
Project Manager

Enclosure
copy: Mr. Charley Brushwood w/ enclosure (Davidson County)
Hannu Kemppinen, P.G., w/ enclosure (Joyce Engineering, Inc.)

P:\Davidson\Task 35 - Construction\Certification Report - FINAL\a Certification Report\cert letter.doc

Prepared for:

Davidson County Board of County Commissioners
Davidson County Government Center
913 Greensboro Street
Lexington, North Carolina

DAVIDSON COUNTY LANDFILL
PARTIAL CLOSURE CONSTRUCTION
NC DENR PERMIT # 29-06
DAVIDSON COUNTY, NORTH CAROLINA

CONSTRUCTION QUALITY ASSURANCE CERTIFICATION REPORT
November 2005

Prepared by:

Henderson Building, Suite 203
2301 West Meadowview Road
Greensboro, NC 27407

JEI Project No. 379.00, Task 35

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1.0 INTRODUCTION

This report, prepared on behalf of the Davidson County Landfill, addresses the quality assurance procedures and activities performed during the construction of Phase 1 and 3 partial closure at the Davidson County Landfill, Lexington, North Carolina. The documents comprising this report were compiled in accordance with North Carolina Solid Waste Management Regulations, 15A NCAC 13B (January 1, 1997) and General Permit Conditions of Permit 29-06.

Shamrock Environmental Corporation (SEC) performed earthwork in the summer and fall 2005 placing structural fill foundation for the proposed closure cap. SEC also constructed the protective soil cover, erosion layer, and stormwater diversion berms. Kellett's Drilling, subcontractor to SEC drilled and installed passive gas vents for the closure cap. Mid-America Lining Company (MAL) as a subcontractor to SEC, installed geocomposite gas migration layer, geosynthetic clay liner (GCL), geomembrane, and geocomposite drainage layer on the approximately 16 acres prepared by SEC. Video inspection of the leachate lines following the completion of the Closure Project was not conducted at the time of the writing this report. Joyce Engineering, Inc. (JEI) provided third party construction quality assurance to the Owner.

The construction of Area 1 and Area 3 Partial Closure involved removal of the existing leachate re-circulation system piping and the top soil, followed by the placement of compacted intermediate cover to prepare a soil subgrade for the geosynthetic materials. A geonet composite Transnet TN220-2-6 by Skaps Industries was installed over the compacted soil cover. Reinforced GCL (Bentomat ST) by Cetco Lining Technologies was placed on the slopes with grades steeper than 10 horizontal to 1 vertical. Claymax 200R by Cetco was laid on top of the closure area with grades less than 10H:1V. The GCL was covered by a 40-mil LLDPE textured (Microspike™) geomembrane manufactured by Agru America. Geocomposite drainage layer Transnet TN220-2-6 by Skaps Industries covered the geomembrane. A minimum of 12-inch-thick protective soil layer was placed to cover the composite lining system, with a minimum of 6-inch erosion layer over it completing the alternative final cover design.

The top of completed closure cap was surveyed on a 50-foot grid system. The surveyed layer elevations and thicknesses are presented in Appendix VI.

Construction Daily Log prepared by Hannu Kemppinen, P.G., is included in Appendix V.A. The minutes of construction progress meetings are presented in Appendix V.B. Chronological photographic record to depict the sequence and details of the construction is included in Appendix V.C.

2.0 CONSTRUCTION QUALITY ASSURANCE ACTIVITIES

2.1 General

Joyce Engineering, Inc. (JEI) provided the Construction Quality Assurance (CQA) activities during the construction project. The following sections describe the specific areas of CQA:

2.2 Soil Subgrade Foundation

The Contractor first removed the existing leachate re-circulation system piping at surface and then stripped top soil with vegetation from the proposed Partial Closure Area. The intermediate layer (subgrade for synthetic materials) was constructed entirely utilizing natural soils excavated from the on-site borrow source. Over the temporary cover placed by the landfill personnel, Shamrock added a minimum of 6 inches on the slopes and 12 inches on the top to construct a compacted intermediate soil layer. The compacted soil cover laboratory and field-testing data are presented in Appendix I. Upon completion, a survey verified that the specified minimum layer thickness and design grade elevations had been achieved. The survey drawings are included Appendix VI.

2.3 Geonet Composite Gas Migration Layer

Prior to installing the geocomposite, Shamrock Environmental operated a smooth-drum roller to prepare an area for the liner installation. Transnet TN220-2-6 by Skaps Industries was placed on the slopes and on top of the closure area over the prepared subgrade. The geocomposite was typically installed over large areas to cover and protect the prepared soil surface, and to allow efficient deployment of geosynthetic clay liner and 40-mil geomembrane.

2.4 Geosynthetic Clay Liner

Bentomat ST, manufactured by CETCO with Winning Edge Super Groove™ was placed on the side slopes over grades greater than 10H:1V. Longitudinal seams were overlapped a minimum of six (6) inches, while end-of-roll seams were overlapped and shingled by a minimum of twenty-four (24) inches. MAL applied accessory bentonite on the end-of-panel seams overlapping two feet as required in the Contract Documents. Interface friction test results, manufacturer's quality assurance data, order packing lists, and Bentonite clay certifications are included in Appendix II.

2.5 Geomembrane

Construction quality assurance data for the geomembrane liner are presented in Appendix III. The data include quality certificates from the manufacturer in Appendix III.A and conformance test results in Appendix III.B. The JEI prepared geomembrane panel placement log, field trial seam log, seaming record and air pressure test log, seam destructive sample log, and repair log are presented in Appendices III.C-H respectively. Laboratory seam peel and shear

test results are included in Appendix III.I. Tensiometer calibration certificates are included with the trial seam log. Subgrade acceptance forms are included in Appendix III.J.

2.6 Geonet Composite Drainage Layer

As the geomembrane seaming, field testing, repairs and laboratory peel and shear test results were completed, MAL deployed the geonet composite drainage layer over the membrane. The geonet edges were overlapped six inches and tied with plastic zip-ties at five-foot increments. The top layers of geotextile of the adjoining rolls were smoothed out and heat bonded together. At the toe of the closure cap, the geonet terminated over the perimeter ditch shoulder to provide positive drainage from the protective cover layer.

2.7 Cover soil

The constructed cap cover-soil layer consisted of two units; soil protective layer of 12-inches and erosion layer of 6-inch minimum thickness of the on-site borrow material. The material was hauled in by articulated off-road trucks, and spread in even lifts approximately 6-inch layers. Shamrock utilized a low ground pressure dozer, Deere 750, for the soil work. The cover soil was hauled around the perimeter and off-loaded at the toe. The dozer pushed the soil uphill, providing compaction continuously tracking the material in place up and down the slope as the work progressed.

3.0 SUMMARY OF CQA FIELD DATA

3.1 General

This section summarizes construction quality assurance data for the Gas Vent Installation, soil cap construction, and Geosynthetic materials installation. Kellett's Drilling, subcontractor to SEC, installed 15 passive gas vents on the Partial Closure area. Following stripping and removal of grass and topsoil, the intermediate cover was constructed. Shamrock excavated the cover soils from on-site borrow source, fill material, located under the power lines in the south side of the closure area. The material hauled by articulated trucks was spread with Deere 750 dozer over the temporary cover previously placed by the County. Mid-America Lining Company, subcontractor to SEC, installed the geosynthetic materials specified for the closure cap.

3.2 Gas Vents

Kellett's Drilling Services began gas vent drilling on June 20, and completed the drilling and vent pipe installation on June 27, 2005. Total of 15 gas vents were installed on the slopes and top of the proposed closure area. Table 1- Proposed Gas Vent Schedule in Appendix I.C. lists for each vent the approximate ground surface elevations, as-built depths, slotted and solid pipe lengths, vent bottom elevations, and the date installed. Drawing CP-5 and the as-built geomembrane panel layout drawing show each vent location.

3.3 Earth Work

Shamrock Environmental excavated hauled and placed all the soil materials for the closure cap. Equipment used for the earth work included Deere 200 LC track excavator, Deer 750 dozer, TA 27 and CAT 300 articulated off-road haulers, water truck, CAT 433 compactor, Ingersol – Rand 5D105DX smooth-drum roller, CAT 331 mini excavator, and Ditch Witch trench cutter. On-site borrow was excavated and hauled for the closure cap. Soil was spread and graded with low ground pressure dozer, compacted with rubber-tired roller compactor, and sealed to smooth surface with rubber-tired drum roller. Water was added when soil natural moisture content was found below optimum moisture content as determined for the Proctors of the materials.

The following table indicates the three major soil types used by Unified Soil Classification System (USCS), maximum dry density (MDD) and optimum moisture content (OMC) as determined by Standard Proctor test methods.

Soil Description	USCS	MDD	OMC
Light brown silty Sand	(SM/ML)	115.6 pcf	14.0 %
Orange brown lean Clay with fine sand	(CL)	112.0 pcf	15.0 %
Brown elastic Silt	(MH)	110.2 pcf	15.0 %

Soil construction CQA testing included in-place wet density, moisture content, calculated dry density and percent compaction with a Troxler model 3440 portable gauge. Density drive sampler with 4-inch thin-walled tube was used to verify the portable gauge test results for each acre lift. Moisture content of the placed soil was periodically verified to correlate with the portable gauge moisture readings. If the portable gauge moisture readings were found to deviate significantly from the moisture percentage by direct heating method, the dry density and in-place compaction percentage were re-calculated to verify the specified 95% compaction of the soil. If the placed soil were found not to meet the specification in a given area, the Contractor was informed of the test results and asked to re-work the soil. Following the soil re-work, the area was subjected to CQA testing verification. In the Daily Field Density Test summaries, re-tests are noted on the right-most column. On the column, "Test Location" the nuclear density (ND) test number is repeated for those tests that were re-tested. Re-testing with corrected moisture the dry density and percent compaction were re-calculated to verify in-place compaction.

Summary of re-tests as noted in the Daily Summary of Field Density Tests.

Report # 3	MC%	DD	%Compaction	Notes
ND-26	27.1	99.3	90.1	Fails
Retest	20.0	105.2	95.4	Pass
ND-27	21.9	103.4	93.8	Fails
Retest	19.7	105.3	95.5	Pass
ND-28	24.6	101.1	91.8	Fails

Retest	20.0	105.0	95.3	Pass
ND-29	22.3	103.2	93.6	Fails
Retest	16.7	108.1	98.1	Pass
ND-32	22.0	103.9	94.3	Fails
Retest	20.8	105.0	95.3	Pass
ND-33	21.7	101.9	92.5	Fails
Retest	17.2	111.4	99.5	Pass
Report # 5	MC%	DD	%Compaction	Notes
ND-47	20.4	100.9	91.6	Fails
Retest	13.7	106.9	97.0	Pass
ND-51	22.3	103.8	92.7	Fails
Retest	16.0	109.0	97.3	Pass
Report # 6	MC%	DD	%Compaction	Notes
ND-80	21.1	101.7	92.3	Fails
Retest	19.4	107.7	97.7	Pass

3.4 Geosynthetics Installation

Geosynthetic materials CQA documentation included conformance testing for the proposed materials, verifying their shipment to the site and their placement in the final closure cap. The CQA documents for the installation include roll counts for the geonet composite and GCL, geomembrane panel deployment and their placement drawing, field trial seam log, geomembrane seaming and testing record, geomembrane seam destructive test log, and repair log.

Mid-America deployed 412 rolls of the geonet composite for the closure. This includes the gas migration layer installed directly over the prepared subgrade, and the drainage layer deployed over the LLDPE geomembrane. The total area covered by both layers adds to 1,442,000 SF or 160,222 SY, each layer therefore being 16.6 acres.

Bentomat ST reinforced GCL was used on the slopes with grades 10H:1V or steeper. Claymax 200R was used on the top of the closure area where grades were flatter than 10H:1V. MAL deployed 241 rolls of Bentomat ST equaling 542,250 SF or 60,250 SY, and 69 rolls of Claymax 200R equaling 155,250 SF or 17,250 SY. Combined all GCL coverage adds to 697,500 SF or 77,500 SY, or total of 16.0 acres.

The 40-mil LLDPE synthetic membrane construction utilized 54 rolls of material adding to total of 729,000 SF or 81,000 SY that equals 16.7 acres. The panel placement log records 149 panels that together equal 683,109 SF or 75,901 SY, or total of 15.7 acres. The difference of the total amount used for the cap construction and the final closure cap area is 6%. The 6% is waste that resulted from cutting and fitting the panels and making repairs.

Field seam testing was conducted on each day the Contractor welded panels or repairs. Samples were cut from a pre-weld trial test seam and subjected to peel and shear tests. Each

welder and his welding machine must qualify before proceeding with seam welding. The trial seam testing was conducted twice a day, each morning and after lunch-break, as required in the specifications. The peel and shear strength for fusion welded seams for the 40-mil textured LLDPE were 42 ppi and 54 ppi respectively. The peel and shear strength for extrusion welded seams were 36 ppi and 54 ppi respectively. Throughout the project, none of the peel or shear strength tests conducted in the field showed any indication of failure or near failure.

Geomembrane CQA seaming and non-destructive test log was recorded of each day's progress. A total of 32,047 feet of seam welding was conducted to weld all 149 panels to a one contiguous membrane cover. Destructive samples of the welded seams were cut at average of 478 feet frequency; a total of 67 destructive samples. The destructive seam samples were shipped to Precision Geosynthetic Laboratories in Houston, Texas for peel and shear testing. Only one sample, DS-7, failed of the 67 samples collected. The DS-7 failure indicated 25% incursion on break in first seam after some adhesion failure. DS-7A and 7B were cut 10 feet before and after the failed DS-7. The re-sampled tests at PGL indicated no failure of the material or the seam strength.

MAL conducted seam destructive testing before shipping the seam test samples to laboratory testing at the PGL laboratory in Houston. None of the field-testing indicated failure of the material or the seam strength.

Repair log tallies total of 384 repair locations. The geomembrane repairs consist of non-destructive seam air-tests, destructive seam tests, panel junctions, welder burnouts, gas vent boot and skirt installations, and blemishes found in the panels. All repair work was extrusion welded. Prior to beginning repair work, the welding technician welded a sample seam that was subjected to in-field peel and shear testing that monitors the weld quality. Vacuum-box testing provided quality control of the extrusion welded seam quality.

Daily field report records each day how many rolls of material were deployed and the installed square footage. Geomembrane panel numbers describe the work progress each day. Liner detail work, welding, testing and repairing are the routine work the crew performs every day and these activities are not described. Mid-America mobilized to the site over a weekend and began deploying geocomposite on Monday, August 8, 2005 on the south facing slope of the closure area. The work progressed toward east. After the south slope and a half of the east slope were covered with all four layers, MAL moved to the relatively flat area at the top. The top was covered with panel alignment from west to the east. After completing the top area, MAL continued the work from the NE corner moving west covering the entire north-facing slope. MAL completed the synthetic cover installation by Saturday, September 10, 2005, taking 34 days to construct the four layers of the alternate design. Three days were lost for rain and wet site conditions, and one half day for windy conditions resulting from Hurricane Katrina.

Written warranties from the manufacturer and installer of the geomembrane and geonet composite are included in Appendix VI.

4.0 DEVIATION FROM THE CONTRACT DOCUMENTS

4.1 General

The purpose of this section is to identify any deviation from the contract documents, which may have occurred during construction.

4.2 Adjustments to Base Grades Elevations

Davidson County added more waste on the western end of the closure area at the top to utilize remaining permitted airspace before final cover. Approximately an area of one acre received additional waste. The additional waste was placed on the west end above elevation 760 to match the closure contours shown in Drawing CP-4. Following waste placement, Shamrock constructed the intermediate cover. Santec re-surveyed the base grades and included the affected area in the subgrade survey. The subgrade and final cap survey drawings consequently reflect the change from the closure design drawings.

4.3 Geonet Composite Drainage Layer

The geonet composite drainage medium detail 3/4/6 in the Drawing CP-6 was found to depict incorrectly the drainage layer construction. It was changed from being terminated at an anchor trench along the toe of the slope to extend laterally to the shoulder of the perimeter stromwater ditch. Thus, moisture seeping through the soil cover and migrating down slope can exit the cover system.

Precision Geosynthetic Laboratories

June 28, 2005

Henry Havener
SHAMROCK ENVIRONMENTAL
6106 Corporate Park Drive
Browns Summit, NC 27214

Dear Mr. Havener: **RE: *Davidson County Interface Shear***

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

It should be noted that the test specimen and test sample used for this report was believed to be representative of the material produced under the designation herein stated. However, these results are indicative of only the specimens that were actually tested. The testing herein is based upon accepted industry practice as well as the test method listed. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the final use and purpose of the material.

By accepting the data and results represented on this report, Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented in this report, and Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liability in excess of the aforementioned limit.

The test data and all associated project information shall be held in confidence, not to be reproduced except in full and disclosed to other parties with the authorization of the client.

It is a company policy to keep the physical records of each job for 2 years since the receipt of the samples and keep the electronic file for 7 years. We will dispose the samples two weeks after the final report is faxed to you. Should you want us to keep them for some period of time, please advise us immediately.

If you have any questions or if we may be of further service, please do not hesitate to call at 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Maria Espitia
Quality Assurance

Cora B. Queja
Vice President

Enclosure: (Job No.G050480)

1160 North Gilbert Street, Anaheim, CA. 92801, Tel# 714-520-9631, Fax#714-520-9637

Precision Geosynthetic Laboratories

CLIENT: SHAMROCK ENVIRONMENTAL
PROJECT: Davidson County Interface Shear

INTERFACE SHEAR TEST RESULTS
(PGL Job No. G050480)

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER	DATE RECEIVED	ORIGIN OF MATERIAL
Silky Sand			
Soil Borrow #1	9132	06/07/05	SHAMROCK
Geocomposite (R#TN-220-2-6)	9208	06/09/05	Skaps
Geocomposite	9209	06/09/05	Skaps
HD Microspike	9221	06/10/05	Agru America
GCL Bentomat ST(R#12547 L#452FA)	9326	06/16/05	CETCO

TESTS REQUIRED:

TEST METHOD	DESCRIPTION
ASTM D6243	Interface Shear
ASTM D5321	Interface Shear

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at 22 $\pm$ 2°C (71.6 $\pm$ 3.6^{o}F) and at 60 $\pm$ 10% relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 through 8. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES

Maria Espitia
Quality Assurance

Cora B. Queja
Vice President

1160 North Gilbert Street, Anaheim, CA. 92801, Tel# 714-520-9631, Fax#714-520-9637

TABLE CONFIG #1
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D5321)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #1**

TOP BOX	
SOIL Borrow #1	**09132**
Geocomposite (R#TN-220-2-6)	**09208**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the soil .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".
2. Soil was compacted to 106.4 pcf at 15 %
   forming 2 inch layer in the TOP box.
3. Maximum Dry Density (MDD) of the soil is 112 pcf at 15% Optimum Moisture Content.
4. Moisture content of the Soil was 14.9% (as received).

CONSOLIDATION:

1. Each set of specimen was consolidated under FLOODED condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load
   and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in FLOODED condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92
   using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

			PEAK STRENGTH		**3.0 " DISPLACEMENT STRENGTH**	
Normal Stress (psi)	**(psf)**	**After Test MC (Soil) (%)**	**SHEAR STRESS (psf)**	**PEAK SECANT ANGLE (degrees)**	**SHEAR STRESS (psf)**	**3.0 " PLACEMENT SECANT ANGLE (degrees)**
0.87	125	28	189	57	183	56
1.74	250	25.1	199	39	198	38
3.47	500	24.4	373	37	373	37
		COHESION (psf):	**102**			**96**
		COEFFICIENT OF FRICTION:	**0.52**			**0.53**
		FRICTION ANGLE(degrees):	**27.5**			**28.1**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

PGL Job Number: G050480 **CONFIG #1**
Project Name: DAVIDSON COUNTY
SOIL Borrow #1 **09132**

Geocomposite (R#TN-220-2-6) **09208**
QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

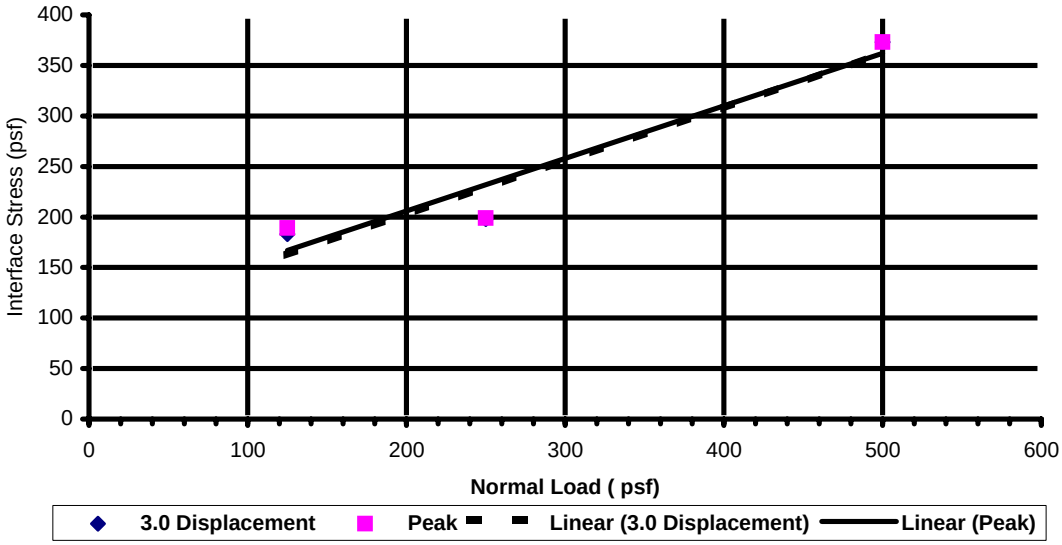
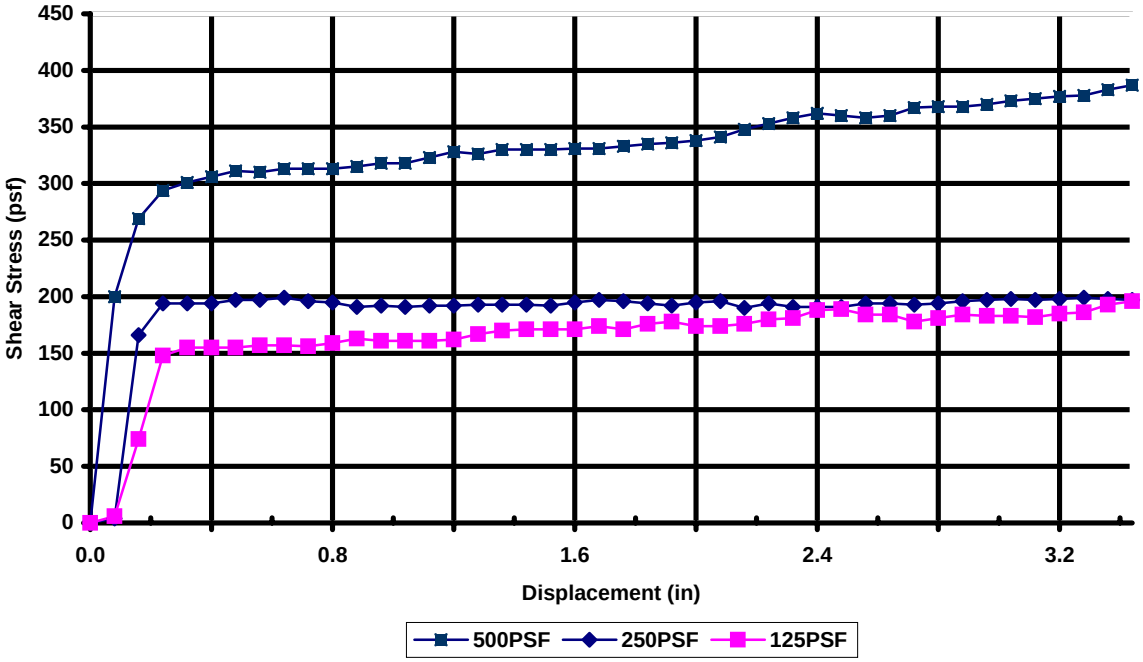


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

TABLE CONFIG #2
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D5321)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #2**

TOP BOX	
SOIL Borrow #1	**09132**
Geocomposite (R#TN 220-2-6)	**09208**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the soil .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".
2. Soil was compacted to 106.4 pcf at 15.8 %
   forming 2 inch layer in the TOP box.
3. Maximum Dry Density (MDD) of the soil is 112 pcf at 15 % Optimum Moisture Content.
4. Moisture content of the Soil was 15.8% (as tested).
5. Moisture content of the Soil was 12.3 % (as received).

CONSOLIDATION:

1. Each set of specimen was consolidated under DRY condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load
   and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in DRY condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92
   using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

			PEAK STRENGTH		**3.0 " DISPLACEMENT STRENGTH**	
Normal Stress (psi)	**(psf)**	**After Test MC (Soil) (%)**	**SHEAR STRESS (psf)**	**PEAK SECANT ANGLE (degrees)**	**SHEAR STRESS (psf)**	**3.0 " DISPLACEMENT SECANT ANGLE (degrees)**
0.87	125	15.5	124	45	121	44
1.74	250	15	202	39	200	39
3.47	500	15	400	39	370	37
		COHESION (psf):	**25**		**36**	
		COEFFICIENT OF FRICTION:	**0.74**		**0.67**	
		FRICTION ANGLE(degrees):	**36.6**		**33.7**	

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

Precision Geosynthetic Laboratories

TABLE CONFIG #3
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D5321)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #3**

TOP BOX	
Geocomposite (R#TN220-2-6)	**09208**
HD Microspike	**09221**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. Specimens were cut along machine direction to 14" x 19" for the upper box, and 14" x 17" for the lower box, with an effective test area of 12" x 12".

CONSOLIDATION:

1. Each set of specimen was consolidated under FLOODED condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in FLOODED condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92 using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

Normal Stress (psi)	Normal Stress (psf)	Asperity Heights (Before) (mils)	Asperity Heights (After) (mils)	PEAK STRENGTH SHEAR STRESS (psf)	PEAK STRENGTH PEAK SECANT ANGLE (degrees)	3.0 " DISPLACEMENT STRENGTH SHEAR STRESS (psf)	3.0 " DISPLACEMENT STRENGTH SECANT ANGLE (degrees)
0.87	125	37.5	37.1	195	57	153	51
1.74	250	37.8	37	249	45	170	34
3.47	500	37.4	36.3	366	36	214	23

	PEAK STRENGTH	3.0 " DISPLACEMENT STRENGTH
COHESION (psf):	**137**	**131**
COEFFICIENT OF FRICTION:	**0.46**	**0.16**
FRICTION ANGLE(degrees):	**24.6**	**9.3**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

PGL Job Number: **G050480** **CONFIG #2**
Project Name: **DAVIDSON COUNTY**
SOIL Borrow #1 **09132**

Geocomposite (R#TN 220-2-6) **09208**
QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

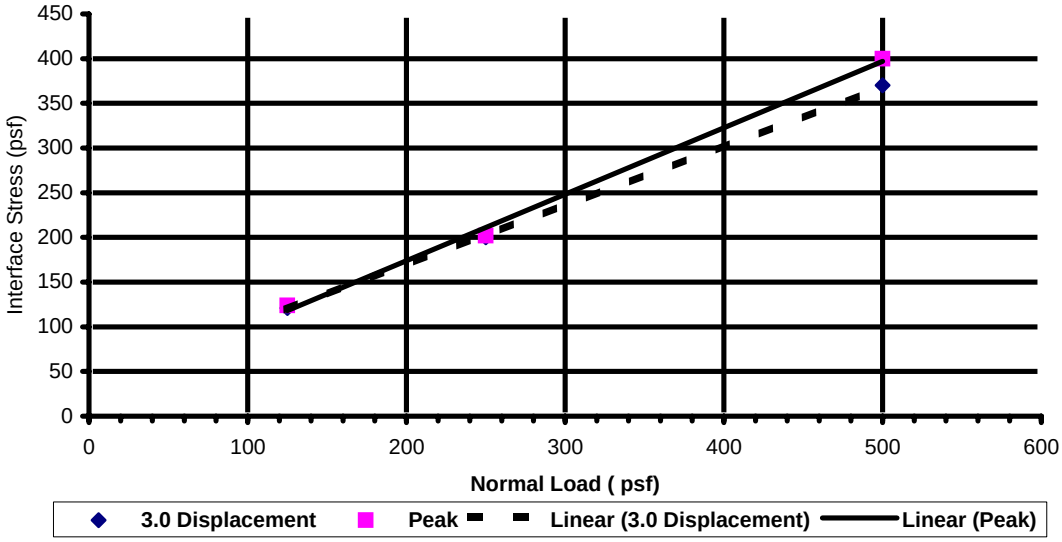
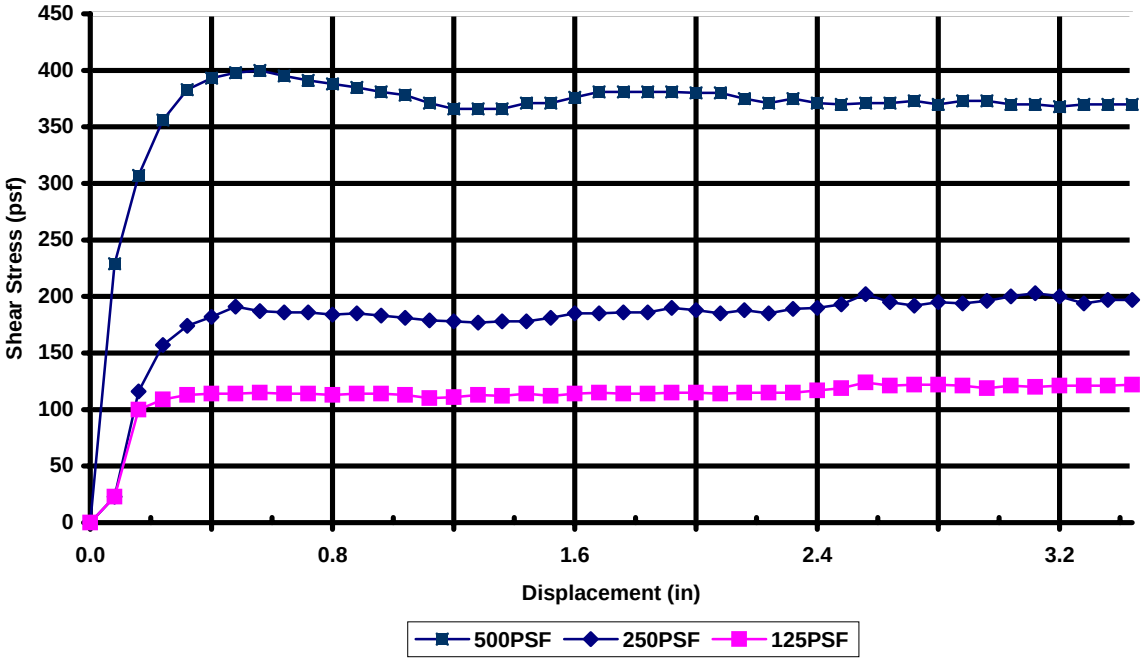


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

PGL Job Number: G050480 **CONFIG #3**
Project Name: DAVIDSON COUNTY
Geocomposite (R#TN220-2-6) **09208**

HD Microspike **09221**
QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

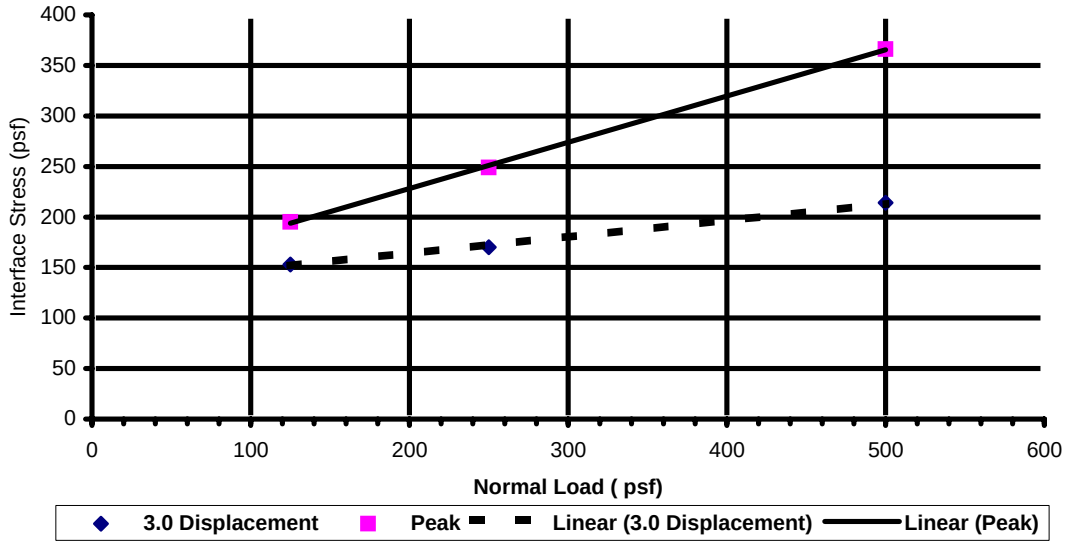
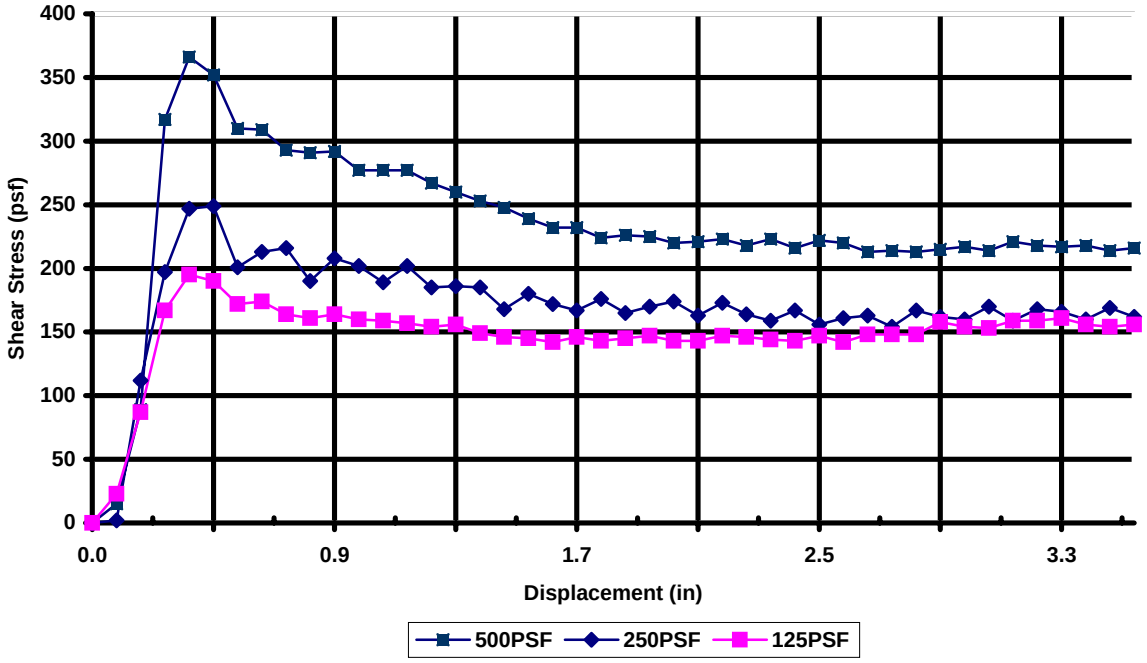


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

TABLE CONFIG #4
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D5321)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #4**

TOP BOX	
Geocomposite (R#TN220-2-6)	**09208**
HD Microspike	**09221**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. Specimens were cut along machine direction to 14" x 19" for the upper box, and 14" x 17" for the lower box, with an effective test area of 12" x 12".

CONSOLIDATION:

1. Each set of specimen was consolidated under DRY condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in DRY condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92 using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

		PEAK STRENGTH				3.0 " DISPLACEMENT STRENGTH	
Normal Stress		**Asperity Heights**		**SHEAR**	**PEAK**	**SHEAR**	**3.0 " DISPLACEMENT**
(psi)	**(psf)**	**(Before)**	**(After)**	**STRESS**	**SECANT ANGLE**	**STRESS**	**SECANT ANGLE**
		(mils)		**(psf)**	**(degrees)**	**(psf)**	**(degrees)**
0.87	125	37.9	36.9	256	64	165	53
1.74	250	37.7	36.4	350	54	216	41
3.47	500	37.9	36.8	469	43	240	26

COHESION (psf):	**197**	**153**
COEFFICIENT OF FRICTION:	**0.55**	**0.19**
FRICTION ANGLE(degrees):	**29.0**	**10.5**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

Precision Geosynthetic Laboratories

PGL Job Number: G050480 **CONFIG #4**
Project Name: DAVIDSON COUNTY
Geocomposite (R#TN220-2-6) **09208**

HD Microspike **09221**
QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

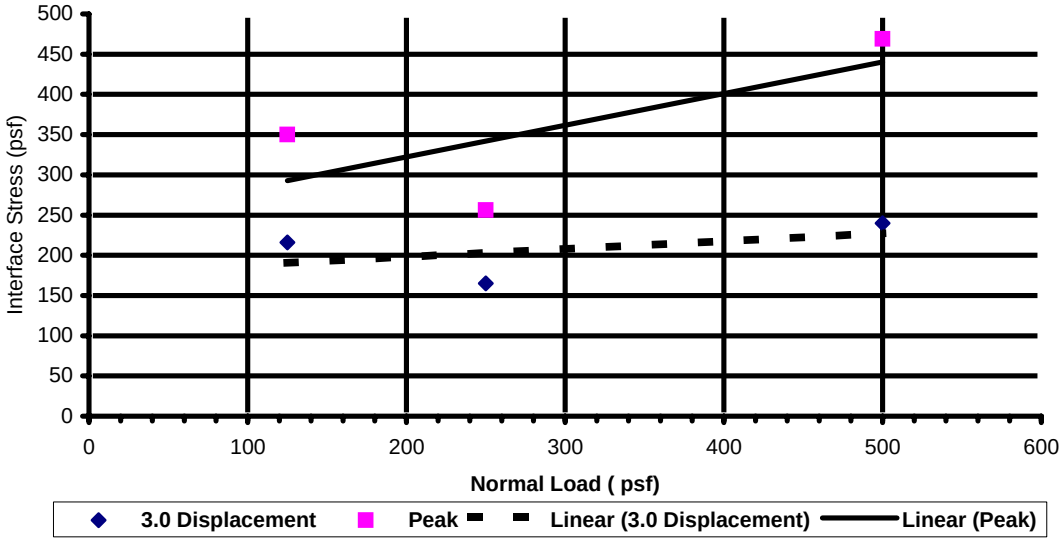
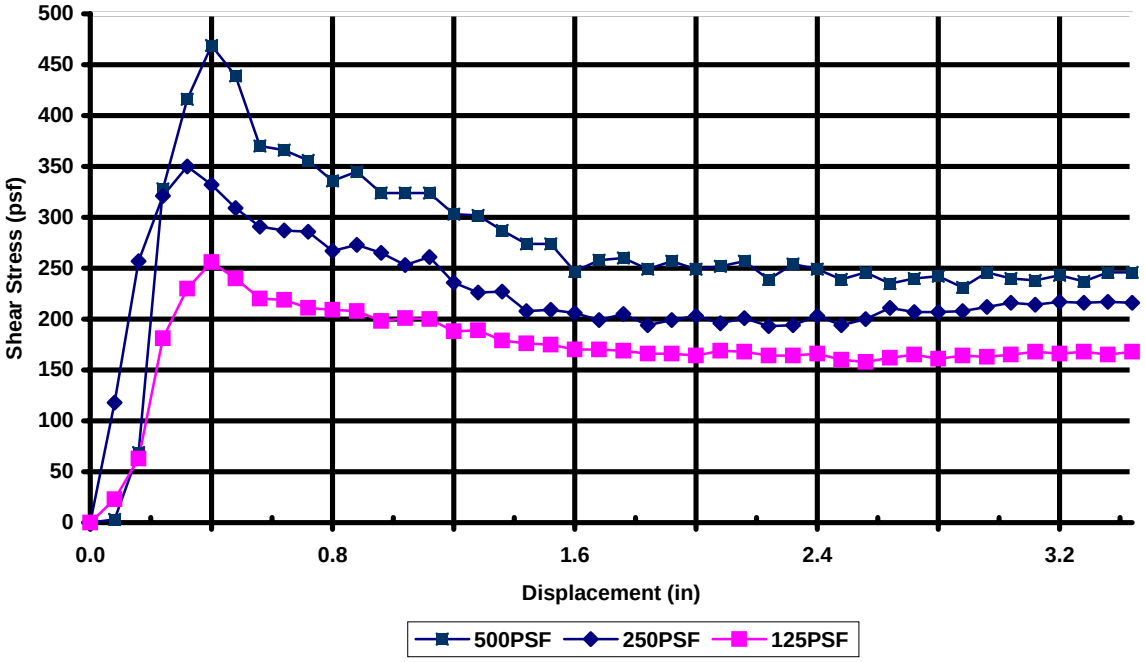


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

TABLE CONFIG #5
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D6243)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #5**

TOP BOX	
GCL Bentomat ST(R#12547 L#452FA)	**09326**
HD Microspike	**09221**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the GCL .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".

2. Moisture content of the GCL was 18.6% (as received).

CONSOLIDATION:

1. Each set of specimen was consolidated under FLOODED condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in FLOODED condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92
   using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

Normal Stress (psi)	Normal Stress (psf)	After Test MC (GCL) (%)	Asperity Heights (Before) (mils)	Asperity Heights (After) (mils)	PEAK STRENGTH SHEAR STRESS (psf)	PEAK STRENGTH PEAK SECANT ANGLE (degrees)	3.0 " DISPLACEMENT STRENGTH SHEAR STRESS (psf)	3.0 " DISPLACEMENT SECANT ANGLE (degrees)
0.87	125	116.2	28.6	28	345	70	287	66
1.74	250	114.7	28.1	27.2	382	57	311	51
3.47	500	99.8	28.4	27.6	606	50	463	43

	PEAK STRENGTH	3.0 " DISPLACEMENT STRENGTH
COHESION (psf):	**233**	**211**
COEFFICIENT OF FRICTION:	**0.72**	**0.49**
FRICTION ANGLE(degrees):	**35.9**	**26.1**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

Precision Geosynthetic Laboratories

PGL Job Number: G050480 **CONFIG #5**

Project Name: DAVIDSON COUNTY

GCL Bentomat ST(R#12547 L#452FA) **09326**

HD Microspike **09221**

QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

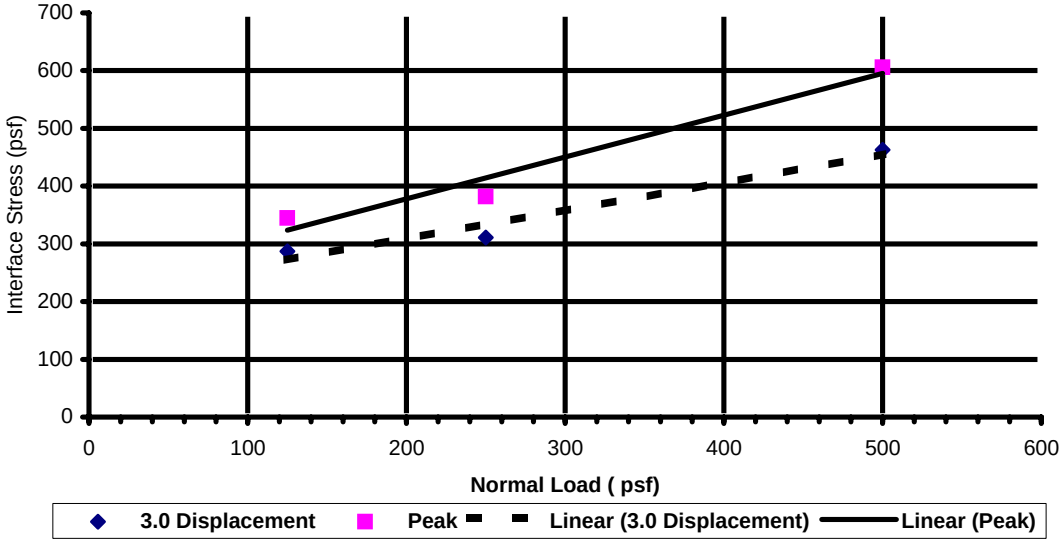
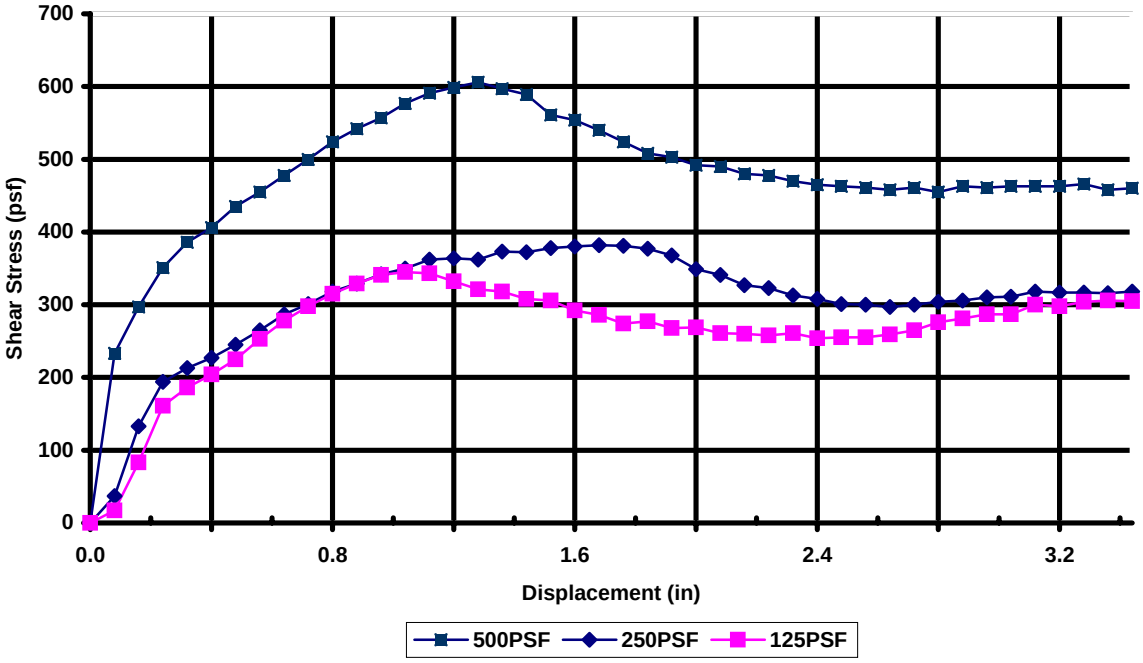


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

TABLE CONFIG #6
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D6243)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #6**

TOP BOX

GCL Bentomat ST (R#12547 L#452FA) **09326**

HD Microspike **09221**

BOTTOM BOX

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the GCL .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".

2. Moisture content of the GCL was 18.6% (as received).

CONSOLIDATION:

1. Each set of specimen was consolidated under DRY condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in DRY condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92
   using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

					PEAK STRENGTH		3.0 " DISPLACEMENT STRENGTH	
Normal Stress (psi)	Normal Stress (psf)	After Test MC (GCL) (%)	Asperity Heights (Before) (mils)	Asperity Heights (After) (mils)	SHEAR STRESS (psf)	PEAK SECANT ANGLE (degrees)	SHEAR STRESS (psf)	3.0 " SPLACEMENT SECANT ANGLE (degrees)
0.87	125	116.2	27.9	27	260	64	195	57
1.74	250	114.7	28.2	27.3	394	58	255	46
3.47	500	99.8	28.1	27.2	629	52	364	36

COHESION (psf):	**143**	**141**
COEFFICIENT OF FRICTION:	**0.98**	**0.45**
FRICTION ANGLE(degrees):	**44.4**	**24.2**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

Precision Geosynthetic Laboratories

PGL Job Number: G050480 **CONFIG #6**

Project Name: DAVIDSON COUNTY

GCL Bentomat ST (R#12547 L#452FA) **09326**

HD Microspike **09221**

QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

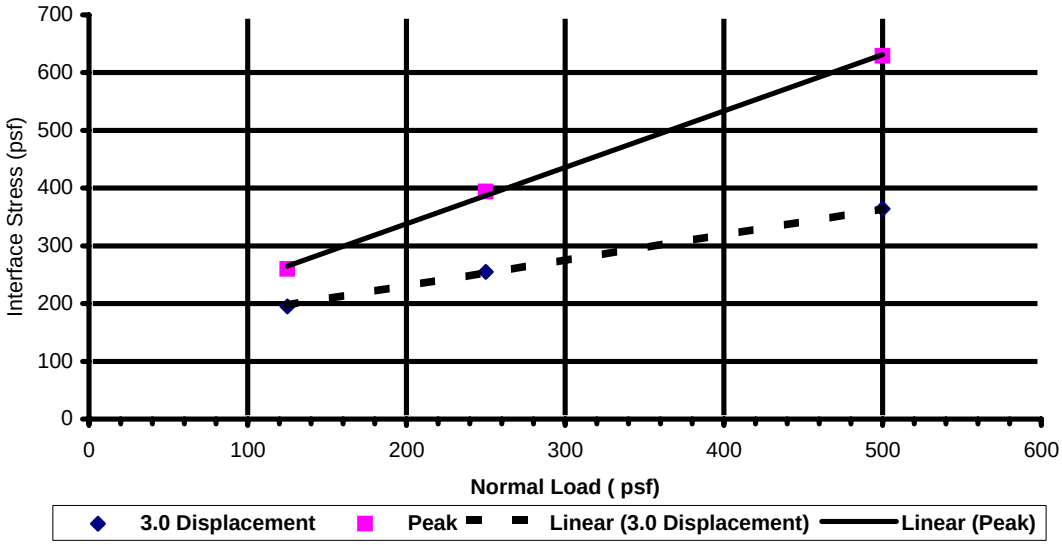
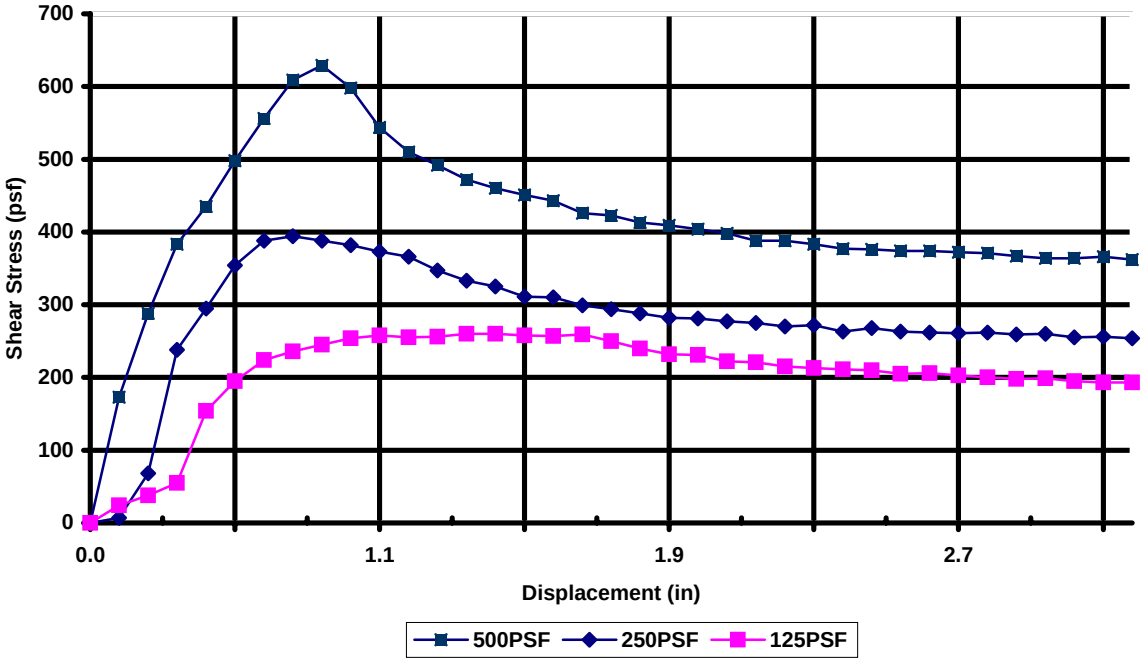


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

TABLE CONFIG #7
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D6243)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #7**

TOP BOX

GCL Bentomat ST (R#12547 L#452FA) **09326**

Geocomposite **09209**

BOTTOM BOX

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the GCL .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".
2. Moisture content of the GCL was 18.6 % (as received).

CONSOLIDATION:

1. Each set of specimen was consolidated under FLOODED condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in FLOODED condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92
   using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

					PEAK STRENGTH		3.0 " DISPLACEMENT STRENGTH	
Normal Stress (psi)	Normal Stress (psf)	After Test MC (GCL) (%)	Asperity Heights (Before)	Asperity Heights (After)	SHEAR STRESS (psf)	PEAK SECANT ANGLE (degrees)	SHEAR STRESS (psf)	3.0 " PLACEMENT SECANT ANGLE (degrees)
0.87	125	144.3	20.6	19.8	170	54	132	47
1.74	250	124.4			234	43	179	36
3.47	500	111.4	20.8	18.8	314	32	235	25
		COHESION (psf):			**130**		**104**	
		COEFFICIENT OF FRICTION:			**0.37**		**0.27**	
		FRICTION ANGLE(degrees):			**20.5**		**15.0**	

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

Precision Geosynthetic Laboratories

PGL Job Number: G050480 **CONFIG #7**

Project Name: DAVIDSON COUNTY

GCL Bentomat ST (R#12547 L#452FA) **09326**

Geocomposite **09209**

QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

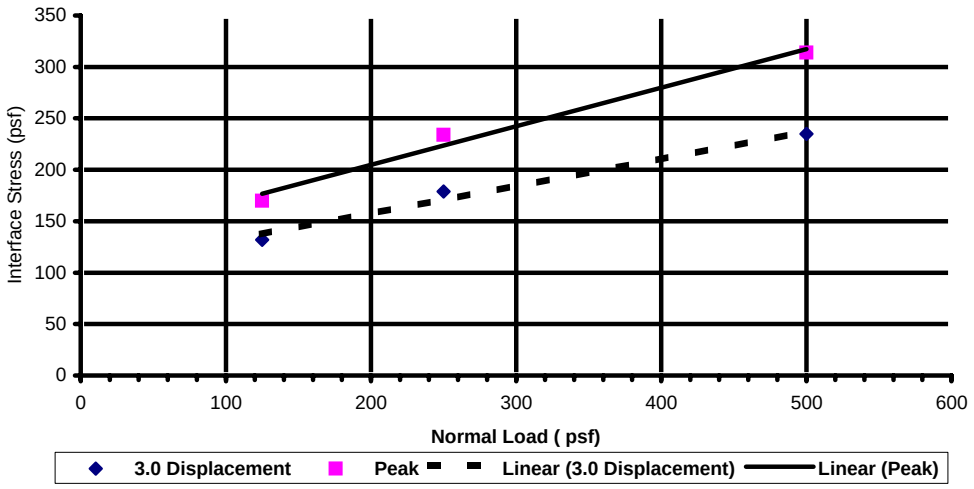


Figure #2
Shear Stress/ Displacement Curve

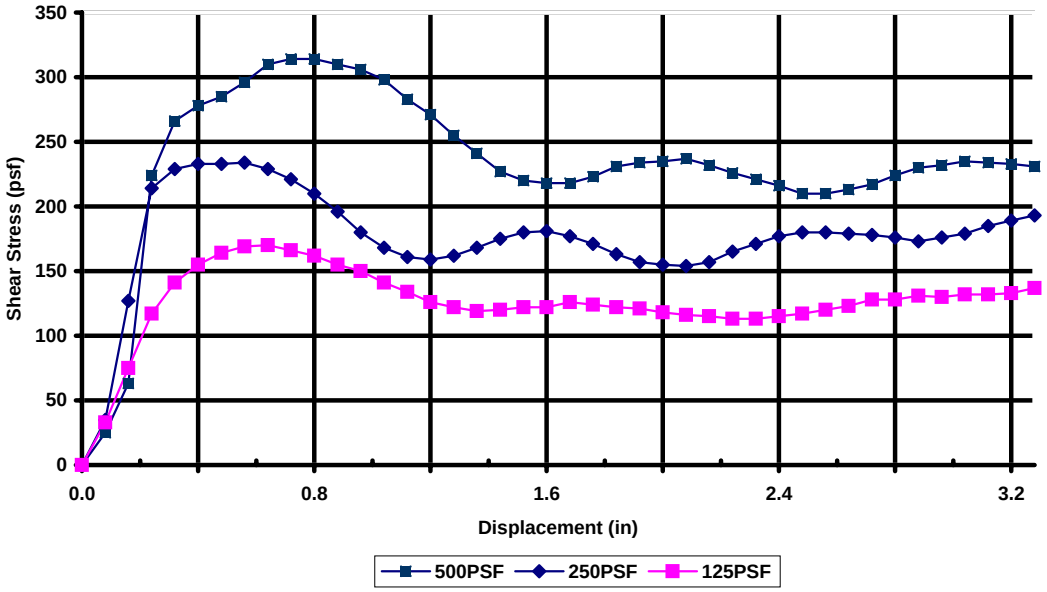


TABLE CONFIG #8
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D6243)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #8**

TOP BOX	
GCL Bentomat ST (R#12547 L#452FA)	**09326**
Geocomposite	**09209**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the GCL .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".

CONSOLIDATION:

1. Each set of specimen was consolidated under DRY condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in DRY condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92 using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

Normal Stress (psi)	Normal Stress (psf)	PEAK STRENGTH SHEAR STRESS (psf)	PEAK STRENGTH PEAK SECANT ANGLE (degrees)	3.0 " DISPLACEMENT STRENGTH SHEAR STRESS (psf)	3.0 " DISPLACEMENT SECANT ANGLE (degrees)
0.87	125	104	40	66	28
1.74	250	167	34	101	22
3.47	500	276	29	172	19

	PEAK STRENGTH	3.0 " DISPLACEMENT STRENGTH
COHESION (psf):	**50**	**31**
COEFFICIENT OF FRICTION:	**0.46**	**0.28**
FRICTION ANGLE(degrees):	**24.5**	**15.8**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

PGL Job Number: G050480 **CONFIG #8**

Project Name: DAVIDSON COUNTY

GCL Bentomat ST (R#12547 L#452FA) **09326**

Geocomposite **09209**

QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

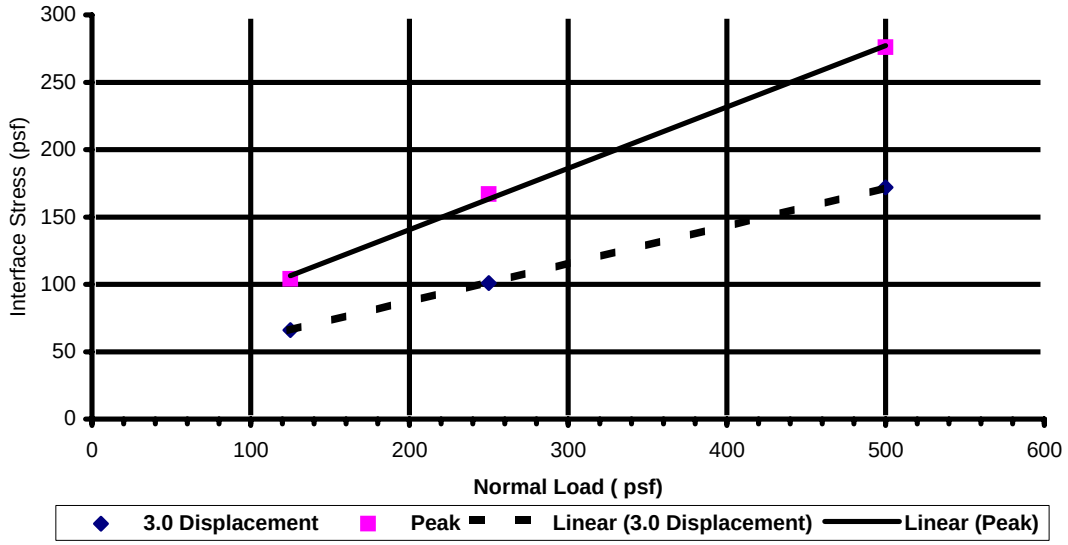
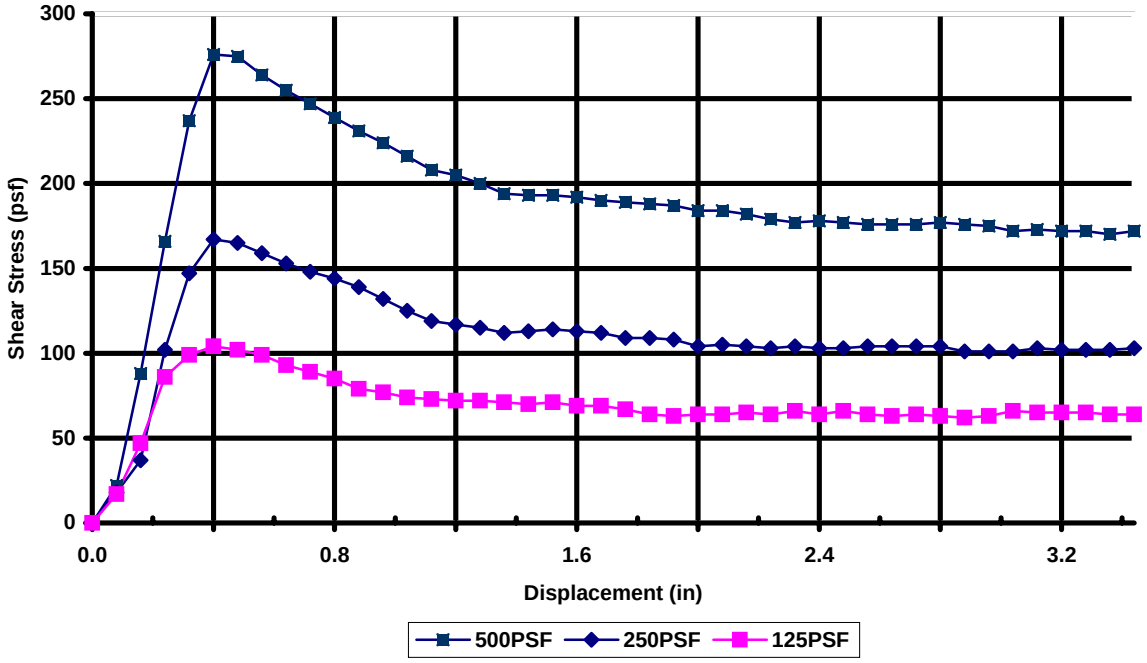


Figure #2
Shear Stress/ Displacement Curve

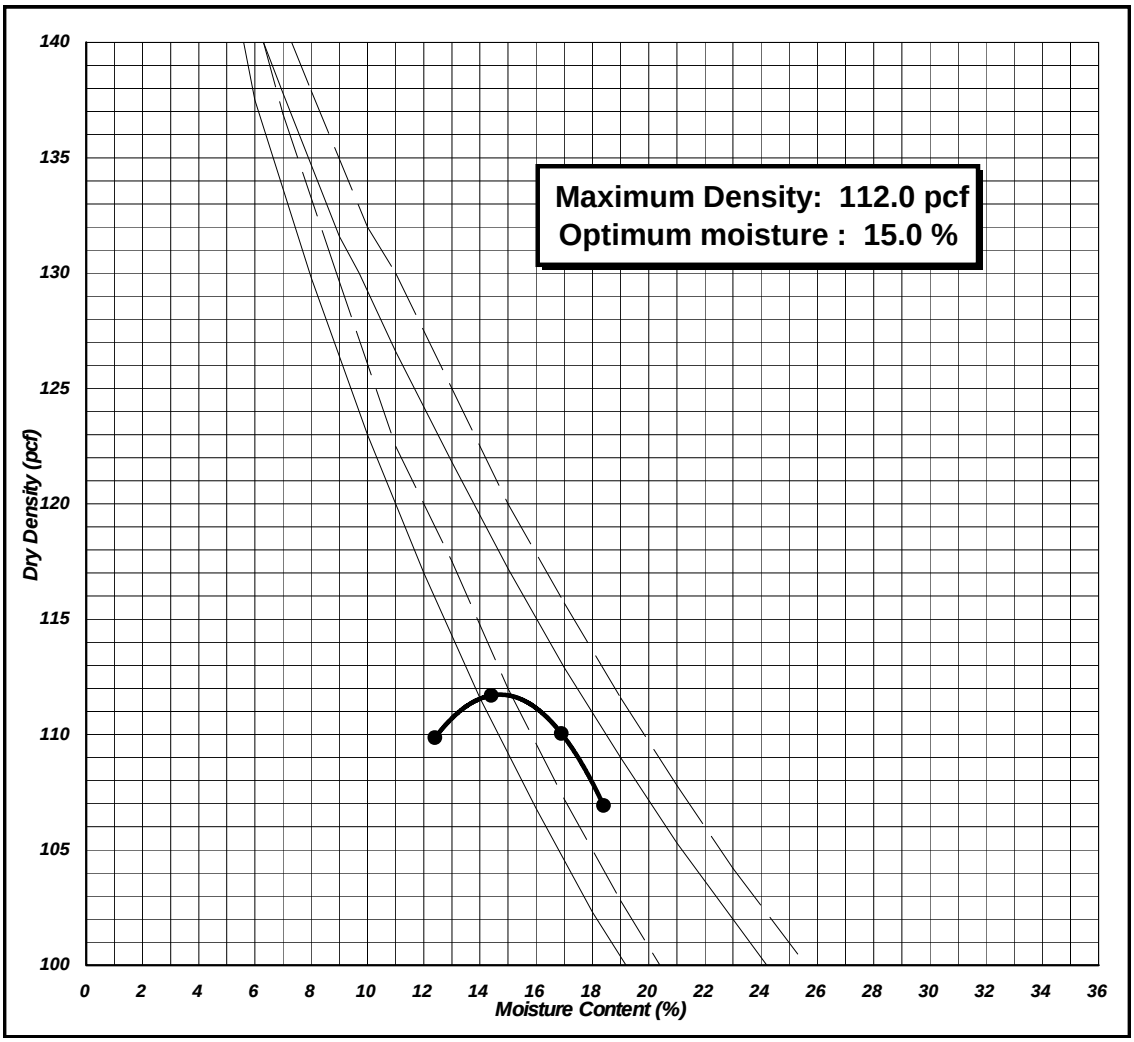


Precision Geosynthetic Laboratories

MAXIMUM DENSITY TEST ASTM D698

Job Name	Precision Geosynthetic Lab. # G 050480	**Date:**	6/19/2005
Job No.	2001-068	**By:**	SE
Boring/Sample No.	C # 09132		
Description:	L. Orange Brown, Clayey Silt w. F.C. Sand		

Method: **A**	Mold Volume (cf): **0.0333**	Blows: **25**		Layers: **3**	
Specimen	A	B	C	D	E
Total Wet Weight (lbs)	**3908**	**3973**	**3986**	**3955**	
Weight of Mold (lbs)	2041	2041	2041	2041	
Wet Weight of Soil (lbs)	1867	1932	1945	1914	
Wet Density (pcf)	123.5	127.8	128.6	126.6	
Moisture Can No.					
Dry Weight					
Moisture Content (%)	**12.4**	**14.4**	**16.9**	**18.4**	
Dry Density (pcf)	109.9	111.7	110.0	106.9	



GeoLogic Associates

MAXIMUM DENSITY TEST ASTM D698

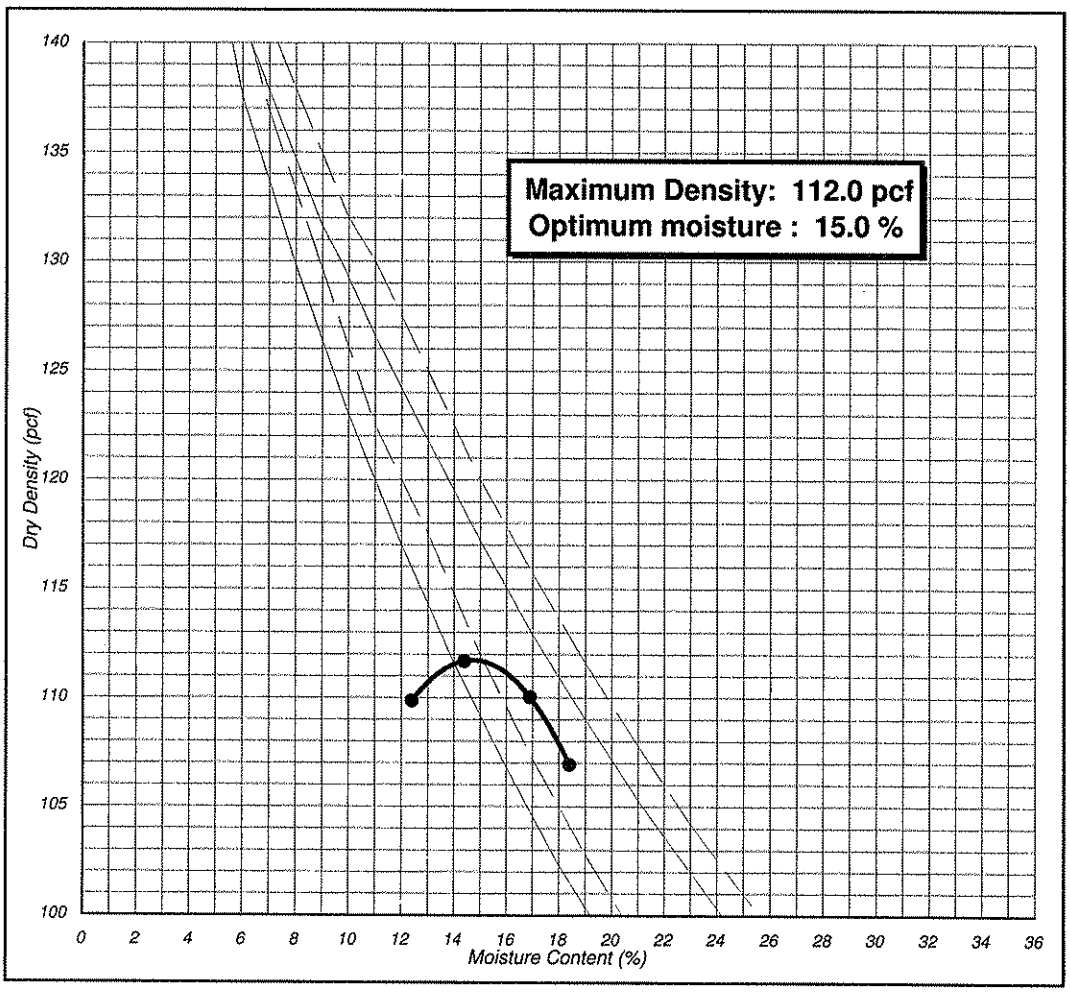
Job Name Precision Geosynthetic Lab. # G 050480 **Date:** 6/19/2005

Job No. 2001-068 **By:** SE

Boring/Sample No. C # 09132

Description: L. Orange Brown, Clayey Silt w. F.C. Sand

Method: **A**	Mold Volume (cf): **0.0333**	Blows: **25**		Layers: **3**	
Specimen	A	B	C	D	E
Total Wet Weight (lbs)	**3908**	**3973**	**3986**	**3955**	
Weight of Mold (lbs)	2041	2041	2041	2041	
Wet Weight of Soil (lbs)	1867	1932	1945	1914	
Wet Density (pcf)	123.5	127.8	128.6	126.6	
Moisture Can No.					
Dry Weight					
Moisture Content (%)	**12.4**	**14.4**	**16.9**	**18.4**	
Dry Density (pcf)	109.9	111.7	110.0	106.9	



GeoLogic Associates

Geotechnics

.....GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES

July 7, 2005

Project No. 2005-64-01

Mr. Evan Andrews
Joyce Engineering, Inc.
Henderson Building Suite 203
2301 West Meadowview Road
Greensboro, NC 27407

Transmittal
Laboratory Test Results
Davidson County Landfill

Please find attached the laboratory test results for the above referenced project. The tests were outlined on the Project Verification Form that was faxed to your firm prior to the testing. The testing was performed in general accordance with the methods listed on the enclosed data sheets. 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 provide these testing services. Should you have any questions or if we may be of further assistance, please contact our office.

Respectively submitted,
Geotechnics, Inc.

George Moyer for MPS

Michael P. Smith
Regional Manager

We understand that you have a choice in your laboratory services and we thank you for choosing Geotechnics.

DCN: Data Transmittal Letter Date: 1/28/05 Rev.: 1

2200 Westinghouse Boulevard • Suite 105 • Raleigh, NC 27604 • Phone (919) 876-0405 • Fax (919) 876-0460

geotechnics
INTEGRITY IN TESTING

MOISTURE CONTENT

ASTM D 2216 (SOP-S1)

Client	JOYCE ENGINEERING, INC.
Client Reference	DAVIDSON CO. LF
Project No.	2005-564-01

Lab ID	.001
Boring No.	NA
Depth (ft)	NA
Sample No.	NA
Tare Number	K-4
Wt. of Tare & WS (gm)	501.79
Wt. of Tare & DS (gm)	436.91
Wt. of Tare (gm)	84.01
Wt. of Water (gm)	64.88
Wt. of DS (gm)	352.9
Water Content (%)	**18.4**

Notes : *NA*

Tested By *KAW* *Date* *06/30/05* *Checked By* GEM *Date* 7-5-05

DCN: CT-S1 DATE 6-30-98 REVISION: 2

C:\2005 Projects\2005-564 JOYCE\[2005-564-01-01 WATCONT.XLS]Sheet1

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geotechnics
INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	JOYCE ENGINEERING, INC.	Boring No.	NA
Client Reference	DAVIDSON CO. LF	Depth (ft)	NA
Project No.	2005-564-01	Sample No.	NA
Lab ID	2005-564-01-01	Soil Description	**BROWN SILT**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

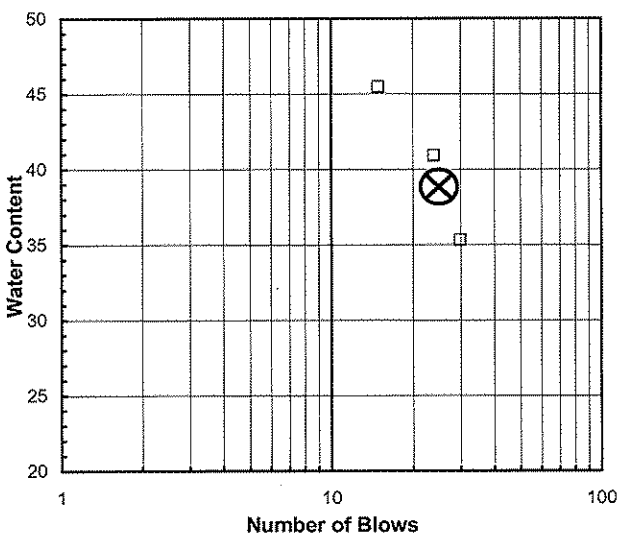
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	A-T	W	A-B	MULTIPOINT
Wt. of Tare & WS (gm)	24.55	24.37	27.11	
Wt. of Tare & DS (gm)	21.76	21.70	24.10	
Wt. of Tare (gm)	15.62	15.17	15.57	
Wt. of Water (gm)	2.8	2.7	3.0	
Wt. of DS (gm)	6.1	6.5	8.5	
Moisture Content (%)	**45.4**	**40.9**	**35.3**	
Number of Blows	**15**	**24**	**30**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	O	M	
Wt. of Tare & WS (gm)	25.41	24.29	
Wt. of Tare & DS (gm)	23.29	22.37	
Wt. of Tare (gm)	15.23	15.15	
Wt. of Water (gm)	2.1	1.9	
Wt. of DS (gm)	8.1	7.2	
Moisture Content (%)	**26.3**	**26.6**	**-0.3**

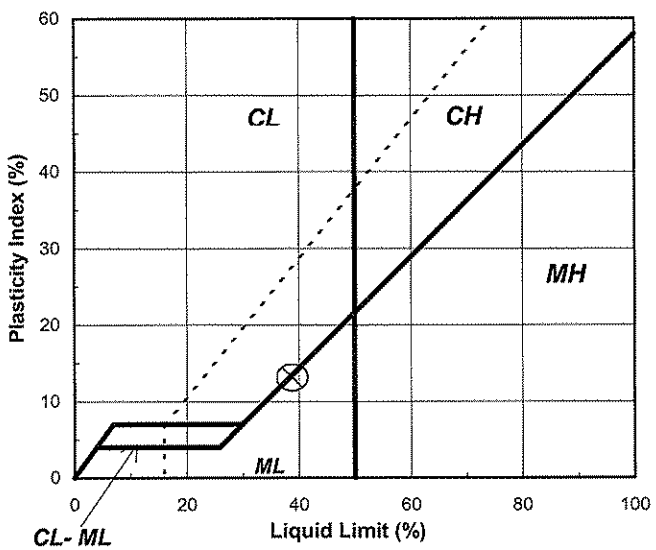
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**39**
Plastic Limit (%)	**26**
Plasticity Index (%)	**13**
USCS Symbol	**ML**

Flow Curve



Plasticity Chart



Tested By *KSW* *Date* *07/01/05* *Checked By* GEM *Date* 7-5-05

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INTEGRITY IN TESTING

WASH SIEVE ANALYSIS

ASTM D 422-63 (SOP-S3)

Client	JOYCE ENGINEERING, INC.	Boring No.	NA
Client Reference	DAVIDSON CO. LF	Depth (ft)	NA
Project No.	2005-564-01	Sample No.	NA
Lab ID	2005-564-01-01	Soil Color	**LIGHT BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	W-5	Tare No.	P-1
Wgt.Tare + Wet Specimen (gm)	559.89	Wgt.Tare + Wet Specimen (gm)	296.41
Wgt.Tare + Dry Specimen (gm)	499.51	Wgt.Tare + Dry Specimen (gm)	296.41
Weight of Tare (gm)	170.87	Weight of Tare (gm)	0.00
Weight of Water (gm)	60.38	Weight of Water (gm)	0.00
Weight of Dry Soil (gm)	328.64	Weight of Dry Soil (gm)	296.41
Moisture Content (%)	**18.4**	**Moisture Content (%)**	**0.0**

Wet Weight -3/4" Sample (gm)	24821.08	Weight of the Dry Specimen (gm)	328.64
Dry Weight - 3/4" Sample (gm)	20968.6	Weight of minus #200 material (gm)	148.68
Wet Weight +3/4" Sample (gm)	296.41	Weight of plus #200 material (gm)	179.96
Dry Weight + 3/4" Sample (gm)	296.41		
Total Dry Weight Sample (gm)	21265.0	**J - Factor (Percent Finer than 3/4")**	**0.9861**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.0	0.0	100.0	**100.0**
6"	150	0.00		0.0	0.0	100.0	**100.0**
3"	75	0.00		0.0	0.0	100.0	**100.0**
2"	50	0.00	(*)	0.0	0.0	100.0	**100.0**
1 1/2"	37.5	248.51		1.2	1.2	98.8	**98.8**
1"	25	0.00		0.0	1.2	98.8	**98.8**
3/4"	19	47.90		0.2	1.4	98.6	**98.6**
1/2"	12.5	0.00		0.0	0.0	100.0	**98.6**
3/8"	9.5	0.00		0.0	0.0	100.0	**98.6**
#4	4.75	10.35		3.1	3.1	96.9	**95.5**
#10	2	25.62		7.8	10.9	89.1	**87.8**
#20	0.85	48.26	(**)	14.7	25.6	74.4	**73.3**
#40	0.425	30.94		9.4	35.0	65.0	**64.1**
#60	0.25	19.58		6.0	41.0	59.0	**58.2**
#140	0.106	32.10		9.8	50.8	49.2	**48.5**
#200	0.075	13.11		4.0	54.8	45.2	**44.6**
Pan	-	148.68		45.2	100.0	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By AHF Date 07/01/05 Checked By GBM Date 7-7-05

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SIEVE ANALYSIS
ASTM D 422-63 (SOP-S3)

Client	JOYCE ENGINEERING, INC.	Boring No.	NA
Client Reference	DAVIDSON CO. LF	Depth (ft)	NA
Project No.	2005-564-01	Sample No.	NA
Lab ID	2005-564-01-01	Soil Color	**LIGHT BROWN**

	SIEVE ANALYSIS		HYDROMETER
USCS	**gravel**	**sand**	**silt and clay**

USCS Symbol ***SM, TESTED***

USCS Classification ***SILTY SAND***

Tested By AHF Date 07/01/05 Checked By GEM Date 7-7-05

 DCN: CT-S3A DATE 6-25-98 REVISION 2 *C:\2005 Projects\2005-564 JOYCE\[2005-564-01-01 SIEVE.xls]Sheet1*

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INTEGRITY IN TESTING

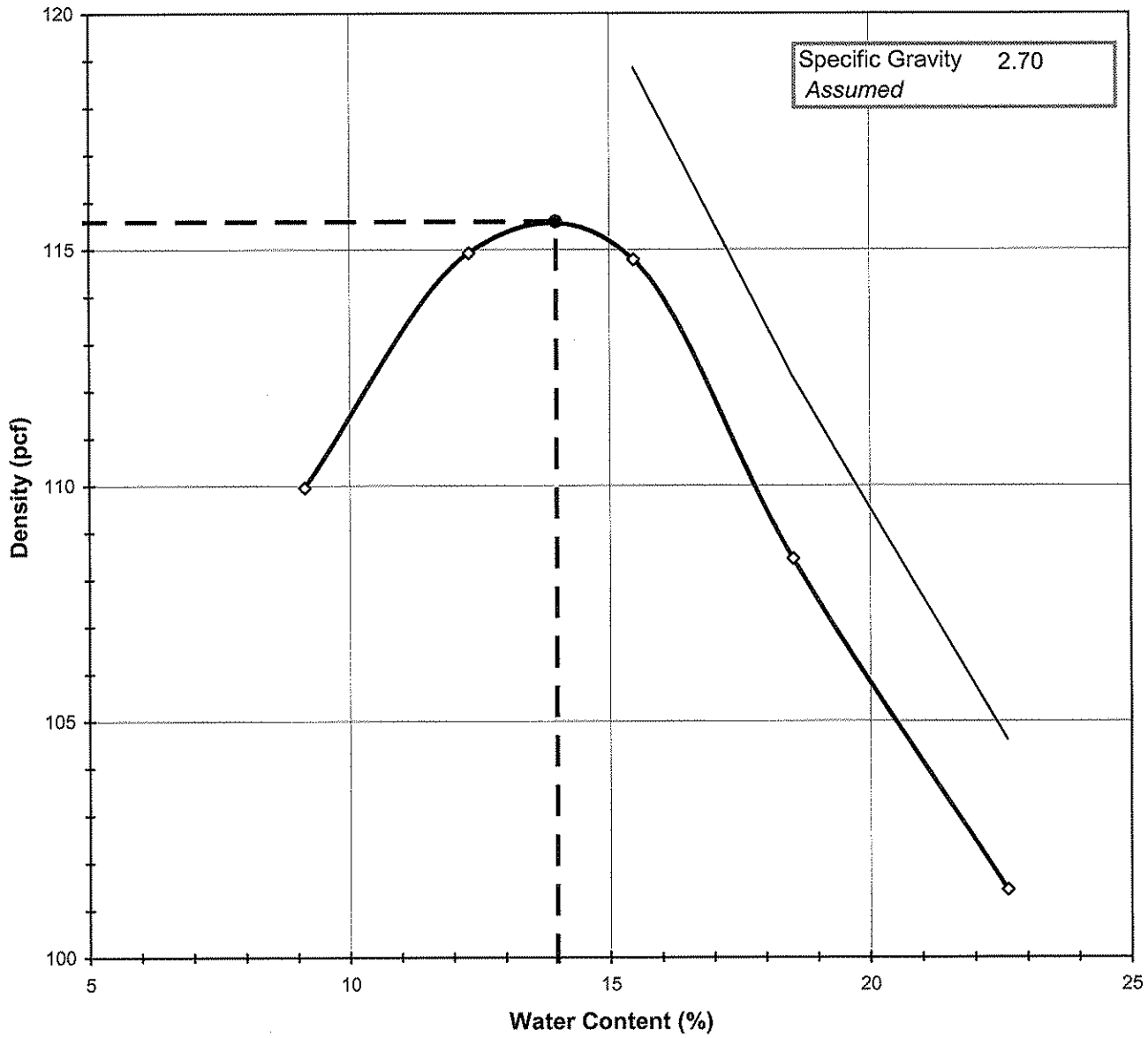
MOISTURE DENSITY RELATIONSHIP

ASTM D698-91 SOP-S12

Client	JOYCE ENGINEERING, INC.	Boring No.	NA
Client Reference	DAVIDSON CO. LF	Depth (ft)	NA
Project No.	2005-564-01	Sample No.	NA
Lab ID	2005-564-01-01	Test Method	**STANDARD**

Visual Description BROWN SILT

Optimum Water Content **14.0**
Maximum Dry Density **115.6**



Tested By *AT* *Date* *07/06/05* *Checked By* GEM *Date* 7-7-05

 DCN:CT-S12 DATE: 6-25-98 REVISION 3 *#N/A*

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MOISTURE - DENSITY RELATIONSHIP

ASTM D698-91 SOP-S12

Client	JOYCE ENGINEERING, INC.	Boring No.	NA
Client Reference	DAVIDSON CO. LF	Depth (ft)	NA
Project No.	2005-564-01	Sample No.	NA
Lab ID	2005-564-01-01		

Visual Description BROWN SILT

Total Weight of the Sample (gm)	NA
As Received Water Content(%)	NA
Assumed Specific Gravity	2.70
Percent Retained on 3/4"	NA
Percent Retained on 3/8"	NA
Percent Retained on #4	NA
Oversize Material	Not included
Procedure Used	B

TestType	**STANDARD**
Rammer Weight (lbs)	5.5
Rammer Drop (in)	12
Rammer Type	MECHANICAL
Machine ID	R174
Mold ID	R172
Mold diameter	4"
Weight of the Mold	4211
Volume of the Mold(cc)	940

Mold / Specimen

Point No.	**1**	**2**	**3**	**4**	**5**
Wt. of Mold & WS (gm)	6019	6155	6208	6147	6085
Wt.of Mold (gm)	4211	4211	4211	4211	4211
Wt. of WS	1808	1945	1997	1937	1874
Mold Volume (cc)	940	940	940	940	940

Moisture Content / Density

Tare Number	B-5	Z-9	B-4	A-3	Y-6
Wt. of Tare & WS (gm)	627.89	508.48	493.72	640.50	483.93
Wt. of Tare & DS (gm)	583.62	463.74	440.87	555.85	413.27
Wt. of Tare (gm)	98.90	100.29	99.19	98.87	100.90
Wt. of Water (gm)	44.27	44.74	52.85	84.65	70.66
Wt. of DS (gm)	484.72	363.45	341.68	456.98	312.37

Wet Density (gm/cc)	1.92	2.07	2.12	2.06	1.99
Wet Density (pcf)	120.0	129.1	132.5	128.5	124.4
Moisture Content (%)	**9.1**	**12.3**	**15.5**	**18.5**	**22.6**
Dry Density (pcf)	**110.0**	**114.9**	**114.8**	**108.4**	**101.4**

Zero Air Voids

Moisture Content (%)	15.5	18.5	22.6
Dry Unit Weight (pcf)	118.8	112.3	104.6

Tested By *AT* *Date* *07/06/05* *Checked By* GEM *Date* 7-7-05

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.....GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES

July 21, 2005

Project No. 2005-64-02

Mr. Evan Andrews
Joyce Engineering, Inc.
Henderson Building Suite 203
2301 West Meadowview Road
Greensboro, NC 27407

Transmittal
Laboratory Test Results
Davidson County Landfill

Please find attached the laboratory test results for the above referenced project. The tests were outlined on the Project Verification Form that was faxed to your firm prior to the testing. The testing was performed in general accordance with the methods listed on the enclosed data sheets. 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 provide these testing services. Should you have any questions or if we may be of further assistance, please contact our office.

Respectively submitted,
Geotechnics, Inc.

Michael P. Smith
Regional Manager

We understand that you have a choice in your laboratory services and we thank you for choosing Geotechnics.

DCN: Data Transmittal Letter Date: 1/28/05 Rev.: 1

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INTEGRITY IN TESTING

MOISTURE CONTENT

ASTM D 2216 (SOP-S1)

Client	JOYCE ENGINEERING, INC.
Client Reference	DAVIDSON CO. LF
Project No.	2005-564-02

Lab ID	.001
Boring No.	NA
Depth (ft)	NA
Sample No.	#2
Tare Number	B-5
Wt. of Tare & WS (gm)	324.90
Wt. of Tare & DS (gm)	277.63
Wt. of Tare (gm)	98.70
Wt. of Water (gm)	47.27
Wt. of DS (gm)	178.93
Water Content (%)	**26.4**

Notes : *NA*

Tested By *KAW* *Date* *07/15/05* *Checked By* *GBM* *Date* *7-20-05*

DCN: CT-S1 DATE 6-30-98 REVISION: 2

C:\2005 Projects\2005-564 JOYCE\2005-564-02-01 WATCONT.XLS]Sheet1

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	JOYCE ENGINEERING, INC.	Boring No.	NA
Client Reference	DAVIDSON CO. LF	Depth (ft)	NA
Project No.	2005-564-02	Sample No.	#2
Lab ID	2005-564-02-01	Soil Description	**BROWN ELASTIC SILT**

Note: The* USCS *symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

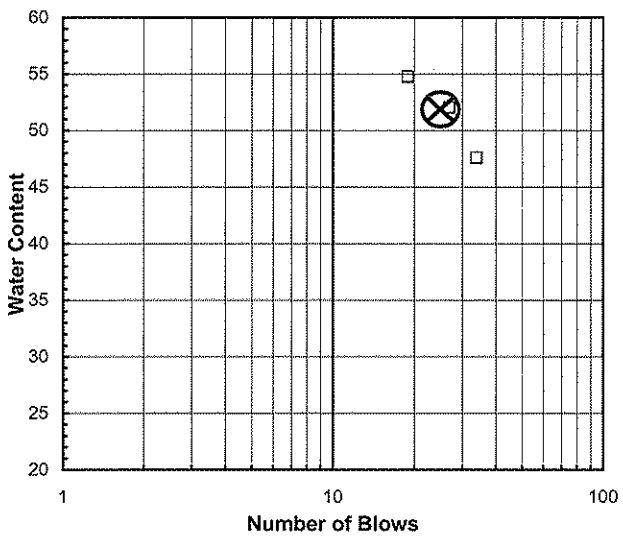
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	L-1	I-1	P-1	M U L T I P O I N T
Wt. of Tare & WS (gm)	31.68	29.32	30.96	
Wt. of Tare & DS (gm)	28.26	26.83	28.06	
Wt. of Tare (gm)	22.01	22.04	21.96	
Wt. of Water (gm)	3.4	2.5	2.9	
Wt. of DS (gm)	6.3	4.8	6.1	
Moisture Content (%)	**54.7**	**52.0**	**47.5**	
Number of Blows	**19**	**27**	**34**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	E-1	A-D	
Wt. of Tare & WS (gm)	30.76	22.31	
Wt. of Tare & DS (gm)	28.75	20.71	
Wt. of Tare (gm)	22.11	15.43	
Wt. of Water (gm)	2.0	1.6	
Wt. of DS (gm)	6.6	5.3	
Moisture Content (%)	**30.3**	**30.3**	**0.0**

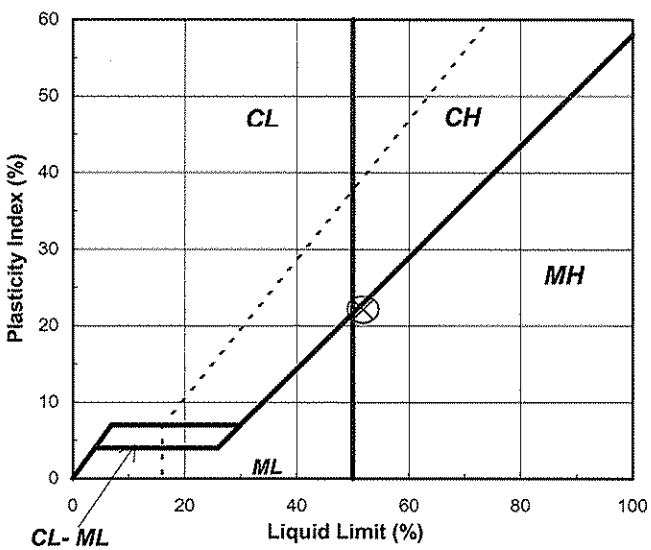
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**52**
Plastic Limit (%)	**30**
Plasticity Index (%)	**22**
USCS Symbol	**MH**

Flow Curve



Plasticity Chart



Tested By *MKD* *Date* *07/19/05* *Checked By* *Date*

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INTEGRITY IN TESTING

WASH SIEVE ANALYSIS

ASTM D 422-63 (SOP-S3)

Client	JOYCE ENGINEERING, INC.	Boring No.	NA
Client Reference	DAVIDSON CO. LF	Depth (ft)	NA
Project No.	2005-564-02	Sample No.	#2
Lab ID	2005-564-02-01	Soil Color	**LIGHT BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	P-1	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	533.65	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	503.86	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	169.54	Weight of Tare (gm)	NA
Weight of Water (gm)	29.79	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	334.32	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**8.9**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	334.32
Dry Weight - 3/4" Sample (gm)	178.2	Weight of minus #200 material (gm)	156.08
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	178.24
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.0	0.0	100.0	**100.0**
6"	150	0.00	0.0	0.0	100.0	**100.0**
3"	75	0.00	0.0	0.0	100.0	**100.0**
2"	50	0.00	0.0	0.0	100.0	**100.0**
1 1/2"	37.5	0.00	0.0	0.0	100.0	**100.0**
1"	25.0	0.00	0.0	0.0	100.0	**100.0**
3/4"	19.0	0.00	0.0	0.0	100.0	**100.0**
1/2"	12.50	0.00	0.0	0.0	100.0	**100.0**
3/8"	9.50	2.03	0.6	0.6	99.4	**99.4**
#4	4.75	4.52	1.4	2.0	98.0	**98.0**
#10	2.00	40.05	12.0	13.9	86.1	**86.1**
#20	0.850	55.74	16.7	30.6	69.4	**69.4**
#40	0.425	28.01	8.4	39.0	61.0	**61.0**
#60	0.250	15.51	4.6	43.6	56.4	**56.4**
#140	0.106	22.59	6.8	50.4	49.6	**49.6**
#200	0.075	9.79	2.9	53.3	46.7	**46.7**
Pan	-	156.08	46.7	100.0	-	-

Tested By MCW Date 7/19/2005 Checked By GEM Date 7-21-05

DCN: CT-S3C DATE 6-25-98 REVISION: 2

\\Lab1\c\2005 Projects\2005-564 JOYCE\[2005-564-02-01 SIEVE.XLS]Sheet1

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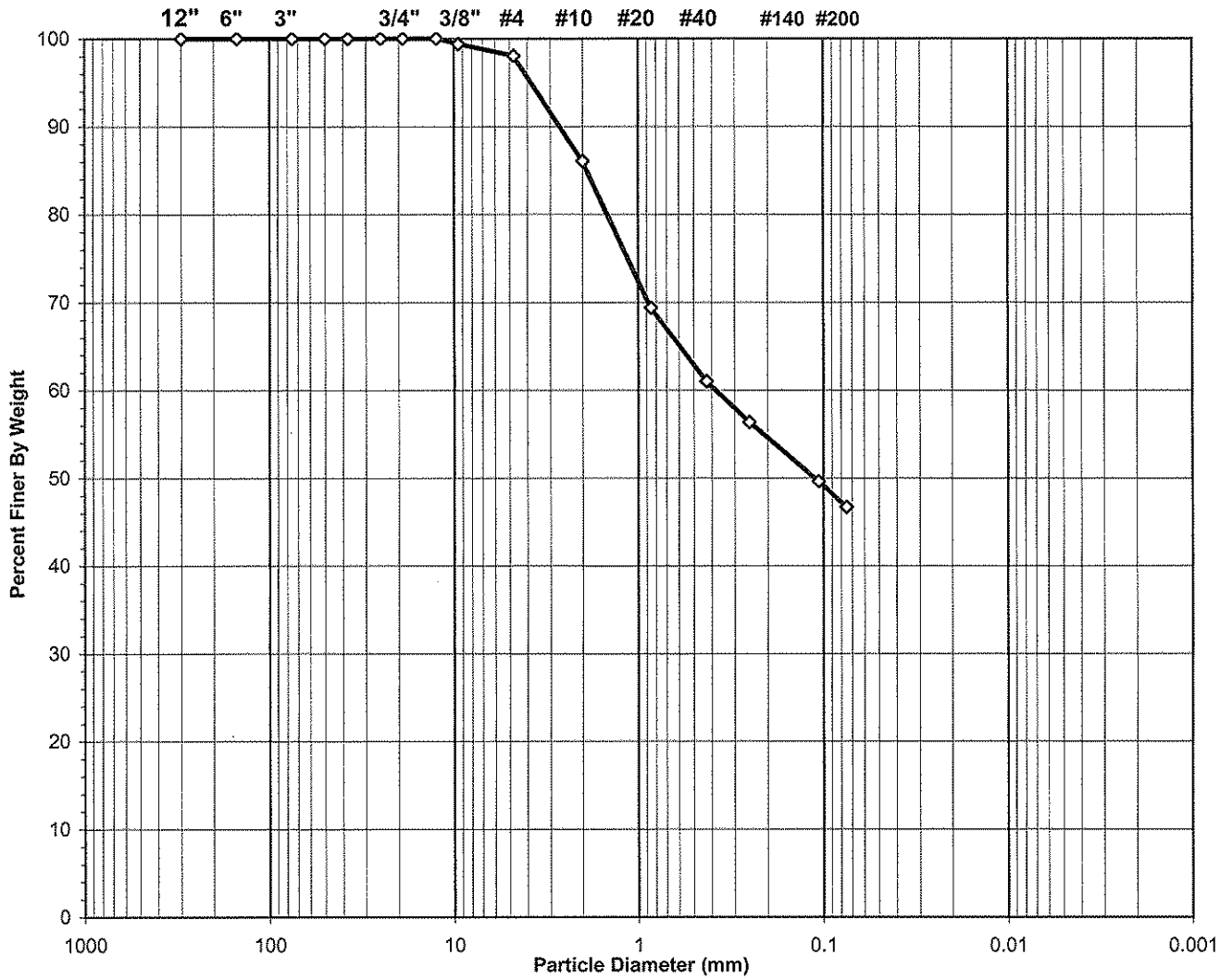
INTEGRITY IN TESTING

SIEVE ANALYSIS
ASTM D 422-63 (SOP-S3)

Client	JOYCE ENGINEERING, INC.	Boring No.	NA
Client Reference	DAVIDSON CO. LF	Depth (ft)	NA
Project No.	2005-564-02	Sample No.	#2
Lab ID	2005-564-02-01	Soil Color	**LIGHT BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol ***SM, TESTED***

USCS Classification ***SILTY SAND***

Tested By MCW Date 7/19/2005 Checked By GBM Date 7-21-05

 DCN: CT-S3C DATE 6-25-98 REVISION: 2 *\\Lab1\c\2005 Projects\2005-564 JOYCE\[2005-564-02-01 SIEVE.XLS]Sheet1*

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INTEGRITY IN TESTING

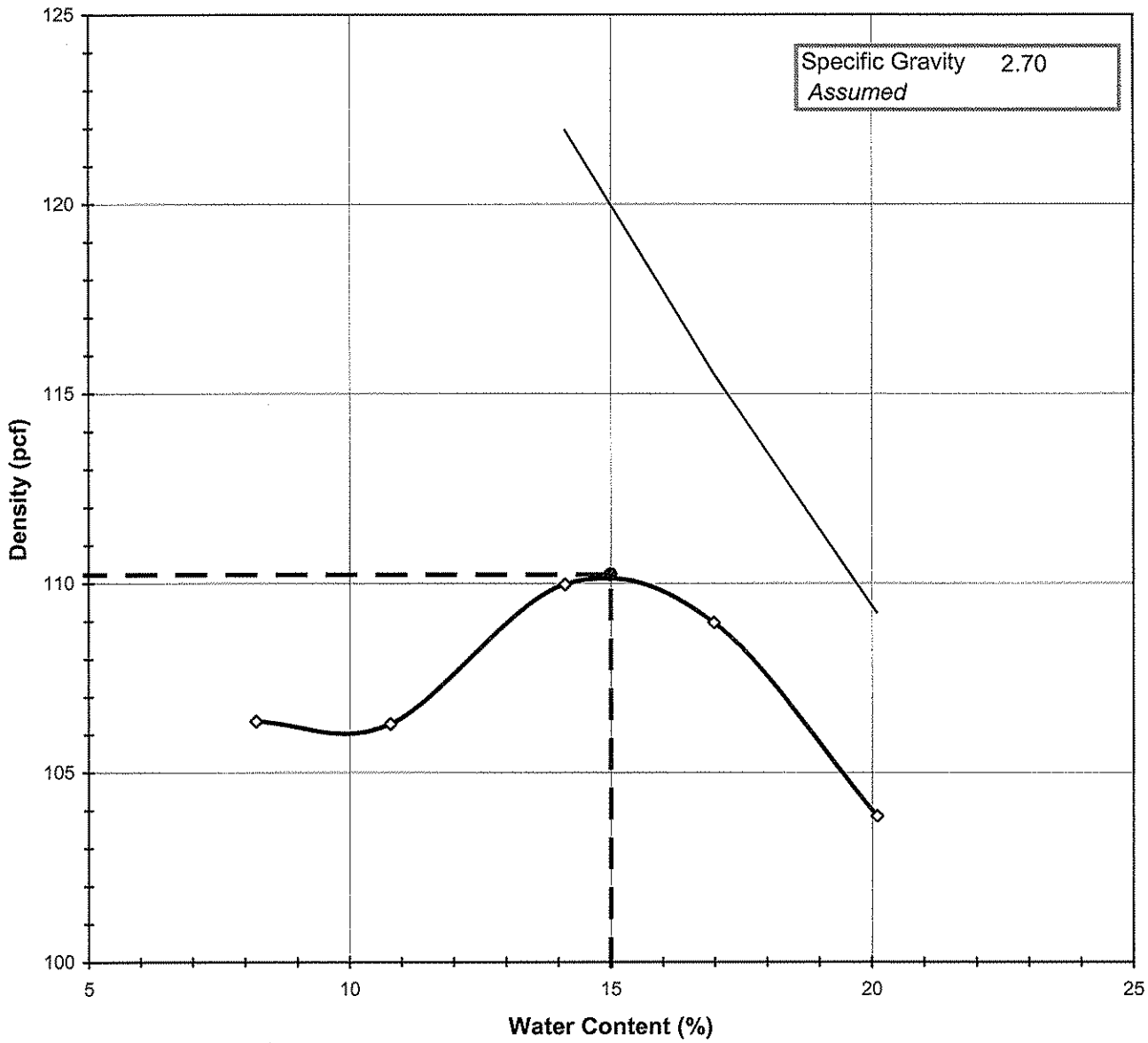
MOISTURE DENSITY RELATIONSHIP

ASTM D698-91 SOP-S12

Client	JOYCE ENGINEERING, INC.	Boring No.	NA
Client Reference	DAVIDSON CO. LF	Depth (ft)	NA
Project No.	2005-564-02	Sample No.	#2
Lab ID	2005-564-02-01	Test Method	**STANDARD**

Visual Description BROWN SANDY SILT

Optimum Water Content **15.0**
Maximum Dry Density **110.2**



Tested By *MKD* *Date* *07/18/05* *Checked By* KAW *Date* 7-19-05

 DCN:CT-S12 DATE: 6-25-98 REVISION 3 *C:\2005 Projects\2005-564 JOYCE\[2005-564-02-01 Proctor.XLS]Sheet1*

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INTEGRITY IN TESTING

MOISTURE - DENSITY RELATIONSHIP

ASTM D698-91 SOP-S12

Client	JOYCE ENGINEERING, INC.	Boring No.	NA
Client Reference	DAVIDSON CO. LF	Depth (ft)	NA
Project No.	2005-564-02	Sample No.	#2
Lab ID	2005-564-02-01		

Visual Description BROWN SANDY SILT

Total Weight of the Sample (gm)	NA
As Received Water Content(%)	NA
Assumed Specific Gravity	2.70
Percent Retained on 3/4"	NA
Percent Retained on 3/8"	NA
Percent Retained on #4	NA
Oversize Material	Not included
Procedure Used	B

TestType	**STANDARD**
Rammer Weight (lbs)	5.5
Rammer Drop (in)	12
Rammer Type	MECHANICAL
Machine ID	R174
Mold ID	R172
Mold diameter	4"
Weight of the Mold	4210
Volume of the Mold(cc)	940

Mold / Specimen

Point No.	**1**	**2**	**3**	**4**	**5**
Wt. of Mold & WS (gm)	5944	5984	6101	6131	6090
Wt.of Mold (gm)	4210	4210	4210	4210	4210
Wt. of WS	1734	1774	1891	1920	1879
Mold Volume (cc)	940	940	940	940	940

Moisture Content / Density

Tare Number	K-18	K-12	K-16	K-10	K-13
Wt. of Tare & WS (gm)	567.52	539.86	667.78	607.32	634.61
Wt. of Tare & DS (gm)	530.88	498.01	598.82	535.14	546.91
Wt. of Tare (gm)	84.25	109.88	110.62	109.89	110.59
Wt. of Water (gm)	36.64	41.85	68.96	72.18	87.70
Wt. of DS (gm)	446.63	388.13	488.20	425.25	436.32

Wet Density (gm/cc)	1.84	1.89	2.01	2.04	2.00
Wet Density (pcf)	115.1	117.7	125.5	127.5	124.7
Moisture Content (%)	**8.2**	**10.8**	**14.1**	**17.0**	**20.1**
Dry Density (pcf)	**106.4**	**106.3**	**110.0**	**109.0**	**103.9**

Zero Air Voids

Moisture Content (%)	14.1	17.0	20.1
Dry Unit Weight (pcf)	122.0	115.5	109.2

Tested By *MKD* *Date* *07/18/05* *Checked By* KAW *Date* 7-19-05

2200 Westinghouse Boulevard • Suite 105 • Raleigh, NC 27604 • Phone (919) 876-0405 • Fax (919) 876-0460

JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 1 | Sheet: 1 of 2

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: FR | Date: 7/1/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR MDD, pcf	PROCTOR OMC, %	MEASURED IN-PLACE WD, pcf	MEASURED IN-PLACE MC, %	MEASURED IN-PLACE DD, pcf	IN-PLACE COMPACTION ACTUAL	IN-PLACE COMPACTION REQ'D	MC DEV. FROM OMC	PASS OR FAIL?	NOTES
ND-1	Acre 1	0.5	CL	112.0	15.0%	126.0	17.0%	107.7	96.2%	95%	2.0%	PASS	
2	√	0.5	ML red	110.2	15.0%	123.6	19.1%	103.8	94.2%	√	4.1%	MARG	
3	√	0.5	CL	112.0	15.0%	126.4	13.4%	111.5	99.5%	√	-1.6%	PASS	
4	√	0.5	CL	112.0	15.0%	128.0	16.2%	110.2	98.4%	√	1.2%	PASS	
5	√	0.5	CL	112.0	15.0%	127.5	12.1%	113.7	101.6%	√	-2.9%	PASS	
6	Acre 2	0.5	CL	112.0	15.0%	125.2	14.9%	109.0	97.3%	√	-0.1%	PASS	
7	√	0.5	CL	112.0	15.0%	127.8	19.1%	107.3	95.8%	√	4.1%	PASS	
8	√	0.5	CL	112.0	15.0%	128.0	14.7%	111.6	99.6%	√	-0.3%	PASS	
9	√	0.5	CL	112.0	15.0%	128.5	15.6%	111.2	99.2%	√	0.6%	PASS	
10	√	0.5	ML red	110.2	15.0%	123.3	17.2%	105.2	95.5%	√	2.2%	PASS	
11	√	0.5	ML/CL	110.2	15.0%	126.8	19.7%	105.9	96.1%	√	4.7%	PASS	
12	Acre 3	0.5	ML/CL	110.2	15.0%	126.8	18.1%	107.4	97.4%	√	3.1%	PASS	
13	√	0.5	ML/CL	110.2	15.0%	126.1	17.1%	107.7	97.7%	√	2.1%	PASS	
14	√	0.5	ML	110.2	15.0%	126.1	19.7%	105.3	95.6%	√	4.7%	PASS	
15	√	0.5	CL	112.0	15.0%	127.2	14.9%	110.7	98.8%	√	-0.1%	PASS	

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

HannuKemppinen

JEI REPRESENTATIVE

SAND-CONE DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	SD-1
Report No.:	1	Sheet:	3 of 9
Day of Week:	TU	Date:	7/5/05
JEI Project:	379.00	Task No.:	35
Tested By:	Hannu Kemppinen		
Checked By:			
Procedure:	ASTM D 1556 Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method		

Project:	Davidson Co. Partial Closure
Soil Source:	Borrow under powerlines
Soil Description:	Sandy silty Clay
Unified Soil Class:	CL
Location:	ND-30
Elevation:	0.5 foot

FIELD DENSITY OF SOIL

Unit Weight of calibrated sand, pcf	Determined in lab	(1) =	95.8
Initial weight of jar and sand, pounds	**Measured in field**	(2) =	13.67
Weight of jar and sand after filling hole and cone, pounds	**Measured in field**	(3) =	4.02
Weight of sand in hole and cone, pounds		(4) = (2) - (3) =	9.65
Volume of hole and cone, cubic feet		(5) = (4) / (1) =	0.101
Volume of cone, cubic feet	Determined in lab	(6) =	0.040
Volume of hole, cubic feet (minimum 0.05 cubic feet)		(7) = (5) - (6) =	0.061

Excavated Soil Container No.			
Weight of container and all excavated soil, pounds	**Measured in field**	(8) =	8.59
Weight of container, pounds	**Measured in field**	(9) =	0.60
Total weight of wet soil, pounds		(10) = (8) - (9) =	7.99
Wet density (WD) of soil, pcf		(11) = (10) / (7) =	**131.6**
Dry weight of all excavated soil, pounds		(12) = (10) / [1+ {(19) / 100}] =	6.74
Dry density (DD) of soil, pcf		(13) = (11) / [1+ {(19) / 100}] =	**111.0**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(14)	1.22
Weight of container and dry soil, pounds	**Measured in field**	(15)	1.12
Weight of water, pounds		(16) = (14) - (15)	0.10
Weight of container, pounds	**Measured in field**	(17)	0.58
Weight of dry soil, pounds		(18) = (15) - (17)	0.54
Moisture content (MC), percent		(19) = 100 * (16) / (18)	**18.5%**

LABORATORY PROCTOR RESULTS

Type of Proctor test: Standard ASTM D 698, Method A)			
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(20) =	**112.0**
Optimum moisture content (OMC), percent	Determined in lab	(21) =	**15.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(22) =	0
Percent of excavated soil <3/4"		(23) = 100 * [(12) - (22)] / (12) =	100.0%
Percent of excavated soil >3/4"		(24) = 100 * (22) / (12) =	0.0%
MDD corrected (MDDC) for +3/4", pcf		(25) = [(20) * (23) / 100] + [150 * (24) / 100] =	**112.0**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller		
Percent compaction		(26) = 100 * (13) / (25) =	**99.1%**
Variation from optimum moisture content, percent		(27) = (19) - (21) =	**3.5%**

REMARKS:

ND30 WD 127.4 MC 21.0 DD105.3 COMP 94%

SAND-CONE DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	SD-2
Report No.:	1	Sheet:	of
Day of Week:	TU	Date:	7/5/05
JEI Project:	379.00	Task No.:	35
Tested By:	*Hannu Kemppinen*		
Checked By:			
Procedure:	ASTM D 1556 Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method		

Project:	Davidson Co. Partial Closure
Soil Source:	Borrow under powerlines
Soil Description:	Sandy silty Clay
Unified Soil Class:	CL
Location:	ND-33
Elevation:	0.5 foot

FIELD DENSITY OF SOIL

Unit Weight of calibrated sand, pcf	Determined in lab	(1) =	95.8
Initial weight of jar and sand, pounds	**Measured in field**	(2) =	12.85
Weight of jar and sand after filling hole and cone, pounds	**Measured in field**	(3) =	3.33
Weight of sand in hole and cone, pounds		(4) = (2) - (3) =	9.52
Volume of hole and cone, cubic feet		(5) = (4) / (1) =	0.099
Volume of cone, cubic feet	Determined in lab	(6) =	0.040
Volume of hole, cubic feet (minimum 0.05 cubic feet)		(7) = (5) - (6) =	0.059

Excavated Soil Container No.			
Weight of container and all excavated soil, pounds	**Measured in field**	(8) =	7.96
Weight of container, pounds	**Measured in field**	(9) =	0.60
Total weight of wet soil, pounds		(10) = (8) - (9) =	7.36
Wet density (WD) of soil, pcf		(11) = (10) / (7) =	**124.0**
Dry weight of all excavated soil, pounds		(12) = (10) / [1+ {(19) / 100}] =	6.42
Dry density (DD) of soil, pcf		(13) = (11) / [1+ {(19) / 100}] =	**108.2**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(14)	1.13
Weight of container and dry soil, pounds	**Measured in field**	(15)	1.06
Weight of water, pounds		(16) = (14) - (15)	0.07
Weight of container, pounds	**Measured in field**	(17)	0.58
Weight of dry soil, pounds		(18) = (15) - (17)	0.48
Moisture content (MC), percent		(19) = 100 * (16) / (18)	**14.6%**

LABORATORY PROCTOR RESULTS

Type of Proctor test:	Standard ASTM D 698, Method A)		
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(20) =	**112.0**
Optimum moisture content (OMC), percent	Determined in lab	(21) =	**15.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(22) =	0
Percent of excavated soil <3/4"		(23) = 100 * [(12) - (22)] / (12) =	100.0%
Percent of excavated soil >3/4"		(24) = 100 * (22) / (12) =	0.0%
MDD corrected (MDDC) for +3/4", pcf		(25) = [(20) * (23) / 100] + [150 * (24) / 100] =	**112.0**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller	
Percent compaction	(26) = 100 * (13) / (25) =	**96.6%**
Variation from optimum moisture content, percent	(27) = (19) - (21) =	**-0.4%**

REMARKS:

ND 33 WD124.0 MC 21.7 DD 101.9 COMP 91.0 %

DRIVE CYLINDER DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	DC-1
Report No.:	1	Sheet:	3 of 9
Day of Week:	TU	Date:	7/5/05
Project:	Davidson Co. Partial Closure	JEI Project:	379.00
		Task No.:	35
Soil Source:	Borrow under powerlines	Tested By:	*Hannu Kemppinen*
Soil Description:	Sandy silty Clay	Checked By:	
Unified Soil Class:	CL	Procedure:	ASTM D 2937 Standard Test
Location:	ND-30		Method for Density and Unit Weight of Soil
Elevation:	0.5 foot		in Place by the Drive Cylinder Method

FIELD DENSITY OF SOIL

Mass of Cylinder and Wet Soil (pounds)	**Measured in field**	(1)	5.60
Mass of the Cylinder (pounds)	**Measured in field**	(2)	1.31
Mass of Wet Soil (pounds)	(1) - (2) = (3)		4.3
Volume of Cylinder (cubic feet)	(Calibration determined)	(4)	0.033
Wet density (WD) of soil, pcf (mass of soil / volume of soil)	(3) / (4) = (5)		**130.0**
Dry weight of all excavated soil, pounds	(3) / 1+(13) = (6)		3.6
Dry density (DD) of soil, pcf	(5) / 1+(13) = (7)		**110.5**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(8)	1.28
Weight of container and dry soil, pounds	**Measured in field**	(9)	1.18
Weight of water, pounds	(8) - (9) = (10)		0.11
Weight of container, pounds	**Measured in field**	(11)	0.58
Weight of dry soil, pounds	(9) - (11) = (12)		0.60
Moisture content (MC), percent	100 * (10) / (12) = (13)		**17.6%**

LABORATORY PROCTOR RESULTS

Type of Proctor test: Standard ASTM D 698, Method A)			
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(14)	**112.0**
Optimum moisture content (OMC), percent	Determined in lab	(15)	**15.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(16)	0
Percent of excavated soil <3/4"	100 * [(6) - (16)] / (6) = (17)		100.0%
Percent of excavated soil >3/4"	100 * (16) / (6) = (18)		0.0%
MDD corrected (MDDC) for +3/4", pcf	[(14) * (17) / 100] + [150 * (18) / 100] = (19)		**112.0**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller	
Percent compaction	100 * (7) / (14) = (20)	**98.7%**
Variation from optimum moisture content, percent	(13) - (15) = (21)	**2.6%**

NOTES:

ND-30 WD= 127.4 MC= 21.0 DD=105.3 COMP= 94 %

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JOYCE ENGINEERING, INC

DAILY SUMMARY OF FIELD DENSITY TESTS

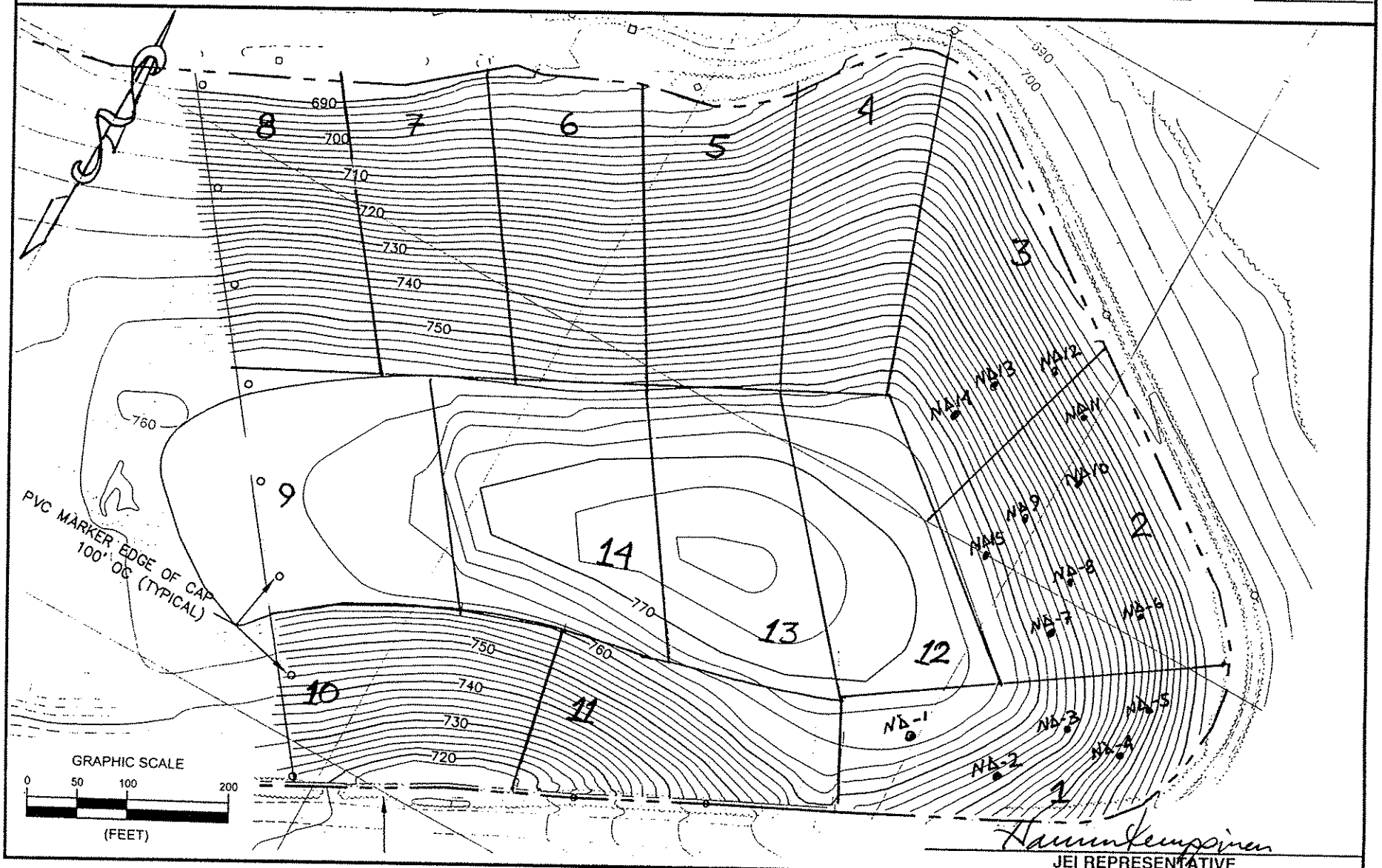
Project: Partial Closure
Client: Davidson County Integrated Solid Waste

Location: Davidson County, NC
Contractor: Shamrock Environmental Corp.

JEI Proj.: 379.00
JEI Task: 35

Report No.: FD- 1
Day of Wk: FR

Sheet: 2 of 2
Date: 7-1-05



JEI REPRESENTATIVE

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JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 2 | Sheet: 1 of 2

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: WE | Date: 7/6/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR		MEASURED IN-PLACE			IN-PLACE COMPACTION		MC DEV. FROM OMC	PASS OR FAIL?	NOTES
				MDD, pcf	OMC, %	WD, pcf	MC, %	DD, pcf	ACTUAL	REQ'D			
ND-16	Acre 3	0.5	CL	112.0	15.0%	132.0	17.1%	112.7	100.6%	95%	2.1%	PASS	
17	√	0.5	CL	112.0	15.0%	131.6	17.5%	112.0	100.0%	√	2.5%	PASS	
18	√	0.5	CL	112.0	15.0%	126.7	19.0%	106.5	95.1%	√	4.0%	PASS	
19	√	0.5	CL	112.0	15.0%	127.0	19.1%	106.6	95.2%	√	4.1%	PASS	
20	√	0.5	CL	112.0	15.0%	127.2	17.9%	107.9	96.3%	√	2.9%	PASS	
21	√	0.5	CL	112.0	15.0%	127.5	16.5%	109.4	97.7%	√	1.5%	PASS	
22	Acre 4	0.5	CL	112.0	15.0%	128.0	16.3%	110.1	98.3%	√	1.3%	PASS	
23	√	0.5	CL	112.0	15.0%	128.9	17.2%	110.0	98.2%	√	2.2%	PASS	
24	√	0.5	CL	112.0	15.0%	130.9	15.7%	113.1	101.0%	√	0.7%	PASS	
25	√	0.5	CL	112.0	15.0%	132.5	18.8%	111.5	99.6%	√	3.8%	PASS	

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

HannuKemppinen

JEI REPRESENTATIVE

DRIVE CYLINDER DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	DC-2
Report No.:	2	Sheet:	3 of 9
Day of Week:	TU	Date:	7/5/05
Project:	Davidson Co. Partial Closure	JEI Project:	379.00
		Task No.:	35
Soil Source:	Borrow under powerlines	Tested By:	*Hannu Kemppinen*
Soil Description:	Sandy silty Clay	Checked By:	
Unified Soil Class:	CL	Procedure:	ASTM D 2937 Standard Test
Location:	ND-33		Method for Density and Unit Weight of Soil
Elevation:	0.5 foot		in Place by the Drive Cylinder Method

FIELD DENSITY OF SOIL

Mass of Cylinder and Wet Soil (pounds)	**Measured in field**	(1)	5.64
Mass of the Cylinder (pounds)	**Measured in field**	(2)	1.33
Mass of Wet Soil (pounds)	(1) - (2) = (3)		4.31
Volume of Cylinder (cubic feet)	(Calibration determined)	(4)	0.033
Wet density (WD) of soil, pcf (mass of soil / volume of soil)	(3) / (4) = (5)		**130.6**
Dry weight of all excavated soil, pounds	(3) / 1+(13) = (6)		3.68
Dry density (DD) of soil, pcf	(5) / 1+(13) = (7)		**111.5**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(8)	1.33
Weight of container and dry soil, pounds	**Measured in field**	(9)	1.22
Weight of water, pounds	(8) - (9) = (10)		0.11
Weight of container, pounds	**Measured in field**	(11)	0.58
Weight of dry soil, pounds	(9) - (11) = (12)		0.64
Moisture content (MC), percent	100 * (10) / (12) = (13)		**17.2%**

LABORATORY PROCTOR RESULTS

Type of Proctor test: Standard ASTM D 698, Method A)			
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(14)	**112.0**
Optimum moisture content (OMC), percent	Determined in lab	(15)	**15.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(16)	0
Percent of excavated soil <3/4"	100 * [(6) - (16)] / (6) = (17)		100.0%
Percent of excavated soil >3/4"	100 * (16) / (6) = (18)		0.0%
MDD corrected (MDDC) for +3/4", pcf	[(14) * (17) / 100] + [150 * (18) / 100] = (19)		**112.0**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller	
Percent compaction	100 * (7) / (14) = (20)	**99.5%**
Variation from optimum moisture content, percent	(13) - (15) = (21)	**2.2%**

NOTES:

ND-33 WD= 124.0 MC=21.7 DD= 101.9 COMP= 91.0 %

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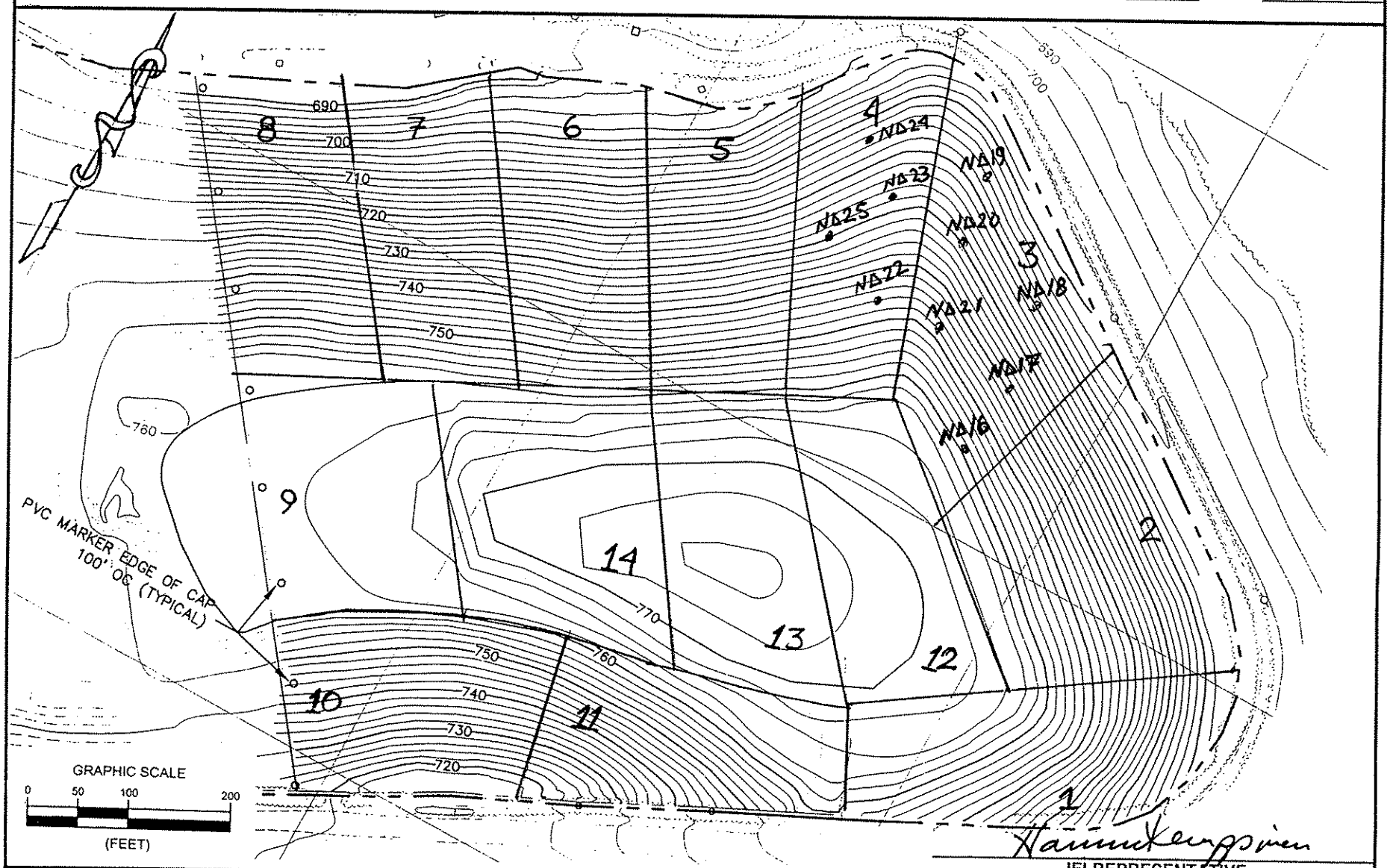
JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure
Client: Davidson County Integrated Solid Waste
Location: Davidson County, NC
Contractor: Shamrock Environmental Corp.
JEI Proj.: 379.00
JEI Task: 35
Report No.: FD-2
Day of Wk: WE
Sheet: 2 of 2
Date: 7-6-05



JEI REPRESENTATIVE

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JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 3 | Sheet: 1 of 9

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: WE | Date: 7/12/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR		MEASURED IN-PLACE			IN-PLACE COMPACTION		MC DEV. FROM OMC	PASS OR FAIL?	NOTES
				MDD, pcf	OMC, %	WD, pcf	MC, %	DD, pcf	ACTUAL	REQ'D			
ND-26	Acre 10	0.5	ML red	110.2	15.0%	126.2	27.1%	99.3	90.1%	95%	12.1%	FAILS	
27	√	0.5	ML red	110.2	15.0%	126.0	21.9%	103.4	93.8%	√	6.9%	FAILS	
28	√	0.5	ML red	110.2	15.0%	126.0	24.6%	101.1	91.8%	√	9.6%	FAILS	
29	√	0.5	ML red	110.2	15.0%	126.2	22.3%	103.2	93.6%	√	7.3%	FAILS	
30	√	0.5	ML red	110.2	15.0%	127.4	21.0%	105.3	95.5%	√	6.0%	PASS	
31	√	0.5	ML red	110.2	15.0%	126.2	18.9%	106.1	96.3%	√	3.9%	PASS	
SD-1	ND-30	0.5	ML red	110.2	15.0%	131.6	18.5%	111.1	100.8%	√	3.5%	PASS	Retest
DC-1	ND-30	0.5	ML red	110.2	15.0%	130.0	17.6%	110.5	100.3%	√	2.6%	PASS	Retest
MC-1	ND-26	0.5	ML red	110.2	15.0%	126.2	20.0%	105.2	95.4%	√	5.0%	PASS	Retest
MC-2	ND-27	0.5	ML red	110.2	15.0%	126.0	19.7%	105.3	95.5%	√	4.7%	PASS	Retest
MC-3	ND-28	0.5	ML red	110.2	15.0%	126.0	20.0%	105.0	95.3%	√	5.0%	PASS	Retest
MC-4	ND-29	0.5	ML red	110.2	15.0%	126.2	16.7%	108.1	98.1%	√	1.7%	PASS	Retest

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

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JEI REPRESENTATIVE

JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 3 | Sheet: 2 of 9

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: WE | Date: 7/12/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR		MEASURED IN-PLACE			IN-PLACE COMPACTION		MC DEV. FROM OMC	PASS OR FAIL?	NOTES
				MDD, pcf	OMC, %	WD, pcf	MC, %	DD, pcf	ACTUAL	REQ'D			
ND-32	Acre 11	0.5	ML red	110.2	15.0%	126.8	22.0%	103.9	94.3%	95%	7.0%	MARG	
33	√	0.5	ML red	110.2	15.0%	124.0	21.7%	101.9	92.5%	√	6.7%	FAILS	
34	√	0.5	ML red	110.2	15.0%	126.4	17.7%	107.4	97.5%	√	2.7%	PASS	
35	√	0.5	CL	112.0	15.0%	128.2	15.2%	111.3	99.4%	√	0.2%	PASS	
36	√	0.5	CL	112.0	15.0%	128.1	13.5%	112.9	100.8%	√	-1.5%	PASS	
37	√	0.5	CL	112.0	15.0%	126.6	14.6%	110.5	98.6%	√	-0.4%	PASS	
SD-2	ND-33	0.5	ML	110.2	15.0%	124.7	14.6%	108.8	98.7%	√	-0.4%	PASS	Retest
DC-2	ND-33	0.5	CL	112.0	15.0%	130.6	17.2%	111.4	99.5%	√	2.2%	PASS	Retest
MC-5	ND-32	0.5	ML	110.2	15.0%	126.8	20.8%	105.0	95.3%	√	5.8%	PASS	Retest

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

HannuKemppinen

JEI REPRESENTATIVE

DRIVE CYLINDER DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	DC-3
Report No.:	3	Sheet:	3 of 9
Day of Week:	TU	Date:	7/5/05
Project:	Davidson Co. Partial Closure	JEI Project: 379.00	Task No.: 35
Soil Source:	Borrow under powerlines	Tested By:	HannuKemppinen
Soil Description:	Sandy silty Clay	Checked By:	
Unified Soil Class:	CL	Procedure:	ASTM D 2937 Standard Test
Location:	ND 46		Method for Density and Unit Weight of Soil
Elevation:	0.5 foot		in Place by the Drive Cylinder Method

FIELD DENSITY OF SOIL

Mass of Cylinder and Wet Soil (pounds)	**Measured in field**	(1)	5.41
Mass of the Cylinder (pounds)	**Measured in field**	(2)	1.31
Mass of Wet Soil (pounds)	(1) - (2) = (3)		4.10
Volume of Cylinder (cubic feet)	(Calibration determined)	(4)	0.033
Wet density (WD) of soil, pcf (mass of soil / volume of soil)	(3) / (4) = (5)		**124.2**
Dry weight of all excavated soil, pounds	(3) / 1+(13) = (6)		3.54
Dry density (DD) of soil, pcf	(5) / 1+(13) = (7)		**107.4**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(8)	1.280
Weight of container and dry soil, pounds	**Measured in field**	(9)	1.185
Weight of water, pounds	(8) - (9) = (10)		0.095
Weight of container, pounds	**Measured in field**	(11)	0.58
Weight of dry soil, pounds	(9) - (11) = (12)		0.605
Moisture content (MC), percent	100 * (10) / (12) = (13)		**15.7%**

LABORATORY PROCTOR RESULTS

Type of Proctor test: Standard ASTM D 698, Method A)			
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(14)	**112.0**
Optimum moisture content (OMC), percent	Determined in lab	(15)	**15.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(16)	0
Percent of excavated soil <3/4"	100 * [(6) - (16)] / (6) =	(17)	100.0%
Percent of excavated soil >3/4"	100 * (16) / (6) =	(18)	0.0%
MDD corrected (MDDC) for +3/4", pcf	[(14) * (17) / 100] + [150 * (18) / 100] =	(19)	**112.0**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller		
Percent compaction	100 * (7) / (14) =	(20)	**95.9%**
Variation from optimum moisture content, percent	(13) - (15) =	(21)	**0.7%**

NOTES:

ND 46 WD= 125.3 MC= 17.6 DD =106.5 COMP =95.1 %

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DETERMINATION OF WATER CONTENT

JOYCE ENGINEERING, INC.

Report No.: 3 Sheet: 7 of 9

Project No. 379.00 Task: 35

Project: Davidson Co. partial Closure Day: TU Date: 7/12/2005

Soil Description: Sandy clyey Silt Tested By: HannuKemppinen

Unified Soil Class: CL-ML Checked By:

Procedure: ASTM D 4959 Standard Test Method for Water Content by Direct heating Method

WATER CONTENT **TEST NUMBER: MC-1**

		Corresponds with	ND26
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.390
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.255
Weight of water, pounds	(1)-(2)	(3)	0.135
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.675
Water content, percent	(3)/(5)x100	(6)	**20.0%**

WATER CONTENT **TEST NUMBER: MC-2**

		Corresponds with	ND27
Weight of container and wet soil, pounds	**Measured in field**	(1)	0.975
Weight of container and dry soil, pounds	**Measured in field**	(2)	0.910
Weight of water, pounds	(1)-(2)	(3)	0.065
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.330
Water content, percent	(3)/(5)x100	(6)	**19.7%**

WATER CONTENT **TEST NUMBER: MC-3**

		Corresponds with	ND28
Weight of container and wet soil, pounds	**Measured in field**	(1)	0.970
Weight of container and dry soil, pounds	**Measured in field**	(2)	0.905
Weight of water, pounds	(1)-(2)	(3)	0.065
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.325
Water content, percent	(3)/(5)x100	(6)	**20.0%**

WATER CONTENT **TEST NUMBER: MC-4**

		Corresponds with	ND29
Weight of container and wet soil, pounds	**Measured in field**	(1)	0.930
Weight of container and dry soil, pounds	**Measured in field**	(2)	0.880
Weight of water, pounds	(1)-(2)	(3)	0.050
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.300
Water content, percent	(3)/(5)x100	(6)	**16.7%**

COMMENTS:

DETERMINATION OF WATER CONTENT

JOYCE ENGINEERING, INC.

Report No.: 3 Sheet: 8 of 9

Project No. 379.00 Task: 35

Project: Davidson Co. partial Closure Day: TU Date: 7/12/2005

Soil Description: Sandy clayey Silt Tested By: HannuKemppinen

Unified Soil Class: CL-ML Checked By:

Procedure: ASTM D 4959 Standard Test Method for Water Content by Direct heating Method

WATER CONTENT **TEST NUMBER: MC-5**

		Corresponds with	ND32
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.160
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.060
Weight of water, pounds	(1)-(2)	(3)	0.100
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.480
Water content, percent	(3)/(5)x100	(6)	**20.8%**

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

COMMENTS:

JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

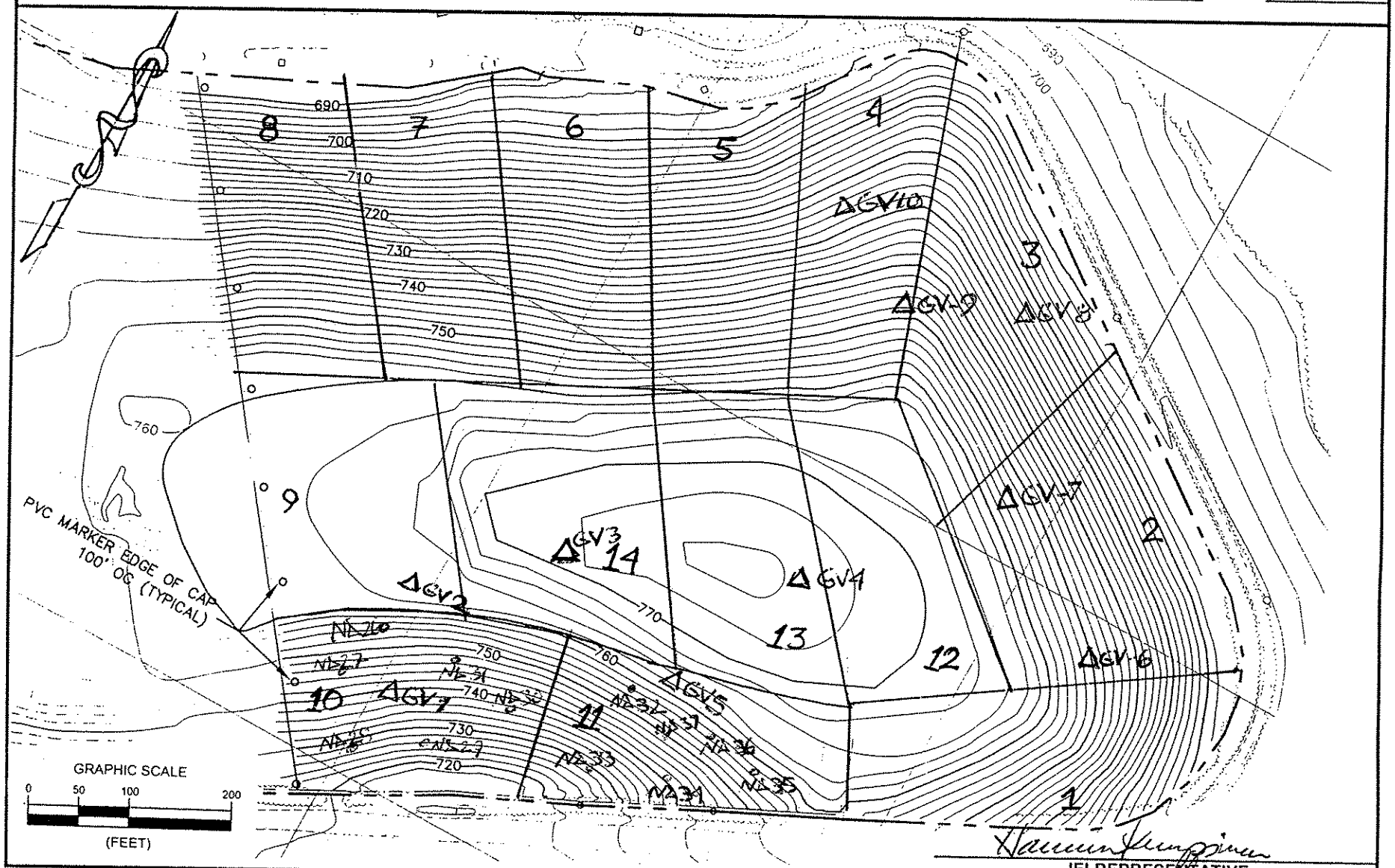
Project: Partial Closure
Client: Davidson County Integrated Solid Waste

Location: Davidson County, NC
Contractor: Shamrock Environmental Corp.

JEI Proj.: 379.00
JEI Task: 35

Report No.: FD- 3
Day of Wk: TU

Sheet: 9 of 9
Date: 7-12-05



JEI REPRESENTATIVE

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JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 4 | Sheet: 1 of 9

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: WE | Date: 7/13/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR		MEASURED IN-PLACE			IN-PLACE COMPACTION		MC DEV. FROM OMC	PASS OR FAIL?	NOTES
				MDD, pcf	OMC, %	WD, pcf	MC, %	DD, pcf	ACTUAL	REQ'D			
ND-38	Acre 4	0.5	CL	112.0	15.0%	125.9	17.7%	107.0	95.5%	95%	2.7%	PASS	
39	√	0.5	CL	112.0	15.0%	127.2	15.7%	109.9	98.2%	√	0.7%	PASS	
40	√	0.5	CL	112.0	15.0%	125.6	15.0%	109.2	97.5%	√	0.0%	PASS	
41	Acre 5	0.5	ML	110.2	15.0%	124.5	18.4%	105.2	95.4%	√	3.4%	PASS	
42	√	0.5	CL	112.0	15.0%	124.8	17.3%	106.4	95.0%	√	2.3%	PASS	
43	√	0.5	CL	112.0	15.0%	127.5	19.8%	106.4	95.0%	√	4.8%	PASS	
44	√	0.5	ML	110.2	15.0%	124.7	18.1%	105.6	95.8%	√	3.1%	PASS	
45	√	0.5	ML	110.2	15.0%	125.1	18.1%	105.9	96.1%	√	3.1%	PASS	
46	√	0.5	CL	112.0	15.0%	125.3	17.6%	106.5	95.1%	√	2.6%	PASS	
DC-3	ND-46	0.5	CL	112.0	15.0%	124.2	15.7%	107.3	95.8%	√	0.7%	PASS	Retest
MC-6	ND-43	0.5	CL	112.0	15.0%	127.5	18.5%	107.6	96.1%	√	3.5%	PASS	Retest

NOTES:

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4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

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JEI REPRESENTATIVE

DETERMINATION OF WATER CONTENT

JOYCE ENGINEERING, INC.

Report No.: 4 Sheet: 3 of 4

Project No. 379.00 Task: 35

Project: Davidson Co. partial Closure Day: WE Date: 7/13/2005

Soil Description: Sandy clayey Silt Tested By: HannuKemppinen

Unified Soil Class: CL-ML Checked By:

Procedure: ASTM D 4959 Standard Test Method for Water Content by Direct heating Method

WATER CONTENT **TEST NUMBER: MC-6**

		Corresponds with	ND43
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.350
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.230
Weight of water, pounds	(1)-(2)	(3)	0.120
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.650
Water content, percent	(3)/(5)x100	(6)	**18.5%**

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

COMMENTS:

JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

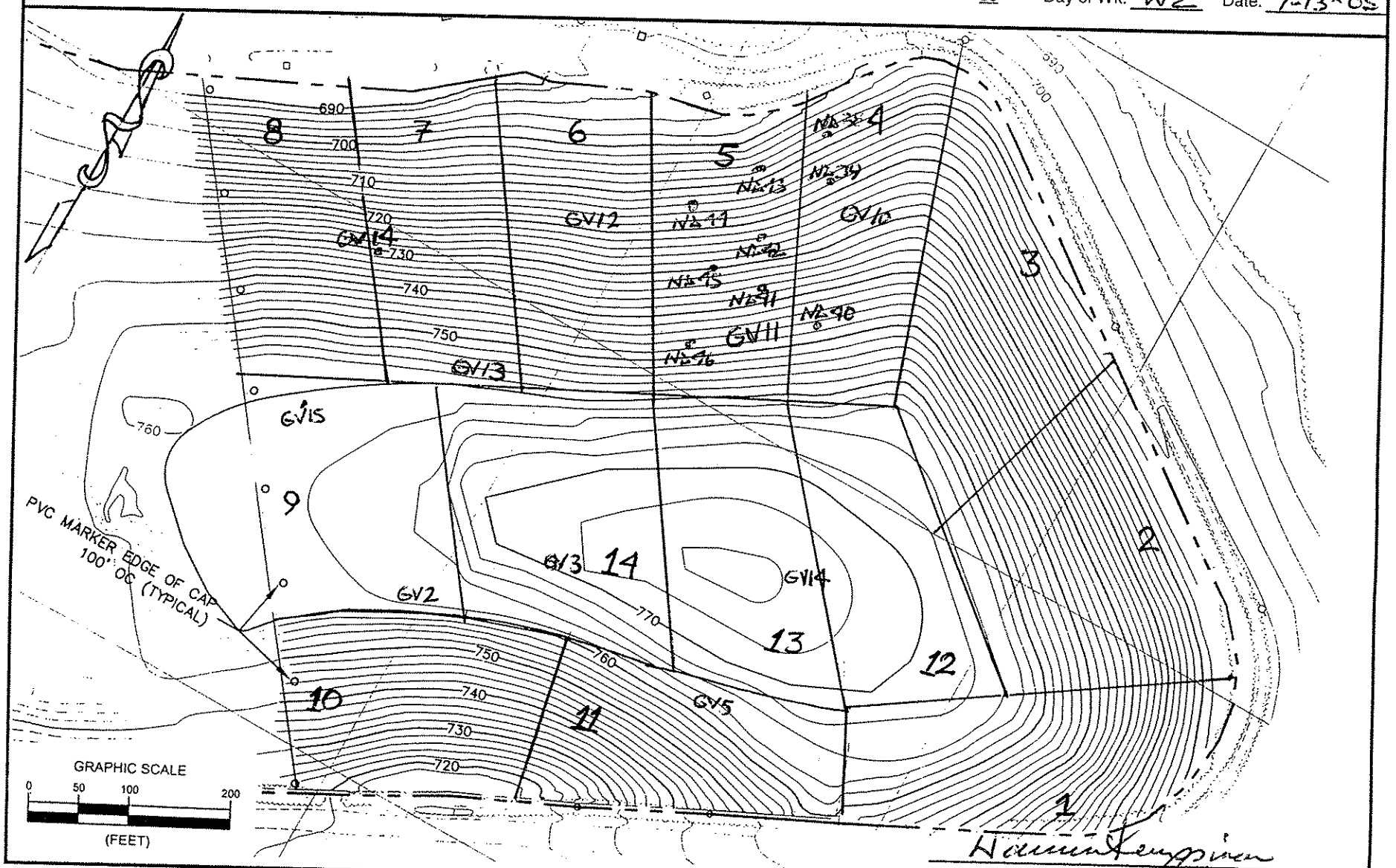
Project: Partial Closure
Client: Davidson County Integrated Solid Waste

Location: Davidson County, NC
Contractor: Shamrock Environmental Corp.

JEI Proj.: 379.00
JEI Task: 35

Report No.: FD-4
Day of Wk: WE

Sheet: 4 of 4
Date: 7-13-05



JEI REPRESENTATIVE

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JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 5 | Sheet: 1 of 6

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: FR | Date: 7/15/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR		MEASURED IN-PLACE			IN-PLACE COMPACTION		MC DEV. FROM OMC	PASS OR FAIL?	NOTES
				MDD, pcf	OMC, %	WD, pcf	MC, %	DD, pcf	ACTUAL	REQ'D			
ND47	Acre 12	0.5	ML red	110.2	15.0%	121.5	20.4%	100.9	91.6%	95%	5.4%	FAILS	
48	√	0.5	CL/ML mix	112.0	15.0%	124.0	15.8%	107.1	95.6%	√	0.8%	PASS	
49	√	0.5	CL	112.0	15.0%	128.9	18.9%	108.4	96.8%	√	3.9%	PASS	
50	√	0.5	CL	112.0	15.0%	132.3	18.1%	112.0	100.0%	√	3.1%	PASS	
51	√	0.5	CL	112.0	15.0%	127.0	22.3%	103.8	92.7%	√	7.3%	FAILS	
52	√	0.5	CL	112.0	15.0%	131.5	11.9%	117.5	104.9%	√	-3.1%	PASS	
DC4	ND51	0.5	CL/ML mix	112.0	15.0%	126.4	16.0%	109.0	97.3%	√	1.0%	PASS	Retest
MC7	ND47	0.5	ML	110.2	15.0%	121.5	13.7%	106.9	97.0%	√	-1.3%	PASS	Retest
ND53	Acre 13	0.5	CL	112.0	15.0%	134.9	13.5%	118.9	106.1%	√	-1.5%	PASS	
54	√	0.5	CL/ML mix	112.0	15.0%	125.0	14.1%	109.6	97.8%	√	-0.9%	PASS	
55	√	0.5	CL	112.0	15.0%	127.7	10.8%	115.3	102.9%	√	-4.2%	PASS	
56	√	0.5	CL	112.0	15.0%	131.9	14.3%	115.4	103.0%	√	-0.7%	PASS	
57	√	0.5	CL	112.0	15.0%	128.3	17.3%	109.4	97.7%	√	2.3%	PASS	
58	√	0.5	CL	112.0	15.0%	132.3	13.5%	116.6	104.1%	√	-1.5%	PASS	
DC5	ND57	0.5	CL	112.0	15.0%	125.2	14.9%	109.0	97.3%	√	-0.1%	PASS	Retest

NOTES:

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2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
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   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
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HannuKemppinen

JEI REPRESENTATIVE

JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 5 | Sheet: 2 of 6

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: FR | Date: 7/15/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR		MEASURED IN-PLACE			IN-PLACE COMPACTION		MC DEV. FROM OMC	PASS OR FAIL?	NOTES
				MDD, pcf	OMC, %	WD, pcf	MC, %	DD, pcf	ACTUAL	REQ'D			
ND59	Acre 10	0.5	ML/CL mix	112.0	15.0%	130.2	20.8%	107.8	96.2%	95%	5.8%	PASS	
60	√	0.5	ML/CL mix	112.0	15.0%	128.4	19.2%	107.7	96.2%	√	4.2%	PASS	
61	√	0.5	ML/CL mix	112.0	15.0%	129.0	18.0%	109.3	97.6%	√	3.0%	PASS	
62	√	0.5	ML/CL mix	112.0	15.0%	129.2	16.9%	110.5	98.7%	√	1.9%	PASS	
63	√	0.5	ML/CL mix	112.0	15.0%	130.8	17.5%	111.3	99.4%	√	2.5%	PASS	
64	√	0.5	ML/CL mix	112.0	15.0%	130.2	15.1%	113.1	101.0%	√	0.1%	PASS	
65	Acre 11	0.5	ML/CL mix	112.0	15.0%	124.3	13.5%	109.5	97.8%	√	-1.5%	PASS	
66	√	0.5	ML/CL mix	112.0	15.0%	128.8	19.0%	108.2	96.6%	√	4.0%	PASS	
67	√	0.5	ML/CL mix	112.0	15.0%	127.0	18.2%	107.4	95.9%	√	3.2%	PASS	
68	√	0.5	ML/CL mix	112.0	15.0%	126.9	14.9%	110.4	98.6%	√	-0.1%	PASS	
69	√	0.5	ML/CL mix	112.0	15.0%	130.2	16.7%	111.6	99.6%	√	1.7%	PASS	
70	√	0.5	ML/CL mix	112.0	15.0%	130.5	15.6%	112.9	100.8%	√	0.6%	PASS	

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

Acres 10 and 11 graded and recompacted - CQA test both acres

HannuKemppinen

JEI REPRESENTATIVE

DETERMINATION OF WATER CONTENT

JOYCE ENGINEERING, INC.

Report No.: 5 Sheet: 3 of 4

Project No. 379.00 Task: 35

Project: Davidson Co. partial Closure Day: FR Date: 7/15/2005

Soil Description: Sandy Silt Tested By: HannuKemppinen

Unified Soil Class: ML Checked By:

Procedure: ASTM D 4959 Standard Test Method for Water Content by Direct heating Method

WATER CONTENT **TEST NUMBER: MC-7**

		Corresponds with	ND47
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.410
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.310
Weight of water, pounds	(1)-(2)	(3)	0.100
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.730
Water content, percent	(3)/(5)x100	(6)	**13.7%**

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

COMMENTS:

DRIVE CYLINDER DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	DC-4
Report No.:	5	Sheet:	3 of 6
Day of Week:	FR	Date:	7/15/05
JEI Project:	379.00	Task No.:	35
Tested By:	HannuKemppinen		
Checked By:			
Procedure:	ASTM D 2937 Standard Test Method for Density and Unit Weight of Soil in Place by the Drive Cylinder Method		

Project:	Davidson Co. Partial Closure
Soil Source:	Borrow under powerlines
Soil Description:	Sandy silty Clay
Unified Soil Class:	CL
Location:	ND 51
Elevation:	0.5 foot

FIELD DENSITY OF SOIL

Mass of Cylinder and Wet Soil (pounds)	**Measured in field**	(1)	5.48
Mass of the Cylinder (pounds)	**Measured in field**	(2)	1.31
Mass of Wet Soil (pounds)	(1) - (2) = (3)		4.17
Volume of Cylinder (cubic feet)	(Calibration determined)	(4)	0.033
Wet density (WD) of soil, pcf (mass of soil / volume of soil)	(3) / (4) = (5)		**126.4**
Dry weight of all excavated soil, pounds	(3) / 1+(13) = (6)		3.59
Dry density (DD) of soil, pcf	(5) / 1+(13) = (7)		**108.9**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(8)	1.16
Weight of container and dry soil, pounds	**Measured in field**	(9)	1.08
Weight of water, pounds	(8) - (9) = (10)		0.08
Weight of container, pounds	**Measured in field**	(11)	0.58
Weight of dry soil, pounds	(9) - (11) = (12)		0.50
Moisture content (MC), percent	100 * (10) / (12) = (13)		**16.0%**

LABORATORY PROCTOR RESULTS

Type of Proctor test: Standard ASTM D 698, Method A)			
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(14)	**112.0**
Optimum moisture content (OMC), percent	Determined in lab	(15)	**15.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(16)	0
Percent of excavated soil <3/4"	100 * [(6) - (16)] / (6) =	(17)	100.0%
Percent of excavated soil >3/4"	100 * (16) / (6) =	(18)	0.0%
MDD corrected (MDDC) for +3/4", pcf	[(14) * (17) / 100] + [150 * (18) / 100] =	(19)	**112.0**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller		
Percent compaction	100 * (7) / (14) =	(20)	**97.3%**
Variation from optimum moisture content, percent	(13) - (15) =	(21)	**1.0%**

NOTES:

ND 51 WD=127.0 MC=22.3 DD=103.8 COMP=92.7 %

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DRIVE CYLINDER DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	DC-5
Report No.:	5	Sheet:	4 of 6
Day of Week:	FR	Date:	7/15/05
Project:	Davidson Co. Partial Closure	JEI Project: 379.00	Task No.: 35
Soil Source:	Borrow under powerlines	Tested By:	HannuKemppinen
Soil Description:	Sandy silty Clay	Checked By:	
Unified Soil Class:	CL	Procedure:	ASTM D 2937 Standard Test
Location:	ND 57		Method for Density and Unit Weight of Soil
Elevation:	0.5 foot		in Place by the Drive Cylinder Method

FIELD DENSITY OF SOIL

Mass of Cylinder and Wet Soil (pounds)	**Measured in field**	(1)	5.46
Mass of the Cylinder (pounds)	**Measured in field**	(2)	1.33
Mass of Wet Soil (pounds)	(1) - (2) = (3)		4.13
Volume of Cylinder (cubic feet)	(Calibration determined)	(4)	0.033
Wet density (WD) of soil, pcf (mass of soil / volume of soil)	(3) / (4) = (5)		**125.2**
Dry weight of all excavated soil, pounds	(3) / 1+(13) = (6)		3.59
Dry density (DD) of soil, pcf	(5) / 1+(13) = (7)		**108.9**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(8)	1.12
Weight of container and dry soil, pounds	**Measured in field**	(9)	1.05
Weight of water, pounds	(8) - (9) = (10)		0.07
Weight of container, pounds	**Measured in field**	(11)	0.58
Weight of dry soil, pounds	(9) - (11) = (12)		0.47
Moisture content (MC), percent	100 * (10) / (12) = (13)		**14.9%**

LABORATORY PROCTOR RESULTS

Type of Proctor test: Standard ASTM D 698, Method A)			
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(14)	**112.0**
Optimum moisture content (OMC), percent	Determined in lab	(15)	**15.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(16)	0
Percent of excavated soil <3/4"	100 * [(6) - (16)] / (6) =	(17)	100.0%
Percent of excavated soil >3/4"	100 * (16) / (6) =	(18)	0.0%
MDD corrected (MDDC) for +3/4", pcf	[(14) * (17) / 100] + [150 * (18) / 100] =	(19)	**112.0**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller		
Percent compaction	100 * (7) / (14) =	(20)	**97.3%**
Variation from optimum moisture content, percent	(13) - (15) =	(21)	**-0.1%**

NOTES:

ND 57 WD=128.3 MC=17.3 DD=109.4 COMP=97.7 %

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JOYCE ENGINEERING, INC

DAILY SUMMARY OF FIELD DENSITY TESTS

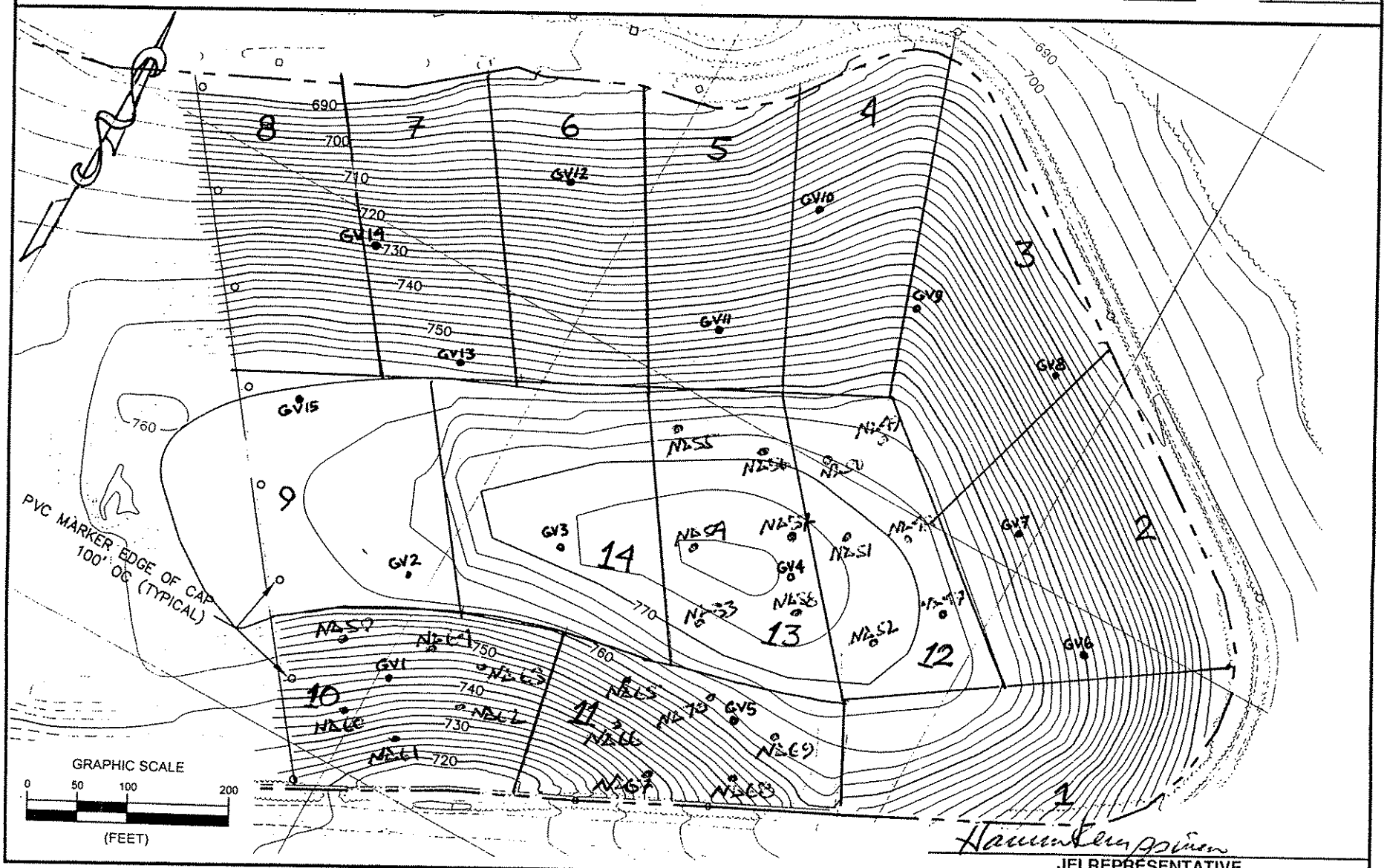
Project: Partial Closure
Client: Davidson County Integrated Solid Waste

Location: Davidson County, NC
Contractor: Shamrock Environmental Corp.

JEI Proj.: 379.00
JEI Task: 35

Report No.: FD-5
Day of Wk: FR

Sheet: 6 of 6
Date: 7-15-05



JEI REPRESENTATIVE

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JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 6 | Sheet: 1 of 7

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: MO | Date: 7/18/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR		MEASURED IN-PLACE			IN-PLACE COMPACTION		MC DEV. FROM OMC	PASS OR FAIL?	NOTES
				MDD, pcf	OMC, %	WD, pcf	MC, %	DD, pcf	ACTUAL	REQ'D			
ND71	Acre 6	0.5	CL/ML mix	110.2	15.0%	127.8	20.7%	105.9	96.1%	95%	5.7%	PASS	
72	√	0.5	CL/ML mix	110.2	15.0%	123.5	17.8%	104.8	95.1%	√	2.8%	PASS	
73	√	0.5	CL	112.0	15.0%	128.4	16.9%	109.8	98.1%	√	1.9%	PASS	
74	√	0.5	CL	112.0	15.0%	132.0	14.7%	115.1	102.8%	√	-0.3%	PASS	
75	√	0.5	CL/ML mix	112.0	15.0%	126.5	18.8%	106.5	95.1%	√	3.8%	PASS	
76	√	0.5	CL	112.0	15.0%	127.1	17.2%	108.4	96.8%	√	2.2%	PASS	
MC8	ND71	0.5	CL/ML mix	110.2	15.0%	127.8	17.4%	108.9	98.8%	√	2.4%	PASS	Retest
DC6	ND72	0.5	CL/ML mix	110.2	15.0%	124.1	17.2%	105.9	96.1%	√	2.2%	PASS	Retest
ND77	Acre 7	0.5	CL	112.0	15.0%	126.9	14.5%	110.8	99.0%	√	-0.5%	PASS	Retest
78	√	0.5	ML red	110.2	15.0%	125.9	20.3%	104.7	95.0%	√	5.3%	PASS	
79	√	0.5	CL/ML mix	112.0	15.0%	123.6	15.8%	106.7	95.3%	√	0.8%	PASS	
80	√	0.5	ML red	110.2	15.0%	123.2	21.1%	101.7	92.3%	√	6.1%	FAILS	
81	√	0.5	CL/ML mix	112.0	15.0%	126.6	15.0%	110.1	98.3%	√	0.0%	PASS	
MC9	ND78	0.5	ML red	112.0	15.0%	125.9	18.2%	106.5	95.1%	√	3.2%	PASS	Retest
DC7	ND80	0.5	ML red	110.2	15.0%	128.6	19.4%	107.7	97.7%	√	4.4%	PASS	Retest

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

HannuKemppinen

JEI REPRESENTATIVE

JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 6 | Sheet: 2 of 7

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: MO | Date: 7/18/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR MDD, pcf	PROCTOR OMC, %	MEASURED IN-PLACE WD, pcf	MEASURED IN-PLACE MC, %	MEASURED IN-PLACE DD, pcf	IN-PLACE COMPACTION ACTUAL	IN-PLACE COMPACTION REQ'D	MC DEV. FROM OMC	PASS OR FAIL?	NOTES
ND82	Acre 14	0.5	CL/ML mix	112.0	15.0%	127.0	13.3%	112.1	100.1%	95%	-1.7%	PASS	
83	√	0.5	CL/ML mix	112.0	15.0%	124.9	13.1%	110.4	98.6%	√	-1.9%	PASS	
84	√	0.5	CL/ML mix	112.0	15.0%	123.0	15.0%	107.0	95.5%	√	0.0%	PASS	
85	√	0.5	CL/ML mix	112.0	15.0%	120.8	12.8%	107.1	95.6%	√	-2.2%	PASS	
86	√	0.5	CL/ML mix	112.0	15.0%	125.0	14.9%	108.8	97.1%	√	-0.1%	PASS	
87	√	0.5	CL/ML mix	112.0	15.0%	124.4	11.8%	111.3	99.3%	√	-3.2%	PASS	
88	Acre 8	0.5	CL/ML mix	112.0	15.0%	131.0	18.7%	110.4	98.5%	√	3.7%	PASS	
89	√	0.5	CL/ML mix	112.0	15.0%	127.6	19.8%	106.5	95.1%	√	4.8%	PASS	
90	√	0.5	CL/ML mix	112.0	15.0%	128.2	20.6%	106.3	94.9%	√	5.6%	PASS	
91	√	0.5	CL/ML mix	112.0	15.0%	128.6	21.3%	106.0	94.7%	√	6.3%	PASS	
92	√	0.5	CL/ML mix	112.0	15.0%	129.5	20.9%	107.1	95.6%	√	5.9%	PASS	
93	√	0.5	CL/ML mix	112.0	15.0%	128.4	21.3%	105.9	94.5%	√	6.3%	PASS	
MC10	ND91	0.5	CL/ML mix	112.0	15.0%	128.6	16.9%	110.0	98.2%	√	1.9%	PASS	Retest
DC8	ND93	0.5	CL/ML mix	112.0	15.0%	130.2	17.1%	111.2	99.3%	√	2.1%	PASS	Retest

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

HannuKemppinen

JEI REPRESENTATIVE

DRIVE CYLINDER DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	DC-6
Report No.:	6	Sheet:	3 of 7
Day of Week:	MO	Date:	7/18/05
Project:	Davidson Co. Partial Closure	JEI Project:	379.00
		Task No.:	35
Soil Source:	Borrow under powerlines	Tested By:	HannuKemppinen
Soil Description:	Sandy Silt Sandy Clay mix	Checked By:	
Unified Soil Class:	ML-CL	Procedure:	ASTM D 2937 Standard Test
Location:	ND-72		Method for Density and Unit Weight of Soil
Elevation:	0.5 foot		in Place by the Drive Cylinder Method

FIELD DENSITY OF SOIL

Mass of Cylinder and Wet Soil (pounds)	**Measured in field**	(1)	5.41
Mass of the Cylinder (pounds)	**Measured in field**	(2)	1.315
Mass of Wet Soil (pounds)	(1) - (2) =	(3)	4.10
Volume of Cylinder (cubic feet)	(Calibration determined)	(4)	0.033
Wet density (WD) of soil, pcf (mass of soil / volume of soil)	(3) / (4) =	(5)	**124.1**
Dry weight of all excavated soil, pounds	(3) / 1+(13) =	(6)	3.49
Dry density (DD) of soil, pcf	(5) / 1+(13) =	(7)	**105.8**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(8)	1.43
Weight of container and dry soil, pounds	**Measured in field**	(9)	1.31
Weight of water, pounds	(8) - (9) =	(10)	0.13
Weight of container, pounds	**Measured in field**	(11)	0.58
Weight of dry soil, pounds	(9) - (11) =	(12)	0.73
Moisture content (MC), percent	100 * (10) / (12) =	(13)	**17.2%**

LABORATORY PROCTOR RESULTS

Type of Proctor test: Standard ASTM D 698, Method A)			
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(14)	**112.0**
Optimum moisture content (OMC), percent	Determined in lab	(15)	**15.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(16)	0
Percent of excavated soil <3/4"	100 * [(6) - (16)] / (6) =	(17)	100.0%
Percent of excavated soil >3/4"	100 * (16) / (6) =	(18)	0.0%
MDD corrected (MDDC) for +3/4", pcf	[(14) * (17) / 100] + [150 * (18) / 100] =	(19)	**112.0**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller		
Percent compaction	100 * (7) / (14) =	(20)	**94.5%**
Variation from optimum moisture content, percent	(13) - (15) =	(21)	**2.2%**

NOTES:

ND-72 WD=123.5 MC=17.8 DD=104.8 COMP=93.6 %

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DRIVE CYLINDER DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	DC-7
Report No.:	6	Sheet:	4 of 7
Day of Week:	MO	Date:	7/18/05
Project:	Davidson Co. Partial Closure	JEI Project:	379.00
		Task No.:	35
Soil Source:	Borrow under powerlines	Tested By:	HannuKemppinen
Soil Description:	Sandy Silt Sandy Clay mix	Checked By:	
Unified Soil Class:	ML-CL	Procedure:	ASTM D 2937 Standard Test
Location:	ND-80		Method for Density and Unit Weight of Soil
Elevation:	0.5 foot		in Place by the Drive Cylinder Method

FIELD DENSITY OF SOIL

Mass of Cylinder and Wet Soil (pounds)	**Measured in field**	(1)	5.57
Mass of the Cylinder (pounds)	**Measured in field**	(2)	1.325
Mass of Wet Soil (pounds)	(1) - (2) =	(3)	4.25
Volume of Cylinder (cubic feet)	(Calibration determined)	(4)	0.033
Wet density (WD) of soil, pcf (mass of soil / volume of soil)	(3) / (4) =	(5)	**128.6**
Dry weight of all excavated soil, pounds	(3) / 1+(13) =	(6)	3.56
Dry density (DD) of soil, pcf	(5) / 1+(13) =	(7)	**107.7**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(8)	1.38
Weight of container and dry soil, pounds	**Measured in field**	(9)	1.25
Weight of water, pounds	(8) - (9) =	(10)	0.13
Weight of container, pounds	**Measured in field**	(11)	0.58
Weight of dry soil, pounds	(9) - (11) =	(12)	0.67
Moisture content (MC), percent	100 * (10) / (12) =	(13)	**19.4%**

LABORATORY PROCTOR RESULTS

Type of Proctor test: Standard ASTM D 698, Method A)			
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(14)	**112.0**
Optimum moisture content (OMC), percent	Determined in lab	(15)	**15.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(16)	0
Percent of excavated soil <3/4"	100 * [(6) - (16)] / (6) =	(17)	100.0%
Percent of excavated soil >3/4"	100 * (16) / (6) =	(18)	0.0%
MDD corrected (MDDC) for +3/4", pcf	[(14) * (17) / 100] + [150 * (18) / 100] =	(19)	**112.0**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller		
Percent compaction	100 * (7) / (14) =	(20)	**96.2%**
Variation from optimum moisture content, percent	(13) - (15) =	(21)	**4.4%**

NOTES:

ND-80 WD=123.2 MC=21.1 DD=101.7 Comp=90.8 %

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DRIVE CYLINDER DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	DC-8
Report No.:	6	Sheet:	5 of 7
Day of Week:	MO	Date:	7/18/05
Project:	Davidson Co. Partial Closure	JEI Project:	379.00
		Task No.:	35
Soil Source:	Borrow under powerlines	Tested By:	HannuKemppinen
Soil Description:	Sandy Silt Sandy Clay mix	Checked By:	
Unified Soil Class:	ML-CL	Procedure:	ASTM D 2937 Standard Test
Location:	ND-93		Method for Density and Unit Weight of Soil
Elevation:	0.5 foot		in Place by the Drive Cylinder Method

FIELD DENSITY OF SOIL

Mass of Cylinder and Wet Soil (pounds)	**Measured in field**	(1)	5.62
Mass of the Cylinder (pounds)	**Measured in field**	(2)	1.325
Mass of Wet Soil (pounds)	(1) - (2) =	(3)	4.30
Volume of Cylinder (cubic feet)	(Calibration determined)	(4)	0.033
Wet density (WD) of soil, pcf (mass of soil / volume of soil)	(3) / (4) =	(5)	**130.2**
Dry weight of all excavated soil, pounds	(3) / 1+(13) =	(6)	3.67
Dry density (DD) of soil, pcf	(5) / 1+(13) =	(7)	**111.1**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(8)	1.40
Weight of container and dry soil, pounds	**Measured in field**	(9)	1.28
Weight of water, pounds	(8) - (9) =	(10)	0.12
Weight of container, pounds	**Measured in field**	(11)	0.58
Weight of dry soil, pounds	(9) - (11) =	(12)	0.70
Moisture content (MC), percent	100 * (10) / (12) =	(13)	**17.1%**

LABORATORY PROCTOR RESULTS

Type of Proctor test: Standard ASTM D 698, Method A)			
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(14)	**112.0**
Optimum moisture content (OMC), percent	Determined in lab	(15)	**15.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(16)	0
Percent of excavated soil <3/4"	100 * [(6) - (16)] / (6) =	(17)	100.0%
Percent of excavated soil >3/4"	100 * (16) / (6) =	(18)	0.0%
MDD corrected (MDDC) for +3/4", pcf	[(14) * (17) / 100] + [150 * (18) / 100] =	(19)	**112.0**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller		
Percent compaction	100 * (7) / (14) =	(20)	**99.2%**
Variation from optimum moisture content, percent	(13) - (15) =	(21)	**2.1%**

NOTES:

ND-93 WD=128.4 MC=21.3 DD=105.9 Comp.=94.5 %

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DETERMINATION OF WATER CONTENT

JOYCE ENGINEERING, INC.

Report No.: 6 Sheet: 6 of 7

Project No. 379.00 Task: 35

Project: Davidson Co. partial Closure Day: MO Date: 7/18/2005

Soil Description: Sandy Silt Sandy Clay mix Tested By: HannuKemppinen

Unified Soil Class: ML - CL Checked By:

Procedure: ASTM D 4959 Standard Test Method for Water Content by Direct heating Method

WATER CONTENT **TEST NUMBER: MC-8**

		Corresponds with	ND72
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.455
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.325
Weight of water, pounds	(1)-(2)	(3)	0.130
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.745
Water content, percent	(3)/(5)x100	(6)	**17.4%**

WATER CONTENT **TEST NUMBER: MC-9**

		Corresponds with	ND78
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.23
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.13
Weight of water, pounds	(1)-(2)	(3)	0.100
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.550
Water content, percent	(3)/(5)x100	(6)	**18.2%**

WATER CONTENT **TEST NUMBER: MC-10**

		Corresponds with	ND91
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.27
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.17
Weight of water, pounds	(1)-(2)	(3)	0.100
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.590
Water content, percent	(3)/(5)x100	(6)	**16.9%**

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

COMMENTS:

JOYCE ENGINEERING, INC

DAILY SUMMARY OF FIELD DENSITY TESTS

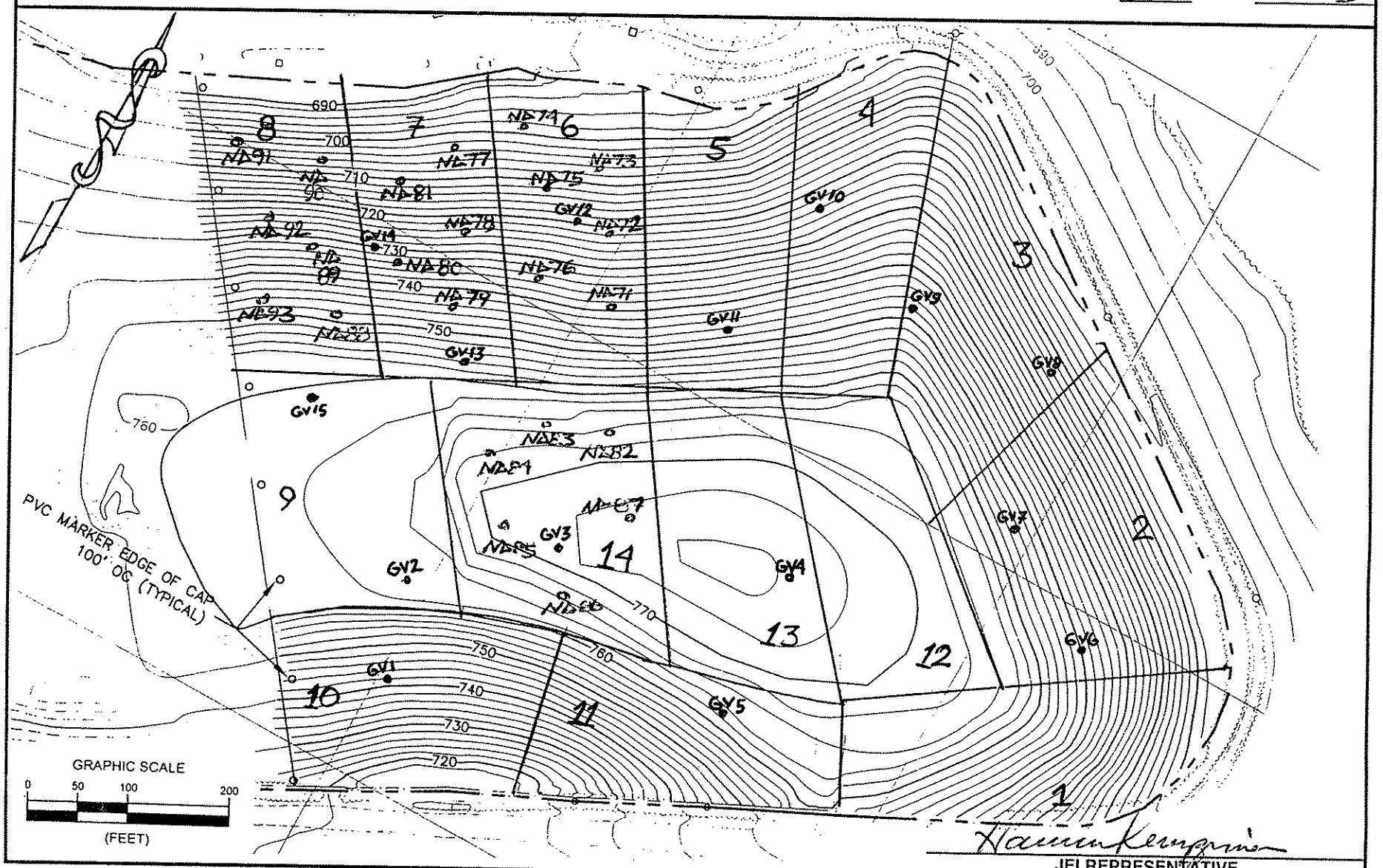
Project: Partial Closure
Client: Davidson County Integrated Solid Waste

Location: Davidson County, NC
Contractor: Shamrock Environmental Corp.

JEI Proj.: 379.00
JEI Task: 35

Report No.: FD- 6
Day of Wk: MO

Sheet: 7 of 7
Date: 7-18-05



JEI REPRESENTATIVE

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JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 7 | Sheet: 1 of 4

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: TU | Date: 7/19/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR		MEASURED IN-PLACE			IN-PLACE COMPACTION		MC DEV. FROM OMC	PASS OR FAIL?	NOTES
				MDD, pcf	OMC, %	WD, pcf	MC, %	DD, pcf	ACTUAL	REQ'D			
ND94	Acre 9	0.5	CL	112.0	15.0%	132.3	15.6%	114.4	102.2%	95%	0.6%	PASS	
95	√	0.5	CL	112.0	15.0%	129.8	14.0%	113.9	101.7%	√	-1.0%	PASS	
96	√	0.5	ML/CL	112.0	15.0%	124.9	15.7%	108.0	96.4%	√	0.7%	PASS	
97	√	0.5	ML/CL	112.0	15.0%	124.6	16.0%	107.4	95.9%	√	1.0%	PASS	
98	√	0.5	ML/CL	112.0	15.0%	126.1	14.0%	110.6	98.8%	√	-1.0%	PASS	
99	√	0.5	CL	112.0	15.0%	129.0	16.6%	110.6	98.8%	√	1.6%	PASS	
MC11	ND96	0.5	ML/CL	112.0	15.0%	124.9	13.8%	109.8	98.0%	√	-1.2%	PASS	Retest
DC9	ND97	0.5	ML/CL	112.0	15.0%	129.1	13.6%	113.6	101.5%	√	-1.4%	PASS	Retest

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

HannuKemppinen

JEI REPRESENTATIVE

DRIVE CYLINDER DENSITY TEST WORKSHEET

JOYCE ENGINEERING, INC.

		Test:	DC-9
Report No.:	7	Sheet:	2 of 4
Day of Week:	TU	Date:	7/19/05
Project:	Davidson Co. Partial Closure	JEI Project:	379.00
		Task No.:	35
Soil Source:	Borrow under powerlines	Tested By:	HannuKemppinen
Soil Description:	Sandy Silt Sandy Clay mix	Checked By:	
Unified Soil Class:	ML-CL	Procedure:	ASTM D 2937 Standard Test
Location:	ND-97		Method for Density and Unit Weight of Soil
Elevation:	0.5 foot		in Place by the Drive Cylinder Method

FIELD DENSITY OF SOIL

Mass of Cylinder and Wet Soil (pounds)	**Measured in field**	(1)	5.59
Mass of the Cylinder (pounds)	**Measured in field**	(2)	1.330
Mass of Wet Soil (pounds)	(1) - (2) = (3)		4.260
Volume of Cylinder (cubic feet)	(Calibration determined)	(4)	0.033
Wet density (WD) of soil, pcf (mass of soil / volume of soil)	(3) / (4) = (5)		**129.1**
Dry weight of all excavated soil, pounds	(3) / 1+(13) = (6)		3.75
Dry density (DD) of soil, pcf	(5) / 1+(13) = (7)		**113.7**

MOISTURE CONTENT

Metal Container No.			
Weight of container and wet soil, pounds	**Measured in field**	(8)	1.25
Weight of container and dry soil, pounds	**Measured in field**	(9)	1.17
Weight of water, pounds	(8) - (9) = (10)		0.08
Weight of container, pounds	**Measured in field**	(11)	0.58
Weight of dry soil, pounds	(9) - (11) = (12)		0.59
Moisture content (MC), percent	100 * (10) / (12) = (13)		**13.6%**

LABORATORY PROCTOR RESULTS

Type of Proctor test: Standard ASTM D 698, Method A)			
Maximum dry density (MDD) at optimum moisture content, pcf	Determined in lab	(14)	**115.6**
Optimum moisture content (OMC), percent	Determined in lab	(15)	**14.0%**

CORRECT MDD FOR GRAVEL (PIECES LARGER THAN 3/4") IN SAMPLE

Weight of >3/4" gravel excavated, pounds	**Measured in field**	(16)	0
Percent of excavated soil <3/4"	100 * [(6) - (16)] / (6) = (17)		100.0%
Percent of excavated soil >3/4"	100 * (16) / (6) = (18)		0.0%
MDD corrected (MDDC) for +3/4", pcf	[(14) * (17) / 100] + [150 * (18) / 100] = (19)		**115.6**

FIELD RESULTS

Field compaction method	At least four passes of a sheepsfoot roller	
Percent compaction	100 * (7) / (14) = (20)	**98.3%**
Variation from optimum moisture content, percent	(13) - (15) = (21)	**-0.4%**

NOTES:

ND-97 WD=124.6 MC=16.0 DD=107.5 Comp=96.0 %

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DETERMINATION OF WATER CONTENT

JOYCE ENGINEERING, INC.

Report No.: 7 Sheet: 3 of 4

Project No. 379.00 Task: 35

Project: Davidson Co. partial Closure Day: TU Date: 7/19/2005

Soil Description: Sandy Silt Tested By: HannuKemppinen

Unified Soil Class: ML Checked By:

Procedure: ASTM D 4959 Standard Test Method for Water Content by Direct heating Method

WATER CONTENT **TEST NUMBER: MC-11**

		Corresponds with	ND96
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.240
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.160
Weight of water, pounds	(1)-(2)	(3)	0.080
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.580
Water content, percent	(3)/(5)x100	(6)	**13.8%**

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

COMMENTS:

JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

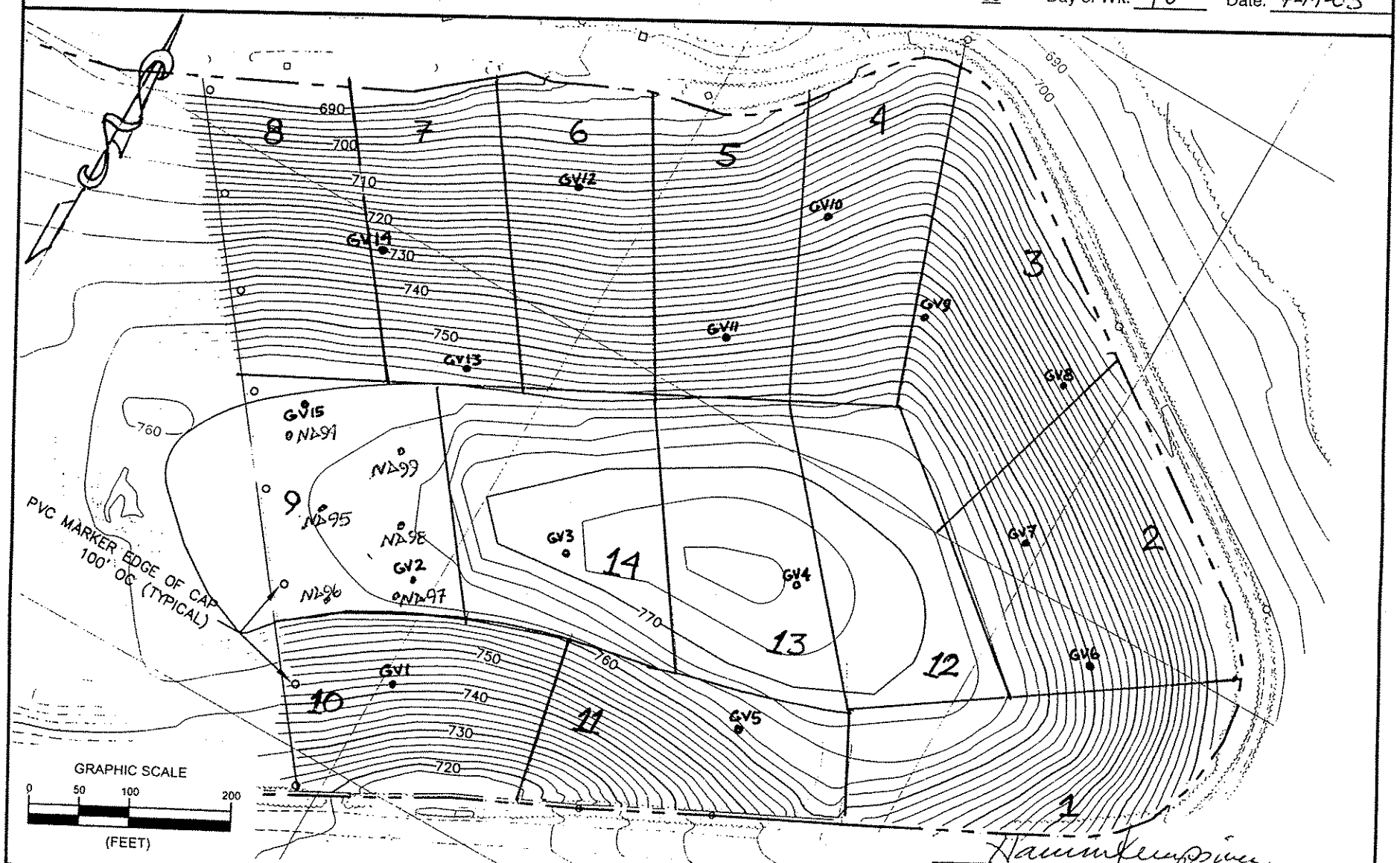
Project: Partial Closure
Client: Davidson County Integrated Solid Waste

Location: Davidson County, NC
Contractor: Shamrock Environmental Corp.

JEI Proj.: 379.00
JEI Task: 35

Report No.: FD-7
Day of Wk: TU

Sheet: 1 of 1
Date: 7-19-05



JEI REPRESENTATIVE

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JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 8 | Sheet: 1 of 4

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: WE | Date: 7/20/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR MDD, pcf	PROCTOR OMC, %	MEASURED IN-PLACE WD, pcf	MEASURED IN-PLACE MC, %	MEASURED IN-PLACE DD, pcf	IN-PLACE COMPACTION ACTUAL	IN-PLACE COMPACTION REQ'D	MC DEV. FROM OMC	PASS OR FAIL?	NOTES
ND100	Acre 12	1.0	ML/CL	110.2	15.0%	126.4	20.1%	105.2	95.5%	95%	5.1%	PASS	
101	√	1.0	ML/CL	110.2	15.0%	122.1	14.5%	106.6	96.8%	√	-0.5%	PASS	
102	√	1.0	ML/CL	110.2	15.0%	123.2	17.0%	105.3	95.6%	√	2.0%	PASS	
103	√	1.0	ML/CL	110.2	15.0%	123.1	15.2%	106.9	97.0%	√	0.2%	PASS	
104	√	1.0	ML/CL	110.2	15.0%	126.7	20.3%	105.3	95.6%	√	5.3%	PASS	
105	√	1.0	CL	112.0	15.0%	129.4	19.8%	108.0	96.4%	√	4.8%	PASS	
MC12	ND104	1.0	ML/CL	112.0	15.0%	126.7	18.4%	107.0	95.5%	√	3.4%	PASS	Retest
ND106	Acre 13	1.0	CL	112.0	15.0%	131.8	20.9%	109.0	97.3%	√	5.9%	PASS	Retest
107	√	1.0	ML red	110.2	15.0%	124.3	16.9%	106.3	96.5%	√	1.9%	PASS	
108	√	1.0	ML red	110.2	15.0%	125.2	17.9%	106.2	96.4%	√	2.9%	PASS	
109	√	1.0	CL	112.0	15.0%	129.0	21.6%	106.1	94.7%	√	6.6%	PASS	
110	√	1.0	ML/CL	112.0	15.0%	125.3	17.6%	106.5	95.1%	√	2.6%	PASS	
111	√	1.0	ML/CL	112.0	15.0%	124.4	13.6%	109.5	97.8%	√	-1.4%	PASS	
MC13	ND106	1.0	CL	112.0	15.0%	131.8	16.7%	112.9	100.8%	√	1.7%	PASS	Retest

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

HannuKemppinen

JEI REPRESENTATIVE

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JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 8 | Sheet: 2 of 4

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: WE | Date: 7/20/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR		MEASURED IN-PLACE			IN-PLACE COMPACTION		MC DEV. FROM OMC	PASS OR FAIL?	NOTES
				MDD, pcf	OMC, %	WD, pcf	MC, %	DD, pcf	ACTUAL	REQ'D			
ND112	Acre 14	1.0	ML red	110.2	15.0%	119.4	13.3%	105.4	95.6%	95%	-1.7%	PASS	
113		1.0	CL/ML mix	112.0	15.0%	128.5	14.1%	112.6	100.6%	√	-0.9%	PASS	
114		1.0	CL	112.0	15.0%	131.1	19.5%	109.7	98.0%	√	4.5%	PASS	
115		1.0	CL	112.0	15.0%	128.4	19.9%	107.1	95.6%	√	4.9%	PASS	
116		1.0	ML red	110.2	15.0%	120.4	12.8%	106.7	96.9%	√	-2.2%	PASS	
117		1.0	ML red	110.2	15.0%	120.3	13.0%	106.5	96.6%	√	-2.0%	PASS	
MC14	ND115	1.0	CL/ML mix	112.0	15.0%	128.4	16.3%	110.4	98.6%	√	1.3%	PASS	Retest

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

HannuKemppinen

JEI REPRESENTATIVE

DETERMINATION OF WATER CONTENT

JOYCE ENGINEERING, INC.

Report No.: 8 Sheet: 3 of 4

Project No. 379.00 Task: 35

Project: Davidson Co. partial Closure Day: WE Date: 7/20/2005

Soil Description: Sandy Silt Sandy Clay mix Tested By: HannuKemppinen

Unified Soil Class: ML-CL Checked By:

Procedure: ASTM D 4959 Standard Test Method for Water Content by Direct heating Method

WATER CONTENT **TEST NUMBER: MC-12**

		Corresponds with	ND104
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.515
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.370
Weight of water, pounds	(1)-(2)	(3)	0.145
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.790
Water content, percent	(3)/(5)x100	(6)	**18.4%**

WATER CONTENT **TEST NUMBER: MC-13**

		Corresponds with	ND106
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.140
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.060
Weight of water, pounds	(1)-(2)	(3)	0.080
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.480
Water content, percent	(3)/(5)x100	(6)	**16.7%**

WATER CONTENT **TEST NUMBER: MC-14**

		Corresponds with	ND115
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.150
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.070
Weight of water, pounds	(1)-(2)	(3)	0.080
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.490
Water content, percent	(3)/(5)x100	(6)	**16.3%**

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

COMMENTS:

JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

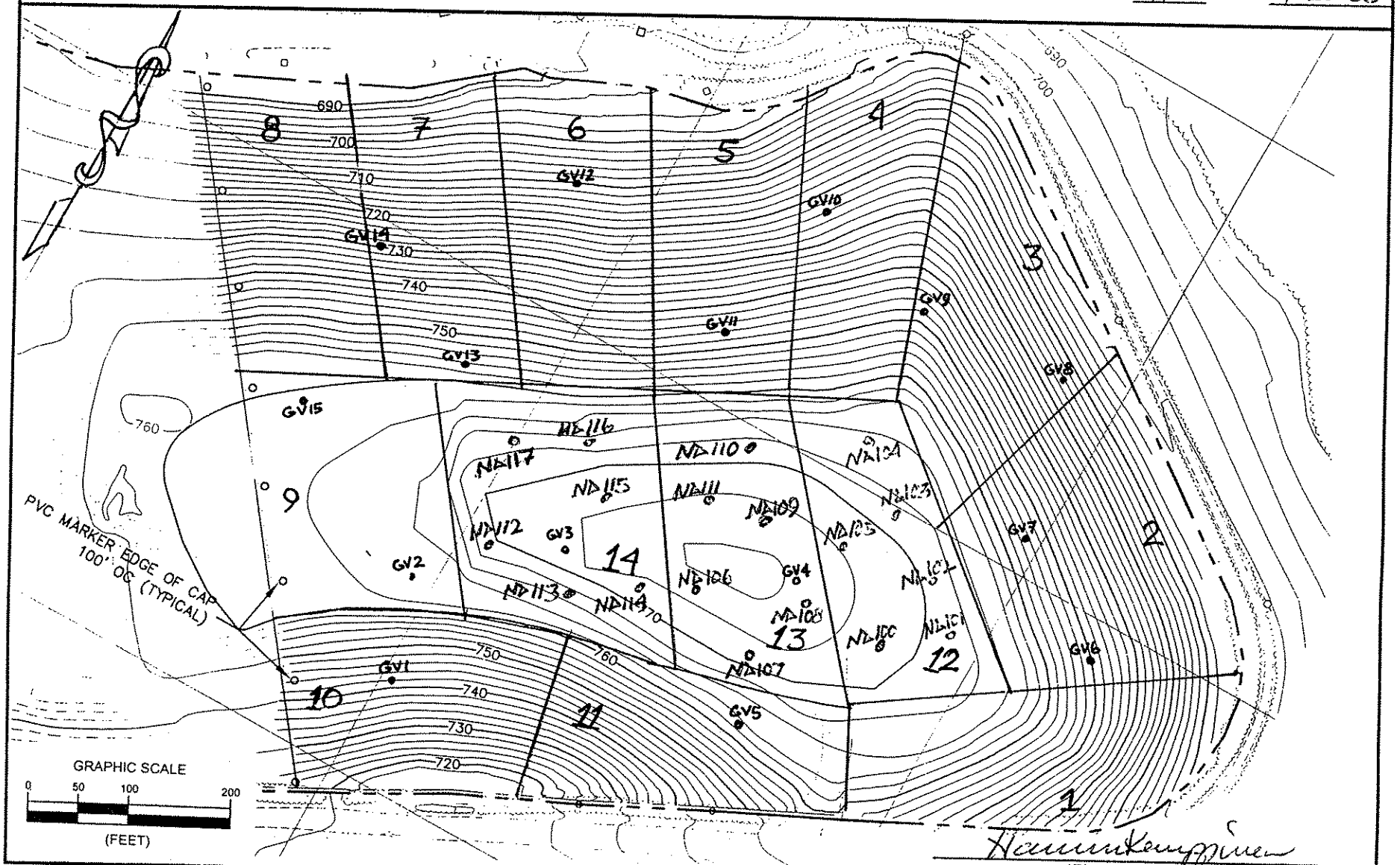
Project: Partial Closure
Client: Davidson County Integrated Solid Waste

Location: Davidson County, NC
Contractor: Shamrock Environmental Corp.

JEI Proj.: 379.00
JEI Task: 35

Report No.: FD- 8
Day of Wk: WE

Sheet: 4 of 4
Date: 7-20-05



JEI REPRESENTATIVE

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JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

Project: Partial Closure of Areas 1 and 3 | Location: Davidson County, NC | JEI Proj.: 379.00 | Report No.: 9 | Sheet: 1 of 3

Client: Davidson County Integrated Solid Waste | Contractor: Shamrock Env. Corp. | JEI Task: 35 | Day of Wk: MO | Date: 7/25/05

TEST NO.	TEST LOCATION	El., ft	SOIL TYPE	PROCTOR		MEASURED IN-PLACE			IN-PLACE COMPACTION		MC DEV. FROM OMC	PASS OR FAIL?	NOTES
				MDD, pcf	OMC, %	WD, pcf	MC, %	DD, pcf	ACTUAL	REQ'D			
ND118	Acre 9	1.0	CL	112.0	15.0%	130.2	16.1%	112.1	100.1%	95%	1.1%	PASS	
119	√	1.0	CL	112.0	15.0%	127.2	15.8%	109.8	98.1%	√	0.8%	PASS	
120	√	1.0	CL	112.0	15.0%	129.3	14.8%	112.6	100.6%	√	-0.2%	PASS	
121	√	1.0	CL	115.6	14.0%	131.2	14.8%	114.3	98.9%	√	0.8%	PASS	
122	√	1.0	CL	115.6	14.0%	130.4	14.5%	113.9	98.5%	√	0.5%	PASS	
123	√	1.0	CL	112.0	15.0%	126.2	14.4%	110.3	98.5%	√	-0.6%	PASS	
MC15	ND118	1.0	CL	115.6	14.0%	130.2	14.3%	113.9	98.5%	√	0.3%	PASS	Retest
MC16	ND122	1.0	CL	115.6	14.0%	130.4	12.8%	115.6	100.0%	√	-1.2%	PASS	Retest

NOTES:

1. Maximum dry density (MDD) and optimum moisture content (OMC) determined by Standard Proctor (ASTM D 698), unless otherwise noted.
2. In-place wet density (WD), moisture content (MC), and calculated dry density (DD) determined with a Troxler Model 3440 nuclear moisture-density gauge (ASTM D 5195), unless otherwise noted. Nuclear gauge probe depth is 4 inches on side slopes and 6 inces on top.
3. See attached plan for approx. test locations: ND = Nuclear Density, SD = Sand Cone Density, MC = Moisture Content, DC = Drive Cylinder, OP = One-Point Proctor
4. Compacted soil cap sample: Lite orange brown, clayey Silt (CL), with fine to coarse sand, MDD 112.0 pcf, OMC 15.0% (PGL Friction Angle Test, 6/19/2005).
   Compacted soil cap sample: Silty Sand (SM), lite brown, MDD 115.6 pcf, OMC 14.0 (Geotechnics, 7/11/05).
   Compacted soil cap sample: Sandy Silt (ML), red brown, MDD 110.2 pcf, OMC 15.0 (Geotechnics, 7/19/05).

HannuKemppinen

JEI REPRESENTATIVE

DETERMINATION OF WATER CONTENT

JOYCE ENGINEERING, INC.

Report No.: 9 Sheet: 2 of 3

Project No. 379.00 Task: 35

Project: Davidson Co. partial Closure Day: MO Date: 7/25/2005

Soil Description: Sandy Clay Tested By: HannuKemppinen

Unified Soil Class: CL Checked By:

Procedure: ASTM D 4959 Standard Test Method for Water Content by Direct heating Method

WATER CONTENT **TEST NUMBER: MC-15**

		Corresponds with	ND118
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.220
Weight of container and dry soil, pounds	**Measured in field**	(2)	1.140
Weight of water, pounds	(1)-(2)	(3)	0.080
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.560
Water content, percent	(3)/(5)x100	(6)	**14.3%**

WATER CONTENT **TEST NUMBER: MC-16**

		Corresponds with	ND122
Weight of container and wet soil, pounds	**Measured in field**	(1)	1.020
Weight of container and dry soil, pounds	**Measured in field**	(2)	0.970
Weight of water, pounds	(1)-(2)	(3)	0.050
Weight of container, pounds	**Measured in field**	(4)	0.580
Weight of dry soil, pounds	(2)-(4)	(5)	0.390
Water content, percent	(3)/(5)x100	(6)	**12.8%**

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

WATER CONTENT **TEST NUMBER:**

		Corresponds with	
Weight of container and wet soil, pounds	**Measured in field**	(1)	
Weight of container and dry soil, pounds	**Measured in field**	(2)	
Weight of water, pounds	(1)-(2)	(3)	
Weight of container, pounds	**Measured in field**	(4)	
Weight of dry soil, pounds	(2)-(4)	(5)	
Water content, percent	(3)/(5)x100	(6)	

COMMENTS:

JOYCE ENGINEERING, INC.

DAILY SUMMARY OF FIELD DENSITY TESTS

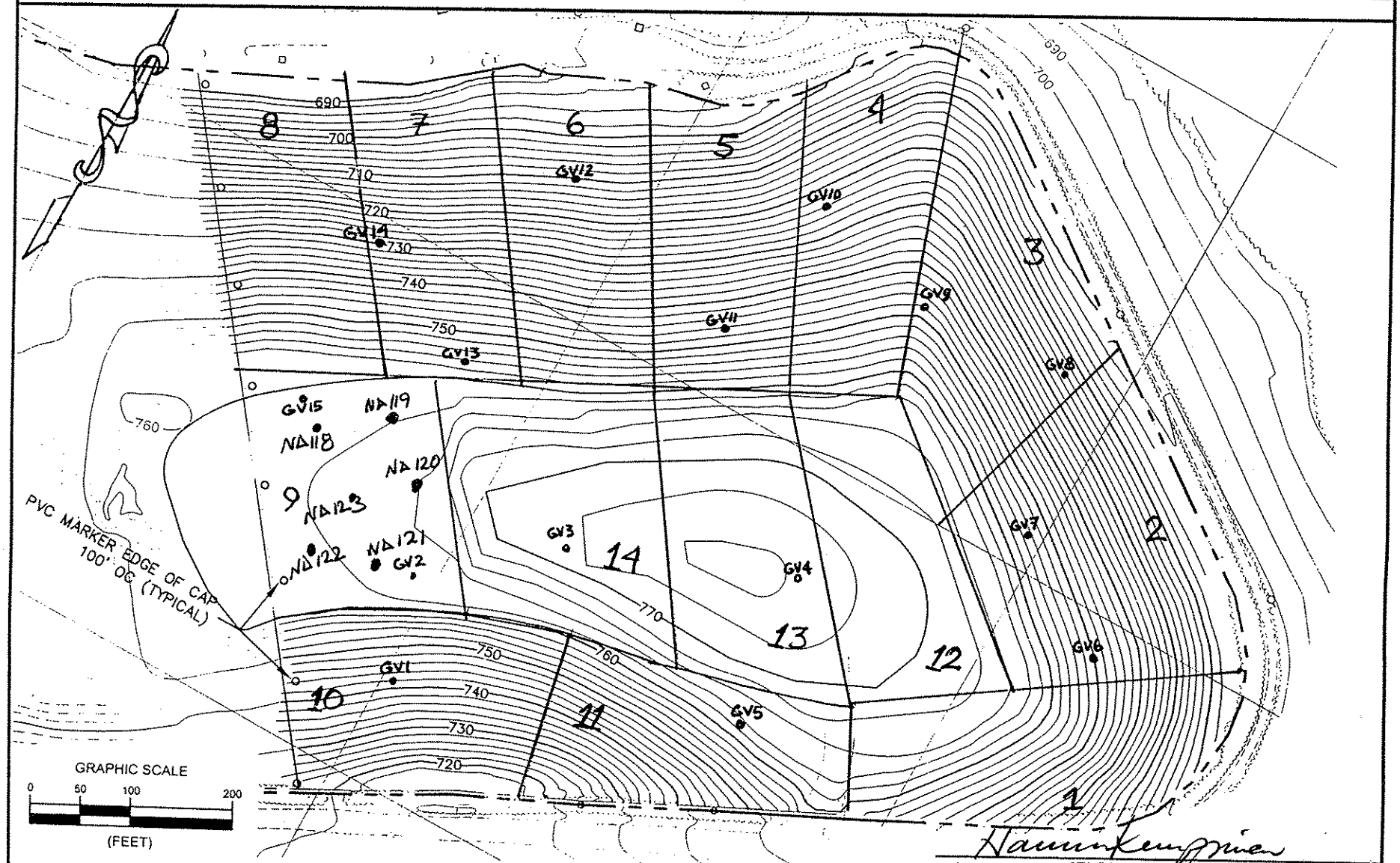
Project: Partial Closure
Client: Davidson County Integrated Solid Waste

Location: Davidson County, NC
Contractor: Shamrock Environmental Corp.

JEI Proj.: 379.00
JEI Task: 35

Report No.: FD- 9
Day of Wk: MO

Sheet: 3 of 3
Date: 7-25-05



JEI REPRESENTATIVE

P:\Davidson\Task 35 - Construction\Soil Cap\FDT Location Plan

1. Kellett's Drilling Services rig augers for gas vent borehole in the waste.

2. Shamrock Environmental installs vent pipe in the borehole.

3. Contractor backfills vent borehole annulus with #57 stone.

4. Bentonite pellets were placed over the stone to seal the hole above waste to surface.

5. Solid pipe is through soil cap, perforated section through the waste.

6. Top of the gas vent bolted on after cover soil construction was completed.

JOYCE ENGINEERING, INC.

TABLE 1 - PROPOSED GAS VENT SCHEDULE

Project: Davidson County Landfill Partial Closure Gas Vent Installation

Client: Davidson County Integrated Solid Waste

GAS VENT	Approximate Surface Elevation	As-Built Depth	Slotted Length	Solid Pipe in Ground	Vent Bottom Elevation	Closure Area	Date Installed
1	742	33	28	5	709	1	06/23/05
2	763	58	52	6	705	1	06/27/05
3	771	62	57	5	709	1	06/22/05
4	773	31	30	5	742	3	06/22/05
5	764	34	29	5	730	1	06/23/05
6	751	12	8	5	739	3	06/20/05
7	754	21	20	6	733	3	06/20/05
8	725	10	7	4.5	715	3	06/21/05
9	748	34	31	5	714	3	06/21/05
10	724	26	23	4	698	3	06/21/05
11	746	29	27	4	717	3	06/21/05
12	718	14	12	4	704	1	06/21/05
13	755	57	54	6	698	1	06/22/05
14	730	32	30	4	698	1	06/21/05
15	759	59	57	5	700	1	06/27/05
		512	465	74			

Precision Geosynthetic Laboratories

June 28, 2005

Henry Havener
SHAMROCK ENVIRONMENTAL
6106 Corporate Park Drive
Browns Summit, NC 27214

Dear Mr. Havener: **RE: *Davidson County Interface Shear***

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

It should be noted that the test specimen and test sample used for this report was believed to be representative of the material produced under the designation herein stated. However, these results are indicative of only the specimens that were actually tested. The testing herein is based upon accepted industry practice as well as the test method listed. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the final use and purpose of the material.

By accepting the data and results represented on this report, Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented in this report, and Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liability in excess of the aforementioned limit.

The test data and all associated project information shall be held in confidence, not to be reproduced except in full and disclosed to other parties with the authorization of the client.

It is a company policy to keep the physical records of each job for 2 years since the receipt of the samples and keep the electronic file for 7 years. We will dispose the samples two weeks after the final report is faxed to you. Should you want us to keep them for some period of time, please advise us immediately.

If you have any questions or if we may be of further service, please do not hesitate to call at 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Maria Espitia
Quality Assurance

Cora B. Queja
Vice President

Enclosure: (Job No.G050480)

1160 North Gilbert Street, Anaheim, CA. 92801, Tel# 714-520-9631, Fax#714-520-9637

Precision Geosynthetic Laboratories

CLIENT: SHAMROCK ENVIRONMENTAL
PROJECT: Davidson County Interface Shear

INTERFACE SHEAR TEST RESULTS
(PGL Job No. G050480)

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER	DATE RECEIVED	ORIGIN OF MATERIAL
Silky Sand			
Soil Borrow #1	9132	06/07/05	SHAMROCK
Geocomposite (R#TN-220-2-6)	9208	06/09/05	Skaps
Geocomposite	9209	06/09/05	Skaps
HD Microspike	9221	06/10/05	Agru America
GCL Bentomat ST(R#12547 L#452FA)	9326	06/16/05	CETCO

TESTS REQUIRED:

TEST METHOD	DESCRIPTION
ASTM D6243	Interface Shear
ASTM D5321	Interface Shear

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at 22 $\pm$ 2°C (71.6 $\pm$ 3.6^{o}F) and at 60 $\pm$ 10% relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 through 8. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES

Maria Espitia
Quality Assurance

Cora B. Queja
Vice President

1160 North Gilbert Street, Anaheim, CA. 92801, Tel# 714-520-9631, Fax#714-520-9637

TABLE CONFIG #1
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D5321)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #1**

TOP BOX	
SOIL Borrow #1	**09132**
Geocomposite (R#TN-220-2-6)	**09208**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the soil .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".
2. Soil was compacted to 106.4 pcf at 15 %
   forming 2 inch layer in the TOP box.
3. Maximum Dry Density (MDD) of the soil is 112 pcf at 15% Optimum Moisture Content.
4. Moisture content of the Soil was 14.9% (as received).

CONSOLIDATION:

1. Each set of specimen was consolidated under FLOODED condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load
   and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in FLOODED condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92
   using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

			PEAK STRENGTH		**3.0 " DISPLACEMENT STRENGTH**	
Normal Stress (psi)	**(psf)**	**After Test MC (Soil) (%)**	**SHEAR STRESS (psf)**	**PEAK SECANT ANGLE (degrees)**	**SHEAR STRESS (psf)**	**3.0 " PLACEMENT SECANT ANGLE (degrees)**
0.87	125	28	189	57	183	56
1.74	250	25.1	199	39	198	38
3.47	500	24.4	373	37	373	37
		COHESION (psf):	**102**			**96**
		COEFFICIENT OF FRICTION:	**0.52**			**0.53**
		FRICTION ANGLE(degrees):	**27.5**			**28.1**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

PGL Job Number: G050480 **CONFIG #1**
Project Name: DAVIDSON COUNTY
SOIL Borrow #1 **09132**

Geocomposite (R#TN-220-2-6) **09208**
QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

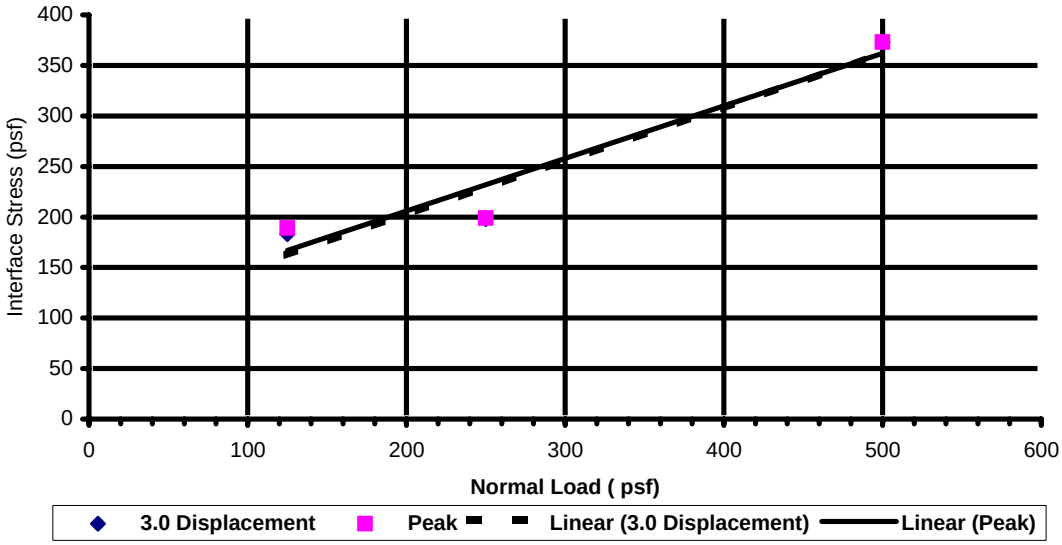
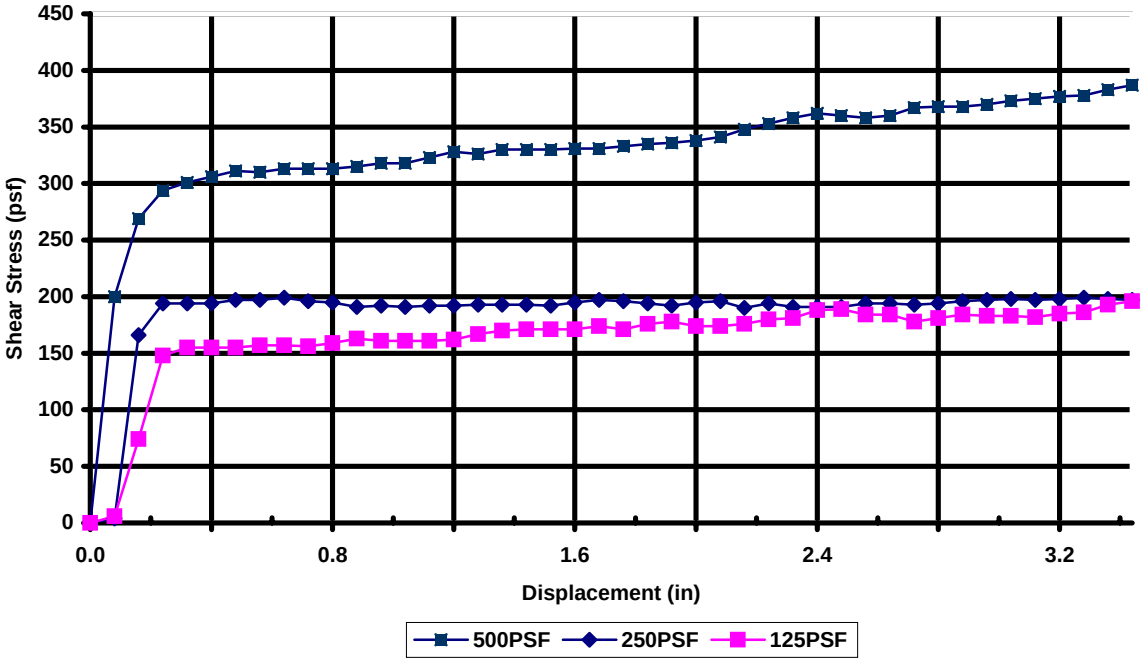


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

TABLE CONFIG #2
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D5321)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #2**

TOP BOX	
SOIL Borrow #1	**09132**
Geocomposite (R#TN 220-2-6)	**09208**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the soil .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".
2. Soil was compacted to 106.4 pcf at 15.8 %
   forming 2 inch layer in the TOP box.
3. Maximum Dry Density (MDD) of the soil is 112 pcf at 15 % Optimum Moisture Content.
4. Moisture content of the Soil was 15.8% (as tested).
5. Moisture content of the Soil was 12.3 % (as received).

CONSOLIDATION:

1. Each set of specimen was consolidated under DRY condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load
   and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in DRY condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92
   using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

			PEAK STRENGTH		**3.0 " DISPLACEMENT STRENGTH**	
Normal Stress (psi)	**(psf)**	**After Test MC (Soil) (%)**	**SHEAR STRESS (psf)**	**PEAK SECANT ANGLE (degrees)**	**SHEAR STRESS (psf)**	**3.0 " DISPLACEMENT SECANT ANGLE (degrees)**
0.87	125	15.5	124	45	121	44
1.74	250	15	202	39	200	39
3.47	500	15	400	39	370	37
		COHESION (psf):	**25**		**36**	
		COEFFICIENT OF FRICTION:	**0.74**		**0.67**	
		FRICTION ANGLE(degrees):	**36.6**		**33.7**	

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

Precision Geosynthetic Laboratories

TABLE CONFIG #3
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D5321)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #3**

TOP BOX	
Geocomposite (R#TN220-2-6)	**09208**
HD Microspike	**09221**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. Specimens were cut along machine direction to 14" x 19" for the upper box, and 14" x 17" for the lower box, with an effective test area of 12" x 12".

CONSOLIDATION:

1. Each set of specimen was consolidated under FLOODED condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in FLOODED condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92 using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

Normal Stress (psi)	Normal Stress (psf)	Asperity Heights (Before) (mils)	Asperity Heights (After) (mils)	PEAK STRENGTH SHEAR STRESS (psf)	PEAK STRENGTH PEAK SECANT ANGLE (degrees)	3.0 " DISPLACEMENT STRENGTH SHEAR STRESS (psf)	3.0 " DISPLACEMENT STRENGTH SECANT ANGLE (degrees)
0.87	125	37.5	37.1	195	57	153	51
1.74	250	37.8	37	249	45	170	34
3.47	500	37.4	36.3	366	36	214	23

	PEAK STRENGTH	3.0 " DISPLACEMENT STRENGTH
COHESION (psf):	**137**	**131**
COEFFICIENT OF FRICTION:	**0.46**	**0.16**
FRICTION ANGLE(degrees):	**24.6**	**9.3**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

PGL Job Number: **G050480** **CONFIG #2**
Project Name: **DAVIDSON COUNTY**
SOIL Borrow #1 **09132**

Geocomposite (R#TN 220-2-6) **09208**
QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

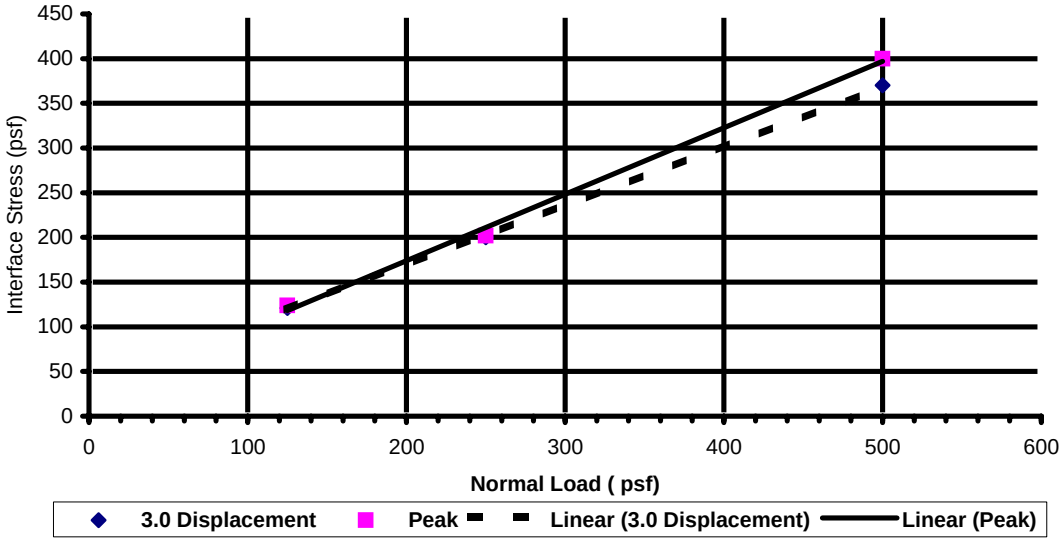
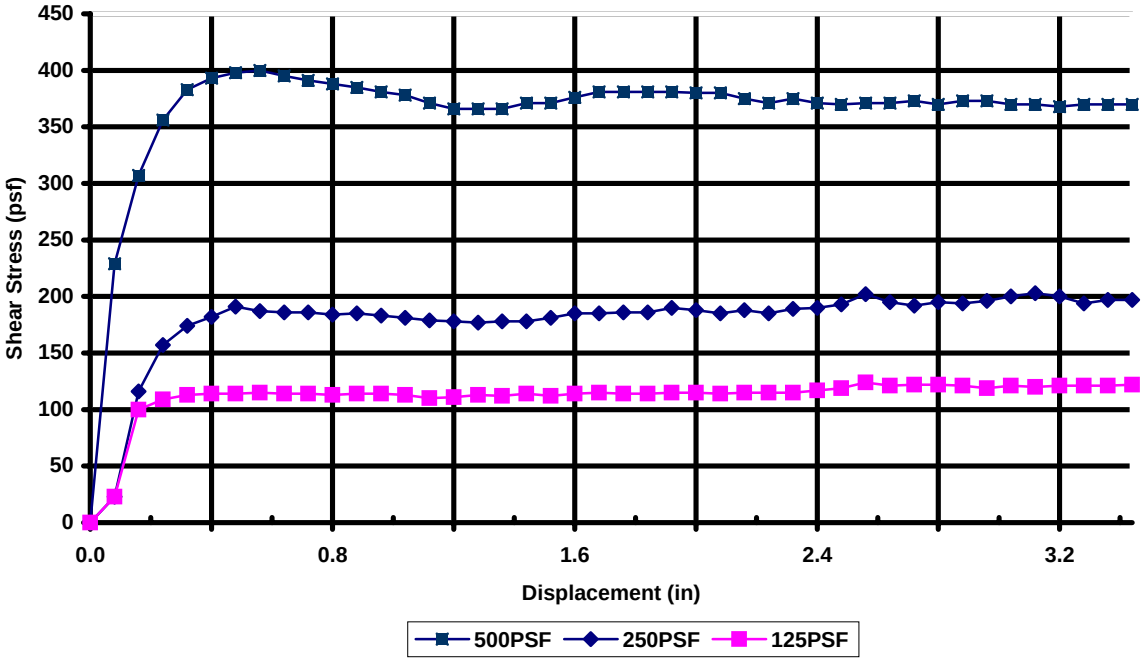


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

PGL Job Number: G050480 **CONFIG #3**
Project Name: DAVIDSON COUNTY
Geocomposite (R#TN220-2-6) **09208**

HD Microspike **09221**
QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

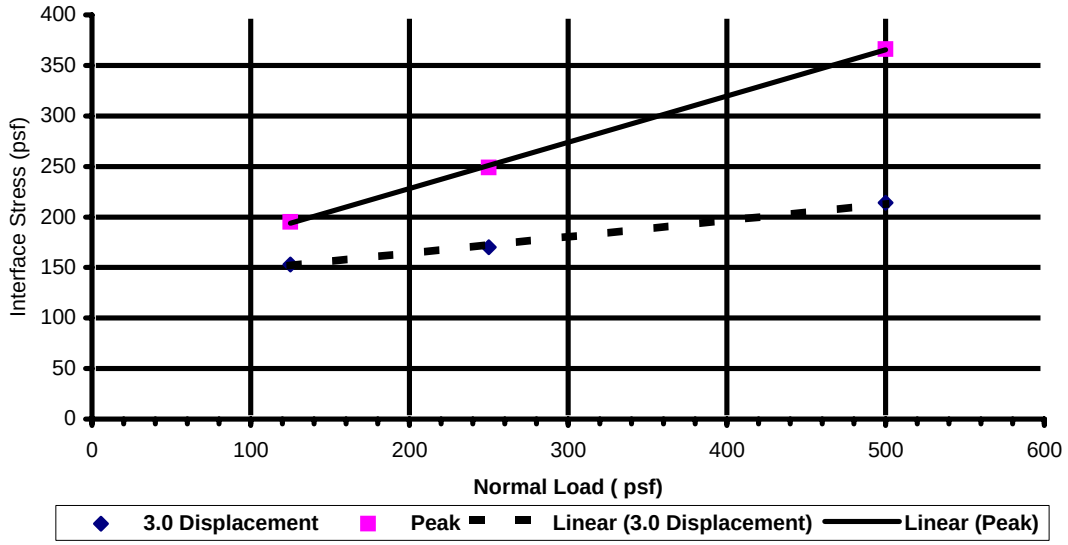
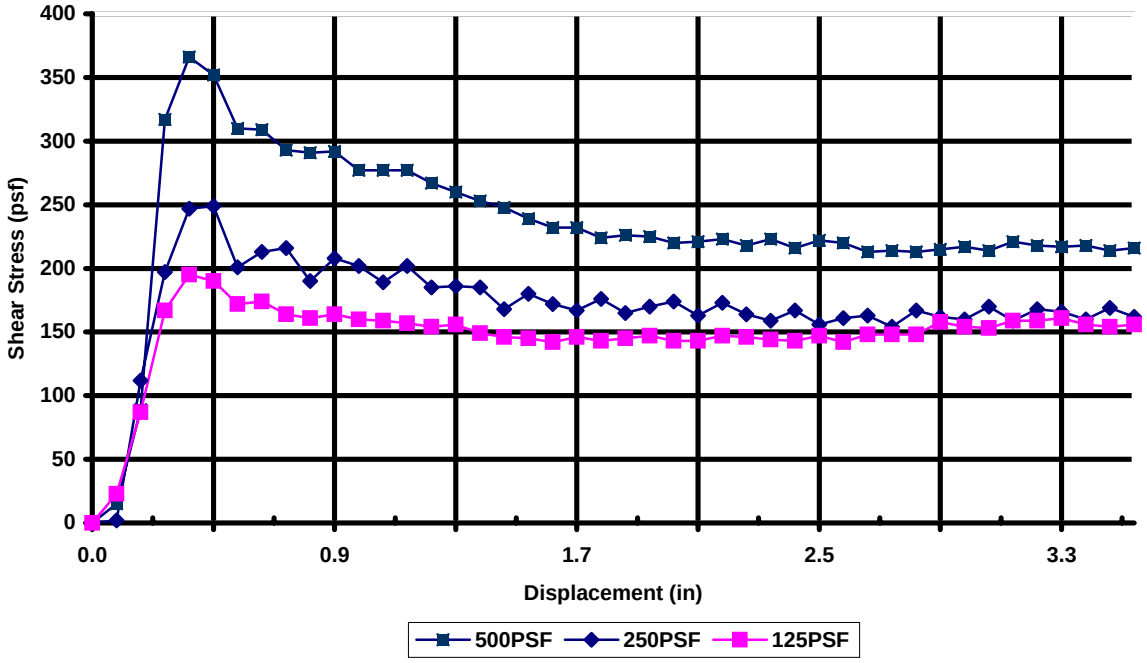


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

TABLE CONFIG #4
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D5321)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #4**

TOP BOX	
Geocomposite (R#TN220-2-6)	**09208**
HD Microspike	**09221**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. Specimens were cut along machine direction to 14" x 19" for the upper box, and 14" x 17" for the lower box, with an effective test area of 12" x 12".

CONSOLIDATION:

1. Each set of specimen was consolidated under DRY condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in DRY condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92 using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

		PEAK STRENGTH				3.0 " DISPLACEMENT STRENGTH	
Normal Stress		**Asperity Heights**		**SHEAR**	**PEAK**	**SHEAR**	**3.0 " DISPLACEMENT**
(psi)	**(psf)**	**(Before)**	**(After)**	**STRESS**	**SECANT ANGLE**	**STRESS**	**SECANT ANGLE**
		(mils)		**(psf)**	**(degrees)**	**(psf)**	**(degrees)**
0.87	125	37.9	36.9	256	64	165	53
1.74	250	37.7	36.4	350	54	216	41
3.47	500	37.9	36.8	469	43	240	26

COHESION (psf):	**197**	**153**
COEFFICIENT OF FRICTION:	**0.55**	**0.19**
FRICTION ANGLE(degrees):	**29.0**	**10.5**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

Precision Geosynthetic Laboratories

PGL Job Number: G050480 **CONFIG #4**
Project Name: DAVIDSON COUNTY
Geocomposite (R#TN220-2-6) **09208**

HD Microspike **09221**
QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

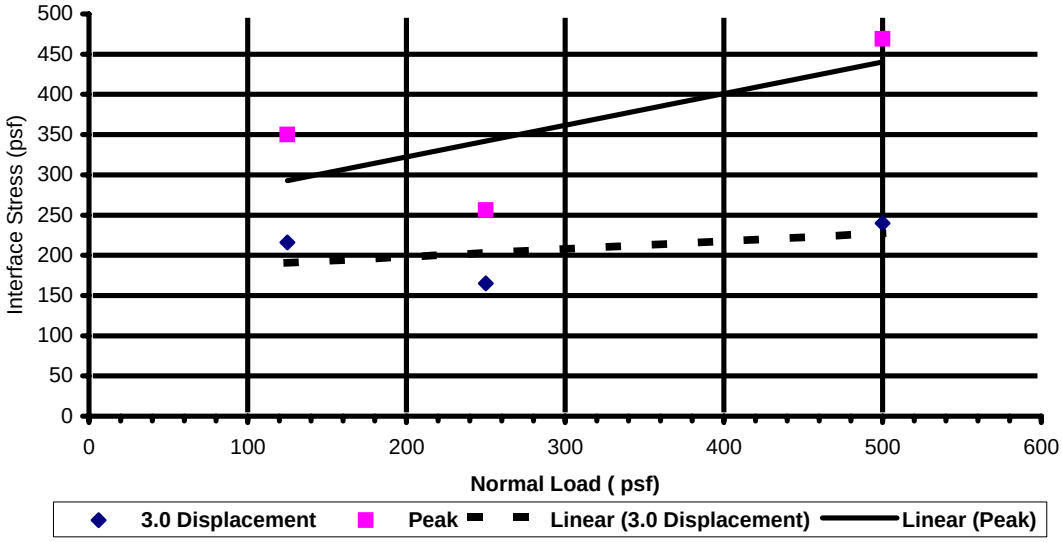
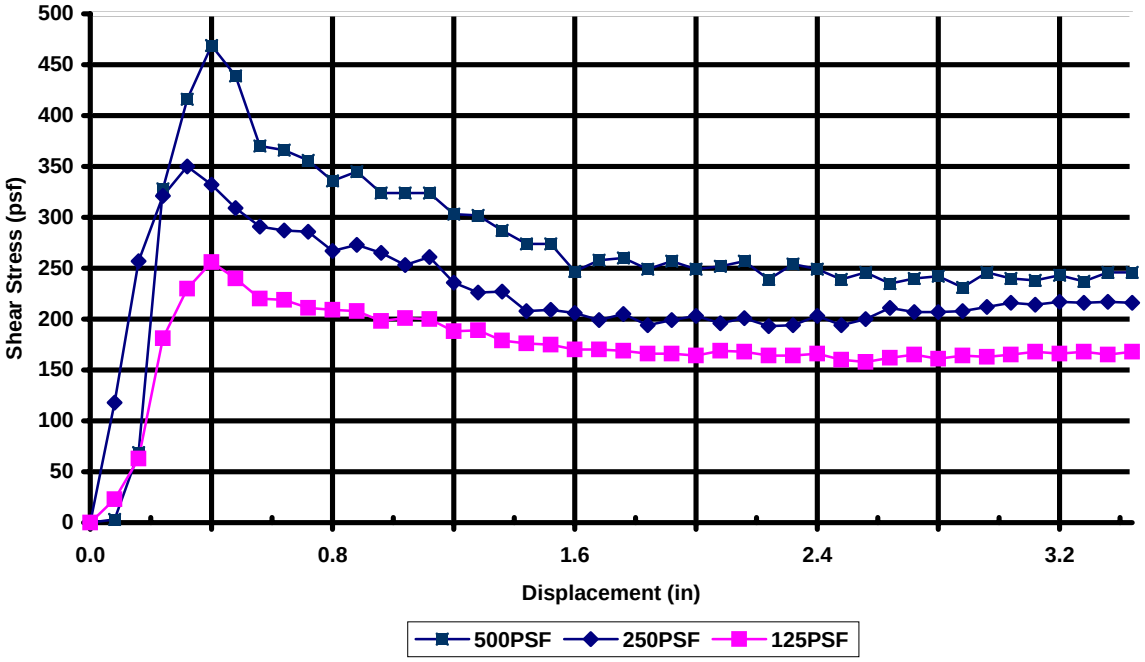


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

TABLE CONFIG #5
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D6243)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #5**

TOP BOX	
GCL Bentomat ST(R#12547 L#452FA)	**09326**
HD Microspike	**09221**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the GCL .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".

2. Moisture content of the GCL was 18.6% (as received).

CONSOLIDATION:

1. Each set of specimen was consolidated under FLOODED condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in FLOODED condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92
   using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

Normal Stress (psi)	Normal Stress (psf)	After Test MC (GCL) (%)	Asperity Heights (Before) (mils)	Asperity Heights (After) (mils)	PEAK STRENGTH SHEAR STRESS (psf)	PEAK STRENGTH PEAK SECANT ANGLE (degrees)	3.0 " DISPLACEMENT STRENGTH SHEAR STRESS (psf)	3.0 " DISPLACEMENT SECANT ANGLE (degrees)
0.87	125	116.2	28.6	28	345	70	287	66
1.74	250	114.7	28.1	27.2	382	57	311	51
3.47	500	99.8	28.4	27.6	606	50	463	43

	PEAK STRENGTH	3.0 " DISPLACEMENT STRENGTH
COHESION (psf):	**233**	**211**
COEFFICIENT OF FRICTION:	**0.72**	**0.49**
FRICTION ANGLE(degrees):	**35.9**	**26.1**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

Precision Geosynthetic Laboratories

PGL Job Number: G050480 **CONFIG #5**

Project Name: DAVIDSON COUNTY

GCL Bentomat ST(R#12547 L#452FA) **09326**

HD Microspike **09221**

QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

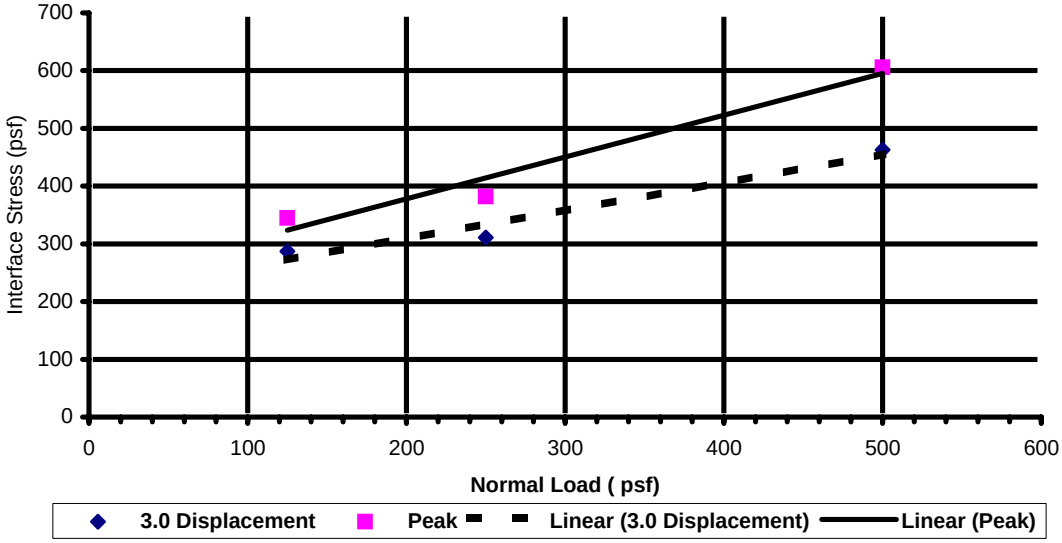
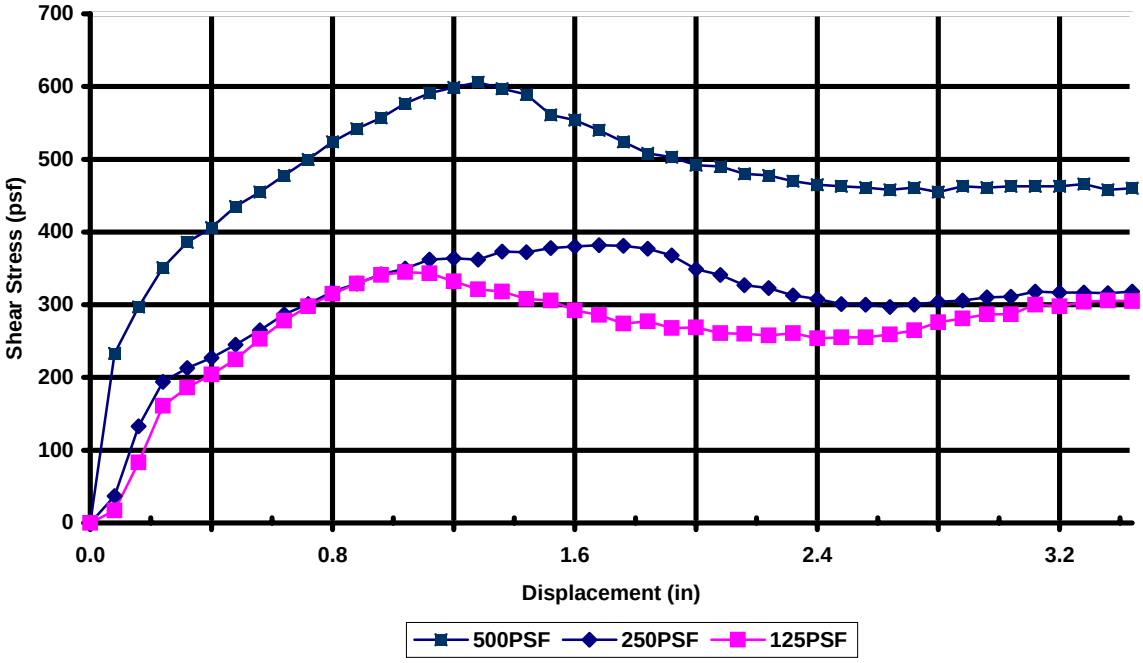


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

TABLE CONFIG #6
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D6243)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #6**

TOP BOX

GCL Bentomat ST (R#12547 L#452FA) **09326**

HD Microspike **09221**

BOTTOM BOX

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the GCL .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".

2. Moisture content of the GCL was 18.6% (as received).

CONSOLIDATION:

1. Each set of specimen was consolidated under DRY condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in DRY condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92
   using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

					PEAK STRENGTH		3.0 " DISPLACEMENT STRENGTH	
Normal Stress (psi)	Normal Stress (psf)	After Test MC (GCL) (%)	Asperity Heights (Before) (mils)	Asperity Heights (After) (mils)	SHEAR STRESS (psf)	PEAK SECANT ANGLE (degrees)	SHEAR STRESS (psf)	3.0 " SPLACEMENT SECANT ANGLE (degrees)
0.87	125	116.2	27.9	27	260	64	195	57
1.74	250	114.7	28.2	27.3	394	58	255	46
3.47	500	99.8	28.1	27.2	629	52	364	36

COHESION (psf):	**143**	**141**
COEFFICIENT OF FRICTION:	**0.98**	**0.45**
FRICTION ANGLE(degrees):	**44.4**	**24.2**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

Precision Geosynthetic Laboratories

PGL Job Number: G050480 **CONFIG #6**

Project Name: DAVIDSON COUNTY

GCL Bentomat ST (R#12547 L#452FA) **09326**

HD Microspike **09221**

QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

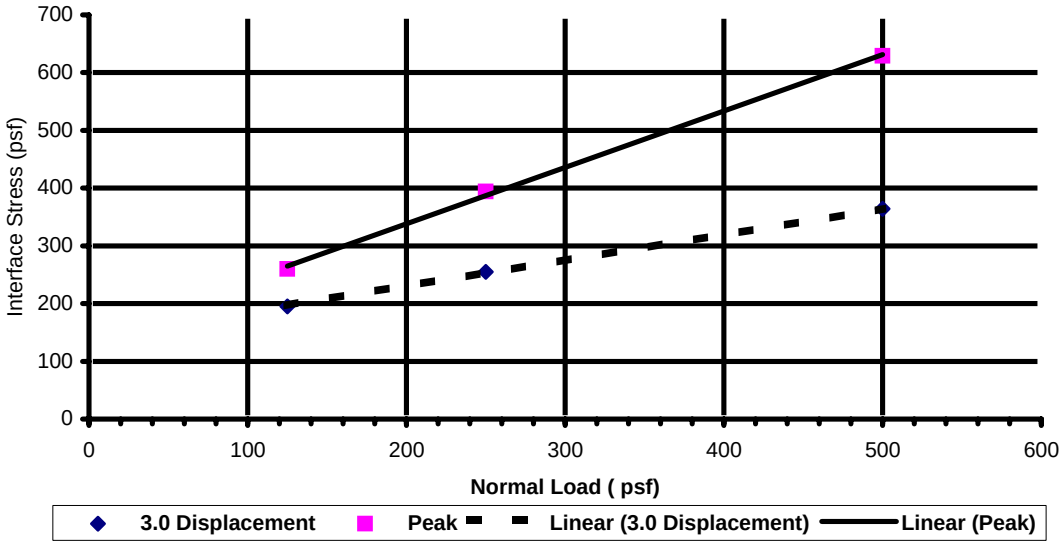
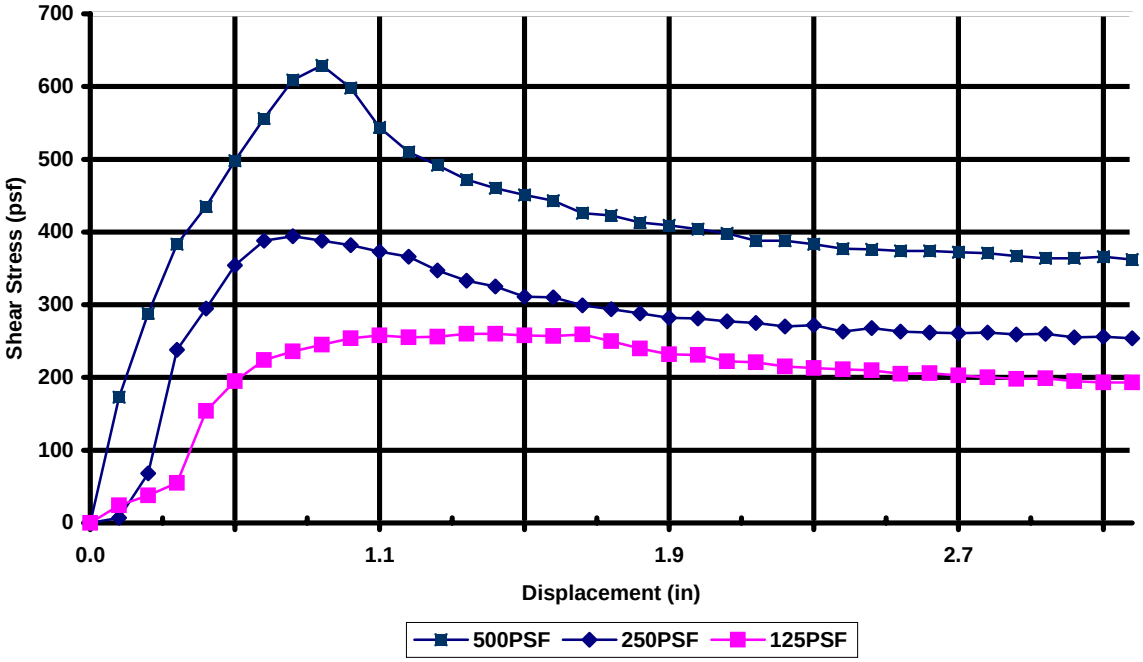


Figure #2
Shear Stress/ Displacement Curve



Precision Geosynthetic Laboratories

TABLE CONFIG #7
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D6243)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #7**

TOP BOX

GCL Bentomat ST (R#12547 L#452FA) **09326**

Geocomposite **09209**

BOTTOM BOX

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the GCL .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".
2. Moisture content of the GCL was 18.6 % (as received).

CONSOLIDATION:

1. Each set of specimen was consolidated under FLOODED condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in FLOODED condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92
   using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

					PEAK STRENGTH		3.0 " DISPLACEMENT STRENGTH	
Normal Stress (psi)	Normal Stress (psf)	After Test MC (GCL) (%)	Asperity Heights (Before)	Asperity Heights (After)	SHEAR STRESS (psf)	PEAK SECANT ANGLE (degrees)	SHEAR STRESS (psf)	3.0 " PLACEMENT SECANT ANGLE (degrees)
0.87	125	144.3	20.6	19.8	170	54	132	47
1.74	250	124.4			234	43	179	36
3.47	500	111.4	20.8	18.8	314	32	235	25
		COHESION (psf):			**130**		**104**	
		COEFFICIENT OF FRICTION:			**0.37**		**0.27**	
		FRICTION ANGLE(degrees):			**20.5**		**15.0**	

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

Precision Geosynthetic Laboratories

PGL Job Number: G050480 **CONFIG #7**

Project Name: DAVIDSON COUNTY

GCL Bentomat ST (R#12547 L#452FA) **09326**

Geocomposite **09209**

QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

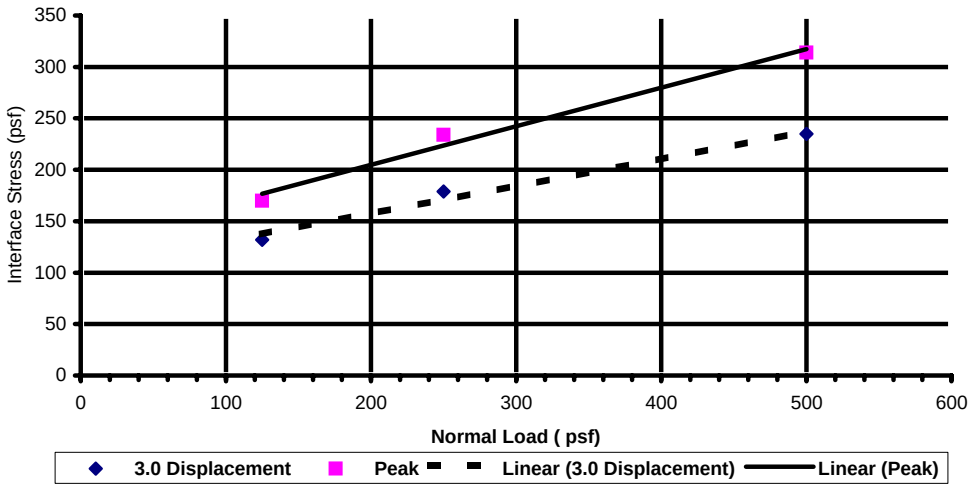


Figure #2
Shear Stress/ Displacement Curve

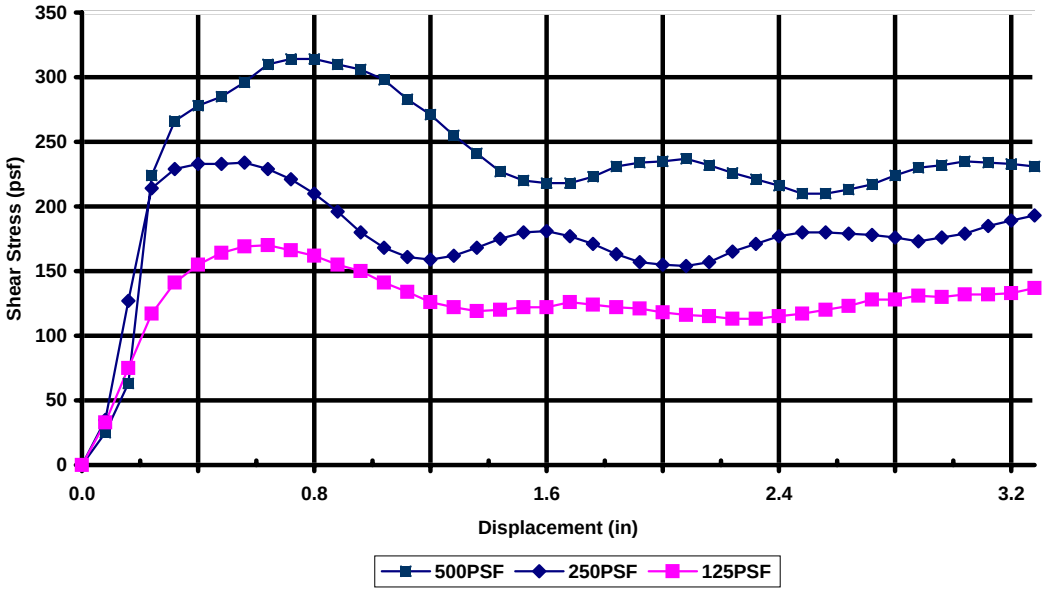


TABLE CONFIG #8
CLIENT: SHAMROCK
PROJECT: DAVIDSON COUNTY

INTERFACE SHEAR TEST RESULT (ASTM D6243)
PGL Job No. G050480

QC'd by: _____
Date: 06/28/2005

TEST CONFIGURATION **CONFIG #8**

TOP BOX	
GCL Bentomat ST (R#12547 L#452FA)	**09326**
Geocomposite	**09209**
BOTTOM BOX	

TEST CONDITIONS:

SAMPLE PREPARATION:

1. The TOP box contained the GCL .
   Specimens were cut along machine direction to 14" x 17" for the BOTTOM box, with effective test area of 12" x 12".

CONSOLIDATION:

1. Each set of specimen was consolidated under DRY condition for 4 hrs @ normal load before shearing.
2. Normal loads were applied using DEAD WEIGHTS for the highest load, DEAD WEIGHTS for the medium load and **DEAD WEIGHTS** for the lowest load.

SHEAR TEST:

1. Shear test was conducted @ 0.040 in/ min.
2. Sheared @ minimum **3.0** inch horizontal displacement.
3. The test specimens were sheared in DRY condition
4. Test were performed in general accordance with ASTM D6243-98 / ASTM D5321-92 using Brainard-Kilman LG-112 Direct Shear machine with effective test area of 12 in X 12 in.

TEST RESULTS:

Normal Stress (psi)	Normal Stress (psf)	PEAK STRENGTH SHEAR STRESS (psf)	PEAK STRENGTH PEAK SECANT ANGLE (degrees)	3.0 " DISPLACEMENT STRENGTH SHEAR STRESS (psf)	3.0 " DISPLACEMENT SECANT ANGLE (degrees)
0.87	125	104	40	66	28
1.74	250	167	34	101	22
3.47	500	276	29	172	19

	PEAK STRENGTH	3.0 " DISPLACEMENT STRENGTH
COHESION (psf):	**50**	**31**
COEFFICIENT OF FRICTION:	**0.46**	**0.28**
FRICTION ANGLE(degrees):	**24.5**	**15.8**

NOTE: The friction angles and cohesion results given here are based on mathematically determined best fit line.

OBSERVATIONS:

See Figure #1 and #2

PGL Job Number: G050480 **CONFIG #8**

Project Name: DAVIDSON COUNTY

GCL Bentomat ST (R#12547 L#452FA) **09326**

Geocomposite **09209**

QC'd By: _____

Figure #1
Normal Stress/ Interface Stress

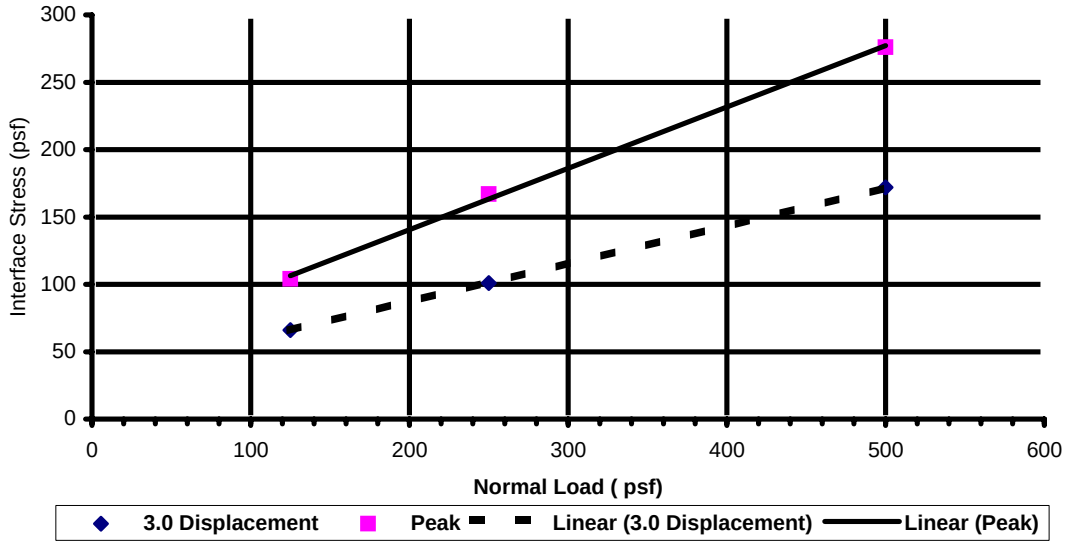
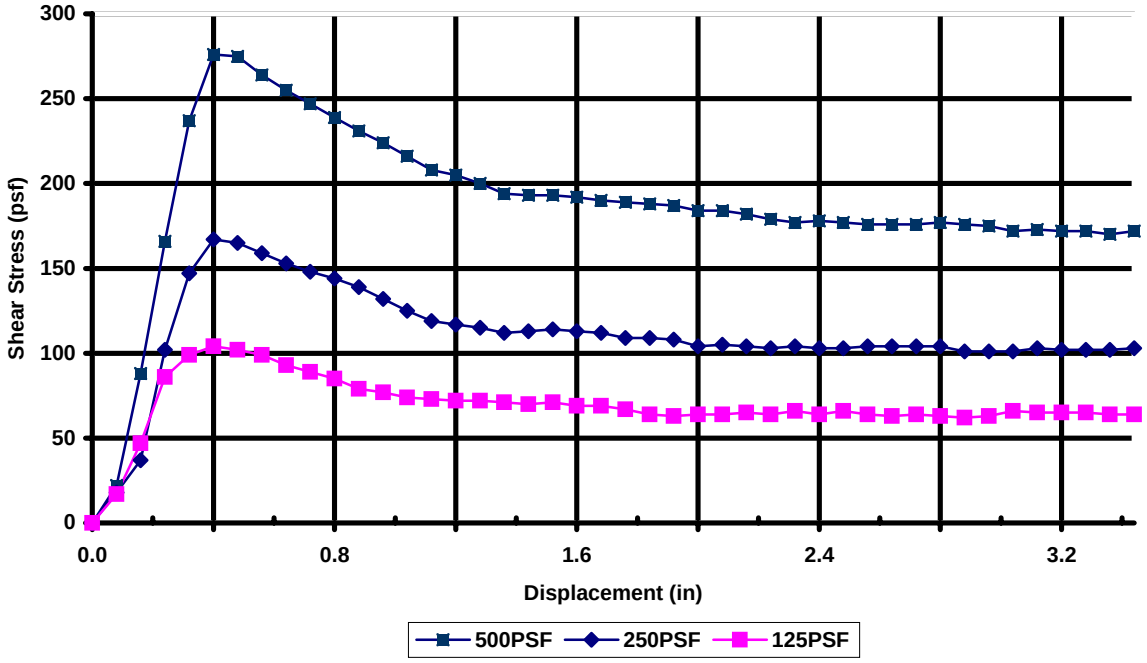


Figure #2
Shear Stress/ Displacement Curve

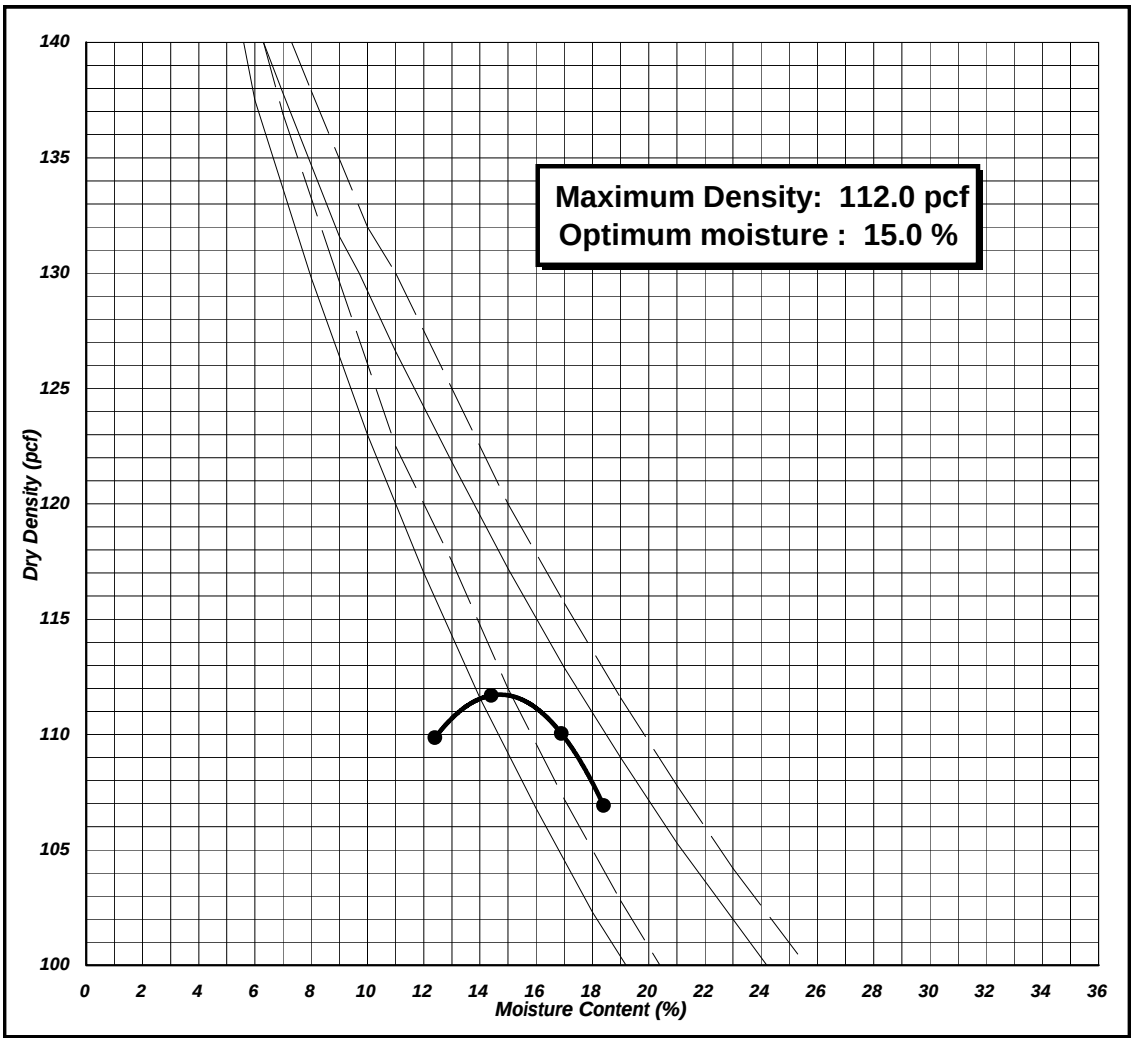


Precision Geosynthetic Laboratories

MAXIMUM DENSITY TEST ASTM D698

Job Name	Precision Geosynthetic Lab. # G 050480	**Date:**	6/19/2005
Job No.	2001-068	**By:**	SE
Boring/Sample No.	C # 09132		
Description:	L. Orange Brown, Clayey Silt w. F.C. Sand		

Method: **A**	Mold Volume (cf): **0.0333**	Blows: **25**		Layers: **3**	
Specimen	A	B	C	D	E
Total Wet Weight (lbs)	**3908**	**3973**	**3986**	**3955**	
Weight of Mold (lbs)	2041	2041	2041	2041	
Wet Weight of Soil (lbs)	1867	1932	1945	1914	
Wet Density (pcf)	123.5	127.8	128.6	126.6	
Moisture Can No.					
Dry Weight					
Moisture Content (%)	**12.4**	**14.4**	**16.9**	**18.4**	
Dry Density (pcf)	109.9	111.7	110.0	106.9	



GeoLogic Associates

CETCO
LINING TECHNOLOGIES
800.527.9948 www.cetco.com

Date: 8/3/2005
Purchase Order: 200521
ORDER NUMBERS: 020078610, 020078612, 020078613, 020078614

Jennifer Battle
Mid America Lining

Union City, TN 38261
maljennifer@ken-tennwireless.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Mid America Lining. The shipments left our Fairmount, Georgia plant on 8/2/2005.

If you have any questions regarding this information, please contact me at (706) 337-5316.

Sincerely,

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
ORDER NUMBERS: 020078610, 020078612, 020078613, 020078614
PREPARED FOR: Mid America Lining

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
234 Gordon St. S.E.

Fairmount GA, 30139

Telephone: (706) 337-5316
Fax: (706) 337-2215
E-Mail: melanie.king@cetco.com

CETCO
LINING TECHNOLOGIES
800.527.9948 www.cetco.com

PRODUCTION CERTIFICATION

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
PREPARED FOR: Mid America Lining

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat® geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. Any detected needles, which can be identified without damaging the GCL, are removed from the product.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)

Ship Date: 8/2/2005
Order Numbers: 020078610, 020078612, 020078613, 020078614
Prepared For: Mid America Lining

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	22.5 lbs/in (40 N/cm) MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	6500 psf (311 kPa) typ @ 10,800 psf
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	500 psf (24 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	2.5 lbs/in (4.4 N/cm) Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility.
All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT ST

Raw Material	test method	mass per area	units
Nonwoven Cover Fabric	ASTM D 5261	6.0	oz/yd2
Bentomat ST Woven Base Fabric	ASTM D 5261	3.2	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.

CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

CETCO LINING TECHNOLOGIES
800.527.9948 www.cetco.com

GCL ORDER PACKING LIST

GCL shipped for certification package number 020078610

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078612	FA-BENTOMAT ST	200518FA	00001856	150	15	2250	2615
020078612	FA-BENTOMAT ST	200528FA	00003566	150	15	2250	3451
020078612	FA-BENTOMAT ST	200529FA	00003643	150	15	2250	3530
020078613	FA-BENTOMAT ST	200529FA	00003727	150	15	2250	2765
020078612	FA-BENTOMAT ST	200529FA	00003734	150	15	2250	2747
020078613	FA-BENTOMAT ST	200529FA	00003736	150	15	2250	2743
020078613	FA-BENTOMAT ST	200529FA	00003738	150	15	2250	2735
020078613	FA-BENTOMAT ST	200529FA	00003739	150	15	2250	2720
020078613	FA-BENTOMAT ST	200529FA	00003741	150	15	2250	2723
020078613	FA-BENTOMAT ST	200529FA	00003742	150	15	2250	2718
020078613	FA-BENTOMAT ST	200529FA	00003746	150	15	2250	2709
020078613	FA-BENTOMAT ST	200529FA	00003747	150	15	2250	2710
020078613	FA-BENTOMAT ST	200529FA	00003748	150	15	2250	2717
020078613	FA-BENTOMAT ST	200529FA	00003751	150	15	2250	2721
020078613	FA-BENTOMAT ST	200529FA	00003753	150	15	2250	2718
020078613	FA-BENTOMAT ST	200529FA	00003754	150	15	2250	2720
020078614	FA-BENTOMAT ST	200529FA	00003756	150	15	2250	2786
020078613	FA-BENTOMAT ST	200529FA	00003767	150	15	2250	2767
020078614	FA-BENTOMAT ST	200529FA	00003769	150	15	2250	2781
020078614	FA-BENTOMAT ST	200529FA	00003773	150	15	2250	2781
020078613	FA-BENTOMAT ST	200529FA	00003774	150	15	2250	2805
020078614	FA-BENTOMAT ST	200529FA	00003775	150	15	2250	2805
020078614	FA-BENTOMAT ST	200529FA	00003778	150	15	2250	2786
020078614	FA-BENTOMAT ST	200529FA	00003780	150	15	2250	2786
020078614	FA-BENTOMAT ST	200529FA	00003782	150	15	2250	2795
020078614	FA-BENTOMAT ST	200529FA	00003784	150	15	2250	2802
020078614	FA-BENTOMAT ST	200529FA	00003789	150	15	2250	2775

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078612	FA-BENTOMAT ST	200529FA	00003805	150	15	2250	2656
020078612	FA-BENTOMAT ST	200529FA	00003821	150	15	2250	2683
020078612	FA-BENTOMAT ST	200529FA	00003822	150	15	2250	2695
020078612	FA-BENTOMAT ST	200529FA	00003823	150	15	2250	2664
020078612	FA-BENTOMAT ST	200529FA	00003825	150	15	2250	2695
020078614	FA-BENTOMAT ST	200529FA	00003827	150	15	2250	2715
020078614	FA-BENTOMAT ST	200529FA	00003833	150	15	2250	2726
020078614	FA-BENTOMAT ST	200529FA	00003834	150	15	2250	2705
020078614	FA-BENTOMAT ST	200529FA	00003836	150	15	2250	2700
020078613	FA-BENTOMAT ST	200529FA	00003837	150	15	2250	2667
020078614	FA-BENTOMAT ST	200529FA	00003838	150	15	2250	2692
020078613	FA-BENTOMAT ST	200529FA	00003839	150	15	2250	2690
020078612	FA-BENTOMAT ST	200529FA	00003874	150	15	2250	2706
020078612	FA-BENTOMAT ST	200529FA	00003879	150	15	2250	2840
020078614	FA-BENTOMAT ST	200529FA	00003882	150	15	2250	2840
020078614	FA-BENTOMAT ST	200529FA	00003932	150	15	2250	2760
020078614	FA-BENTOMAT ST	200529FA	00004124	150	15	2250	2825
020078610	FA-BENTOMAT ST	200530FA	00004663	150	15	2250	2873
020078610	FA-BENTOMAT ST	200531FA	00004839	150	15	2250	2878
020078612	FA-BENTOMAT ST	200531FA	00004879	150	15	2250	2900
020078610	FA-BENTOMAT ST	200531FA	00004899	150	15	2250	2883
020078610	FA-BENTOMAT ST	200531FA	00004900	150	15	2250	2851
020078612	FA-BENTOMAT ST	200531FA	00004901	150	15	2250	2852
020078610	FA-BENTOMAT ST	200531FA	00004902	150	15	2250	2834
020078610	FA-BENTOMAT ST	200531FA	00004903	150	15	2250	2840
020078610	FA-BENTOMAT ST	200531FA	00004910	150	15	2250	2855
020078610	FA-BENTOMAT ST	200531FA	00004913	150	15	2250	2875
020078612	FA-BENTOMAT ST	200531FA	00004914	150	15	2250	2891
020078610	FA-BENTOMAT ST	200531FA	00004915	150	15	2250	2897
020078610	FA-BENTOMAT ST	200531FA	00004916	150	15	2250	2888
020078612	FA-BENTOMAT ST	200531FA	00004987	150	15	2250	2846
020078612	FA-BENTOMAT ST	200531FA	00004990	150	15	2250	2822

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078610	FA-BENTOMAT ST	200531FA	00004995	150	15	2250	2820
020078610	FA-BENTOMAT ST	200531FA	00004996	150	15	2250	2827
020078610	FA-BENTOMAT ST	200531FA	00004997	150	15	2250	2828
020078610	FA-BENTOMAT ST	200531FA	00005022	150	15	2250	2827
020078610	FA-BENTOMAT ST	200531FA	00005024	150	15	2250	2818
020078610	FA-BENTOMAT ST	200531FA	00005025	150	15	2250	2800
020078612	FA-BENTOMAT ST	200532FA	00005111	150	15	2250	2866
			Totals:	**9900**	**990**	**148500**	**184741**
							Total Number of Rolls Certified: **66**

CETCO LINING TECHNOLOGIES
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GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 020078610

GCL			Geotextiles				Clay
FA-BENTOMAT ST			FA-N/W-WHITE-ST			FA-WOVEN-ST	FA-CG 50-ST
GCL Lot #	**GCL Roll #**	**Roll # Tested**	**Cap Lot #**	**Cap Roll #**	**Roll # Tested**	**Base Roll #**	**Clay Lot #**
200518FA	00001856	00001855	2003487206			2004895498	636305
200528FA	00003566	00003556	2005764727			2005658491	669110
200529FA	00003643	00003726	2005764837			2005390905	669110
200529FA	00003727	00003708	2005856907			2005342210	669112
200529FA	00003734	00003708	2005856908			2005342210	669112
200529FA	00003736	00003708	2005856908			2005576316	669112
200529FA	00003738	00003708	2005856908			2005576316	669112
200529FA	00003739	00003708	2005856908			2005576316	669112
200529FA	00003741	00003708	2005856908			2005576316	669112
200529FA	00003742	00003742	2005856908			2005576316	669112
200529FA	00003746	00003742	2005856914			2005576316	669112
200529FA	00003747	00003742	2005856914			2005576316	669112
200529FA	00003748	00003742	2005856914			2005576316	669112
200529FA	00003751	00003742	2005856914			2005576316	669112
200529FA	00003753	00003742	2005856909			2005576316	669112
200529FA	00003754	00003742	2005856909			2005576316	669112
200529FA	00003756	00003742	2005856909			2005576316	669112
200529FA	00003767	00003760	2005856942			2005603764	669112
200529FA	00003769	00003760	2005856942			2005603764	669112
200529FA	00003773	00003760	2005856946			2005603764	669112
200529FA	00003774	00003760	2005856946			2005603764	669112
200529FA	00003775	00003760	2005856946			2005603764	669112
200529FA	00003778	00003777	2005856946			2005603764	669112
200529FA	00003780	00003777	2005856919			2005603764	669112
200529FA	00003782	00003777	2005856919			2005603764	669112
200529FA	00003784	00003777	2005856919			2005603764	669112
200529FA	00003789	00003777	2005856919			2005604770	669112
200529FA	00003805	00003790	2005880396			2005604770	669112
200529FA	00003821	00003812	2005880389			2005276365	669112

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200529FA	00003822	00003812	2005880389			2005589161	669112
200529FA	00003823	00003812	2005880389			2005589161	669112
200529FA	00003825	00003812	2005880389			2005589161	669112
200529FA	00003827	00003812	2005880386			2005589161	669112
200529FA	00003833	00003830	2005880386			2005589161	669114
200529FA	00003834	00003830	2005880386			2005589161	669114
200529FA	00003836	00003830	2005880386			2005589161	669114
200529FA	00003837	00003830	2005880398			2005589161	669114
200529FA	00003838	00003830	2005880398			2005589161	669114
200529FA	00003839	00003830	2005880398			2005589161	669114
200529FA	00003874	00003865	2005880391			2005589301	669114
200529FA	00003879	00003865	2005856941			2005589301	669114
200529FA	00003882	00003865	2005856941			2005589301	669114
200529FA	00003932	00003921	2005880443			2005567786	669120
200529FA	00004124	00004121	2005856931			2005386776	664294
200530FA	00004663	00004648	547			2005774824	664260
200531FA	00004839	00004826	199			2005470621	664301
200531FA	00004879	00004879	240			2005470227	669124
200531FA	00004899	00004899	462			2005579645	669124
200531FA	00004900	00004899	462			2005579645	669124
200531FA	00004901	00004899	462			2005579645	669124
200531FA	00004902	00004899	462			2005579645	669124
200531FA	00004903	00004899	462			2005579645	669124
200531FA	00004910	00004899	232			2005579645	669124
200531FA	00004913	00004899	232			2005579645	669124
200531FA	00004914	00004899	232			2005579645	669124
200531FA	00004915	00004899	232			2005579645	669124
200531FA	00004916	00004899	232			2005579645	669124
200531FA	00004987	00004981	2005947200			2005765040	664302
200531FA	00004990	00004981	2005947200			2005765040	664302
200531FA	00004995	00004981	2005947200			2005765040	664302
200531FA	00004996	00004981	2005947200			2005765040	664302
200531FA	00004997	00004981	2005947203			2005765040	664302
200531FA	00005022	00005017	2005988646			2005589159	664302
200531FA	00005024	00005017	2005988646			2005589159	664302

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200531FA	00005025	00005017	2005988646			2005589159	664302
200532FA	00005111	00005099	2005988650			2005831619	668818

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GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 020078610 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
		Standard Test Method:	ASTM D 5993	ASTM D 4632	ASTM D 4632
		Standard Specification:	0.75 lb/sq ft MARV	90lbs MARV	15lbs MARV
FA-BENTOMAT ST	200518FA	00001855	0.81	177.9	35.5
FA-BENTOMAT ST	200528FA	00003556	1.14	188.3	34.3
FA-BENTOMAT ST	200529FA	00003708	0.87	131.3	32.7
FA-BENTOMAT ST	200529FA	00003742	0.88	131.3	27.5
FA-BENTOMAT ST	200529FA	00003760	0.88	198.2	33.7
FA-BENTOMAT ST	200529FA	00003777	0.91	198.2	31.6
FA-BENTOMAT ST	200529FA	00003790	0.81	198.2	33.5
FA-BENTOMAT ST	200529FA	00003812	0.85	198.2	31.6
FA-BENTOMAT ST	200529FA	00003830	0.89	198.2	20.3
FA-BENTOMAT ST	200529FA	00003865	0.90	190.6	32.8
FA-BENTOMAT ST	200529FA	00003921	0.88	190.6	29.7
FA-BENTOMAT ST	200529FA	00004121	0.91	223.4	43.4
FA-BENTOMAT ST	200530FA	00004648	0.86	294.8	32.3
FA-BENTOMAT ST	200531FA	00004826	0.87	285.2	44.6
FA-BENTOMAT ST	200531FA	00004879	0.86	281.7	28.9
FA-BENTOMAT ST	200531FA	00004899	0.88	281.7	31.2
FA-BENTOMAT ST	200531FA	00004981	0.84	197.1	34.5
FA-BENTOMAT ST	200531FA	00005017	0.84	197.1	30

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

AMERICAN COLLOID COMPANY

BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce Order 020078610
has been certified by American Colloid with the following test results

ACC Order Num	Moist	Swell	Fluid Loss	Retained 8m	Passing 200m
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891	ASTM C 136	ASTM C 136
Specification:	12.0% Max	24 Min	18.0% Max	0%	1.0% Max
636305	11.2	26.0	15.6	0.0	0.8
664260	10.8	28.0	13.0	0.0	0.3
669110	9.8	25.0	16.4	0.0	0.5
669112	10.0	25.0	16.4	0.0	0.2
669114	9.4	26.0	16.8	0.0	0.8
669120	9.0	33.0	16.8	0.0	0.7
664294	11.2	25.0	14.4	0.0	0.4
669124	9.1	32.0	16.8	0.0	0.6
664302	11.2	27.0	14.8	0.0	0.3
664301	10.8	29.0	15.6	0.0	0.3
668818	10.0	27.0	14.0	0.0	0.5

Tests approved by
Moses Briseno
American Colloid Company
Quality Assurance Coordinator

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GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 020078610was manufactured with geotextiles which were tested with the following results.

BASE			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
SI 82TEX	2004895498	3.5	182.0
SI 82TEX	2005276365	3.5	152.0
SI 82TEX	2005342210	3.5	165.0
SI 82TEX	2005386776	3.5	165.0
SI 82TEX	2005390905	3.5	158.0
SI 82TEX	2005470227	3.5	156.0
SI 82TEX	2005470227	3.5	156.0
SI 82TEX	2005470621	3.3	166.0
SI 82TEX	2005470621	3.3	166.0
SI 82TEX	2005567786	3.4	148.0
SI 82TEX	2005567786	3.4	148.0
SI 82TEX	2005576316	5.4	169.0
SI 82TEX	2005576316	5.4	169.0
SI 82TEX	2005579645	3.5	168.0
SI 82TEX	2005579645	3.5	168.0
SI 82TEX	2005589159	3.5	158.0
SI 82TEX	2005589159	3.5	158.0
SI 82TEX	2005589161	3.5	158.0
SI 82TEX	2005589301	3.6	160.0
SI 82TEX	2005603764	3.6	157.0
SI 82TEX	2005603764	3.6	157.0
SI 82TEX	2005604770	3.6	159.0
SI 82TEX	2005604770	3.6	175.0
SI 82TEX	2005658491	3.5	176.0
SI 82TEX	2005658491	3.5	175.6
SI 82TEX	2005765040	3.5	156.0
SI 82TEX	2005774824	3.5	164.0
SI 82TEX	2005831619	3.5	173.0

CAP			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
SI 650	2005764727	7.3	97.4
SI 650	2005856913	6.0	85.1

SI 650	2005856940	6.8	93.7
SI 650	2005856942	6.8	93.7
SI 650	2005880386	7.3	83.0
SI 650	2005880398	7.0	74.9
SI 650	2005880443	6.4	63.5
SI 650	2005764837	7.4	86.6
SI 650	2005856917	7.0	94.5
SI 650	2005856944	7.0	90.3
SI 650	2005880391	7.0	74.9
SI 650	2005988646	6.8	52.2
CV-Non Woven	240	7.3	43.4
CV-Non-Woven	547	6.9	43.4
CV-Non-Woven	199	6.4	25.7
SI 650	2003487206	7.0	102.2
SI 650	2005947197	7.1	59.0
SI 650	2005947202	6.8	64.5
SI 650	2005988650	6.3	56.7
SI 650	2005880396	7.0	74.9
CV-Non Woven	232	7.1	53.7
SI 650	2005856906	7.0	83.9
CV-Non-Woven	445	8.1	62.9
SI 650	2005856931	6.7	86.6
SI 650	2005880389	7.3	83.0

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

CETCO
LINING TECHNOLOGIES
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Date: 8/2/2005
Purchase Order: 200521
ORDER NUMBERS: 020078607, 020078608, 020078609, 020078611

Jennifer Battle
Mid America Lining

Union City, TN 38261
maljennifer@ken-tennwireless.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Mid America Lining. The shipments left our Fairmount, Georgia plant on 8/1/2005.

If you have any questions regarding this information, please contact me at (706) 337-5316.

Sincerely,

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
ORDER NUMBERS: 020078607, 020078608, 020078609, 020078611
PREPARED FOR: Mid America Lining

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
234 Gordon St. S.E.

Fairmount GA, 30139

Telephone: (706) 337-5316
Fax: (706) 337-2215
E-Mail: melanie.king@cetco.com

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PRODUCTION CERTIFICATION

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
PREPARED FOR: Mid America Lining

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat® geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. Any detected needles, which can be identified without damaging the GCL, are removed from the product.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)

CETCO
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Ship Date: 8/1/2005
Order Numbers: 020078607, 020078608, 020078609, 020078611
Prepared For: Mid America Lining

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	22.5 lbs/in (40 N/cm) MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	6500 psf (311 kPa) typ @ 10,800 psf
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	500 psf (24 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	2.5 lbs/in (4.4 N/cm) Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility.
All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT ST

Raw Material	test method	mass per area	units
Nonwoven Cover Fabric	ASTM D 5261	6.0	oz/yd2
Bentomat ST Woven Base Fabric	ASTM D 5261	3.2	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.

CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

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GCL ORDER PACKING LIST

GCL shipped for certification package number 020078607

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078611	FA-BENTOMAT ST	200528FA	00003615	150	15	2250	3410
020078607	FA-BENTOMAT ST	200528FA	00003638	150	15	2250	3404
020078611	FA-BENTOMAT ST	200529FA	00003824	150	15	2250	2672
020078607	FA-BENTOMAT ST	200530FA	00004315	150	15	2250	2815
020078607	FA-BENTOMAT ST	200530FA	00004466	150	15	2250	2844
020078611	FA-BENTOMAT ST	200530FA	00004488	150	15	2250	2763
020078609	FA-BENTOMAT ST	200530FA	00004667	150	15	2250	2839
020078609	FA-BENTOMAT ST	200530FA	00004668	150	15	2250	2804
020078611	FA-BENTOMAT ST	200531FA	00004777	150	15	2250	2918
020078611	FA-BENTOMAT ST	200531FA	00004790	150	15	2250	2870
020078611	FA-BENTOMAT ST	200531FA	00004791	150	15	2250	2872
020078611	FA-BENTOMAT ST	200531FA	00004808	150	15	2250	2853
020078611	FA-BENTOMAT ST	200531FA	00004829	150	15	2250	2864
020078609	FA-BENTOMAT ST	200531FA	00004840	150	15	2250	2881
020078608	FA-BENTOMAT ST	200531FA	00004876	150	15	2250	2887
020078609	FA-BENTOMAT ST	200531FA	00004883	150	15	2250	2950
020078609	FA-BENTOMAT ST	200531FA	00004884	150	15	2250	2866
020078609	FA-BENTOMAT ST	200531FA	00004885	150	15	2250	2863
020078608	FA-BENTOMAT ST	200531FA	00004887	150	15	2250	2853
020078608	FA-BENTOMAT ST	200531FA	00004891	150	15	2250	2878
020078608	FA-BENTOMAT ST	200531FA	00004892	150	15	2250	2894
020078609	FA-BENTOMAT ST	200531FA	00004894	150	15	2250	2887
020078608	FA-BENTOMAT ST	200531FA	00004895	150	15	2250	2879
020078609	FA-BENTOMAT ST	200531FA	00004911	150	15	2250	2763
020078608	FA-BENTOMAT ST	200531FA	00004917	150	15	2250	2881
020078608	FA-BENTOMAT ST	200531FA	00004919	150	15	2250	3184
020078607	FA-BENTOMAT ST	200531FA	00004924	150	15	2250	2866

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078608	FA-BENTOMAT ST	200531FA	00004925	150	15	2250	2871
020078607	FA-BENTOMAT ST	200531FA	00004926	150	15	2250	2872
020078609	FA-BENTOMAT ST	200531FA	00004927	150	15	2250	2874
020078609	FA-BENTOMAT ST	200531FA	00004928	150	15	2250	2840
020078609	FA-BENTOMAT ST	200531FA	00004929	150	15	2250	2875
020078607	FA-BENTOMAT ST	200531FA	00004930	150	15	2250	2885
020078607	FA-BENTOMAT ST	200531FA	00004933	150	15	2250	2839
020078607	FA-BENTOMAT ST	200531FA	00004939	150	15	2250	2823
020078611	FA-BENTOMAT ST	200531FA	00004940	150	15	2250	2902
020078607	FA-BENTOMAT ST	200531FA	00004948	150	15	2250	2873
020078607	FA-BENTOMAT ST	200531FA	00004949	150	15	2250	2865
020078607	FA-BENTOMAT ST	200531FA	00004950	150	15	2250	2856
020078607	FA-BENTOMAT ST	200531FA	00004952	150	15	2250	2852
020078607	FA-BENTOMAT ST	200531FA	00004953	150	15	2250	2844
020078611	FA-BENTOMAT ST	200531FA	00004956	150	15	2250	2868
020078608	FA-BENTOMAT ST	200531FA	00004958	150	15	2250	2841
020078611	FA-BENTOMAT ST	200531FA	00004959	150	15	2250	2836
020078609	FA-BENTOMAT ST	200531FA	00004960	150	15	2250	2850
020078607	FA-BENTOMAT ST	200531FA	00004961	150	15	2250	2845
020078611	FA-BENTOMAT ST	200531FA	00004964	150	15	2250	2843
020078611	FA-BENTOMAT ST	200531FA	00004965	150	15	2250	2854
020078608	FA-BENTOMAT ST	200531FA	00004966	150	15	2250	2846
020078609	FA-BENTOMAT ST	200531FA	00004967	150	15	2250	2850
020078607	FA-BENTOMAT ST	200531FA	00004969	150	15	2250	2827
020078609	FA-BENTOMAT ST	200531FA	00004975	150	15	2250	2852
020078608	FA-BENTOMAT ST	200531FA	00004981	150	15	2250	2897
020078608	FA-BENTOMAT ST	200531FA	00004986	150	15	2250	2845
020078608	FA-BENTOMAT ST	200531FA	00004991	150	15	2250	2823
020078608	FA-BENTOMAT ST	200531FA	00004994	150	15	2250	2823
020078611	FA-BENTOMAT ST	200531FA	00004999	150	15	2250	2820
020078609	FA-BENTOMAT ST	200531FA	00005002	150	15	2250	2820
020078609	FA-BENTOMAT ST	200531FA	00005009	150	15	2250	2793

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078611	FA-BENTOMAT ST	200531FA	00005010	150	15	2250	2746
020078611	FA-BENTOMAT ST	200531FA	00005011	150	15	2250	2765
020078607	FA-BENTOMAT ST	200531FA	00005013	150	15	2250	2835
020078608	FA-BENTOMAT ST	200531FA	00005018	150	15	2250	2855
020078608	FA-BENTOMAT ST	200531FA	00005023	150	15	2250	2830
			Totals:	**9600**	**960**	**144000**	**183695**
							Total Number of Rolls Certified: **64**

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GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 020078607

GCL			Geotextiles				Clay
FA-BENTOMAT ST			FA-N/W-WHITE-ST			FA-WOVEN-ST	FA-CG 50-ST
GCL Lot #	**GCL Roll #**	**Roll # Tested**	**Cap Lot #**	**Cap Roll #**	**Roll # Tested**	**Base Roll #**	**Clay Lot #**
200528FA	00003615	00003604	2005764883			2005250661	669110
200528FA	00003638	00003634	2005764837			2005390905	669110
200529FA	00003824	00003812	2005880389			2005589161	669112
200530FA	00004315	00004305	264			2005256937	664268
200530FA	00004466	00004450	276			2005276363	664291
200530FA	00004488	00004484	2005936440			2005129230	664291
200530FA	00004667	00004665	547			2005774824	664260
200530FA	00004668	00004665	547			2005774824	664260
200531FA	00004777	00004774	2005936415			2005732276	664260
200531FA	00004790	00004788	2005945546			2005732276	664301
200531FA	00004791	00004788	2005945546			2005732276	664301
200531FA	00004808	00004808	2005928874			2005774823	664301
200531FA	00004829	00004826	2005928879			2005470621	664301
200531FA	00004840	00004826	199			2005470621	664301
200531FA	00004876	00004862	240			2005470227	669124
200531FA	00004883	00004879	539			2005470227	669124
200531FA	00004884	00004879	539			2005470227	669124
200531FA	00004885	00004879	539			2005470227	669124
200531FA	00004887	00004879	539			2005470227	669124
200531FA	00004891	00004879	198			2005470227	669124
200531FA	00004892	00004879	198			2005470227	669124
200531FA	00004894	00004879	198			2005470227	669124
200531FA	00004895	00004879	198			2005470227	669124
200531FA	00004911	00004899	232			2005579645	669124
200531FA	00004917	00004899	239			2005579645	669124
200531FA	00004919	00004919	239			2005579645	669124
200531FA	00004924	00004919	239			2005482841	669124
200531FA	00004925	00004919	258			2005482841	669124
200531FA	00004926	00004919	258			2005482841	669124

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200531FA	00004927	00004919	258			2005482841	669124
200531FA	00004928	00004919	258			2005482841	669124
200531FA	00004929	00004919	258			2005482841	669124
200531FA	00004930	00004919	258			2005482841	669124
200531FA	00004933	00004919	551			2005482841	669124
200531FA	00004939	00004938	551			2005482841	669124
200531FA	00004940	00004938	551			2005482841	669124
200531FA	00004948	00004938	445			2005565417	669124
200531FA	00004949	00004938	445			2005565417	669124
200531FA	00004950	00004938	445			2005565417	669124
200531FA	00004952	00004938	242			2005565417	669124
200531FA	00004953	00004938	242			2005565417	669124
200531FA	00004956	00004938	242			2005565417	669124
200531FA	00004958	00004958	2005988457			2005565417	669124
200531FA	00004959	00004958	2005988457			2005565417	669124
200531FA	00004960	00004958	2005988457			2005565417	669124
200531FA	00004961	00004958	2005988457			2005565417	669124
200531FA	00004964	00004958	2005988457			2005565417	669124
200531FA	00004965	00004958	2005988457			2005565417	669124
200531FA	00004966	00004958	2005988457			2005565417	669124
200531FA	00004967	00004958	2005988458			2005565417	669124
200531FA	00004969	00004958	2005988458			2005565417	669124
200531FA	00004975	00004958	2005988458			2005765040	664302
200531FA	00004981	00004981	2005947145			2005765040	664302
200531FA	00004986	00004981	2005947145			2005765040	664302
200531FA	00004991	00004981	2005947200			2005765040	664302
200531FA	00004994	00004981	2005947200			2005765040	664302
200531FA	00004999	00004998	2005947203			2005765040	664302
200531FA	00005002	00004998	2005947203			2005765040	664302
200531FA	00005009	00004998	2005988652			2005765040	664302
200531FA	00005010	00004998	2005988652			2005765040	664302
200531FA	00005011	00004998	2005988652			2005765040	664302
200531FA	00005013	00004998	2005988652			2005765040	664302
200531FA	00005018	00005017	2005988646			2005589159	664302
200531FA	00005023	00005017	2005988646			2005589159	664302

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GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 020078607 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
		Standard Test Method:	ASTM D 5993	ASTM D 4632	ASTM D 4632
		Standard Specification:	0.75 lb/sq ft MARV	90lbs MARV	15lbs MARV
FA-BENTOMAT ST	200528FA	00003604	1.18	188.3	24.3
FA-BENTOMAT ST	200528FA	00003634	1.17	176.2	30.6
FA-BENTOMAT ST	200529FA	00003812	0.85	198.2	31.6
FA-BENTOMAT ST	200530FA	00004305	0.89	177.7	21.9
FA-BENTOMAT ST	200530FA	00004450	0.87	285.4	18
FA-BENTOMAT ST	200530FA	00004484	0.83	184.9	25.2
FA-BENTOMAT ST	200530FA	00004665	0.86	294.8	21.9
FA-BENTOMAT ST	200531FA	00004774	0.86	275.7	25.7
FA-BENTOMAT ST	200531FA	00004788	0.90	285.2	23.3
FA-BENTOMAT ST	200531FA	00004808	0.91	285.2	27.2
FA-BENTOMAT ST	200531FA	00004826	0.87	285.2	44.6
FA-BENTOMAT ST	200531FA	00004862	0.92	285.2	31.5
FA-BENTOMAT ST	200531FA	00004879	0.86	281.7	28.9
FA-BENTOMAT ST	200531FA	00004899	0.88	281.7	31.2
FA-BENTOMAT ST	200531FA	00004919	0.92	179.4	47.4
FA-BENTOMAT ST	200531FA	00004938	0.88	179.4	45.1
FA-BENTOMAT ST	200531FA	00004958	0.85	179.4	26
FA-BENTOMAT ST	200531FA	00004981	0.84	197.1	34.5
FA-BENTOMAT ST	200531FA	00004998	0.92	197.1	32
FA-BENTOMAT ST	200531FA	00005017	0.84	197.1	30

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

AMERICAN COLLOID COMPANY

BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce Order 020078607
has been certified by American Colloid with the following test results

ACC Order Num	Moist	Swell	Fluid Loss	Retained 8m	Passing 200m
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891	ASTM C 136	ASTM C 136
Specification:	12.0% Max	24 Min	18.0% Max	0%	1.0% Max
664260	10.8	28.0	13.0	0.0	0.3
669110	9.8	25.0	16.4	0.0	0.5
664268	10.8	27.0	13.8	0.0	0.7
669112	10.0	25.0	16.4	0.0	0.2
664291	11.2	26.0	13.0	0.0	0.4
669124	9.1	32.0	16.8	0.0	0.6
664302	11.2	27.0	14.8	0.0	0.3
664301	10.8	29.0	15.6	0.0	0.3

Tests approved by
Moses Briseno
American Colloid Company
Quality Assurance Coordinator

CETCO LINING TECHNOLOGIES
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GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 020078607was manufactured with geotextiles which were tested with the following results.

BASE			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
SI 82TEX	2005129230	3.4	150.0
SI 82TEX	2005250661	3.5	143.0
SI 82TEX	2005256937	3.4	157.0
SI 82TEX	2005276363	3.5	152.0
SI 82TEX	2005390905	3.5	158.0
SI 82TEX	2005470227	3.5	156.0
SI 82TEX	2005470227	3.5	156.0
SI 82TEX	2005470621	3.3	166.0
SI 82TEX	2005470621	3.3	166.0
SI 82TEX	2005482841	3.3	173.0
SI 82TEX	2005482841	3.3	173.0
SI 82TEX	2005565417	3.6	165.0
SI 82TEX	2005565417	3.6	165.0
SI 82TEX	2005579645	3.5	168.0
SI 82TEX	2005579645	3.5	168.0
SI 82TEX	2005589159	3.5	158.0
SI 82TEX	2005589159	3.5	158.0
SI 82TEX	2005589161	3.5	158.0
SI 82TEX	2005732276	3.5	178.0
SI 82TEX	2005765040	3.5	156.0
SI 82TEX	2005774823	3.5	161.0
SI 82TEX	2005774824	3.5	164.0

CAP			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
CV-Non-Woven	198	6.5	25.9
CV-Non-Woven	445	8.1	62.9
CV-Non-Woven	539	6.9	43.4
SI 650	2005880389	7.3	83.0
SI 650	2005764837	7.4	86.6
SI 650	2005988646	6.8	52.2
CV-Non Woven	240	7.3	43.4
CV-Non Woven	264	8.0	65.7

CV-Non-Woven	547	6.9	43.4
SI 650	2005928874	6.4	69.4
CV-Non Woven	232	7.1	53.7
SI 650	2005936440	8.3	71.3
SI 650	2005947090	7.0	77.4
SI 650	2005928879	6.4	69.4
SI 650	2005936415	7.3	73.3
SI 650	2005945546	7.6	76.7
CV-Non-Woven	199	6.4	25.7
SI 650	2005947197	7.1	59.0
SI 650	2005947202	6.8	64.5
SI 650	2005988455	6.8	61.5
CV Non-Woven	257	6.9	56.2
CV-Non Woven	275	7.8	55.7
SI 650	2005764883	6.6	97.0
SI 650	2005988652	6.3	56.7

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

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Date: 8/1/2005
Purchase Order: 200521
ORDER NUMBERS: 020078605, 020078606

Jennifer Battle
Mid America Lining

Union City, TN 38261
maljennifer@ken-tennwireless.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Mid America Lining. The shipments left our Fairmount, Georgia plant on 7/29/2005.

If you have any questions regarding this information, please contact me at (706) 337-5316.

Sincerely,

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
ORDER NUMBERS: 020078605, 020078606
PREPARED FOR: Mid America Lining

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
234 Gordon St. S.E.

Fairmount GA, 30139

Telephone: (706) 337-5316
Fax: (706) 337-2215
E-Mail: melanie.king@cetco.com

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PRODUCTION CERTIFICATION

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
PREPARED FOR: Mid America Lining

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat® geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. Any detected needles, which can be identified without damaging the GCL, are removed from the product.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)

Ship Date: 7/29/2005
Order Numbers: 020078605, 020078606
Prepared For: Mid America Lining

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	22.5 lbs/in (40 N/cm) MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	6500 psf (311 kPa) typ @ 10,800 psf
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	500 psf (24 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	2.5 lbs/in (4.4 N/cm) Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility.
All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT ST

Raw Material	test method	mass per area	units
Nonwoven Cover Fabric	ASTM D 5261	6.0	oz/yd2
Bentomat ST Woven Base Fabric	ASTM D 5261	3.2	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.

CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

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GCL ORDER PACKING LIST

GCL shipped for certification package number 000200786

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078606	FA-BENTOMAT ST	200530FA	00004346	150	15	2250	2768
020078606	FA-BENTOMAT ST	200530FA	00004347	150	15	2250	2745
020078606	FA-BENTOMAT ST	200530FA	00004348	150	15	2250	2743
020078606	FA-BENTOMAT ST	200530FA	00004349	150	15	2250	2726
020078605	FA-BENTOMAT ST	200530FA	00004358	150	15	2250	2761
020078606	FA-BENTOMAT ST	200530FA	00004361	150	15	2250	2745
020078606	FA-BENTOMAT ST	200530FA	00004362	150	15	2250	2741
020078605	FA-BENTOMAT ST	200530FA	00004364	150	15	2250	2730
020078605	FA-BENTOMAT ST	200530FA	00004366	150	15	2250	2720
020078605	FA-BENTOMAT ST	200530FA	00004367	150	15	2250	2735
020078606	FA-BENTOMAT ST	200530FA	00004368	150	15	2250	2730
020078606	FA-BENTOMAT ST	200530FA	00004371	150	15	2250	2697
020078606	FA-BENTOMAT ST	200530FA	00004372	150	15	2250	2721
020078606	FA-BENTOMAT ST	200530FA	00004373	150	15	2250	2720
020078606	FA-BENTOMAT ST	200530FA	00004374	150	15	2250	2727
020078605	FA-BENTOMAT ST	200530FA	00004375	150	15	2250	2723
020078605	FA-BENTOMAT ST	200530FA	00004382	150	15	2250	2719
020078606	FA-BENTOMAT ST	200530FA	00004383	150	15	2250	2720
020078606	FA-BENTOMAT ST	200530FA	00004386	150	15	2250	2718
020078606	FA-BENTOMAT ST	200530FA	00004389	150	15	2250	2710
020078605	FA-BENTOMAT ST	200530FA	00004390	150	15	2250	2760
020078605	FA-BENTOMAT ST	200530FA	00004391	150	15	2250	2755
020078605	FA-BENTOMAT ST	200530FA	00004392	150	15	2250	2692
020078606	FA-BENTOMAT ST	200530FA	00004393	150	15	2250	2692
020078606	FA-BENTOMAT ST	200530FA	00004398	150	15	2250	2689
020078606	FA-BENTOMAT ST	200530FA	00004406	150	15	2250	2685
020078605	FA-BENTOMAT ST	200531FA	00004841	150	15	2250	2889

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078605	FA-BENTOMAT ST	200531FA	00004844	150	15	2250	2892
020078605	FA-BENTOMAT ST	200531FA	00004880	150	15	2250	2907
020078605	FA-BENTOMAT ST	200531FA	00004979	150	15	2250	2926
020078605	FA-BENTOMAT ST	200531FA	00004989	150	15	2250	2818
020078605	FA-BENTOMAT ST	200531FA	00004998	150	15	2250	2826
020078605	FA-BENTOMAT ST	200531FA	00005020	150	15	2250	2818
020078605	FA-BENTOMAT ST	200531FA	00005026	150	15	2250	2833
			Totals:	**5100**	**510**	**76500**	**93781**
							Total Number of Rolls Certified: **34**

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GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 000200786

GCL			Geotextiles				Clay
FA-BENTOMAT ST			FA-N/W-WHITE-ST			FA-WOVEN-ST	FA-CG 50-ST
GCL Lot #	**GCL Roll #**	**Roll # Tested**	**Cap Lot #**	**Cap Roll #**	**Roll # Tested**	**Base Roll #**	**Clay Lot #**
200530FA	00004346	00004340	420			2005589299	664268
200530FA	00004347	00004340	420			2005589299	664268
200530FA	00004348	00004340	420			2005589299	664268
200530FA	00004349	00004340	420			2005589299	664268
200530FA	00004358	00004357	241			2005589299	664257
200530FA	00004361	00004357	241			2005589299	664257
200530FA	00004362	00004357	241			2005589299	664257
200530FA	00004364	00004357	241			2005256936	664257
200530FA	00004366	00004357	411			2005256936	664257
200530FA	00004367	00004357	411			2005256936	664257
200530FA	00004368	00004357	411			2005256936	664257
200530FA	00004371	00004357	411			2005256936	664257
200530FA	00004372	00004357	411			2005256936	664257
200530FA	00004373	00004357	341			2005256936	664257
200530FA	00004374	00004357	341			2005256936	664257
200530FA	00004375	00004375	341			2005256936	664257
200530FA	00004382	00004375	341			2005256936	664257
200530FA	00004383	00004375	341			2005256936	664257
200530FA	00004386	00004375	200592900			2005256936	664257
200530FA	00004389	00004375	200592900			2005256936	664257
200530FA	00004390	00004375	200592900			2005256936	664257
200530FA	00004391	00004375	200592900			2005256936	664257
200530FA	00004392	00004392	200592900			2005256936	664257
200530FA	00004393	00004392	200592900			2005256936	669121
200530FA	00004398	00004392	2005928899			2005256936	669121
200530FA	00004406	00004392	2005928898			2005256936	669121
200531FA	00004841	00004826	199			2005470621	664301
200531FA	00004844	00004843	199			2005470621	664301
200531FA	00004880	00004879	240			2005470227	669124

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200531FA	00004979	00004958	2005947145			2005765040	664302
200531FA	00004989	00004981	2005947200			2005765040	664302
200531FA	00004998	00004998	2005947203			2005765040	664302
200531FA	00005020	00005017	2005988646			2005589159	664302
200531FA	00005026	00005017	2005988646			2005589159	664302

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GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 000200786 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
		Standard Test Method:	ASTM D 5993	ASTM D 4632	ASTM D 4632
		Standard Specification:	0.75 lb/sq ft MARV	90lbs MARV	15lbs MARV
FA-BENTOMAT ST	200530FA	00004340	0.92	197.7	30.3
FA-BENTOMAT ST	200530FA	00004357	0.85	197.7	24.4
FA-BENTOMAT ST	200530FA	00004375	0.83	197.7	27.3
FA-BENTOMAT ST	200530FA	00004392	0.84	197.7	22.5
FA-BENTOMAT ST	200531FA	00004826	0.87	285.2	44.6
FA-BENTOMAT ST	200531FA	00004843	0.82	285.2	37.5
FA-BENTOMAT ST	200531FA	00004879	0.86	281.7	28.9
FA-BENTOMAT ST	200531FA	00004958	0.85	179.4	26
FA-BENTOMAT ST	200531FA	00004981	0.84	197.1	34.5
FA-BENTOMAT ST	200531FA	00004998	0.92	197.1	32
FA-BENTOMAT ST	200531FA	00005017	0.84	197.1	30

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

AMERICAN COLLOID COMPANY

BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce Order 000200786
has been certified by American Colloid with the following test results

ACC Order Num	Moist	Swell	Fluid Loss	Retained 8m	Passing 200m
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891	ASTM C 136	ASTM C 136
Specification:	12.0% Max	24 Min	18.0% Max	0%	1.0% Max
664257	10.4	28.0	14.2	0.0	0.3
664268	10.8	27.0	13.8	0.0	0.7
669121	8.9	31.0	16.0	0.0	0.3
669124	9.1	32.0	16.8	0.0	0.6
664302	11.2	27.0	14.8	0.0	0.3
664301	10.8	29.0	15.6	0.0	0.3

Tests approved by
Moses Briseno
American Colloid Company
Quality Assurance Coordinator

CETCO LINING TECHNOLOGIES
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GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 000200786was manufactured with geotextiles which were tested with the following results.

BASE			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
SI 82TEX	2005256936	3.4	157.0
SI 82TEX	2005470227	3.5	156.0
SI 82TEX	2005470227	3.5	156.0
SI 82TEX	2005470621	3.3	166.0
SI 82TEX	2005470621	3.3	166.0
SI 82TEX	2005589159	3.5	158.0
SI 82TEX	2005589159	3.5	158.0
SI 82TEX	2005589299	3.6	158.0
SI 82TEX	2005589299	3.6	158.0
SI 82TEX	2005765040	3.5	156.0

CAP			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
SI 650	2005947197	7.1	59.0
SI 650	2005947202	6.8	64.5
SI 650	2005928902	7.4	71.2
SI 650	2005947090	7.0	77.4
SI 650	2005928898	7.4	71.2
CV-Non Woven	341	7.0	47.3
SI 650	2005928899	7.4	71.2
SI 650	2005988646	6.8	52.2
CV-Non Woven	240	7.3	43.4

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

CETCO
LINING TECHNOLOGIES
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Date: 7/29/2005
Purchase Order: 200521
ORDER NUMBERS: 020078603, 020078604

Jennifer Battle
Mid America Lining

Union City, TN 38261
maljennifer@ken-tennwireless.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Mid America Lining. The shipments left our Fairmount, Georgia plant on 7/28/2005.

If you have any questions regarding this information, please contact me at (706) 337-5316.

Sincerely,

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
ORDER NUMBERS: 020078603, 020078604
PREPARED FOR: Mid America Lining

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
234 Gordon St. S.E.

Fairmount GA, 30139

Telephone: (706) 337-5316
Fax: (706) 337-2215
E-Mail: melanie.king@cetco.com

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PRODUCTION CERTIFICATION

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
PREPARED FOR: Mid America Lining

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat® geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. Any detected needles, which can be identified without damaging the GCL, are removed from the product.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)

Ship Date: 7/28/2005
Order Numbers: 020078603, 020078604
Prepared For: Mid America Lining

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	22.5 lbs/in (40 N/cm) MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	6500 psf (311 kPa) typ @ 10,800 psf
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	500 psf (24 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	2.5 lbs/in (4.4 N/cm) Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility.
All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT ST

Raw Material	test method	mass per area	units
Nonwoven Cover Fabric	ASTM D 5261	6.0	oz/yd2
Bentomat ST Woven Base Fabric	ASTM D 5261	3.2	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.

CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

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GCL ORDER PACKING LIST

GCL shipped for certification package number 000200786

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078604	FA-BENTOMAT ST	200530FA	00004352	150	15	2250	2746
020078604	FA-BENTOMAT ST	200530FA	00004353	150	15	2250	2772
020078603	FA-BENTOMAT ST	200530FA	00004354	150	15	2250	2758
020078604	FA-BENTOMAT ST	200530FA	00004355	150	15	2250	2750
020078604	FA-BENTOMAT ST	200530FA	00004356	150	15	2250	2760
020078603	FA-BENTOMAT ST	200530FA	00004357	150	15	2250	2761
020078604	FA-BENTOMAT ST	200530FA	00004359	150	15	2250	2741
020078604	FA-BENTOMAT ST	200530FA	00004360	150	15	2250	2742
020078604	FA-BENTOMAT ST	200530FA	00004363	150	15	2250	2719
020078603	FA-BENTOMAT ST	200530FA	00004376	150	15	2250	2710
020078604	FA-BENTOMAT ST	200530FA	00004377	150	15	2250	2711
020078603	FA-BENTOMAT ST	200530FA	00004378	150	15	2250	2727
020078604	FA-BENTOMAT ST	200530FA	00004379	150	15	2250	2724
020078603	FA-BENTOMAT ST	200530FA	00004380	150	15	2250	2715
020078604	FA-BENTOMAT ST	200530FA	00004381	150	15	2250	2714
020078603	FA-BENTOMAT ST	200530FA	00004384	150	15	2250	2724
020078604	FA-BENTOMAT ST	200530FA	00004385	150	15	2250	2727
020078604	FA-BENTOMAT ST	200530FA	00004386A	150	15	2250	2718
020078604	FA-BENTOMAT ST	200530FA	00004388	150	15	2250	2708
020078603	FA-BENTOMAT ST	200530FA	00004394	150	15	2250	2668
020078603	FA-BENTOMAT ST	200530FA	00004395	150	15	2250	2700
020078603	FA-BENTOMAT ST	200530FA	00004397	150	15	2250	2710
020078604	FA-BENTOMAT ST	200530FA	00004400	150	15	2250	2711
020078603	FA-BENTOMAT ST	200530FA	00004401	150	15	2250	2696
020078604	FA-BENTOMAT ST	200530FA	00004402	150	15	2250	2696
020078604	FA-BENTOMAT ST	200530FA	00004403	150	15	2250	2690
020078604	FA-BENTOMAT ST	200530FA	00004404	150	15	2250	2690

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078603	FA-BENTOMAT ST	200530FA	00004407	150	15	2250	2678
020078603	FA-BENTOMAT ST	200530FA	00004386B	150	15	2250	2718
			Totals:	**4350**	**435**	**65250**	**78884**
							Total Number of Rolls Certified: **29**

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GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 000200786

GCL			Geotextiles				Clay
FA-BENTOMAT ST			FA-N/W-WHITE-ST			FA-WOVEN-ST	FA-CG 50-ST
GCL Lot #	**GCL Roll #**	**Roll # Tested**	**Cap Lot #**	**Cap Roll #**	**Roll # Tested**	**Base Roll #**	**Clay Lot #**
200530FA	00004352	00004340	241			2005589299	664257
200530FA	00004353	00004340	241			2005589299	664257
200530FA	00004354	00004340	241			2005589299	664257
200530FA	00004355	00004340	241			2005589299	664257
200530FA	00004356	00004340	241			2005589299	664257
200530FA	00004357	00004357	241			2005589299	664257
200530FA	00004359	00004357	241			2005589299	664257
200530FA	00004360	00004357	241			2005589299	664257
200530FA	00004363	00004357	241			2005256936	664257
200530FA	00004376	00004375	341			2005256936	664257
200530FA	00004377	00004375	341			2005256936	664257
200530FA	00004378	00004375	341			2005256936	664257
200530FA	00004379	00004375	341			2005256936	664257
200530FA	00004380	00004375	341			2005256936	664257
200530FA	00004381	00004375	341			2005256936	664257
200530FA	00004384	00004375	341			2005256936	664257
200530FA	00004385	00004375	341			2005256936	664257
200530FA	00004386A	00004375	200592900			2005256936	664257
200530FA	00004388	00004375	200592900			2005256936	664257
200530FA	00004394	00004392	200592900			2005256936	669121
200530FA	00004395	00004392	200592900			2005256936	669121
200530FA	00004397	00004392	2005928899			2005256936	669121
200530FA	00004400	00004392	2005928899			2005256936	669121
200530FA	00004401	00004392	2005928899			2005256936	669121
200530FA	00004402	00004392	2005928899			2005256936	669121
200530FA	00004403	00004392	2005928899			2005256936	669121
200530FA	00004404	00004392	2005928899			2005256936	669121
200530FA	00004407	00004392	2005928898			2005250659	669121
200530FA	00004386B	00004375	200592900			2005256936	664257

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GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 000200786 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
		Standard Test Method:	ASTM D 5993	ASTM D 4632	ASTM D 4632
		Standard Specification:	0.75 lb/sq ft MARV	90lbs MARV	15lbs MARV
FA-BENTOMAT ST	200530FA	00004340	0.92	197.7	30.3
FA-BENTOMAT ST	200530FA	00004357	0.85	197.7	24.4
FA-BENTOMAT ST	200530FA	00004375	0.83	197.7	27.3
FA-BENTOMAT ST	200530FA	00004392	0.84	197.7	22.5
FA-BENTOMAT ST	200531FA	00004375	0.83	197.7	24.4

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

AMERICAN COLLOID COMPANY

BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce Order 000200786
has been certified by American Colloid with the following test results

ACC Order Num	Moist	Swell	Fluid Loss	Retained 8m	Passing 200m
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891	ASTM C 136	ASTM C 136
Specification:	12.0% Max	24 Min	18.0% Max	0%	1.0% Max
664257	10.4	28.0	14.2	0.0	0.3
669121	8.9	31.0	16.0	0.0	0.3

Tests approved by
Moses Briseno
American Colloid Company
Quality Assurance Coordinator

CETCO
LINING TECHNOLOGIES
800.527.9948 www.cetco.com

GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 000200786was manufactured with geotextiles which were tested with the following results.

BASE			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
SI 82TEX	2005250659	3.5	146.0
SI 82TEX	2005256936	3.4	157.0
SI 82TEX	2005589299	3.6	158.0
SI 82TEX	2005589299	3.6	158.0

CAP			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
CV-Non Woven	240	7.3	43.4
CV-Non Woven	341	7.0	47.3
SI 650	2005928898	7.4	71.2
SI 650	2005928899	7.4	71.2
SI 650	2005928902	7.4	71.2

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

CETCO
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Date: 7/29/2005
Purchase Order: 200521
ORDER NUMBERS: 020078601, 020078602

Jennifer Battle
Mid America Lining

Union City, TN 38261
maljennifer@ken-tennwireless.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Mid America Lining. The shipments left our Fairmount, Georgia plant on 7/27/2005.

If you have any questions regarding this information, please contact me at (706) 337-5316.

Sincerely,

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
ORDER NUMBERS: 020078601, 020078602
PREPARED FOR: Mid America Lining

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
234 Gordon St. S.E.

Fairmount GA, 30139

Telephone: (706) 337-5316
Fax: (706) 337-2215
E-Mail: melanie.king@cetco.com

PRODUCTION CERTIFICATION

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
PREPARED FOR: Mid America Lining

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)

Ship Date: 7/27/2005
Order Numbers: 020078601, 020078602
Prepared For: Mid America Lining

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR CLAYMAX 200R

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	100 lbs (445 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	25 lbs/in (44 N/cm) MARV
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	50 psf (2.4 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility.
All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR CLAYMAX 200R

Raw Material	test method	mass per area	units
Claymax 200R Base Nonwoven Fabric	ASTM D 5261	2.7	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.

CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

CETCO LINING TECHNOLOGIES
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GCL ORDER PACKING LIST

GCL shipped for certification package number 000200786

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078601	FA-CLAYMAX200R	200527FA	00000856	150	15	2250	3036
020078601	FA-CLAYMAX200R	200527FA	00000863	150	15	2250	3008
020078601	FA-CLAYMAX200R	200527FA	00000864	150	15	2250	3007
020078601	FA-CLAYMAX200R	200527FA	00000865	150	15	2250	3021
020078601	FA-CLAYMAX200R	200527FA	00000866	150	15	2250	3084
020078601	FA-CLAYMAX200R	200527FA	00000867	150	15	2250	3064
020078601	FA-CLAYMAX200R	200527FA	00000868	150	15	2250	3048
020078601	FA-CLAYMAX200R	200527FA	00000869	150	15	2250	3056
020078601	FA-CLAYMAX200R	200527FA	00000871	150	15	2250	3048
020078601	FA-CLAYMAX200R	200527FA	00000872	150	15	2250	2893
020078602	FA-CLAYMAX200R	200527FA	00000875	150	15	2250	3098
020078601	FA-CLAYMAX200R	200527FA	00000880	150	15	2250	3152
020078602	FA-CLAYMAX200R	200527FA	00000881	150	15	2250	3141
020078602	FA-CLAYMAX200R	200527FA	00000882	150	15	2250	3140
020078602	FA-CLAYMAX200R	200527FA	00000883	150	15	2250	3140
020078602	FA-CLAYMAX200R	200527FA	00000884	150	15	2250	3140
020078602	FA-CLAYMAX200R	200528FA	00000895	150	15	2250	3060
020078602	FA-CLAYMAX200R	200528FA	00000896	150	15	2250	3040
020078602	FA-CLAYMAX200R	200528FA	00000897	150	15	2250	3250
020078602	FA-CLAYMAX200R	200528FA	00000898	150	15	2250	3080
020078602	FA-CLAYMAX200R	200528FA	00000899	150	15	2250	3660
020078601	FA-CLAYMAX200R	200528FA	00000911	150	15	2250	3270
020078601	FA-CLAYMAX200R	200528FA	00000912	150	15	2250	3275
020078602	FA-CLAYMAX200R	200528FA	00000913	150	15	2250	3270
020078602	FA-CLAYMAX200R	200528FA	00000927	150	15	2250	3270
020078602	FA-CLAYMAX200R	200528FA	00000928	150	15	2250	3445
020078602	FA-CLAYMAX200R	200528FA	00000930	150	15	2250	3300

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078601	FA-CLAYMAX200R	200528FA	00000941	150	15	2250	3285
			Totals:	**4200**	**420**	**63000**	**88281**
							Total Number of Rolls Certified: **28**

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GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 000200786

GCL			Geotextiles				Clay
FA-CLAYMAX200R			FA-N/W-BLK-200R-2.2			FA-N/W-BLK-200R-2.7	FA-CG 50-200R
GCL Lot #	**GCL Roll #**	**Roll # Tested**	**Cap Lot #**	**Cap Roll #**	**Roll # Tested**	**Base Roll #**	**Clay Lot #**
200527FA	00000856	00000841	2005732378	SI		2005745947	645082
200527FA	00000863	00000859	2005732378	SI		2005745947	664261
200527FA	00000864	00000859	2005732378	SI		2005745947	664261
200527FA	00000865	00000859	2005732378	SI		2005745947	664261
200527FA	00000866	00000859	2005732378	SI		2005745947	664261
200527FA	00000867	00000859	2005732378	SI		2005745947	664261
200527FA	00000868	00000859	2005732378	SI		2005745947	664261
200527FA	00000869	00000859	2005732378	SI		2005745947	664261
200527FA	00000871	00000859	2005732378	SI		2005745947	664261
200527FA	00000872	00000859	2005125207	SI		2005732374	664261
200527FA	00000875	00000875	2005125207	SI		2005732374	664261
200527FA	00000880	00000875	2005125207	SI		2005732374	664261
200527FA	00000881	00000875	2005125207	SI		2005732374	664261
200527FA	00000882	00000875	2005125207	SI		2005732374	664261
200527FA	00000883	00000875	2005125207	SI		2005732374	664261
200527FA	00000884	00000875	2005125207	SI		2005732374	664261
200528FA	00000895	00000890	2005732379	SI		2005732377	664264
200528FA	00000896	00000890	2005732379	SI		2005732377	664264
200528FA	00000897	00000890	2005732379	SI		2005732377	664264
200528FA	00000898	00000890	2005732379	SI		2005732377	664264
200528FA	00000899	00000890	2005732379	SI		2005732377	664264
200528FA	00000911	00000908	2005732369	SI		2005701424	664264
200528FA	00000912	00000908	2005732369	SI		2005701424	664264
200528FA	00000913	00000908	2005732369	SI		2005701424	664264
200528FA	00000927	00000926	2005001435	SI		2005745825	664264
200528FA	00000928	00000926	2005001435	SI		2005745825	664264
200528FA	00000930	00000926	2005001435	SI		2005745825	664264
200528FA	00000941	00000941	2005740218	SI		2005001438	664264

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GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 000200786 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength
		Standard Test Method:	ASTM D 5993	ASTM D 4632
		Standard Specification:	0.75 lb/sq ft MARV	100lbs MARV
FA-CLAYMAX200R	200527FA	00000859	0.75	306.6
FA-CLAYMAX200R	200527FA	00000875	0.79	306.6
FA-CLAYMAX200R	200528FA	00000890	0.75	306.6
FA-CLAYMAX200R	200528FA	00000908	0.81	306.6
FA-CLAYMAX200R	200528FA	00000926	0.81	306.6
FA-CLAYMAX200R	200528FA	00000941	0.80	283.1

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

AMERICAN COLLOID COMPANY

BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce Order 000200786
has been certified by American Colloid with the following test results

ACC Order Num	Moist	Swell	Fluid Loss	Retained 8m	Passing 200m
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891	ASTM C 136	ASTM C 136
Specification:	12.0% Max	24 Min	18.0% Max	0%	1.0% Max
645082	10.4	26.0	14.6	0.0	0.9
664261	9.2	28.0	13.0	0.0	0.4
664264	10.4	26.0	13.4	0.0	0.4

Tests approved by
Moses Briseno
American Colloid Company
Quality Assurance Coordinator

CETCO
LINING TECHNOLOGIES
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GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 000200786was manufactured with geotextiles which were tested with the following results.

CAP			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
SI 311L	2005001435	3.8	92.2
SI 311L	2005125207	3.5	81.8
SI 311L	2005732369	3.4	93.2
SI 311L	2005732377	3.4	90.7
SI 311L	2005740218	3.1	83.5

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

CETCO
LINING TECHNOLOGIES
800.527.9948 www.cetco.com

Date: 7/29/2005
Purchase Order: 2200521
ORDER NUMBER: 020419406

Jennifer Battle
Mid America Lining Co.

Union City, TN 38261
maljennifer@ken-tennwireless.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Mid America Lining Co.. The shipments left our Lovell, Wyoming plant on 07/28/2005.

If you have any questions regarding this information, please contact me at 800-322-1149 ext. 423.

Sincerely,

Roger B. Wilkerson
Quality Assurance Coordinator
CETCO Lovell Plant

GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Davidson Co LF
CUSTOMER P.O.: 2200521
ORDER NUMBER: 020419406
PREPARED FOR: Mid America Lining Co.

CONTENTS:

- Daily GCL production certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Roger B. Wilkerson
Quality Assurance Coordinator
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, WY 82431

Telephone: 800-322-1149 ext. 423
Fax: (307)548-6927
E-Mail: rwilke@cetco.com

PRODUCTION CERTIFICATION

PROJECT NAME: Davidson Co LF
CUSTOMER P.O.: 2200521
PREPARED FOR: Mid America Lining Co.

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

Roger B. Wilkerson
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)

Ship Date: 07/28/2005
Order Number: 020419406
Prepared For: Mid America Lining Co.

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR CLAYMAX 200R

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	100 lbs (445 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	25 lbs/in (44 N/cm) MARV
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	50 psf (2.4 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility.
All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR CLAYMAX 200R

Raw Material	test method	mass per area	units
Claymax 200R Base Nonwoven Fabric	ASTM D 5261	2.7	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.

CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Roger B. Wilkerson
Quality Assurance Coordinator
CETCO Lovell Plant

CETCO
LINING TECHNOLOGIES
800.527.9948 www.cetco.com

GCL ORDER PACKING LIST

GCL shipped for certification package number 020419406

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020419406	LO-CLAYMAX200R	200527LO	00001514	150	15	2250	3028
020419406	LO-CLAYMAX200R	200527LO	00001515	150	15	2250	3009
020419406	LO-CLAYMAX200R	200527LO	00001516	150	15	2250	3010
020419406	LO-CLAYMAX200R	200527LO	00001517	150	15	2250	3006
020419406	LO-CLAYMAX200R	200527LO	00001522	150	15	2250	3010
020419406	LO-CLAYMAX200R	200527LO	00001523	150	15	2250	3006
020419406	LO-CLAYMAX200R	200527LO	00001524	150	15	2250	3003
020419406	LO-CLAYMAX200R	200527LO	00001525	150	15	2250	3005
020419406	LO-CLAYMAX200R	200527LO	00001526	150	15	2250	3002
020419406	LO-CLAYMAX200R	200527LO	00001530	150	15	2250	3006
020419406	LO-CLAYMAX200R	200527LO	00001531	150	15	2250	3005
020419406	LO-CLAYMAX200R	200527LO	00001532	150	15	2250	3009
020419406	LO-CLAYMAX200R	200527LO	00001533	150	15	2250	3011
020419406	LO-CLAYMAX200R	200527LO	00001539	150	15	2250	3014
020419406	LO-CLAYMAX200R	200527LO	00001540	150	15	2250	3009
			Totals:	**2250**	**225**	**33750**	**45133**
						Total Number of Rolls Certified:	**15**

CETCO LINING TECHNOLOGIES
800.527.9948 www.cetco.com

GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 020419406

GCL			Geotextiles				Clay
LO-CLAYMAX200R			LO-N/W-BLK-200R-2.7			LO-N/W-BLK-200R-2.7	LO-CG 50-200R
GCL Lot #	**GCL Roll #**	**Roll # Tested**	**Cap Lot #**	**Cap Roll #**	**Roll # Tested**	**Base Roll #**	**Clay Lot #**
200527LO	00001514	00001510	2.621			2005656985	061905B
200527LO	00001515	00001510	2005603093			2.621	061905B
200527LO	00001516	00001510	2005603093			2.621	061905B
200527LO	00001517	00001510	2005603093			2.621	061905B
200527LO	00001522	00001510	2.450			2005656985	061905B
200527LO	00001523	00001510	2.450			2005657000	061905B
200527LO	00001524	00001510	2.454			2005657000	061905B
200527LO	00001525	00001510	2.454			2005657000	061905B
200527LO	00001526	00001510	2.454			2005657000	061905B
200527LO	00001530	00001527	2.782			2005657000	061905B
200527LO	00001531	00001527	2.782			2005657000	061905B
200527LO	00001532	00001527	2.782			2005657000	061905C
200527LO	00001533	00001527	2.782			2005657000	061905C
200527LO	00001539	00001527	2.462			2005656990	061905C
200527LO	00001540	00001527	2.462			2005656990	061905C

CETCO
LINING TECHNOLOGIES
800.527.9948 www.cetco.com

GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 020419406 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength
		Standard Test Method:	ASTM D 5993	ASTM D 4632
		Standard Specification:	0.75 lb/sq ft MARV	100lbs MARV
LO-CLAYMAX200R	200527LO	00001510	0.82	256.6
LO-CLAYMAX200R	200527LO	00001527	0.85	256.6

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

AMERICAN COLLOID COMPANY

BENTONITE CLAY CERTIFICATION

The bentonite clay used to produce certification package 020419406 has been tested by American Colloid Co. with the following results.

Clay Type	Clay Lot #	Swell	Fluid Loss	Moisture	% Passing 200m	% Retained 8m
	Test Method:	ASTM D 5890	ASTM D 5891	ASTM D 2216	ASTM C 136	ASTM C 136
	Specification:	24ml/2g Min	18ml Max	12% Max	1% Max	0%
LO-CG 50-200R	061905B	25	14.2	12	0.4	0
LO-CG 50-200R	061905C	25	14.2	11.6	0.8	0

Tests approved by
Moses Briseno
American Colloid Company
Quality Assurance Coordinator

CETCO LINING TECHNOLOGIES
800.527.9948 www.cetco.com

GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 020419406was manufactured with geotextiles which were tested with the following results.

BASE

Material Supplier	Roll Number	Mass Area oz/yd2	Grab Strength lbs
SK SP165	2.62	6.7	171.5
SI 311	2005656985	4.0	103.0
SI 311	2005656990	3.3	73.3
SI 311	2005657000	4.1	72.0

CAP

Material Supplier	Roll Number	Mass Area oz/yd2	Grab Strength lbs
SI 650	2005603093	7.3	110.3
SK SP165	2.45	6.2	156.0
SK SP165	2.454	6.2	156.0
SK SP165	2.462	6.6	162.0
SK SP165	2.62	6.7	171.5
SK SP165	2.782	6.4	162.0

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

CETCO
LINING TECHNOLOGIES
800.527.9948 www.cetco.com

Date: 7/26/2005
Purchase Order: 2200521
ORDER NUMBERS: 020419404, 020419405

Jennifer Battle
Mid America Lining Co.

Union City, TN 38261
maljennifer@ken-tennwireless.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Mid America Lining Co.. The shipments left our Lovell, Wyoming plant on 07/25/2005.

If you have any questions regarding this information, please contact me at 800-322-1149 ext. 423.

Sincerely,

Roger B. Wilkerson
Quality Assurance Coordinator
CETCO Lovell Plant

GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Davidson Co LF
CUSTOMER P.O.: 2200521
ORDER NUMBERS: 020419404, 020419405
PREPARED FOR: Mid America Lining Co.

CONTENTS:

- Daily GCL production certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Roger B. Wilkerson
Quality Assurance Coordinator
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, WY 82431

Telephone: 800-322-1149 ext. 423
Fax: (307)548-6927
E-Mail: rwilke@cetco.com

PRODUCTION CERTIFICATION

PROJECT NAME: Davidson Co LF
CUSTOMER P.O.: 2200521
PREPARED FOR: Mid America Lining Co.

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

Roger B. Wilkerson
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)

Ship Date: 07/25/2005
Order Numbers: 020419404, 020419405
Prepared For: Mid America Lining Co.

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR CLAYMAX 200R

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	100 lbs (445 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	25 lbs/in (44 N/cm) MARV
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	50 psf (2.4 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility.
All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR CLAYMAX 200R

Raw Material	test method	mass per area	units
Claymax 200R Base Nonwoven Fabric	ASTM D 5261	2.7	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.

CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Roger B. Wilkerson
Quality Assurance Coordinator
CETCO Lovell Plant

CETCO LINING TECHNOLOGIES
800.527.9948 www.cetco.com

GCL ORDER PACKING LIST

GCL shipped for certification package number 020419404

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020419405	LO-CLAYMAX200R	200528LO	00001654	150	15	2250	3014
020419405	LO-CLAYMAX200R	200528LO	00001655	150	15	2250	3008
020419405	LO-CLAYMAX200R	200528LO	00001656	150	15	2250	3012
020419405	LO-CLAYMAX200R	200528LO	00001657	150	15	2250	3010
020419405	LO-CLAYMAX200R	200528LO	00001658	150	15	2250	3009
020419405	LO-CLAYMAX200R	200528LO	00001659	150	15	2250	3013
020419405	LO-CLAYMAX200R	200528LO	00001660	150	15	2250	3011
020419405	LO-CLAYMAX200R	200528LO	00001661	150	15	2250	3008
020419405	LO-CLAYMAX200R	200528LO	00001662	150	15	2250	3010
020419405	LO-CLAYMAX200R	200528LO	00001663	150	15	2250	3010
020419405	LO-CLAYMAX200R	200528LO	00001665	150	15	2250	3001
020419405	LO-CLAYMAX200R	200528LO	00001666	150	15	2250	3007
020419405	LO-CLAYMAX200R	200528LO	00001667	150	15	2250	3009
020419404	LO-CLAYMAX200R	200528LO	00001668	150	15	2250	3006
020419404	LO-CLAYMAX200R	200528LO	00001675	150	15	2250	3007
020419404	LO-CLAYMAX200R	200528LO	00001676	150	15	2250	3005
020419404	LO-CLAYMAX200R	200528LO	00001677	150	15	2250	3008
020419404	LO-CLAYMAX200R	200528LO	00001678	150	15	2250	3011
020419404	LO-CLAYMAX200R	200528LO	00001686	150	15	2250	3005
020419405	LO-CLAYMAX200R	200528LO	00001691	150	15	2250	3009
020419405	LO-CLAYMAX200R	200528LO	00001695	150	15	2250	3006
020419404	LO-CLAYMAX200R	200528LO	00001697	150	15	2250	3011
020419404	LO-CLAYMAX200R	200528LO	00001698	150	15	2250	3000
020419404	LO-CLAYMAX200R	200528LO	00001699	150	15	2250	3001
020419404	LO-CLAYMAX200R	200528LO	00001700	150	15	2250	3007
020419404	LO-CLAYMAX200R	200528LO	00001701	150	15	2250	3003
020419404	LO-CLAYMAX200R	200528LO	00001702	150	15	2250	3009

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020419404	LO-CLAYMAX200R	200528LO	00001704	150	15	2250	3008
020419404	LO-CLAYMAX200R	200528LO	00001706	150	15	2250	3010
020419404	LO-CLAYMAX200R	200528LO	00001709	150	15	2250	3009
			Totals:	**4500**	**450**	**67500**	**90237**
							Total Number of Rolls Certified: **30**

CETCO LINING TECHNOLOGIES
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GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 020419404

GCL			Geotextiles				Clay
LO-CLAYMAX200R			LO-N/W-BLK-200R-2.7			LO-N/W-BLK-200R-2.7	LO-CG 50-200R
GCL Lot #	**GCL Roll #**	**Roll # Tested**	**Cap Lot #**	**Cap Roll #**	**Roll # Tested**	**Base Roll #**	**Clay Lot #**
200528LO	00001654	00001654	2005657011			2005657015	062305C
200528LO	00001655	00001654	2005657011			2005657015	062305C
200528LO	00001656	00001654	2005657011			2005657015	062305C
200528LO	00001657	00001654	2005657011			2005657015	062305D
200528LO	00001658	00001654	2005657011			2005657015	062305D
200528LO	00001659	00001654	2005657011			2005657015	062305D
200528LO	00001660	00001654	2005657011			2005657015	062305D
200528LO	00001661	00001654	2005657011			2005657015	062305D
200528LO	00001662	00001654	2005657011			2005657015	062305D
200528LO	00001663	00001654	2005657008			2005657015	062305D
200528LO	00001665	00001654	2005657008			2005657015	062305D
200528LO	00001666	00001654	2005657008			2005657015	062305D
200528LO	00001667	00001654	2005657008			2005657015	062305D
200528LO	00001668	00001654	2005657008			2005657015	062305D
200528LO	00001675	00001671	2005657008			2005657002	062305D
200528LO	00001676	00001671	2005657008			2005657002	062305D
200528LO	00001677	00001671	2005657008			2005657002	062305D
200528LO	00001678	00001671	2005657008			2005657002	062305D
200528LO	00001686	00001671	2005656989			2005657006	062305D
200528LO	00001691	00001688	2005656989			2005657006	062305D
200528LO	00001695	00001688	2005656976			2005657006	062305D
200528LO	00001697	00001688	2005656976			2005657006	062305D
200528LO	00001698	00001688	2005656976			2005657006	062305D
200528LO	00001699	00001688	2005656976			2005657006	062305D
200528LO	00001700	00001688	2005656976			2005657006	062305D
200528LO	00001701	00001688	2005656976			2005657006	062305D
200528LO	00001702	00001688	2005656976			2005657006	062305D
200528LO	00001704	00001688	2005656976			2005657006	062305D
200528LO	00001706	00001705	2005656976			2005657006	062305D

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200528LO	00001709	00001705	2005656994			2005657006	062305D

CETCO
LINING TECHNOLOGIES
800.527.9948 www.cetco.com

GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 020419404 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength
		Standard Test Method:	ASTM D 5993	ASTM D 4632
		Standard Specification:	0.75 lb/sq ft MARV	100lbs MARV
LO-CLAYMAX200R	200528LO	00001654	0.93	248.2
LO-CLAYMAX200R	200528LO	00001671	0.89	248.2
LO-CLAYMAX200R	200528LO	00001688	0.82	248.2
LO-CLAYMAX200R	200528LO	00001705	0.82	248.2

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

AMERICAN COLLOID COMPANY

BENTONITE CLAY CERTIFICATION

The bentonite clay used to produce certification package 020419404 has been tested by American Colloid Co. with the following results.

Clay Type	Clay Lot #	Swell	Fluid Loss	Moisture	% Passing 200m	% Retained 8m
	Test Method:	ASTM D 5890	ASTM D 5891	ASTM D 2216	ASTM C 136	ASTM C 136
	Specification:	24ml/2g Min	18ml Max	12% Max	1% Max	0%
LO-CG 50-200R	062305C	25	14.2	12	0.4	0
LO-CG 50-200R	062305D	25	14.2	11.6	0.5	0

Tests approved by
Moses Briseno
American Colloid Company
Quality Assurance Coordinator

CETCO
LINING TECHNOLOGIES
800.527.9948 www.cetco.com

GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 020419404was manufactured with geotextiles which were tested with the following results.

BASE			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strength lbs**
SI 311	2005657002	3.3	78.7
SI 311	2005657006	3.5	82.7
SI 311	2005657015	3.5	69.4

CAP			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strength lbs**
SI 311	2005656976	5.9	152.8
SI 311	2005656989	3.3	73.3
SI 311	2005656994	3.2	76.2
SI 311	2005657008	3.5	82.7
SI 311	2005657011	3.5	69.4

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

CETCO
LINING TECHNOLOGIES
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Date: 7/27/2005
Purchase Order: 2200521
ORDER NUMBERS: 020419402, 020419403

Jennifer Battle
Mid America Lining Co.

Union City, TN 38261
maljennifer@ken-tennwireless.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Mid America Lining Co.. The shipments left our Lovell, Wyoming plant on 07/26/2005.

If you have any questions regarding this information, please contact me at 800-322-1149 ext. 423.

Sincerely,

Roger B. Wilkerson
Quality Assurance Coordinator
CETCO Lovell Plant

GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Davidson Co LF
CUSTOMER P.O.: 2200521
ORDER NUMBERS: 020419402, 020419403
PREPARED FOR: Mid America Lining Co.

CONTENTS:

- Daily GCL production certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Roger B. Wilkerson
Quality Assurance Coordinator
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, WY 82431

Telephone: 800-322-1149 ext. 423
Fax: (307)548-6927
E-Mail: rwilke@cetco.com

PRODUCTION CERTIFICATION

PROJECT NAME: Davidson Co LF
CUSTOMER P.O.: 2200521
PREPARED FOR: Mid America Lining Co.

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

Roger B. Wilkerson
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)

Ship Date: 07/26/2005
Order Numbers: 020419402, 020419403
Prepared For: Mid America Lining Co.

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR CLAYMAX 200R

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	100 lbs (445 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	25 lbs/in (44 N/cm) MARV
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	50 psf (2.4 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility.
All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR CLAYMAX 200R

Raw Material	test method	mass per area	units
Claymax 200R Base Nonwoven Fabric	ASTM D 5261	2.7	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.

CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Roger B. Wilkerson
Quality Assurance Coordinator
CETCO Lovell Plant

CETCO
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800.527.9948 www.cetco.com

GCL ORDER PACKING LIST

GCL shipped for certification package number 020419402

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020419403	LO-CLAYMAX200R	200528LO	00001669	150	15	2250	3010
020419403	LO-CLAYMAX200R	200528LO	00001694	150	15	2250	3010
020419402	LO-CLAYMAX200R	200530LO	00001785	150	15	2250	3012
020419403	LO-CLAYMAX200R	200530LO	00001792	150	15	2250	3014
020419403	LO-CLAYMAX200R	200530LO	00001847	150	15	2250	3019
020419403	LO-CLAYMAX200R	200530LO	00001857	150	15	2250	3017
020419403	LO-CLAYMAX200R	200530LO	00001859	150	15	2250	3010
020419403	LO-CLAYMAX200R	200530LO	00001866	150	15	2250	3015
020419403	LO-CLAYMAX200R	200530LO	00001873	150	15	2250	3015
020419403	LO-CLAYMAX200R	200530LO	00001876	150	15	2250	3014
020419403	LO-CLAYMAX200R	200530LO	00001879	150	15	2250	3018
020419403	LO-CLAYMAX200R	200530LO	00001880	150	15	2250	3012
020419403	LO-CLAYMAX200R	200530LO	00001886	150	15	2250	3017
020419403	LO-CLAYMAX200R	200530LO	00001887	150	15	2250	3018
020419403	LO-CLAYMAX200R	200530LO	00001893	150	15	2250	3014
020419403	LO-CLAYMAX200R	200530LO	00001894	150	15	2250	3016
			Totals:	**2400**	**240**	**36000**	**48231**
						Total Number of Rolls Certified: **16**	

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GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 020419402

GCL			Geotextiles				Clay
LO-CLAYMAX200R			LO-N/W-BLK-200R-2.7			LO-N/W-BLK-200R-2.7	LO-CG 50-200R
GCL Lot #	**GCL Roll #**	**Roll # Tested**	**Cap Lot #**	**Cap Roll #**	**Roll # Tested**	**Base Roll #**	**Clay Lot #**
200528LO	00001669	00001654	2005657008			2005657002	062305D
200528LO	00001694	00001688	2005656976			2005657006	062305D
200530LO	00001785	00001771	2005745949			2005732373	071105A
200530LO	00001792	00001788	2005745949			2005732373	071105A
200530LO	00001847	00001836	2005732375			2005001421	071305E
200530LO	00001857	00001853	2005732375			2005001421	071305E
200530LO	00001859	00001853	2005732375			2005001421	071305E
200530LO	00001866	00001853	2005656999			2005657001	071305E
200530LO	00001873	00001870	2005656999			2005657001	071305E
200530LO	00001876	00001870	2005518196			2005001365	071305F
200530LO	00001879	00001870	2005518196			2005001365	071305F
200530LO	00001880	00001870	2005518196			2005001365	071305F
200530LO	00001886	00001870	2005518196			2005001365	071305F
200530LO	00001887	00001887	2005518196			2005001365	071305F
200530LO	00001893	00001887	2005485839			2005656981	071305F
200530LO	00001894	00001887	2005485839			2005656981	071305F

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GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 020419402 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength
		Standard Test Method:	ASTM D 5993	ASTM D 4632
		Standard Specification:	0.75 lb/sq ft MARV	100lbs MARV
LO-CLAYMAX200R	200528LO	00001654	0.93	248.2
LO-CLAYMAX200R	200528LO	00001688	0.82	248.2
LO-CLAYMAX200R	200530LO	00001771	0.82	284.1
LO-CLAYMAX200R	200530LO	00001788	0.80	284.1
LO-CLAYMAX200R	200530LO	00001836	0.87	279.2
LO-CLAYMAX200R	200530LO	00001853	0.87	279.2
LO-CLAYMAX200R	200530LO	00001870	0.84	279.2
LO-CLAYMAX200R	200530LO	00001887	0.83	279.2

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

AMERICAN COLLOID COMPANY

BENTONITE CLAY CERTIFICATION

The bentonite clay used to produce certification package 020419402 has been tested by American Colloid Co. with the following results.

Clay Type	Clay Lot #	Swell	Fluid Loss	Moisture	% Passing 200m	% Retained 8m
	Test Method:	ASTM D 5890	ASTM D 5891	ASTM D 2216	ASTM C 136	ASTM C 136
	Specification:	24ml/2g Min	18ml Max	12% Max	1% Max	0%
LO-CG 50-200R	062305D	25	14.2	11.6	0.5	0
LO-CG 50-200R	071105A	25	15.4	12	0.5	0
LO-CG 50-200R	071305E	26	16.2	9.2	0.2	0
LO-CG 50-200R	071305F	26	16.2	9.6	0.3	0

Tests approved by
Moses Briseno
American Colloid Company
Quality Assurance Coordinator

CETCO LINING TECHNOLOGIES
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GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 020419402was manufactured with geotextiles which were tested with the following results.

BASE

Material Supplier	Roll Number	Mass Area oz/yd2	Grab Strength lbs
SI 311	2005001365	3.6	96.7
SI 311	2005001421	3.7	104.7
SI 311	2005656981	3.7	95.7
SI 311	2005657001	3.3	78.7
SI 311	2005657002	3.3	78.7
SI 311	2005657006	3.5	82.7
SI 311	2005732373	3.5	75.2

CAP

Material Supplier	Roll Number	Mass Area oz/yd2	Grab Strength lbs
SI 311	2005485839	3.6	81.3
SI 311	2005518196	4.0	97.8
SI 311	2005656976	5.9	152.8
SI 311	2005656999	4.1	72.0
SI 311	2005657008	3.5	82.7
SI 311	2005732375	3.4	90.6
SI 311	2005745949	3.4	88.2

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

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Date: 7/27/2005
Purchase Order: 2200521
ORDER NUMBERS: 020419401, 020419402

Jennifer Battle
Mid America Lining Co.

Union City, TN 38261
maljennifer@ken-tennwireless.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Mid America Lining Co.. The shipments left our Lovell, Wyoming plant on 07/26/2005.

If you have any questions regarding this information, please contact me at 800-322-1149 ext. 423.

Sincerely,

Roger B. Wilkerson
Quality Assurance Coordinator
CETCO Lovell Plant

GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Davidson Co LF
CUSTOMER P.O.: 2200521
ORDER NUMBERS: 020419401, 020419402
PREPARED FOR: Mid America Lining Co.

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Roger B. Wilkerson
Quality Assurance Coordinator
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, WY 82431

Telephone: 800-322-1149 ext. 423
Fax: (307)548-6927
E-Mail: rwilke@cetco.com

CETCO
LINING TECHNOLOGIES
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PRODUCTION CERTIFICATION

PROJECT NAME: Davidson Co LF
CUSTOMER P.O.: 2200521
PREPARED FOR: Mid America Lining Co.

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat® geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. Any detected needles, which can be identified without damaging the GCL, are removed from the product.

Roger B. Wilkerson
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)

Ship Date: 07/26/2005
Order Numbers: 020419401, 020419402
Prepared For: Mid America Lining Co.

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	22.5 lbs/in (40 N/cm) MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	6500 psf (311 kPa) typ @ 10,800 psf
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	500 psf (24 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	2.5 lbs/in (4.4 N/cm) Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility.
All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT ST

Raw Material	test method	mass per area	units
Nonwoven Cover Fabric	ASTM D 5261	6.0	oz/yd2
Bentomat ST Woven Base Fabric	ASTM D 5261	3.2	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.

CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Roger B. Wilkerson
Quality Assurance Coordinator
CETCO Lovell Plant

CETCO LINING TECHNOLOGIES
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GCL ORDER PACKING LIST

GCL shipped for certification package number 020419401

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020419401	LO-BENTOMAT ST	200529LO	00011456	150	15	2250	2550
020419402	LO-BENTOMAT ST	200529LO	00011465	150	15	2250	2553
020419402	LO-BENTOMAT ST	200529LO	00011471	150	15	2250	2542
020419402	LO-BENTOMAT ST	200529LO	00011489	150	15	2250	2647
020419402	LO-BENTOMAT ST	200529LO	00011490	150	15	2250	2642
020419402	LO-BENTOMAT ST	200529LO	00011504	150	15	2250	2657
020419402	LO-BENTOMAT ST	200529LO	00011512	150	15	2250	2662
020419402	LO-BENTOMAT ST	200529LO	00011517	150	15	2250	2664
020419401	LO-BENTOMAT ST	200529LO	00011519	150	15	2250	2655
020419401	LO-BENTOMAT ST	200529LO	00011520	150	15	2250	2664
020419401	LO-BENTOMAT ST	200529LO	00011521	150	15	2250	2659
020419402	LO-BENTOMAT ST	200529LO	00011527	150	15	2250	2656
020419402	LO-BENTOMAT ST	200529LO	00011528	150	15	2250	2660
020419401	LO-BENTOMAT ST	200529LO	00011531	150	15	2250	2661
020419401	LO-BENTOMAT ST	200529LO	00011532	150	15	2250	2653
020419401	LO-BENTOMAT ST	200529LO	00011535	150	15	2250	2652
020419402	LO-BENTOMAT ST	200529LO	00011540	150	15	2250	2649
020419401	LO-BENTOMAT ST	200529LO	00011544	150	15	2250	2652
020419401	LO-BENTOMAT ST	200529LO	00011545	150	15	2250	2653
020419401	LO-BENTOMAT ST	200529LO	00011546	150	15	2250	2651
020419402	LO-BENTOMAT ST	200529LO	00011548	150	15	2250	2648
020419402	LO-BENTOMAT ST	200529LO	00011550	150	15	2250	2652
020419402	LO-BENTOMAT ST	200529LO	00011551	150	15	2250	2650
020419401	LO-BENTOMAT ST	200529LO	00011553	150	15	2250	2649
020419401	LO-BENTOMAT ST	200529LO	00011554	150	15	2250	2652
020419401	LO-BENTOMAT ST	200529LO	00011555	150	15	2250	2650
020419401	LO-BENTOMAT ST	200529LO	00011556	150	15	2250	2653

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020419402	LO-BENTOMAT ST	200529LO	00011557	150	15	2250	2654
020419402	LO-BENTOMAT ST	200529LO	00011558	150	15	2250	2649
020419401	LO-BENTOMAT ST	200529LO	00011559	150	15	2250	2650
020419401	LO-BENTOMAT ST	200529LO	00011560	150	15	2250	2653
020419401	LO-BENTOMAT ST	200529LO	00011561	150	15	2250	2648
			Totals:	**4800**	**480**	**72000**	**84590**
							Total Number of Rolls Certified: **32**

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GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 020419401

GCL			Geotextiles				Clay
LO-BENTOMAT ST			LO-N/W-WHITE-ST			LO-WOVEN-ST	LO-CG 50-ST
GCL Lot #	**GCL Roll #**	**Roll # Tested**	**Cap Lot #**	**Cap Roll #**	**Roll # Tested**	**Base Roll #**	**Clay Lot #**
200529LO	00011456	00011449	2005870269			2005448623	070505B
200529LO	00011465	00011449	2005856933			2005448623	070505C
200529LO	00011471	00011466	2005856933			2005448623	070505C
200529LO	00011489	00011483	2005856899			2005458597	070505C
200529LO	00011490	00011483	2005856899			2005458597	070505C
200529LO	00011504	00011500	2005858600			2005440960	070505D
200529LO	00011512	00011500	2005858600			2005440960	070505D
200529LO	00011517	00011517	2005856897			2005440960	070505D
200529LO	00011519	00011517	2005856897			2005440960	070505D
200529LO	00011520	00011517	2005856897			2005440960	070505D
200529LO	00011521	00011517	2005856897			2005440960	070505D
200529LO	00011527	00011517	2005856966			2005781060	070505D
200529LO	00011528	00011517	2005856966			2005781060	070505D
200529LO	00011531	00011517	2005856966			2005781060	070505D
200529LO	00011532	00011517	2005856966			2005781060	070505D
200529LO	00011535	00011534	2005856951			2005781060	070505D
200529LO	00011540	00011534	2005856951			2005781060	070505D
200529LO	00011544	00011534	2005870279			2005781060	070505D
200529LO	00011545	00011534	2005870279			2005781060	070605A
200529LO	00011546	00011534	2005870279			2005781060	070605A
200529LO	00011548	00011534	2005870279			2005781060	070605A
200529LO	00011550	00011534	2005870279			2005774825	070605A
200529LO	00011551	00011551	2005870279			2005774825	070605A
200529LO	00011553	00011551	2005858598			2005774825	070605A
200529LO	00011554	00011551	2005858598			2005774825	070605A
200529LO	00011555	00011551	2005858598			2005774825	070605A
200529LO	00011556	00011551	2005858598			2005774825	070605A
200529LO	00011557	00011551	2005858598			2005774825	070605A
200529LO	00011558	00011551	2005858598			2005774825	070605A

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200529LO	00011559	00011551	2005858598			2005774825	070605A
200529LO	00011560	00011551	2005858598			2005774825	070605A
200529LO	00011561	00011551	2005858598			2005774825	070605A

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GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 020419401 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
		Standard Test Method:	ASTM D 5993	ASTM D 4632	ASTM D 4632
		Standard Specification:	0.75 lb/sq ft MARV	90lbs MARV	15lbs MARV
LO-BENTOMAT ST	200529LO	00011449	0.87	273.8	35.3
LO-BENTOMAT ST	200529LO	00011466	0.87	273.8	31.6
LO-BENTOMAT ST	200529LO	00011483	0.83	273.8	26.2
LO-BENTOMAT ST	200529LO	00011500	0.90	273.8	54.5
LO-BENTOMAT ST	200529LO	00011517	0.86	194.3	40
LO-BENTOMAT ST	200529LO	00011534	0.84	194.3	51.1
LO-BENTOMAT ST	200529LO	00011551	0.83	194.3	49.7

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

AMERICAN COLLOID COMPANY

BENTONITE CLAY CERTIFICATION

The bentonite clay used to produce certification package 020419401 has been tested by American Colloid Co. with the following results.

Clay Type	Clay Lot #	Swell	Fluid Loss	Moisture	% Passing 200m	% Retained 8m
	Test Method:	ASTM D 5890	ASTM D 5891	ASTM D 2216	ASTM C 136	ASTM C 136
	Specification:	24ml/2g Min	18ml Max	12% Max	1% Max	0%
LO-CG 50-ST	070505B	27	15.2	9.6	0.3	0
LO-CG 50-ST	070505C	27	15.2	8.8	0.6	0
LO-CG 50-ST	070505D	27	15.2	8.8	0.5	0
LO-CG 50-ST	070605A	28	14	10	0.4	0

Tests approved by
Moses Briseno
American Colloid Company
Quality Assurance Coordinator

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GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 020419401was manufactured with geotextiles which were tested with the following results.

BASE

Material Supplier	Roll Number	Mass Area oz/yd2	Grab Strength lbs
SI 82TEX	2005440960	3.4	157.2
SI 82TEX	2005448623	3.4	148.1
SI 82TEX	2005449530	3.3	157.0
SI 82TEX	2005774825	3.5	163.9
SI 82TEX	2005781060	3.6	171.2

CAP

Material Supplier	Roll Number	Mass Area oz/yd2	Grab Strength lbs
SI 650	2005856897	6.6	77.1
SI 650	2005856899	6.6	77.1
SI 650	2005856933	6.7	86.6
SI 650	2005856951	6.4	82.7
SI 650	2005856966	6.5	99.8
SI 650	2005858598	6.6	77.1
SI 650	2005858600	6.6	77.1
SI 650	2005870269	6.7	100.0
SI 650	2005870279	6.7	100.0

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

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Date: 8/5/2005
Purchase Order: 200521
ORDER NUMBERS: 020078615, 020078616

Jennifer Battle
Mid America Lining

Union City, TN 38261
maljennifer@ken-tennwireless.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Mid America Lining. The shipments left our Fairmount, Georgia plant on 08/04/2005.

If you have any questions regarding this information, please contact me at (706) 337-5316.

Sincerely,

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
ORDER NUMBERS: 020078615, 020078616
PREPARED FOR: Mid America Lining

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
234 Gordon St. S.E.

Fairmount GA, 30139

Telephone: (706) 337-5316
Fax: (706) 337-2215
E-Mail: melanie.king@cetco.com

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PRODUCTION CERTIFICATION

PROJECT NAME: Davidson_Cnty
CUSTOMER P.O.: 200521
PREPARED FOR: Mid America Lining

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat® geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. Any detected needles, which can be identified without damaging the GCL, are removed from the product.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)

Ship Date: 08/04/2005
Order Numbers: 020078615, 020078616
Prepared For: Mid America Lining

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	22.5 lbs/in (40 N/cm) MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	6500 psf (311 kPa) typ @ 10,800 psf
ASTM D 5321	GCL Hydrated Internal Shear Strength	Periodic	500 psf (24 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10^-9 cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10^-8 m^3/m^2/sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	2.5 lbs/in (4.4 N/cm) Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility.
All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT ST

Raw Material	test method	mass per area	units
Nonwoven Cover Fabric	ASTM D 5261	6.0	oz/yd2
Bentomat ST Woven Base Fabric	ASTM D 5261	3.2	oz/yd2

Fabric certifications from our raw material suppliers are on file at our production facility.

CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King
Quality Assurance Coordinator
CETCO Fairmount Plant

CETCO LINING TECHNOLOGIES
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GCL ORDER PACKING LIST

GCL shipped for certification package number 020078615

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078615	FA-BENTOMAT ST	200517FA	00001726	150	15	2250	2662
020078615	FA-BENTOMAT ST	200517FA	00001735	150	15	2250	2688
020078615	FA-BENTOMAT ST	200517FA	00001807	150	15	2250	2660
020078616	FA-BENTOMAT ST	200529FA	00003757	150	15	2250	2803
020078616	FA-BENTOMAT ST	200529FA	00003758	150	15	2250	2797
020078616	FA-BENTOMAT ST	200529FA	00003761	150	15	2250	2782
020078616	FA-BENTOMAT ST	200529FA	00003762	150	15	2250	2773
020078616	FA-BENTOMAT ST	200529FA	00003763	150	15	2250	2775
020078616	FA-BENTOMAT ST	200529FA	00003765	150	15	2250	3767
020078616	FA-BENTOMAT ST	200529FA	00003772	150	15	2250	2769
020078616	FA-BENTOMAT ST	200529FA	00003776	150	15	2250	2804
020078615	FA-BENTOMAT ST	200529FA	00003790	150	15	2250	2775
020078615	FA-BENTOMAT ST	200529FA	00003791	150	15	2250	2785
020078615	FA-BENTOMAT ST	200529FA	00003792	150	15	2250	2799
020078615	FA-BENTOMAT ST	200529FA	00003793	150	15	2250	2994
020078615	FA-BENTOMAT ST	200529FA	00003797	150	15	2250	2670
020078616	FA-BENTOMAT ST	200529FA	00003798	150	15	2250	2650
020078615	FA-BENTOMAT ST	200529FA	00003799	150	15	2250	2657
020078616	FA-BENTOMAT ST	200529FA	00003820	150	15	2250	2695
020078616	FA-BENTOMAT ST	200529FA	00003840	150	15	2250	2707
020078616	FA-BENTOMAT ST	200529FA	00003863	150	15	2250	2698
020078616	FA-BENTOMAT ST	200529FA	00003866	150	15	2250	2692
020078615	FA-BENTOMAT ST	200529FA	00003869	150	15	2250	2710
020078616	FA-BENTOMAT ST	200529FA	00003881	150	15	2250	2854
020078616	FA-BENTOMAT ST	200529FA	00003883	150	15	2250	2843
020078615	FA-BENTOMAT ST	200530FA	00004252	150	15	2250	2795
020078615	FA-BENTOMAT ST	200530FA	00004269	150	15	2250	2828

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
020078615	FA-BENTOMAT ST	200531FA	00004852	150	15	2250	2896
020078615	FA-BENTOMAT ST	200531FA	00004898	150	15	2250	3200
020078615	FA-BENTOMAT ST	200531FA	00005027	150	15	2250	2827
020078615	FA-BENTOMAT ST	200532FA	00005143	150	15	2250	3000
			Totals:	**4650**	**465**	**69750**	**87355**
							Total Number of Rolls Certified: **31**

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GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 020078615

GCL			Geotextiles				Clay
FA-BENTOMAT ST			FA-N/W-WHITE-ST			FA-WOVEN-ST	FA-CG 50-ST
GCL Lot #	**GCL Roll #**	**Roll # Tested**	**Cap Lot #**	**Cap Roll #**	**Roll # Tested**	**Base Roll #**	**Clay Lot #**
200517FA	00001726	00001726	2004855243			2004903865	642538
200517FA	00001735	00001734	2004855276			2004903865	642538
200517FA	00001807	00001805	2003487351			2004372838	642538
200529FA	00003757	00003742	2005856909			2005576316	669112
200529FA	00003758	00003742	2005856909			2005576316	669112
200529FA	00003761	00003760	2005856942			2005603764	669112
200529FA	00003762	00003760	2005856942			2005603764	669112
200529FA	00003763	00003760	2005856942			2005603764	669112
200529FA	00003765	00003760	2005856942			2005603764	669112
200529FA	00003772	00003760	2005856946			2005603764	669112
200529FA	00003776	00003760	2005856946			2005603764	669112
200529FA	00003790	00003790	2005880400			2005604770	669112
200529FA	00003791	00003790	2005880400			2005604770	669112
200529FA	00003792	00003790	2005880400			2005604770	669112
200529FA	00003793	00003790	2005880400			2005604770	669112
200529FA	00003797	00003790	2005880400			2005604770	669112
200529FA	00003798	00003790	2005880400			2005604770	669112
200529FA	00003799	00003790	2005880400			2005604770	669112
200529FA	00003820	00003812	2005880389			2005276365	669112
200529FA	00003840	00003830	2005880398			2005589161	669114
200529FA	00003863	00003847	2005856936			2005842369	669114
200529FA	00003866	00003865	2005856936			2005842369	669114
200529FA	00003869	00003865	2005856936			2005842369	669114
200529FA	00003881	00003865	2005856941			2005589301	669114
200529FA	00003883	00003865	2005856941			2005589301	669114
200530FA	00004252	00004250	413			2005589160	664268
200530FA	00004269	00004267	339			2005608848	664268
200531FA	00004852	00004843	251			2005445509	664301
200531FA	00004898	00004879	462			2005579645	669124

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200531FA	00005027	00005017	2005988646			2005589159	664302
200532FA	00005143	00005143	142			2005774826	669126

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GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 020078615 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
		Standard Test Method:	ASTM D 5993	ASTM D 4632	ASTM D 4632
		Standard Specification:	0.75 lb/sq ft MARV	90lbs MARV	15lbs MARV
FA-BENTOMAT ST	200517FA	00001726	0.86	323.8	29.1
FA-BENTOMAT ST	200517FA	00001734	0.86	323.8	39
FA-BENTOMAT ST	200517FA	00001805	0.81	313.7	36.5
FA-BENTOMAT ST	200529FA	00003742	0.88	131.3	27.5
FA-BENTOMAT ST	200529FA	00003760	0.88	198.2	33.7
FA-BENTOMAT ST	200529FA	00003790	0.81	198.2	33.5
FA-BENTOMAT ST	200529FA	00003812	0.85	198.2	31.6
FA-BENTOMAT ST	200529FA	00003830	0.89	198.2	20.3
FA-BENTOMAT ST	200529FA	00003847	0.93	190.6	35.4
FA-BENTOMAT ST	200529FA	00003865	0.90	190.6	32.8
FA-BENTOMAT ST	200530FA	00004250	0.90	177.7	34.1
FA-BENTOMAT ST	200530FA	00004267	0.92	177.7	29.5
FA-BENTOMAT ST	200531FA	00004843	0.82	285.2	37.5
FA-BENTOMAT ST	200531FA	00004879	0.86	281.7	28.9
FA-BENTOMAT ST	200531FA	00005017	0.84	197.1	30
FA-BENTOMAT ST	200532FA	00005143	0.95	168.2	38.6

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.

AMERICAN COLLOID COMPANY

BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce Order 020078615
has been certified by American Colloid with the following test results

ACC Order Num	Moist	Swell	Fluid Loss	Retained 8m	Passing 200m
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891	ASTM C 136	ASTM C 136
Specification:	12.0% Max	24 Min	18.0% Max	0%	1.0% Max
642538	8.8	26.0	15.0	0.0	0.7
664268	10.8	27.0	13.8	0.0	0.7
669112	10.0	25.0	16.4	0.0	0.2
669114	9.4	26.0	16.8	0.0	0.8
669124	9.1	32.0	16.8	0.0	0.6
664302	11.2	27.0	14.8	0.0	0.3
664301	10.8	29.0	15.6	0.0	0.3
669126	8.9	29.0	16.8	0.0	0.7

Tests approved by
Moses Briseno
American Colloid Company
Quality Assurance Coordinator

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GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 020078615was manufactured with geotextiles which were tested with the following results.

BASE			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
SI 82TEX	2004372838	3.4	145.0
SI 82TEX	2004903865	3.4	159.0
SI 82TEX	2005276365	3.5	152.0
SI 82TEX	2005445509	3.5	162.0
SI 82TEX	2005445509	3.5	162.0
SI 82TEX	2005576316	5.4	169.0
SI 82TEX	2005576316	5.4	169.0
SI 82TEX	2005579645	3.5	168.0
SI 82TEX	2005579645	3.5	168.0
SI 82TEX	2005589159	3.5	158.0
SI 82TEX	2005589159	3.5	158.0
SI 82TEX	2005589160	3.5	158.0
SI 82TEX	2005589160	3.5	158.0
SI 82TEX	2005589161	3.5	158.0
SI 82TEX	2005589301	3.6	160.0
SI 82TEX	2005603764	3.6	157.0
SI 82TEX	2005603764	3.6	157.0
SI 82TEX	2005604770	3.6	159.0
SI 82TEX	2005604770	3.6	175.0
SI 82TEX	2005608848	3.5	180.0
SI 82TEX	2005608848	3.5	180.0
SI 82TEX	2005774826	3.5	168.0
SI 82TEX	2005839225	3.5	154.0

CAP			
Material Supplier	**Roll Number**	**Mass Area oz/yd2**	**Grab Strenth lbs**
SI 650	2005856936	6.7	86.6
SI 650	2005856944	7.0	90.3
SI 650	2005988646	6.8	52.2
SI 650	2005880400	6.9	80.0
CV-Non Woven	142	6.5	31.6
CV-Non Woven	339	6.8	47.1
CV-Non-Woven	413	6.7	48.6

CV Non Woven	250	6.9	47.4
SI 650	2005856906	7.0	83.9
CV-Non-Woven	445	8.1	62.9
SI 650	2005880389	7.3	83.0
SI 650	2004855276	6.6	61.8
SI 650	2004855243	6.6	61.8
SI 650	2005856940	6.8	93.7
SI 650	2005856942	6.8	93.7
SI 650	2005880398	7.0	74.9

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

microspike liner

LLDPE

40 mil

Mid America Davidson LF doc 6265

Lexington, NC

roll #		DIMENSIONS width	appx length	area	57 LONG rolls 40 LL micro 1 SHORT roll 40 LL micro @ 83 meters	wgt	45	left lot
(C)230235	.05	7	183	1281	Mid am Davidson 58tot 14	3235	1 w	CRM811420
(C)230237	.05	7	183	1281	Mid am Davidson 58tot 15	3245	2 w	CRM811420
(C)230238	.05	7	183	1281	Mid am Davidson 58tot 16	3250	3 w	CRM811420
(C)230239	.05	7	183	1281	Mid am Davidson 58tot 17	3240	4 w	CRM811420
(C)230240	.05	7	183	1281	Mid am Davidson 58tot 18	3250	5 w	CRM811420
(C)230341	.05	7	183	1281	Mid am Davidson 58tot 19	3190	6 w	CRM811420
(C)230342	.05	7	183	1281	Mid am Davidson 58tot 20	3240	7 w	CRM811420
(C)230343	.05	7	183	1281	Mid am Davidson 58tot 21	3250	8 w	CRM811420
(C)230344	.05	7	183	1281	Mid am Davidson 58tot 22	3240	9 w	CRM811420
(C)230345	.05	7	183	1281	Mid am Davidson 58tot 23	3245	10 w	CRM811420
(C)230346	.05	7	183	1281	Mid am Davidson 58tot 24	3265	11 w	CRM811420
(C)230347	.05	7	183	1281	Mid am Davidson 58tot 25	3275	12 w	CRM811420
(C)230348	.05	7	183	1281	Mid am Davidson 58tot 26	3280	13 w	CRM811420
(C)230349	.05	7	183	1281	Mid am Davidson 58tot 27	3280	14 w	CRM811420
(C)230350	.05	7	183	1281	Mid am Davidson 58tot 28	3285	15 w	CRM811420
(C)230351	.05	7	183	1281	Mid am Davidson 58tot 29	3285	16 w	CRM811420
(C)230352	.05	7	183	1281	Mid am Davidson 58tot 30	3290	17 w	CRM811420
(C)230353	.05	7	183	1281	Mid am Davidson 58tot 31	3295	18 w	CRM811420
(C)230354	.05	7	183	1281	Mid am Davidson 58tot 32	3290	19 w	CRM811420
(C)230355	.05	7	183	1281	Mid am Davidson 58tot 33	3290	20 w	CRM811420
(C)230356	.05	7	183	1281	Mid am Davidson 58tot 34	3285	21 w	CRM811420
(C)230357	.05	7	183	1281	Mid am Davidson 58tot 35	3260	22 w	CRM811420
(C)230458	.05	7	183	1281	Mid am Davidson 58tot 36	3255	23 w	CRM811420
(C)230459	.05	7	183	1281	Mid am Davidson 58tot 37	3250	24 w	CRM811420
(C)230460	.05	7	183	1281	Mid am Davidson 58tot 38	3240	25 w	CRM811420
(C)230461	.05	7	183	1281	Mid am Davidson 58tot 39	3240	26 w	CRM811420
(C)230462	.05	7	183	1281	Mid am Davidson 58tot 40	3305	27 w	CRM811420
(C)230463	.05	7	183	1281	Mid am Davidson 58tot 41	3310	28 w	CRM811420
(C)230464	.05	7	183	1281	Mid am Davidson 58tot 42	3310	29 w	CRM811140
(C)230465	.05	7	183	1281	Mid am Davidson 58tot 43	3295	30 w	CRM811140
(C)230466	.05	7	183	1281	Mid am Davidson 58tot 44	3295	31 w	CRM811140
(C)230467	.05	7	183	1281	Mid am Davidson 58tot 45	3285	32 w	CRM811140
(C)230468	.05	7	183	1281	Mid am Davidson 58tot 46	3285	33 w	CRM811140
(C)230469	.05	7	183	1281	Mid am Davidson 58tot 47	3280	34 w	CRM811140
(C)230470	.05	7	183	1281	Mid am Davidson 58tot 48	3310	35 w	CRM811140
(C)230471	.05	7	183	1281	Mid am Davidson 58tot 49	3315	36 w	CRM811140
(C)230472	.05	7	183	1281	Mid am Davidson 58tot 50	3280	37 w	CRM811140
(C)230473	.05	7	183	1281	Mid am Davidson 58tot 51	3250	38 w	CRM811140
(C)230474	.05	7	183	1281	Mid am Davidson 58tot 52	3305	39 w	CRM811140
(C)230575	.05	7	183	1281	Mid am Davidson 58tot 53		40 w	CRM811140
(C)230576	.05	7	183	1281	Mid am Davidson 58tot 54		41 w	CRM811140
(C)230577	.05	7	183	1281	Mid am Davidson 58tot 55		42 w	CRM811140
(C)230578	.05	7	183	1281	Mid am Davidson 58tot 56		43 w	CRM811140
(C)230579	.05	7	183	1281	Mid am Davidson 58tot 57		44 w	CRM811140
(C)330563	.05	7	83	581	Mid am Davidson 58tot 58		45 w	CRM811140

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quality certificate

ROLL # **230235-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.24**	mm	**49**	mil
Asperity GRI GM12: **26** mil	AVE:	**1.12**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

			TEST RESULTS
Specific Gravity ASTM D-792	Density	g/cc	**.935**
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min	**.35**
Carbon Black Content ASTM D-4218	Range	%	**2.26**
Carbon Black Dispersion ASTM D-5596	Category		**1**
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24** N/mm **137** ppi	**3,417** psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	**562.2**
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%	**-0.79**
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**142.1** N	**31.958** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**291.4** N	**65.502** lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**383.9** N	**86.306** lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs	**CERTIFIED**

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

Date:..... **7-27-05**

Signature.....

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ROLL # **230237-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.02**	mm	**40**	mil
	MAX:	**1.17**	mm	**46**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

			TEST RESULTS
Specific Gravity ASTM D-792	Density	g/cc	**.935**
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min	**.35**
Carbon Black Content ASTM D-4218	Range	%	**2.26**
Carbon Black Dispersion ASTM D-5596	Category		**1**
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24** N/mm **137** ppi	**3,417** psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	**562.2**
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%	**-0.79**
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**142.1** N	**31.958** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**291.4** N	**65.502** lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**383.9** N	**86.306** lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs	**CERTIFIED**

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

Date:..... **7-27-05**

Signature.....

Quality Control Department

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ROLL # **230238-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.20**	mm	**47**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.26**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**137**	ppi	**3,417**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**562.2**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**142.1**	N			**31.958**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**291.4**	N			**65.502**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**383.9**	N			**86.306**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

Date:..... **7-27-05**

Signature.....

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ROLL # **230239-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.00**	mm	**39**	mil
	MAX:	**1.20**	mm	**47**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.09**	mm	**43**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.27**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**140**	ppi	**3,491**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**577.1**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**142.1**	N			**31.958**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**291.4**	N			**65.502**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**383.9**	N			**86.306**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230240-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.20**	mm	**47**	mil
Asperity GRI GM12: **37** mil	AVE:	**1.09**	mm	**43**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.27**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**140**	ppi	**3,491**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**577.1**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**142.1**	N			**31.958**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**291.4**	N			**65.502**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**383.9**	N			**86.306**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230341-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.97**	mm	**38**	mil
	MAX:	**1.19**	mm	**47**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.10**	mm	**43**	mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**183.00** m;	**600.4** feet
Width.....	**7.00** m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.27**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**140**	ppi	**3,491**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**577.1**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**142.1**	N			**31.958**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**291.4**	N			**65.502**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**383.9**	N			**86.306**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230342-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.20**	mm	**47**	mil
Asperity GRI GM12: **35** mil	AVE:	**1.10**	mm	**43**	mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**183.00** m;	**600.4** feet
Width.....	**7.00** m;	**23.0** feet

				TEST RESULTS
Specific Gravity ASTM D-792	Density	g/cc		**.935**
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min		**.35**
Carbon Black Content ASTM D-4218	Range	%		**2.27**
Carbon Black Dispersion ASTM D-5596	Category			**1**
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24** N/mm	**140** ppi	**3,491** psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		**577.1**
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%		**-0.79**
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**142.1** N		**31.958** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**291.4** N		**65.502** lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**383.9** N		**86.306** lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs		**CERTIFIED**

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230343-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.00**	mm	**39**	mil
	MAX:	**1.20**	mm	**47**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.27**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**140**	ppi	**3,491**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**577.1**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**142.1**	N			**31.958**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**291.4**	N			**65.502**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**383.9**	N			**86.306**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230344-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.20**	mm	**47**	mil
Asperity GRI GM12: **37** mil	AVE:	**1.09**	mm	**43**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.17**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**135**	ppi	**3,363**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**562.6**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**143.7**	N			**32.299**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**327.6**	N			**73.654**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**438.9**	N			**98.674**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230345-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.21**	mm	**48**	mil
Asperity GRI GM12: **33** mil	AVE:	**1.08**	mm	**43**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.17**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**135**	ppi	**3,363**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**562.6**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**143.7**	N			**32.299**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**327.6**	N			**73.654**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**438.9**	N			**98.674**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230346-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.23**	mm	**48**	mil
Asperity GRI GM12: **32** mil	AVE:	**1.13**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.17**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**135**	ppi	**3,363**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**562.6**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**143.7**	N			**32.299**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**327.6**	N			**73.654**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**438.9**	N			**98.674**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230347-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.27**	mm	**50**	mil
Asperity GRI GM12: **36** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.17**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**135**	ppi	**3,363**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**562.6**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**143.7**	N			**32.299**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**327.6**	N			**73.654**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**438.9**	N			**98.674**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230348-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.03**	mm	**41**	mil
	MAX:	**1.30**	mm	**51**	mil
Asperity GRI GM12: **37** mil	AVE:	**1.14**	mm	**45**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

				TEST RESULTS
Specific Gravity ASTM D-792	Density	g/cc		**.935**
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min		**.35**
Carbon Black Content ASTM D-4218	Range	%		**2.17**
Carbon Black Dispersion ASTM D-5596	Category			**1**
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24** N/mm	**135** ppi	**3,363** psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		**562.6**
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%		**-0.79**
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**143.7** N		**32.299** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**327.6** N		**73.654** lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**438.9** N		**98.674** lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs		**CERTIFIED**

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230349-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.97**	mm	**38**	mil
	MAX:	**1.26**	mm	**50**	mil
Asperity GRI GM12: **33** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**183.00** m;	**600.4** feet
Width.....	**7.00** m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.23**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**133**	ppi	**3,332**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**548.3**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**143.7**	N			**32.299**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**327.6**	N			**73.654**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**438.9**	N			**98.674**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230350-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.27**	mm	**50**	mil
Asperity GRI GM12: **32** mil	AVE:	**1.13**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.23**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**133**	ppi	**3,332**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**548.3**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**143.7**	N			**32.299**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**327.6**	N			**73.654**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**438.9**	N			**98.674**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230351-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.30**	mm	**51**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.15**	mm	**45**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.23**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**133**	ppi	**3,332**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**548.3**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**143.7**	N			**32.299**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**327.6**	N			**73.654**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**438.9**	N			**98.674**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230352-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.32**	mm	**52**	mil
Asperity GRI GM12: **28** mil	AVE:	**1.14**	mm	**45**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.23**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**133**	ppi	**3,332**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**548.3**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**143.7**	N			**32.299**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**327.6**	N			**73.654**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**438.9**	N			**98.674**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230353-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.97**	mm	**38**	mil
	MAX:	**1.27**	mm	**50**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.12**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.23**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**133**	ppi	**3,332**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**548.3**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**143.7**	N			**32.299**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**327.6**	N			**73.654**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**438.9**	N			**98.674**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

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ROLL # **230354-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.00**	mm	**39**	mil
	MAX:	**1.31**	mm	**52**	mil
Asperity GRI GM12: **38** mil	AVE:	**1.12**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

							TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc					**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min					**.35**	
Carbon Black Content ASTM D-4218	Range	%					**2.34**	
Carbon Black Dispersion ASTM D-5596	Category						**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi		**3,284**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%					**562.9**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%					**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.0**	N				**34.620**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.6**	N				**73.192**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**428.6**	N				**96.356**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs					**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230355-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.24**	mm	**49**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.10**	mm	**43**	mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**183.00** m;	**600.4** feet
Width.....	**7.00** m;	**23.0** feet

						TEST RESULTS
Specific Gravity ASTM D-792	Density	g/cc				**.935**
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**
Carbon Black Content ASTM D-4218	Range	%				**2.34**
Carbon Black Dispersion ASTM D-5596	Category					**1**
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,284** psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**562.9**
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.0**	N			**34.620** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.6**	N			**73.192** lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**428.6**	N			**96.356** lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

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ROLL # **230356-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.96**	mm	**38**	mil
	MAX:	**1.22**	mm	**48**	mil
Asperity GRI GM12: **36** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**183.00** m;	**600.4** feet
Width.....	**7.00** m;	**23.0** feet

						TEST RESULTS
Specific Gravity ASTM D-792	Density	g/cc				**.935**
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**
Carbon Black Content ASTM D-4218	Range	%				**2.34**
Carbon Black Dispersion ASTM D-5596	Category					**1**
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,284** psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**562.9**
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.0**	N			**34.620** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.6**	N			**73.192** lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**428.6**	N			**96.356** lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

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ROLL # **230357-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.22**	mm	**48**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.34**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,284**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**562.9**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.0**	N			**34.620**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.6**	N			**73.192**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**428.6**	N			**96.356**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230458-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.26**	mm	**50**	mil
Asperity GRI GM12: **32** mil	AVE:	**1.12**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.34**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,284**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**562.9**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.0**	N			**34.620**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.6**	N			**73.192**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**428.6**	N			**96.356**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

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ROLL # **230459-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.28**	mm	**50**	mil
Asperity GRI GM12: **28** mil	AVE:	**1.12**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

			TEST RESULTS
Specific Gravity ASTM D-792	Density	g/cc	**.935**
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min	**.35**
Carbon Black Content ASTM D-4218	Range	%	**2.40**
Carbon Black Dispersion ASTM D-5596	Category		**1**
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24** N/mm **138** ppi	**3,450** psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	**559.5**
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%	**-0.79**
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.0** N	**34.620** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.6** N	**73.192** lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**428.6** N	**96.356** lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs	**CERTIFIED**

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

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ROLL # **230460-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.29**	mm	**51**	mil
Asperity GRI GM12: **38** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

			TEST RESULTS
Specific Gravity ASTM D-792	Density	g/cc	**.935**
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min	**.35**
Carbon Black Content ASTM D-4218	Range	%	**2.40**
Carbon Black Dispersion ASTM D-5596	Category		**1**
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24** N/mm **138** ppi	**3,450** psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	**559.5**
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%	**-0.79**
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.0** N	**34.620** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.6** N	**73.192** lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**428.6** N	**96.356** lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs	**CERTIFIED**

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230461-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.24**	mm	**49**	mil
Asperity GRI GM12: **37** mil	AVE:	**1.12**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.40**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**138**	ppi	**3,450**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**559.5**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.0**	N			**34.620**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.6**	N			**73.192**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**428.6**	N			**96.356**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230462-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.19**	mm	**47**	mil
Asperity GRI GM12: **44** mil	AVE:	**1.09**	mm	**43**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.40**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**138**	ppi	**3,450**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**559.5**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.0**	N			**34.620**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.6**	N			**73.192**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**428.6**	N			**96.356**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

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ROLL # **230463-05** Lot #: **CRM811420** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.23**	mm	**48**	mil
Asperity GRI GM12: **39** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.935**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.35**	
Carbon Black Content ASTM D-4218	Range	%				**2.40**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**138**	ppi	**3,450**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**559.5**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.79**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.0**	N			**34.620**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.6**	N			**73.192**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**428.6**	N			**96.356**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230464-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.95**	mm	**37**	mil
	MAX:	**1.27**	mm	**50**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.12**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.40**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**25**	N/mm	**144**	ppi	**3,590**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**585.0**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.0**	N			**33.496**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**320.1**	N			**71.966**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**434.3**	N			**97.634**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230465-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.30**	mm	**51**	mil
Asperity GRI GM12: **28** mil	AVE:	**1.14**	mm	**45**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.40**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**25**	N/mm	**144**	ppi	**3,590**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**585.0**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.0**	N			**33.496**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**320.1**	N			**71.966**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**434.3**	N			**97.634**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

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ROLL # **230466-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.96**	mm	**38**	mil
	MAX:	**1.21**	mm	**48**	mil
Asperity GRI GM12: **34** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**183.00** m;	**600.4** feet
Width.....	**7.00** m;	**23.0** feet

						TEST RESULTS
Specific Gravity ASTM D-792	Density	g/cc				**.932**
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**
Carbon Black Content ASTM D-4218	Range	%				**2.40**
Carbon Black Dispersion ASTM D-5596	Category					**1**
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**25**	N/mm	**144**	ppi	**3,590** psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**585.0**
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.0**	N			**33.496** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**320.1**	N			**71.966** lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**434.3**	N			**97.634** lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

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ROLL # **230467-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.28**	mm	**50**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.11**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.40**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**25**	N/mm	**144**	ppi	**3,590**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**585.0**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.0**	N			**33.496**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**320.1**	N			**71.966**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**434.3**	N			**97.634**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

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ROLL # **230468-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.04**	mm	**41**	mil
	MAX:	**1.30**	mm	**51**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.15**	mm	**45**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.40**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**25**	N/mm	**144**	ppi	**3,590**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**585.0**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.0**	N			**33.496**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**320.1**	N			**71.966**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**434.3**	N			**97.634**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

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ROLL # **230469-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.05**	mm	**41**	mil
	MAX:	**1.24**	mm	**49**	mil
Asperity GRI GM12: **27** mil	AVE:	**1.12**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.31**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**130**	ppi	**3,241**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**549.7**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.0**	N			**33.496**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**320.1**	N			**71.966**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**434.3**	N			**97.634**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230470-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.02**	mm	**40**	mil
	MAX:	**1.24**	mm	**49**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.10**	mm	**43**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

							TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc					**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min					**.37**	
Carbon Black Content ASTM D-4218	Range	%					**2.31**	
Carbon Black Dispersion ASTM D-5596	Category						**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**130**	ppi		**3,241**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%					**549.7**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%					**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.0**	N				**33.496**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**320.1**	N				**71.966**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**434.3**	N				**97.634**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs					**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230471-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.26**	mm	**50**	mil
Asperity GRI GM12: **27** mil	AVE:	**1.12**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.31**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**130**	ppi	**3,241**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**549.7**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.0**	N			**33.496**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**320.1**	N			**71.966**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**434.3**	N			**97.634**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230472-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.95**	mm	**37**	mil
	MAX:	**1.28**	mm	**50**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.14**	mm	**45**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.31**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**130**	ppi	**3,241**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**549.7**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.0**	N			**33.496**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**320.1**	N			**71.966**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**434.3**	N			**97.634**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230473-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.97**	mm	**38**	mil
	MAX:	**1.25**	mm	**49**	mil
Asperity GRI GM12: **24** mil	AVE:	**1.12**	mm	**44**	mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**183.00** m;	**600.4** feet
Width.....	**7.00** m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.31**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**130**	ppi	**3,241**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**549.7**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.0**	N			**33.496**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**320.1**	N			**71.966**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**434.3**	N			**97.634**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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ROLL # **230474-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.24**	mm	**49**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.13**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.37**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,263**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**583.3**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**148.5**	N			**33.384**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**292.0**	N			**65.652**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**372.0**	N			**83.630**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

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quality certificate

ROLL # **230575-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.02**	mm	**40**	mil
	MAX:	**1.23**	mm	**48**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.13**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.37**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,263**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**583.3**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**148.5**	N			**33.384**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**292.0**	N			**65.652**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**372.0**	N			**83.630**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

Date:..... **7-29-05**

Signature.....

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ROLL # **230576-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.02**	mm	**40**	mil
	MAX:	**1.25**	mm	**49**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.13**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.37**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,263**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**583.3**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**148.5**	N			**33.384**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**292.0**	N			**65.652**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**372.0**	N			**83.630**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

Date:..... **7-29-05**

Signature.....

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ROLL # **230577-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.02**	mm	**40**	mil
	MAX:	**1.27**	mm	**50**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.13**	mm	**44**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.37**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,263**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**583.3**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**148.5**	N			**33.384**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**292.0**	N			**65.652**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**372.0**	N			**83.630**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

Date:..... **7-29-05**

Signature.....

Quality Control Department

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ROLL # **230578-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.00**	mm	**39**	mil
	MAX:	**1.19**	mm	**47**	mil
Asperity GRI GM12: **35** mil	AVE:	**1.10**	mm	**43**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.37**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,263**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**583.3**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**148.5**	N			**33.384**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**292.0**	N			**65.652**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**372.0**	N			**83.630**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

Date:..... **7-29-05**

Signature.....

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ROLL # **230579-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.20**	mm	**47**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.10**	mm	**43**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**183.00**	m;	**600.4** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.34**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**26**	N/mm	**150**	ppi	**3,754**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**604.9**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**148.5**	N			**33.384**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**292.0**	N			**65.652**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**372.0**	N			**83.630**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

Date:..... **7-29-05**

Signature.....

Quality Control Department

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ROLL # **330563-05** Lot #: **CRM811140** **Liner Type: MICROSPIKE™LLDPE**

Measurement ASTM D-5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.07**	mm	**42**	mil
	MAX:	**1.35**	mm	**53**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.16**	mm	**46**	mil

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**83.00**	m;	**272.3** feet
Width.....	**7.00**	m;	**23.0** feet

						TEST RESULTS	
Specific Gravity ASTM D-792	Density	g/cc				**.932**	
MFI ASTM D-1238 COND. E GRADE: **7104**	Melt Flow Index 190ºC /2160 g	g/10 min				**.37**	
Carbon Black Content ASTM D-4218	Range	%				**2.26**	
Carbon Black Dispersion ASTM D-5596	Category					**1**	
Tensile Strength ASTM D-6693 ASTM D-638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**136**	ppi	**3,392**	psi
Elongation ASTM D-6693 ASTM D - 638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**555.6**	
Dimensional Stability ASTM D-1204 (Modified)	Average Dimensional Change	%				**-0.81**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**146.8**	N			**33.007**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**392.2**	N			**88.172**	lbs
Puncture Resistance ASTM D-4833 (Modified)	Load	**481.1**	N			**108.160**	lbs
ESCR ASTM D-1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

CUSTOMER: **Mid America Lining Co.**

P.O.#: **200519 Davidson Cty LF**

DESTINATION: **Lexington, NC**

Date:..... **7-29-05**

Signature.....

Quality Control Department

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CoA Date: 11/23/2004

Certificate of Analysis

Shipped To: AGRU AMERICA INC
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: GRANT PALMER
Fax:

CPC Delivery #: 86769805
PO #: 03813
Weight: 187550 LB
Ship Date: 11/23/2004
Package: BULK
Mode: Hopper Car
Car #: CHVX896289
Seal No: 431745

Product: PE 7104 BULK

Lot Number: CRM811140

Property	Test Method	Value	Unit
Melt Index	ST-103	0.37	g/10mi
HLMI	ST-122	15.40	g/10mi
Pellet Count	ST-905	43	pel/g
Production Date		11/21/04	
Density	ST-292	0.918	g/cm3

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.

Kay F. Donaldson
Quality Control Supervisor

For CoA questions contact Peter Scheirman at 713-289-4799

CoA Date: 11/30/2004

Certificate of Analysis

Shipped To: AGRU AMERICA INC
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: GRANT PALMER
Fax:

CPC Delivery #: 86773609
PO #: 03813
Weight: 188400 LB
Ship Date: 11/30/2004
Package: BULK
Mode: Hopper Car
Car #: CHVX889143
Seal No: 433816

Product: PE 7104 BULK

Lot Number: CRM811420

Property	Test Method	Value	Unit
Melt Index	ST-103	0.35	g/10mi
HLMI	ST-122	14.80	g/10mi
Pellet Count	ST-905	41	pel/g
Production Date		11/25/04	
Density	ST-292	0.919	g/cm3

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.

Kay F. Donaldson
Quality Control Supervisor

For CoA questions contact Peter Scheirman at 713-289-4799

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill
Material: 40 mil Microspike LLDPE Geomembrane
Manufacturer: Agru
Location: SC

TYPE OF MQA: LEVEL (2)
SAMPLING FREQUENCY: 1/100,000 sq.ft. Or 1 Per Lot (whichever is greater)

Rec 244, DC # 1972

No.	Roll #	Resin Lot / Batch Number	Length ft. (in)	Width ft. (in)	Area ft^2 (in^2)	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
1	328333 .05	CRM811150	600.39	22.96	13784.95	N/A	BG	7/14/2005	7/15/2005	C#9925 G050696
2	328448 .05	CRM811150	600.39	22.96	13784.95	N/A				
3	328449 .05	CRM811150	600.39	22.96	13784.95	N/A				
4	328450 .05	CRM811150	600.39	22.96	13784.95	N/A				
5	328551 .05	CRM811150	600.39	22.96	13784.95	N/A				
6	328552 .05	CRM811150	600.39	22.96	13784.95	N/A				
7	328553 .05	CRM811150	600.39	22.96	13784.95	N/A	BG	7/15/2005	7/18/2005	C#9979 G050710
8	328554 .05	CRM811150	600.39	22.96	13784.95	N/A				
9	328555 .05	CRM811150	600.39	22.96	13784.95	N/A				
10	328556 .05	CRM811150	600.39	22.96	13784.95	N/A				
11	328557 .05	CRM811150	600.39	22.96	13784.95	N/A				
12	328558 .05	CRM811150	600.39	22.96	13784.95	N/A				
13	328559 .05	CRM811150	600.39	22.96	13784.95	N/A				
				Sub Total ft^2 (in^2) =	**179204.41**					
14	230235 .05	CRM811420	600.39	22.96	13784.95	N/A				
15	230237 .05	CRM811420	600.39	22.96	13784.95	N/A	BG	7/27/2005	7/29/2005	C#13199 G050769
16	230238 .05	CRM811420	600.39	22.96	13784.95	N/A				
17	230239 .05	CRM811420	600.39	22.96	13784.95	N/A				
18	230240 .05	CRM811420	600.39	22.96	13784.95	N/A				
19	230341 .05	CRM811420	600.39	22.96	13784.95	N/A				
20	230342 .05	CRM811420	600.39	22.96	13784.95	N/A				
21	230343 .05	CRM811420	600.39	22.96	13784.95	N/A				
22	230344 .05	CRM811420	600.39	22.96	13784.95	N/A	BG	7/27/2005	7/29/2005	C#13200 G050769
23	230345 .05	CRM811420	600.39	22.96	13784.95	N/A				
24	230346 .05	CRM811420	600.39	22.96	13784.95	N/A				

QA

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill
Material: 40 mil Microspike LLDPE Geomembrane
Manufacturer: Agru
Location: SC

TYPE OF MQA: LEVEL (2)
SAMPLING FREQUENCY: 1/100,000 sq.ft. Or 1 Per Lot (whichever is greater)

Rec 244, DC # 1972

No.	Roll #	Resin Lot / Batch Number	Length ft. (in)	Width ft. (in)	Area ft^2 (in^2)	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
25	230347 .05	CRM811420	600.39	22.96	13784.95	N/A				
26	230348 .05	CRM811420	600.39	22.96	13784.95	N/A				
27	230349 .05	CRM811420	600.39	22.96	13784.95	N/A				
28	230350 .05	CRM811420	600.39	22.96	13784.95	N/A				
29	230351 .05	CRM811420	600.39	22.96	13784.95	N/A	BG	7/28/2005	7/29/2005	C#13264 G050780
30	230352 .05	CRM811420	600.39	22.96	13784.95	N/A				
31	230353 .05	CRM811420	600.39	22.96	13784.95	N/A				
32	230354 .05	CRM811420	600.39	22.96	13784.95	N/A				
33	230355 .05	CRM811420	600.39	22.96	13784.95	N/A				
34	230356 .05	CRM811420	600.39	22.96	13784.95	N/A				
35	230357 .05	CRM811420	600.39	22.96	13784.95	N/A				
36	230458 .05	CRM811420	600.39	22.96	13784.95	N/A	BG	7/28/2005	7/29/2005	C#13265 G050780
37	230459 .05	CRM811420	600.39	22.96	13784.95	N/A				
38	230460 .05	CRM811420	600.39	22.96	13784.95	N/A				
39	230461 .05	CRM811420	600.39	22.96	13784.95	N/A				
40	230462 .05	CRM811420	600.39	22.96	13784.95	N/A				
41	230463 .05	CRM811420	600.39	22.96	13784.95	N/A				
				Sub Total ft^2 (in^2) =	**385978.72**					
42	230464 .05	CRM811140	600.39	22.96	13784.95	N/A				
43	230465 .05	CRM811140	600.39	22.96	13784.95	N/A	BG	7/28/2005	7/29/2005	C#13266 G050780
44	230466 .05	CRM811140	600.39	22.96	13784.95	N/A				
45	230467 .05	CRM811140	600.39	22.96	13784.95	N/A				
46	230468 .05	CRM811140	600.39	22.96	13784.95	N/A				
47	230469 .05	CRM811140	600.39	22.96	13784.95	N/A				
48	230470 .05	CRM811140	600.39	22.96	13784.95	N/A				

QA

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill
TYPE OF MQA: LEVEL (2)
Material: 40 mil Microspike LLDPE Geomembrane
SAMPLING FREQUENCY: 1/100,000 sq.ft. Or 1 Per Lot (whichever is greater)
Manufacturer: Agru
Location: SC

Rec 244, DC # 1972

No.	Roll #	Resin Lot / Batch Number	Length ft. (in)	Width ft. (in)	Area ft^2 (in^2)	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
49	230471 .05	CRM811140	600.39	22.96	13784.95	N/A				
50	230472 .05	CRM811140	600.39	22.96	13784.95	N/A	BG	7/29/2005	8/1/2005	C#13287 G050789
51	230473 .05	CRM811140	600.39	22.96	13784.95	N/A				
52	230474 .05	CRM811140	600.39	22.96	13784.95	N/A				
53	230575 .05	CRM811140	600.39	22.96	13784.95	N/A				
54	230576 .05	CRM811140	600.39	22.96	13784.95	N/A				
55	230577 .05	CRM811140	600.39	22.96	13784.95	N/A				
56	230578 .05	CRM811140	600.39	22.96	13784.95	N/A				
57	230579 .05	CRM811140	600.39	22.96	13784.95	N/A	BG	7/29/2005	8/1/2005	C#13288 G050789
58	230580 .05	CRM811140	600.39	22.96	13784.95	N/A				
				Sub Total ft^2 (in^2) =	**234344.22**					

QA

Precision Geosynthetic Laboratories

August 02, 2005

Evan Andrews
JOYCE ENGINEERING, INC.
2301 W. Meadowview Rd. Suite 203
Greenboro, NC 27407

Dear Mr. Andrews: RE**:** ***Davidson County Landfill***

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the ***final*** laboratory report for the testing of two (2) 40 mil Microspike LLDPE Geomembrane sample(s) received July 29, 2005.

It should be noted that the test specimen and test sample used for this report was believed to be representative of the material produced under the designation herein stated. However, these results are indicative of only the specimens that were actually tested. The testing herein is based upon accepted industry practice as well as the test method listed. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the final use and purpose of the material.

By accepting the data and results represented on this report, Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented in this report, and Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liability in excess of the aforementioned limit.

The test data and all associated project information shall be held in confidence, not to be reproduced except in full and disclosed to other parties with the authorization of the client.

It is a company policy to keep the physical records of each job for 2 years since the receipt of the samples and keep the electronic file for 7 years. ***Failed seam samples are kept for 7 years; good seam samples are disposed after 2 weeks and conformance samples are disposed after 1 month.*** Should you need us to keep them longer, please advise us in writing.

If you have any questions or if we may be of further service, please do not hesitate to call at 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Maria Espitia
Quality Assurance

Cora B. Queja
Vice President

Enclosure: (Job No. G050769)

1160 North Gilbert Street, Anaheim, CA. 92801, Tel# 714-520-9631, Fax# 714-520-9637
DC#2000 Record# 281

Precision Geosynthetic Laboratories

CLIENT: *JOYCE ENGINEERING, INC.*
PROJECT: Davidson County Landfill

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. G050769)

MATERIAL DESCRIPTION: 40 mil LLDPE Microspike Geomembrane

SAMPLED BY: PGL @ Agru @ SC

DATE RECEIVED: July 29, 2005 **DATE REPORTED:** August 02, 2005

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
R#230237.05 L#CRM811420	13199
R#230344.05 L#CRM811420	13200

TESTS REQUIRED:

TEST METHOD	DESCRIPTION
ASTM D1505	Density
ASTM D1603	Carbon Content
ASTM D5596	Carbon Black Dispersion
ASTM D5994	Core Thickness
ASTM D1238	Melt Flow Index
ASTM D638	Tensile Strength
ASTM D1004	Tear Resistance

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at 22 $\pm$ 2°C (71.6 $\pm$ 3.6°F) and at 60 $\pm$ 10% relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Table 1 & 2. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES

Maria Espitia
Quality Assurance

Cora B. Queja
Vice President

1160 North Gilbert Street, Anaheim, CA. 92801, Tel# 714-520-9631, Fax# 714-520-9637

TABLE 1.

MATERIAL PROPERTIES

CLIENT: JOYCE ENGINEERING, INC

PROJECT: DAVIDSON COUNTY LANDFILL

Date Received: **7/29/2005**
Date Reported: **8/2/2005**
Client Sample ID: **R#230237.05 L#CRM811420**
Material Description: **40 mil Microspike LLDPE Geomembrane**

QC'd By: _____
PGL Job No.: **G050769**
PGL Control No.: **13199**

METHOD	DESCRIPTION	SPECIMENS 1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
ASTM D5994	Thickness (mils)															
	Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz) Loading Time: 5 sec Specimen Size: 4" x 4"														
		42	42	41	41	41	42	42	43	41	41	41	1	41	43	
ASTM D1505	Density (grams/ cm.3)															
		0.9379	0.9379	0.9379								0.9379	0.0000	0.9379	0.9379	
ASTM D638	Tensile Properties:															
Type IV	*Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2^{0}C (73.4+/-3.6^{0}F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 20"/min (VLDPE/LLDPE)*															
	Tensile Strength at Break (lbs/ in.- width)															
	MD	138	158	129	137	172						147	18	129	172	
	TD	156	132	139	138	127						138	11	127	156	
	Elongation at Break (percent) *Gauge Length = 2.0 in. (GRI-GM13 Mod)*															
	MD	493	402	484	484	526						478	46	402	526	
	TD	612	517	572	552	586						568	36	517	612	
ASTM D1004	Tear Resistance (lbs)															
Die C	*Machine: Tensile machine equipped with constant rate of extension and chart recorder.*															
	MD	31	32	29	30	34	30	31	31	31	35	31	2	29	35	
	TD	29	25	30	30	28	29	26	25	31	30	28	2	25	31	
ASTM D1603	Carbon Black Content (percent)															
		2.65	2.72									2.69	0.05	2.65	2.72	
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
		1	1	1	1	1	1	1	1	1	1	1	N/A	N/A	N/A	
ASTM D1238	Melt Flow Index (grams/ 3 minutes)															
Procedure A	*Condition FR-190/2.16.; Thin 0.1-0.25" specimen strips were charged to the cylinder at a test temperature of 190^{0}C and 2.16kg load.*															
		0.0887	0.0878	0.0889								0.0885	0.0006	0.0878	0.0889	

_____
MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION
DC#1987 Record #268

Precision Geosynthetic Laboratories

ISO 9001 - 2000

TABLE 2.

MATERIAL PROPERTIES

CLIENT: JOYCE ENGINEERING, INC

PROJECT: DAVIDSON COUNTY LANDFILL

Date Received: **7/29/2005**
Date Reported: **8/2/2005**
Client Sample ID: **R#230344.05 L#CRM811420**
Material Description: **40 mil Microspike LLDPE Geomembrane**

QC'd By: _____
PGL Job No.: **G050769**
PGL Control No.: **13200**

METHOD	DESCRIPTION	SPECIMENS 1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
ASTM D5994	Thickness (mils)															
	Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)															
	Loading Time: 5 sec Specimen Size: 4" x 4"															
		40	42	41	41	42	43	43	42	42	42	42	1	40	43	
ASTM D1505	Density (grams/ cm.3)															
		0.9372	0.9372	0.9372								0.9372	0.0000	0.9372	0.9372	
ASTM D638 Type IV	Tensile Properties:															
	Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2^{0}C (73.4+/-3.6^{0}F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 20"/min (VLDPE/LLDPE)															
	Tensile Strength at Break (lbs/ in.- width)															
	MD	197	198	168	175	189						185	14	168	198	
	TD	152	166	152	154	149						155	7	149	166	
	Elongation at Break (percent) *Gauge Length = 2.0 in. (GRI-GM13 Mod)*															
	MD	354	482	446	494	518						459	64	354	518	
	TD	625	638	564	680	570						615	49	564	680	
ASTM D1004 Die C	Tear Resistance (lbs)															
	Machine: Tensile machine equipped with constant rate of extension and chart recorder.															
	MD	35	32	32	37	34	35	33	32	32	33	34	2	32	37	
	TD	27	32	31	31	32	29	29	30	30	32	30	2	27	32	
ASTM D1603	Carbon Black Content (percent)															
		2.42	2.51									2.47	0.06	2.42	2.51	
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
		1	1	1	1	1	1	1	1	1	1	1	N/A	N/A	N/A	
ASTM D1238 Procedure A	Melt Flow Index (grams/ 3 minutes)															
	Condition FR-190/2.16.; Thin 0.1-0.25" specimen strips were charged to the cylinder at a test temperature of 190^{0}C and 2.16kg load.															
		0.0845	0.0857	0.0841								0.0848	0.0008	0.0841	0.0857	

_____
MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION
DC#1987 Record #268

Precision Geosynthetic Laboratories

ISO 9001 - 2000

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: N. Melaro
Date: Monday 8-Aug 2005
Page: 1 of 34

Summary of Activities: Mid-America Lining Company begins Davidson County Landfill Areas 1 and 3 Partial Closure Project. Deploy 32 rolls of geonet composite on the south facing slope starting from the west end. Geonet overlapped approximately 6-inches and tied at 5-foot intervals.

Geonet composite coverage 3500 sf x 32 rolls = 112,000 sf. Refer to as-built drawing for location.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: N. Melaro
Date: Tuesday 9-Aug 2005
Page: 2 of 34

Summary of Activities: No work today due to rain. Rain gauge at 8:00 A.M. reading 1.0 inches.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: N. Melaro
Date: Wedn. 10-Aug 2005
Page: 3 of 34

Summary of Activities: Site is wet from rain during past 24-hours. MAL is unable to work today. Shamrock Environmental begins removing silt and repairing silt fences.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: N. Melaro
Date: Thursday 11-Aug 2005
Page: 4 of 34

Summary of Activities: MAL begins deploy Bentomat ST GCL on the south slope. 14 rolls were installed = 31,500 sf. All GCL was covered with 40-mil LLDPE at the completion of the work day. Panels 1-5 = 32,062 sf. Refer to as-built drawing for location.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: N. Melaro
Date: Friday 12-Aug 2005
Page: 5 of 34

Summary of Activities: MAL deploys 16 rolls of Bentomat and panels 6-14 on the south slope. 16 rolls of Bentomat = 36,000 sf; panels 6-14 cover approximately 40,000 sf. Fusion weld all panel seams, and air test all seams. Cut destructive seam samples 1 through 4. Ship DS 1-4 to Precision Geosynthetic Laboratory in Houston Texas for laboratory CQA testing of the seam weld quality.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: N. Melaro
Date: Saturday 13-Aug 2005
Page: 6 of 34

Summary of Activities: MAL deploys 17 rolls of Bentomat and panels 15-21 of 40-mill LLDPE on the south slope. Bentomat 17 rolls = 38,250 sf; geomembrane panels approximately 42,525 sf. Air test seaming completed yesterday.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Sunday 14-Aug 2005
Page: 7 of 34

Summary of Activities: MAL deploys 22 rolls of geocomposite on the south slope covering 77,000 sf. Air test all seams completed to date, patch all destructive test and other damaged locations.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: N. Melaro
Date: Monday 15-Aug 2005
Page: 8 of 34

Summary of Activities: MAL deploys 8 rolls of Bentomat = 18,000 sf, and 8 rolls of Claymax 200R = 18,000 sf. Panels 22-28 = approximately 42,525 sf. Cut destructive samples 5 through 11. Repair test locations, install boot and skirt on GV1 and GV2.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: N. Melaro
Date: Tuesday 16-Aug 2005
Page: 9 of 34

Summary of Activities: MAL deploys GCL on east end of south slope; 2 rolls of Bentomat = 4,500 sf and 5 rolls of Claymax = 11,250 sf, geomembrane panels 29, 30, and 31 = approximately 18,000 sf. Weld deployed panel seams.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: N. Melaro
Date: Wedn. 17-Aug 2005
Page: 10 of 34

Summary of Activities: Site is wet from over night rain, 0.1-inch of rain in gauge at 8:00 A.M. MAL begins detail and repair work at 9:00 A.M. Vacuum test all work completed up to date. Cut DS 12-16 and DS7A and 7B, ship to PGL in Houston. SEC begins to backfill south slope anchor trench from the west end.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: N. Melaro
Date: Thursday 18-Aug 2005
Page: 11 of 34

Summary of Activities: Site is wet from 0.1-inch rain at 9:00 A.M. MAL unable to work today.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Friday 19-Aug 2005
Page: 12 of 34

Summary of Activities: Morning drizzle and foggy, rain gauge 0.35-inches over 24-hrs period. MAL begins at 9:00 A.M. installing geocomposite drainage layer on the south slope over the area where geomembrane installation has been completed. Deploy 29 rolls of geocomposite = 101,500 sf, covering panels 1 through 20. Tie geocomposite edges at 5 foot intervals and tack weld top layer of geotextile of the drainage layer geocomposite.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Saturday 20-Aug 2005
Page: 13 of 34

Summary of Activities: MAL deploys 17 rolls of geocomposite drainage layer = 59,500 sf covering geomembrane panels upto panel 30. Tie the geocomposite edges at 5-foot intervals and heat bond the top geotextile continuously. East slope and top of closure area needs fine grading following erosion from runoff. SEC to work on grading and cut anchor trench at east end. Very hot day, MAL plans not to work tomorrow, Sunday. Clean up site from GCL wraps, roll cores, and geomembrane scraps.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Sunday 21-Aug 2005
Page: 14 of 34

Summary of Activities: No work today.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Monday 22-Aug 2005
Page: 15 of 34

Summary of Activities: SEC prepares soil cover on top and east end for MAL to continue. MAL deploys 11 rolls of geocomposite = 38,500 sf, 17 rolls of Claymax 200R = 38,250 sf, and panels 32, 33, and 34 of geomembrane = 31,837 sf on top of the closure area. SEC begins placing soil on south slope over the drainage layer geocomposite.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Tuesday 23-Aug 2005
Page: 16 of 34

Summary of Activities: MAL deploys 33 rolls of geocomposite = 115,500 sf on the east slope. Fusion weld geomembrane panels 32, 33, and 34 and tie panel 32 with panels 1-24, refer to as-built drawing. SEC continues hauling and placing soil cover over south slope.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Wedn. 24-Aug 2005
Page: 17 of 34

Summary of Activities: MAL deploys 5 rolls of Claymax 200R on top of closure area = 11,250 sf, 27 rolls of Bentomat ST on east slope = 60,750 sf, total GCL = 72,000 sf. Deploy and weld panels 35-54 covering the SE corner of the closure area = approximately 63,308 sf. Cut DS 17 through 20, and repair damage to liner.

SEC continues hauling and placing cover soil on south slope.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Thursday 25-Aug 2005
Page: 18 of 34

Summary of Activities: MAL deploys 24 rolls of Bentomat ST on east slope = 54,000 sf, panels 55-62 approximately = 55,620 sf, repair and vacuum test all patches on top of closure area. Begin placing geocomposite drainage layer on top of the closure area covering geomembrane panels 32, 33, and 34 approximately 38,500 sf. Cut DS 21-30 and ship to PGL in Houston , Tx.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Friday 26-Aug 2005
Page: 19 of 34

Summary of Activities: MAL deploys 5 rolls of Claymax 200R = 11,250 sf, and geomembrane panels 65-70 approximately 11,385 sf. Fusion weld all seams, air test and cut DS 31 and 32, ship to PGL for laboratory testing of seam strength. At the end of day, add two rolls = 7,000 sf of geocomposite on the east slope. SEC hauls soil to cover south slope and west end at the top.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Saturday 27-Aug 2005
Page: 20 of 34

Summary of Activities: MAL deploys GCL and geomembrane on the east slope. 8 rolls of Bentomat = 18,000 sf, panels 71-76 approximately 17,636 sf. Repair test locations. In the afternoon, deploy 23 rolls of geocomposite = 80,500 sf to cover SE corner upto panel #56. SEC hauls soil to cover areas completed by MAL.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Sunday 28-Aug 2005
Page: 21 of 34

Summary of Activities: No work on the closure project.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Monday 29-Aug 2005
Page: 22 of 34

Summary of Activities: MAL deploys GCL and geomembrane on the NE corner of the closure area. 20 rolls of Bentomat ST = 45,000 sf, geomembrane panels 77-90 = approximately 46,594 sf. Fusion weld placed panel seams and air test the seams. Cut DS 33-37 and ship to PGL for laboratory testing. In the afternoon, deploy 24 rolls = 84,000 sf of geocomposite on the north slope. SEC hauls and places cover soil on areas completed by MAL.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Tuesday 30-Aug 2005
Page: 23 of 34

Summary of Activities: MAL repairs test locations and other damage to liner, air test and destructive test locations, panels 77-90 in the NE corner of the closure area. Sky dark from Hurricane Katrina's cloud cover, windy and the wind increasing and gusty. MAL crew leaves site at 11:00 A.M.
SEC hauls soil for cover.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Wedn. 31-Aug 2005
Page: 24 of 34

Summary of Activities: Windy day, clear and sunny, rain gauge 0.15 inches from rain yesterday.

A.M. MAL deploys geocomposite over the NE corner area panels 77-90, approximately 50,000 sf.

P.M. MAL deploys geocomposite on the north slope 37 rolls = 91,650 sf.

SEC haul and place cover soil and excavate anchor trench.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Thursday 1-Sep 2005
Page: 25 of 34

Summary of Activities: MAL deploys Bentomat ST on north slope over the area covered with geocomposite yesterday, 36 rolls = 81,000 sf. Half of the crew working on this project MAL borrowed from EFI. The EFI crew left the project on Tuesday, 8/30 to another project in SC. MAL is now waiting for its own crew and equipment to arrive. Because lacking crew and welding equipment, MAL cannot deploy geomembrane liner today. SEC fine grade north slope subgrade for MAL and haul soil to cover areas completed by MAL, excavate anchor trench.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
JEI CQA:	H.Kemppinen
Date:	Friday 2-Sep 2005
Page:	26 of 34

Summary of Activities: Additional crew arrives with MAL equipment (welders, generators, tensiometer). Deploy geomembrane panels 91-114 on north slope, approximately 84,870 sf. Weld seams, air test, and cut DS 38-45, ship to PGL for laboratory peel and shear testing. In the afternoon, deploy more geocomposite further westward on the north slope, 28 rolls = 98,000 sf.

SEC hauls soil for cover and berms, excavate anchor trench and cover completed areas, smoothdrum north slope to prepare subgrade for synthetic materials.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Saturday 3-Sep 2005
Page: 27 of 34

Summary of Activities: Air test welded seams upto panel 114, repair test locations, deploy GCL on north slope to about half way between gas vents 12 and 13, 44 rolls of Bentomat ST = 99,000 sf, and 5 rolls of Claymax 200R = 11,250 sf. In the afternoon, deploy 18 rolls = 63,000 sf of geocomposite, and continue air testing and repairs.

SEC place cover soil and berms.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Sunday 4-Sep 2005
Page: 28 of 34

Summary of Activities: MAL deploys 28 roll of geocomposite = 98,000 sf on the west end of north slope. This completes the north slope gas migration layer. Deploy geomembrane panels 115-130, and 6 rolls of Claymax R200 on the top = 13,500 sf. Weld all panel seams, vacuum box test repairs. SEC place cover soil and berms.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Monday 5-Sep 2005
Page: 29 of 34

Summary of Activities: MAL caps 200 feet of panels 115-116 seam, cuts panels 125-126 seam and rewelds it. The fusion welder machine C7 developed a problem during Sunday and cocequently two of the seams welded were found unsatisfactory. MAL decided to respond to the problem immediately to prevent further problems in the seam welding. Cut DS 46-56.
SEC place cover soil and berms.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Tuesday 6-Sep 2005
Page: 30 of 34

Summary of Activities: Repair air test and destructive test locations on panels 115-130, deploy GCL on the western end of north slope and top of the closure area; Bentomat ST 12 rolls = 27,000 sf, Claymax 200R 4 rolls = 9,000 sf, and Geocomposite 6 rolls = 21,000 sf. Ship DS 46-54 to PGL for lab testing of seam quality. Conduct vacuum box testing on repairs.
SEC place cover soil and berms.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Wedn. 7-Sep 2005
Page: 31 of 34

Summary of Activities: MAL deploys 21 rolls of Bentomat ST = 47,250 sf, geomembrane panels 131-136 = 40,230 sf. Over the panels completed previously MAL deploys 18 rolls of geocomposite drainage layer = 63,000sf. Tie geonet edges at 5-foot increments and heat-bond the top geotextile. Fusion weld deployed panel seams.

SEC place cover soil and berms.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Thursday 8-Sep 2005
Page: 32 of 34

Summary of Activities: MAL deploys geomembrane panels 137-149 = 61,319 sf, completing the north slope membrane cap. Deploy geocomplosite 13 rolls = 45,500 sf over previously completed area.
Cut and ship DS 57-67 to PGL for laboratory testing.
SEC place cover soil and berms.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Friday 9-Sep 2005
Page: 33 of 34

Summary of Activities: Repair liner test locations, conduct air testing, and vacuum box testing.
SEC hauls and places soil cover and berms.

JOYCE ENGINEERING, INC.

CQA Daily Field Report

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
JEI CQA: H.Kemppinen
Date: Saturday 10-Sep 2005
Page: 34 of 34

Summary of Activities: MAL deploys geocomposite over panels 131-149 totaling 35 rolls = 122,500 sf.
This completes the synthetic cap for the partial closure. MAL begins to demobilize.
SEC hauls and places soil cover and berms.

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: N.MELARO
Day & Date: Thursday, 8/11/2005
Page: 1 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	14:00	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	90F	90	90	90	PASS	Extensiometer a dial
Welder ID	CL	90	90	90	PASS	gauge unit with display
F / E Machine	20238	90	90	90	PASS	of 5 ppi increments.
Temp.	700F	90	90	85	PASS	
Speed	7.0	85	85	90	PASS	
Time	14:10	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	80	85	85	PASS	
Welder ID	DL	85	85	85	PASS	
F / E Machine	1899	85	85	85	PASS	
Temp.	750F	85	85	85	PASS	
Speed	6.0	80	80	80	PASS	
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: N.MELARO
Day & Date: Friday, 8/12/2005
Page: 2 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	14:00	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	90F	75	75	70	PASS	Extensiometer a dial
Welder ID	CL	75	75	60	PASS	gauge unit with display
F / E Machine	20238	70	65	65	PASS	of 5 ppi increments.
Temp.	700F	70	70	70	PASS	
Speed	7.0	70	70	70	PASS	
Time	14:10	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	80	85	70	PASS	
Welder ID	JH	75	65	75	PASS	
F / E Machine	1899	70	60	70	PASS	
Temp.	750F	75	75	65	PASS	
Speed	6.0	75	65	65	PASS	
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: N.MELARO
Day & Date: Saturday, 8/13/2005
Page: 3 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	13:49	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	90F	75	75	70	PASS	Extensiometer a dial
Welder ID	CL	60	65	65	PASS	gauge unit with display
F / E Machine	20238	75	70	65	PASS	of 5 ppi increments.
Temp.	700F	70	65	65	PASS	
Speed	9.0	75	65	70	PASS	
Time	14:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	75	75	75	PASS	
Welder ID	DL	75	70	70	PASS	
F / E Machine	1899	80	80	75	PASS	
Temp.	750F	80	70	65	PASS	
Speed	6.0	85	75	70	PASS	
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.KEMPPINEN
Day & Date: Sunday, 8/14/2005
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Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	9:00	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	90F	80		80	PASS	Extensiometer a dial
Welder ID	GR	80		80	PASS	gauge unit with display
F / **E** Machine	1396	80		80	PASS	of 5 ppi increments.
Temp.	400F					
Preheat	350F					
Time	13:00	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	95F	75		65	PASS	
Welder ID	GR	75		75	PASS	
F / **E** Machine	1396	70		65	PASS	
Temp.	400F					
Preheat	350F					
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.KEMPPINEN
Day & Date: Monday, 8/15/2005
Page: 5 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	7:30	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	85F	80		90	PASS	Extensiometer a dial
Welder ID	GR	85		92	PASS	gauge unit with display
F / **E** Machine	1396	80		80	PASS	of 5 ppi increments.
Temp.	400F					
Preheat	350F					
Time	13:00	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	100F	65	70	70	PASS	
Welder ID	CL	65	70	70	PASS	
F / E Machine	20238	65	65	65	PASS	
Temp.	700F					
Speed	9.0					
Time	13:00	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	100F	70	65	65	PASS	
Welder ID	DL	70	70	70	PASS	
F / E Machine	1899	65	65	70	PASS	
Temp.	750F					
Speed	6.0					
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: N.MELARO
Day & Date: Tuesday, 8/16/2005
Page: 6 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	7:30	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	90	90	90	PASS	Extensiometer a dial
Welder ID	CL	90	85	95	PASS	gauge unit with display
F / E Machine	20238	90	80	90	PASS	of 5 ppi increments.
Temp.	750F	90	90	90	PASS	
Speed	8.0	80	80	80	PASS	
Time	10:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	80	82	87	PASS	
Welder ID	DL	80	80	85	PASS	
F / E Machine	1899	80	85	90	PASS	
Temp.	750.0	85	85	90	PASS	
Speed	6.0	80	80	87	PASS	
Time	13:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	95F	70		80	PASS	
Welder ID	JH	75		75	PASS	
F / **E** Machine	0001	70		75	PASS	
Temp.	400F	65		75	PASS	
Preheat	350F	60		80	PASS	
Time	13:40	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	95F	80		80	PASS	
Welder ID	GR	75		80	PASS	
F / **E** Machine	10300	75		80	PASS	
Temp.	400F	75		75	PASS	
Preheat	350F	75		80	PASS	

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: N.MELARO
Day & Date: Wednesday, 8/17/2005
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Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	9:30	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	85		80	PASS	Extensiometer a dial
Welder ID	JH	80		80	PASS	gauge unit with display
F / **E** Machine	0001	85		85	PASS	of 5 ppi increments.
Temp.	400F	85		85	PASS	
Preheat	350F	80		80	PASS	
Time	9:35	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	90		100	PASS	
Welder ID	GR	95		95	PASS	
F / **E** Machine	10300	85		95	PASS	
Temp.	400F	85		95	PASS	
Preheat	350.0	90		95	PASS	
Time	13:00	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	80		85	PASS	
Welder ID	JH	85		90	PASS	
F / **E** Machine	0001	85		85	PASS	
Temp.	400F	80		85	PASS	
Preheat	350F	85		85	PASS	
Time	13:10	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	80		85	PASS	
Welder ID	GR	80		80	PASS	
F / **E** Machine	10300	85		80	PASS	
Temp.	400F	85		80	PASS	
Preheat	350F	80		85	PASS	

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Tuesday, 8/23/05
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Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	8:30	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	85F	100		85	PASS	Extensiometer a dial
Welder ID	AJ	90		85	PASS	gauge unit with display
F / **E** Machine	085	90		85	PASS	of 5 ppi increments.
Temp.	300F					
Preheat	250F					
Time	13:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	95	100	95	PASS	
Welder ID	CL	95	95	100	PASS	
F / E Machine	20238	90	95	100	PASS	
Temp.	800F					
Speed	7.0					
Time	13:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	90	95	100	PASS	
Welder ID	DL	95	95	95	PASS	
F / E Machine	1899	90	90	100	PASS	
Temp.	750F					
Speed	6.0					
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Preheat						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Wednesday, 8/24/05
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Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	14:25	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	90	90	95	PASS	Extensiometer a dial
Welder ID	CL	90	105	95	PASS	gauge unit with display
F / E Machine	20238	90	90	90	PASS	of 5 ppi increments.
Temp.	800F					
Speed	7.0					
Time	14:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	85	80	100	PASS	
Welder ID	DL	85	90	100	PASS	
F / E Machine	1899	95	90	100	PASS	
Temp.	750.0					
Speed	6.0					
Time	15:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	80		95	PASS	
Welder ID	AJ	95		95	PASS	
F / **E** Machine	100	80		95	PASS	
Temp.	450					
Preheat	100					
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Preheat						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Thursday, 8/25/05
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Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	7:30	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	75F	100		95	PASS	Extensiometer a dial
Welder ID	AJ	100		100	PASS	gauge unit with display
F / **E** Machine	100	100		95	PASS	of 5 ppi increments.
Temp.	450F					
Preheat	100F					
Time	13:12	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	85	85	90	PASS	
Welder ID	CL	90	90	95	PASS	
F / E Machine	20238	95	90	85	PASS	
Temp.	800F					
Speed	7.0					
Time	13:21	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	80	80	80	PASS	
Welder ID	DL	75	70	80	PASS	
F / E Machine	1899	80	80	80	PASS	
Temp.	750F					
Speed	6.0					
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Preheat						

JOYCE ENGINEERING, INC.

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
Material:	40-mil LLDPE
JEI CQA:	H.Kemppinen
Day & Date:	Friday, 8/26/05
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Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel_42_ppi Shear_54_ppi
Project Seam Requirements: (Extrusion) Peel_36_ppi Shear_54_ppi

Settings		Test results				
Time	7:50	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	75F	100		100	PASS	Extensiometer a dial
Welder ID	GR	90		85	PASS	gauge unit with display
F / **E** Machine	8500	110		85	PASS	of 5 ppi increments.
Temp.	480F					El dia es hermoso
Preheat	360F					
Time	7:50	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	75F	100		90	PASS	
Welder ID	AJ	90		85	PASS	
F / **E** Machine	100	95		85	PASS	
Temp.	450F					
Preheat	100F					
Time	12:45	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	90		90	PASS	
Welder ID	GR	80		90	PASS	
F / **E** Machine	8500	90		90	PASS	La tardes es hermosa
Temp.	480F					
Preheat	360F					
Time	12:45	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	90		85	PASS	
Welder ID	AJ	85		90	PASS	
F / **E** Machine	100	85		90	PASS	
Temp.	450F					
Preheat	100F					

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Saturday, 8/27/05
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Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	7:30	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	75F	90		90	PASS	Extensiometer a dial
Welder ID	AJ	80		90	PASS	gauge unit with display
F / **E** Machine	100	90		90	PASS	of 5 ppi increments.
Temp.	450F					
Preheat	100F					
Time	7:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	75F	80		90	PASS	
Welder ID	GR	85		95	PASS	
F / **E** Machine	8500	85		90	PASS	
Temp.	480F					
Preheat	360F					
Time	10:02	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	90	85	85	PASS	
Welder ID	DL	80	85	85	PASS	
F / E Machine	1899	85	85	90	PASS	
Temp.	750F					
Speed	6.0					
Time	10:02	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	80	85	90	PASS	
Welder ID	CL	85	85	90	PASS	
F / E Machine	20238	80	85	90	PASS	
Temp.	800F					
Speed	7.0					

JOYCE ENGINEERING, INC.

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
Material:	40-mil LLDPE
JEI CQA:	H.Kemppinen
Day & Date:	Saturday, 8/27/05
Page:	13 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	14:05	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	90F	80		90	PASS	Extensiometer a dial
Welder ID	GR	80		90	PASS	gauge unit with display
F / **E** Machine	8500	85		90	PASS	of 5 ppi increments.
Temp.	460F					
Preheat	300F					
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / **E** Machine						
Temp.						
Preheat						
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Monday, 8/29/05
Page: 14 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	9:52	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	90F	90	90	95	PASS	Extensiometer a dial
Welder ID	DL	95	90	95	PASS	gauge unit with display
F / E Machine	1899	85	90	90	PASS	of 5 ppi increments.
Temp.	750F					
Speed	6.0					
Time	10:45	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	85	85	90	PASS	
Welder ID	CL	85	90	90	PASS	
F / E Machine	20238	95	90	95	PASS	
Temp.	800F					
Speed	7.0					
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Tuesday, 8/30/05
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Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	7:40	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	85		90	PASS	Extensiometer a dial
Welder ID	AJ	80		85	PASS	gauge unit with display
F / **E** Machine	100	80		80	PASS	of 5 ppi increments.
Temp.	450F					
Preheat	100F					
Time	7:40	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	100		90	PASS	
Welder ID	GR	90		90	PASS	
F / **E** Machine	8500	80		90	PASS	
Temp.	460F					
Preheat	300F					
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Friday, 9/2/05
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Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	9:18	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	64	78	90	PASS	SM to SM
Welder ID	JR	77	75	94	PASS	(smooth to smooth)
F / E Machine	C7	73	79	91	PASS	
Temp.	750F	71	85	87	PASS	Digital PWT tensiometer
Speed	60.0	76	68	90	PASS	
Time	9:20	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	79	88	85	PASS	TXT to TXT
Welder ID	JR	81	86	91	PASS	(textured to textured)
F / E Machine	C7	73	84	94	PASS	
Temp.	750F	77	84	91	PASS	
Speed	60.0	81	85	84	PASS	
Time	9:20	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	72	87	92	PASS	SM to SM
Welder ID	EM	73	89	91	PASS	
F / E Machine	C5	64	59	89	PASS	
Temp.	750F	86	77	95	PASS	
Speed	60.0	81	81	92	PASS	
Time	9:25	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	68	76	77	PASS	TXT to TXT
Welder ID	EM	65	76	82	PASS	
F / E Machine	C5	65	68	88	PASS	
Temp.	750F	64	70	78	PASS	
Speed	60.0	73	73	85	PASS	

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Friday, 9/2/05
Page: 17 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	13:50	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	90F	70	62	69	PASS	SM to SM
Welder ID	EM	67	68	70	PASS	(smooth to smooth)
F / E Machine	C5	67	69	64	PASS	
Temp.	700F	69	75	66	PASS	Digital PWT tensiometer
Speed	65.0	75	75	65	PASS	
Time	13:45	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	56	63	64	PASS	TXT to TXT
Welder ID	EM	62	67	59	PASS	(textured to textured)
F / E Machine	C5	63	67	61	PASS	
Temp.	700F	60	60	63	PASS	
Speed	65.0	67	66	60	PASS	
Time	9:20	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	66	71	69	PASS	SM to SM
Welder ID	JR	62	64	70	PASS	
F / E Machine	C7	64	71	71	PASS	
Temp.	700F	61	68	71	PASS	
Speed	65.0	70	73	68	PASS	
Time	9:25	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	60	67	65	PASS	TXT to TXT
Welder ID	JR	67	69	62	PASS	
F / E Machine	C7	73	76	70	PASS	
Temp.	700F	70	65	63	PASS	
Speed	65.0	69	67	60	PASS	

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Saturday, 9/3/05
Page: 18 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	8:00	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	88		84	PASS	Digital PWT tensiometer
Welder ID	MS	81		85	PASS	
F / **E** Machine	MXO	85		91	PASS	
Temp.	500F	91		93	PASS	
Preheat	300F	78		87	PASS	
Time	8:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	86		87	PASS	
Welder ID	AJ	81		77	PASS	
F / **E** Machine	MX100	82		76	PASS	
Temp.	450F	80		79	PASS	
Preheat	100F	82		82	PASS	
Time	13:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	62		60	PASS	
Welder ID	MS	65		61	PASS	
F / **E** Machine	MXO	63		69	PASS	
Temp.	500F	57		64	PASS	
Preheat	300F	66		65	PASS	
Time	13:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	70		72	PASS	
Welder ID	AJ	71		75	PASS	
F / **E** Machine	MX100	71		69	PASS	
Temp.	450F	70		74	PASS	
Preheat	100F	69		70	PASS	

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Sunday, 9/4/05
Page: 19 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	8:00	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	70	75	94	PASS	Digital PWT tensiometer
Welder ID	EM	78	68	94	PASS	sm to sm
F / E Machine	C5	74	73	97	PASS	
Temp.	750F	77	73	92	PASS	
Speed	60.0	81	69	93	PASS	
Time	8:05	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	69	63	91	PASS	txt to txt
Welder ID	EM	77	80	83	PASS	
F / E Machine	C5	74	75	85	PASS	
Temp.	750F	69	77	83	PASS	
Speed	60.0	75	78	94	PASS	
Time	8:00	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	82	81	95	PASS	sm to sm
Welder ID	JR	83	82	95	PASS	
F / E Machine	C7	80	81	96	PASS	
Temp.	750F	83	78	95	PASS	
Speed	60.0	86	82	96	PASS	
Time	8:05	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	81	86	92	PASS	txt to txt
Welder ID	JR	79	77	90	PASS	
F / E Machine	C7	96	92	90	PASS	
Temp.	750F	101	94	93	PASS	
Speed	60.0	78	74	95	PASS	

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Sunday, 9/4/05
Page: 20 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	13:00	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	90F	73	69	73	PASS	Digital PWT tensiometer
Welder ID	EM	63	69	73	PASS	sm to sm
F / E Machine	C5	59	66	72	PASS	
Temp.	750F	59	68	74	PASS	
Speed	65.0	67	69	76	PASS	
Time	13:05	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	75	78	64	PASS	txt to txt
Welder ID	EM	78	76	63	PASS	
F / E Machine	C5	79	76	68	PASS	
Temp.	750F	77	74	61	PASS	
Speed	65.0	71	76	60	PASS	
Time	13:00	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	82	84	71	PASS	sm to sm
Welder ID	JR	69	73	74	PASS	
F / E Machine	C7	70	72	70	PASS	
Temp.	750F	71	80	72	PASS	
Speed	60.0	82	85	73	PASS	
Time	13:05	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	90F	65	71	69	PASS	txt to txt
Welder ID	JR	64	68	72	PASS	
F / E Machine	C7	65	66	69	PASS	
Temp.	750F	63	68	69	PASS	
Speed	60.0	61	69	74	PASS	

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Monday, 9/5/05
Page: 21 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	9:00	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	57		76	PASS	Digital PWT tensiometer
Welder ID	MS	60		75	PASS	
F / **E** Machine	MXO	66		80	PASS	
Temp.	500F	68		81	PASS	
Preheat	300F	73		77	PASS	
Time	9:00	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	77		72	PASS	
Welder ID	AJ	76		74	PASS	
F / **E** Machine	MX100	75		77	PASS	
Temp.	450F	71		78	PASS	
Preheat	100F	74		80	PASS	
Time	9:20	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	81	79	84	PASS	
Welder ID	JR	78	82	87	PASS	
F / E Machine	C7	88	90	88	PASS	
Temp.	750F	95	99	83	PASS	
Speed	60.0	83	93	94	PASS	
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Tuesady, 9/6/05
Page: 22 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	8:00	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	82		90	PASS	Digital PWT tensiometer
Welder ID	AJ	88		93	PASS	
F / **E** Machine	MX100	87		93	PASS	
Temp.	450F	87		92	PASS	
Preheat	100F	85		88	PASS	
Time	13:40	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	77		78	PASS	
Welder ID	AJ	76		75	PASS	
F / **E** Machine	MX100	79		78	PASS	
Temp.	450F	78		76	PASS	
Preheat	100F	79		76	PASS	
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Wednesday, 9/7/05
Page: 23 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel_42_ppi Shear_54_ppi
Project Seam Requirements: (Extrusion) Peel_36_ppi Shear_54_ppi

Settings		Test results				
Time	13:30	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	85F	77	81	86	PASS	Digital PWT tensiometer
Welder ID	EM	80	82	88	PASS	
F / E Machine	C2	80	85	90	PASS	SM TO SM
Temp.	750F	82	82	89	PASS	
Speed	60.0	81	80	85	PASS	
Time	13:30	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	71	66	75	PASS	TXT TO TXT
Welder ID	EM	71	75	78	PASS	
F / E Machine	C2	73	69	71	PASS	
Temp.	750F	72	68	73	PASS	
Speed	60.0	69	74	74	PASS	
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						
Time		(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.						
Welder ID						
F / E Machine						
Temp.						
Speed						

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Thursday, 9/8/05
Page: 24 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	7:40	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	100	86	100	PASS	Digital PWT tensiometer
Welder ID	EM	98	97	87	PASS	
F / E Machine	C2	93	90	100	PASS	SM TO SM
Temp.	750F	98	96	93	PASS	
Speed	55.0	94	94	97	PASS	
Time	7:40	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	80F	92	95	96	PASS	TXT TO TXT
Welder ID	EM	97	99	97	PASS	
F / E Machine	C2	99	96	93	PASS	
Temp.	750F	94	91	95	PASS	
Speed	55.0	98	97	97	PASS	
Time	13:00	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	71	73	91	PASS	SM TO SM
Welder ID	EM	70	72	96	PASS	
F / E Machine	C2	69	71	93	PASS	
Temp.	750F	70	73	89	PASS	
Speed	60.0	69	73	94	PASS	
Time	13:00	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	76	73	95	PASS	TXT TO TXT
Welder ID	EM	70	69	97	PASS	
F / E Machine	C2	75	69	89	PASS	
Temp.	750F	72	71	87	PASS	
Speed	60.0	74	71	92	PASS	

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Friday, 9/9/05
Page: 25 of 25

Field Trial Seam Log

Project Seam Requirements: (Fusion) Peel 42 ppi Shear 54 ppi
Project Seam Requirements: (Extrusion) Peel 36 ppi Shear 54 ppi

Settings		Test results				
Time	8:00	(inside) Peel	(outside)	Shear	Pass/Fail	Notes
Amb.Temp.	80F	68		81	PASS	Digital PWT tensiometer
Welder ID	AJ	67		80	PASS	
F / **E** Machine	MX100	87		78	PASS	
Temp.	450F	76		82	PASS	
Preheat	100F	70		85	PASS	
Time	13:20	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	85		76	PASS	
Welder ID	JA	81		71	PASS	
F / **E** Machine	MXO	79		72	PASS	
Temp.	500F	82		64	PASS	
Preheat	350.0	77		69	PASS	
Time	13:25	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	84		92	PASS	
Welder ID	MS	83		91	PASS	
F / **E** Machine	MX13	89		84	PASS	
Temp.	450F	91		87	PASS	
Preheat	250F	77		86	PASS	
Time	13:20	(inside) Peel	(outside)	Shear	P/F	Notes
Amb.Temp.	85F	79		70	PASS	
Welder ID	AJ	70		63	PASS	
F / **E** Machine	MX100	72		74	PASS	
Temp.	450F	74		70	PASS	
Preheat	100F	74		71	PASS	

facsimile

TRANSMITTAL

to: Hanna - Joyce
fax# 336-323-0093
re: Davidson Co.
date: 9-19-05
pages: 3 w/ cover

Tensiometer calibration certs attached.

Thx!

From the desk of...

Jennifer Battle
Construction Coordinator
Mid America Lining Co., Inc.
P.O. Box 458
5203 Mt. Zion Rd.
Union City, TN 38261

731-885-8888
Fax: 731-885-8007
e-mail: maljennifer@ken-tennwireless.com

CERTIFICATION OF CALIBRATION

This is to certify that the following Dillon Dynamometer 500 lb Capacity

Serial No. D3965 has been calibrated to a tolerance of ± ½% accuracy full scale by the use of dead weights traceable to the National Institute of Standards and Technology.

Calibrated By [signature] Date of Calibrations 1-18-05

Plastic Welding Technologies

CALIBRATION CERTIFICATE

Customer Name: MID AMERICA LINING
Tensiometer Serial Number: NAL - 1605

110 Volt [X]
220 Volt [ ]
LBS

Device Calibrated: S-Type load cell
Range: 0-500 lbs. Tension
Model No: M2300-500
Serial No: 208875

Calibration Apparatus:
Dead Weight system w/
Fluke Model 8840A Multimeter

Readout Model No: 2840AG-24462
Readout Serial No: 06251575-5
Channel No: N/A

W1	2	R1	-8
W2	52	R2	1955
W3	302	R3	3921

Indicator reading with no load: 0

Applied Force lbs.	Output (mv):	Display reading:	Deviation Error:
2	-0.024	2	0.00
52	1.942	52	0.00
102	3.904	102	0.00
152	5.867	152	0.00
202	7.811	202	0.00
252	9.797	252	0.00
302	11.763	302	0.00

Total Deviation Error (%): 0.00%

Temperature at time of calibration: 73 degrees F
Exitation Voltage: 10 V DC

Scale Factor (1):	0.0764	Offset (1):	2
Scale Factor (2):	0.0763	Offset (2):	3
Break point:	1955	Calibration Check #	293

Traceable to NIST Standards

***NOTE: Readout and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated readouts and load cells are not interchangeable.**

This calibration conforms to the standards set by ASTM E4.

Calibration performed by: BILL AULTZ

Signature: BM

Date: 6/23/05

6125 Enterprise Drive, #10
Diamond Springs, CA 95619
800-635-6693

Ph: (530) 622-2791
Fax (530) 622-2704
www.pwtworld.com

JOYCE ENGINEERING, INC.

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
Material:	40-mil LLDPE
JEI CQA:	H. Kemppinen
Page:	5 of

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sq.ft)	Notes
						-	Daily total
							Cumulative total

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-MIL LLDPE
JEI CQA: N.MELARO

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sf)	Notes
P-1	8/11/2005	14:00	230465	22.5	285	6,413	
P-2	8/11/2005	14:15	230465	22.5	285	6,413	
P-3	8/11/2005	14:30	230357	22.5	285	6,413	
P-4	8/11/2005	14:45	230357	22.5	285	6,413	
P-5	8/11/2005	15:10	230461	22.5	285	6,413	
P-6	8/12/2005	14:30	230461	22.5	285	6,413	
P-7	8/12/2005	14:50	230356	22.5	285	6,413	
P-8	8/12/2005	15:15	230356	22.5	285	6,413	
P-9	8/12/2005	16:40	230459	19	60	570	Wedge shaped
P-10	8/12/2005	16:20	230459	22.5	66	1,485	
P-11	8/12/2005	16:00	230350	20	83	830	Wedge shaped
P-12	8/12/2005	15:45	230350	22.5	200	4,500	
P-13	8/12/2005	15:30	230350	22.5	285	6,413	
P-14	8/12/2005	17:00	230459	22.5	285	6,413	
P-15	8/13/2005	13:45	230458	22.5	285	6,413	
P-16	8/13/2005	14:00	230458	22.5	285	6,413	
P-17	8/13/2005	14:25	230467	22.5	285	6,413	
						90,748	Cumulative Total

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-MIL LLDPE
JEI CQA: N.MELARO

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sf)	Notes
P-18	8/13/2005	15:00	230467	22.5	285	6,413	
P-19	8/13/2005	15:20	230464	22.5	285	6,413	
P-20	8/13/2005	16:40	230464	22.5	285	6,413	
P-21	8/13/2005	17:00	230355	22.5	285	6,413	
P-22	8/15/2005	14:47	230355	22.5	285	6,413	
P-23	8/15/2005	15:23	230354	22.5	285	6,413	
P-24	8/15/2005	15:28	230354	22.5	285	6,413	
P-25	8/15/2005	15:35	230473	22.5	285	6,413	
P-26	8/15/2005	16:10	230473	22.5	285	6,413	
P-27	8/15/2005	17:00	230353	22.5	285	6,413	
P-28	8/15/2005	17:30	230355	22.5	285	6,413	
P-29	8/16/2005	10:45	230462	22.5	285	6,413	
P-30	8/16/2005	11:00	230462	22.5	285	6,413	
P-31	8/16/2005	11:15	230349	22.5	285	6,413	
						-	
						-	
						-	
						89,775	Subtotal
						180,523	Cumulative total

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-MIL LLDPE
JEI CQA: H.KEMPPINEN

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sf)	Notes
P32	8/22/2005	17:00	230460	22.5	470	10,575	
P33	8/22/2005	17:30	230474	22.5	470	10,575	
P34	8/22/2005	17:45	230576	22.5	475	10,688	
P35	8/24/2005	14:30	230472	22.5	260	5,850	
P36	8/24/2005	14:50	230472	22.5	260	5,850	
P37	8/24/2005	15:15	230470	22.5	260	5,850	
P38	8/24/2005	15:30	230470	22.5	180	4,050	
P39	8/24/2005	16:00	230470	22.5	160	3,600	
P40	8/24/2005	16:10	230575	22.5	150	3,375	
P41	8/24/2005	16:15	230575	22.5	139	3,128	
P42	8/24/2005	16:25	230575	22.5	128	2,880	
P43	8/24/2005	16:35	230575	22.5	114	2,565	
P44	8/24/2005	16:45	230344	22.5	80	1,800	
P45	8/24/2005	17:00	230344	22.5	54	1,215	
P46	8/24/2005	17:05	230470	22.5	26	585	
P47	8/24/2005	17:10	230344	20	26	240	Wedge shaped
P48	8/24/2005	17:30	230344	22.5	210	4,725	
P49	8/24/2005	17:50	230343	22.5	210	4,725	
						82,275	subtotal
						262,798	Cumulative total

JOYCE ENGINEERING, INC.

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
Material:	40-mil LLDPE
JEI CQA:	H. Kemppinen
Page:	4 of 10

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sg.ft)	Notes
P50	8/24/2005	18:05	230343	22.5	190	4,275	
P51	8/24/2005	18:15	230343	22.5	169	3,803	
P52	8/24/2005	18:25	230344	22.5	115	2,588	
P53	8/24/2005	18:35	230462	22.5	98	2,205	
P54	8/24/2005	18:55	230462	22.5	51	574	Wedge shaped
P55	8/25/2005	13:10	230471	22.5	250	5,625	
P56	8/25/2005	13:30	230471	22.5	254	5,715	
P57	8/25/2005	13:55	230758	22.5	254	5,715	
P58	8/25/2005	14:10	230758	22.5	244	5,490	
P59	8/25/2005	14:25	230240	22.5	250	5,625	
P60	8/25/2005	14:45	230240	22.5	250	5,625	
P61	8/25/2005	15:00	230237	22.5	245	5,513	
P62	8/25/2005	15:15	230237	22.5	245	5,513	
P63	8/25/2005	15:35	230246	22.5	240	5,400	
P64	8/25/2005	15:45	230246	22.5	240	5,400	
						69,064	subtotal
						331,861	Cumulative total

JOYCE ENGINEERING, INC.

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
Material:	40-mil LLDPE
JEI CQA:	H. Kemppinen
Page:	5 of 10

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sg.ft)	Notes
P65	8/26/05	16:00	230576	22.5	75	1,688	
P66	8/26/05	16:10	230346	22.5	106	2,385	
P67	8/26/05	16:15	230355	22.5	46	1,035	
P68	8/26/05	16:25	230459	22.5	135	3,038	
P69	8/26/05	16:35	230460	22.5	85	1,913	
P70	8/26/05	16:45	230472	22.5	59	1,328	
P71	8/27/05	10:30	230345	22.5	335	7,538	
P72	8/27/05	10:40	230345	22.5	260	5,850	
P73	8/27/05	10:55	230462	22.5	75	1,688	
P74	8/27/05	10:05	230462	22.5	85	1,913	
P75	8/27/05	10:15	230345	22.5	20	450	
P76	8/27/05	10:25	230462	9	22	198	
						29,021	subtotal
						360,882	Cumulative total

JOYCE ENGINEERING, INC.

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
Material:	40-mil LLDPE
JEI CQA:	H. Kemppinen
Page:	6 of 10

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sg.ft)	Notes
P77	8/29/05	10:20	328555	22.5	250	5,625	
P78	8/29/05	10:35	328555	22.5	227	5,108	
P79	8/29/05	11:10	320348	22.5	215	4,838	
P80	8/29/05	11:15	320348	22.5	203	4,568	
P81	8/29/05	11:20	320348	22.5	170	3,825	
P82	8/29/05	11:25	320341	22.5	166	3,735	
P83	8/29/05	11:30	320341	22.5	155	3,488	
P84	8/29/05	11:35	320341	22.5	145	3,263	
P85	8/29/05	11:40	328555	22.5	125	2,813	
P86	8/29/05	11:45	320341	22.5	120	2,700	
P87	8/29/05	11:55	320239	22.5	98	2,205	
P88	8/29/05	12:00	320239	22.5	82	1,845	
P89	8/29/05	12:02	320239	22.5	67	1,508	
P90	8/29/05	12:05	320239	22.5	48	1,080	
						46,598	subtotal
						407,479	Cumulative total

JOYCE ENGINEERING, INC.

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
Material:	40-mil LLDPE
JEI CQA:	H. Kemppinen
Page:	7 of 10

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sg.ft)	Notes
P91	9/2/05	10:20	238553	12	10	60	Wedge shaped
P92	9/2/05	10:15	238553	16	52	832	
P93	9/2/05	10:05	230563	22.5	123	2,768	
P94	9/2/05	9:45	328553	22.5	102	2,295	
P95	9/2/05	9:55	330563	22.5	95	2,138	
P96	9/2/05	9:40	328553	22.5	255	5,738	
P97	9/2/05	9:25	328333	22.5	87	1,958	
P98	9/2/05	9:35	328533	22.5	235	5,288	
P99	9/2/05	9:20	328333	22.5	347	7,808	
P100	9/2/05	9:15	328333	22.5	150	3,375	
P101	9/2/05	9:05	328557	22.5	217	4,883	
P102	9/2/05	9:00	328557	22.5	360	8,100	
P103	9/2/05	10:40	230235	22.5	325	7,313	
P104	9/2/05	10:30	330563	22.5	43	968	
P105	9/2/05	10:45	230235	22.5	218	4,905	
P106	9/2/05	10:50	230238	22.5	120	2,700	
P107	9/2/05	11:05	230238	22.5	138	3,105	
P108	9/2/05	14:35	330563	11	65	358	Wedge shaped
						64,587	subtotal
						472,066	Cumulative total

JOYCE ENGINEERING, INC.

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
Material:	40-mil LLDPE
JEI CQA:	H. Kemppinen
Page:	8 of 10

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sg.ft)	Notes
P109	9/2/05	14:25	230347	22.5	83	1,868	
P110	9/2/05	14:10	328558	18	136	1,224	Wedge shaped
P111	9/2/05	14:00	328558	22.5	278	6,255	
P112	9/2/05	14:20	230347	22.5	93	2,093	
P113	9/2/05	13:40	328558	22.5	330	7,425	
P114	9/2/05	11:10	230238	22.5	63	1,418	
P115	9/4/05	8:10	230347	22.5	395	8,888	
P116	9/4/05	8:25	230469	22.5	395	8,888	
P117	9/4/05	8:35	328551	22.5	220	4,950	
P118	9/4/05	8:45	230469	22.5	178	4,005	
P119	9/4/05	9:00	230575	22.5	16	360	
P120	9/4/05	8:55	328551	22.5	381	8,573	
P121	9/4/05	9:10	230579	22.5	397	8,933	
P122	9/4/05	9:50	230579	22.5	184	4,140	
P123	9/4/05	10:00	230342	22.5	218	4,905	
P124	9/4/05	10:50	230575	22.5	25	563	
P125	9/4/05	10:20	230342	22.5	375	8,438	
P126	9/4/05	13:00	328552	22.5	380	8,550	
						91,472	subtotal
						563,538	Cumulative total

JOYCE ENGINEERING, INC.

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
Material:	40-mil LLDPE
JEI CQA:	H. Kemppinen
Page:	9 of 10

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sg.ft)	Notes
P127	9/4/05	13:15	328552	22.5	188	4,230	
P128	9/4/05	13:25	328556	22.5	213	4,793	
P129	9/4/05	13:30	230354	22.5	22	495	
P130	9/4/05	13:35	328556	22.5	378	8,505	
P131	9/7/05	13:30	328449	22.5	398	8,955	
P132	9/7/05	13:45	328449	22.5	190	4,275	
P133	9/7/05	14:00	328554	22.5	210	4,725	
P134	9/7/05	14:15	328554	22.5	395	8,888	
P135	9/7/05	14:30	328450	22.5	395	8,888	
P136	9/7/05	14:45	328450	22.5	200	4,500	
P137	9/8/05	7:15	230352	22.5	203	4,568	
P138	9/8/05	8:10	230352	22.5	395	8,888	
P139	9/8/05	8:50	328448	22.5	395	8,888	
P140	9/8/05	9:00	328448	22.5	192	4,320	
P141	9/8/05	9:10	328559	22.5	204	4,590	
P142	9/8/05	9:25	328559	22.5	390	8,775	
						-	
						98,280	subtotal
						661,818	Cumulative total

JOYCE ENGINEERING, INC.

JEI Project:	379.00 Task 35
Project Name:	Partial Closure
Project Location:	Davidson County Landfill
Geosynthetics Installer:	Mid America Lining Co.
Material:	40-mil LLDPE
JEI CQA:	H. Kemppinen
Page:	10 of 10

Panel Deployment Log

Panel Number	Date	Time	Roll #	Width (ft)	Length (ft)	Area (sg.ft)	Notes
P143	9/8/05	13:00	230463	22.5	395	8,888	
P144	9/8/05	13:20	230463	22.5	188	4,230	
P145	9/8/05	13:30	230239	22.5	165	3,713	
P146	9/8/05	13:50	230239	22.5	87	1,958	
P147	9/8/05	14:00	230239	15	52	390	wedge shaped
P148	9/8/05	14:10	230237	22.5	80	1,800	
P149	9/8/05	14:20	230237	11	57	314	wedge shaped
						21,291	subtotal
						683,109	Cumulative total

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: N. Melaro
Day & Date: Thursday, 8/11/2005

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,	lative			Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P1/2A	285	285	DS-1	285	14:34	20238	CL	7.0	700	90	8/12/05	EZ	8:00	8:05	30	30	Pass	
P1/2B		285			14:34	20238	CL	7.0	700	90	8/12/05	EZ	8:10	8:15	30	30	Pass	Burnout
P1/2C		285			14:34	20238	CL	7.0	700	90	8/12/05	EZ	8:25	8:30	30	30	Pass	Burnout
P1/2D		285			14:34	20238	CL	7.0	700	90	8/12/05	EZ	8:35	8:40	30	30	Pass	Burnout
P1/2E		285			14:34	20238	CL	7.0	700	90	8/12/05	EZ	8:45	8:50	30	30	Pass	Burnout
P2/3A	285	570	DS-2	285	14:40	1899	DL	6.0	750	90	8/12/05	EZ	8:50	8:55	30	30	Pass	
P2/3B		570			14:40	1899	DL	6.0	750	90	8/12/05	EZ	9:00	9:05	30	30	Pass	Burnout
P3/4A	285	855	DS-3	285	15:40	20238	CL	7.0	700	90	8/12/05	EZ	9:10	9:15	30	30	Pass	
P3/4B		855			15:40	20238	CL	7.0	700	90	8/12/05	EZ	9:20	9:25	30	30	Pass	Burnout
P4/5A	285	1,140	DS-4	285	16:00	1899	DL	6.0	750	90	8/12/05	EZ	9:40	9:45	30	30	Pass	
P4/5B		1,140			16:00	1899	DL	6.0	750	90	8/12/05	EZ	9:55	10:00	30	30	Pass	Burnout
P4/5C		1,140			16:00	1899	DL	6.0	750	90	8/12/05	EZ	10:05	10:10	30	30	Pass	Burnout
Total Page	**1,140**	1,140																
Previous		**0**	0															
To Date		**1,140**	**4**	**285**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: N. Melaro
Day & Date: Friday, 8/12/2005

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,	lative			Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P5/6A	285	1425			15:18	20238	CL	9.0	700	90	8/13/05	JR	7:15	7:20	30	30	Pass	
P5/6B		1425			15:18	20238	CL	9.0	700	90	8/13/05	JR	7:25	7:30	30	30	Pass	
P6/7A	285	1710			15:35	1899	DL	6.0	750	90	8/13/05	JR	7:30	7:35	30	30	Pass	
P6/7B		1710			15:35	1899	DL	6.0	750	90	8/13/05	JR	7:25	7:30	30	30	Pass	
P7/8A	285	1995	DS-5	399	16:10	20238	CL	9.0	700	90	8/13/05	JR	8:05	8:10	30	30	Pass	
P7/8B		1995	DS-7B		16:10	20238	CL	9.0	700	90	8/13/05	JR	8:00	8:05	30	30	Pass	Re-test
P8/9	60	2055			17:46	20238	CL	9.0	700	90	8/13/05	JR	8:50	8:55	30	30	Pass	
P8/11B	80	2135			17:15	20238	CL	9.0	700	90	8/13/05	JR	8:40	8:45	30	30	Pass	
P9/10	60	2195			17:28	20238	CL	9.0	700	90	8/13/05	JR	9:00	9:05	30	30	Pass	
P10/11	25	2220			17:20	1899	DL	6.0	750	90	8/13/05	JR	8:45	8:50	30	30	Pass	
P10/12	66	2286	DS-6	381	17:30	1899	DL	6.0	750	90	8/13/05	JR	9:05	9:10	30	30	Pass	
P11/12	83	2369			17:45	1899	DL	6.0	750	90	8/13/05	JR	9:20	9:25	30	30	Pass	
P8/12	109	2478	DS-7A		17:00	20238	CL	9.0	700	90	8/13/05	JR	8:30	8:35	30	30	Pass	Re-test
P8/13	9	2487	DS-7	355	16:58	20238	CL	9.0	700	90	8/13/05	JR	8:30	8:35	30	30	Pass	
P12/13	285	2772			16:30	1899	DL	6.0	750	90	8/13/05	JR	9:40	9:45	30	30	Pass	
P13/14A	93	2865			18:00	1899	DL	6.0	750	90	8/13/05	JR	10:00	10:05	30	30	Pass	
P13/14B		2865			18:00	1899	DL	6.0	750	90	8/13/05	JR	9:55	10:00	30	30	Pass	
Total Page	**1725**		3															
Previous		**1140**	4															
To Date		**2865**	**7**	**409**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: N. Melaro
Day & Date: Saturday, 8/13/2005

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	Comments
Panel	Length,	lative			Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		
P8/11A	16	2881			1715	20238	CL	9.0	700	90	8/13/05	JR	835	840	30	30	Pass	
P13/14B	68	2949	DS-8	369	1800	1899	JH	6.0	750	90	8/13/05	JR	955	1000	30	30	Pass	
P13/14C	104	3053				20238	CL	9.0	700	90	8/13/05	JR	945	950	30	30	Pass	
P14/15A	285	3338			1403	20238	CL	9.0	700	90	8/14/05	JR	820	825	30	30	Pass	
P14/15B		3338			1403	20238	CL	9.0	700	90	8/14/05	JR	825	830	30	30	Pass	
P14/15C		3338			1403	20238	CL	9.0	700	90	8/14/05	JR	830	835	30	30	Pass	
P15/16A	285	3623			1440	1899	DL	6.0	750	90	8/14/05	JR	920	925	30	30	Pass	
P15/16B		3623			1440	1899	DL	6.0	750	90	8/14/05	JR	840	845	30	30	Pass	
P15/16C		3623			1440	1899	DL	6.0	750	90	8/14/05	JR	910	915	30	30	Pass	
P16/17A	285	3908	DS-9	434	1445	20238	CL	9.0	700	90	8/14/05	JR	955	1000	30	30	Pass	
P16/17B		3908			1445	20238	CL	9.0	700	90	8/14/05	JR	1000	1005	30	30	Pass	
P16/17C		3908			1445	20238	CL	9.0	700	90	8/14/05	JR	940	945	30	30	Pass	
P16/17D		3908			1445	20238	CL	9.0	700	90	8/14/05	JR	935	940	30	30	Pass	
P17/18	285	4193	DS-10	419	1528	1899	DL	6.0	750	90	8/14/05	JR	1015	1020	30	30	Pass	
P18/19A	285	4478			1522	20238	CL	9.0	700	90	8/14/05	JR	1015	1020	32	32	Pass	
P19/20	285	4763	DS-11	433	1646	20238	CL	9.0	700	90	8/14/05	JR	1110	1115	32	31	Pass	
P20/21	285	5048			1710	1899	DL	6.0	750	90	8/14/05	JR	1125	1130	33	31	Pass	
Total Page	**2183**		4															
Previous		**2865**	7															
To Date		**5048**	**11**	**459**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Sunday, 8/14/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,	lative			Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P18/19B		5048	DS-12	421	1522	20238	CL	9.0	700	90	8/14/05	JR	1040	1045	30	29	Pass	
P18/19C		5048			1522	20238	CL	9.0	700	90	8/14/05	JR	1055	1100	31	30	Pass	
P19/20B		5048			1646	20238	CL	9.0	700	90	8/14/05	JR	1015	1020	32	32	Pass	
P21/22A	270	5318	DS-13	409	1512	20238	CL	9.0	700	100	8/16/05	JR	1030	1035	31	30	Pass	
P21/22B		5318			1512	20238	CL	9.0	700	100	8/16/05	JR	1035	1040	31	30	Pass	
P22/23	270	5588			1559	20238	CL	9.0	700	100	8/16/05	JR	1045	1050	32	30	Pass	
P23/24	270	5858	DS-14	418	1615	1899	DL	6.0	750	100	8/16/05	JR	1100	1105	32	30	Pass	
P24/25	270	6128	DS-15	409	1634	20238	CL	9.0	700	100	8/16/05	JR	1110	1115	32	30	Pass	
P25/26	270	6398			1642	1899	DL	6.0	750	100	8/16/05	JR	1125	1130	31	30	Pass	
Total Page	**1350**		4															
Previous		**5048**	11															
To Date		**6398**	**15**	**427**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Tuesday, 8/16/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	Comments
Panel	Length,	lative			Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		
P26/27	270	6668			740	20238	CL	8.0	750	90	8/16/05	JR	1130	1135	32	31	Pass	
P27/28	270	6938	DS-16	434	856	20238	CL	9.0	700	90	8/16/05	JR	1135	1100	31	29	Pass	
P28/29	270	7208			1046	20238	CL	9.0	700	95	8/16/05	JR	1255	1300	30	29	Pass	
P29/30	270	7478			1050	1899	CL	6.0	750	95	8/16/05	JR	1415	1420	32	31	Pass	
P30/31	270	7748			1115	1899	CL	6.0	750	95	8/16/05	JR	1430	1435	32	30	Pass	
Total Page	**1350**		1															
Previous		**6398**	15															
To Date		**7748**	**16**	**484**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Tuesday, 8/23/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,	lative			Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P32/33	470	8218	DS-17	483	1343	20238	CLR	7.0	800	85	8/24/05	JR	1315	1320	32	30	Pass	
P33/34A	470	8688	DS-18	483	1343	1899	DLR	6.0	750	85	8/24/05	JR	1235	1240	30	29	Pass	
P33/34B		8688			1343	1899	DLR	6.0	750	85	8/24/05	JR	1245	1250	31	30	Pass	
P33/34C		8688			1343	1899	DLR	6.0	750	85	8/24/05	JR	1255	1300	31	29	Pass	
P33/34D		8688			1343	1899	DLR	6.0	750	85	8/24/05	JR	1300	1305	30	30	Pass	
P32/23	22.5	8711			1513	20238	CLR	7.0	800	85	8/24/05	JR	1330	1335	31	30	Pass	
P32/22	22.5	8733			1513	20238	CLR	7.0	800	85	8/24/05	JR	1335	1340	33	32	Pass	
P32/21	22.5	8756			1513	20238	CLR	7.0	800	85	8/24/05	JR	1340	1345	32	31	Pass	
P32/20	22.5	8778			1513	20238	CLR	7.0	800	85	8/24/05	JR	1345	1350	31	30	Pass	
P32/19	22.5	8801			1513	20238	CLR	7.0	800	85	8/24/05	JR	1350	1355	32	31	Pass	
P32/18	22.5	8823			1513	20238	CLR	7.0	800	85	8/24/05	JR	1355	1360	30	29	Pass	
P32/17	22.5	8846	DS-19	466	1513	20238	CLR	7.0	800	85	8/24/05	JR	1400	1405	31	30	Pass	
P32/16	22.5	8868			1513	20238	CLR	7.0	800	85	8/24/05	JR	1405	1410	30	29	Pass	
P32/15	22.5	8891			1513	20238	CLR	7.0	800	85	8/24/05	JR	1410	1415	30	29	Pass	
Total Page	**1143**		3															
Previous		**7748**	16															
To Date		**8891**	**19**	**468**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Wednesday, 8/24/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,	lative			Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P32/14	22.5	8913			1537	20238	CLR	7.0	800	85	8/24/05	JR	1420	1425	31	29	Pass	
P32/13	22.5	8936			1540	20238	CLR	7.0	800	85	8/24/05	JR	1425	1430	30	29	Pass	
P32/12	22.5	8958			1542	20238	CLR	7.0	800	85	8/24/05	JR	1430	1435	30	29	Pass	
P32/10	22.5	8981			1545	20238	CLR	7.0	800	85	8/24/05	JR	1435	1440	30	29	Pass	
P32/9	12.0	8993			1549	20238	CLR	7.0	800	85	8/24/05	JR	1440	1445	31	30	Pass	
P32/8	22.5	9015			1551	20238	CLR	7.0	800	85	8/24/05	JR	1445	1450	31	30	Pass	
P32/7	22.5	9038			1553	20238	CLR	7.0	800	85	8/24/05	JR	1455	1460	30	29	Pass	
P32/6	22.5	9060	DS-20	453	1556	20238	CLR	7.0	800	85	8/24/05	JR	1450	1455	32	31	Pass	
P32/5	22.5	9083			1558	20238	CLR	7.0	800	85	8/24/05	JR	1500	1505	31	30	Pass	
P32/4	22.5	9105			1602	20238	CLR	7.0	800	85	8/24/05	JR	1505	1510	31	30	Pass	
P32/3	22.5	9128			1604	20238	CLR	7.0	800	85	8/24/05	JR	1510	1515	30	30	Pass	
P32/2	22.5	9150			1607	20238	CLR	7.0	800	85	8/24/05	JR	1515	1520	30	29	Pass	
P32/1	22.5	9173			1610	20238	CLR	7.0	800	85	8/24/05	JR	1520	1525	31	31	Pass	
Total Page	**282**		1															
Previous		**8891**	19															
To Date		**9173**	**20**	**459**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Wednesday, 8/24/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P31/35	240	9413			1439	20238	CLR	7.0	800	90	8/24/05	JR	1545	1550	32	31	Pass	
P35/36	243	9656	DS-21	460	1447	1899	DLR	6.0	750	90	8/24/05	JR	1600	1605	31	30	Pass	
P36/37A	180	9836			1530	1899	DLR	6.0	750	90	8/24/05	JR	1615	1620	32	31	Pass	
P36/37B		9836			1530	1899	DLR	6.0	750	90	8/24/05	JR	1610	1615	31	31	Pass	
P37/38	170	10006	DS-22	455	1545	20238	CLR	7.0	800	90	8/24/05	JR	1630	1635	31	30	Pass	
P38/39	159	10165			1551	1899	DLR	6.0	750	90	8/24/05	JR	1635	1640	31	30	Pass	
P39/40	150	10315			1609	1899	DLR	6.0	750	90	8/24/05	JR	1700	1705	32	31	Pass	
P40/41	139	10454			1614	20238	CLR	7.0	800	90	8/24/05	JR	1710	1715	31	30	Pass	
P41/42A	128	10582			1628	1899	DLR	6.0	750	90	8/24/05	JR	1730	1735	31	30	Pass	
P41/42B		10582			1628	1899	DLR	6.0	750	90	8/24/05	JR	1720	1725	32	31	Pass	
P42/43	114	10696			1633	20238	CLR	7.0	800	90	8/24/05	JR	1740	1745	30	30	Pass	
P43/44	100	10796	DS-23	469	1646	1899	DLR	6.0	750	90	8/24/05	JR	1750	1755	32	31	Pass	
P44/45	80	10876			1650	20238	CLR	7.0	800	90	8/24/05	JR	1800	1805	32	31	Pass	
P45/46	54	10930			1701	1899	DLR	6.0	750	90	8/24/05	JR	1805	1810	30	29	Pass	
P46/47	26	10956			1715	20238	CLR	7.0	800	90	8/24/05	JR	1810	1815	30	29	Pass	
P48/49	210	11166	DS-24	465	1749	20238	CLR	7.0	800	90	8/25/05	JR	830	835	32	30	Pass	
P49/50	190	11356			1810	1899	DLR	6.0	750	90	8/25/05	JR	835	840	31	30	Pass	
Total Page	**2183**		4															
Previous		**9173**	20															
To Date		**11356**	**24**	**473**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Thursday, 8/25/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P50/51	169	11525			1820	20238	CLR	7.0	800	90	8/25/05	JR	845	850	31	30	Pass	
P51/52	115	11640			1830	1899	DLR	6.0	750	90	8/25/05	JR	845	850	31	30	Pass	
P52/53	98	11738			1841	20238	CLR	7.0	800	90	8/25/05	JR	855	900	31	30	Pass	
P53/54	51	11789	DS-25	472	1900	1899	DLR	6.0	750	90	8/25/05	JR	905	910	31	30	Pass	
P37/56	15	11804	DS-30	454	1622	20238	CLR	7.0	800	90	8/25/05	JR	1830	1835	30	30	Pass	Continuous weld from
P37/55	8	11812				20238	CLR	7.0	800	90	8/25/05	JR	1810	1815	30	30	Pass	top to bottom
P38/55	21	11833				20238	CLR	7.0	800	90	8/25/05	JR	1805	1810	30	30	Pass	
P38/48	3	11836				20238	CLR	7.0	800	90	8/25/05	C	A	P	P	E	D	
P39/48	24	11860				20238	CLR	7.0	800	90	8/25/05	JR	1800	1805	30	29	Pass	
P40/48	3	11863				20238	CLR	7.0	800	90	8/25/05	C	A	P	P	E	D	
P40/49	21	11884				20238	CLR	7.0	800	90	8/25/05	JR	1755	1760	30	30	Pass	
P41/49	10	11894				20238	CLR	7.0	800	90	8/25/05	JR	1750	1755	30	30	Pass	
P41/50	13	11907				20238	CLR	7.0	800	90	8/25/05	JR	1745	1750	31	31	Pass	
P42/50	17	11924				20238	CLR	7.0	800	90	8/25/05	JR	1740	1745	30	30	Pass	
P42/51	6	11930				20238	CLR	7.0	800	90	8/25/05	C	A	P	P	E	D	
P43/51	24	11954				20238	CLR	7.0	800	90	8/25/05	JR	1740	1745	31	29	Pass	
P44/51	2	11926				20238	CLR	7.0	800	90	8/25/05	C	A	P	P	E	D	
P44/52	22	11948			1645	20238	CLR	7.0	800	90	8/25/05	JR	1740	1745	30	30	Pass	
Total Page	**622**		2															
Previous		**11356**	24															
To Date		**11978**	**26**	**461**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Thursday, 8/25/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P45/52	8	11986			1647	20238	CLR	7.0	800	85	8/25/05	C	A	P	P	E	D	
P45/53	14	12000			1650	20238	CLR	7.0	800	85	8/25/05	JR	1735	1740	30	30	Pass	
P46/53	17	12017			1655	20238	CLR	7.0	800	85	8/25/05	JR	1730	1735	31	30	Pass	
P46/54	7	12024			1700	20238	CLR	7.0	800	85	8/25/05	C	A	P	P	E	D	
P47/54	20	12044			1703	20238	CLR	7.0	800	85	8/25/05	JR	1730	1735	32	31	Pass	
P4855A	232	12276			1318	20238	CLR	7.0	800	85	8/25/05	JR	1600	1605	31	30	Pass	
P4855B		12276			1318	20238	CLR	7.0	800	85	8/25/05	JR	1615	1620	31	30	Pass	Wrinkle at 162 from AT
P55/56	249	12525			1327	1899	DLR	6.0	750	85	8/25/05	JR	1620	1625	31	30	Pass	
P56/57	254	12779	DS-26	473	1350	20238	CLR	7.0	800	85	8/25/05	JR	1630	1635	32	31	Pass	
P57/58	244	13023	DS-27	465	1409	1899	DLR	6.0	750	85	8/25/05	JR	1635	1640	32	31	Pass	
P58/59	230	13253			1425	20238	CLR	7.0	800	85	8/25/05	JR	1705	1710	31	29	Pass	
P59/60A	250	13503			1440	1899	DLR	6.0	750	85	8/25/05	JR	1710	1715	31	30	Pass	At top
P59/60B		13503				1899	DLR	6.0	750	85	8/25/05	JR	1835	1840	30	30	Pass	Burnout at 207 from AT
P59/60C		13503				1899	DLR	6.0	750	85	8/25/05	JR	1835	1840	31	31	Pass	Burnout at 189 from AT
P59/60D		13503				1899	DLR	6.0	750	85	8/25/05	JR	1840	1845	31	31	Pass	Burnout at 180 from AT
P59/60E		13503				1899	DLR	6.0	750	85	8/25/05	JR	1840	1845	32	30	Pass	Burnout at 170 from AT
Total Page	**1525**		2															
Previous		**11978**	26															
To Date		**13503**	**28**	**482**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Friday, 8/26/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P60/61	250	13753	DS-28	474	1509	20238	CLR	7.0	800	85	8/25/05	JR	1645	1650	32	31	Pass	
P61/62	250	14003	DS-29	467	1518	1899	DLR	6.0	750	85	8/25/05	JR	1650	1655	31	30	Pass	
P62/63	250	14253			1542	20238	CLR	7.0	800	85	8/26/05	JR	800	805	30	29	Pass	
P63/64	250	14503			1550	1899	DLR	6.0	750	85	8/26/05	JR	810	815	31	30	Pass	
Friday, 8/26/05																		
P32/65	22.5	14525			1640	1899	DLR	6.0	750	90	8/27/05	JR	710	715	30	29	Pass	
P25/65	22.5	14548			1734	20238	CLR	7.0	800	90	8/27/05	JR	715	720	30	30	Pass	
P26/65	22.5	14570			1735	20238	CLR	7.0	800	90	8/27/05	JR	730	735	30	30	Pass	
P27/65	22.5	14593			1739	20238	CLR	7.0	800	90	8/27/05	JR	735	740	29	29	Pass	
P28/65	8	14601			1741	20238	CLR	7.0	800	90	8/27/05	JR	735	740	30	30	Pass	
P28/66	14	14615			1742	20238	CLR	7.0	800	90	8/27/05	JR	750	755	30	30	Pass	
P29/66	22.5	14637			1744	20238	CLR	7.0	800	90	8/27/05	JR	750	755	30	30	Pass	
P30/66	22.5	14660			1633	20238	CLR	7.0	800	90	8/27/05	JR	755	760	30	30	Pass	
P31/66	22.5	14682			1636	20238	CLR	7.0	800	90	8/27/05	JR	755	760	30	29	Pass	
P35/66	14	14696			1636	20238	CLR	7.0	800	90	8/27/05	JR	800	805	30	30	Pass	
P60/66	23	14719			1213	20238	CLR	7.0	800	90	8/27/05	JR	1445	1450	31	30	Pass	
Total Page	**1217**		2															
Previous		**13503**	28															
To Date		**14719**	**30**	**491**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Friday, 8/26/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P61/68	22.5	14742			12:10	20238	CLR	7.0	800	90	8/27/05	JR	1435	1440	30	30	Pass	
P66/68	104	14846			1656	20238	CLR	7.0	800	90	8/27/05	JR	745	750	31	29	Pass	
P65/68	29	14875			1653	20238	CLR	7.0	800	90	8/27/05	JR	730	735	31	30	Pass	
P67/68	22.5	14897			1628	1899	DLR	6.0	750	90	8/27/05	JR	725	730	30	30	Pass	
P65/67	46.0	14943	DS-31	482	1647	20238	CLR	7.0	800	90	8/27/05	JR	720	725	30	29	Pass	
P33/67	22.5	14966			1654	1899	DLR	6.0	750	90	8/27/05	JR	705	710	31	30	Pass	
P67/69	45.0	15011			1720	1899	DLR	6.0	750	90	8/27/05	JR	720	725	31	30	Pass	
P34/69	22.5	15033			1700	1899	DLR	6.0	750	90	8/27/05	JR	700	705	31	31	Pass	
P68/69	28.0	15061			1725	1899	DLR	6.0	750	90	8/27/05	JR	725	730	30	29	Pass	
P69/70	22.5	15084			1706	1899	DLR	6.0	750	90	8/27/05	JR	740	745	30	30	Pass	
P68/70A	56	15140	DS-32	473	1715	1899	DLR	6.0	750	90	8/27/05	JR	740	745	30	30	Pass	
P68/70B		15140			1613	1899	DLR	6.0	750	90	8/27/05	JR	740	745	30	30	Pass	
P65/66	22.5	15162			1715	1899	DLR	6.0	750	90	8/27/05	JR	705	710	30	30	Pass	
P33/69	12.0	15174			1715	1899	DLR	6.0	750	90	8/27/05	JR	745	750	32	31	Pass	
Total Page	**455**		2															
Previous		**14719**	30															
To Date		**15174**	**32**	**474**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Friday, 8/26/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-	Destructive		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass /	
Panel	Length,	lative	Sample		Start	Machine		Speed					Test Time		psi		Fail	
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P36/56	12.0	15186			1750	1899	DLR	6.0	750	85	8/27/05	JR	810	815	30	30	Pass	
P36/57	23	15209			1745	1899	DLR	6.0	750	85	8/27/05	JR	810	815	31	30	Pass	
P36/58	22.5	15232			1740	1899	DLR	6.0	750	85	8/27/05	JR	805	810	31	30	Pass	
P36/59	16	15248			1735	1899	DLR	6.0	750	85	8/27/05	JR	805	810	30	30	Pass	
P35/59	6	15254			1735	1899	DLR	6.0	750	85	8/27/05	JR	805	810	30	30	Pass	
P35/60	2	15256			1735	1899	DLR	6.0	750	85	8/27/05	JR	805	810	30	30	Pass	
Total Page	**82**		0															
Previous		**15174**	32															
To Date		**15256**	**32**	**477**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Saturday, 8/27/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P64/71	236	15492			1030	20238	CLR	7.0	800	90	8/27/05	JR	1140	1145	31	29	Pass	
P71/72	260	15752			1040	1899	DLR	6.0	750	90	8/27/05	JR	1350	1355	30	30	Pass	
P71/73	75	15827	DS-33	480	1123	1899	DLR	6.0	750	90	8/27/05	JR	1345	1350	32	30	Pass	
P71/74	57	15884			1120	20238	CLR	7.0	800	90	8/27/05	JR	1350	1355	30	29	Pass	
P70/74	57	15941			1142	1899	DLR	6.0	750	90	8/27/05	JR	1200	1205	30	29	Pass	
P69/74	18	15959			1142	1899	DLR	6.0	750	90	8/27/05	JR	1200	1205	29	29	Pass	
P69/71	19	15978			1138	1899	DLR	6.0	750	90	8/27/05	JR	1155	1160	30	30	Pass	
P70/75	22.0	16000			1133	20238	CLR	7.0	800	90	8/27/05	JR	1415	1420	30	30	Pass	
P68/75	77	16077			1705	1899	DLR	6.0	750	90	8/27/05	JR	1430	1435	31	30	Pass	
P62/68	3	16080			1205	20238	CLR	7.0	800	90	8/27/05	JR	1440	1445	30	30	Pass	
P62/75	12	16092			1200	20238	CLR	7.0	800	90	8/27/05	JR	1430	1435	30	30	Pass	
P63/75	10	16102			1158	20238	CLR	7.0	800	90	8/27/05	JR	1215	1220	30	30	Pass	
P63/74	12	16114			1157	20238	CLR	7.0	800	90	8/27/05	JR	1205	1210	30	30	Pass	
P64/74	12	16126			1156	20238	CLR	7.0	800	90	8/27/05	JR	1210	1215	30	30	Pass	
P64/76	9	16135			1153	20238	CLR	7.0	800	90	8/27/05	JR	1210	1215	30	30	Pass	
P71/76	22	16157			1150	20238	CLR	7.0	800	90	8/27/05	JR	1355	1360	30	30	Pass	
P74/76	25.0	16182			1116	20238	CLR	7.0	800	90	8/27/05	JR	1400	1405	30	29	Pass	
P74/75	12	16194			1150	1899	DLR	6.0	750	90	8/27/05	JR	1205	1210	30	30	Pass	
Total Page	**938**		1															
Previous		**15256**	32															
To Date		**16194**	**33**	**491**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Monday, 8/29/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P72/77A	250	16444	DS34	484	1051	1899	DLR	6.0	750	90	8/29/05	JR	1400	1405	32	31	Pass	
P72/77B		16444				1899	DLR	6.0	750	90	8/29/05	JR	1405	1410	30	29	Pass	Wrinkle at 75 from At
P77/78	227	16671	DS35	476	1056	20238	CLR	7.0	800	90	8/29/05	JR	1425	1430	31	30	Pass	
P78/79A	215	16886			1128	1899	DLR	6.0	750	90	8/29/05	JR	1435	1440	32	31	Pass	
P78/79B		16886				1899	DLR	6.0	750	90	8/29/05	JR	1425	1430	32	31	Pass	B/O 20 feet from AT
P78/79C		16886				1899	DLR	6.0	750	90	8/29/05	JR	1440	1445	31	30	Pass	B/O 80 feet from AT
P79/80	203	17089			1127	20238	CLR	7.0	800	90	8/29/05	JR	1445	1450	30	29	Pass	
P80/81	170.0	17259			1200	1899	DLR	6.0	750	90	8/29/05	JR	1455	1500	31	30	Pass	
P81/82	166	17425			1153	20238	CLR	7.0	800	90	8/29/05	JR	1500	1505	31	29	Pass	
P82/83A	155.0	17580	DS36	502	1208	1899	DLR	6.0	750	90	8/29/05	JR	1510	1515	32	31	Pass	
P82/83B		17580				1899	DLR	6.0	750	90	8/29/05	JR	1525	1530	31	30	Pass	B/O 30 feet from AT
P82/83C		17580				1899	DLR	6.0	750	90	8/29/05	JR	1525	1530	31	30	Pass	
P83/84	140.0	17720			1216	20238	CLR	7.0	800	90	8/29/05	JR	1555	1600	32	31	Pass	
P84/85	125	17845			1228	1899	DLR	6.0	750	90	8/29/05	JR	1600	1605	31	29	Pass	
P85/86	110.0	17955	DS37	485	1234	20238	CLR	7.0	800	90	8/29/05	JR	1605	1610	31	30	Pass	
P86/87	98	18053			1242	1899	DLR	6.0	750	90	8/29/05	JR	1630	1635	31	29	Pass	
P87/88	72	18125			1248	20238	CLR	7.0	800	90	8/29/05	JR	1645	1650	32	31	Pass	
P88/89	67	18192			1258	20238	CLR	7.0	800	90	8/29/05	JR	1655	1700	32	31	Pass	
P89/90	48	18240			1300	1899	DLR	6.0	750	90	8/29/05	JR	1655	1700	32	30	Pass	
Total Page	**2046**		4															
Previous		**16194**	33															
To Date		**18240**	**37**	**493**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Friday, 9/2/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P91/92	10	18250			1030	C7	JR	6.0	750	85	9/3/05	C	A	P	P	E	D	
P92/93A	52	18302			1040	C7	JR	6.0	750	85	9/2/05	MB	1705	1710	30	30	Pass	
P92/93B		18302			1040	C7	JR	6.0	750	85	9/2/05	MB	1705	1710	30	30	Pass	Bunrnout at 20' from AT
P93/94A	123	18425	DS-38	485	902	C7	JR	6.0	750	85	9/2/05	MB	1525	1530	31	30	Pass	
P93/94B		18425			902	C7	JR	6.0	750	85	9/2/05	MB	1732	1737	30	29	Pass	Bunrnout at 6' from AT
P93/94C		18425			902	C7	JR	6.0	750	85	9/2/05	MB	1525	1530	31	30	Pass	Bunrnout at 22' from AT
P94/95	22.5	18447			1030	C7	JR	6.0	750	85	9/2/05	MB	1525	1530	31	31	Pass	
P93/95	23	18470			902	C7	JR	6.0	750	85	9/2/05	MB	1525	1530	31	30	Pass	
P94/96	102	18572			1120	C7	JR	6.0	750	85	9/2/05	MB	1530	1535	31	30	Pass	
P95/96	95.0	18667	DS-39	479	1115	C7	JR	6.0	750	85	9/2/05	MB	1519	1524	30	29	Pass	
P97/98	22.5	18690			1040	C5	EM	6.0	750	85	9/2/05	MB	1530	1535	31	30	Pass	
P96/98	168	18858			1030	C5	EM	6.0	750	85	9/2/05	MB	1518	1523	32	31	Pass	
P96/97	87.0	18945			1048	C5	EM	6.0	750	85	9/2/05	MB	1530	1535	30	29	Pass	
P97/99	83	19028	DS-40	476	1130	C5	EM	6.0	750	85	9/3/05	MB	1530	1535	30	29	Pass	
P98/99	235.0	19263			1100	C5	EM	6.0	750	85	9/2/05	MB	1504	1509	33	32	Pass	
P99/101	217	19480			1200	C7	JR	6.0	750	85	9/2/05	MB	1516	1521	30	30	Pass	
P99/100	130	19610			1150	C7	JR	6.0	750	85	9/2/05	MB	1508	1513	30	30	Pass	
P100/101	22.5	19632			1140	C7	JR	6.0	750	85	9/2/05	MB	1512	1517	31	30	Pass	
Total Page	**1393**		3															
Previous		**18240**	37															
To Date		**19632**	**40**	**491**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Friday, 9/2/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P101/102	211	19843	DS-41	484	1438	C7	JR	65	700	90	9/2/05	MB	1512	1517	30	29	Pass	
P100/102A	150	19993			1425	C7	JR	65	700	90	9/2/05	MB	1508	1513	30	29	Pass	
P100/102B		19993			1425	C7	JR	65	700	90	9/2/05	MB	1710	1715	31	29	Pass	
P102/104	43	20036				C7	JR	65	700	90	9/2/05	MB	1710	1715	32	31	Pass	
P102/103	325	20361	DS-43	485	1515	C5	EM	65	700	90	9/2/05	MB	1710	1715	30	29	Pass	
103/104	22.5	20384			1150	C5	EM	65	700	90	9/2/05	MB	1730	1735	30	29	Pass	
P104/105	33	20417			1500	C5	EM	65	700	90	9/2/05	MB	1730	1735	31	29	Pass	
103/105	218	20635	DS-44	480	1420	C5	EM	65	700	90	9/2/05	MB	1745	1750	30	28	Pass	
P105/106	22.5	20657			1400	C5	EM	65	700	90	9/2/05	MB	1743	1748	30	29	Pass	
P103/106	120	20777			1400	C5	EM	65	700	90	9/2/05	MB	1740	1745	30	29	Pass	
P106/107	138	20915			1520	C5	EM	65	700	90	9/2/05	MB	1735	1740	32	31	Pass	
P105/107	250	21165	DS-45	481	1530	C5	EM	65	700	90	9/2/05	MB	1512	1517	31	30	Pass	
P90/91	10.0	21175			1515	C7	JR	65	700	90	9/3/05	C	A	P	P	E	D	
P90/92	26	21201	DS-42	471	1630	C7	JR	65	700	90	9/3/05	C	A	P	P	E	D	
P89/92	7.0	21208			1517	C7	JR	65	700	90	9/3/05	C	A	P	P	E	D	
P89/93	19	21227			1518	C7	JR	65	700	90	9/3/05	SS	1420	1425	32	32	Pass	
P88/93	27	21254			1520	C7	JR	65	700	90	9/3/05	SS	1420	1425	33	31	Pass	
P87/93	18.0	21272			1525	C7	JR	65	700	90	9/3/05	SS	1420	1425	33	32	Pass	
Total Page	**1640**		5															
Previous		**19632**	40															
To Date		**21272**	**45**	**473**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Friday, 9/2/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P87/95	7	21279			1537	C7	JR	65	700	90	9/3/05	SS	1420	1425	32	32	Pass	
P86/95	25	21304			1547	C7	JR	65	700	90	9/3/05	SS	1420	1425	35	35	Pass	
P85/95	27	21331			1550	C7	JR	65	700	90	9/3/05	SS	1420	1425	30	28	Pass	
P84/95	19	21350			1554	C7	JR	65	700	90	9/3/05	SS	1420	1425	32	31	Pass	
P84/96	7	21357			1556	C7	JR	65	700	90	9/3/05	SS	1345	1350	32	32	Pass	
P83/96	26	21383			1600	C7	JR	65	700	90	9/3/05	SS	1345	1350	32	32	Pass	
P82/96	26	21409			1605	C7	JR	65	700	90	9/3/05	SS	1345	1350	33	33	Pass	
P81/96	8	21417			1706	C7	JR	65	700	90	9/3/05	SS	1345	1350	31	30	Pass	
P81/98	16	21433			1708	C7	JR	65	700	90	9/3/05	SS	1345	1350	31	29	Pass	
P80/98	25	21458			1712	C7	JR	65	700	90	9/3/05	SS	1345	1350	32	32	Pass	
P79/98	27	21485			1715	C7	JR	65	700	90	9/3/05	SS	1345	1350	32	32	Pass	
P78/98	3	21488			1716	C7	JR	65	700	90	9/3/05	C	A	P	P	E	D	
P78/99	20	21508			1719	C7	JR	65	700	90	9/3/05	SS	1345	1350	32	32	Pass	
P77/99	18	21526			1740	C7	JR	65	700	90	9/3/05	SS	1345	1350	34	33	Pass	
P77/100	15	21541			1750	C7	JR	65	700	90	9/3/05	SS	1230	1235	31	31	Pass	
P72/100	8	21549			1807	C7	JR	65	700	90	9/3/05	SS	1230	1235	32	32	Pass	
P73/100	15	21564			1805	C7	JR	65	700	90	9/3/05	SS	1230	1235	34	34	Pass	
P73/102	24	21588			1802	C7	JR	65	700	90	9/3/05	SS	1230	1235	31	30	Pass	
Total Page	**316**		0															
Previous		**21272**	45															
To Date		**21588**	**45**	**480**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Saturday, 9/3/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P73/103	25	21613			1830	C7	JR	65	700	90	9/3/05	SS	1230	1235	34	34	Pass	
P73/106	5	21618			1828	C7	JR	65	700	90	9/3/05	C	A	P	P	E	D	
P71/106	15	21633			1827	C7	JR	65	700	90	9/3/05	SS	1230	1235	32	31	Pass	
P69/106	17	21650			1825	C7	JR	65	700	90	9/3/05	SS	1230	1235	34	33	Pass	
P69/107	22.5	21673			1821	C7	JR	65	700	90	9/3/05	SS	1230	1235	33	32	Pass	
P69/108	7	21680			1820	C7	JR	65	700	90	9/3/05	SS	1140	1145	35	35	Pass	
P34/108	4	21684			1819	C7	JR	65	700	90	9/3/05	C	A	P	P	E	D	
P34/109	22.5	21706			1818	C7	JR	65	700	90	9/3/05	SS	1140	1145	34	34	Pass	
P34/112	22.5	21729			1815	C7	JR	65	700	90	9/3/05	SS	1140	1145	33	33	Pass	
P34/113	22.5	21751			1810	C7	JR	65	700	90	9/3/05	SS	1140	1145	32	29	Pass	
P107/108	65	21816			1645	C5	EM	65	700	90	9/3/05	SS	1140	1145	33	32	Pass	
P108/109	64	21880			1745	C5	EM	65	700	90	9/3/05	SS	1140	1145	30	28	Pass	
P107/109	20	21900			1630	C5	EM	65	700	90	9/3/05	SS	1155	1160	31	31	Pass	
P109/110	20	21920			1655	C5	EM	65	700	90	9/3/05	SS	1155	1160	31	30	Pass	
P107/110	137	22057			1620	C5	EM	65	700	90	9/3/05	SS	1155	1160	32	32	Pass	
P107/111	158	22215	DS-46	483	1615	C5	EM	65	700	90	9/3/05	SS	1205	1210	32	32	Pass	
P107/114	7	22222			1612	C5	EM	65	700	90	9/3/05	SS	1205	1210	34	33	Pass	
P113/114	22.5	22245			1600	C5	EM	65	700	90	9/3/05	SS	1205	1210	33	32	Pass	
Total Page	**657**		1															
Previous		**21588**	45															
To Date		**22245**	**46**	**484**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Saturday, 9/3/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P111/113	237	22482	DS-47	478	1735	C5	EM	65	700	90	9/3/05	SS	1155	1160	34	33	Pass	50 from anchor trench
P111/112	23	22504			1730	C5	EM	65	700	90	9/3/05	SS	1155	1160	31	30	Pass	
P112/113	92	22596			1720	C5	EM	65	700	90	9/3/05	SS	1140	1145	32	32	Pass	
P111/114	41	22637			1610	C5	EM	65	700	90	9/3/05	SS	1205	1210	31	30	Pass	
P110/111	136.0	22773			1710	C5	EM	65	700	90	9/3/05	SS	1155	1160	32	32	Pass	
P109/112	93	22866			1715	C5	EM	65	700	90	9/3/05	SS	1140	1145	33	31	Pass	
Total Page	**622**		1															
Previous		**22245**	46															
To Date		**22866**	**47**	**487**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Sunday, 9/4/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P113/115	330	23196	DS-48	494	1105	C7	JR	60	750	80	9/4/05	SS	1255	1260	31	30	Pass	100' from anchor trench
P114/115	65	23261			935	C7	JR	60	750	80	9/4/05	SS	1255	1260	31	30	Pass	
P115/116A	395	23656	DS-49	483	820	C5	EM	60	750	80	9/4/05	SS	1310	1315	32	30	Pass	125' from anchor trench
P115/116B		23656			820	C5	EM	60	750	80	9/4/05	SS	1325	1330	32	30	Pass	
P116/117	220	23876			915	C7	JR	60	750	80	9/4/05	SS	1225	1230	32	32	Pass	
P116/118	178	24054	DS-50	481	930	C7	JR	60	750	80	9/4/05	SS	1225	1230	31	30	Pass	170' from anchor trench
P117/118	22.5	24077			910	C7	JR	60	750	80	9/4/05	SS	1225	1230	31	31	Pass	
P118/119	16	24093			925	C5	EM	60	750	80	9/4/05	C	A	P	P	E	D	
P118/120	163	24256			930	C5	EM	60	750	80	9/4/05	SS	1225	1230	32	30	Pass	
P117/120	218	24474	DS-51	480	950	C5	EM	60	750	80	9/4/05	SS	1225	1230	32	31	Pass	180' from anchor trench
P119/120	22.5	24496			945	C5	EM	60	750	80	9/4/05	SS	1235	1240	33	31	Pass	
P120/121A	380	24876			950	C7	JR	60	750	80	9/4/05	SS	1245	1250	31	31	Pass	
P120/121B		24876			950	C7	JR	60	750	80	9/4/05	SS	1235	1240	32	31	Pass	Burnout at 140' from AT
P119/121	17	24893			945	C7	JR	60	750	80	9/4/05	SS	1235	1240	31	30	Pass	
P121/122	184	25077			1040	C5	EM	60	750	80	9/4/05	SS	1235	1240	31	30	Pass	
P121/123	218	25295	DS-52	486	1115	C5	EM	60	750	80	9/4/05	SS	1235	1240	31	30	Pass	190' from anchor trench
P122/123	22.5	25318			1030	C5	EM	60	750	80	9/4/05	SS	850	855	31	30	Pass	
P123/124	25	25343			1500	C5	EM	60	750	80	9/4/05	SS	830	835	30	29	Pass	
P124/125	22.5	25365			1130	C5	EM	60	750	80	9/4/05	SS	830	835	32	32	Pass	
Total Page	**2499**		5															
Previous		**22866**	47															
To Date		**25365**	**52**	**488**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Sunday, 9/4/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P122/125	185	25550			1400	C5	EM	65	750	90	9/5/05	SS	850	855	31	29	Pass	
P123/125A	190	25740	DS-53	486	1430	C5	EM	65	750	90	9/5/05	SS	830	835	32	31	Pass	298' from anchor trench
P123/125B		25740			1430	C5	EM	65	750	90	9/5/05	SS	840	845	31	30	Pass	
P124/126	25	25765			1010	C7	JR	60	750	80	9/5/05	SS	1125	1130	31	31	Pass	
P125/126	380	26145			1030	C7	JR	60	750	80	9/5/05	SS	1125	1130	32	32	Pass	100' from anchor trench
P126/127	188	26333	DS-54	488	1435	C7	JR	65	750	90	9/5/05	SS	900	905	33	33	Pass	
P127/128	22.5	26356			1430	C7	JR	65	750	90	9/5/05	SS	900	905	31	30	Pass	
P126/128	213	26569			1410	C7	JR	65	750	90	9/5/05	SS	900	905	32	31	Pass	
P128/129	22	26591			1400	C7	JR	65	750	90	9/5/05	SS	1015	1020	34	34	Pass	
P129/130	22.5	26613			1420	C7	JR	65	750	90	9/5/05	SS	1015	1020	32	32	Pass	200' from anchor trench
P128/130	188.0	26801	DS-55	487	1515	C7	JR	65	750	90	9/5/05	SS	900	905	31	31	Pass	
P127/130	190	26991			1455	C7	JR	65	750	90	9/5/05	SS	900	905	34	33	Pass	
Total Page	**1626**		3															
Previous		**25365**	52															
To Date		**26991**	**55**	**491**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Sunday, 9/4/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P34/117	22.5	27014			1625	C7	JR	65	750	90	9/5/05	SS	1007	1012	31	30	Pass	
P34/116	22.5	27036	DS-56	483	1630	C7	JR	65	750	90	9/5/05	SS	1000	1005	31	30	Pass	At top P34 tie-in
P34/115A	22.5	27059			1632	C7	JR	65	750	90	9/5/05	SS	1000	1005	32	32	Pass	
P34/115B		27059			1632	C7	JR	65	750	90	9/5/05	SS	1000	1005	31	31	Pass	
P34/129	22.5	27081			1555	C7	JR	65	750	90	9/6/05	C	A	P	P	E	D	
P34/128	22.5	27104			1600	C7	JR	65	750	90	9/6/05	C	A	P	P	E	D	
P34/126	22.5	27126			1610	C7	JR	65	750	90	9/6/05	C	A	P	P	E	D	
P34/124	22.5	27149			1615	C7	JR	65	750	90	9/6/05	SS	1021	1026	31	31	Pass	
P34/123	22.5	27171			1618	C7	JR	65	750	90	9/6/05	SS	1014	1019	32	30	Pass	
P34/121	22.5	27194			1620	C7	JR	65	750	90	9/6/05	SS	1014	1019	31	30	Pass	
P34/120	22.5	27216			1622	C7	JR	65	750	90	9/6/05	SS	1014	1019	31	30	Pass	
Total Page	**225**		1															
Previous		**26991**	55															
To Date		**27216**	**56**	**486**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Wednesday, 9/7/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P129/131	21	27237			1355	C2	EM	60	750	85	9/8/05	MB	1000	1005	31	31	Pass	
P130-131A	377	27614			1400	C2	EM	60	750	85	9/8/05	MB	1000	1005	30	29	Pass	
P130-131B		27614	DS-57	484		C2	EM	60	750	85	9/8/05	MB	1006	1011	31	29	Pass	
P131/132A	190	27804			1440	C2	EM	60	750	85	9/8/05	MB	1017	1022	30	30	Pass	
P131/132B		27804			↓	C2	EM	60	750	85	9/8/05	MB	1121	1126	30	29	Pass	
P131/132C		27804				C2	EM	60	750	85	9/8/05	MB	1130	1135	30	30	Pass	
P131/133	210	28014			1515	C2	EM	60	750	85	9/8/05	MB	1000	1005	31	31	Pass	
P132/133	22.5	28037	DS-58	483	1505	C2	EM	60	750	85	9/8/05	MB	1007	1012	30	29	Pass	
P133/134	210	28247	DS-59	479	1740	C2	EM	60	750	85	9/8/05	MB	1017	1022	30	30	Pass	
P134/135	395	28642			1800	C2	EM	60	750	85	9/8/05	MB	1132	1137	31	29	Pass	
P132/134	188	28830	DS-60	480	1730	C2	EM	60	750	85	9/8/05	MB	1017	1022	31	30	Pass	
P135/137	203	29033			1330	C2	EM	60	750	85	9/8/05	MB	1500	1505	30	30	Pass	
P135/136	200	29233			1445	C2	EM	60	750	85	9/8/05	MB	1500	1505	30	29	Pass	
P136/137	22.5	29255			820	C2	EM	55	750	80	9/8/05	MB	1300	1305	31	31	Pass	
P136/138	195	29450	DS-61	483	900	C2	EM	55	750	80	9/8/05	MB	1300	1305	30	29	Pass	
P137/138	200	29650			825	C2	EM	55	750	80	9/8/05	MB	1300	1305	30	30	Pass	
P138/139	395	30045			920	C2	EM	55	750	80	9/8/05	MB	1340	1345	31	30	Pass	
P139/140	192	30237	DS-62	488	1045	C2	EM	55	750	80	9/8/05	MB	1306	1311	31	30	Pass	
Total Page	**3021**		6															
Previous		**27216**	56															
To Date		**30237**	**62**	**488**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Thursday, 9/8/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P139/141	204	30441			1005	C2	EM	55	750	80	9/8/05	MB	1340	1345	30	29	Pass	
P140/141	22.5	30464			1030	C2	EM	55	750	80	9/8/05	MB	1306	1311	30	29	Pass	
P140/142	193	30657	DS-63	487	1100	C2	EM	55	750	80	9/8/05	MB	1312	1317	30	31	Pass	
P141/142	94	30751			1130	C2	EM	55	750	80	9/8/05	MB	1315	1320	30	29	Pass	
P34/131	22.5	30773			1725	C2	EM	60	750	85	9/9/05	MB	940	945	31	30	Pass	
P34/133	22.5	30796			1727	C2	EM	60	750	85	9/9/05	MB	940	945	30	29	Pass	
P34/134	22.5	30818			1729	C2	EM	60	750	85	9/9/05	C	A	P	P	E	D	
P34/135	22.5	30841			1731	C2	EM	60	750	85	9/9/05	MB	946	951	30	30	Pass	
P34/137	22.5	30863			1735	C2	EM	60	750	85	9/9/05	MB	946	951	30	29	Pass	
P34/138	22.5	30886			1737	C2	EM	60	750	85	9/9/05	MB	952	957	31	30	Pass	
P34/139	22.5	30908			1742	C2	EM	60	750	85	9/9/05	MB	952	957	31	31	Pass	
P34/141	22.5	30931			1746	C2	EM	60	750	85	9/9/05	MB	959	964	31	30	Pass	
P34/142	22.5	30953			1750	C2	EM	60	750	85	9/9/05	MB	1004	1009	30	29	Pass	
P34/143	14	30967			1755	C2	EM	60	750	85	9/9/05	MB	1004	1009	30	29	Pass	
P142/143A	395	31362	DS-64	490	1415	C2	EM	60	750	85	9/8/05	MB	1635	1640	31	30	Pass	
P142/143B		31362				C2	EM	60	750	85	9/8/05	MB	1636	1641	30	29	Pass	Burnout at 315 from AT
P142/143C		31362				C2	EM	60	750	85	9/8/05	MB	1645	1650	30	29	Pass	Burnout at 30 from AT
Total Page	**1125**		2															
Previous		**30237**	62															
To Date		**31362**	**64**	**490**														

JOYCE ENGINEERING, INC.

Geomembrane Seaming and Test Record

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Day & Date: Thursday, 9/8/05

Seaming Record											Non-Destructive Test Log							
Seam		Cumu-lative	Destructive Sample		Seam	Welding			Temp, °F				Air Pressure		Air Pressure		Pass / Fail	
Panel	Length,				Start	Machine		Speed					Test Time		psi			
Numbers	feet	Length, ft	Number	Freq., ft	Time	No.	Welder	Setting	Mach.	Amb.	Date	Tester	Start	End	Start	End		Comments
P143/144	188	31550			1530	C2	EM	60	750	85	9/8/05	MB	1620	1625	31	30	Pass	
P143/145	165	31715	DS-65	488	1520	C2	EM	60	750	85	9/8/05	MB	1625	1630	30	29	Pass	
P144/145	22.5	31738			1510	C2	EM	60	750	85	9/8/05	MB	1620	1625	30	29	Pass	
P144/146	87	31825			1650	C2	EM	60	750	85	9/8/05	MB	1703	1708	31	30	Pass	
P146/147	52	31877			1700	C2	EM	60	750	85	9/8/05	MB	1710	1715	30	29	Pass	
P146/148	22.5	31899			1555	C2	EM	60	750	85	9/8/05	MB	1710	1715	30	29	Pass	
P144/148	80	31979	DS-66	485	1642	C2	EM	60	750	85	9/8/05	MB	1705	1710	31	29	Pass	
P144/149	10	31989			1640	C2	EM	60	750	85	9/8/05	MB	1655	1700	31	30	Pass	
P145/149	47	32036			1635	C2	EM	60	750	85	9/8/05	MB	1655	1700	30	29	Pass	
P148/149	11	32047			1620	C2	EM	60	750	85	9/8/05	C	A	P	P	E	D	
P142/143		32047	DS-67	478	1415	C2	EM	60	750	85	9/8/05	MB	1635	1640	31	30	Pass	Extra DS
Total Page	**685**		3															
Previous		**31362**	64															
To Date		**32047**	**67**	**478**	6.07 MILES OF SEAMING													

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: N.Melaro
Page: 1 of 17

Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-1	P1/2	8/11/05	20238	85	85	85	85	85	80	80	80	80	80	P	180 ft from AT
				85	85	85	85	85							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-2	P2/3	8/11/05	1899	80	80	80	80	80	80	80	80	80	80	P	130 ft from AT
				75	75	75	75	75							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-3	P3/4	8/11/05	20238	75	75	80	80	75	75	75	75	75	75	P	55 ft from At
				75	80	85	85	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-4	P4/5	8/11/05	1899	85	75	75	75	75	80	80	80	80	80	P	55 ft from At
				80	80	80	80	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen

Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-5	P7/8	8/15/05	20238	70	70	70	70	68	68	68	68	65	65	P	100 ft from AT
				75	65	68	70	68							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-6	P10/12	8/15/05	1899	65	67	70	67	69	70	69	70	70	68	P	40 ft up from P10/11/12 JCT
				65	66	69	65	68							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-7	P8/13	8/15/05	20238	60	60	60	60	60	65	68	65	70	68	P	5 ft from At
				58	58	57	58	60							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-8	P13/14	8/15/05	1899	60	60	60	60	60	70	70	65	70	65	P	95 ft from AT
				59	60	62	60	60							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS9	P16/17	8/15/05	20238	75	75	70	75	75	70	70	70	69	70	P	100 ft from AT
				65	64	65	65	64							

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
Page: 3 of 17

Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-10	P17/18	8/15/05	1899	70	70	70	70	70	70	68	70	70	68	P	50 ft from AT
				70	75	75	70	75							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-11	P19/20	8/15/05	20238	60	60	60	60	62	70	71	70	69	70	P	240 from AT
				61	58	62	60	62							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen

Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**
Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-12	P18/19	8/17/05	20238	80	85	85	95	90	85	80	85	85	80	P	191 ft from At
				80	80	85	80	85							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-13	P21/22	8/17/05	20238	80	80	80	90	80	85	85	85	85	85	P	91 ft from At
				80	85	90	80	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-14	P23/24	8/17/05	1899	70	70	75	75	70	80	80	80	80	80	P	45 ft from At
				70	75	75	70	70							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-15	P24/25	8/17/05	20238	80	75	80	80	75	80	80	80	80	80	P	120 ft from At
				80	75	80	80	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS16	P27/28	8/17/05	20238	85	80	85	85	80	80	80	80	80	80	P	183 ft from At
				80	80	80	85	80							

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
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Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-7A	P8/12	8/17/05	20238	80	85	80	80	80	80	80	82	80	80	P	15 ft from AT
				90	85	80	85	85							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-7B	P7/8	8/17/05	20238	80	80	80	80	85	85	85	90	85	85	P	280 ft from At
				90	80	80	80	85							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
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Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-17	P32/33	8/24/05	20238	80	80	80	85	90	90	95	90	90	95	P	465 ft from west edge of closure
				85	80	80	85	85							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-18	P33/34	8/24/05	1899	90	85	85	85	85	95	95	95	90	95	P	470 ft from west edge of closure
				90	90	85	90	90							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-19	P17/32	8/24/05	202038	80	80	85	80	80	85	85	85	85	85	P	370 ft from west edge of closure
				80	80	80	80	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-20	P6/32	8/24/05	20238	85	80	80	85	80	85	85	80	80	85	P	122 ft from west edge of closure
				80	80	80	80	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI CQA: H.Kemppinen

Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**
Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-21	P35/36	8/25/05	1899	80	80	80	80	80	85	90	85	90	85	P	100 ft from AT
				80	80	80	85	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-22	P37/38	8/25/05	20238	80	80	80	90	85	95	90	95	90	90	P	100 ft from AT
				80	90	80	85	90							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-23	P43/44	8/25/05	1899	80	80	85	80	85	90	85	90	90	90	P	50 ft from AT
				80	80	80	85	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-24	P48/49	8/25/05	20238	85	80	85	85	90	80	90	90	90	90	P	100 ft from AT
				80	85	90	80	90							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-25	P53/54	8/25/05	1899	80	80	80	990	80	90	80	80	80	80	P	48 ft from AT
				80	80	80	80	80							

JOYCE ENGINEERING, INC.

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JEI CQA: H.Kemppinen

Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-26	P56/57	8/25/05	20238	80	80	80	75	80	85	80	80	85	80	P	200 ft from At
				80	75	80	75	75							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-27	P57/58	8/25/05	1899	80	80	80	85	80	85	85	80	85	80	P	200 ft from At
				75	80	80	80	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-28	P60/61	8/25/05	20238	80	80	80	85	80	85	85	85	90	85	P	200 ft from At
				80	85	80	85	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS29	P61/62	8/25/05	1899	80	80	85	85	80	85	80	80	80	80	P	200 ft from At
				80	80	80	80	85							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-30	P37/56	8/25/05	20238	80	80	75	80	80	80	80	80	80	80	P	At top of SE corner 250 ft from At
				75	80	80	80	80							

JOYCE ENGINEERING, INC.

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JEI CQA: H.Kemppinen

Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-31	P65/67	8/26/05	20238	90	90	85	85	80	90	90	90	85	95	P	383 ft from east AT
				90	90	80	80	85							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-32	P68/70	8/26/05	1899	80	90	80	85	90	100	90	90	90	90	P	306 ft from east AT
				75	85	85	80	90							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
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Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-33	P71/73	8/29/05	1899	67	70	68	91	65	78	80	81	75	84	P	290 ft from AT
				70	72	67	72	66							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-34	P72/77	8/29/05	1899	90	90	90	83	88	90	90	90	85	90	P	200 ft from AT
				90	90	85	85	85							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-35	P77/78	8/29/05	20238	90	85	85	85	80	90	90	85	90	90	P	150 ft from AT
				85	85	85	85	85							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-36	P82/83	8/29/05	1899	85	80	85	80	85	90	90	90	90	90	P	100 ft from AT
				80	80	80	80	80							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-37	P85/86	8/29/05	20238	80	80	80	85	80	85	85	85	85	85	P	50 ft from AT
				80	85	85	80	80							

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
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Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**
Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-38	P93/94	9/2/05	C7	62	68	64	68	66	75	76	71	79	79	P	10 ft from AT
				61	70	64	71	68							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-39	P95/96	9/2/05	C7	75	69	64	67	70	78	80	81	76	82	P	190 ft from AT
				74	61	68	65	65							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-40	P97/99	9/2/05	C5	60	68	66	70	69	72	76	80	75	76	P	70 ft from AT
				65	66	65	69	70							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-41	P101/102	9/2/05	C7	71	70	69	65	66	78	80	70	71	72	P	8 ft from AT
				75	68	72	70	68							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-42	P90/92	9/2/05	C7	68	69	67	71	70	72	77	71	79	80	P	30 ft from AT
				70	69	70	65	68							

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Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-43	P102/103	9/2/05	C7	70	71	70	69	69	80	80	78	79	81	P	43 ft from AT
				72	74	68	71	74							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-44	P103/105	9/2/05	C5	62	68	66	64	69	72	80	74	75	77	P	35 ft from AT
				64	70	65	63	70							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-45	P105/107	9/2/05	C5	73	71	64	63	61	75	77	77	78	80	P	35 ft from AT
				70	68	66	70	64							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
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Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
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Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**
Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-46	P107/111	9/6/05	C5	62	60	65	68	63	70	71	80	74	77	P	40 ft from AT
				65	61	68	67	68							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-47	P111/113	9/6/05	C5	59	57	60	62	64	75	76	80	74	71	P	50 ft from AT
				60	60	61	58	68							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-48	P113/115	9/6/05	C7	62	71	70	63	65	72	74	79	80	73	P	100 ft from AT
				68	69	65	64	66							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-49	P115/116	9/6/05	C5	75	69	66	71	72	80	79	79	81	80	P	125 ft from AT
				70	68	70	68	69							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-50	P116/118	9/6/05	C7	78	77	72	74	71	82	84	79	78	80	P	170 ft from AT
				75	70	75	71	75							

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Material: 40-mil LLDPE
JEI CQA: H.Kemppinen

Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-51	P117/120	9/6/05	C5	79	68	77	72	71	80	78	72	79	77	P	180 ft from AT
				69	71	70	64	70							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-52	P121/123	9/6/05	C5	64	69	68	65	70	72	80	77	76	76	P	190 ft from AT
				68	72	64	71	71							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-53	P123/125	9/6/05	C5	78	77	78	70	69	74	78	80	82	81	P	298 ft from AT
				75	76	72	74	71							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-54	P126/127	9/6/05	C7	61	64	62	64	66	79	70	77	78	80	P	100 ft from AT
				62	65	68	65	68							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-55	P128/130	9/6/05	C7	69	72	74	72	69	74	76	80	81	79	P	200 ft from AT
				70	69	70	68	66							

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JEI Project: 379.00 Task 35
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Material: 40-mil LLDPE
JEI CQA: H.Kemppinen

Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**
Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-56	P34/116	9/6/05	C7	78	74	68	69	71	79	80	84	78	79	P	N slope-top tie-in 420 ft from W edge
				71	70	67	70	70							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-57	P131/132	9/8/05	C2	61	69	70	63	68	84	74	77	78	79	P	40 ft from AT
				64	62	70	62	64							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-58	P133/134	9/8/05	C2	75	70	77	75	72	80	82	81	77	78	P	200 ft from AT
				76	69	79	69	71							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-59	P134/135	9/8/05	C2	79	65	72	69	75	81	80	80	79	82	P	200 ft from AT
				70	69	68	72	74							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS60	P135/137	9/8/05	C2	62	69	64	72	71	74	72	72	78	77	P	200 ft from AT
				61	65	71	66	67							

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Project Location: Davidson County Landfill
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Material: 40-mil LLDPE
JEI CQA: H.Kemppinen

Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**
Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-61	P137/138	9/8/05	C2	70	68	68	71	69	79	80	77	76	81	P	200 ft from AT
				71	74	75	75	70							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-62	P139/140	9/8/05	C2	70	64	68	70	68	77	77	74	73	77	P	180 ft from AT
				69	69	70	71	64							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-63	P140/142	9/8/05	C2	68	67	73	69	68	79	80	80	79	78	P	180 ft from AT
				66	71	62	66	64							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-64	P142/143	9/8/05	C2	73	69	68	66	69	77	77	76	78	80	P	190 ft from AT
				72	71	73	70	72							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-65	P143/145	9/8/05	C2	76	72	69	69	71	78	77	80	75	76	P	200 ft from AT
				74	68	71	69	73							

JOYCE ENGINEERING, INC.

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Material: 40-mil LLDPE
JEI CQA: H.Kemppinen
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Geomembrane Seam Destructive Test Log

Project Seam Requirements: (Fusion) **Peel 42 ppi** **Shear 54 ppi**

Project Seam Requirements: (Extrusion) **Peel 36 ppi** **Shear 54 ppi**

Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-66	P144/148	9/8/05	C2	74	69	70	71	67	78	79	80	77	77	P	140 ft from AT
				70	68	71	68	68							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-67	P142/143	9/8/05	C2	72	70	68	71	73	79	82	80	77	76	P	300 ft from AT
				71	66	69	68	69							
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
Sample ID.	Panel Numbers	Date	Mach. ID.	Peel (ppi) inside/outside					Shear (ppi)					P/F	Comments
DS-55															

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 1	14-Aug	P1/2 at top of slope	Patch	2x2	GRD	P	17-Aug
R- 2	14-Aug	P1/2 DS-1	Patch	2x6	GRD	P	17-Aug
R- 3	14-Aug	P1/2 burnout	Patch	2x2	GRD	P	17-Aug
R- 4	14-Aug	P1/2 burnout	Patch	2x2	GRD	P	17-Aug
R- 5	14-Aug	P1/2 burnout	Patch	2x3	GRD	P	17-Aug
R- 6	14-Aug	P2/3 DS-2	Patch	2x6	GRD	P	17-Aug
R- 7	14-Aug	P2/3 burnout	Patch	2x8	GRD	P	17-Aug
R- 8	14-Aug	P3/4 burnout	Patch	2x2	GRD	P	17-Aug
R- 9	14-Aug	P3/4 burnout	Patch	2x2	GRD	P	17-Aug
R- 10	14-Aug	P4/5 burnout	Patch	2x2	GRD	P	17-Aug
R- 11	14-Aug	P4/5 burnout	Patch	2x2	GRD	P	17-Aug
R- 12	14-Aug	P4/5 burnout	Patch	2x4	GRD	P	17-Aug
R- 13	15-Aug	P4/5 burnout	Patch	2x4	GRD	P	17-Aug
R- 14	14-Aug	P3/4 DS-3	Patch	2x6	GRD	P	17-Aug
R- 15	14-Aug	P4/5 DS-4	Patch	2x6	GRD	P	17-Aug
R- 16	--	Panel 32 covers repair #16	--	--	--	--	--
R- 17	--	Panel 32 covers repair #17	--	--	--	--	--

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: N.Melaro

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 18	--	Panel 32 covers repair #18	--	--	--	--	--
R- 19	--	Panel 32 covers repair #19	--	--	--	--	--
R- 20	15-Aug	P5/6 burnout	Patch	2x2	GRD	P	17-Aug
R- 21	15-Aug	P5/6 GV-1	Patch	2x4	GRD	P	17-Aug
R- 22	15-Aug	P5 GV-1	Boot and skirt	6x6	GRD	P	17-Aug
R- 23	14-Aug	P5/6 at anchor trench	Patch	2x10	GRD	P	17-Aug
R- 24	15-Aug	P6/7 GV-2	Boot and skirt	6x8	GRD	P	17-Aug
R- 25	16-Aug	P5 end of panel repair	Patch	4x22	GRD	P	17-Aug
R- 26	16-Aug	P6 end of panel repair	Patch	4x22	GRD	P	17-Aug
R- 27	16-Aug	P6 puncture	Patch	2x2	GRD	P	17-Aug
R- 28	16-Aug	P6 puncture	Patch	2x2	GRD	P	17-Aug
R- 29	17-Aug	P7 end of panel repair	Patch	4x22	GRD	P	17-Aug
R- 30	16-Aug	P7/8 end of panel repair	Patch	2x2	GRD	P	17-Aug
R- 31	16-Aug	P7/8 burnout	Patch	2x2	GRD	P	17-Aug
R- 32	16-Aug	P7/8 DS-5	Patch	2x6	GRD	P	17-Aug
R- 33	16-Aug	P8/9/10/11 JCT	Patch	2x5	JH	P	17-Aug
R- 34	16-Aug	P8/11 burnout	Patch	2x2	GRD	P	17-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: N.Melaro

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 35	16-Aug	P8/11/12 JCT	Patch	2x2	GRD	P	17-Aug
R- 36	16-Aug	P8/12/13 JCT	Patch	2x4	GRD	P	17-Aug
R- 37	16-Aug	P8/13 DS-7	Patch	2x6	GRD	P	17-Aug
R- 38	16-Aug	P8/13 air test at anchor trench	Patch	2x2	GRD	P	17-Aug
R- 39	16-Aug	P8 panel end repair	Patch	4x22	GRD	P	17-Aug
R- 40	16-Aug	P13/14 air test at anchor trench	Patch	2x5	GRD	P	17-Aug
R- 41	16-Aug	P13/14 DS-8	Patch	2x6	GRD	P	17-Aug
R- 42	16-Aug	P13/14 burnout	Patch	2x3	GRD	P	17-Aug
R- 43	16-Aug	P13/14 burnout	Patch	2x2	JH	P	17-Aug
R- 44	16-Aug	P14/15 burnout	Patch	2x3	JH	P	17-Aug
R- 45	16-Aug	P14/15 burnout	Patch	2x3	GRD	P	17-Aug
R- 46	16-Aug	P14/15 burnout	Patch	2x2	GRD	P	17-Aug
R- 47	16-Aug	P14/15 air test at anchor trench	Patch	2x5	GRD	P	17-Aug
R- 48	16-Aug	P10/11/12 JCT	Patch	2x3	JH	P	17-Aug
R- 49	16-Aug	P10/12 DS-6	Patch	2x6	JH	P	17-Aug
R- 50	16-Aug	P12 puncture hole	Patch	2x2	JH	P	17-Aug
R- 51	16-Aug	P15 GV-3	Boot and skirt	7x10	JH	P	17-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: N.Melaro

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 52	16-Aug	P15/16 failed seam	Cap	2x14	GRD	P	17-Aug
R- 53	17-Aug	P15/16 failed seam	Cap	1x12	GRD	P	17-Aug
R- 54	17-Aug	P15 puncture hole	Patch	2x2	GRD	P	17-Aug
R- 55	17-Aug	P15 puncture hole	Patch	2x2	GRD	P	17-Aug
R- 56	17-Aug	P15 puncture hole	Patch	2x2	GRD	P	17-Aug
R- 57	17-Aug	P15 end of panel repair	Patch	4x22	GRD	P	17-Aug
R- 58	17-Aug	P16 end of panel repair	Patch	4x22	GRD	P	17-Aug
R- 59	17-Aug	P16/17 air test at anchor trench	Patch	2x5	GRD	P	17-Aug
R- 60	17-Aug	P16/17 DS-9	Patch	2x7	JH	P	17-Aug
R- 61	17-Aug	P16/17 burnout	Patch	2x3	JH	P	17-Aug
R- 62	17-Aug	P16/17 burnout	Patch	2x4	JH	P	17-Aug
R- 63	17-Aug	P17 end of panel repair	Patch	4x20	GRD	P	17-Aug
R- 64	17-Aug	P17/18 air test at anchor trench	Patch	2x2	GRD	P	17-Aug
R- 65	17-Aug	P17/18 DS-10	Patch	2x6	JH	P	17-Aug
R- 66	17-Aug	P18 end of panel repair	Patch	4x22	GRD	P	17-Aug
R- 67	17-Aug	P18/19 air test at anchor trench	Patch	2x4	GRD	P	17-Aug
R- 68	17-Aug	P19 end of panel repair	Patch	2x22	GRD	P	17-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 69	17-Aug	P18/19 DS-12	Patch	2x7	GRD	P	17-Aug
R- 70	17-Aug	P18/19 burnout	Patch	2x3	GRD	P	17-Aug
R- 71	17-Aug	P18/19 burnout	Patch	2x2	JH	P	17-Aug
R- 72	17-Aug	P19/20 DS-11	Patch	2x6	JH	P	17-Aug
R- 73	17-Aug	P19/20 airtest at anchor trench	Patch	2x2	GRD	P	17-Aug
R- 74	17-Aug	P20 end of panel repair	Patch	4x22	GRD	P	17-Aug
R- 75	17-Aug	P20/21 air test at anchor trench	Patch	2x2	GRD	P	17-Aug
R- 76	17-Aug	P21 end of panel repair	Patch	2x20	GRD	P	17-Aug
R- 77	17-Aug	P21/22 DS-13	Patch	2x6	JH	P	17-Aug
R- 78	17-Aug	P21/22 GV-5	Boot and skirt	4x4	JH	P	17-Aug
R- 79	17-Aug	P22/23 burnout	Patch	2x3	JH	P	17-Aug
R- 80	17-Aug	P22/23 air test at anchor trench	Patch	2x2	GRD	P	17-Aug
R- 81	17-Aug	P23 puncture hole	Patch	2x2	GRD	P	17-Aug
R- 82	17-Aug	P23/24 air test at anchor trench	Patch	2x6	GRD	P	17-Aug
R- 83	17-Aug	P23/24 DS-14	Patch	2x6	GRD	P	17-Aug
R- 84	17-Aug	P24/25 DS-15	Patch	2x6	JH	P	17-Aug
R- 85	17-Aug	P24/25 air test at anchor trench	Patch	2x2	GRD	P	17-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 86	17-Aug	P25/26 air test at anchor trench	Patch	2x2	GRD	P	17-Aug
R- 87	17-Aug	P25/26 GV-4	Boot and skirt	4x4	JH	P	17-Aug
R- 88	17-Aug	P26/27 air test at anchor trench	Patch	2x2	JH	P	17-Aug
R- 89	17-Aug	P27/28 air test at anchor trench	Patch	2x4	JH	P	17-Aug
R- 90	17-Aug	P27/28 DS-16	Patch	2x6	JH	P	17-Aug
R- 91	17-Aug	P28/29 air test at anchor trench	Patch	2x2	JH	P	20-Aug
R- 92	17-Aug	P29/30 air test at anchor trench	Patch	2x2	JH	P	20-Aug
R- 93	17-Aug	P30/31 air test + burnout	Patch	2x18	JH	P	20-Aug
R- 94	17-Aug	P8/12 DS-7A	Cap	2x10	GRD	P	17-Aug
R- 95	17-Aug	P7/8 DS-7B	Cap	2x10	GRD	P32 covers DS-7B	
R- 96	23-Aug	P9/10 at top	Cap	2x18	AJ	P	25-Aug
R- 97	23-Aug	P15 Gv-3 redo	Boot and skirt	6x6	AJ	P	25-Aug
R- 98	25-Aug	P1/2/32 JCT	Patch	2x2	AJ	P	25-Aug
R- 99	25-Aug	P2/3/32/JCT	Patch	2x2	AJ	P	25-Aug
R- 100	25-Aug	P3/4/32 JCT	Patch	2x2	AJ	P	25-Aug
R- 101	25-Aug	P4/5/32 JCT	Patch	2x2	AJ	P	25-Aug
R- 102	25-Aug	P5/6/32 JCt	Patch	2x2	AJ	P	25-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 103	25-Aug	P6/32 DS-20	Patch	2x6	AJ	P	25-Aug
R- 104	25-Aug	P6/7/32 JCT	Patch	2x2	AJ	P	25-Aug
R- 105	24-Aug	P7/8/32 JCT	Patch	2x2	AJ	P	25-Aug
R- 106	24-Aug	P8/9/32 JCT	Patch	2x2	AJ	P	25-Aug
R- 107	24-Aug	P9/10/32 JCT	Patch	2X2	AJ	P	25-Aug
R- 108	24-Aug	P10/12/32 JCT	Patch	2X2	AJ	P	25-Aug
R- 109	24-Aug	P12-13/32 JCT	Patch	2X2	AJ	P	25-Aug
R- 110	24-Aug	P13/14/32 JCT	Patch	2X2	AJ	P	25-Aug
R- 111	24-Aug	P14/15/32 JCT	Patch	2X2	AJ	P	25-Aug
R- 112	24-Aug	P15/16/32 JCT	Patch	2X4	AJ	P	25-Aug
R- 113	24-Aug	P16/17/32 DS-19	Patch	2X8	AJ	P	25-Aug
R- 114	24-Aug	P17/18/32 JCT	Patch	2X2	AJ	P	25-Aug
R- 115	24-Aug	P18/19/32 JCT	Patch	2X2	AJ	P	25-Aug
R- 116	24-Aug	P19/20/32 JCT	Patch	2X2	AJ	P	25-Aug
R- 117	24-Aug	P20/21/32 JCT	Patch	2X2	AJ	P	25-Aug
R- 118	24-Aug	P21/22/32 JCT	Patch	2X2	AJ	P	25-Aug
R- 119	24-Aug	P22/23/32 JCT	Patch	4X4	AJ	P	25-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 120	24-Aug	P32/33 DS-17	Patch	2x6	AJ	P	25-Aug
R- 121	24-Aug	P33/34 DS-18	Patch	2X8	AJ	P	25-Aug
R- 122	24-Aug	P33/34 burnout	Patch	2X6	AJ	P	25-Aug
R- 123	24-Aug	P33/34 burnout	Patch	2x2	AJ	P	25-Aug
R- 124	25-Aug	P33/34 burnout	Patch	2x3	AJ	P	25-Aug
R- 125	25-Aug	P31/35 burnout	Patch	2X2	AJ	P	25-Aug
R- 126	25-Aug	P31/35 puncture hole	Patch	2X2	AJ	P	25-Aug
R- 127	25-Aug	P31/35 air test at anchor trench	Patch	2X2	AJ	P	25-Aug
R- 128	25-Aug	P35/36 air test at anchor trench	Patch	2X2	AJ	P	25-Aug
R- 129	25-Aug	P35/36 DS-21	Patch	2X6	AJ	P	25-Aug
R- 130	25-Aug	P36/37 burnout	Patch	2X6	AJ	P	25-Aug
R- 131	25-Aug	P37/38 DS-22	Patch	2X6	AJ	P	25-Aug
R- 132	26-Aug	P37/56 DS-30	Patch	2X7	AJ	P	25-Aug
R- 133	26-Aug	P37/38/55 JCT	Patch	2X2	AJ	P	25-Aug
R- 134	26-Aug	P38/39/48 JCT	Patch	2X4	AJ	P	25-Aug
R- 135	26-Aug	P38/39 air test at anchor trench	Patch	2X2	AJ	P	25-Aug
R- 136	26-Aug	P39/40 air test at anchor trench	Patch	2X2	AJ	P	25-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 137	26-Aug	P39/40 burnout	Patch	2x3	AJ	P	26-Aug
R- 138	26-Aug	P39/40/48/49 JCT	Patch	2X6	AJ	P	26-Aug
R- 139	26-Aug	P40/41/49 JCT	Patch	3X3	AJ	P	26-Aug
R- 140	26-Aug	P41/49/50 JCT	Patch	2X2	AJ	P	26-Aug
R- 141	26-Aug	P41/42/50 JCT	Patch	2X2	AJ	P	26-Aug
R- 142	26-Aug	P41/42 burnout	Patch	2x6	AJ	P	26-Aug
R- 143	26-Aug	P42/43/50/51 JCT	Patch	2x8	AJ	P	26-Aug
R- 144	26-Aug	P43/44/51/52 JCT	Patch	2X6	AJ	P	26-Aug
R- 145	26-Aug	P43/44 DS-23	Patch	2X6	AJ	P	26-Aug
R- 146	26-Aug	P43/44 air test at anchor trench	Patch	2x2	AJ	P	26-Aug
R- 147	26-Aug	P44/45/52/53 JCT	Patch	2X8	AJ	P	26-Aug
R- 148	26-Aug	P45/46/53 JCT	Patch	2X3	AJ	P	26-Aug
R- 149	26-Aug	P46/47/53/54 JCT	Patch	2X9	AJ	P	26-Aug
R- 150	26-Aug	P49 GV-6	Boot and skirt	5x5	GRD	P	26-Aug
R- 151	26-Aug	P48/49 DS-24	Patch	2X6	GRD	P	26-Aug
R- 152	26-Aug	P48/55 burnout	Patch	2x6	GRD	P	26-Aug
R- 153	26-Aug	P56/57 burnout/DS-26	Patch	2x6	GRD	P	26-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 154	26-Aug	P57/58 DS-27	Patch	2X6	GRD	P	26-Aug
R- 155	26-Aug	P59/60 burnout	Patch	2x10	GRD	P	26-Aug
R- 156	26-Aug	P59/60 burnout	Patch	2x3	GRD	P	26-Aug
R- 157	26-Aug	P59/60 burnout	Patch	2x3	GRD	P	26-Aug
R- 158	26-Aug	P59/60 burnout	Patch	2x2	GRD	P	26-Aug
R- 159	26-Aug	P60/61 DS-28	Patch	2x6	GRD	P	26-Aug
R- 160	26-Aug	P61 GV-7	Boot and skirt	6x6	GRD	P	26-Aug
R- 161	26-Aug	P60 hole by GV-7	Patch	2x2	GRD	P	26-Aug
R- 162	26-Aug	P61/62 DS-29	Patch	2x6	GRD	P	26-Aug
R- 163	26-Aug	P53/54 DS-25	Patch	2x6	AJ	P	26-Aug
R- 164	26-Aug	P52/53 air test at anchor trench	Patch	2x2	AJ	P	26-Aug
R- 165	26-Aug	P52 extended at anchor trench	Patch	10x22	AJ	P	26-Aug
R- 166	26-Aug	P52 extended at anchor trench	Patch	4x10	AJ	P	26-Aug
R- 167	26-Aug	P52 extended at anchor trench	Patch	3x9	AJ	P	26-Aug
R- 168	27-Aug	P51/52 air test	Patch	2X6	AJ	P	27-Aug
R- 169	27-Aug	P36/56/57 JCT	Patch	2X4	AJ	P	27-Aug
R- 170	27-Aug	P36/57/58 JCT	Patch	2X7	AJ	P	27-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 171	27-Aug	P36/58/59 JCT	Patch	2X12	AJ	P	27-Aug
R- 172	27-Aug	P35/36/59 JCT	Patch	2X10	AJ	P	27-Aug
R- 173	27-Aug	P35/59/60 JCT	Patch	2X4	AJ	P	27-Aug
R- 174	27-Aug	P31/35/66 JCT	Patch	2X2	AJ	P	27-Aug
R- 175	27-Aug	P31/35 failed seam	Patch	3X3	AJ	P	27-Aug
R- 176	27-Aug	P30/31/66 JCT	Patch	2X8	AJ	P	27-Aug
R- 177	27-Aug	P29/30/66 JCT	Cap	3x20	AJ	P	27-Aug
R- 178	27-Aug	P28/29/66 JCT	Patch	2X2	GRD	P	27-Aug
R- 179	27-Aug	P28/65/66 JCT	Patch	2X2	GRD	P	27-Aug
R- 180	27-Aug	P27/28/65 JCT	Patch	2X2	GRD	P	27-Aug
R- 181	27-Aug	P26/27/65 JCT	Patch	2X2	GRD	P	27-Aug
R- 182	27-Aug	P25/26/65 JCT	Patch	2X2	GRD	P	27-Aug
R- 183	27-Aug	P24/25/65 JCT	Patch	2X12	GRD	P	27-Aug
R- 184	27-Aug	P32/33/65/67 JCT	Patch	2X3	GRD	P	27-Aug
R- 185	27-Aug	P33/34/69 JCT	Patch	2X2	GRD	P	27-Aug
R- 186	27-Aug	P33/67/69 JCT	Patch	2X2	GRD	P	27-Aug
R- 187	27-Aug	P65/67/68 JCT/DS-31	Patch	2X6	GRD	P	27-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 188	27-Aug	P67/68/69 JCT	Patch	2X2	GRD	P	27-Aug
R- 189	27-Aug	P68/69/70 JCT	Patch	2X2	GRD	P	27-Aug
R- 190	27-Aug	P68/70 DS-32	Patch	2X6	GRD	P	27-Aug
R- 191	27-Aug	P65/66/68 JCT	Patch	2X2	GRD	P	27-Aug
R- 192	27-Aug	P35/60/66 JCT	Patch	2X4	GRD	P	27-Aug
R- 193	27-Aug	P60/61/66/68 JCT	Patch	2X6	GRD	P	27-Aug
R- 194	27-Aug	P61/62/68 JCT	Patch	2X2	GRD	P	27-Aug
R- 195	27-Aug	P62/68/75 JCT	Patch	2X3	GRD	P	27-Aug
R- 196	27-Aug	P62/63/75 JCT	Patch	2X3	GRD	P	27-Aug
R- 197	27-Aug	P62/63 burnouts	Cap	2x20	GRD	P	27-Aug
R- 198	27-Aug	P63/74/75 JCT	Patch	2X3	GRD	P	27-Aug
R- 199	27-Aug	P70/74/75 JCT	Patch	2X2	GRD	P	27-Aug
R- 200	27-Aug	P68/70/75 JCT	Patch	2X5	GRD	P	27-Aug
R- 201	27-Aug	P63/64/74 JCT	Patch	2X2	GRD	P	27-Aug
R- 202	27-Aug	P64/74/76 JCT	Patch	2X3	GRD	P	30-Aug
R- 203	27-Aug	P64/71/76 JCT	Patch	2X3	GRD	P	30-Aug
R- 204	27-Aug	P71/74/76 JCT	Patch	2X3	GRD	P	30-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 205	29-Aug	P69/70/74 JCT	Patch	2X2	GRD	P	30-Aug
R- 206	27-Aug	P69/71/74 JCT	Patch	2X5	GRD	P	30-Aug
R- 207	27-Aug	P71/72/73 JCT	Patch	2X3	GRD	P	30-Aug
R- 208	27-Aug	P71/73 DS-33	Patch	2X6	GRD	P	30-Aug
R- 209	27-Aug	P71/64 burnout	Patch	2x6	GRD	P	30-Aug
R- 210	30-Aug	P71/72 air test at anchor trench	Patch	2x2	AJ	P	30-Aug
R- 211	30-Aug	P72/77 burnout	Patch	2x12	AJ	P	30-Aug
R- 212	30-Aug	P72/77 GV-8	Boot and skirt	6x6	AJ	P	30-Aug
R- 213	30-Aug	P72/77 DS-34	Patch	2x6	AJ	P	30-Aug
R- 214	30-Aug	P77/78 air test at top	Patch	2x8	AJ	P	30-Aug
R- 215	30-Aug	P77/78 DS-35	Patch	2x6	AJ	P	30-Aug
R- 216	30-Aug	P78/79 burnout	Patch	2x10	AJ	P	30-Aug
R- 217	30-Aug	P78/79 burnout	Patch	2x10	AJ	P	30-Aug
R- 218	30-Aug	P78/79 burnout	Patch	2x8	AJ	P	30-Aug
R- 219	30-Aug	P80/81 GV-9	Boot and skirt	5x5	AJ	P	30-Aug
R- 220	30-Aug	P82/83 DS-36	Patch	2X6	AJ	P	30-Aug
R- 221	30-Aug	P82/83 burnout	Patch	2x5	AJ	P	30-Aug

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 222	30-Aug	P82/83 burnout	Patch	2x2	AJ	P	30-Aug
R- 223	30-Aug	P82/83 burnout	Patch	2x15	AJ	P	30-Aug
R- 224	30-Aug	P85/86 air test at top	Patch	1x1	AJ	P	30-Aug
R- 225	30-Aug	P85/86 DS-37	Patch	2X6	GRD	P	30-Aug
R- 226	30-Aug	P86/87 burnout	Patch	2x2	GRD	P	30-Aug
R- 227	30-Aug	P86/87 air test at top	Patch	1x1	GRD	P	30-Aug
R- 228	30-Aug	P87/88 air test at top	Patch	2x2	GRD	P	30-Aug
R- 229	30-Aug	P89/90 air test at top	Patch	2x2	GRD	P	30-Aug
R- 230	3-Sep	P83/84 air test at top	Patch	1x1	GRD	P	4-Sep
R- 231	3-Sep	P69 fold cut	Cap	2x20	GRD	P	4-Sep
R- 232	3-Sep	P69/71/106 JCT	Patch	2x3	AJ	P	4-Sep
R- 233	3-Sep	P71/73/103/106 JCT	Patch	2x10	AJ	P	4-Sep
R- 234	3-Sep	P73/103 burnout	Patch	2x4	AJ	P	4-Sep
R- 235	3-Sep	P73/102/103 JCT	Patch	2x3	AJ	P	4-Sep
R- 236	3-Sep	P73/100/102 JCT	Patch	2x2	AJ	P	4-Sep
R- 237	3-Sep	P72/73/100 JCT	Patch	2x3	AJ	P	4-Sep
R- 238	3-Sep	P72/77/100 JCT	Patch	2x3	AJ	P	4-Sep

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 239	3-Sep	P77/99/100JCT	Patch	2x3	AJ	P	4-Sep
R- 240	3-Sep	P77/78/99 JCT	Patch	3x7	AJ	P	4-Sep
R- 241	3-Sep	P78/79/98/99 JCT	Patch	3x7	AJ	P	4-Sep
R- 242	3-Sep	P79/80/98 JCT	Patch	2x2	AJ	P	4-Sep
R- 243	3-Sep	P80/81/98 JCT	Patch	3x4	AJ	P	4-Sep
R- 244	3-Sep	P81/96/98 JCT	Patch	2x5	AJ	P	4-Sep
R- 245	3-Sep	P81/82/96 JCT	Patch	3x4	AJ	P	4-Sep
R- 246	3-Sep	P82/83/96 JCT	Patch	2x3	AJ	P	4-Sep
R- 247	3-Sep	P84/95/96 JCT	Patch	2x4	AJ	P	4-Sep
R- 248	3-Sep	P95/96 DS39	Patch	2x6	AJ	P	4-Sep
R- 249	3-Sep	P84/85/95 JCT	Patch	2x3	AJ	P	4-Sep
R- 250	3-Sep	P85/86/95 JCT	Cap	2x15	AJ	P	4-Sep
R- 251	3-Sep	P86/87/95 JCT	Patch	2x3	AJ	P	4-Sep
R- 252	3-Sep	P87/93/95 JCT	Patch	2x4	AJ	P	4-Sep
R- 253	3-Sep	P87/88/93 JCT	Patch	2x3	AJ	P	4-Sep
R- 254	3-Sep	P88/89/93 JCT	Patch	2x3	AJ	P	4-Sep
R- 255	3-Sep	P89 puncture hole	Patch	1x1	AJ	P	4-Sep

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 256	3-Sep	P89/92/93 JCT	Cap	2x10	MS	P	4-Sep
R- 257	3-Sep	P90/92 DS42	Cap	2x10	MS	P	4-Sep
R- 258	3-Sep	P90/91 entire seam	Cap	2x12	MS	P	4-Sep
R- 259	3-Sep	P91/92 entire seam	Cap	2x6	MS	P	4-Sep
R- 260	3-Sep	P92/93 burnout	Patch	2x3	AJ	P	4-Sep
R- 261	3-Sep	P93/34 DS38	Patch	2x6	AJ	P	4-Sep
R- 262	3-Sep	P93/94 burnout	Patch	2x5	AJ	P	4-Sep
R- 263	3-Sep	P93/94/95 JCT	Patch	2x3	AJ	P	4-Sep
R- 264	3-Sep	P94/95/96 JCT	Patch	2x3	AJ	P	4-Sep
R- 265	3-Sep	P96/97/98 JCT	Patch	2x3	AJ	P	4-Sep
R- 266	3-Sep	P94/97 DS 40	Patch	2x7	AJ	P	4-Sep
R- 267	3-Sep	P97/98/99 JCT	Patch	2x2	AJ	P	4-Sep
R- 268	3-Sep	P99/100 burnout	Patch	2x2	AJ	P	4-Sep
R- 269	3-Sep	P99/100/101 JCT	Patch	2x3	MS	P	4-Sep
R- 270	3-Sep	P100/101 burnout	Patch	2x2	MS	P	4-Sep
R- 271	3-Sep	P100/101/102 JCT	Patch	2x2	MS	P	4-Sep
R- 272	3-Sep	P100/102 burnout	Patch	2x2	MS	P	4-Sep

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 273	3-Sep	P 102 GV 10	Boot and skirt	4 ft diam.	MS	P	4-Sep
R- 274	3-Sep	P101/102 DS41	Patch	2x6	AJ	P	4-Sep
R- 275	3-Sep	P102/103/104 JCT DS43	Patch	2x6	MS	P	4-Sep
R- 276	3-Sep	P102/103 burnout	Patch	2x4	MS	P	4-Sep
R- 277	3-Sep	P103/106 burnout	Patch	1x2	MS	P	4-Sep
R- 278	3-Sep	P103/105/106 JCT	Patch	2x4	MS	P	4-Sep
R- 279	3-Sep	P106 hole	Patch	1x1	MS	P	4-Sep
R- 280	3-Sep	P106 hole	Patch	1 ft diam.	MS	P	4-Sep
R- 281	3-Sep	P103/105 burnout	Patch	2x4	MS	P	4-Sep
R- 282	3-Sep	P103/104/105 JCT DS44	Cap	2x20	MS	P	4-Sep
R- 283	3-Sep	P105/107 DS45	Patch	2x6	MS	P	4-Sep
R- 284	3-Sep	P105/106/107 JCT	Patch	2x2	MS	P	4-Sep
R- 285	3-Sep	P69/106/107 JCT	Patch	2x2	AJ	P	4-Sep
R- 286	3-Sep	P69/107/108 JCT	Patch	2x3	AJ	P	4-Sep
R- 287	3-Sep	P34/69/108 JCT	Patch	2x6	AJ	P	4-Sep
R- 288	3-Sep	P108/109 burnout	Cap	2x18	AJ	P	4-Sep
R- 289	3-Sep	P107/108/109 JCT	Patch	2x6	MS	P	4-Sep

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 290	3-Sep	P107/109/110 JCT	Patch	2x2	MS	P	4-Sep
R- 291	3-Sep	P107/110/111 JCT	Patch	2x2	MS	P	4-Sep
R- 292	3-Sep	P107/111 burnout/DS-46	Patch	1x1	MS	P	4-Sep
R- 293	3-Sep	P107/111/114 JCT	Patch	2x3	MS	P	4-Sep
R- 294	3-Sep	P107/114 airtest at AT	Patch	3x4	MS	P	4-Sep
R- 295	3-Sep	P11/113/114 JCT/DS-47	Patch	2x3	MS	P	4-Sep
R- 296	3-Sep	P110/111/112 JCT	Patch	2x3	MS	P	4-Sep
R- 297	3-Sep	P109/110/111 JCT	Patch	2x3	MS	P	4-Sep
R- 298	3-Sep	P34/109/112 JCT	Patch	2x5	AJ	P	4-Sep
R- 299	3-Sep	P34/112/113 JCT	Patch	2x3	AJ	P	4-Sep
R- 300	3-Sep	P111/112/113 JCT	Patch	3x4	MS	P	4-Sep
R- 301	3-Sep	P113 GV-11	Boot + skirt	5 ft diam.	MS	P	4-Sep
R- 302	5-Sep	P34/113/115 JCT	Patch	3x3	AJ	P	6-Sep
R- 303	5-Sep	P34/115 fold cut	Patch	2x10	AJ	P	6-Sep
R- 304	5-Sep	P34/116 DS56	Patch	2x7	AJ	P	6-Sep
R- 305	5-Sep	P34/115/116 JCT	Patch	2x3	AJ	P	6-Sep
R- 306	5-Sep	P115/116 DS 49	Cap	2x202	MS	P	6-Sep

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 307	6-Sep	P113/115 DS48	Patch	2x6	AJ	P	6-Sep
R- 308	6-Sep	P113/114/115 JCT	Patch	2x2	AJ	P	6-Sep
R- 309	6-Sep	P115/116 air test / burnout	Patch	2x10	AJ	P	6-Sep
R- 310	6-Sep	P116/118 DS50	Patch	2x6	AJ	P	6-Sep
R- 311	6-Sep	P116/117/118/JCT	Patch	2x3	AJ	P	6-Sep
R- 312	6-Sep	P34/116/117 JCT	Patch	2x7	AJ	P	6-Sep
R- 313	6-Sep	P34 hole	Patch	2x2	AJ	P	6-Sep
R- 314	6-Sep	P34/117/120 JCT	Patch	2x3	AJ	P	6-Sep
R- 315	6-Sep	P117/118/120 JCT / DS51	Patch	2x7	AJ	P	6-Sep
R- 316	6-Sep	P118/119/120 seam	Cap	2x18	AJ	P	6-Sep
R- 317	6-Sep	P119/121 air test	Patch	2x4	AJ	P	6-Sep
R- 318	6-Sep	P119/120/121 JCT / burnout	Patch	2x10	AJ	P	6-Sep
R- 319	6-Sep	P120/121 burnout	Patch	1x2	AJ	P	6-Sep
R- 320	6-Sep	P34/120/121 JCT	Patch	2x4	AJ	P	6-Sep
R- 321	6-Sep	P34/121/123 JCT	Patch	2x2	AJ	P	6-Sep
R- 322	6-Sep	P121/122/123 JCT / DS52	Patch	2x6	AJ	P	6-Sep
R- 323	6-Sep	P122/125 air test / burnout	Cap	2x14	AJ	P	6-Sep

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 324	6-Sep	P122 GV-12	Boot + skirt	5 ft diam.	AJ	P	6-Sep
R- 325	6-Sep	P122/123/125 JCT	Patch	2x3	AJ	P	6-Sep
R- 326	6-Sep	P123 hole	Patch	2 ft diam.	AJ	P	6-Sep
R- 327	6-Sep	P123/125 DS53	Patch	2x7	AJ	P	6-Sep
R- 328	6-Sep	P123/124/125 JCT	Patch	2x2	AJ	P	6-Sep
R- 329	6-Sep	P34/123/124 JCT	Cap	2x15	AJ	P	6-Sep
R- 330	6-Sep	P34/126 seam	Cap	3x23	AJ	P	6-Sep
R- 331	6-Sep	P124/125/126 JCT	Patch	2x2	AJ	P	6-Sep
R- 332	6-Sep	P125/126 burnout	Patch	2x15	AJ	P	6-Sep
R- 333	6-Sep	P126/127 air test / burnout	Patch	2x10	AJ	P	6-Sep
R- 334	6-Sep	P126/127 air test / burnout	Patch	2x3	AJ	P	6-Sep
R- 335	6-Sep	P126/127 DS54	Patch	2x7	AJ	P	6-Sep
R- 336	6-Sep	P126/127/128 JCT	Patch	2x3	AJ	P	6-Sep
R- 337	6-Sep	P34/128 seam	Cap	3x23	AJ	P	6-Sep
R- 338	6-Sep	P34/129 seam	Cap	3x23	AJ	P	6-Sep
R- 339	6-Sep	P128/129/130 JCT	Patch	3x5	AJ	P	6-Sep
R- 340	6-Sep	P128/130 DS55	Patch	2x6	AJ	P	6-Sep

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 341	6-Sep	P127/128/130 JCT	Patch	2x4	AJ	P	6-Sep
R- 342	9-Sep	P34/129/131 JCT	Patch	2x3	AJ	P	9-Sep
R- 343	9-Sep	P34/131 burnout	Patch	2x3	AJ	P	9-Sep
R- 344	9-Sep	P129/130/131 JCT	Patch	3x3	AJ	P	9-Sep
R- 345	9-Sep	P130/131/ GV-13	Boot + skirt	6x8	AJ	P	9-Sep
R- 346	9-Sep	P131/132 DS57	Patch	2x7	AJ	P	9-Sep
R- 347	9-Sep	P131/132 burnout	Cap	2x15	AJ	P	9-Sep
R- 348	9-Sep	P131/132/133 JCT	Patch	2x3	AJ	P	9-Sep
R- 349	9-Sep	P34/131/133 JCT	Patch	2x3	AJ	P	9-Sep
R- 350	9-Sep	P34/134 seam	Cap	3x24	AJ	P	9-Sep
R- 351	9-Sep	P133/134 DS58	Patch	2x5	AJ	P	9-Sep
R- 352	9-Sep	P132/133/134 JCT	Patch	2x3	AJ	P	9-Sep
R- 353	9-Sep	P132/134 burnout	Patch	2x2	AJ	P	9-Sep
R- 354	9-Sep	P134/135 DS59	Patch	2x6	AJ	P	9-Sep
R- 355	9-Sep	P34/135/137 JCT	Patch	2x2	AJ	P	9-Sep
R- 356	9-Sep	P135/137 DS60	Patch	2x6	AJ	P	9-Sep
R- 357	9-Sep	P135/136/137 JCT	Patch	2x2	AJ	P	9-Sep

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 358	9-Sep	P135/136 GV-14	Boot+skirt	5x8	AJ	P	9-Sep
R- 359	9-Sep	P135/136 burnout/DS59	Patch	2x8	AJ	P	9-Sep
R- 360	9-Sep	P135/136 burnout	Patch	2x8	AJ	P	9-Sep
R- 361	9-Sep	P136/137/138 JCT	Patch	2x2	AJ	P	9-Sep
R- 362	9-Sep	P137/138 DS61	Patch	2x6	AJ	P	9-Sep
R- 363	9-Sep	P34/137/138 JCT	Patch	2x2	JA	P	9-Sep
R- 364	9-Sep	P34/138 burnout	Cap	2x12	JA	P	9-Sep
R- 365	9-Sep	P34/138/139 JCT	Patch	2x3	JA	P	9-Sep
R- 366	9-Sep	P34/139/141 JCT	Patch	2x2	JA	P	9-Sep
R- 367	9-Sep	P139/140/141 JCT	Patch	2x2	MS	P	9-Sep
R- 368	9-Sep	P139/140 DS62	Patch	2x6	MS	P	9-Sep
R- 369	9-Sep	P140/142 air test	Patch	2x2	AJ	P	9-Sep
R- 370	9-Sep	P140/142 DS63	Patch	2x6	MS	P	9-Sep
R- 371	9-Sep	P140/141/142 JCT	Patch	2x2	MS	P	9-Sep
R- 372	9-Sep	P142 GV-15	Boot+skirt	5x6	MS	P	9-Sep
R- 373	9-Sep	P34/141/142 JCT	Patch	2x2	JA	P	9-Sep
R- 374	9-Sep	P34/142/143 JCT	Patch	2x2	JA	P	9-Sep

JOYCE ENGINEERING, INC.

JEI Project: 379.00 Task 35
Project Name: Partial Closure
Project Location: Davidson County Landfill
Geosynthetics Installer: Mid America Lining Co.
Material: 40-mil LLDPE
JEI Observer: H.Kemppinen

Repair Log

Repair Number	Repair Date	Location/Description	Repair Description	Size of Repair	Repair Tech	Vacuum Test	
						P/F	Date
R- 375	9-Sep	P142/143 DS67	Patch	2x8	MS	P	9-Sep
R- 376	9-Sep	P142/143 DS64	Patch	2x6	MS	P	9-Sep
R- 377	9-Sep	P142/143 burnout	Patch	2x8	MS	P	9-Sep
R- 378	9-Sep	P142/143 burnout	Patch	2x10	AJ	P	9-Sep
R- 379	9-Sep	P144/146 air test at AT	Patch	2x3	AJ	P	9-Sep
R- 380	9-Sep	P144/146/148 JCT	Patch	2x2	AJ	P	9-Sep
R- 381	9-Sep	P144/148 DS66	Patch	2x6	AJ	P	9-Sep
R- 382	9-Sep	P144/148/149 JCT	Cap	2x12	AJ	P	9-Sep
R- 383	9-Sep	P144/145/149 JCT	Patch	2x3	AJ	P	9-Sep
R- 384	9-Sep	P143/144/145 DS65	Patch	2x7	AJ	P	9-Sep

Precision Geosynthetic Laboratories

September 07, 2005

Evan Andrews
JOYCE ENGINEERING, INC.
2301 W. Meadowview Rd. Suite 203
Greenboro, NC 27407

Dear Mr. Andrews: RE**:** ***Davidson County Landfill***

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the ***final*** laboratory report for the testing of eleven (11) 40 mil LLDPE Seam sample(s) received September 07, 2005.

It should be noted that the test specimen and test sample used for this report was believed to be representative of the material produced under the designation herein stated. However, these results are indicative of only the specimens that were actually tested. The testing herein is based upon accepted industry practice as well as the test method listed. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the final use and purpose of the material.

By accepting the data and results represented on this report, Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented in this report, and Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liability in excess of the aforementioned limit.

The test data and all associated project information shall be held in confidence, not to be reproduced except in full and disclosed to other parties with the authorization of the client.

It is a company policy to keep the physical records of each job for 2 years since the receipt of the samples and keep the electronic file for 7 years. ***Failed seam samples are kept for 7 years; good seam samples are disposed after 2 weeks and conformance samples are disposed after 1 month.*** Should you need us to keep them longer, please advise us in writing.

If you have any questions or if we may be of further service, please do not hesitate to call at 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Maria Espitia
Quality Assurance

Cora B. Queja
Vice President

Enclosure: (Job No. J050461)

1160 North Gilbert Street, Anaheim, CA. 92801, Tel# 714-520-9631, Fax# 714-520-9637

Precision Geosynthetic Laboratories

CLIENT: *JOYCE ENGINEERING, INC.*
PROJECT: Davidson County Landfill

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. J050461)

MATERIAL DESCRIPTION: 40 mil LLDPE Seam Samples

SAMPLES SEND BY: Hannu Kemppinen, Joyce Engineering, Inc.

DATE RECEIVED: September 07, 2005 **DATE REPORTED:** September 07, 2005

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
DS-46 P107/111	12426
DS-47 P111/113	12427
DS-48 P113/115	12428
DS-49 P115/116	12429
DS-50 P116/118	12430
DS-51 P117/120	12431
DS-52 P121/123	12432
DS-53 P123/125	12433
DS-54 P126/127	12434
DS-55 P128/130	12435
DS-56 P34/116	12436

TESTS REQUIRED:

TEST METHOD	DESCRIPTION
ASTM D6392	Shear Strength
ASTM D6392	Peel Adhesion

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at 22 $\pm$ 2°C (71.6 $\pm$ 3.6^{o}F) and at 60 $\pm$ 10% relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Table(s) 1 to 6. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES

Maria Espitia
Quality Assurance

Cora B. Queja
Vice President

1160 North Gilbert Street, Anaheim, CA. 92801, Tel# 714-520-9631, Fax# 714-520-9637

TABLE 1.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **Joyce Engineering, Inc.**
PROJECT: **Davidson County Landfield**
DATE REC'D: **7-Sep-05**

MATERIAL: **40 mil LLDPE Seam**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **J050461**

QC'd By: _____
TEST METHOD: ASTM D6392
DATE REPORT: 7-Sep-05

Crosshead Speed: 20 in/min						Crosshead Speed: 20 in/min				
		SHEAR EVALUATION				**PEEL EVALUATION**				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS-46	**12426**	95	> 50%	SE1		1 Outside	91	0	SE1	
P107/111		100	> 50%	SE1		2 Outside	84	0	SE1	
		99	> 50%	SE1		3 Outside	84	0	SE1	
		98	> 50%	SE1		4 Outside	83	0	SE1	
		99	> 50%	SE1		5 Outside	90	0	SE1	
						AVG:	**86**			42
						STD. DEV.	**4**			
						1 Inside	95	0	SE1	
						2 Inside	92	0	SE1	
						3 Inside	89	0	SE1	
						4 Inside	86	0	SE1	
						5 Inside	87	0	SE1	
	AVG.	**98**			54	**AVG:**	**90**			42
	STD. DEV.	**2**				STD. DEV.	**4**			
DS-47	**12427**	105	> 50%	SE1		1 Outside	93	0	SE1	
P111/113		101	> 50%	SE1		2 Outside	86	0	SE1	
		105	> 50%	SE1		3 Outside	94	0	SE1	
		108	> 50%	SE1		4 Outside	97	0	SE1	
		103	> 50%	SE1		5 Outside	91	0	SE1	
						AVG:	**92**			42
						STD. DEV.	**4**			
						1 Inside	79	0	SE1	
						2 Inside	80	0	SE1	
						3 Inside	84	0	SE1	
						4 Inside	81	0	SE1	
						5 Inside	88	0	SE1	
	AVG:	**104**			54	**AVG:**	**82**			42
	STD. DEV.	**2**				STD. DEV.	**4**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

TABLE 2.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: ***Joyce Engineering, Inc.***
PROJECT: ***Davidson County Landfield***
DATE REC'D: ***7-Sep-05***

MATERIAL: ***40 mil LLDPE Seam***
SEAM TYPE: ***Fusion Weld***
PGL JOB #: ***J050461***

QC'd By: _____
TEST METHOD: ASTM D6392
DATE REPORT: 7-Sep-05

Crosshead Speed: 20 in/min						Crosshead Speed: 20 in/min				
		SHEAR EVALUATION				***PEEL EVALUATION***				
SAMPLE ID	*PGL CONTROL #*	*MAXIMUM STRENGTH (lb/in width)*	*% Elongation*	*Locus of Break*	*PROJECT SPEC. (lb/in width)*	*SPECIMEN NUMBER*	*MAXIMUM STRENGTH (lb/in width)*	*% INCURSION (%)*	*LOCUS OF BREAK*	*PROJECT SPEC. (lb/in width)*
DS-48	**12428**	102	> 50%	SE1		1 Outside	99	0	SE1	
P113/115		108	> 50%	SE1		2 Outside	96	0	BRK1	
		101	> 50%	SE1		3 Outside	95	0	SE1	
		105	> 50%	SE1		4 Outside	100	0	SE1	
		103	> 50%	SE1		5 Outside	99	0	SE1	
						AVG:	**98**			42
						STD. DEV.	**2**			
						1 Inside	85	0	SE1	
						2 Inside	90	0	SE1	
						3 Inside	89	0	SE1	
						4 Inside	83	0	SE1	
						5 Inside	86	0	SE1	
	AVG.	**104**			54	**AVG:**	**87**			42
	STD. DEV.	**3**				STD. DEV.	**3**			
DS-49	**12429**	112	> 50%	SE1		1 Outside	81	0	SE1	
P115/116		111	> 50%	SE1		2 Outside	79	0	SE1	
		109	> 50%	SE1		3 Outside	81	0	SE1	
		105	> 50%	SE1		4 Outside	81	0	SE1	
		109	> 50%	SE1		5 Outside	83	0	SE1	
						AVG:	**81**			42
						STD. DEV.	**2**			
						1 Inside	76	0	SE1	
						2 Inside	75	0	SE1	
						3 Inside	81	0	SE1	
						4 Inside	93	0	SE1	
						5 Inside	99	0	SE1	
	AVG:	**109**			54	**AVG:**	**85**			42
	STD. DEV.	**3**				STD. DEV.	**11**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

TABLE 3.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **Joyce Engineering, Inc.**
PROJECT: **Davidson County Landfield**
DATE REC'D: **7-Sep-05**

MATERIAL: **40 mil LLDPE Seam**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **J050461**

QC'd By: _____
TEST METHOD: ASTM D6392
DATE REPORT: 7-Sep-05

Crosshead Speed: 20 in/min		SHEAR EVALUATION				Crosshead Speed: 20 in/min	PEEL EVALUATION			
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS-50	**12430**	98	> 50%	SE1		1 Outside	94	0	SE1	
P116/118		101	> 50%	SE1		2 Outside	92	0	SE1	
		100	> 50%	SE1		3 Outside	91	0	SE1	
		96	> 50%	SE1		4 Outside	92	0	SE1	
		98	> 50%	SE1		5 Outside	96	0	SE1	
						AVG:	**93**			42
						STD. DEV.	**2**			
						1 Inside	86	0	SE1	
						2 Inside	85	0	SE1	
						3 Inside	81	0	SE1	
						4 Inside	83	0	SE1	
						5 Inside	90	0	SE1	
	AVG.	**98**			54	**AVG:**	**85**			42
	STD. DEV.	**2**				STD. DEV.	**3**			
DS-51	**12431**	112	> 50%	SE1		1 Outside	82	0	SE1	
P117/120		109	> 50%	SE1		2 Outside	92	0	SE1	
		110	> 50%	SE1		3 Outside	84	0	SE1	
		108	> 50%	SE1		4 Outside	92	0	SE1	
		112	> 50%	SE1		5 Outside	94	0	SE1	
						AVG:	**89**			42
						STD. DEV.	**5**			
						1 Inside	84	0	SE1	
						2 Inside	78	0	SE1	
						3 Inside	81	0	SE1	
						4 Inside	74	0	SE1	
						5 Inside	83	0	SE1	
	AVG:	**110**			54	**AVG:**	**80**			42
	STD. DEV.	**2**				STD. DEV.	**4**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

TABLE 4.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: ***Joyce Engineering, Inc.***
PROJECT: ***Davidson County Landfield***
DATE REC'D: ***7-Sep-05***

MATERIAL: ***40 mil LLDPE Seam***
SEAM TYPE: ***Fusion Weld***
PGL JOB #: ***J050461***

QC'd By: _____
TEST METHOD: ASTM D6392
DATE REPORT: 7-Sep-05

Crosshead Speed: 20 in/min						Crosshead Speed: 20 in/min				
		SHEAR EVALUATION				***PEEL EVALUATION***				
SAMPLE ID	*PGL CONTROL #*	*MAXIMUM STRENGTH (lb/in width)*	*% Elongation*	*Locus of Break*	*PROJECT SPEC. (lb/in width)*	*SPECIMEN NUMBER*	*MAXIMUM STRENGTH (lb/in width)*	*% INCURSION (%)*	*LOCUS OF BREAK*	*PROJECT SPEC. (lb/in width)*
DS-52	**12432**	95	> 50%	SE1		1 Outside	96	0	SE1	
P121/123		95	> 50%	SE1		2 Outside	82	0	SE1	
		97	> 50%	SE1		3 Outside	75	0	SE1	
		94	> 50%	SE1		4 Outside	77	0	SE1	
		98	> 50%	SE1		5 Outside	***71***	***50%***	***AD-BRK***	
						AVG:	**80**			42
						STD. DEV.	**10**			
						1 Inside	85	0	SE1	
						2 Inside	84	0	SE1	
						3 Inside	89	0	SE1	
						4 Inside	87	0	SE1	
						5 Inside	87	0	SE1	
	AVG.	**96**			54	**AVG:**	**86**			42
	STD. DEV.	**2**				STD. DEV.	**2**			
DS-53	**12433**	103	> 50%	SE1		1 Outside	78	0	SE1	
P123/125		101	> 50%	SE1		2 Outside	81	0	SE1	
		107	> 50%	SE1		3 Outside	94	0	SE1	
		99	> 50%	SE1		4 Outside	84	0	SE1	
		109	> 50%	SE1		5 Outside	83	0	SE1	
						AVG:	**84**			42
						STD. DEV.	**6**			
						1 Inside	84	0	SE1	
						2 Inside	85	0	SE1	
						3 Inside	84	0	SE1	
						4 Inside	86	0	SE1	
						5 Inside	86	0	SE1	
	AVG:	**104**			54	**AVG:**	**85**			42
	STD. DEV.	**4**				STD. DEV.	**1**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

TABLE 5.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: **Joyce Engineering, Inc.**
PROJECT: **Davidson County Landfield**
DATE REC'D: **7-Sep-05**

MATERIAL: **40 mil LLDPE Seam**
SEAM TYPE: **Fusion Weld**
PGL JOB #: **J050461**

QC'd By: _____
TEST METHOD: ASTM D6392
DATE REPORT: 7-Sep-05

Crosshead Speed: 20 in/min						Crosshead Speed: 20 in/min				
		SHEAR EVALUATION				**PEEL EVALUATION**				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC. (lb/in width)
DS-54	**12434**	108	> 50%	SE1		1 Outside	92	0	SE1	
P126/127		105	> 50%	SE1		2 Outside	92	0	SE1	
		108	> 50%	SE1		3 Outside	94	0	SE1	
		104	> 50%	SE1		4 Outside	97	0	SE1	
		109	> 50%	SE1		5 Outside	90	0	SE1	
						AVG:	**93**			42
						STD. DEV.	**2**			
						1 Inside	97	0	SE1	
						2 Inside	88	0	SE1	
						3 Inside	101	0	SE1	
						4 Inside	101	0	SE1	
						5 Inside	101	0	SE1	
	AVG.	**107**			54	**AVG:**	**98**			42
	STD. DEV.	**2**				STD. DEV.	**6**			
DS-55	**12435**	110	> 50%	SE1		1 Outside	101	0	SE1	
P128/130		110	> 50%	SE1		2 Outside	96	0	SE1	
		110	> 50%	SE1		3 Outside	100	0	SE1	
		106	> 50%	SE1		4 Outside	98	0	SE1	
		109	> 50%	SE1		5 Outside	97	0	SE1	
						AVG:	**99**			42
						STD. DEV.	**2**			
						1 Inside	91	0	SE1	
						2 Inside	82	0	SE1	
						3 Inside	87	0	SE1	
						4 Inside	90	0	SE1	
						5 Inside	87	0	SE1	
	AVG:	**109**			54	**AVG:**	**87**			42
	STD. DEV.	**2**				STD. DEV.	**3**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

TABLE 6.
SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: ***Joyce Engineering, Inc.***
PROJECT: ***Davidson County Landfield***
DATE REC'D: ***7-Sep-05***

MATERIAL: ***40 mil LLDPE Seam***
SEAM TYPE: ***Fusion Weld***
PGL JOB #: ***J050461***

QC'd By: _____
TEST METHOD: ASTM D6392
DATE REPORT: 7-Sep-05

Crosshead Speed: 20 in/min						Crosshead Speed: 20 in/min				
		SHEAR EVALUATION				***PEEL EVALUATION***				
SAMPLE ID	*PGL CONTROL #*	*MAXIMUM STRENGTH (lb/in width)*	*% Elongation*	*Locus of Break*	*PROJECT SPEC. (lb/in width)*	*SPECIMEN NUMBER*	*MAXIMUM STRENGTH (lb/in width)*	*% INCURSION (%)*	*LOCUS OF BREAK*	*PROJECT SPEC. (lb/in width)*
DS-56	**12436**	94	> 50%	SE1		1 Outside	94	0	SE1	
P34/116		91	> 50%	SE1		2 Outside	85	0	SE1	
		93	> 50%	SE1		3 Outside	90	0	SE1	
		87	> 50%	SE1		4 Outside	90	0	SE1	
		94	> 50%	SE1		5 Outside	91	0	SE1	
						AVG:	**90**			42
						STD. DEV.	**3**			
						1 Inside	85	0	SE1	
						2 Inside	86	0	SE1	
						3 Inside	85	0	SE1	
						4 Inside	86	0	SE1	
						5 Inside	97	0	SE1	
	AVG.	**92**			54	**AVG:**	**88**			42
	STD. DEV.	**3**				STD. DEV.	**5**			

BREAK DESCRIPTION (ASTM D6392 FUSION):

AD	ADHESION FAILURE.
BRK	BREAK IN SHEETING.
SE1	BREAK AT OUTER EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
SIP	SEPARATION IN THE PLANE OF THE SHEET.

EXTRUSION:

AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD2	ADHESION FAILURE.
AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT TOP EDGE OF SEAM.
SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
BRK1	BREAK IN BOTTOM SHEETING.
BRK2	BREAK IN TOP SHEETING.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
HT	BREAK AT EDGE OF HOT TACK
SIP	SEPARATION IN THE PLANE OF THE SHEET.

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 9/7/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative:

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-131 through P-136.

Mid - America Lining Company Representative:

Date : 9/7/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title:

Owners/Owners Representative:

Date : 9/7/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 9/4/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative: _____

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-115 through P-130.

Mid - America Lining Company Representative:

Date : 9/4/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title: _____

Owners/Owners Representative:

Date : 9/4/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 9/2/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative:

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-91 through P-114.

Mid - America Lining Company Representative:

Date : 9/2/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title:

Owners/Owners Representative:

Date : 9/2/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/29/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative: _____

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-77 through P-90.

Mid - America Lining Company Representative:

Date : 8/29/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title: _____

Owners/Owners Representative:

Date : 8/29/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/27/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative:

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-71 through P-76.

Mid - America Lining Company Representative:

Date : 8/27/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title:

Owners/Owners Representative:

Date : 8/27/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/26/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative: _____

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-65 through P-70.

Mid - America Lining Company Representative:

Date : 8/26/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title: _____

Owners/Owners Representative:

Date : 8/26/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/25/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative:

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-55 through P-64.

Mid - America Lining Company Representative:

Date : 8/25/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title:

Owners/Owners Representative:

Date : 8/25/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/24/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative: _____

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-35 through P-54.

Mid - America Lining Company Representative:

Date : 8/24/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title: _____

Owners/Owners Representative:

Date : 8/24/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/22/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative: _____

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-32 through P-34.

Mid - America Lining Company Representative:

Date : 8/22/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title: _____

Owners/Owners Representative:

Date : 8/22/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/16/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative:

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-29 through P-31.

Mid - America Lining Company Representative:

Date : 8/16/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title:

Owners/Owners Representative:

Date : 8/16/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/15/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative: _____

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-22 through P-28.

Mid - America Lining Company Representative:

Date : 8/15/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title: _____

Owners/Owners Representative:

Date : 8/15/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/13/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative: _____

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-15 through P-21.

Mid - America Lining Company Representative:

Date : 8/13/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title: _____

Owners/Owners Representative:

Date : 8/13/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/12/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative: _____

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-6 through P-14.

Mid - America Lining Company Representative:

Date : 8/12/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title: _____

Owners/Owners Representative:

Date : 8/12/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 8/11/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative: _____

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-1 through P-5.

Mid - America Lining Company Representative:

Date : 8/11/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title: _____

Owners/Owners Representative:

Date : 8/11/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

Mid - America Lining Co.

Certificate of Acceptance of Soil Subgrade Surface

Date: 9/8/2005

Project Name: Davidson Co. LF

Project Location: Lexington, NC

Owners Representative: _____

I, the undersigned, a duly appointed representative of Mid America Lining Company (MAL), have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of subgrade only. No subterranean inspections or tests have been performed by MAL, and MAL makes no representations or warranties regarding conditions which must exist below the surface of the subgrade. MAL accepts no responsibility for the conformance of the subgrade to this project's specifications.

Area Being Accepted : Area lined by panels P-137 through P-149.

Mid - America Lining Company Representative:

Date : 9/8/2005

Print Name : Mike Joslin

Signature : Mike Joslin

Title: _____

Owners/Owners Representative:

Date : 9/8/2005

Print Name : HannuKemppinen

Signature : HannuKemppinen

Title: Construction Manager

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill **TYPE OF MQA:** LEVEL (2)

Material: Double Sided Geocomposite **SAMPLING FREQUENCY:** 1/200,000 sq.ft.

Manufacturer: Skaps

Location: GA Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
1	1587001	TN220-2-6	250	14	3500.00	N/A	RM	7/14/2005	7/18/2005	C#9976 G050709
2	1587002	TN220-2-6	250	14	3500.00	N/A				
3	1587003	TN220-2-6	250	14	3500.00	N/A				
4	1587004	TN220-2-6	250	14	3500.00	N/A				
5	1587005	TN220-2-6	250	14	3500.00	N/A				
6	1587006	TN220-2-6	250	14	3500.00	N/A				
7	1587007	TN220-2-6	250	14	3500.00	N/A				
8	1587008	TN220-2-6	250	14	3500.00	N/A				
9	1587009	TN220-2-6	250	14	3500.00	N/A				
10	1587010	TN220-2-6	250	14	3500.00	N/A				
11	1587011	TN220-2-6	250	14	3500.00	N/A				
12	1587012	TN220-2-6	250	14	3500.00	N/A				
13	1587013	TN220-2-6	250	14	3500.00	N/A				
14	1587014	TN220-2-6	250	14	3500.00	N/A				
15	1587015	TN220-2-6	250	14	3500.00	N/A				
16	1587016	TN220-2-6	250	14	3500.00	N/A				
17	1587017	TN220-2-6	250	14	3500.00	N/A				
18	1587018	TN220-2-6	250	14	3500.00	N/A				
19	1587019	TN220-2-6	250	14	3500.00	N/A				
20	1587020	TN220-2-6	250	14	3500.00	N/A				
21	1587021	TN220-2-6	250	14	3500.00	N/A				
22	1587022	TN220-2-6	250	14	3500.00	N/A				
23	1587023	TN220-2-6	250	14	3500.00	N/A				
24	1587024	TN220-2-6	250	14	3500.00	N/A				
25	1587025	TN220-2-6	250	14	3500.00	N/A				
26	1587026	TN220-2-6	250	14	3500.00	N/A				

QA

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill **TYPE OF MQA:** LEVEL (2)

Material: Double Sided Geocomposite **SAMPLING FREQUENCY:** 1/200,000 sq.ft.

Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
27	1587027	TN220-2-6	250	14	3500.00	N/A				
28	1587028	TN220-2-6	250	14	3500.00	N/A				
29	1587029	TN220-2-6	250	14	3500.00	N/A				
30	1587030	TN220-2-6	250	14	3500.00	N/A				
31	1587031	TN220-2-6	250	14	3500.00	N/A				
32	1587032	TN220-2-6	250	14	3500.00	N/A				
33	1587033	TN220-2-6	250	14	3500.00	N/A				
34	1587034	TN220-2-6	250	14	3500.00	N/A				
35	1587035	TN220-2-6	250	14	3500.00	N/A				
36	1587036	TN220-2-6	250	14	3500.00	N/A				
37	1587037	TN220-2-6	250	14	3500.00	N/A				
38	1587038	TN220-2-6	250	14	3500.00	N/A				
39	1587039	TN220-2-6	250	14	3500.00	N/A				
40	1587040	TN220-2-6	250	14	3500.00	N/A				
41	1587041	TN220-2-6	250	14	3500.00	N/A				
42	1587042	TN220-2-6	250	14	3500.00	N/A				
43	1587043	TN220-2-6	250	14	3500.00	N/A				
44	1587044	TN220-2-6	250	14	3500.00	N/A				
45	1587045	TN220-2-6	250	14	3500.00	N/A				
46	1587046	TN220-2-6	250	14	3500.00	N/A				
47	1587047	TN220-2-6	250	14	3500.00	N/A				
48	1587048	TN220-2-6	250	14	3500.00	N/A				
49	1587049	TN220-2-6	250	14	3500.00	N/A				
50	1587050	TN220-2-6	250	14	3500.00	N/A				
51	1587051	TN220-2-6	250	14	3500.00	N/A				
52	1587052	TN220-2-6	250	14	3500.00	N/A				

QA

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill **TYPE OF MQA:** LEVEL (2)

Material: Double Sided Geocomposite **SAMPLING FREQUENCY:** 1/200,000 sq.ft.

Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
53	1587053	TN220-2-6	250	14	3500.00	N/A				
54	1587054	TN220-2-6	250	14	3500.00	N/A				
55	1587055	TN220-2-6	250	14	3500.00	N/A				
56	1587056	TN220-2-6	250	14	3500.00	N/A				
57	1587057	TN220-2-6	250	14	3500.00	N/A				
58	1587058	TN220-2-6	250	14	3500.00	N/A				
59	1587059	TN220-2-6	250	14	3500.00	N/A				
60	1587060	TN220-2-6	250	14	3500.00	N/A				
61	1587061	TN220-2-6	250	14	3500.00	N/A				
62	1587062	TN220-2-6	250	14	3500.00	N/A				
63	1587063	TN220-2-6	250	14	3500.00	N/A				
64	1587064	TN220-2-6	250	14	3500.00	N/A	RM	7/14/2005	7/18/2005	C#9978 G050709
65	1587065	TN220-2-6	250	14	3500.00	N/A				
66	1587066	TN220-2-6	250	14	3500.00	N/A				
67	1587067	TN220-2-6	250	14	3500.00	N/A				
68	1587068	TN220-2-6	250	14	3500.00	N/A				
69	1587069	TN220-2-6	250	14	3500.00	N/A				
70	1587070	TN220-2-6	250	14	3500.00	N/A				
71	1587071	TN220-2-6	250	14	3500.00	N/A				
72	1587072	TN220-2-6	250	14	3500.00	N/A				
73	1587073	TN220-2-6	250	14	3500.00	N/A				
74	1587074	TN220-2-6	250	14	3500.00	N/A				
75	1587075	TN220-2-6	250	14	3500.00	N/A				
76	1587076	TN220-2-6	250	14	3500.00	N/A				
77	1587077	TN220-2-6	250	14	3500.00	N/A				
78	1587078	TN220-2-6	250	14	3500.00	N/A				

QA

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill **TYPE OF MQA:** LEVEL (2)

Material: Double Sided Geocomposite **SAMPLING FREQUENCY:** 1/200,000 sq.ft.

Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
79	1587079	TN220-2-6	250	14	3500.00	N/A				
80	1587080	TN220-2-6	250	14	3500.00	N/A				
81	1587081	TN220-2-6	250	14	3500.00	N/A				
82	1587082	TN220-2-6	250	14	3500.00	N/A				
83	1587083	TN220-2-6	250	14	3500.00	N/A				
84	1587084	TN220-2-6	250	14	3500.00	N/A				
85	1587085	TN220-2-6	250	14	3500.00	N/A				
86	1587086	TN220-2-6	250	14	3500.00	N/A				
87	1587087	TN220-2-6	250	14	3500.00	N/A				
88	1587088	TN220-2-6	250	14	3500.00	N/A				
89	1587089	TN220-2-6	250	14	3500.00	N/A				
90	1587090	TN220-2-6	250	14	3500.00	N/A				
91	1587091	TN220-2-6	250	14	3500.00	N/A				
92	1587092	TN220-2-6	250	14	3500.00	N/A				
93	1587093	TN220-2-6	250	14	3500.00	N/A				
94	1587094	TN220-2-6	250	14	3500.00	N/A				
95	1587095	TN220-2-6	250	14	3500.00	N/A				
96	1587096	TN220-2-6	250	14	3500.00	N/A				
97	1587097	TN220-2-6	250	14	3500.00	N/A				
98	1587098	TN220-2-6	250	14	3500.00	N/A				
99	1587099	TN220-2-6	250	14	3500.00	N/A				
100	1587100	TN220-2-6	250	14	3500.00	N/A				
101	1587101	TN220-2-6	250	14	3500.00	N/A				
102	1587102	TN220-2-6	250	14	3500.00	N/A				
103	1587103	TN220-2-6	250	14	3500.00	N/A				
104	1587104	TN220-2-6	250	14	3500.00	N/A				

QA

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill **TYPE OF MQA:** LEVEL (2)

Material: Double Sided Geocomposite **SAMPLING FREQUENCY:** 1/200,000 sq.ft.

Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
105	1587105	TN220-2-6	250	14	3500.00	N/A				
106	1587106	TN220-2-6	250	14	3500.00	N/A				
107	1587107	TN220-2-6	250	14	3500.00	N/A				
108	1587108	TN220-2-6	250	14	3500.00	N/A				
109	1587109	TN220-2-6	250	14	3500.00	N/A				
110	1587110	TN220-2-6	250	14	3500.00	N/A				
111	1587111	TN220-2-6	250	14	3500.00	N/A				
112	1587112	TN220-2-6	250	14	3500.00	N/A				
113	1587113	TN220-2-6	250	14	3500.00	N/A				
114	1587114	TN220-2-6	250	14	3500.00	N/A				
115	1587115	TN220-2-6	250	14	3500.00	N/A				
116	1587116	TN220-2-6	250	14	3500.00	N/A				
117	1587117	TN220-2-6	250	14	3500.00	N/A				
118	1587118	TN220-2-6	250	14	3500.00	N/A				
119	1587119	TN220-2-6	250	14	3500.00	N/A				
120	1587120	TN220-2-6	250	14	3500.00	N/A				
121	1587121	TN220-2-6	250	14	3500.00	N/A				
122	1587122	TN220-2-6	250	14	3500.00	N/A				
123	1587123	TN220-2-6	250	14	3500.00	N/A				
124	1587124	TN220-2-6	250	14	3500.00	N/A				
125	1587125	TN220-2-6	250	14	3500.00	N/A				
126	1587126	TN220-2-6	250	14	3500.00	N/A				
127	1587127	TN220-2-6	250	14	3500.00	N/A				
128	1587128	TN220-2-6	250	14	3500.00	N/A				
129	1587129	TN220-2-6	250	14	3500.00	N/A				
130	1587130	TN220-2-6	250	14	3500.00	N/A				

QA

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill **TYPE OF MQA:** LEVEL (2)

Material: Double Sided Geocomposite **SAMPLING FREQUENCY:** 1/200,000 sq.ft.

Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
131	1587131	TN220-2-6	250	14	3500.00	N/A				
132	1587132	TN220-2-6	250	14	3500.00	N/A				
133	1587133	TN220-2-6	250	14	3500.00	N/A				
134	1587134	TN220-2-6	250	14	3500.00	N/A				
135	1587135	TN220-2-6	250	14	3500.00	N/A				
136	1587136	TN220-2-6	250	14	3500.00	N/A				
137	1587137	TN220-2-6	250	14	3500.00	N/A				
138	1587138	TN220-2-6	250	14	3500.00	N/A				
139	1587139	TN220-2-6	250	14	3500.00	N/A				
140	1587140	TN220-2-6	250	14	3500.00	N/A				
141	1587141	TN220-2-6	250	14	3500.00	N/A				
142	1587142	TN220-2-6	250	14	3500.00	N/A				
143	1587143	TN220-2-6	250	14	3500.00	N/A				
144	1587144	TN220-2-6	250	14	3500.00	N/A				
145	1587145	TN220-2-6	250	14	3500.00	N/A				
146	1587146	TN220-2-6	250	14	3500.00	N/A				
147	1587147	TN220-2-6	250	14	3500.00	N/A				
148	1587148	TN220-2-6	250	14	3500.00	N/A				
149	1587149	TN220-2-6	250	14	3500.00	N/A				
150	1587150	TN220-2-6	250	14	3500.00	N/A				
151	1587151	TN220-2-6	250	14	3500.00	N/A				
152	1587152	TN220-2-6	250	14	3500.00	N/A				
153	1587153	TN220-2-6	250	14	3500.00	N/A				
154	1587154	TN220-2-6	250	14	3500.00	N/A				
155	1587155	TN220-2-6	250	14	3500.00	N/A				
156	1587156	TN220-2-6	250	14	3500.00	N/A				

QA

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill **TYPE OF MQA:** LEVEL (2)

Material: Double Sided Geocomposite **SAMPLING FREQUENCY:** 1/200,000 sq.ft.

Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
157	1587157	TN220-2-6	250	14	3500.00	N/A				
158	1587158	TN220-2-6	250	14	3500.00	N/A				
159	1587159	TN220-2-6	250	14	3500.00	N/A				
160	1587160	TN220-2-6	250	14	3500.00	N/A				
161	1587161	TN220-2-6	250	14	3500.00	N/A				
162	1587162	TN220-2-6	250	14	3500.00	N/A	RM	7/14/2005	7/18/2005	C#9977 G050709
163	1587163	TN220-2-6	250	14	3500.00	N/A				
164	1587164	TN220-2-6	250	14	3500.00	N/A				
165	1587165	TN220-2-6	250	14	3500.00	N/A				
166	1587166	TN220-2-6	250	14	3500.00	N/A				
167	1587167	TN220-2-6	250	14	3500.00	N/A				
168	1587168	TN220-2-6	250	14	3500.00	N/A				
169	1587169	TN220-2-6	250	14	3500.00	N/A				
170	1587170	TN220-2-6	250	14	3500.00	N/A				
171	1587171	TN220-2-6	250	14	3500.00	N/A				
172	1587172	TN220-2-6	250	14	3500.00	N/A				
173	1587173	TN220-2-6	250	14	3500.00	N/A				
174	1587174	TN220-2-6	250	14	3500.00	N/A				
175	1587175	TN220-2-6	250	14	3500.00	N/A				
176	1587176	TN220-2-6	250	14	3500.00	N/A				
177	1587177	TN220-2-6	250	14	3500.00	N/A				
178	1587178	TN220-2-6	250	14	3500.00	N/A				
179	1587179	TN220-2-6	250	14	3500.00	N/A				
180	1587180	TN220-2-6	250	14	3500.00	N/A				
181	1587181	TN220-2-6	250	14	3500.00	N/A				
182	1587182	TN220-2-6	250	14	3500.00	N/A				

QA

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Davidson County Landfill **TYPE OF MQA:** LEVEL (2)

Material: Double Sided Geocomposite **SAMPLING FREQUENCY:** 1/200,000 sq.ft.

Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
183	1587183	TN220-2-6	250	14	3500.00	N/A				
184	1587184	TN220-2-6	250	14	3500.00	N/A				
185	1587185	TN220-2-6	250	14	3500.00	N/A				
186	1587186	TN220-2-6	250	14	3500.00	N/A				
187	1587187	TN220-2-6	250	14	3500.00	N/A				
188	1587188	TN220-2-6	250	14	3500.00	N/A				
189	1587189	TN220-2-6	250	14	3500.00	N/A				
190	1587190	TN220-2-6	250	14	3500.00	N/A				
191	1587191	TN220-2-6	250	14	3500.00	N/A				
192	1587192	TN220-2-6	250	14	3500.00	N/A				
193	1587193	TN220-2-6	250	14	3500.00	N/A				
194	1587194	TN220-2-6	250	14	3500.00	N/A				
195	1587195	TN220-2-6	250	14	3500.00	N/A				
196	1587196	TN220-2-6	250	14	3500.00	N/A				
197	1587197	TN220-2-6	250	14	3500.00	N/A				
198	1587198	TN220-2-6	250	14	3500.00	N/A				
199	1587199	TN220-2-6	250	14	3500.00	N/A				
200	1587200	TN220-2-6	250	14	3500.00	N/A				
201	1587201	TN220-2-6	250	14	3500.00	N/A				
202	1587202	TN220-2-6	250	14	3500.00	N/A				
203	1587203	TN220-2-6	250	14	3500.00	N/A				
204	1587204	TN220-2-6	250	14	3500.00	N/A				
205	1587205	TN220-2-6	250	14	3500.00	N/A				
206	1587206	TN220-2-6	250	14	3500.00	N/A				
207	1587207	TN220-2-6	250	14	3500.00	N/A				
208	1587208	TN220-2-6	250	14	3500.00	N/A				

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Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
209	1587209	TN220-2-6	250	14	3500.00	N/A				
210	1587210	TN220-2-6	250	14	3500.00	N/A				
211	1587211	TN220-2-6	250	14	3500.00	N/A				
212	1587212	TN220-2-6	250	14	3500.00	N/A				
213	1587213	TN220-2-6	250	14	3500.00	N/A				
214	1587214	TN220-2-6	250	14	3500.00	N/A				
215	1587215	TN220-2-6	250	14	3500.00	N/A				
216	1587216	TN220-2-6	250	14	3500.00	N/A				
217	1587217	TN220-2-6	250	14	3500.00	N/A				
218	1587218	TN220-2-6	250	14	3500.00	N/A				
219	1587219	TN220-2-6	250	14	3500.00	N/A				
220	1587220	TN220-2-6	250	14	3500.00	N/A				
221	1587221	TN220-2-6	250	14	3500.00	N/A	RM	8/9/2005	8/12/2005	C#13637 G050895
222	1587222	TN220-2-6	250	14	3500.00	N/A				
223	1587223	TN220-2-6	250	14	3500.00	N/A				
224	1587224	TN220-2-6	250	14	3500.00	N/A				
225	1587225	TN220-2-6	250	14	3500.00	N/A				
226	1587226	TN220-2-6	250	14	3500.00	N/A				
227	1587227	TN220-2-6	250	14	3500.00	N/A				
228	1587228	TN220-2-6	250	14	3500.00	N/A				
229	1587229	TN220-2-6	250	14	3500.00	N/A				
230	1587230	TN220-2-6	250	14	3500.00	N/A				
231	1587231	TN220-2-6	250	14	3500.00	N/A				
232	1587232	TN220-2-6	250	14	3500.00	N/A				
233	1587233	TN220-2-6	250	14	3500.00	N/A				
234	1587234	TN220-2-6	250	14	3500.00	N/A				

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Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
235	1587235	TN220-2-6	250	14	3500.00	N/A				
236	1587236	TN220-2-6	250	14	3500.00	N/A				
237	1587237	TN220-2-6	250	14	3500.00	N/A				
238	1587238	TN220-2-6	250	14	3500.00	N/A				
239	1587239	TN220-2-6	250	14	3500.00	N/A				
240	1587240	TN220-2-6	250	14	3500.00	N/A				
241	1587241	TN220-2-6	250	14	3500.00	N/A				
242	1587242	TN220-2-6	250	14	3500.00	N/A				
243	1587243	TN220-2-6	250	14	3500.00	N/A				
244	1587244	TN220-2-6	250	14	3500.00	N/A				
245	1587245	TN220-2-6	250	14	3500.00	N/A				
246	1587246	TN220-2-6	250	14	3500.00	N/A				
247	1587247	TN220-2-6	250	14	3500.00	N/A				
248	1587248	TN220-2-6	250	14	3500.00	N/A				
249	1587249	TN220-2-6	250	14	3500.00	N/A				
250	1587250	TN220-2-6	250	14	3500.00	N/A				
251	1587251	TN220-2-6	250	14	3500.00	N/A				
252	1587252	TN220-2-6	250	14	3500.00	N/A				
253	1587253	TN220-2-6	250	14	3500.00	N/A				
254	1587254	TN220-2-6	250	14	3500.00	N/A				
255	1587255	TN220-2-6	250	14	3500.00	N/A				
256	1587256	TN220-2-6	250	14	3500.00	N/A				
257	1587257	TN220-2-6	250	14	3500.00	N/A				
258	1587258	TN220-2-6	250	14	3500.00	N/A				
259	1587259	TN220-2-6	250	14	3500.00	N/A				
260	1587260	TN220-2-6	250	14	3500.00	N/A				

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Material: Double Sided Geocomposite **SAMPLING FREQUENCY:** 1/200,000 sq.ft.

Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
261	1587261	TN220-2-6	250	14	3500.00	N/A	RM	8/9/2005	8/12/2005	C#13634 G050895
262	1587262	TN220-2-6	250	14	3500.00	N/A				
263	1587263	TN220-2-6	250	14	3500.00	N/A				
264	1587264	TN220-2-6	250	14	3500.00	N/A				
265	1587265	TN220-2-6	250	14	3500.00	N/A				
266	1587266	TN220-2-6	250	14	3500.00	N/A				
267	1587267	TN220-2-6	250	14	3500.00	N/A				
268	1587268	TN220-2-6	250	14	3500.00	N/A				
269	1587269	TN220-2-6	250	14	3500.00	N/A				
270	1587270	TN220-2-6	250	14	3500.00	N/A				
271	1587271	TN220-2-6	250	14	3500.00	N/A				
272	1587272	TN220-2-6	250	14	3500.00	N/A				
273	1587273	TN220-2-6	250	14	3500.00	N/A				
274	1587274	TN220-2-6	250	14	3500.00	N/A				
275	1587275	TN220-2-6	250	14	3500.00	N/A				
276	1587276	TN220-2-6	250	14	3500.00	N/A				
277	1587277	TN220-2-6	250	14	3500.00	N/A				
278	1587278	TN220-2-6	250	14	3500.00	N/A				
279	1587279	TN220-2-6	250	14	3500.00	N/A				
280	1587280	TN220-2-6	250	14	3500.00	N/A				
281	1587281	TN220-2-6	250	14	3500.00	N/A				
282	1587282	TN220-2-6	250	14	3500.00	N/A				
283	1587283	TN220-2-6	250	14	3500.00	N/A				
284	1587284	TN220-2-6	250	14	3500.00	N/A				
285	1587285	TN220-2-6	250	14	3500.00	N/A				
286	1587286	TN220-2-6	250	14	3500.00	N/A				

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Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
287	1587287	TN220-2-6	250	14	3500.00	N/A				
288	1587288	TN220-2-6	250	14	3500.00	N/A				
289	1587289	TN220-2-6	250	14	3500.00	N/A				
290	1587290	TN220-2-6	250	14	3500.00	N/A				
291	1587291	TN220-2-6	250	14	3500.00	N/A				
292	1587292	TN220-2-6	250	14	3500.00	N/A				
293	1587293	TN220-2-6	250	14	3500.00	N/A				
294	1587294	TN220-2-6	250	14	3500.00	N/A				
295	1587295	TN220-2-6	250	14	3500.00	N/A				
296	1587296	TN220-2-6	250	14	3500.00	N/A				
297	1587297	TN220-2-6	250	14	3500.00	N/A				
298	1587298	TN220-2-6	250	14	3500.00	N/A				
299	1587299	TN220-2-6	250	14	3500.00	N/A				
300	1587300	TN220-2-6	250	14	3500.00	N/A				
301	1587301	TN220-2-6	250	14	3500.00	N/A				
302	1587302	TN220-2-6	250	14	3500.00	N/A				
303	1587303	TN220-2-6	250	14	3500.00	N/A	RM	8/9/2005	8/12/2005	C#13636 G050895
304	1587304	TN220-2-6	250	14	3500.00	N/A				
305	1587305	TN220-2-6	250	14	3500.00	N/A				
306	1587306	TN220-2-6	250	14	3500.00	N/A				
307	1587307	TN220-2-6	250	14	3500.00	N/A				
308	1587308	TN220-2-6	250	14	3500.00	N/A				
309	1587309	TN220-2-6	250	14	3500.00	N/A				
310	1587310	TN220-2-6	250	14	3500.00	N/A				
311	1587311	TN220-2-6	250	14	3500.00	N/A				
312	1587312	TN220-2-6	250	14	3500.00	N/A				

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Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
313	1587313	TN220-2-6	250	14	3500.00	N/A				
314	1587314	TN220-2-6	250	14	3500.00	N/A				
315	1587315	TN220-2-6	250	14	3500.00	N/A				
316	1587316	TN220-2-6	250	14	3500.00	N/A				
317	1587317	TN220-2-6	250	14	3500.00	N/A				
318	1587318	TN220-2-6	250	14	3500.00	N/A				
319	1587319	TN220-2-6	250	14	3500.00	N/A				
320	1587320	TN220-2-6	250	14	3500.00	N/A				
321	1587321	TN220-2-6	250	14	3500.00	N/A				
322	1587322	TN220-2-6	250	14	3500.00	N/A				
323	1587323	TN220-2-6	250	14	3500.00	N/A				
324	1587324	TN220-2-6	250	14	3500.00	N/A				
325	1587325	TN220-2-6	250	14	3500.00	N/A				
326	1587326	TN220-2-6	250	14	3500.00	N/A				
327	1587327	TN220-2-6	250	14	3500.00	N/A				
328	1587328	TN220-2-6	250	14	3500.00	N/A				
329	1587329	TN220-2-6	250	14	3500.00	N/A	RM	8/15/2005	8/17/2005	C#13763 G050916
330	1587330	TN220-2-6	250	14	3500.00	N/A				
331	1587331	TN220-2-6	250	14	3500.00	N/A				
332	1587332	TN220-2-6	250	14	3500.00	N/A				
333	1587333	TN220-2-6	250	14	3500.00	N/A				
334	1587334	TN220-2-6	250	14	3500.00	N/A				
335	1587335	TN220-2-6	250	14	3500.00	N/A				
336	1587336	TN220-2-6	250	14	3500.00	N/A				
337	1587337	TN220-2-6	250	14	3500.00	N/A				
338	1587338	TN220-2-6	250	14	3500.00	N/A				

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Manufacturer: Skaps

Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
339	1587339	TN220-2-6	250	14	3500.00	N/A				
340	1587340	TN220-2-6	250	14	3500.00	N/A				
341	1587341	TN220-2-6	250	14	3500.00	N/A				
342	1587342	TN220-2-6	250	14	3500.00	N/A				
343	1587343	TN220-2-6	250	14	3500.00	N/A				
344	1587344	TN220-2-6	250	14	3500.00	N/A				
345	1587345	TN220-2-6	250	14	3500.00	N/A				
346	1587346	TN220-2-6	250	14	3500.00	N/A				
347	1587347	TN220-2-6	250	14	3500.00	N/A				
348	1587348	TN220-2-6	250	14	3500.00	N/A				
349	1587349	TN220-2-6	250	14	3500.00	N/A				
350	1587350	TN220-2-6	250	14	3500.00	N/A				
351	1587351	TN220-2-6	250	14	3500.00	N/A				
352	1587352	TN220-2-6	250	14	3500.00	N/A	RM	8/15/2005	8/17/2005	C#13764 G050916
353	1587353	TN220-2-6	250	14	3500.00	N/A				
354	1587354	TN220-2-6	250	14	3500.00	N/A				
355	1587355	TN220-2-6	250	14	3500.00	N/A				
356	1587356	TN220-2-6	250	14	3500.00	N/A				
357	1587357	TN220-2-6	250	14	3500.00	N/A				
358	1587358	TN220-2-6	250	14	3500.00	N/A				
359	1587359	TN220-2-6	250	14	3500.00	N/A				
360	1587360	TN220-2-6	250	14	3500.00	N/A				
361	1587361	TN220-2-6	250	14	3500.00	N/A				
362	1587362	TN220-2-6	250	14	3500.00	N/A				
363	1587363	TN220-2-6	250	14	3500.00	N/A				
364	1587364	TN220-2-6	250	14	3500.00	N/A				

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Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
365	1587365	TN220-2-6	250	14	3500.00	N/A				
366	1587366	TN220-2-6	250	14	3500.00	N/A				
367	1587367	TN220-2-6	250	14	3500.00	N/A				
368	1587368	TN220-2-6	250	14	3500.00	N/A				
369	1587369	TN220-2-6	250	14	3500.00	N/A				
370	1587370	TN220-2-6	250	14	3500.00	N/A				
371	1587371	TN220-2-6	250	14	3500.00	N/A				
372	1587372	TN220-2-6	250	14	3500.00	N/A				
373	1587373	TN220-2-6	250	14	3500.00	N/A				
374	1587374	TN220-2-6	250	14	3500.00	N/A				
375	1587375	TN220-2-6	250	14	3500.00	N/A				
376	1587376	TN220-2-6	250	14	3500.00	N/A				
377	1587377	TN220-2-6	250	14	3500.00	N/A				
378	1587378	TN220-2-6	250	14	3500.00	N/A				
379	1587379	TN220-2-6	250	14	3500.00	N/A				
380	1587380	TN220-2-6	250	14	3500.00	N/A				
381	1587381	TN220-2-6	250	14	3500.00	N/A				
382	1587382	TN220-2-6	250	14	3500.00	N/A				
383	1587383	TN220-2-6	250	14	3500.00	N/A				
384	1587384	TN220-2-6	250	14	3500.00	N/A				
385	1587385	TN220-2-6	250	14	3500.00	N/A				
386	1587386	TN220-2-6	250	14	3500.00	N/A				
387	1587387	TN220-2-6	250	14	3500.00	N/A				
388	1587388	TN220-2-6	250	14	3500.00	N/A				
389	1587389	TN220-2-6	250	14	3500.00	N/A				
390	1587390	TN220-2-6	250	14	3500.00	N/A				

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No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
391	1587391	TN220-2-6	250	14	3500.00	N/A				
392	1587392	TN220-2-6	250	14	3500.00	N/A				
393	1587393	TN220-2-6	250	14	3500.00	N/A				
394	1587394	TN220-2-6	250	14	3500.00	N/A				
395	1587395	TN220-2-6	250	14	3500.00	N/A				
396	1587396	TN220-2-6	250	14	3500.00	N/A				
397	1587397	TN220-2-6	250	14	3500.00	N/A				
398	1587398	TN220-2-6	250	14	3500.00	N/A				
399	1587399	TN220-2-6	250	14	3500.00	N/A				
400	1587400	TN220-2-6	250	14	3500.00	N/A				
401	1587401	TN220-2-6	250	14	3500.00	N/A				
402	1587402	TN220-2-6	250	14	3500.00	N/A				
403	1587403	TN220-2-6	250	14	3500.00	N/A				
404	1587404	TN220-2-6	250	14	3500.00	N/A				
405	1587405	TN220-2-6	250	14	3500.00	N/A				
406	1587406	TN220-2-6	250	14	3500.00	N/A				
407	1587407	TN220-2-6	250	14	3500.00	N/A				
408	1587408	TN220-2-6	250	14	3500.00	N/A				
409	1587409	TN220-2-6	250	14	3500.00	N/A				
410	1587410	TN220-2-6	250	14	3500.00	N/A				
411	1587411	TN220-2-6	250	14	3500.00	N/A				
412	1587412	TN220-2-6	250	14	3500.00	N/A				
413	1587413	TN220-2-6	250	14	3500.00	N/A				
414	1587414	TN220-2-6	250	14	3500.00	N/A				
415	1587415	TN220-2-6	250	14	3500.00	N/A				
416	1587416	TN220-2-6	250	14	3500.00	N/A				

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Location: GA

Rec 244, DC # 1972

No.	Roll #	Product	Length ft.	Width ft.	Area ft^2	Date Manufactured	Sampled by	Date Sampled	Date Received	Comments
417	1587417	TN220-2-6	250	14	3500.00	N/A				
418	1587418	TN220-2-6	250	14	3500.00	N/A				
419	1587419	TN220-2-6	250	14	3500.00	N/A				
420	1587420	TN220-2-6	250	14	3500.00	N/A				
421	1587421	TN220-2-6	250	14	3500.00	N/A				
422	1587422	TN220-2-6	250	14	3500.00	N/A				
423	1587423	TN220-2-6	250	14	3500.00	N/A				
424	1587424	TN220-2-6	250	14	3500.00	N/A				
425	1587425	TN220-2-6	250	14	3500.00	N/A				
426	1587426	TN220-2-6	250	14	3500.00	N/A				
427	1587427	TN220-2-6	250	14	3500.00	N/A				
428	1587428	TN220-2-6	250	14	3500.00	N/A				
429	1587429	TN220-2-6	250	14	3500.00	N/A				
430	1587430	TN220-2-6	250	14	3500.00	N/A				
431	1587431	TN220-2-6	250	14	3500.00	N/A				
432	1587432	TN220-2-6	250	14	3500.00	N/A				
433	1587433	TN220-2-6	250	14	3500.00	N/A				
434	1587434	TN220-2-6	250	14	3500.00	N/A				
435	1587435	TN220-2-6	250	14	3500.00	N/A				
436	1587436	TN220-2-6	250	14	3500.00	N/A				
437	1587437	TN220-2-6	250	14	3500.00	N/A				
				Total ft^2=	**1529500.00**					

QA

DAY MONDAY DAILY LOG 2005 ~~MAY~~ JUNE 20

CONTRACTOR SHAMROCK ENVIRONMENTAL CORP. JOB NAME DAVIDSON PARTIAL CLOSURE JOB NO 379.35

Work Performed Today

SEC BEGINS FIELD OPERATIONS
AUGER AND INSTALL GAS VENTS
BOREHOLE FILLED WITH #57 STONE UP TO
TOP OF WASTE, BENTONITE PELLETS UP TO
GROUND SURFACE, TYPICALLY 18"- 24".
PERFORATED PIPE LENGTH FROM BOTTOM OF
HOLE UP TO TOP OF WASTE ELEVATION. SOLID
SECTION THROUGH COVER SOIL + ~TWO FEET
ABOVE GROUND, TYPICAL LENGTH 4.0 TO 60
FEET.

Problems - Delays DRILL RIG FUEL PUMP.

Sub-Contractor Progress KELLETTS DRILLING BEGINS
GAS VENT BORINGS IN AREA 3; GV-6 depth
42 feet, GV-7 depth 21 feet

Special Assignments OWNER EXPRESSES A WISH TO PLACE
MORE WASTE AT TOP OF CLOSURE AREA.

Extra Work	Authorized By	Approx. Price

~~Equipment Rented Today~~	Rented From	Rate
NATHAN CARTER (SUPERINT.)		
IGNACIO (LABOR)		
KELLETTS DRILLING	(2 MEN)	

Supervisor's Signature Hannukempainen

Weather SUNNY

Temp. AM ____ PM ____

Safety Meeting ____

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	3
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	4

Equipment	Hrs.
BUCKET AUGER	
DEER 200LC	EXCAV.
DEER 750 DOZER	
TA TRUCK (27)	
DEER GATOR 2x4	

Material Purchased

JUNE — — — →

21 ~~MAY~~ 2005 DAILY LOG DAY TUESDAY

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

CONTINUE GAS VENT DRILLING / INSTALLATION KELLETTS DRILLS ON CLOSURE AREA SLOPES WHILE OWNER OPERATES ON TOP OF LF.

Problems - Delays DRILL TRUCK MUST BE HELPED DURING MOVEMENT FROM GV LOCATION TO ANOTHER; NOT AN ATV RIG.

Sub-Contractor Progress KELLETTS GV8, GV9, GV10 GV11, GV12

Special Assignments OWNER BEGINS LANDFILL OPERATION ON TOP OF CLOSURE AREA TO MAXIMIZE USE OF PERMITTED AIRSPACE.

Extra Work	Authorized By	Approx. Price

~~Equipment Rented Today~~	Rented From	Rate
NATHAN, IGNACIO	(SEC)	
KELLETTS	(2 MEN)	

Supervisor's Signature Hannu Kempainen

Weather SUNNY

Temp. AM ____ PM ____

Safety Meeting ____

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	3
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	4

Equipment	Hrs.
DEER 750	DOZER
DEER 200	EXCAV.
TA 27	TRUCK
DEER 2x4	GATOR

Material Purchased

8 JUNE 2005 DAILY LOG DAY WEDN.

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 37935

Work Performed Today

Problems - Delays

Sub-Contractor Progress

Special Assignments PM #1

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature

Weather

Temp. AM PM

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

20 JUNE 2005 DAILY LOG DAY MONDAY

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

JOYCE ENGINEERING, INC.

Waste Industry Experts
www.JoyceEngineering.com

SEE MAY 20 page

Problems

Sub-Con

Special /

Weather

Temp. AM PM

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature

DAY TUESDAY DAILY LOG 2005 JUNE 21

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature

Weather

Temp. AM PM

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

22 JUNE 2005 DAILY LOG DAY WED.

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

CONTINUE LF GAS VENT INSTALLATION, INSTALL SICT FENCE ALONG AREA 3 TOE, BEGIN REMOVE TOP SOIL AND VEGETATION FROM AREA 3 EAST FACING SLOPE.

Problems - Delays

Sub-Contractor Progress KELLETTS, GV 13, GV 3, GV 4

Special Assignments PM # 2

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate
NATHAN, IGNACIO (SEC)		
KELLETTS (2 MEN)		

Supervisor's Signature Hannu Kempainen

Weather SUNNY

Temp. AM ____ PM ____

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	3
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	4

Equipment	Hrs.
DEER 750	DOZER
DEER 200LC	EXC.
DEER 2x4	GATOR
TA 27 TRUCK	

Material Purchased

DAY THURS. DAILY LOG 2005 JUNE 23

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today

CONTINUE GAS VENT INSTALLATION, INSTALL SILT FENCE AND STRIP TOP SOIL FROM AREA 3 EAST FACING SLOPE

Problems - Delays

Sub-Contractor Progress KELLETTS GV 3, GV 5, GV 1

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate
NATHAN, IGNACIO, RUBEN (SEC)		
KELLETTS (2 MEN)		

Supervisor's Signature Harvin Kuppuswamy

Weather SUNNY

Temp. AM ____ PM ____

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	34
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	45

Equipment	Hrs.
DEER 750 DOZER	
DEER 200 EXCAV.	
DEER 2x4 GATOR	
TA 27 TRUK	

Material Purchased

26 JUNE 2005 DAILY LOG DAY SUNDAY

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

NO WORK

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY MONDAY DAILY LOG 2005 JUNE 27

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today

CONTINUE STRIPPING TOPSOIL AND PLACE INTERMEDIATE COVER ON AREA 3 SLOPES.

Weather SUNNY

Temp. AM ____ PM ____

Safety Meeting ____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

LATE AFTERNOON THUNDER STORM

Sub-Contractor Progress KELLETTS TO COMPLETE GV DRILLING; GV 15

Special Assignments

JEI NOT ON SITE

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature

28 JUNE 20 05 DAILY LOG DAY TUESDAY

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

SITE WET RAIN GAUGE 2.20 INCHES

NO WORK

Weather OVERCAST LITE RAIN

Temp. AM ____ PM ____

Safety Meeting ____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

Sub-Contractor Progress

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature H Baumkungner

DAY WEDN. DAILY LOG 2005 JUNE 29

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today RAIN GAUGE 0.15 INCH
SITE WET, AREA 3 INTERMEDIATE COVER SOIL ERODED FROM YESTERDAY'S RAIN. SEDIMENT PILED AGAINST SILT FENCE AND PERIMETER DITCH CHOKED FULL WITH SEDIMENT. SEC BEGINS TO CLEAN OUT SEDIMENT FROM DITCH.

Problems - Delays

Sub-Contractor Progress

Special Assignments PM # 3, OWNER AGREED TO 2 RAIN DAYS FOR SEC.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kangpim

Weather PART SUNNY

Temp. AM ____ PM ____

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	3
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	4

Equipment	Hrs.

Material Purchased

DAY FRIDAY DAILY LOG 2005 JULY 1

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today

SEC HAUL SOIL TO CONSTRUCT INTER-MEDIATE COVER ON AREA 3 EAST FACING SLOPE, ~ 6" LIFT. SOIL EXCAVATED UNDER POWERLINES, SHORT HAULING DISTANCE, WITH TEREX TA 27 TRUCK SPREAD AND TRACK SOIL ON SLOPE WITH DEER 750 DOZER, SMOOTH DRUM FOR COMPACTION AND SEALED SURFACE

Problems - Delays

Sub-Contractor Progress

Special Assignments

CQA 2+ ACRES OF COMPLETED SOIL CAP ACRES 1, 2, and PART OF ACRE 3.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kempainen

Weather SUNNY

Temp. AM 70S PM 90

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	3
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	4

Equipment	Hrs.
DEER 750 DOZER	
DEER 200LC EXC.	
TA 27 TRK	

Material Purchased

2 JULY 2005 DAILY LOG DAY SAT

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

HAUL AND PLACE SOIL ON AREA 3 SLOPES

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature

Weather SUNNY

Temp. AM _____ PM _____

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY SUNDAY DAILY LOG 2005 JULY 3

CONTRACTOR _____ JOB NAME _____ JOB NO _____

Work Performed Today

NO WORK

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather SHOWERS

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

4 JULY 2005 DAILY LOG DAY MONA.

CONTRACTOR _____ JOB NAME _____ JOB NO. _____

Work Performed Today

NO WORK
July 4th Holiday

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kemppinen

Weather SHOWERS

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY TUE DAILY LOG 2005 JULY 5

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO

Work Performed Today

CONTINUE CAP SOIL CONSTRUCTION.
CALL NATHAN: SOME RAIN OVER THE WEEKEND, NOT ENOUGH TO MEASURE UP (?)
NO EROSION ON CLOSURE AREA SLOPES.

Weather OVERCAST.

Temp. AM 70S PM 80S

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

Sub-Contractor Progress

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hamm Kempinen

6 JULY 2005 DAILY LOG DAY WED

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today OVER NIGHT RAIN 1.0 inch
SEC continues intermediate cover construction on top of cap area.

Weather SUNNY

Temp. AM 70s PM 80s

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	3
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	4

Problems - Delays SEC NOTIFIES JEI THAT TOP OF LF WHERE WAISTE WAS PLACED RECENTLY, NEEDS TO BE RESURVEYED. OWNER CALLS MIKE GREEN — SURVEY TOMORROW.

Sub-Contractor Progress

Special Assignments

Equipment	Hrs.
DEER 200 EXC.	
TA 27 TRK	
DEER 750 DOZER	
ROLLER	

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hammkempsinen

DAY TH

DAILY LOG

2005 JULY 7

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO

Work Performed Today

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature

Weather SUNNY

Temp. AM 70S PM 80S

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

8 JULY 20 05 DAILY LOG DAY FR

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

SEC CONTINUES INTERMEDIATE COVER CONSTRUCTION

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature

Weather SUNNY

Temp. AM 70s PM 80s

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY SAT DAILY LOG 2005 JULY 9

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today

CONTINUE PART CLOSURE INTERMEDIATE COVER CONSTRUCTION

Weather SUNNY

Temp. AM ____ PM ____

Safety Meeting ____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

Sub-Contractor Progress

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature

10 JULY 20 05

DAILY LOG

DAY SUN

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

NO WORK ON SUNDAY

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY MON.

DAILY LOG

2005 JULY 11

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today

CALL NATHAN, SEC CONTINUES
INTERMEDIATE COVER CONSTRUCTION

Weather OVERCAST

Temp. AM ____ PM ____

Safety Meeting ____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

Sub-Contractor Progress

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hannu Kempainen

12 JULY 2005 DAILY LOG DAY TUE

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

SEC CONTINUES CAP INTERMEDIATE COVER CONSTRUCTION ON THE NORTH FACING SLOPE IN AREAS ACRE 4 AND 5.
SOUTH FACING SLOPE ACRES 10-11 AND ON TOP ACRES 12-13 AND HALF OF 14 ARE CONSTRUCTED.
SEC WORKED UNTIL 9PM ACCORDING TO NATHAN CARTER.

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kempainen

Weather SUNNY

Temp. AM 70S PM 80S

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	1
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	3
Total	5

Equipment	Hrs.
DEER 750 DOZER (2)	
TA 27 TRK	
TA 30 TRK	
CAT D300E TRK	
DEER 200C EXC.	
WATER TRK	

~~Material Purchased~~

CAT CS 433C SMOOTH DRUM ROLLER

DAY WE DAILY LOG 2005 JULY 13

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today

SEC CONTINUES INTERMEDIATE COVER CONSTR. ON NORTH FACING SLOPE ON ACRES 5 AND 6.
CQA ACRES 4 & 5
SEC USES 3 TRUCKS TO HAUL SOIL FROM BORROW UNDER POWER LINES
SEC PLANS TO COMPLETE INTERMEDIATE COVER CONSTRUCTION BY END OF THIS WEEK.

Problems - Delays

Sub-Contractor Progress SANTEC SURVEY CONSTRUCTED INTERMEDIATE COVER @ 50' GRID, STAKE OUT CUT/FILL

Special Assignments PM# 4

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hamun Kenyon

Weather SUNNY

Temp. AM 70S PM 80S

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	1
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	3
Total	5

Equipment	Hrs.
DEER 750 DOZER (2)	
DEER 200 EXC.	
TA 27 TRUCK	
TA 30 TRUCK	
CAT 300 TRUCK	
WATER TRUCK	

~~Material Purchased~~

CAT 433 ROLLER

DAY FR DAILY LOG 2005 JULY 15

CONTRACTOR _____ JOB NAME _____ JOB NO _____

Work Performed Today RAIN GAUGE 0.02 INCH
CONTINUE INTERMEDIATE COIL CONSTRUCTION ON TOP OF LF, OVER THE WESTERN END WHERE WASTE WAS ADDED. BEGIN TO REGRADE SOUTH FACING SLOPE PER SURVEY STAKES (50-FOOT GRID). SOUTH FACING SLOPE COMPLETED AND RE TESTED (CQA). PLACE INTERMEDIATE SOIL COVER ON NORTH FACING SLOPE ACRES 6, 7, 8

Problems - Delays

Sub-Contractor Progress

~~Special Assignments~~ SEC CREW:
Nathan Carter, Jack N...
John Carter, Ignacio Cordero
Leonard Brook, Joshua Manos

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kuppinen

Weather OVERCAST

Temp. AM 70S PM 80S

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.
DEER 750 DOZER (2)	
DEER 200 EXC.	
TA 27 TRK	
TA 30 TRK	
CAT 300 TRK	
CAT 433 ROLLER	

~~Material Purchased~~

WATER TRUCK

16 JULY 2005 DAILY LOG DAY SAT

CONTRACTOR _____ JOB NAME _____ JOB NO. _____

Work Performed Today

NO WORK, SHAMROCK CORP.
SUMMER PICKNICK.

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY SUN

DAILY LOG

20 05 JULY 17

CONTRACTOR _____ JOB NAME _____ JOB NO _____

Work Performed Today

NO WORK ON SUNDAY!

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

18 JULY 2065 DAILY LOG DAY MON

CONTRACTOR SEC JOB NAME PARTCLOSURE JOB NO. 379.35

Work Performed Today

SEC CONTINUES INTERMEDIATE LAYER CONSTRUCTION ON NORTH FACING SLOPE ACRE 8, ADD MORE SOIL ON TOP, GRADE TO DRAIN

Problems - Delays

Sub-Contractor Progress

Special Assignments

CQA ACRES 6, 7, 8 ON NORTH FACE AND ACRE 14 ON TOP

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hamid Kimzin

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting ✓

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.
DEER 750 DOZER (2)	
DEER 200 EXCAV.	
TA 27 & 30 TRKS	
CAT 300 TRK	
CAT 433 ROLLER	

Material Purchased

DAY TUE DAILY LOG 2005 JULY 19

CONTRACTOR SEC JOB NAME PARS CLOSURE JOB NO 37935

Work Performed Today

CONTINUE HAUL SOIL ON TOP OF LF, GRADE PER STAKES ≥ 1.0 FOOT THICKNESS AND GRADE TO DRAIN.
SEC EXPECTS TO COMPLETE INTERMED. COVER TODAY AND BY MORNING.
SURVEYOR SCHEDULED FOR TOMORROW.

Problems - Delays

Sub-Contractor Progress

Special Assignments

CQA ACKE 9 ON TOP OF LF CAP.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hamm Kenyon

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting ✓

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.
DEER 750 DOZER (2)	
DEER 200 EXCAV.	
TA 27 & 30 TRUCKS	
~~CAT~~ IR SD 105 DX	
SMOOTH DRUM ROLLER	

Material Purchased

20 JULY 2005 DAILY LOG DAY WE

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

Add soil on top and grade to drain, min. thickness of intermediate cover 1-foot. Grade side slopes per stakes and even grades.

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting ✓

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	5
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	6

Problems - Delays

Sub-Contractor Progress

Special Assignments

CQA ACRES 12, 13, 14 second lift (1.0')
LULL FORKLIFT DELIVERED TO SITE
(UNITED RENTAL)

Equipment	Hrs.
DEER 750 DOZER (2)	
DEER 200 EXCAV.	
TA TRUCKS 27 & 30	
IR 5A ROLLER	
WATER TRUCK	

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature [illegible]

DAY TH

DAILY LOG

2005 JULY 21

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today

FINISH INTERMEDIATE COVER CONSTRUCTION
INTERMEDIATE SOIL LAYER, GRADE,
SURVEY, REGRADE

Problems - Delays

Sub-Contractor Progress SURVEYOR VERIFY CSD
SOIL GRADES

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hammitzgrien

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting ✓

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	5
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	6

Equipment	Hrs.
DEERE 750 DOZER (2)	
DEER 200 EXC.	
TA 27 130 TRUCS	
IR 5A ROLLER	
WATER TRUCK	

Material Purchased

22 JULY 2005 DAILY LOG DAY FR

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

FINALIZE GRADING PER SURVEY

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hamm Kempsinn

Weather SUNNY

Temp. AM 70S PM 90S

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY SAT DAILY LOG 2005 JULY 23

CONTRACTOR SEC JOB NAME PARTCLOSURE JOB NO

Work Performed Today

NO WORK. SEC FINISHED INTERMEDIATE SOIL COVER GRADING ON FRIDAY, PER NATHAN CARTER.

Weather SUNNY

Temp. AM 70S PM 90S

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	0

Problems - Delays

Sub-Contractor Progress

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hamm Kempinen

24 JULY 20___ DAILY LOG DAY SU

CONTRACTOR _____ JOB NAME _____ JOB NO. _____

Work Performed Today

NO WORK

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY MO

DAILY LOG

2005 JULY 25

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO

Work Performed Today

WATER INTERMEDIATE COVER – MAINTAIN COMPLETED COVER

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting ✓

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays EXPECT MAL MOBILIZE & MATERIALS DELIVERY BY END OF WEEK 7/29 FRIDAY.

Sub-Contractor Progress

Special Assignments

CQA ACRE 9 TOP 6 INCHES.

Equipment	Hrs.
WATER TRK	
ROLLER	

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hammerschmidt

26 JULY 2005 DAILY LOG DAY TV

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO.

Work Performed Today

Maintain intermediate soil cap

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hassan Kenzman

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.
WATER TRK	
ROLLER	

Material Purchased

DAY WE

DAILY LOG

2005 JULY 27

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.05

Work Performed Today

Maintain intermediate soil cap.

Weather sunny

Temp. AM 70s PM 90s

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays Expect geosynthetic materials deliveries this week. MAL plans to mobilize on Monday, August 1.

Sub-Contractor Progress

Equipment	Hrs.
WATER TRK	
ROLLER	

Special Assignments PM#5

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hannu Kenyonen

28 JULY 2005 DAILY LOG DAY TH

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

SEC MAINTAINS CLOSURE CAP

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannah Kenyon

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.
WATER TRK	
ROLLER	

Material Purchased

DAY FR

DAILY LOG

20 05 JULY 29

CONTRACTOR SEC JOB NAME _____ JOB NO _____

Work Performed Today

SEC MAINTAINS CLOSURE CAP

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature [illegible]

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.
WATER TRK	
ROLLER	

Material Purchased

30 JULY 2005 DAILY LOG DAY SAT

CONTRACTOR _____ JOB NAME _____ JOB NO. _____

Work Performed Today

NO WORK

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY SUN

DAILY LOG

2001 JULY 31

CONTRACTOR _____ JOB NAME _____ JOB NO _____

Work Performed Today

NO WORK

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

1 AUG. 2005 DAILY LOG DAY MON

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

SEC MAINTAINS INTERMEDIATE SOIL COVER

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY TUE DAILY LOG 2005 AUG. 2

CONTRACTOR SEC JOB NAME _____ JOB NO _____

Work Performed Today

SEC MAINTAINS SOIL COVER

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

3 AUG. 2005 DAILY LOG DAY WED

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

SEC MAINTAINS INTERMEDIATE SOIL COVER

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY THURSDAY DAILY LOG 2005 AUG. 4

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today

SEC BEGINS EXCAVATE ANCHOR TRENCH ALONG SOUTH FACING SLOPE TOE. 1A. LF ANCHOR TRENCH / LINER EDGE. AT 100-FOOT INTERVALS, EXCAVATE CAP ANCHOR TRENCH IN STRAIGHT LINE BTW IDENTIFIED LINER EDGE LOCATIONS.

37 ROLLS OF LLDPE DELIVERED / STACKED ON SITE. 80 ROLLS OF GEO COMPOSITE, AND LOTS OF GCL (COVERED IN PLASTIC) STACKED ON SITE.

Problems - Delays

Sub-Contractor Progress

MAL EXPECTED TO MOBILIZE FRI (8/5) OR SAT (8/6).

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hamm Kempin

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	3
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	3

Equipment	Hrs.
BOBCAT 331	
MINI EXCAVATOR	

Material Purchased

5 AUG. 2005 DAILY LOG DAY FRI

CONTRACTOR SEC JOB NAME _____ JOB NO. 379.35

Work Performed Today

SEC EXCAVATES CAP ANCHOR TRENCH ALONG SOUTH AND EAST FACING SLOPES, AT EACH LEACHATE CLEAN OUT, EXCAVAT TO EXPOSE LF LINER EDGE.
EXCAVATE SMALL ANCHOR TRENCH APPX. 4 FEET UPSLOPE FROM TOE TRENCH. THIS SECOND TRENCH IS FOR THE GEOCOMPOSITE GAS MIGRATION LAYER. IT NEEDS TO DRAIN BACK INTO THE LF.

Problems - Delays LEACHATE CLEANOUTS IN PHASE 1 & 3 WERE CONSTRUCTED SHORT ABOVE CONCRETE PADS. SEC EXCAVATE TO ID. EXCACTLY LINER EDGE LOCATION.

Sub-Contractor Progress MAL ARRIVES TO THE SITE 1430. MAL SETS UP OVER SATURDAY, FILL SAND BAGS.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hamm Kumpgoni

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	2
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	3

Equipment	Hrs.
CAT 331	
MINI EXCAV.	
DITCH WITCH	

Material Purchased

DAY SAT

DAILY LOG

20___ AUG. 6

CONTRACTOR _____ JOB NAME _____ JOB NO _____

Work Performed Today

Weather SUNNY

Temp. AM 70S PM 90

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

Sub-Contractor Progress MAL SETS UP, FILLS SAND BAGS

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature [illegible]

7 AUG. 20___ DAILY LOG DAY SUN

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

No work

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY MONDAY

DAILY LOG

2005 AUG. 8

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.35

Work Performed Today

SEC – MAINTAIN SITE, EXCAVATE CAP TOE ANCHOR TRENCH

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting ✓

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	3
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	4

Problems - Delays

Sub-Contractor Progress MIDAMERICA LINING CO. (MAL) BEGIN DEPLOY GEOCOMPOSITE GAS MIGRATION LAYER ON SOUTH FACING SLOPE OF THE CLOSURE 32 ROLLS = ~ 111,440 SF.

Equipment	Hrs.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Norman Kempinen

9 AUG. 20___ DAILY LOG DAY TUESDAY

CONTRACTOR _____ JOB NAME _____ JOB NO. _____

Work Performed Today

SEC - NO WORK - RAIN ~~2.00"~~
1.0 inch

Problems - Delays

Sub-Contractor Progress MAC - NO WORK - RAIN

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather RAIN

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY WEDNESDAY DAILY LOG 20___ AUG. 10

CONTRACTOR _____ JOB NAME _____ JOB NO _____

Work Performed Today SEC REPAIR RAIN DAMAGE ON CLOSURE CAP

Problems - Delays

Sub-Contractor Progress MAC - NO WORK

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature _____

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting _____

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.
JCB 260	
CAT 300 TRK	
DEER 750 DOZER	
CAT 331 MINI HOE	
DITCH WITCH	
IR SD 105 ROLLER	

Material Purchased

11 AUG. 2005 DAILY LOG DAY THURSDAY

CONTRACTOR SEC JOB NAME CLOSURE JOB NO. 379.35

Work Performed Today

SEC - REPAIR RAIN DAMAGED SOIL CAP, EXCAVATE ANCHOR TRENCH

Problems - Delays

Sub-Contractor Progress MAL BEGINS DEPLOY GCL BENTOMAT ON SOUTH FACING SLOPE 13 ROLLS = 29,250SF, AND DEPLOY 5 PANELS OF LLDPE LINER = 3206SF

Special Assignments MAL CREW 2 + 12

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature [illegible]

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.

Material Purchased

DAY FRIDAY

DAILY LOG

2005 AUG. 12

CONTRACTOR SEC JOB NAME _____ JOB NO _____

Work Performed Today

SEC MAINTAIN SITE

Weather SUNNY

Temp. AM 70S PM 90S

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	2
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	3

Problems - Delays

Sub-Contractor Progress MAL DEPLOY ~~14~~ 16 ROLLS GCL BENTOMAT ON SOUTH FACING SLOPE AND LLDPE PANELS 6-14 = 40,000SF MAL CREW 12, WELD ALL PANEL SEAMS AIRTEST.

~~Special Assignments~~

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hannu Kempainen

13 AUG. 2005 DAILY LOG DAY SATURDAY

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

SEC NOT ON SITE

Weather SUNNY

Temp. AM 73 PM 95

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

Sub-Contractor Progress MAL installs 17 rolls of GCL 38,250 SF and 7 panels of geomembrane LLDPE appx. 270 ft long x 22.5 wide = 12,525 SF

Equipment	Hrs.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hamm Kempsmen

DAY SUNDAY DAILY LOG 2005 AUG. 14

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379,35

Work Performed Today

SEC NOT ON SITE

Weather SUNNY

Temp. AM 75 PM 96

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

Sub-Contractor Progress MAL INSTALLS 22 ROLLS of GEO COMPOSITE
NON-DESTRUCTIVE AIR TEST OF ALL SEAMS WELDED UP TO DATE 1/2 - 20/21
MAKE PATCHES AND EXTUSION WELD THEM

~~Special Assignments~~

MAL CREW 2+10

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hamm Kempner

15 AUG. 2005 DAILY LOG DAY MONDAY

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

Problems - Delays

Sub-Contractor Progress MAL - 8 ROLLS OF BENTOMAT 8 ROLLS OF CLAYMAX AND PANELS 22-28 40 MILL HDPE

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kempponen

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY TUESDAY DAILY LOG 2005 AUG. 16

CONTRACTOR SEC JOB NAME PARTCLOSURE JOB NO 37935

Work Performed Today

Problems - Delays

Sub-Contractor Progress MAL - 5 ROLLS OF CLAYMAX
2 ROLLS OF BENTOMAT, PANELS 29-31
40 MIL LINER

Special Assignments
CQA AS 12-16

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kruggsim

Weather SUNNY

Temp. AM 70s PM 100

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

17 AUG. 2005 DAILY LOG DAY WEDN.

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 37935

Work Performed Today

SEC BEGIN BACKFILL ANCHOR TRENCH WEST END OF SOUTH SLOPE

Weather SUNNY

Temp. AM 70s PM 100

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays SITE WET FROM RAIN (0.1") OVERNIGHT.

Sub-Contractor Progress MAL @ 9AM ~ DETAIL/REPAIR

Equipment	Hrs.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hamen Kempmin

DAY THURSDAY DAILY LOG 2005 AUG. 18

CONTRACTOR SEC JOB NAME PARTCLOSURE JOB NO 37935

Work Performed Today RAIN GAUGE 0.03 INCH (9AM)

NO WORK - RAIN CONTINUES THROUGH OUT DAY

Weather RAIN

Temp. AM 70S PM 80S

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

Sub-Contractor Progress

Special Assignments PM#6

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature [signature]

19 AUG. 2005 DAILY LOG DAY FRIDAY

CONTRACTOR SEC JOB NAME PORT CLOSURE JOB NO. 37935

Work Performed Today MORNING LITE RAIN & FOGGY
RAIN GAUGE 0.35 INCH 9 AM.

SEC BACKFILLS ANCHOR TRENCH
AHEAD OF MAL DRAINAGE NET
INSTALLATION.

Problems - Delays

Sub-Contractor Progress MAL BEGINS DEPLOY
GEONET COMPOSITE ON SOUTH SLOPE
OVER 40 MIL LINER, P 9-20
= 101,500 SF

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hermann Kengpin

Weather SUNNY

Temp. AM ____ PM ____

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	2
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	2

Equipment	Hrs.

Material Purchased

DAY SATURDAY DAILY LOG 20 05 AUG. 20

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 579.5T

Work Performed Today

Weather SUNNY

Temp. AM 75 PM 100+

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays Very HOT DAY

Sub-Contractor Progress MBL DEPLOYS GEONET DRAINAGE COMPOSITE 17 rolls = 59,500 SF over P21-30, Leister heat bond geotextile continuously over P1-20

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature

21 AUG. 2005 DAILY LOG DAY SUNDAY

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

NO WORK, HOT!

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature

Weather SUNNY

Temp. AM 70s PM 100+

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY MONDAY DAILY LOG 2005 AUG. 22

CONTRACTOR SEC JOB NAME _____ JOB NO 379.35

Work Performed Today

SMOOTH DRUM EAST END SOIL LINER TO PREPARE SURFACE FOR SYNTHETICS. EXCAVATE ANCHOR TRENCH, BEGIN PLACE COVER FOIL ON SOUTHSLOPE OVER COMPLETED PORTION OF LINED CAP.

Problems - Delays

Sub-Contractor Progress MAL DEPLOY 11 ROLLS OF GEONET COMPOSITE, AND 19 ROLLS OF GCL CLAYMAX ON TOP OF CLOSURE AREA. 3 PANELS E-W DIRECTION

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature [signature]

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.
2 TA27 TRKS	
CAT 300 TRK	
DEER 200 EXC.	
1 R SD ROLLER	
CAT 331 MINIHOE	
DITCH WITCH	

Material Purchased

23 AUG. 2005 DAILY LOG DAY TUESDAY

CONTRACTOR SEC JOB NAME JOB NO. 379.35

Work Performed Today RAIN GAUGE 0.05" RAIN OVER NIGHT.
CONTINUE PLACE SOIL OVER SOUTH SLOPE
COMPLETED GEOSYNTHETICS.

Problems - Delays

Sub-Contractor Progress MSL DEPLOYS GEONET COMPOSITE OVER EAST END, 33 ROLLS = 115,500 SF

Special Assignments
MRS JOSLIN, MSL ON SITE

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Karppinen

Weather OVERCAST

Temp. AM 70s PM 80s

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.

Material Purchased

DAY WEDNESDAY DAILY LOG 2005 AUG. 24

CONTRACTOR SEC JOB NAME _____ JOB NO 37935

Work Performed Today

CONTINUE HAULING AND PLACING SOIL ON SOUTH SLOPE

Weather SUNNY

Temp. AM 71 PM 85-90

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Problems - Delays AREA 1 SOUTH SIDE CLEANOUT COVERED - SEC NEEDS TO LOCATE AND EXPOSE

Sub-Contractor Progress MSL PUSH CCL ON SE SLOPE 5 ROLLS OF CLAYMAX, 27 BENTOMAT PANELS 35-54, AS 17-20

Equipment	Hrs.
2 TEREX 27 TRKS	
CAT 300 TRK	
DEER 200 EX.	
CAT 331 MINIHOE	
DITCHWITCH	

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hannu Kempainen

25 AUG. 2005 DAILY LOG DAY THURSDAY

CONTRACTOR SEC JOB NAME JOB NO. 379.85

Work Performed Today

CONTINUE HAULING AND PLACING SOIL ON SOUTH SLOPE, AND ON TOP OF CLOSURE AREA

Weather SUNNY

Temp. AM 70S PM 80S

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Problems - Delays

Sub-Contractor Progress MAC DEPLOYS GCL ON EAST SLOPE, COVERS W/ 40-mil panels 55-62

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Warren Kempner

DAY FRIDAY

DAILY LOG

20 05 AUG. 26

CONTRACTOR SEC JOB NAME _____ JOB NO 379.35

Work Performed Today

HAUL AND PLACE COVER SOIL ON SOUTH SLOPE AND CLOSURE AREA TOP AT WEST END.

Problems - Delays

Sub-Contractor Progress NAL INSTALLS CLAYMAX AND PANELS 65-70 ON TOP OF CLOSURE AREA.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kempainen

Weather SUNNY

Temp. AM 70s PM 90

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.

Material Purchased

27 AUG. 2005 DAILY LOG DAY SAT

CONTRACTOR SEC JOB NAME JOB NO. 379.35

Work Performed Today

SEC HAULS AND PLACES COVER SOIL ON COMPLETE SYNTHETIC COVER

Problems - Delays

Sub-Contractor Progress MAL DEPLOYS 40-MIL LINER PANELS 71-76 IN THE NE CORNER OF CLOSURE AREA, REPAIRS, DEPLOY GEONET COMPOSITE ON EAST SLOPE UP TO PANEL # 56.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hammond Kempgrin

Weather SUNNY

Temp. AM 70s PM 90s

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.
2 TA27 TRKS	
CAT 300 TRK	
DEER 200 EXC.	
CAT MINI HOE	
DITCH WITCH	
1R SAKRLER	

Material Purchased

DAY SUNDAY DAILY LOG 20___ AUG. 28

CONTRACTOR SEC JOB NAME _____ JOB NO _____

Work Performed Today

NO WORK

Weather SUNNY

Temp. AM 75S PM 90S

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

GATE LOCKED, MAL HAD NO ACCESS TO SITE

Sub-Contractor Progress MAL

NO WORK

Equipment	Hrs.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hammfemgrim

29 AUG. 2005 DAILY LOG DAY MONDAY

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

SEC HAUL AND PLACE SOIL ON COMPLETED PORTION OF SYNTHETIC CAP.

Weather SUNNY

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Problems - Delays MAL DEPLOYS BENTONITE ON NE CORNER, 20 ROLLS = 45000 SF AND 40 ALL PANELS 77-90 APP. 46,594 SF

Sub-Contractor Progress

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hammi Kenyamin

DAY TUESDAY DAILY LOG 20 05 AUG. 30

CONTRACTOR SEC JOB NAME _____ JOB NO _____

Work Performed Today

SEC HAUL AND PLACE COVER SOIL

Weather SUNNY TO CLOUDY

Temp. AM 70S PM 90S

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Problems - Delays CLOUDS BUILDING, TURNING OVERCAST, WIND INCREASING, EFFECTS OF HURRICANE KATRINA

MAL - LEAVES SITE 11:00 AM

Sub-Contractor Progress MAL - REPAIR LINER DAMAGE; AIRTEST AND DESTRUCT-TEST LOCATIONS

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hamm Kenyon

31 AUG. 2005 DAILY LOG DAY WEDNESDAY

CONTRACTOR SEC JOB NAME _____ JOB NO. 379.31

Work Performed Today RAINGAUGE @ AM 0.15"

SEC HAULS AND PLACE SOIL ON CLOSURE CAP. EXCAVATE ANCHOR TRENCH

Problems - Delays WINDY - MAL HAS ONLY 1/2 CREW ON SITE. AREA 1 and 3 CLEANOUT PIPE NEED TO BE EXTENDED.

Sub-Contractor Progress MAL COVERS NE CORNER LINER WITH GEOCOMPOSITE DOWN TO PANEL #90. PM DEPLOY GEONET COMPOSITE UP TO GV11 ON THE NORTH SLOPE.

Special Assignments PROGRESS MEETING #7 STEVEN SINK, MIKE JOSLIN (MAL) NATE CARTER (SEC), HANNY (SEI)

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kenppinen

Weather SUNNY

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.

Material Purchased

DAY THURSDAY

DAILY LOG

2005 SEPT. 1

CONTRACTOR SEC JOB NAME _____ JOB NO 379.35

Work Performed Today

HAUL SOIL AND PLACE OVER COMPLETED SYNTHETIC CAP AT EAST END OF CLOSURE AREA. GRADE AND FILL EROSION ON NORTH SLOPE TO PREPARE SUBGRADE FOR MAL. EXCAVATE ANCHOR TRENCH. WATER DUSTY CONSTRUCTION ROADS

Problems - Delays MAL HAS ONLY 1/2 CREW ON SITE.

Sub-Contractor Progress MAL DEPLOYS GCL BENTOMAT OVER PLACED GEONET UP TO GV-11.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hamm Kenyon

Weather SUNNY

Temp. AM 70s PM 80

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.
2 TA 27	TRKS
CAT 300	TRK
DEER 200	EXC.
CAT MINI	HOE
DITCH WITCH	
IR SD ROLLER	

Material Purchased
WATER TRK

2 SEPT. 2002 DAILY LOG DAY FRIDAY

CONTRACTOR SEC JOB NAME _____ JOB NO. 379,35

Work Performed Today

SEC HAUL AND PLACE SOIL TO COVER GEOSYNTHETICS ON EAST SLOPE, EXCAVATE ANCHOR TRENCH AHEAD OF MAL WORK, CLOSE ANCHOR TRENCH AFTER MAL IS COMPLETED. ROLL SOIL SURFACE SMOOTH FOR LINER

Problems - Delays

Sub-Contractor Progress MAL DEPLOYS 28 ROLLS OF GEONET COMPOSITE ON NORTH SLOPE DEPLOY P91-114 ON N SLOPE. WELD DEPLOYED PANELS, CUT DS 38-45

Special Assignments AND FEDEX TO PGL

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kenyonen

Weather SUNNY

Temp. AM 70 PM 90

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.
2 DA 27 TRKS	
CAT 300 TRK	
DEER 200 EXC.	
MINI HOE	
DITCHWITCH	
1R DS ROLLER	

Material Purchased
WATER TRK

DAY SATURDAY DAILY LOG 2005 SEPT. 3

CONTRACTOR SEL JOB NAME _____ JOB NO _____

Work Performed Today

HAUL SOIL FOR COVER AND SLOPE BERMS; GRADE SOIL COVER AND BERMS

Problems - Delays

Sub-Contractor Progress DEPLOY GCL BENTOMAT ST ON NORTH SLOPE; AIR TEST P 91-1A SEAMS REPAIR TEST DAMAGED AREAS.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kauppinen

Weather SUNNY

Temp. AM 70 PM 90

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.
Same as yesterday	

Material Purchased

4 SEPT. 2005 DAILY LOG DAY SUN

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

CONTINUE HAULING SOIL FOR COVER AND SLOPE BERMS

Weather SUNNY

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Problems - Delays P115-116 DOES NOT PASS NON INTRUSIVE AIR TEST, 200 FEET TO BE CAPPED. P125-126 MOST OF SEAM NOT ACCEPTABLE, WEAK WELDER PROBLEM.

Sub-Contractor Progress MAL - PANELS 115-130, FINISH WEST END N. SLOPE DRAINAGE LAYER GEOCOMPOSITE 28 ROLLS = 98000 SF LINER APPX. AREA 10 X 390 X 22.5 = 87,750 SF

Equipment	Hrs.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Adam Klingman

DAY Mon

DAILY LOG

2005 SEPT. 5

CONTRACTOR SEC JOB NAME _____ JOB NO _____

Work Performed Today

HAUL SOIL FOR COVER AND BERMS

Problems - Delays

Sub-Contractor Progress MSL - CAP 200 FEET OF P 115-116 SEAM, CUT AND REWELD P 125-126 SEAM, CAP AFFECTED PANEL ENDS AT TUP TIE-IN WITH PJA.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kempp

Weather SUNNY

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.

Material Purchased

6 SEPT. 2005 DAILY LOG DAY TUESDAY

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

CONTINUE HAULING SOIL FOR COVER AND BERMS

Weather SUNNY

Temp. AM 70s PM 90

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Problems - Delays

Sub-Contractor Progress MAL REPAIRS PANELS 115-130, PLACE GCL BENTOMAT ON N. SLOPE. DESTROYS 40-52 SHIP TO PGL

Equipment	Hrs.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hamm Kempfine

DAY Wednesday DAILY LOG 2005 SEPT. 7

CONTRACTOR SEC JOB NAME _____ JOB NO 37935

Work Performed Today

SEC HAUL SOIL FOR COVER AND DIVERSION BERMS

Problems - Delays

MAL PLACE PANELS 131-137, SEAM AND DETAIL. 18 rolls of geocomposite 21 rolls of Bentomat

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannah Kempgrin

Weather SUNNY

Temp. AM 70 PM 90

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	5

Equipment	Hrs.

Material Purchased

8 SEPT. 20 05 DAILY LOG DAY 74

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

SEC HAULS SOIL TO COVER SYNTHETIC LINER AND CONSTRUCT STORMWATER DIVERSION BERMS.

Problems - Delays MSL & REPLACE PANELS ON N SLOPE TO COMPLETE THE CAP LAST PANEL # 149, SEAM, AIRTEST AND REPAIR. DESTRUCTS 57-67.

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Homan Kenzgrim

Weather SUNNY

Temp. AM 70s PM 80

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY FR. DAILY LOG 20___ SEPT. 9

CONTRACTOR SEC JOB NAME _____ JOB NO _____

Work Performed Today

SEC HAULS SOIL FOR COVER + BERMS

Weather SUNNY

Temp. AM 70S PM 90

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays MSL REPAIR LINER DAMAGE, TESTING LOCATIONS, AIR TEST, DESTUCTS, DEPLOY GEOCOMPOSITE

Sub-Contractor Progress

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hamm Kempin

10 SEPT. 2005 DAILY LOG DAY SAT

CONTRACTOR SEC JOB NAME _____ JOB NO. _____

Work Performed Today

SEC HAULS SOIL FOR COVER AND BERMS

Weather SUNNY

Temp. AM 70s PM 80s

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays

Sub-Contractor Progress MAL DEPLOYS COMPOSITE AND COMPLETS THE SYNTHETIC CAP. DEMOBILIZE.

Equipment	Hrs.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hannon Kemp

DAY SUN

DAILY LOG

2005 SEPT. 11

CONTRACTOR SEC JOB NAME _____ JOB NO _____

Work Performed Today

NO WORK

Problems - Delays

Sub-Contractor Progress MSL & MOBILIZE

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature [illegible]

Weather _____

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

14 SEPT. 20 05 DAILY LOG DAY WED

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

SEC HAUL AND PLACE SOIL ON NORTH SLOPE TO COVER GEOSYNTHETICS, CONTINUE STORMWATER DIVERSION BERMS CONSTR. GRADE PERIMETER DITCH, GAS VENTS 7, 11, & 13 HAVE BEEN EXTENDED WITH "CANDY CANES".

Problems - Delays

Sub-Contractor Progress

Special Assignments PM # 8

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannu Kempainen

Weather SUNNY

Temp. AM ____ PM ____

Safety Meeting

Work Force	No.
Superintendent	1
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	4
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.
2 TA 27 TRKS	
CAT 300 TRK	
DEER 300 EXC.	
WATER TRK	

Material Purchased

DAY WED

DAILY LOG

2005 SEPT. 21

CONTRACTOR SEC JOB NAME PORT CLOSURE JOB NO 579.35

Work Performed Today

CONTINUE HAULING SOIL FOR COVER, FINE GRADE CLOSURE CAP. SANTEK HAS SURVEYED MOST OF THE CAP AND BERMS. EXCAVATE / GRADE PERIMETER DITCHES. NATE EXPECTS TO PLACE STONE ON DIVERSION BERMS NEXT WEEK, AND COMPLETE WORK BY END OF MONTH.

Problems - Delays CLEANOUT VENTS EXTENSIONS VIDEO CAMERA CHECKS ON LEACHATE LINES, AND SEEDING PENDING.

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hannkenzmier

Weather SUNNY

Temp. AM ____ PM ____

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

22 SEPT. 2005 DAILY LOG DAY THU

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 37935

Work Performed Today

SEC CONSTRUCTS BERM ON NORTH SLOPE, PLACE STONE IN BERM CHANNEL
FINE GRADE AT TOP,
INSTALL GV TOPS "CANDY CANES"

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hamm Kempprin

Weather SUNNY

Temp. AM ____ PM ____

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

DAY FRI

DAILY LOG

20 05 SEPT. 23

CONTRACTOR _____ JOB NAME _____ JOB NO _____

Work Performed Today

CLOSURE SOIL AND BERM CONSTRUCTION COMPLETED.

INSTALL GV TOPS "CANDY CANES"

Weather SUNNY

Temp. AM _____ PM _____

Safety Meeting _____

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Problems - Delays SEEDING, EXTEND CLEANOUTS, VIDEO CLEANOUT PIPES

Sub-Contractor Progress

Special Assignments

Equipment	Hrs.

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Material Purchased

Supervisor's Signature Hammerkempfner

DAY Monday

DAILY LOG

2005 OCT. 3

CONTRACTOR SEC JOB NAME Part Closure JOB NO 379.85

Work Performed Today

Problems - Delays

CALL HENRY TO CHECK ON WORK STATUS:

Sub-Contractor Progress SANTEC - FINAL SURVEY OF AS-BUILT CAP, PARTIAL CLOSURE

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hamm Kempner

Weather SUNNY

Temp. AM 60S PM 80

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

14 OCT. 20 05

DAY FRIDAY

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.35

Work Performed Today

Problems - Delays

Sub-Contractor Progress SEEDING CONSTRUCTED CLOSURE CAP PER HENRY HAVENER PHONE CONVERSATION.

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Harm Kempinen

Weather SUNNY

Temp. AM 50s PM 60s

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	

Equipment	Hrs.

Material Purchased

1 NOV. 2005 DAILY LOG DAY TUESDAY

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO. 379.00.3

Work Performed Today

SEC EXCAVATES FOR ACCESS AND INSTALLS 5 FOOT EXTENSION TO A LEACHATE CLEAN OUT ON SOUTH SLOPE TOE IN AREA 1

SEC USES ELETROFUSION COUPLERS TO FUSE THE EXTENSION ON TO THE CLEAN OUT PIPE, AND A CAP SECTION TO THE EXTENSION

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hamm Kempinna

Weather SUNNY

Temp. AM 50s PM 70s

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	3
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	3

Equipment	Hrs.
CAT BACKHOE	

Material Purchased

DAY WEDNESDAY

DAILY LOG

2005 NOV. 2

CONTRACTOR SEC JOB NAME PART CLOSURE JOB NO 379.00.35

Work Performed Today

SEC CONTINUES INSTALLATION OF LEACHATE CLEANOUT EXTENSIONS AROUND CLOSURE AREA PERIMETER, TOTAL OF 6 TO EXTEND.

Problems - Delays

Sub-Contractor Progress

Special Assignments

Extra Work	Authorized By	Approx. Price

Equipment Rented Today	Rented From	Rate

Supervisor's Signature Hammerkempner

Weather SUNNY

Temp. AM 50s PM 70s

Safety Meeting

Work Force	No.
Superintendent	
Clerk	
Bricklayers	
Carpenters	
Cement Masons	
Electricians	
Iron Workers	
Laborers	3
Operating Eng.	
Plumbers	
Pipe Fitters	
Sheet Metal	
Truck Drivers	
Total	3

Equipment	Hrs.
CAT BACKHOE	

Material Purchased

DAVIDSON COUNTY LANDFILL
PARTIAL CLOSURE
CONSTRUCTION PROGRESS MEETING # 7 MINUTES
Wednesday, August 31, 2005
10:00 A.M.

Held at:
Davidson County Landfill
Lexington, NC

Attendees: The following persons attended the meeting:

Name and title	Employer	Phone Number
Steven Sink, Landfill Supervisor	Davidson Co.	336.240.0666
Nathan Carter, Superintendent	SEC	336.708.5917
Mike Joslin, President	MAL	731.446.6800
Hannu Kemppinen, Construction Manager	JEI	336.209.7156

Distribution: Davidson County Integrated Solid Waste Department, Davidson County Purchasing Department, Shamrock Environmental Corporation, Inc. (SEC), and Joyce Engineering, Inc. (JEI).

General: This was a construction progress meeting to discuss work progress, schedule, submittals, and other project related business.

Items of discussion:

1. *Review of previous meeting minutes* – Review of Progress Meeting # 6 minutes; there were no comments to them.

2. *Review of work progress* – Mid-America Lining Company (MAL) started the geosynthetic cover system installation on Monday, August 8th. South-facing and east-facing slopes are covered with all four layers of the geosynthetic cap (geonet composite as the gas migration layer, Bentomat ST geosynthetic clay liner, 40-mil low-density polyethylene membrane, and geonet composite layer as infiltrated water drainage layer). North facing slope remains to be completed. SEC has been placing protective soil cover over the synthetic cap system as soon as MAL completes their work. SEC has also begun construction of the diversion berms on the south-facing slope.

3. *Field observations, problems and decisions* – Area 1 and 3 cleanout pipes along the perimeter on the closure area need extensions to accommodate the cap soil layer thickness. SEC plans to look for alternative methods how to extend the pipes with minimal cost to the project.

4. *Review of submittals schedule and status of submittals* – None.

5. *Review of off-site fabrication and delivery schedules* – None.

6. *Planned progress for succeeding weeks* – MAL plans to complete the synthetic cap system by Saturday, September 10, 2005. SEC plans to haul soil for the protective cover and construct diversion berms as synthetic cap is completed.

7. *Review of inclement weather* – MAL has lost three days of work due to rain.

8. *Pay Requests* – SEC submitted pay request # 3 for July. No pay request for August has been submitted.

9. *Questions and Comments* – The Owner expressed two concerns. One from neighboring residents to the landfill that some of the workmen leaving the site have been speeding along the gravel road. The Owner has found the landfill gate open and unlocked over night on two occasions coming in the morning.

10. Next meeting scheduled for Wednesday, September 14, 2005.

Conclusion: The meeting adjourned at approximately 10:15 A.M.

Preparation of Minutes: JEI prepared these minutes on August 31, 2005. JEI will incorporate comments and/or exceptions received in writing within ten calendar days from the date these minutes are distributed; revised minutes will be made part of the permanent record.

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DAVIDSON COUNTY LANDFILL
PARTIAL CLOSURE
CONSTRUCTION PROGRESS MEETING # 6 MINUTES
Wednesday, August 18, 2005
10:00 A.M.

Held at:
Davidson County Landfill
Lexington, NC

Attendees: The following persons attended the meeting:

Name and title	Employer	Phone Number
Charlie Brushwood, Director of Solid Waste	Davidson Co.	336.240.0303
Country Blaylock, Safety Coordinator	Davidson Co.	336.240.0296
Bryant Peoples, Assistant Supervisor	Davidson Co.	336.242.2284
Hannu Kemppinen, Construction Manager	JEI	336.209.7156

Distribution: Davidson County Integrated Solid Waste Department, Davidson County Purchasing Department, Shamrock Environmental Corporation, Inc. (SEC), and Joyce Engineering, Inc. (JEI).

General: This was a construction progress meeting to discuss work progress, schedule, submittals, and other project related business. The agenda prepared by JEI and distributed in the meeting is attached.

Items of discussion:

1. *Review of previous meeting minutes* – Review of Progress Meeting # 5 minutes; there were no comments to them.

2. *Review of work progress* – Mid-America Lining Company started the geosynthetic cover system installation on Monday, August 8th. Most of the south-facing slope is covered with three layers of the geosynthetic cap (geonet composite as the gas migration layer, Bentomat ST geosynthetic clay liner, and the 40-mil low-density polyethylene membrane).

3. *Field observations, problems and decisions* – Past two weeks weather has been hot affecting the crew working on the liner. On two occasions, a member of the MAL crew collapsed on the liner from heat stress. The crew is apparently aware of and familiar with heat stress and responded quickly to help each man off the liner and heat. Both men were taken to the hotel for rest of the day to recover where MAL crew is staying in Lexington.

4. *Review of submittals schedule and status of submittals –*

5. Review of off-site fabrication and delivery schedules –

6. *Planned progress for succeeding weeks –*

7. *Review of inclement weather* – MAL has lost three days of work due to rain.

8. *Pay Requests* – SEC submitted pay request # 2 for June. No pay request for July has been submitted.

9. *Questions and Comments* – The Owner expressed a concern of the heat and heat stress affecting the liner crew.

10. Next meeting scheduled for Wednesday, August 31, 2005.

Conclusion: The meeting adjourned at approximately 10:20 A.M.

Preparation of Minutes: JEI prepared these minutes on August 18, 2005. JEI will incorporate comments and/or exceptions received in writing within ten calendar days from the date these minutes are distributed; revised minutes will be made part of the permanent record.

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DAVIDSON COUNTY LANDFILL
PARTIAL CLOSURE
CONSTRUCTION PROGRESS MEETING # 5 MINUTES
Wednesday, July 27, 2005
10:00 A.M.

Held at:
Davidson County Landfill
Lexington, NC

Attendees: The following persons attended the meeting:

Name and title	Employer	Phone Number
Steven Sink, Landfill Supervisor	Davidson Co.	336.240.0666
Mike Lankford, HHHW Operator	Davidson Co.	336.242.2284
Henry Havener, Project Manager	SEC	336.375.1989
Evan Andrews, Project Engineer	JEI	336.323.0092
Hannu Kemppinen, Construction Manager	JEI	336.209.7156

Distribution: Davidson County Integrated Solid Waste Department, Davidson County Purchasing Department, Shamrock Environmental Corporation, Inc. (SEC), and Joyce Engineering, Inc. (JEI).

General: This was a construction progress meeting to discuss work progress, schedule, submittals, and other project related business. The agenda prepared by JEI and distributed in the meeting is attached.

Items of discussion:

1. *Review of previous meeting minutes* – Review of Progress Meeting # 4 minutes; there were no comments to them.

2. *Review of work progress* – Intermediate soil cover work is completed. The constructed cap was surveyed on Thursday, July 21. Some of the geocomposite material has been delivered to the site, more is still to be delivered. GCL and geomembrane are expected on site by Friday this week. MAL is scheduled to mobilize on Monday, August 1. SEC plans to maintain the constructed intermediate cover for the rest of the week and over the weekend.

3. *Field observations, problems and decisions* – The soil cap is ready for synthetic liner installation, perimeter ditches are filled with sediment that need to be cleaned out later, SEC has installed check-dams in the ditch, and JEI is waiting for the intermediate cover final survey.

4. *Review of submittals schedule and status of submittals* – Engineer is in receipt of complete set of conformance test results, and quarry certificate for the DOT approved #57 stone.

5. *Review of off-site fabrication and delivery schedules* – SEC expects geosynthetic materials delivered during the last week of July.

6. *Planned progress for succeeding weeks* – MAL plans to mobilize on Monday, first of August, and begin the liner construction on Tuesday.

7. *Review of inclement weather* – Weather has been good since last progress meeting. No days lost to rain are recorded for the last two-week period. Rain and thunderstorms are in forecast for upcoming weekend. SEC plans to maintain the site and get it ready for MAL liner installation.

8. *Pay Requests* – SEC submitted pay request # 2. The Engineer approved pay request # 2 and asked that SEC change the percentages from here on out to accurately reflect the work completed. The Gas Vent billing includes up to the flange installed vents. Remaining balance is for the vent tops to be installed after all of the cap construction has been completed.

9. *Questions and Comments* – Nathan Melaro of Geotechnics will assist JEI CQA with liner installation. MAL expects their work to take 30 days.

10. Next meeting scheduled for Wednesday, August 10, 2005.

Conclusion: The meeting adjourned at approximately 10:20 A.M.

Preparation of Minutes: JEI prepared these minutes on July 27, 2005. JEI will incorporate comments and/or exceptions received in writing within ten calendar days from the date these minutes are distributed; revised minutes will be made part of the permanent record.

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DAVIDSON COUNTY LANDFILL
PARTIAL CLOSURE
CONSTRUCTION PROGRESS MEETING # 4 MINUTES
Wednesday, July 13, 2005
10:00 A.M.

Held at:
Davidson County Landfill
Lexington, NC

Attendees: The following persons attended the meeting:

Name and title	Employer	Phone Number
Charlie Brushwood, Director of Operations	Davidson Co.	336.240.0303
Country Blaylock, Landfill Supervisor	Davidson Co.	336.240.0296
Dwayne Childress, Purchasing Director	Davidson Co.	336.242.2030
Nathan Carter, Project Superintendent	SEC	336.708.5917
Evan Andrews, Project Engineer	JEI	336.323.0092
Hannu Kemppinen, Construction Manager	JEI	336.209.7156

Distribution: Davidson County Integrated Solid Waste Department, Davidson County Purchasing Department, Shamrock Environmental Corporation, Inc. (SEC), and Joyce Engineering, Inc. (JEI).

General: This was a construction progress meeting to discuss work progress, schedule, submittals, and other project related business. The agenda prepared by JEI and distributed in the meeting is attached.

Items of discussion:

1. *Review of previous meeting minutes* – Review of Progress Meeting # 3 minutes; there were no comments to them.

2. *Review of work progress* – SEC is currently working on the north-facing slope intermediate cover of the closure area. The east and south facing slopes were worked on the previous week. Approximately 2.5 acres of the closure area top has been also covered with the intermediate soil layer. The intermediate soil layer thickness is 1-foot at the top, and a half-foot on the 3:1 side slopes. Santec conducted a base survey of the portion of the closure area top where the County added waste after the Contractor had started the work. Santec also surveyed and staked the entire closure area on 50-foot grid pattern to indicate the intermediate soil cover thickness. SEC noted that during their work stripping top soil from the closure area no waste was encountered. It appears that the intermediate cover is six inches or more on the side slopes based on the observations

during the CQA. The survey verifies the intermediate cover thickness in each of the 50-foot grid point.

3. *Field observations, problems and decisions* – Borrow under the power lines is fill material. The material varies and does not match the two lab Proctors at every test point. Over all the work appears good and well compacted based on the sand cone and drive cylinder tests. SEC noted that they would compact the soil more times following grading.

4. *Review of submittals schedule and status of submittals* – Engineer has completed his review of submittals 1-3, and returned signed copies to the Contractor.

5. *Review of off-site fabrication and delivery schedules* – SEC expects geosynthetic materials to be delivered next week.

6. *Planned progress for succeeding weeks* – Continue closure construction; remove topsoil and place structural fill. SEC expects to complete all intermediate cover construction by the end of the week unless rain interferes and delays work.

7. *Review of inclement weather* – Weather has been good since last progress meeting. No days lost to rain are recorded for the last two-week period.

8. *Pay Requests* – SEC has not submitted pay request # 2.

9. *Questions and Comments* – The Owner asked for clarification to a looming change order. The Engineer stated that there likely would not be a change order to the revision regarding the geocomposite drainage medium quantity. The change addresses the geocomposite installation. In the original drawing, the drainage medium was shown to terminate in an anchor trench along the slope toe. In the revision, the drainage medium is shown to terminate in the perimeter ditch. The change to the detail is not expected to increase quantity.

10. Next meeting scheduled for Wednesday, July 27, 2005.

Conclusion: The meeting adjourned at approximately 10:20 A.M.

Preparation of Minutes: JEI prepared these minutes on July 13, 2005. JEI will incorporate comments and/or exceptions received in writing within ten calendar days from the date these minutes are distributed; revised minutes will be made part of the permanent record.

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DAVIDSON COUNTY LANDFILL
PARTIAL CLOSURE
CONSTRUCTION PROGRESS MEETING # 3 MINUTES
Wednesday, June 29, 2005
10:00 A.M.

Held at:
Davidson County Landfill
Lexington, NC

Attendees: The following persons attended the meeting:

Name and title	Employer	Phone Number
Charlie Brushwood, Director of Operations	Davidson Co.	336.240.0303
Country Blaylock, Landfill Supervisor	Davidson Co.	336.240.0296
Steven Sink, Assistant Landfill Supervisor	Davidson Co.	336.240.0666
Nathan Carter, Project Superintendent	SEC	336.708.5917
Evan Andrews, Project Engineer	JEI	336.323.0092
Hannu Kemppinen, Construction Manager	JEI	336.209.7156

Distribution: Davidson County Integrated Solid Waste Department, Davidson County Purchasing Department, Shamrock Environmental Corporation, Inc. (SEC), and Joyce Engineering, Inc. (JEI).

General: This was a construction progress meeting to discuss work progress, schedule, submittals, and other project related business. The agenda prepared by JEI and distributed in the meeting is attached.

Items of discussion:

1. *Review of previous meeting minutes* – Review of Progress Meeting # 2 minutes; there were no comments to them.

2. *Review of work progress* – Gas vent drilling and installation were completed by Monday June 27. Approximately 2.5 acres of Area 3 east facing slope has been stripped from vegetation and top soil, and a six-inch layer of intermediate cover soil placed on the slopes. SEC has performed sporadic checks on the existing liner edge along the closure area toe. Nathan reported that no surprises have been found, and that the liner edge appears to be as expected and shown in the drawings. SEC is waiting for friction angle test results.

3. *Field observations, problems and decisions* – Some rework of the placed cap soil material will be required after heavy rain event on Monday evening, June 27. Portion of

the Area 3 perimeter stormwater channel is now filled with sediment washed down slope. SEC was working on cleaning out the ditch and setting up failed silt fence.

Owner continues landfill operations at top of the closure area to maximize use of the permitted airspace. The Owner and Engineer agreed to inform Geoffrey Little at NCDENR about the addition of waste and the change of final contours within the closure area, and that the added waste will be kept within permitted capacity.

4. *Review of submittals schedule and status of submittals* – Engineer is in progress to review submittals 1, 2, and 3. SEC submitted quarry gradation sheet for the #57 stone used for gas vent construction. Leachate line video inspection SEC plans to conduct at the end of the project after all work has been completed.

5. *Review of off-site fabrication and delivery schedules* – None.

6. *Planned progress for succeeding weeks* – Continue closure construction; remove topsoil and place structural fill. SEC plans to prepare at least one-half of the closure area earthworks before inviting Mid America Lining Company to the site and begin installation of the geosynthetic cover materials. SEC plans to work Friday and Saturday to restore eroded Area 3 east facing slope and clean out the chocked perimeter ditch. No work will be done on Sunday, and Monday, July 4th.

7. *Review of inclement weather* – Monday 6/27 rainfall recorded on site 2.20 inches, Tuesday 6/28 0.15 inches. The Owner agreed to two inclement weather days due to the impact of the rain and wet site conditions.

8. *Pay Requests* – Pay request # 1 has been processed. SEC plans to draft June pay application.

9. *Questions and Comments* – Engineer submitted revised drawing CP-6 to Owner and Contractor. The revision shows a change of toe area geosynthetic installation. Geocomposite will be placed horizontally to drain into the perimeter ditch and the geomembrane will remain buried in the anchor trench.

10. Next meeting scheduled for Wednesday, July 13, 2005.

Conclusion: The meeting adjourned at approximately 10:20 A.M.

Preparation of Minutes: JEI prepared these minutes on June 29. JEI will incorporate comments and/or exceptions received in writing within ten calendar days from the date these minutes are distributed; revised minutes will be made part of the permanent record.

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DAVIDSON COUNTY LANDFILL
PARTIAL CLOSURE
CONSTRUCTION PROGRESS MEETING # 2 MINUTES
Wednesday, June 22, 2005
10:00 A.M.

Held at:
Davidson County Landfill
Lexington, NC

Attendees: The following persons attended the meeting:

Name and title	Employer	Phone Number
Charlie Brushwood, Director of Operations	Davidson Co.	336.240.0303
Country Blaylock, Landfill Supervisor	Davidson Co.	336.240.0296
Steven Sink, Assistant Landfill Supervisor	Davidson Co.	336.240.0666
Nathan Carter, Project Superintendent	SEC	336.708.5917
Evan Andrews, Project Engineer	JEI	336.323.0092
Hannu Kemppinen, Construction Manager	JEI	336.209.7156

Distribution: Davidson County Integrated Solid Waste Department, Davidson County Purchasing Department, Shamrock Environmental Corporation, Inc. (SEC), and Joyce Engineering, Inc. (JEI).

General: This was a construction progress meeting to discuss work progress, schedule, submittals, and other project related business. The agenda prepared by JEI and distributed in the meeting is attached.

Items of discussion:

1. *Review of previous meeting minutes* – Progress Meeting # 1 minutes were reviewed. There were no comments to them. However, a correction to the PM#1 minutes should be noted; the header identifying the project name on the first page was not changed from the Phase 1, Area 2, Cell 2 construction, and it should read "PARTIAL CLOSURE."

2. *Review of work progress* – Subcontractor Kelletts Drilling began landfill gas vent drilling on Monday, June 20. The drilling rate was observed averaging 20 feet per hour. Kelletts had drilled vents GV 6 through 14, and the rig was set up on ninth location. SEC prepared level areas for each GV location and assisted the rig movement from vent to vent. While Kelletts drilled the vent holes, SEC installed the vent pipes, back filled with stone up to the level of top of waste, and placed a bentonite plug above the stone column. SEC also began removing topsoil from the east-facing slope of Area 3 to expose subsoil and prepare the surface for intermediate cover. SEC planned to begin hauling cover soil

the following week. The site trailer has been delivered and set up near the scale. The Contractor was in progress setting up utilities. Silt fence installation along the Area 3 toe was in progress.

3. *Field observations, problems and decisions* – Owner plans to add more waste on the top of the closure area to utilize airspace available. The existing leachate circulation system can be re-installed after the partial closure is completed. The Owner has a choice to maintain or abandon the system.

4. *Review of submittals schedule and status of submittals* – Engineer is in progress to review submittals 1, 2, and 3; JEI is waiting for CQA lab test results. SEC was asked to provide submittals for gas vent PVC sch80 pipe and backfill materials, stone.

5. *Review of off-site fabrication and delivery schedules* – None.

6. *Maintenance of project schedule* – Kelletts / SEC could proceed with the GV borings on the side slopes of the landfill while Owner places waste on top of closure area. Owner asked to be informed when Kellets were ready to begin boring at top. The Owner asked SEC to sequence stripping of the topsoil layer to prevent erosion and run-off.

7. *Planned progress for succeeding weeks* – Complete gas vent drilling and installation, and continue closure construction; remove topsoil and place structural fill.

8. *Review of inclement weather* – No rain recorded since PM#1.

9. *Pay Requests* – SEC submitted pay request # 1; mobilization

10. *Change Orders* – None.

11. *Questions and Comments* – None.

12. Next meeting scheduled for Wednesday, June 29, 2005.

Conclusion: The meeting adjourned at approximately 10:30 A.M..

Preparation of Minutes: JEI prepared these minutes on June 22. JEI will incorporate comments and/or exceptions received in writing within ten calendar days from the date these minutes are distributed; revised minutes will be made part of the permanent record.

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DAVIDSON COUNTY LANDFILL
PARTIAL CLOSURE
CONSTRUCTION PROGRESS MEETING # 1 MINUTES
Wednesday, June 8, 2005
10:00 A.M.

Held at:
Davidson County Landfill
Lexington, NC

Attendees: The following persons attended the meeting:

Name and title	Employer	Phone Number
Charlie Brushwood, Director of Operations	Davidson Co.	336.240.0303
Country Blaylock, Landfill Supervisor	Davidson Co.	336.240.0296
Steven Sink, Assistant Landfill Supervisor	Davidson Co.	336.240.0666
Nathan Carter, Project Superintendent	SEC	336.708.5917
Evan Andrews, Project Engineer	JEI	336.323.0092
Hannu Kemppinen, Construction Representative	JEI	336.209.7156

Distribution: Davidson County Integrated Solid Waste Department, Davidson County Purchasing Department, Shamrock Environmental Corporation, Inc. (SEC), and Joyce Engineering, Inc. (JEI).

General: This was the first construction progress meeting to discuss work progress, schedule, submittals, and other project related business. The agenda prepared by JEI and distributed in the meeting is attached.

Items of discussion:

1. *Review of previous meeting minutes* –

2. *Review of preconstruction meeting minutes* – Preconstruction meeting minutes were reviewed; there were no comments.

3. *Project schedule* – SEC plans to set up construction temporary facilities and install erosion and sediment controls during the first and second week of June. Santec was on site during the day of this progress meeting conducting initial site survey. Landfill gas vent drilling and installation is planned to begin on Monday, June 20. The Contractor has contacted his laboratory to conduct friction angle testing on the geosynthetic materials.

   SEC submitted schedule was discussed with regard to gas vent drilling and installation prior to any cap construction. The Contractor stated that the vent design includes a flange to which the top "candy cane" would be attached. The vents would be

constructed up to the flange and the "candy canes" would be installed after the liner work is completed. Final schedule to be submitted by Friday, June 10.

4. *Schedule of Values* – SEC did not have the schedule of values to present in this meeting, Henry Havener stated that he would submit it by Friday, June 10.

5. *Erosion and Sediment Control* – As stated in item 3 above, the Contractor plans to install E&S devices during the second week of June.

6. *Submittals, shop drawings, and product lists* – SEC submitted the following:
   01-Polyethylene membrane, Agru America
   01a-Polyethylene membrane panel layout
   01b-Polyethylene membrane MAL Installation
   02-Geocomposite drainage medium, Skaps
   03-Geosynthetic Clay Liner, Cetco GCL

7. *Geosynthetics – materials, layout and conformance testing* – Discussed in items 3 and 6.

8. *Review of off-site fabrication and delivery schedules* – The Contractor is currently discussing potential schedules with the liner supplier, Mid-America Lining Company (MAL).

9. *Construction facilities and temporary controls* – Discussed in item 3.

10. *Questions and comments* - The Owner brought out the following comments:

    - Whether the existing concrete manhole on top of the proposed closure area would be removed or if the construction plans include the system to remain in place? The Engineer stated that the leachate circulation system can be abandoned; however, if the Owner prefers continue to circulate leachate the system can be reinstalled.

    - Email preconstruction meeting minutes to Hugh Jernigan and Geoffrey Little representing the NCDENR in the meeting.

    - SEC holds safety meetings every morning, and check earth moving equipment backup alarms.

    - Charlie Brushwood offered his help to Nathan Carter he may need during the project.

11. Next progress meeting scheduled for Wednesday, June 22, 2005.

Conclusion: The meeting adjourned at approximately 10:30 A.M..

Preparation of Minutes: JEI prepared these minutes on June 8. JEI will incorporate comments and/or exceptions received in writing within ten calendar days from the date these minutes are distributed; revised minutes will be made part of the permanent record.

HK:EA

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DAVIDSON COUNTY LANDFILL
PARTIAL CLOSURE
DAVIDSON COUNTY, NORTH CAROLINA

MINUTES OF PRECONSTRUCTION MEETING
Friday 20 May 2005
10:00 AM.

Held at:
Davidson County Landfill
Lexington, NC

Attendees: The following persons attended the meeting:

Name and Title	Employer	Phone Number
Dwayne Childress, Purchasing Manager	Davidson County	(336) 242-2030
Charlie Brushwood, Solid Waste Director	Davidson County	(336) 242-2284
Hugh Jernigan, Waste Mgt. Specialist	NCDENR Solid Waste Section	(336) 771-4608
Geoffrey Little, Environmental Engineer	NCDENR Solid Waste Section	(919) 508-8504
Henry Havener, Project Manager	Shamrock Environmental Corp.	(336) 375-1989
Evan Andrews, Project Manager	Joyce Engineering, Inc.	(336) 323-0092
Rich Brown, CQA Manager	Joyce Engineering, Inc.	(804) 355-4520
Hannu Kemppinen, Construction Mgr.	Joyce Engineering, Inc.	(336) 323-0092

Distribution: Davidson County Purchasing Dept., Davidson County Integrated Solid Waste Management Dept., Joyce Engineering, Inc.(JEI), Shamrock Environmental Corporation (Shamrock).

General:

This was a pre-construction meeting for the various parties to share information, ask questions, and commit to successfully completing the project. The agenda prepared by JEI and distributed at the meeting is attached.

Items of Discussion:

1. *Introduction and roles of personnel* – Representatives of the Owner (Davidson County), Engineer (Joyce Engineering, Inc), Contractor (Shamrock Environmental Corporation), and the State (NCDENR Solid Waste Section) were introduced. The primary contact for the Owner will be Charlie Brushwood, Solid Waste Director (Phone no. 336-242-2284 or cell no. 240-0303). Shamrock's primary contacts will be Henry Havener (Project Manager), and Nathan Carter (on-site Supervisor).

2. *Contract Status* – Shamrock has obtained the required bonds and insurance, and executed three copies of the contract documents. The Notice to Proceed date was agreed during the meeting. The Contract Times will commence on May 23, 2005.

3. *Project Schedule* – Shamrock submitted a preliminary project schedule during the meeting. JEI will review the project schedule, and notify Shamrock if changes are required.

4. *Schedule of Values* – Shamrock did not have a Schedule of Values to submit in the meeting. The Contractor will prepare and submit the Schedule of Values. JEI will review the Schedule of Values, and notify Shamrock if changes are required.

5. *Pay Requests* – Applications for payment are to be sent to Evan Andrews of JEI for review and approval. Engineer recommends approved applications to Owner for payment. The County processes invoices on an ongoing basis; there are no applicable deadlines for submittal of the applications.

6. *Submittals* – There were no other submittals. Henry Havener noted that Shamrock would follow the format of the form included in the contract documents. Submittals are to be sent to Evan Andrews of JEI for review and approval.

7. *Geosynthetics* - The Contractor plans to employ Mid-America for all of the geosynthetic materials installation. Representatives of the NCDENR expressed importance to the friction angle testing associated in the geosynthetics conformance testing. Rich Brown asked the Contractor to let Joyce know a few days ahead of time when geosynthetics are to be shipped so that samples can be collected before the rolls leave the plant. JEI will conduct CQA testing on behalf of the Owner. JEI plans to use Precision Geosynthetics Laboratories to conduct geosynthetic seam and conformance testing.

8. *CQC/CQA – Earthwork* – Frohling and Robertson will provide construction quality control (CQC) services to Shamrock, including laboratory and field-testing. Shamrock plans to use the surveying firm of Santec out of Charlotte, N.C. to provide surveying services for this project. JEI will conduct construction quality assurance (CQA) testing on behalf of the Owner for the earthwork as well as provide construction observation services for all other aspects of the project. JEI plans to use Geotechnics in Raleigh for laboratory services related to earthwork. The lab manager for Geotechnics is Mr. Mike Smith.

9. *Use of Premises* – The Owner stated that Shamrock may follow the same rules they did during the last cell expansion project in 2002. Shamrock can work on Saturdays and late in the evenings during weekdays. The Contractor can place his own lock on the gate to accommodate entrance and exit during the hours the landfill facility is closed.

10. *Construction Facilities and Temporary Utilities* – In response to the inquiry regarding a possible Contractor's office trailer location, Mr. Brushwood stated that the area just before the scales when entering the facility is available for a Contractor's trailer. A utility pole and

meter are in place at that location; however, water hook-up is not available.

11. *Erosion and Sediment Control* – Henry Havener stated that Shamrock would install necessary E&S measures around the landfill closure work area. Existing borrow area is covered under the site E&S plan.

12. *Project Meetings* – Progress meetings are to be held on a weekly basis. First meeting date was set for June 8, 2005, meeting beginning at 10:00 AM.

13. *Questions, comments, other* –

- Construction materials staging area was designated under the power lines.
- JEI plans to provide updated construction drawings regarding the closure area contours.
- Shamrock plans to employ Kellett's Well Drilling for the landfill drilling and gas vent installation.
- The Owner required Health and Safety to be included in the project specifications, and safety concerns are to be followed through out the project. Henry Havener stated that Shamrock would hold safety meetings every morning before work begins each day.
- Comments by Geoffrey Little
    - requested that he be notified of the date that the gas vent installation begins.
    - inquired the liner edge detail shown on Drawing CP-4 detail A/4/4 whether the geosynthetics would be placed in an anchor trench?
    - asked that any and all changes in the project would be noted and included in the CQA report.

Conclusion: The meeting adjourned at approximately 11:10 AM.

Preparation of Minutes: JEI prepared these minutes on May 20. JEI will incorporate comments and/or exceptions received in writing within ten calendar days from the date these minutes are distributed (i.e., by June 8); revised minutes will be made part of the permanent record.

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DAVIDSON COUNTY LANDFILL
PARTIAL CLOSURE
CONSTRUCTION PROGRESS MEETING # 8 MINUTES
Wednesday, September 14, 2005
10:00 A.M.

Held at:
Davidson County Landfill
Lexington, NC

Attendees: The following persons attended the meeting:

Name and title	Employer	Phone Number
Steven Sink, Landfill Supervisor	Davidson Co.	336.240.0666
Nathan Carter, Superintendent	SEC	336.708.5917
Evan Andrews, Project Manager	JEI	336.323.0092
Hannu Kemppinen, Construction Manager	JEI	336.209.7156

Distribution: Davidson County Integrated Solid Waste Department, Davidson County Purchasing Department, Shamrock Environmental Corporation, Inc. (SEC), and Joyce Engineering, Inc. (JEI).

General: This was a construction progress meeting to discuss work progress, schedule, submittals, and other project related business.

Items of discussion:

1. *Review of previous meeting minutes* – Review of Progress Meeting # 7 minutes; there were no comments to them.

2. *Review of work progress* – Mid-America Lining Company (MAL) completed synthetic portion of the closure construction on September 10, 2005. SEC has been covering the synthetic cap with soil as soon as MAL completed a section. During the past week, SEC has also begun construction of the stormwater diversion berms for the proposed cap.

3. *Field observations, problems and decisions* – Area 1 and 3 cleanout pipes along the perimeter of the closure area need extensions to accommodate the cap soil layer thickness. SEC plans to look for alternative methods how to extend the pipes with minimal cost to the project.

   Engineer observed dirt clumps and rocks rolled down slope over completed geosynthetics. SEC was asked to remove loose rocks from the synthetic liner prior to

placing more soil and operating dozer over the rocks that have the potential to puncture the liner.

SEC found another cleanout pipe (apparent) in a perimeter ditch on the north side. The dozer damaged the pipe during ditch grading work. SEC did not expect to encounter a cleanout pipe or anything similar in the ditch.

SEC expects overrun on the soil quantities. The additional use of soil is due to filling low areas with soil in the interest achieving even grade and positive drainage.

Bid items 11 Undercutting and 19 Temporary seeding are not used for the partial closure.

4. *Review of submittals schedule and status of submittals* – None.

5. *Review of off-site fabrication and delivery schedules* – None.

6. *Planned progress for succeeding weeks* – SEC continues hauling soil for the protective cover and construct diversion berms as the synthetic cap is completed. SEC plans to place riprap on the diversion berms beginning on the last week of September after all diversion berm construction is completed.

7. *Review of inclement weather* – MAL lost three days of work due to rain. The delays did not affect MAL plan to complete geosynthetics installation on time.

8. *Pay Requests* – SEC submitted pay request # 4 for August.

9. *Questions and Comments* – MAL has several rolls of GCL and geonet composite on site left over from the project. MAL stated before demobilization that the rolls would be hauled off.

10. Next meeting scheduled for Wednesday, September 28, 2005.

Conclusion: The meeting adjourned at approximately 10:30 A.M.

Preparation of Minutes: JEI prepared these minutes on September 14, 2005. JEI will incorporate comments and/or exceptions received in writing within ten calendar days from the date these minutes are distributed; revised minutes will be made part of the permanent record.

HK

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1. SCH-80 PVC pipe landfill gas vent (LFGV) installation.

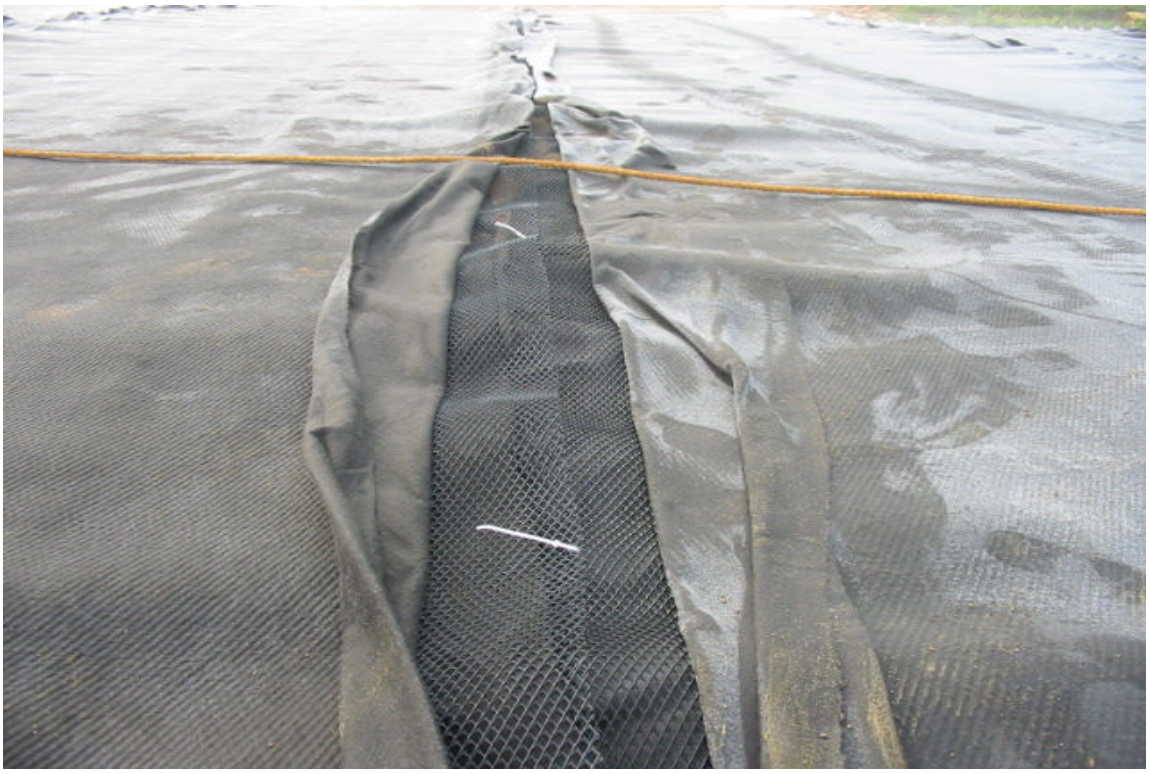
2. LFGV borehole filled with aggregate and with bentonite pellets through soil cover.

3. Shamrock removed vegetation and topsoil prior to intermediate layer construction.

4. Shamrock used on-site borrow soil for intermediate cover construction.

5. Intermediate cover construction on the north slope.

6. Anchor trench excavated along toe of the south slope.



7. Gasmigration layer, geocomposite fastened with zipties.

8. Mid-America (MAL) deploys Bentomat ST over gasmigration layer.

9. Geocomposite terminates in the upper anchor trench, geomembrane in the lower.

10. Shamrock maintained even subgrade each day prior to geosynthetics installation.

11. MAL cuts trial weld and destructive test samples for field QC testing.

12. MAL conducts field QC testing of trial welds and destructive tests samples.

13. Shamrock constructing berms on south slope.

14. Partial Closure Cap with completed berms, drains and vents.

SHAMROCK
ENVIRONMENTAL CORPORATION

6106 Corporate Park Drive
Browns Summit, NC 27214
Phone: (336) 375-1989
Fax: (336) 375-1801

LETTER OF TRANSMITTAL

TO: HANNU KEMPPINEN
JOYCE ENGINEERING INC

FROM: HENERY HAVENER
SHAMROCK ENVIRONMENTAL INC

RE: DAVIDSON COUNTY LANDFILL

DATE: 11/03/05

SEC PROJECT NO.: 06 REM 056514

TASK NO.:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of Letter ☐ Change Order ☐ Report ☒ Warranty ☐ Permit Amendment/Application

ENCLOSURES

Copies	Date	No.	Description
2			AGRU AMERICA INC Geomembrane Warranty
2			SKAPS Industries Geocomposite Warranty
2			MID AMERICA LINING Geomembrane Installation Warranty
2			MID AMERICA LINING Geomembrane Installation Warranty

THESE ARE TRANSMITTED as checked below:

☐ For Approval ☐ Approved as submitted ☐ Resubmit _____ copies for review

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected copies

☐ For review and comment ☒ Other: See remarks

- **Remarks:**

Please have the owner sign AGRUS and Mid America warranties. Return signed originals.

Copy To:

Signed: Henry Havener (KMM)

LIMITED MATERIAL WARRANTY

CUSTOMER NAME:	Davidson County Landfill
PROJECT:	Davidson County Landfill
TYPE MATERIAL:	40 mil LLDPE Double-Sided Microspike ®

The company, referred to herein as AGRU AMERICA, Inc., warrants that AGRU AMERICA liners will correspond to the specifications as indicated in AGRU AMERICA technical records, catalogs, guidelines and test certificates at the time when sold.

AGRU AMERICA warrants that the material is faultless and resistant for a period of twenty (20) years, prorated from the point of time sold when properly installed, covered and used for: Cap

AGRU AMERICA'S liability under this warranty is not applicable when damage is caused by:

Natural phenomena as thunder storms, floods, earthquakes, acts of war or other acts of God.
Chemicals which are not suitable for LLDPE liners according to chemical resistance guides or from experience.

Further, AGRU AMERICA is not liable for damages due to the misapplication, incorrect installation, and damages resulting from any kind of inadequate handling. In the event that any defects are noticed in the liner, AGRU AMERICA must be notified in writing within thirty (30) days.

AGRU AMERICA shall be given an opportunity to ascertain the cause of damages. AGRU AMERICA reserves the right to decide how damages will be settled.

Under no circumstances will AGRU AMERICA assume liability for consequential damages due to defective liner or incorrect installation. AGRU AMERICA will not be responsible for failures arising from incorrect welding of seams in the installation.

Further, AGRU AMERICA's warranty will be void in the event that the buyer performs repairs or makes alterations without the express approval of AGRU AMERICA in writing. AGRU AMERICA's maximum liability under this warranty will not exceed the purchase price of liner and will only be in force when payment has been made in full and further claims regardless of the legal suppositions are not applicable.

This warranty is only valid on condition that the generally approved technical standards and in particular the guidelines for the installation of the liner are followed.

For AGRU AMERICA, Inc.

Paul W. Barker

Authorized Official (Date)

Paul W. Barker, Vice President (September 1, 2005)

Corporate Offices: 500 Garrison Road, Georgetown, S.C. 29440 • 843-546-0600 • 800-321-1379 • Fax 843-546-0516
Sales Office: 700 Rockmead, Suite 150, Kingwood, TX 77339 • 281-358-4741 • 800-373-2478 • Fax 281-358-5297
email: salesmkg@agruamerica.com

LIMITED MATERIAL WARRANTY

CUSTOMER NAME:	Davidson County Landfill
PROJECT:	Davidson County Landfill
TYPE MATERIAL:	40 mil LLDPE Double-Sided Microspike ®

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Chemicals which are not suitable for LLDPE liners according to chemical resistance guides or from experience.

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For AGRU AMERICA, Inc.

Paul W. Barker

Authorized Official (Date)

Paul W. Barker, Vice President (September 1, 2005)

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Sales Office: 700 Rockmead, Suite 150, Kingwood, TX 77339 • 281-358-4741 • 800-373-2478 • Fax 281-358-5297
email: salesmkg@agruamerica.com

MID AMERICA LINING CO.
"The Fabrication & Installation Specialists"

TEN YEAR PRO-RATED INSTALLATION
LIMITED WARRANTY
FOR MID AMERICA LINING COMPANY
MEMBRANE LINERS

Project Name: **Davidson County Landfill**

Type of Liner: 40 mil LLDPE Microspike

Installation Date: September 2005

Subject to the terms and conditions set forth below, Mid America Lining Company (MAL) warrants to Davidson County LF for a period of ten years from the date upon which installations at the above referenced project were performed in a good and workmanlike manner. (The "Warranty")

The Warranty does not cover any damage to the liner, or defects in the liner found to have been a result of misuse, abuse, or conditions existing after installation including, but not limited to, malicious mischief; vandalism; sabotage; fire; acts of God; acts of public enemy; acts of war or public rebellion; severe weather conditions of all types; damage due to all of the following: ice, wind, subsidence, chemicals harmful to the liner, machinery, foreign objects or animals.

The Warranty is subject to the following conditions:

1. The liner shall have been installed on compacted soil free of sharp protrusions and foreign objects to a depth of 6 inches.

2. This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by MAL and MAL makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

3. If "fill" is used over the top of the liner, it shall be free of all foreign and sharp objects.

Failure to comply with these conditions in all respects will void the Warranty.

In the event circumstances are found to exist which Davidson County LF believes may give rise to a claim under the Warranty, the following procedure shall be followed:

5203 Mt. Zion Rd.
P. O. Box 458 • ~~420 East Jackson Street~~ • Union City, Tennessee 38261 • Ph. (731) 885-8888 • FAX (731) 885-8007

a. Davidson County LF shall give Mid America Lining Company written notice of the facts and circumstances of said claim within 60 days of becoming aware of said facts and circumstances. Said notice shall be by registered or certified mail, return receipt requested, postage prepaid, addressed to Michael J. Joslin, Mid America Lining Company, P.O. Box 458, Union City, TN 38281.

   The words "WARRANTY CLAIM" shall be clearly marked on the face of the envelope in the lower right hand corner. Said notice shall contain, at a minimum, the name and address of the owner, the name and address of the installation, the date upon which the installation was completed and the facts known to Davidson County LF upon which the claim is based. Failure to provide MAL with timely notice of the claim shall void the Warranty.

b. Within twenty days after receipt of the notice described in paragraph a, above, MAL shall inspect the allegedly defected liner. Davidson County LF shall pay the expenses incurred by MAL making the inspection, in the event MAL determines that the claim is not covered by the Warranty.

c. DAVIDSON COUNTY LANDFILL SHALL NOT REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY LINER, NOR SHALL ALLOW ANYONE ELSE TO REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY OF THE LINER PRIOR TO SUCH INSPECTION PROVIDED, HOWEVER, DAVIDSON COUNTY LF, MAY TAKE EMERGENCY ACTION NECESSARY TO PREVENT DAMAGE TO PERSONS, PROPERTY OR THE ENVIRONMENT. A FAILURE TO STRICTLY COMPLY WITH THIS PARAGRAPH SHALL VOID THE WARRANTY.

d. If it is determined that the claim is covered by the Warranty, MAL shall either repair or replace so much of the liner as is defective. In connection with any claim under this warranty, Mid America Lining Company's sole liability shall be, at its sole option, either to (a) repair the defective product or (b) supply the customer with repair or replacement product, with customer paying Mid America Lining Company an amount equal to the then, current sales price of the defective portion of the product multiplied by a fraction, the numerator of which shall be the number of years elapsed since the commencement of the ten year warranty period and the denominator of which shall be (the number of the warranty period).
   THE REMEDIES PROVIDED HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THE WARRANTY. Any determination as to whether the claim is covered by the Warranty or what constitutes the appropriate method of remedying a defect will be made by MAL after consultation Davidson County LF.

e. Davidson County LF agrees that it shall provide MAL with clean, dry and unobstructed access to the damaged or defective liner in order for MAL to perform the inspections and repairs which may be required pursuant to the Warranty. MAL shall not be liable for any costs relating to providing access to the liner.

THE REMEDIES PROVIDED TO DAVIDSON COUNTY LF, HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THE WARRANTY AND ARE INTENDED FOR THE SOLE BENEFIT OF DAVIDSON COUNTY LF. NEITHER THE WARRANTY NOR ANY RIGHTS HEREUNDER SHALL BE ASSIGNABLE, EXCEPT WITH THE CONSENT OF MAL, WHICH CONSENT SHALL NOT BE UNREASONABLY WITHHELD. MAL SHALL HAVE NO LIABILITY UNDER THE WARRANTY TO THIRD PARTIES. SET FORTH ABOVE IS THE ONLY WARRANTY APPLICABLE TO THE LINER AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL MAL BE LIABLE IN CONTRACT, TORT OR OTHERWISE FOR ANY DIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES FOR, RESULTING FROM, OR IN CONNECTION WITH, THE USE OF THE LINER. IN THE EVENT THE EXCLUSIVE REMEDY PROVIDED HEREIN FAILS IN ITS ESSENTIAL PURPOSE, AND IN THAT EVENT ONLY, DAVIDSON COUNTY LF, SHALL BE ENTITLED TO RETURN OF THE PURCHASE PRICE FOR SO MUCH OF THE MATERIAL AS MAL DETERMINES TO HAVE VIOLATED THE WARRANTY PROVIDED HEREIN.

Except for the Warranty set forth above, no representation or warranty made by any sales or other representative of MAL, or any other person, concerning the liner shall be binding upon MAL.

This warranty shall not be effective until full payment has been made to MAL. Any waiver of the terms and conditions of the Warranty shall be in writing and signed by MAL. The failure to insist upon strict compliance with any of the terms and conditions contained herein shall not act as a waiver of strict compliance with all of the remaining terms and conditions of the Warranty and shall not operate as a waiver as to any of the terms and conditions of the Warranty as to future claims under the Warranty.

Mid America Lining Company

BY: _____
Michael J. Joslin, President

I have read and agree to the terms and conditions of the Warranty.

BY: _____

TITLE: _____

COMPANY: _____

DATE: _____

MID AMERICA LINING CO.
"The Fabrication & Installation Specialists"

TEN YEAR PRO-RATED INSTALLATION
LIMITED WARRANTY
FOR MID AMERICA LINING COMPANY
MEMBRANE LINERS

Project Name: **Davidson County Landfill**

Type of Liner: 40 mil LLDPE Microspike

Installation Date: September 2005

Subject to the terms and conditions set forth below, Mid America Lining Company (MAL) warrants to Davidson County LF for a period of ten years from the date upon which installations at the above referenced project were performed in a good and workmanlike manner. (The "Warranty")

The Warranty does not cover any damage to the liner, or defects in the liner found to have been a result of misuse, abuse, or conditions existing after installation including, but not limited to, malicious mischief; vandalism; sabotage; fire; acts of God; acts of public enemy; acts of war or public rebellion; severe weather conditions of all types; damage due to all of the following: ice, wind, subsidence, chemicals harmful to the liner, machinery, foreign objects or animals.

The Warranty is subject to the following conditions:

1. The liner shall have been installed on compacted soil free of sharp protrusions and foreign objects to a depth of 6 inches.

2. This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by MAL and MAL makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

3. If "fill" is used over the top of the liner, it shall be free of all foreign and sharp objects.

Failure to comply with these conditions in all respects will void the Warranty.

In the event circumstances are found to exist which Davidson County LF believes may give rise to a claim under the Warranty, the following procedure shall be followed:

P. O. Box 458 • ~~420 East Jackson Street~~ 5203 Mt. Zion Rd. • Union City, Tennessee 38261 • Ph. (731) 885-8888 • FAX (731) 885-8007

a. Davidson County LF shall give Mid America Lining Company written notice of the facts and circumstances of said claim within 60 days of becoming aware of said facts and circumstances. Said notice shall be by registered or certified mail, return receipt requested, postage prepaid, addressed to Michael J. Joslin, Mid America Lining Company, P.O. Box 458, Union City, TN 38281.

   The words "WARRANTY CLAIM" shall be clearly marked on the face of the envelope in the lower right hand corner. Said notice shall contain, at a minimum, the name and address of the owner, the name and address of the installation, the date upon which the installation was completed and the facts known to Davidson County LF upon which the claim is based. Failure to provide MAL with timely notice of the claim shall void the Warranty.

b. Within twenty days after receipt of the notice described in paragraph a, above, MAL shall inspect the allegedly defected liner. Davidson County LF shall pay the expenses incurred by MAL making the inspection, in the event MAL determines that the claim is not covered by the Warranty.

c. DAVIDSON COUNTY LANDFILL SHALL NOT REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY LINER, NOR SHALL ALLOW ANYONE ELSE TO REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY OF THE LINER PRIOR TO SUCH INSPECTION PROVIDED, HOWEVER, DAVIDSON COUNTY LF, MAY TAKE EMERGENCY ACTION NECESSARY TO PREVENT DAMAGE TO PERSONS, PROPERTY OR THE ENVIRONMENT. A FAILURE TO STRICTLY COMPLY WITH THIS PARAGRAPH SHALL VOID THE WARRANTY.

d. If it is determined that the claim is covered by the Warranty, MAL shall either repair or replace so much of the liner as is defective. In connection with any claim under this warranty, Mid America Lining Company's sole liability shall be, at its sole option, either to (a) repair the defective product or (b) supply the customer with repair or replacement product, with customer paying Mid America Lining Company an amount equal to the then, current sales price of the defective portion of the product multiplied by a fraction, the numerator of which shall be the number of years elapsed since the commencement of the ten year warranty period and the denominator of which shall be (the number of the warranty period).
   THE REMEDIES PROVIDED HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THE WARRANTY. Any determination as to whether the claim is covered by the Warranty or what constitutes the appropriate method of remedying a defect will be made by MAL after consultation Davidson County LF.

e. Davidson County LF agrees that it shall provide MAL with clean, dry and unobstructed access to the damaged or defective liner in order for MAL to perform the inspections and repairs which may be required pursuant to the Warranty. MAL shall not be liable for any costs relating to providing access to the liner.

THE REMEDIES PROVIDED TO DAVIDSON COUNTY LF, HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THE WARRANTY AND ARE INTENDED FOR THE SOLE BENEFIT OF DAVIDSON COUNTY LF. NEITHER THE WARRANTY NOR ANY RIGHTS HEREUNDER SHALL BE ASSIGNABLE, EXCEPT WITH THE CONSENT OF MAL, WHICH CONSENT SHALL NOT BE UNREASONABLY WITHHELD. MAL SHALL HAVE NO LIABILITY UNDER THE WARRANTY TO THIRD PARTIES. SET FORTH ABOVE IS THE ONLY WARRANTY APPLICABLE TO THE LINER AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL MAL BE LIABLE IN CONTRACT, TORT OR OTHERWISE FOR ANY DIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES FOR, RESULTING FROM, OR IN CONNECTION WITH, THE USE OF THE LINER. IN THE EVENT THE EXCLUSIVE REMEDY PROVIDED HEREIN FAILS IN ITS ESSENTIAL PURPOSE, AND IN THAT EVENT ONLY, DAVIDSON COUNTY LF, SHALL BE ENTITLED TO RETURN OF THE PURCHASE PRICE FOR SO MUCH OF THE MATERIAL AS MAL DETERMINES TO HAVE VIOLATED THE WARRANTY PROVIDED HEREIN.

Except for the Warranty set forth above, no representation or warranty made by any sales or other representative of MAL, or any other person, concerning the liner shall be binding upon MAL.

This warranty shall not be effective until full payment has been made to MAL. Any waiver of the terms and conditions of the Warranty shall be in writing and signed by MAL. The failure to insist upon strict compliance with any of the terms and conditions contained herein shall not act as a waiver of strict compliance with all of the remaining terms and conditions of the Warranty and shall not operate as a waiver as to any of the terms and conditions of the Warranty as to future claims under the Warranty.

Mid America Lining Company

BY: _____
Michael J. Joslin, President

I have read and agree to the terms and conditions of the Warranty.

BY: _____

TITLE: _____

COMPANY: _____

DATE: _____

SKAPS Industries

571 Industrial Pkwy
Commerce, GA 30529
Phone: (706) 336-7000 Fax: (706) 336-7007

Date: October 31, 2005

Twenty Year Material Warranty
Material: Transnet 220-2-6
Project: Davidson County Landfill

SKAPS Industries hereby warrants that, at the time of manufacturer, all SKAPS Industries manufactured materials will conform to the respective SKAPS Industries published material specifications for such materials. Excluded from the warranty given herein shall be any damage to or failure of the material caused by, but not limited to: acts of God; casualty; catastrophe or severe weather conditions, such as earthquakes, tornadoes, hurricanes, floods, high winds, piercing hail, lightening and fire; the exposure of the material to sharp objects, chemicals acids, gases or vapors, either known or unknown, or combinations, or specified by the manufacturer as being harmful thereto; physical abuse to the material caused by vandalism, sabotage, machinery, equipment, people and animals; damage to the material during the transportation, unloading, handling, storage or installation thereof by parties other than SKAPS Industries; excessive pressure or stress from any source, both above and below the material; after installation; subsidence or subgrade settlement; improper site preparation and engineering, and any use of the material which the manufacturer never intended. As used throughout this warranty, the term "sale" shall mean the date on which the material is shipped from SKAPS Industries manufacturing facility.

Should any significant deterioration or premature loss in use of the material occur during the term hereof which is believed to be covered by this warranty, then SKAPS Industries shall be given prompt written notice of the alleged claim within 30 days after such facts are first observed. Said notice shall be sent by registered or certified mail, return receipt requested, and addressed to SKAPS Industries, 571 Industrial Drive, Commerce, Georgia 30529, Attention: Contracts Administrator.

The warranty described above is strictly limited to sales of the material for commercial or industrial uses only in accordance with SKAPS Industries published material specifications. Said warranty also is the sole and exclusive warranty given for such material and all other warranties; either express or implied, including but not limited to any warranty of merchantability or fitness for a particular purpose, are hereby disclaimed. In no event shall SKAPS Industries be liable for any direct, indirect, incidental, specific or consequential damages of any kind or any loss or profits resulting from failure of the material or the breach of this warranty; it being further understood that should said warranty fail in its essential propose, and in that event only, SKAPS Industries liability hereunder shall in no event exceed the sales price of the material actually received from SKAPS by the Original Purchaser thereof.

Said warranty is not effective until all payments due to SKAPS Industries, for materials shipped, are paid in full.

Perry Vyas

Perry Vyas - President
SKAPS Industries

SKAPS Industries

571 Industrial Pkwy
Commerce, GA 30529
Phone: (706) 336-7000 Fax: (706) 336-7007

Date: October 31, 2005

Twenty Year Material Warranty
Material: Transnet 220-2-6
Project: Davidson County Landfill

SKAPS Industries hereby warrants that, at the time of manufacturer, all SKAPS Industries manufactured materials will conform to the respective SKAPS Industries published material specifications for such materials. Excluded from the warranty given herein shall be any damage to or failure of the material caused by, but not limited to: acts of God; casualty; catastrophe or severe weather conditions, such as earthquakes, tornadoes, hurricanes, floods, high winds, piercing hail, lightening and fire; the exposure of the material to sharp objects, chemicals acids, gases or vapors, either known or unknown, or combinations, or specified by the manufacturer as being harmful thereto; physical abuse to the material caused by vandalism, sabotage, machinery, equipment, people and animals; damage to the material during the transportation, unloading, handling, storage or installation thereof by parties other than SKAPS Industries; excessive pressure or stress from any source, both above and below the material; after installation; subsidence or subgrade settlement; improper site preparation and engineering, and any use of the material which the manufacturer never intended. As used throughout this warranty, the term "sale" shall mean the date on which the material is shipped from SKAPS Industries manufacturing facility.

Should any significant deterioration or premature loss in use of the material occur during the term hereof which is believed to be covered by this warranty, then SKAPS Industries shall be given prompt written notice of the alleged claim within 30 days after such facts are first observed. Said notice shall be sent by registered or certified mail, return receipt requested, and addressed to SKAPS Industries, 571 Industrial Drive, Commerce, Georgia 30529, Attention: Contracts Administrator.

The warranty described above is strictly limited to sales of the material for commercial or industrial uses only in accordance with SKAPS Industries published material specifications. Said warranty also is the sole and exclusive warranty given for such material and all other warranties; either express or implied, including but not limited to any warranty of merchantability or fitness for a particular purpose, are hereby disclaimed. In no event shall SKAPS Industries be liable for any direct, indirect, incidental, specific or consequential damages of any kind or any loss or profits resulting from failure of the material or the breach of this warranty; it being further understood that should said warranty fail in its essential propose, and in that event only, SKAPS Industries liability hereunder shall in no event exceed the sales price of the material actually received from SKAPS by the Original Purchaser thereof.

Said warranty is not effective until all payments due to SKAPS Industries, for materials shipped, are paid in full.

Perry Vyas

Perry Vyas - President
SKAPS Industries

MID AMERICA LINING CO.
"The Fabrication & Installation Specialists"

ONE YEAR INSTALLATION LIMITED WARRANTY FOR MID AMERICA LINING COMPANY GEOCOMPOSITE MATERIALS

Project Name: **Davidson County LF**

Type of Liner: 6 oz D/S geocomposite

Installation Date: September 2005

Subject to the terms and conditions set forth below, Mid America Lining Company (MAL) warrants to Davidson County LF for a period of one year from the date upon which installations at the above referenced project were performed in a good and workmanlike manner. (The "Warranty")

The Warranty does not cover any damage to the geocomposite, or defects in the geocomposite found to have been a result of misuse, abuse, or conditions existing after installation including, but not limited to, malicious mischief; vandalism; sabotage; fire; acts of God; acts of public enemy; acts of war or public rebellion; severe weather conditions of all types; damage due to all of the following: ice, wind, subsidence, chemicals harmful to the geocomposite, machinery, foreign objects or animals.

The Warranty is subject to the following conditions:

1. The geocomposite shall have been installed on compacted soil free of sharp protrusions and foreign objects to a depth of 6 inches.

2. This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by MAL and MAL makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

3. If "fill" is used over the top of the geocomposite, it shall be free of all foreign and sharp objects.

Failure to comply with these conditions in all respects will void the Warranty.

In the event circumstances are found to exist which Davidson County LF believes may give rise to a claim under the Warranty, the following procedure shall be followed:

5203 Mt. Zion Rd.
P. O. Box 458 • ~~420 East Jackson Street~~ • Union City, Tennessee 38261 • Ph. (731) 885-8888 • FAX (731) 885-8007

a. Davidson County LF shall give Mid America Lining Company written notice of the facts and circumstances of said claim within 60 days of becoming aware of said facts and circumstances. Said notice shall be by registered or certified mail, return receipt requested, postage prepaid, addressed to Michael J. Joslin, Mid America Lining Company, P.O. Box 458, Union City, TN 38281.

   The words "WARRANTY CLAIM" shall be clearly marked on the face of the envelope in the lower right hand corner. Said notice shall contain, at a minimum, the name and address of the owner, the name and address of the installation, the date upon which the installation was completed and the facts known to Davidson County LF upon which the claim is based. Failure to provide MAL with timely notice of the claim shall void the Warranty.

b. Within twenty days after receipt of the notice described in paragraph a, above, MAL shall inspect the allegedly defected geocomposite. Davidson County LF shall pay the expenses incurred by MAL making the inspection, in the event MAL determines that the claim is not covered by the Warranty.

c. DAVIDSON COUNTY LF SHALL NOT REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY GEOCOMPOSITE, NOR SHALL ALLOW ANYONE ELSE TO REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY OF THE GEOCOMPOSITE PRIOR TO SUCH INSPECTION PROVIDED, HOWEVER, DAVIDSON COUNTY LF, MAY TAKE EMERGENCY ACTION NECESSARY TO PREVENT DAMAGE TO PERSONS, PROPERTY OR THE ENVIRONMENT. A FAILURE TO STRICTLY COMPLY WITH THIS PARAGRAPH SHALL VOID THE WARRANTY.

d. If it is determined that the claim is covered by the Warranty, MAL shall either repair or replace so much of the geocomposite as is defective. In connection with any claim under this warranty, Mid America Lining Company's sole liability shall be, at its sole option, either to (a) repair the defective product or (b) supply the customer with repair or replacement product. THE REMEDIES PROVIDED HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THE WARRANTY. Any determination as to whether the claim is covered by the Warranty or what constitutes the appropriate method of remedying a defect will be made by MAL after consultation with Davidson County LF.

e. Davidson County LF agrees that it shall provide MAL with clean, dry and unobstructed access to the damaged or defective geocomposite in order for MAL to perform the inspections and repairs which may be required pursuant to the Warranty. MAL shall not be liable for any costs relating to providing access to the geocomposite.

THE REMEDIES PROVIDED TO DAVIDSON COUNTY LF, HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THE WARRANTY AND ARE INTENDED FOR THE SOLE BENEFIT OF DAVIDSON COUNTY LF. NEITHER THE WARRANTY NOR ANY RIGHTS HEREUNDER SHALL BE ASSIGNABLE, EXCEPT WITH THE CONSENT OF MAL, WHICH CONSENT SHALL NOT BE UNREASONABLY WITHHELD. MAL SHALL HAVE NO LIABILITY UNDER THE WARRANTY TO THIRD PARTIES. SET FORTH ABOVE IS THE ONLY WARRANTY APPLICABLE TO THE LINER AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL MAL BE LIABLE IN CONTRACT, TORT OR OTHERWISE FOR ANY DIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES FOR, RESULTING FROM, OR IN CONNECTION WITH, THE USE OF THE GEOCOMPOSITE. IN THE EVENT THE EXCLUSIVE REMEDY PROVIDED HEREIN FAILS IN ITS ESSENTIAL PURPOSE, AND IN THAT EVENT ONLY, DAVIDSON COUNTY LF, SHALL BE ENTITLED TO RETURN OF THE PURCHASE PRICE FOR SO MUCH OF THE MATERIAL AS MAL DETERMINES TO HAVE VIOLATED THE WARRANTY PROVIDED HEREIN.

Except for the Warranty set forth above, no representation or warranty made by any sales or other representative of MAL, or any other person, concerning the geocomposite shall be binding upon MAL.

This warranty shall not be effective until full payment has been made to MAL. Any waiver of the terms and conditions of the Warranty shall be in writing and signed by MAL. The failure to insist upon strict compliance with any of the terms and conditions contained herein shall not act as a waiver of strict compliance with all of the remaining terms and conditions of the Warranty and shall not operate as a waiver as to any of the terms and conditions of the Warranty as to future claims under the Warranty.

Mid America Lining Company

BY: Michael J. Joslin

Michael J. Joslin, President

I have read and agree to the terms and conditions of the Warranty.

BY: _____

TITLE: _____

COMPANY: _____

DATE: _____

MID AMERICA LINING CO.
"The Fabrication & Installation Specialists"

ONE YEAR INSTALLATION
LIMITED WARRANTY
FOR MID AMERICA LINING COMPANY
GEOCOMPOSITE MATERIALS

Project Name: **Davidson County LF**

Type of Liner: 6 oz D/S geocomposite

Installation Date: September 2005

Subject to the terms and conditions set forth below, Mid America Lining Company (MAL) warrants to Davidson County LF for a period of one year from the date upon which installations at the above referenced project were performed in a good and workmanlike manner. (The "Warranty")

The Warranty does not cover any damage to the geocomposite, or defects in the geocomposite found to have been a result of misuse, abuse, or conditions existing after installation including, but not limited to, malicious mischief; vandalism; sabotage; fire; acts of God; acts of public enemy; acts of war or public rebellion; severe weather conditions of all types; damage due to all of the following: ice, wind, subsidence, chemicals harmful to the geocomposite, machinery, foreign objects or animals.

The Warranty is subject to the following conditions:

1. The geocomposite shall have been installed on compacted soil free of sharp protrusions and foreign objects to a depth of 6 inches.

2. This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by MAL and MAL makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

3. If "fill" is used over the top of the geocomposite, it shall be free of all foreign and sharp objects.

Failure to comply with these conditions in all respects will void the Warranty.

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P. O. Box 458 • ~~420 East Jackson Street~~ 5203 Mt. Zion Rd. • Union City, Tennessee 38261 • Ph. (731) 885-8888 • FAX (731) 885-8007

a. Davidson County LF shall give Mid America Lining Company written notice of the facts and circumstances of said claim within 60 days of becoming aware of said facts and circumstances. Said notice shall be by registered or certified mail, return receipt requested, postage prepaid, addressed to Michael J. Joslin, Mid America Lining Company, P.O. Box 458, Union City, TN 38281.

   The words "WARRANTY CLAIM" shall be clearly marked on the face of the envelope in the lower right hand corner. Said notice shall contain, at a minimum, the name and address of the owner, the name and address of the installation, the date upon which the installation was completed and the facts known to Davidson County LF upon which the claim is based. Failure to provide MAL with timely notice of the claim shall void the Warranty.

b. Within twenty days after receipt of the notice described in paragraph a, above, MAL shall inspect the allegedly defected geocomposite. Davidson County LF shall pay the expenses incurred by MAL making the inspection, in the event MAL determines that the claim is not covered by the Warranty.

c. DAVIDSON COUNTY LF SHALL NOT REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY GEOCOMPOSITE, NOR SHALL ALLOW ANYONE ELSE TO REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY OF THE GEOCOMPOSITE PRIOR TO SUCH INSPECTION PROVIDED, HOWEVER, DAVIDSON COUNTY LF, MAY TAKE EMERGENCY ACTION NECESSARY TO PREVENT DAMAGE TO PERSONS, PROPERTY OR THE ENVIRONMENT. A FAILURE TO STRICTLY COMPLY WITH THIS PARAGRAPH SHALL VOID THE WARRANTY.

d. If it is determined that the claim is covered by the Warranty, MAL shall either repair or replace so much of the geocomposite as is defective. In connection with any claim under this warranty, Mid America Lining Company's sole liability shall be, at its sole option, either to (a) repair the defective product or (b) supply the customer with repair or replacement product. THE REMEDIES PROVIDED HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THE WARRANTY. Any determination as to whether the claim is covered by the Warranty or what constitutes the appropriate method of remedying a defect will be made by MAL after consultation with Davidson County LF.

e. Davidson County LF agrees that it shall provide MAL with clean, dry and unobstructed access to the damaged or defective geocomposite in order for MAL to perform the inspections and repairs which may be required pursuant to the Warranty. MAL shall not be liable for any costs relating to providing access to the geocomposite.

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Except for the Warranty set forth above, no representation or warranty made by any sales or other representative of MAL, or any other person, concerning the geocomposite shall be binding upon MAL.

This warranty shall not be effective until full payment has been made to MAL. Any waiver of the terms and conditions of the Warranty shall be in writing and signed by MAL. The failure to insist upon strict compliance with any of the terms and conditions contained herein shall not act as a waiver of strict compliance with all of the remaining terms and conditions of the Warranty and shall not operate as a waiver as to any of the terms and conditions of the Warranty as to future claims under the Warranty.

Mid America Lining Company

BY: _____

Michael J. Joslin, President

I have read and agree to the terms and conditions of the Warranty.

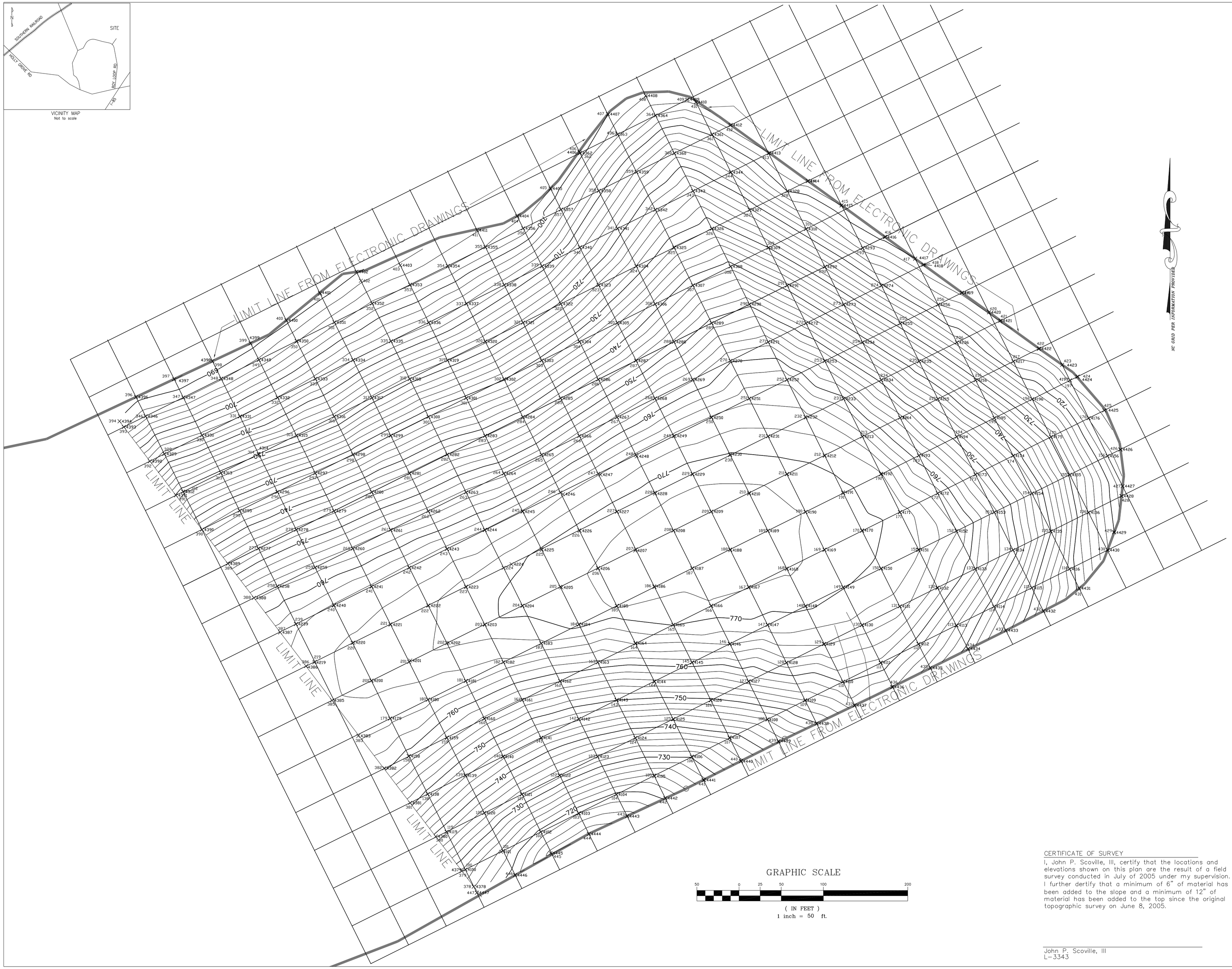
BY: _____

TITLE: _____

COMPANY: _____

DATE: _____

VICINITY MAP
Not to scale



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

CERTIFICATE OF SURVEY

I, John P. Scoville, III, certify that the locations and elevations shown on this plan are the result of a field survey conducted in July of 2005 under my supervision. I further dertify that a minimum of 6" of material has been added to the slope and a minimum of 12" of material has been added to the top since the original topographic survey on June 8, 2005.

John P. Scoville, III
L-3343

Stantec Consulting Inc.
Suite 200, 150 Oak Plaza Blvd.
Winston-Salem NC U.S.A.
27105
Tel. 336.759.7400
Fax. 336.759.7900
www.stantec.com

Stantec

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The Copyrights to all designs and drawings are the property of Stantec Consulting Inc. Reproduction or use for any purpose other than that authorized by Stantec Consulting Inc. is forbidden.

Notes

1. No boundary survey was performed in connection with this project.
2. North is NC Grid per informaiton provided.
3. No attempt has been made with this survey to determine flood elevation or locations.
4. This survey represents an as-built survey of existing site conditions at time of survey.

Revision	By	Appd.	Date
Certification	DJH	JPS	07/27/05
Existing ground topo	DJH	JPS	06/21/05

Issued	By	Appd.	Date

File Name: V:\1703ws\active\170302023\dwg\170302023_org-grnd.dwg

Permit-Seal

Client/Project

Shamrock Environmental Corporation

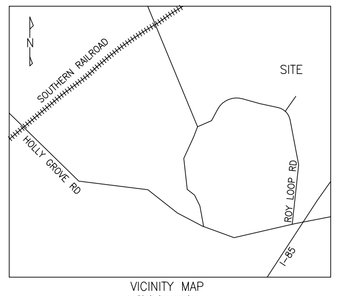
Davidson County Landfill
Partial Closure of Areas 1 & 3
Davidson County, North Carolina

Title

SOIL LAYER #1 CERTIFICATION
EXISTING SURFACE CONDITIONS
ON JULY 21, 2005

Project No.	Scale
170302023	1"=50'

Drawing No.	Sheet	Revision
	1 of 2	



VICINITY MAP
Not to scale

EXISTING GROUND GRID
JUNE 8, 2005

POINT #	ELEV
100	726.77
101	723.01
102	717.07
103	716.33
104	718.55
105	721.90
106	728.80
107	737.99
108	745.42
109	753.44
110	759.38
111	760.37
112	758.10
113	753.43
114	747.64
115	740.19
116	729.95
119	737.76
120	734.33
121	731.31
122	729.75
123	731.99
124	735.59
125	741.61
126	748.57
127	755.77
128	762.33
129	765.20
130	766.49
131	766.38
132	762.51
133	757.71
134	750.76
135	739.34
136	724.99
138	747.91
139	745.58
140	743.87
141	743.10
142	745.00
143	748.77
144	753.89
145	760.28
146	764.92
147	768.11
148	769.27
149	768.86
150	768.57
151	767.26
152	763.45
153	754.08
154	742.95
155	729.09
156	715.25
158	756.85
159	755.67
160	754.65
161	754.73
162	757.04
163	760.82
164	765.53
165	768.92
166	770.54
167	770.99
168	771.17
169	770.21
170	769.68
171	767.80
172	761.07
173	752.05
174	741.58
175	728.32
176	714.63
179	763.29
180	763.26
181	764.20
182	765.26
183	767.52
184	769.61
185	771.10
186	771.57
187	772.21
188	772.09
189	772.25
190	770.44
191	769.61
192	766.75
193	758.12
194	748.15
195	736.57
196	723.09
197	712.75
200	765.47
201	766.32
202	766.85
203	768.42
204	769.88
205	770.43
206	771.14
207	771.71
208	771.94
209	771.99
210	771.59
211	769.68
212	767.75
213	763.71
214	753.98
215	742.58
216	729.40
217	716.10
219	764.15
220	765.24
221	766.02
222	766.42
223	767.69
224	768.55
225	769.03
226	769.60
227	770.18
228	770.32
229	770.18
230	769.02
231	767.24
232	765.73

EXISTING GROUND GRID
JULY 21, 2005

POINT #	ELEV
4100	727.37
4101	723.60
4102	719.17
4103	717.95
4104	719.49
4105	723.30
4106	730.25
4107	738.57
4108	746.03
4109	754.05
4110	760.19
4111	761.49
4112	758.83
4113	754.02
4114	748.44
4115	740.76
4116	731.14
4119	738.33
4120	735.13
4121	733.01
4122	732.62
4123	733.52
4124	736.74
4125	742.42
4126	749.49
4127	756.78
4128	763.19
4129	766.21
4130	767.29
4131	767.19
4132	763.16
4133	758.30
4134	751.51
4135	740.14
4136	725.70
4138	749.08
4139	746.29
4140	744.54
4141	744.19
4142	746.37
4143	750.06
4144	755.51
4145	761.26
4146	766.11
4147	769.27
4148	770.41
4149	770.10
4150	769.64
4151	768.22
4152	764.16
4153	754.74
4154	743.59
4155	729.67
4156	716.74
4158	759.19
4159	756.96
4160	755.61
4161	755.74
4162	758.06
4163	761.66
4164	766.21
4165	770.08
4166	771.79
4167	772.06
4168	772.34
4169	771.50
4170	770.83
4171	769.30
4172	762.81
4173	752.63
4174	742.16
4175	729.38
4176	715.92
4179	764.56
4180	764.81
4181	765.01
4182	765.61
4183	767.68
4184	770.68
4185	772.16
4186	772.81
4187	773.37
4188	773.50
4189	773.29
4190	771.82
4191	770.69
4192	768.13
4193	758.77
4194	749.00
4195	737.35
4196	724.05
4197	713.57
4200	766.73
4201	767.41
4202	768.39
4203	769.42
4204	770.89
4205	771.53
4206	772.19
4207	772.90
4208	773.06
4209	773.29
4210	772.64
4211	771.07
4212	769.29
4213	764.49
4214	754.75
4215	743.56
4216	730.53
4217	716.87
4219	765.55
4220	766.42
4221	767.28
4222	767.73
4223	768.76
4224	769.66
4225	770.29
4226	770.87
4227	771.31
4228	771.52
4229	771.41
4230	770.13
4231	768.66
4232	766.79

EXISTING GROUND GRID
JUNE 8, 2005

POINT #	ELEV
233	759.16
234	748.42
235	735.85
236	722.45
239	763.33
240	763.21
241	763.37
242	763.31
243	763.57
244	763.28
245	763.74
246	764.55
247	765.48
248	766.09
249	765.67
250	765.17
251	764.38
252	762.48
253	753.61
254	740.89
255	727.58
256	715.30
258	756.34
259	756.43
260	755.61
261	755.51
262	754.32
263	754.09
264	752.72
265	752.81
266	754.11
267	755.57
268	756.66
269	756.77
270	759.15
271	756.28
272	745.95
273	733.11
274	719.68
277	745.60
278	745.88
279	744.48
280	744.54
281	743.46
282	743.03
283	741.35
284	741.08
285	742.13
286	744.13
287	745.55
288	747.43
289	750.32
290	748.49
291	737.65
292	724.99
293	712.61
295	734.10
296	733.53
297	731.83
298	730.79
299	731.59
300	731.43
301	730.02
302	729.10
303	730.33
304	732.20
305	734.82
306	738.08
307	741.21
308	740.39
309	728.99
310	717.06
312	719.36
313	719.10
314	718.38
315	716.74
316	715.75
317	717.46
318	717.74
319	716.80
320	716.40
321	717.78
322	719.89
323	723.80
324	727.47
325	731.61
326	731.38
327	721.41
328	709.21
329	703.44
330	703.17
331	702.98
332	702.84
333	703.68
334	704.84
335	705.23
336	704.74
337	705.08
338	706.22
339	707.70
340	711.85
341	717.18
342	722.71
343	724.48
344	715.28
346	691.26
347	690.20
348	690.00
349	691.41
350	692.74
351	694.25
352	694.54
353	694.29
354	694.53
355	695.08
356	695.61
357	701.31
358	707.45
359	712.75
360	716.43
361	708.46
362	697.78
363	702.79
364	705.07

EXISTING GROUND GRID
JULY 21, 2005

POINT #	ELEV
4233	760.45
4234	749.30
4235	736.54
4236	723.32
4239	763.76
4240	764.24
4241	764.36
4242	764.58
4243	764.68
4244	764.05
4245	764.31
4246	765.79
4247	766.16
4248	766.76
4249	766.55
4250	766.25
4251	765.55
4252	763.43
4253	754.33
4254	741.64
4255	728.64
4256	716.07
4258	757.75
4259	757.22
4260	756.38
4261	755.97
4262	754.86
4263	754.62
4264	753.31
4265	753.50
4266	755.00
4267	756.38
4268	757.45
4269	757.76
4270	759.84
4271	757.35
4272	746.75
4273	733.70
4274	720.40
4277	746.89
4278	746.59
4279	745.48
4280	745.16
4281	744.28
4282	744.14
4283	741.93
4284	741.66
4285	743.38
4286	744.89
4287	746.13
4288	748.34
4289	750.91
4290	749.47
4291	738.65
4292	725.64
4293	713.28
4295	735.02
4296	734.14
4297	732.51
4298	731.76
4299	732.13
4300	732.14
4301	730.72
4302	729.77
4303	730.98
4304	732.77
4305	735.58
4306	738.85
4307	742.03
4308	741.16
4309	730.05
4310	717.87
4312	721.33
4313	720.78
4314	719.69
4315	717.54
4316	716.73
4317	718.51
4318	718.90
4319	717.95
4320	717.57
4321	718.71
4322	720.46
4323	724.36
4324	728.06
4325	732.21
4326	731.96
4327	722.40
4328	709.98
4329	706.80
4330	704.82
4331	703.86
4332	704.09
4333	704.84
4334	706.05
4335	705.97
4336	705.30
4337	706.10
4338	707.32
4339	708.95
4340	713.34
4341	718.54
4342	723.44
4343	725.21
4344	715.85
4346	693.24
4347	691.70
4348	691.65
4349	692.30
4350	693.81
4351	695.39
4352	696.37
4353	695.82
4354	695.74
4355	696.11
4356	696.48
4357	702.76
4358	709.08
4359	714.37
4360	717.12
4361	709.78
4362	699.14
4363	703.51
4364	706.14

EXISTING GROUND GRID
JUNE 8, 2005

POINT #	ELEV
378	722.30
379	727.09
380	738.80
381	749.57
382	759.74
383	759.99
385	759.99
386	759.75
387	759.01
388	756.12
389	744.91
390	733.20
391	719.33
392	704.21
393	691.05
394	689.83
396	687.78
397	687.51
398	687.30
399	687.73
400	688.70
401	688.54
402	690.86
403	691.29
404	694.62
405	696.52
406	697.65
407	698.65
408	700.83
409	702.19
410	702.43
411	693.40
412	703.59
413	705.08
414	705.68
415	706.78
416	707.96
417	708.96
418	709.25
419	710.25
420	710.48
421	710.69
422	711.54
423	711.63
424	711.65
425	712.33
426	713.60
427	715.43
428	716.05
429	718.91
430	721.03
431	728.22
432	735.43
433	742.02
434	748.45
435	752.19
436	755.26
437	755.89
438	748.56
439	741.68
440	734.28
441	726.62
442	719.00
443	713.70
444	711.01
445	711.99
446	717.45
447	721.79

EXISTING GROUND GRID
JULY 21, 2005

POINT #	ELEV
4378	724.20
4379	727.62
4380	739.30
4381	750.89
4382	760.49
4383	764.39
4385	765.74
4386	765.37
4387	762.98
4388	757.73
4389	746.24
4390	734.11
4391	720.25
4392	705.02
4393	691.83
4394	690.46
4396	689.16
4397	687.92
4398	688.29
4399	689.08
4400	689.36
4401	688.75
4402	689.75
4403	692.37
4404	695.80
4405	697.92
4406	698.91
4407	699.96
4408	701.89
4409	703.37
4410	703.42
4411	693.84
4412	704.84
4413	706.02
4414	706.70
4415	707.92
4416	709.10
4417	710.06
4418	710.32
4419	711.48
4420	711.68
4421	711.71
4422	712.67
4423	712.64
4424	712.56
4425	713.38
4426	714.62
4427	716.52
4428	717.12
4429	720.05
4430	722.15
4431	729.38
4432	736.46
4433	743.11
4434	749.30
4435	753.24
4436	756.42
4437	757.05
4438	749.86
4439	743.10
4440	735.54
4441	727.61
4442	720.27
4443	715.02
4444	712.43
4445	713.32
4446	718.81
4447	722.30

CERTIFICATE OF SURVEY

I, John P. Scoville, III, certify that the locations and elevations shown on this plan are the result of a field survey conducted in July of 2005 under my supervision. I further dertify that a minimum of 6" of material has been added to the slope and a minimum of 12" of material has been added to the top since the original topographic survey on June 8, 2005.

John P. Scoville, III
L-3343

Stantec Consulting Inc.
Suite 200, 150 Oak Plaza Blvd.
Winston-Salem NC U.S.A.
27105
Tel. 336.759.7400
Fax. 336.759.7900
www.stantec.com

Stantec

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Notes

1. No boundary survey was performed in connection with this project.
2. North is NC Grid per informaiton provided.
3. No attempt has been made with this survey to determine flood elevation or locations.
4. This survey represents an as-built survey of existing site conditions at time of survey.

Revision	By	Appd.	Date
Certification	DJH	JPS	07/27/05
Existing ground topo	DJH	JPS	06/21/05

Issued	By	Appd.	Date

File Name: V:\1703ws\active\170302023\dwg\170302023_org-grnd.dwg

Permit-Seal

Client/Project

Shamrock Environmental Corporation

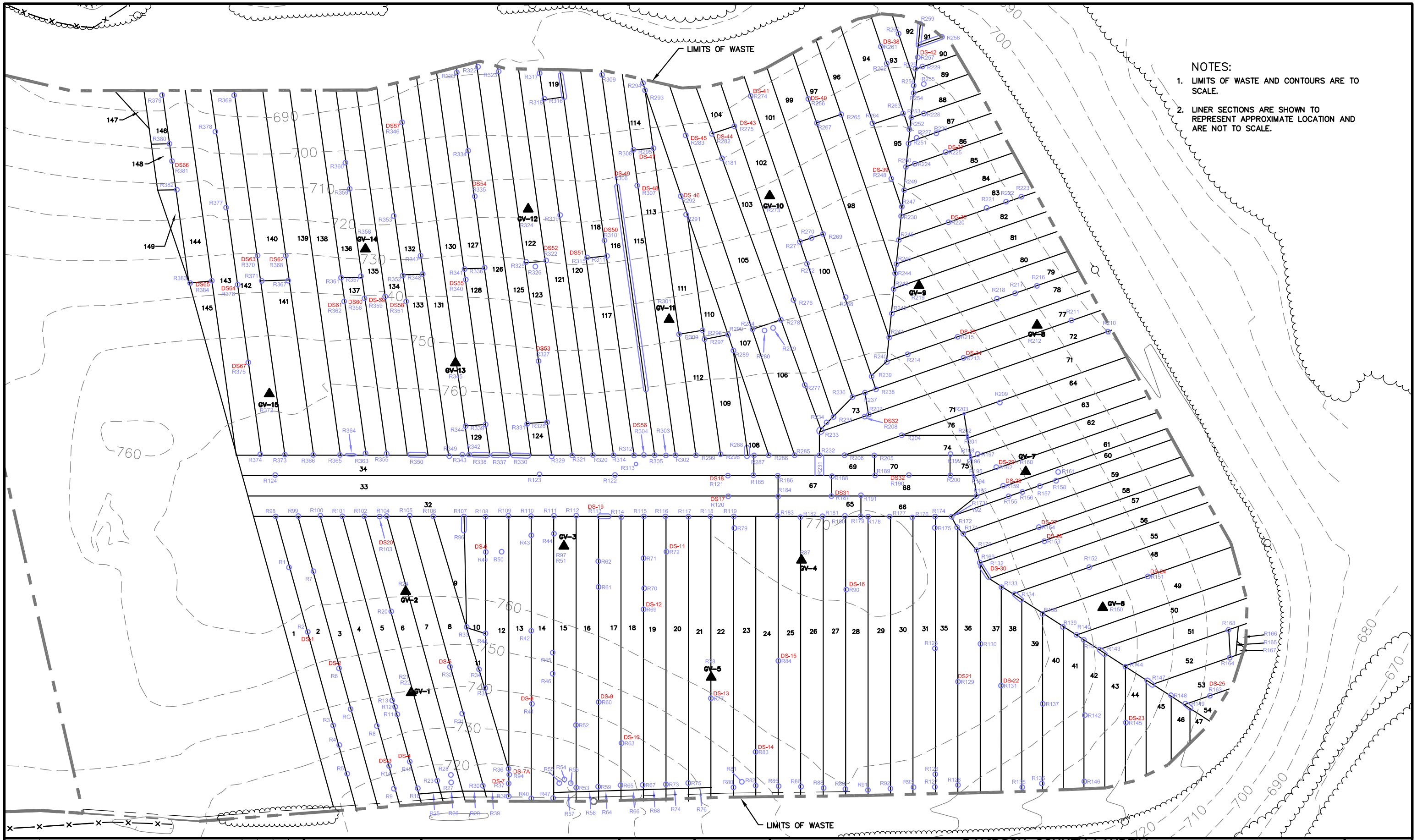
Davidson County Landfill
Partial Closure of Areas 1 & 3

Davidson County, North Carolina

Title

SOIL LAYER #1 CERTIFICATION
EXISTING SURFACE CONDITIONS
ON JULY 21, 2005

Project No.	Scale	
170302023	1"=50'	
Drawing No.	**Sheet**	**Revision**
	1 of 1	



NOTES:

1. LIMITS OF WASTE AND CONTOURS ARE TO SCALE.
2. LINER SECTIONS ARE SHOWN TO REPRESENT APPROXIMATE LOCATION AND ARE NOT TO SCALE.

DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP

DESIGNED HK
DRAWN RFB
CHECKED HK
APPROVED HK
DATE 10/25/05

JOYCE ENGINEERING, INC.

2301 W. MEADOWVIEW RD, SUITE 203
GREENSBORO, NC 27407
PHONE: (336) 323-0092

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SCALE: N.T.S.

PROJECT NO.: 379.35

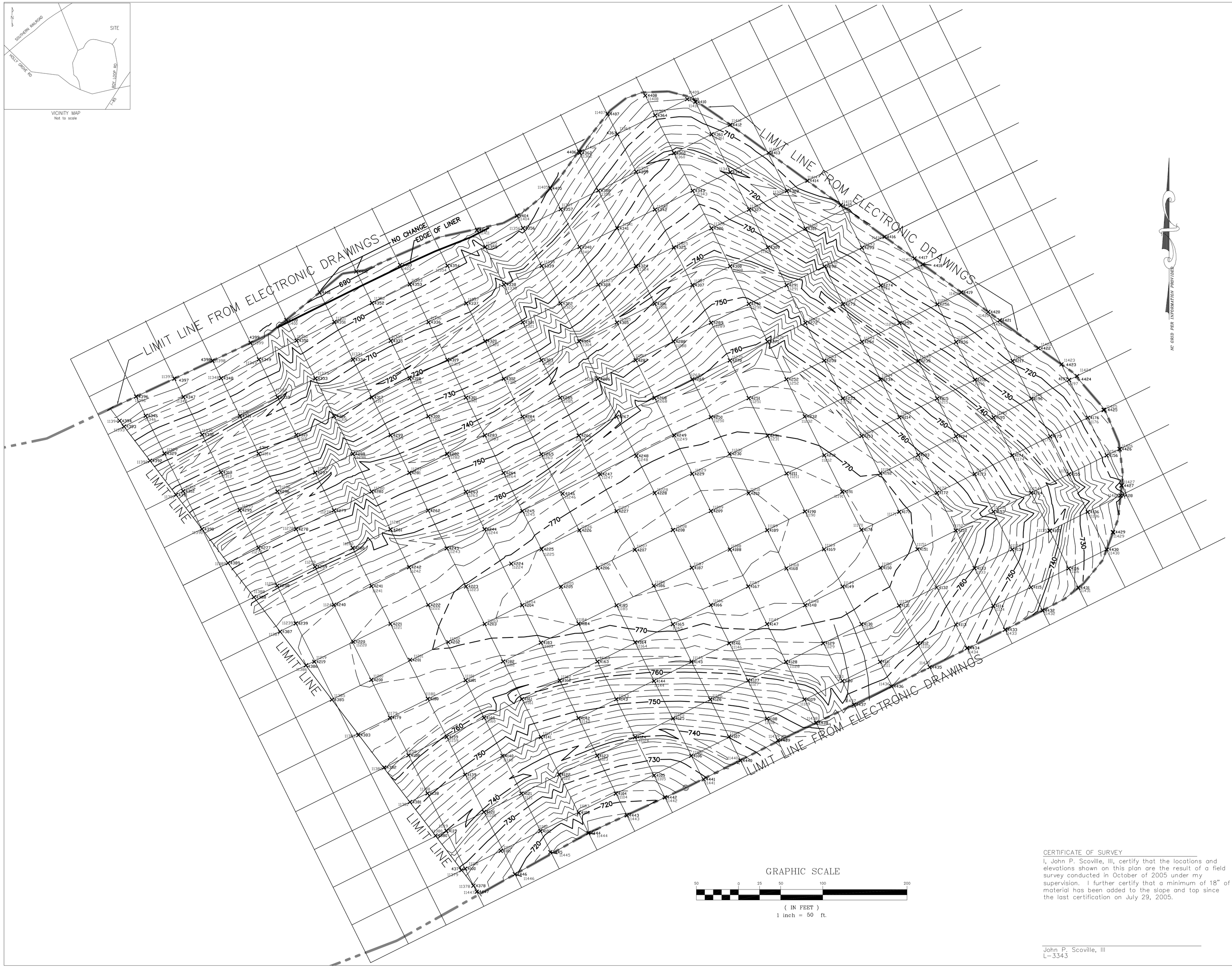
DAVIDSON COUNTY LANDFILL
DAVIDSON COUNTY, NORTH CAROLINA

GEOMEMBRANE PLAN WITH DESTRUCTIVE SEAM TEST AND REPAIR LOCATION

DRAWING NO.: 2

L:\Davidson\dwg\CLOSURE PLAN 04\CLOSURE LAYERS.dwg

VICINITY MAP
Not to scale



CERTIFICATE OF SURVEY

I, John P. Scoville, III, certify that the locations and elevations shown on this plan are the result of a field survey conducted in October of 2005 under my supervision. I further certify that a minimum of 18" of material has been added to the slope and top since the last certification on July 29, 2005.

John P. Scoville, III
L-3343

Stantec Consulting Inc.
Suite 200, 150 Oak Plaza Blvd.
Winston-Salem NC U.S.A.
27105
Tel. 336.759.7400
Fax. 336.759.7900
www.stantec.com

Stantec

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Notes

1. No boundary survey was performed in connection with this project.
2. North is NC Grid per informaiton provided.
3. No attempt has been made with this survey to determine flood elevation or locations.
4. This survey represents an as-built survey of existing site conditions at time of survey.

Revision	By	Appd.	Date
Certification	DJH	JPS	10/17/05
Certification	DJH	JPS	07/27/05
Existing ground topo	DJH	JPS	06/21/05

Issued

File Name: V:\1703ws\active\170302023\dwg\170302023_working_10-10-05.dwg

Permit-Seal

Client/Project

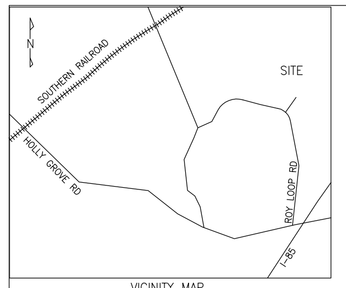
Shamrock Environmental Corporation

Davidson County Landfill
Partial Closure of Areas 1 & 3
Davidson County, North Carolina

Title

SOIL LAYER #2 CERTIFICATION
EXISTING SURFACE CONDITIONS
ON OCTOBER 9, 2005

Project No.	Scale	
170302023	1"=50'	
Drawing No.	Sheet	Revision
	1 of 2	



VICINITY MAP
Not to scale

EXISTING GROUND GRID
JULY 21, 2005

POINT #	ELEV
4100	727.37
4101	723.60
4102	719.17
4103	717.95
4104	719.49
4105	723.30
4106	730.25
4107	738.57
4108	746.03
4109	754.05
4110	760.19
4111	761.49
4112	758.83
4113	754.02
4114	748.44
4115	740.76
4116	731.14
4119	738.33
4120	735.13
4121	733.01
4122	732.62
4123	733.52
4124	736.74
4125	742.42
4126	749.49
4127	756.78
4128	763.19
4129	766.21
4130	767.29
4131	767.19
4132	763.16
4133	758.30
4134	751.51
4135	740.14
4136	725.70
4138	749.08
4139	746.29
4140	744.54
4141	744.19
4142	746.37
4143	750.06
4144	755.51
4145	761.26
4146	766.11
4147	769.27
4148	770.41
4149	770.10
4150	769.64
4151	768.22
4152	764.16
4153	754.74
4154	743.59
4155	729.67
4156	716.74
4158	759.19
4159	756.96
4160	755.61
4161	755.74
4162	758.06
4163	761.66
4164	766.21
4165	770.08
4166	771.79
4167	772.06
4168	772.34
4169	771.50
4170	770.83
4171	769.30
4172	762.81
4173	752.63
4174	742.16
4175	729.38
4176	715.92
4179	764.56
4180	764.81
4181	765.01
4182	765.61
4183	767.68
4184	770.68
4185	772.16
4186	772.81
4187	773.37
4188	773.50
4189	773.29
4190	771.82
4191	770.69
4192	768.13
4193	758.77
4194	749.00
4195	737.35
4196	724.05
4197	713.57
4200	766.73
4201	767.41
4202	768.39
4203	769.42
4204	770.89
4205	771.53
4206	772.19
4207	772.90
4208	773.06
4209	773.29
4210	772.64
4211	771.07
4212	769.29
4213	764.49
4214	754.75
4215	743.56
4216	730.53
4217	716.87
4219	765.55
4220	766.42
4221	767.28
4222	767.73
4223	768.76
4224	769.66
4225	770.29
4226	770.87
4227	771.31
4228	771.52
4229	771.41
4230	770.13
4231	768.66
4232	766.79

EXISTING GROUND GRID
OCT 9, 2005

POINT #	ELEV
11100	729.00
11101	725.44
11102	721.48
11103	721.49
11104	721.49
11105	725.05
11106	732.09
11107	740.19
11108	747.97
11109	755.82
11110	762.77
11111	763.12
11112	760.55
11113	756.05
11114	750.05
11115	743.36
11116	733.50
11119	739.91
11120	738.03
11121	734.63
11122	734.34
11123	735.45
11124	740.20
11125	744.02
11126	751.09
11127	758.50
11128	764.74
11129	767.88
11130	768.93
11131	768.84
11132	765.22
11133	759.90
11134	753.25
11135	741.95
11136	727.62
11138	750.82
11139	748.07
11140	746.39
11141	745.89
11142	748.07
11143	751.72
11144	757.15
11145	766.05
11146	767.80
11147	770.91
11148	771.92
11149	771.71
11150	771.17
11151	770.05
11152	766.25
11153	757.30
11154	746.13
11155	731.31
11156	718.54
11158	763.15
11159	758.98
11160	757.29
11161	757.61
11162	762.41
11163	763.26
11164	767.79
11165	771.65
11166	773.37
11167	773.57
11168	773.84
11169	773.05
11170	772.36
11171	771.19
11172	764.99
11173	755.74
11174	743.80
11175	731.40
11176	717.55
11179	766.14
11180	766.44
11181	766.72
11182	767.32
11183	769.30
11184	772.24
11185	773.71
11186	774.37
11187	774.89
11188	775.03
11189	774.83
11190	773.39
11191	772.29
11192	769.86
11193	760.97
11194	750.93
11195	739.03
11196	726.25
11197	715.24
11200	768.30
11201	769.20
11202	770.57
11203	771.62
11204	772.91
11205	773.48
11206	773.74
11207	774.42
11208	774.60
11209	774.79
11210	774.18
11211	772.66
11212	770.82
11213	769.19
11214	756.46
11215	745.19
11216	732.24
11217	719.26
11219	767.13
11220	768.09
11221	769.21
11222	769.33
11223	770.32
11224	771.21
11225	772.17
11226	772.70
11227	773.07
11228	773.29
11229	773.35
11230	771.78
11231	770.17
11232	768.35

EXISTING GROUND GRID
JULY 21, 2005

POINT #	ELEV
4233	760.45
4234	749.30
4235	736.54
4236	723.32
4239	763.76
4240	764.24
4241	764.36
4242	764.58
4243	764.68
4244	764.05
4245	764.31
4246	765.79
4247	766.16
4248	766.76
4249	766.55
4250	766.25
4251	765.55
4252	763.43
4253	754.33
4254	741.64
4255	728.64
4256	716.07
4258	757.75
4259	757.22
4260	756.38
4261	755.97
4262	754.86
4263	754.62
4264	753.31
4265	753.50
4266	755.00
4267	756.38
4268	757.45
4269	757.76
4270	759.84
4271	757.35
4272	746.75
4273	733.70
4274	720.40
4277	746.89
4278	746.59
4279	745.48
4280	745.16
4281	744.28
4282	744.14
4283	741.93
4284	741.66
4285	743.38
4286	744.89
4287	746.13
4288	748.34
4289	750.91
4290	749.47
4291	738.65
4292	725.64
4293	713.28
4295	735.02
4296	734.14
4297	732.51
4298	731.76
4299	732.13
4300	732.14
4301	730.72
4302	729.77
4303	730.98
4304	732.77
4305	735.58
4306	738.85
4307	742.03
4308	741.16
4309	730.05
4310	717.87
4312	721.33
4313	720.78
4314	719.69
4315	717.54
4316	716.73
4317	718.51
4318	718.90
4319	717.95
4320	717.57
4321	718.71
4322	720.46
4323	724.36
4324	728.06
4325	732.21
4326	731.96
4327	722.40
4328	709.98
4329	706.80
4330	704.82
4331	703.86
4332	704.09
4333	704.84
4334	706.05
4335	705.97
4336	705.30
4337	706.10
4338	707.32
4339	708.95
4340	713.34
4341	718.54
4342	723.44
4343	725.21
4344	715.85
4346	693.24
4347	691.70
4348	691.65
4349	692.30
4350	693.81
4351	695.39
4352	696.37
4353	695.82
4354	695.74
4355	696.11
4356	696.48
4357	702.76
4358	709.08
4359	714.37
4360	717.12
4361	709.78
4362	699.14
4363	703.51
4364	706.14

EXISTING GROUND GRID
OCT 9, 2005

POINT #	ELEV
11233	762.18
11234	750.91
11235	739.50
11236	724.97
11239	765.46
11240	765.93
11241	766.44
11242	766.21
11243	766.35
11244	765.76
11245	766.24
11246	767.45
11247	767.89
11248	768.60
11249	768.26
11250	767.98
11251	767.27
11252	765.16
11253	756.06
11254	743.31
11255	730.40
11256	717.86
11258	759.49
11259	758.84
11260	757.98
11261	757.48
11262	756.68
11263	756.73
11264	755.84
11265	755.49
11266	756.70
11267	BERM
11268	760.48
11269	759.39
11270	761.50
11271	761.90
11272	748.82
11273	737.07
11274	722.08
11277	748.54
11278	748.38
11279	747.46
11280	746.79
11281	745.93
11282	745.91
11283	744.09
11284	743.38
11285	745.00
11286	749.09
11287	748.35
11288	750.10
11289	753.10
11290	751.36
11291	741.15
11292	729.91
11293	714.96
11295	736.73
11296	735.79
11297	734.15
11298	735.21
11299	734.20
11300	734.07
11301	732.81
11302	732.17
11303	732.76
11304	737.63
11305	738.71
11306	740.45
11307	743.79
11308	745.06
11309	732.48
11310	719.53
11312	723.07
11313	722.88
11314	721.31
11315	719.35
11316	720.75
11317	720.22
11318	720.55
11319	719.76
11320	719.83
11321	720.61
11322	722.47
11323	725.97
11324	729.81
11325	733.85
11326	735.06
11327	724.46
11328	714.78
11329	708.89
11330	706.89
11331	706.88
11332	707.50
11333	707.78
11334	708.36
11335	708.71
11336	708.61
11337	708.19
11338	711.36
11339	711.05
11340	715.15
11341	720.18
11342	725.22
11343	727.22
11344	720.25
11346	695.29
11347	694.18
11348	693.98
11349	695.12
11350	696.31
11351	697.74
11352	698.06
11353	698.20
11354	698.61
11355	699.53
11356	698.95
11357	705.09
11358	710.86
11359	718.30
11360	721.35
11361	711.74
11362	701.30
11363	705.93
11364	708.99

EXISTING GROUND GRID
JULY 21, 2005

POINT #	ELEV
4378	724.20
4379	727.62
4380	739.30
4381	750.89
4382	760.49
4383	764.39
4385	765.74
4386	765.37
4387	762.98
4388	757.73
4389	746.24
4390	734.11
4391	720.25
4392	705.02
4393	691.83
4394	690.46
4396	689.16
4397	687.92
4398	688.29
4399	689.08
4400	689.36
4401	688.75
4402	689.75
4403	692.37
4404	695.80
4405	697.92
4406	698.91
4407	699.96
4408	701.89
4409	703.37
4410	703.42
4411	693.84
4412	704.84
4413	706.02
4414	706.70
4415	707.92
4416	709.10
4417	710.06
4418	710.32
4419	711.48
4420	711.68
4421	711.71
4422	712.67
4423	712.64
4424	712.56
4425	713.38
4426	714.62
4427	716.52
4428	717.12
4429	720.05
4430	722.15
4431	729.38
4432	736.46
4433	743.11
4434	749.30
4435	753.24
4436	756.42
4437	757.05
4438	749.86
4439	743.10
4440	735.54
4441	727.61
4442	720.27
4443	715.02
4444	712.43
4445	713.32
4446	718.81
4447	722.30

EXISTING GROUND GRID
OCT 9, 2005

POINT #	ELEV
11378	725.80
11379	729.25
11380	740.99
11381	752.62
11382	762.24
11383	766.04
11385	767.23
11386	766.95
11387	764.70
11388	759.60
11389	748.01
11390	736.91
11391	722.45
11392	707.52
11393	694.67
11394	692.91
11396	690.78
11397	690.04
11398	690.51
11399	691.24
11400	691.74
11401	SEE NOTE
11402	SEE NOTE
11403	694.03
11404	697.53
11405	700.01
11406	701.13
11407	701.63
11408	704.58
11409	706.06
11410	705.72
11411	695.58
11412	707.72
11413	708.68
11414	708.97
11415	711.17
11416	710.71
11417	711.90
11418	712.81
11419	713.41
11420	713.36
11421	713.32
11422	714.30
11423	714.25
11424	714.19
11425	715.50
11426	716.35
11427	718.23
11428	720.89
11429	722.05
11430	724.51
11431	731.00
11432	738.03
11433	745.72
11434	751.38
11435	754.89
11436	758.06
11437	758.65
11438	752.98
11439	744.74
11440	737.16
11441	729.41
11442	721.91
11443	717.62
11444	718.15
11445	716.40
11446	720.47
11447	725.51

NOTE: POINT # 11401 & 11402 ARE OUTSIDE OF THE LINER – NO CHANGE IN ELEVATION

Site Volume Table: Unadjusted

Site	Stratum	Surf1	Surf2	Cut yards	Fill yards	Net yards	Method
CERT1-FINASBLT							
	cert1-finalasblt	cert1-surf	final-asbuilt-10-11-05	11	48122	48111 (F)	Grid

CERTIFICATE OF SURVEY

I, John P. Scoville, III, certify that the locations and elevations shown on this plan are the result of a field survey conducted in October of 2005 under my supervision. I further certify that a minimum of 18" of material has been added to the slope and top since the last certification on July 27, 2005.

John P. Scoville, III
L-3343

Stantec Consulting Inc.
Suite 200, 150 Oak Plaza Blvd.
Winston-Salem NC U.S.A.
27105
Tel. 336.759.7400
Fax. 336.759.7900
www.stantec.com

Stantec

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Notes

1. No boundary survey was performed in connection with this project.
2. North is NC Grid per informaiton provided.
3. No attempt has been made with this survey to determine flood elevation or locations.
4. This survey represents an as-built survey of existing site conditions at time of survey.

Revision	By	Appd.	Date

Issued	By	Appd.	Date
Certification	DJH	JPS	10/17/05
Certification	DJH	JPS	07/27/05
Existing ground topo	DJH	JPS	06/21/05

File Name: V:\1703ws\active\170302023\dwg\170302023_working_10-10-05.dwg

Permit-Seal

Client/Project

Shamrock Environmental Corporation

Davidson County Landfill
Partial Closure of Areas 1 & 3

Davidson County, North Carolina

Title

SOIL LAYER #2 CERTIFICATION
EXISTING SURFACE CONDITIONS
ON OCTOBER 9, 2005

Project No. 170302023

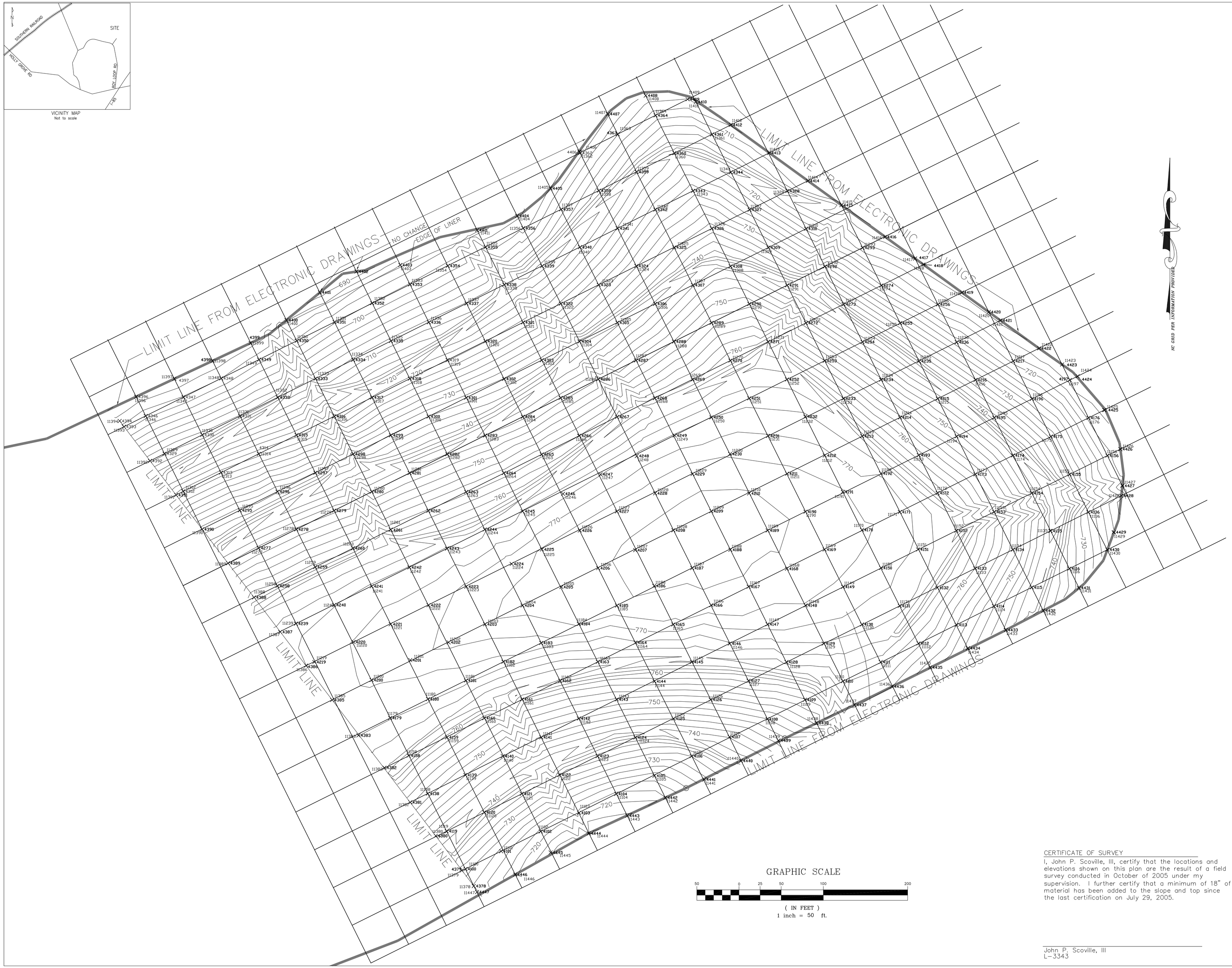
Scale 1"=50'

Drawing No.

Sheet 2 of 2

Revision

VICINITY MAP
Not to scale



CERTIFICATE OF SURVEY

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Notes

1. No boundary survey was performed in connection with this project.
2. North is NC Grid per informaiton provided.
3. No attempt has been made with this survey to determine flood elevation or locations.
4. This survey represents an as-built survey of existing site conditions at time of survey.

Revision	By	Appd.	Date
Certification	DJH	JPS	10/17/05
Certification	DJH	JPS	07/27/05
Existing ground topo	DJH	JPS	06/21/05

Issued	By	Appd.	Date

File Name: V:\1703ws\active\170302023\dwg\170302023_working_10-10-05.dwg

Permit-Seal

Client/Project

Shamrock Environmental Corporation

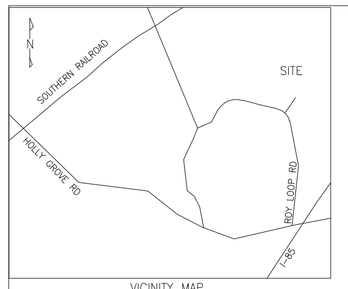
Davidson County Landfill
Partial Closure of Areas 1 & 3
Davidson County, North Carolina

Title

SOIL LAYER #2 CERTIFICATION
EXISTING SURFACE CONDITIONS
ON OCTOBER 9, 2005

Project No.	Scale
170302023	1"=50'

Drawing No.	Sheet	Revision
	1 of 2	



VICINITY MAP
Not to scale

EXISTING GROUND GRID
JULY 21, 2005

POINT #	ELEV
4100	727.37
4101	723.60
4102	719.17
4103	717.95
4104	719.49
4105	723.30
4106	730.25
4107	738.57
4108	746.03
4109	754.05
4110	760.19
4111	761.49
4112	758.83
4113	754.02
4114	748.44
4115	740.76
4116	731.14
4119	738.33
4120	735.13
4121	733.01
4122	732.82
4123	733.52
4124	736.74
4125	742.42
4126	749.49
4127	756.78
4128	763.19
4129	766.21
4130	767.29
4131	767.19
4132	763.16
4133	758.30
4134	751.51
4135	740.14
4136	725.70
4138	749.08
4139	746.29
4140	744.54
4141	744.19
4142	746.37
4143	750.06
4144	755.51
4145	761.26
4146	766.11
4147	769.27
4148	770.41
4149	770.10
4150	769.64
4151	768.22
4152	764.16
4153	754.74
4154	743.59
4155	729.67
4156	716.74
4158	759.19
4159	756.96
4160	755.81
4161	755.74
4162	758.06
4163	761.66
4164	766.21
4165	770.08
4166	771.79
4167	772.06
4168	772.34
4169	771.50
4170	770.83
4171	769.30
4172	762.81
4173	752.63
4174	742.16
4175	729.38
4176	715.92
4179	764.56
4180	764.81
4181	765.01
4182	765.61
4183	767.68
4184	770.68
4185	772.16
4186	772.81
4187	773.37
4188	773.50
4189	773.29
4190	771.82
4191	770.69
4192	768.13
4193	758.77
4194	749.00
4195	737.35
4196	724.05
4197	711.57
4200	766.73
4201	767.41
4202	768.39
4203	769.42
4204	770.89
4205	771.53
4206	772.19
4207	772.90
4208	773.06
4209	773.29
4210	772.64
4211	771.07
4212	769.29
4213	764.49
4214	754.75
4215	743.56
4216	730.53
4217	716.87
4219	765.55
4220	766.42
4221	767.28
4222	767.73
4223	768.76
4224	769.66
4225	770.29
4226	770.87
4227	771.31
4228	771.52
4229	771.41
4230	770.13
4231	768.66
4232	766.79

EXISTING GROUND GRID
OCT. 9, 2005

POINT #	ELEV
11100	729.00
11101	725.44
11102	721.48
11103	721.49
11104	721.49
11105	725.05
11106	732.09
11107	740.19
11108	747.97
11109	755.82
11110	762.77
11111	763.12
11112	760.55
11113	756.05
11114	750.05
11115	743.36
11116	733.50
11119	739.91
11120	738.03
11121	734.63
11122	734.34
11123	735.45
11124	740.20
11125	744.02
11126	751.09
11127	758.50
11128	764.74
11129	767.88
11130	768.93
11131	768.84
11132	765.22
11133	759.90
11134	753.25
11135	741.95
11136	727.62
11138	750.82
11139	748.07
11140	746.39
11141	745.89
11142	748.07
11143	751.72
11144	757.15
11145	766.05
11146	767.80
11147	770.91
11148	771.92
11149	771.71
11150	771.17
11151	770.05
11152	766.25
11153	757.30
11154	746.13
11155	731.31
11156	718.54
11158	763.15
11159	758.98
11160	757.29
11161	757.61
11162	762.41
11163	763.26
11164	767.79
11165	771.65
11166	773.37
11167	773.57
11168	773.84
11169	773.05
11170	772.36
11171	771.19
11172	764.99
11173	755.74
11174	743.80
11175	731.40
11176	717.55
11179	766.14
11180	766.44
11181	766.72
11182	767.32
11183	769.30
11184	772.24
11185	773.71
11186	774.37
11187	774.89
11188	775.03
11189	774.83
11190	773.39
11191	772.29
11192	769.86
11193	760.97
11194	750.93
11195	739.03
11196	726.25
11197	715.24
11200	768.30
11201	769.20
11202	770.57
11203	771.62
11204	772.91
11205	773.48
11206	773.74
11207	774.42
11208	774.60
11209	774.79
11210	774.18
11211	772.66
11212	770.82
11213	769.19
11214	756.46
11215	745.19
11216	732.24
11217	719.26
11219	767.13
11220	768.09
11221	769.21
11222	769.33
11223	770.32
11224	771.21
11225	772.17
11226	772.70
11227	773.07
11228	773.29
11229	773.35
11230	771.78
11231	770.17
11232	768.35

EXISTING GROUND GRID
JULY 21, 2005

POINT #	ELEV
4233	760.45
4234	749.30
4235	736.54
4236	723.32
4239	763.76
4240	764.24
4241	764.36
4242	764.58
4243	764.68
4244	764.05
4245	764.31
4246	765.79
4247	766.16
4248	766.76
4249	766.55
4250	766.25
4251	765.55
4252	763.43
4253	754.33
4254	741.64
4255	728.64
4256	716.07
4258	757.75
4259	757.22
4260	756.38
4261	755.97
4262	754.86
4263	754.62
4264	753.31
4265	753.50
4266	755.00
4267	756.38
4268	757.45
4269	757.76
4270	759.84
4271	757.35
4272	746.75
4273	733.70
4274	720.40
4277	746.89
4278	746.59
4279	745.48
4280	745.16
4281	744.28
4282	744.14
4283	741.93
4284	741.66
4285	743.38
4286	744.89
4287	746.13
4288	748.34
4289	750.91
4290	749.47
4291	738.65
4292	725.64
4293	713.28
4295	735.02
4296	734.14
4297	732.51
4298	731.76
4299	732.13
4300	732.14
4301	730.72
4302	729.77
4303	730.98
4304	732.77
4305	735.58
4306	738.85
4307	742.03
4308	741.16
4309	730.05
4310	717.87
4312	721.33
4313	720.78
4314	719.69
4315	717.54
4316	716.73
4317	718.51
4318	718.90
4319	717.95
4320	717.57
4321	718.71
4322	720.46
4323	724.36
4324	728.06
4325	732.21
4326	731.96
4327	722.40
4328	709.98
4329	706.80
4330	704.82
4331	703.86
4332	704.09
4333	704.84
4334	706.05
4335	705.97
4336	705.30
4337	706.10
4338	707.32
4339	708.95
4340	713.34
4341	718.54
4342	723.44
4343	725.21
4344	715.85
4346	693.24
4347	691.70
4348	691.65
4349	692.30
4350	693.81
4351	695.39
4352	696.37
4353	695.82
4354	695.74
4355	696.11
4356	696.48
4357	702.76
4358	709.08
4359	714.37
4360	717.12
4361	709.78
4362	699.14
4363	703.51
4364	706.14

EXISTING GROUND GRID
OCT. 9, 2005

POINT #	ELEV
11233	762.18
11234	750.91
11235	739.50
11236	724.97
11239	765.46
11240	765.93
11241	766.44
11242	766.21
11243	766.35
11244	765.76
11245	766.24
11246	767.45
11247	767.89
11248	768.60
11249	768.26
11250	767.98
11251	767.27
11252	765.16
11253	756.06
11254	743.31
11255	730.40
11256	717.86
11258	759.49
11259	758.84
11260	757.98
11261	757.48
11262	756.68
11263	756.73
11264	755.84
11265	755.49
11266	756.70
11267	BERM
11268	760.48
11269	759.39
11270	761.50
11271	761.90
11272	748.82
11273	737.07
11274	722.08
11277	748.54
11278	748.38
11279	747.46
11280	746.79
11281	745.93
11282	745.91
11283	744.09
11284	743.38
11285	745.00
11286	749.09
11287	748.35
11288	750.10
11289	753.10
11290	751.36
11291	741.15
11292	729.91
11293	714.96
11295	736.73
11296	735.79
11297	734.15
11298	735.21
11299	734.20
11300	734.07
11301	732.81
11302	732.17
11303	732.76
11304	737.63
11305	738.71
11306	740.45
11307	743.79
11308	745.06
11309	732.48
11310	719.53
11312	723.07
11313	722.88
11314	721.31
11315	719.35
11316	720.75
11317	720.22
11318	720.55
11319	719.76
11320	719.83
11321	720.61
11322	722.47
11323	725.97
11324	729.81
11325	733.85
11326	735.06
11327	724.46
11328	714.78
11329	708.89
11330	706.89
11331	706.88
11332	707.50
11333	707.78
11334	708.36
11335	708.71
11336	708.61
11337	708.19
11338	711.36
11339	711.05
11340	715.15
11341	720.18
11342	725.22
11343	727.22
11344	720.25
11346	695.29
11347	694.18
11348	693.98
11349	695.12
11350	696.31
11351	697.74
11352	698.06
11353	698.20
11354	698.61
11355	699.53
11356	698.95
11357	705.09
11358	710.86
11359	718.30
11360	721.35
11361	711.74
11362	701.30
11363	705.93
11364	708.99

EXISTING GROUND GRID
JULY 21, 2005

POINT #	ELEV
4378	724.20
4379	727.62
4380	739.30
4381	750.89
4382	760.49
4383	764.39
4385	765.74
4386	765.37
4387	762.98
4388	757.73
4389	746.24
4390	734.11
4391	720.25
4392	705.02
4393	691.83
4394	690.46
4396	689.16
4397	687.92
4398	688.29
4399	689.08
4400	689.36
4401	688.75
4402	689.75
4403	692.37
4404	695.80
4405	697.92
4406	698.91
4407	699.96
4408	701.89
4409	703.37
4410	703.42
4411	693.84
4412	704.84
4413	706.02
4414	706.70
4415	707.92
4416	709.10
4417	710.06
4418	710.32
4419	711.48
4420	711.68
4421	711.71
4422	712.67
4423	712.64
4424	712.56
4425	713.38
4426	714.62
4427	716.52
4428	717.12
4429	720.05
4430	722.15
4431	729.38
4432	736.46
4433	743.11
4434	749.30
4435	753.24
4436	756.42
4437	757.05
4438	749.86
4439	743.10
4440	735.54
4441	727.61
4442	720.27
4443	715.02
4444	712.43
4445	713.32
4446	718.81
4447	722.30

EXISTING GROUND GRID
OCT. 9, 2005

POINT #	ELEV
11378	725.80
11379	729.25
11380	740.99
11381	752.62
11382	762.24
11383	766.04
11385	767.23
11386	766.95
11387	764.70
11388	759.60
11389	748.01
11390	736.91
11391	722.45
11392	707.52
11393	694.67
11394	692.91
11396	690.78
11397	690.04
11398	690.51
11399	691.24
11400	691.74
11401	SEE NOTE
11402	SEE NOTE
11403	694.03
11404	697.53
11405	700.01
11406	701.13
11407	701.63
11408	704.58
11409	706.06
11410	705.72
11411	695.58
11412	707.72
11413	708.68
11414	708.97
11415	711.17
11416	710.71
11417	711.90
11418	712.81
11419	713.41
11420	713.36
11421	713.32
11422	714.30
11423	714.25
11424	714.19
11425	715.50
11426	716.35
11427	718.23
11428	720.89
11429	722.05
11430	724.51
11431	731.00
11432	738.03
11433	745.72
11434	751.38
11435	754.89
11436	758.06
11437	758.65
11438	752.98
11439	744.74
11440	737.16
11441	729.41
11442	721.91
11443	717.62
11444	718.15
11445	716.40
11446	720.47
11447	725.51

NOTE: POINT # 11401 & 11402 ARE OUTSIDE OF THE LINER – NO CHANGE IN ELEVATION

Site Volume Table: Unadjusted

Site	Stratum	Surf1	Surf2	Cut yards	Fill yards	Net yards	Method
CERT1–FINASBLT							
	cert1–finalasblt	cert1–surf	final–asbuilt–10–11–05	11	48122	48111 (F)	Grid

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Notes

1. No boundary survey was performed in connection with this project.
2. North is NC Grid per informaiton provided.
3. No attempt has been made with this survey to determine flood elevation or locations.
4. This survey represents an as–built survey of existing site conditions at time of survey.

Revision	By	Appd.	Date
Certification	DJH	JPS	10/17/05
Certification	DJH	JPS	07/27/05
Existing ground topo	DJH	JPS	06/21/05

Issued	By	Appd.	Date

File Name: V:\1703ws\active\170302023\dwg\170302023_working_10–10–05.dwg

Permit-Seal

Client/Project

Shamrock Environmental Corporation

Davidson County Landfill
Partial Closure of Areas 1 & 3

Davidson County, North Carolina

Title

SOIL LAYER #2 CERTIFICATION
EXISTING SURFACE CONDITIONS
ON OCTOBER 9, 2005

Project No. 170302023

Scale 1"=50'

Drawing No.

Sheet 2 of 2

Revision

DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE

AREA 1 AND AREA 3 SUMMER AND FALL 2005

Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**∆ Grades**	**Existing Grade 10/09/05**		**∆ Grades**	**∆ Grades**	**∆ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3100	733.36	**100**	726.77	**4100**	727.37	0.60	**11100**	729.00	1.63	2.23	-4.36
3101	724.56	**101**	723.01	**4101**	723.60	0.59	**11101**	725.44	1.84	2.43	0.88
3102	720.20	**102**	717.07	**4102**	719.17	2.10	**11102**	721.48	2.31	4.41	1.28
3103	719.29	**103**	716.33	**4103**	717.95	1.62	**11103**	721.49	3.54	5.16	2.20
3104	720.57	**104**	718.55	**4104**	719.49	0.94	**11104**	721.49	2.00	2.94	0.92
3105	724.02	**105**	721.90	**4105**	723.30	1.40	**11105**	725.05	1.75	3.15	1.03
3106	732.18	**106**	728.80	**4106**	730.25	1.45	**11106**	732.09	1.84	3.29	-0.09
3107	740.12	**107**	737.99	**4107**	738.57	0.58	**11107**	740.19	1.62	2.20	0.07
3108	748.18	**108**	745.42	**4108**	746.03	0.61	**11108**	747.97	1.94	2.55	-0.21
3109	756.28	**109**	753.44	**4109**	754.05	0.61	**11109**	755.82	1.77	2.38	-0.46
3110	762.36	**110**	759.38	**4110**	760.19	0.81	**11110**	762.77	2.58	3.39	0.41
3111	763.17	**111**	760.37	**4111**	761.49	1.12	**11111**	763.12	1.63	2.75	-0.05
3112	761.24	**112**	758.10	**4112**	758.83	0.73	**11112**	760.55	1.72	2.45	-0.69
3113	756.13	**113**	753.43	**4113**	754.02	0.59	**11113**	756.05	2.03	2.62	-0.08
3114	750.62	**114**	747.64	**4114**	748.44	0.80	**11114**	750.05	1.61	2.41	-0.57
3115	742.67	**115**	740.19	**4115**	740.76	0.57	**11115**	743.36	2.60	3.17	0.69
3116	733.01	**116**	729.95	**4116**	731.14	1.19	**11116**	733.50	2.36	3.55	0.49
3119	740.93	**119**	737.76	**4119**	738.33	0.57	**11119**	739.91	1.58	2.15	-1.02
3120	734.54	**120**	734.33	**4120**	735.13	0.80	**11120**	738.03	2.90	3.70	3.49
3121	732.52	**121**	731.31	**4121**	733.01	1.70	**11121**	734.63	1.62	3.32	2.11
3122	733.22	**122**	729.75	**4122**	732.62	2.87	**11122**	734.34	1.72	4.59	1.12
3123	735.32	**123**	731.99	**4123**	733.52	1.53	**11123**	735.45	1.93	3.46	0.13
3124	739.09	**124**	735.59	**4124**	736.74	1.15	**11124**	740.20	3.46	4.61	1.11
3125	744.59	**125**	741.61	**4125**	742.42	0.81	**11125**	744.02	1.60	2.41	-0.57
3126	751.83	**126**	748.57	**4126**	749.49	0.92	**11126**	751.09	1.60	2.52	-0.74
3127	758.68	**127**	755.77	**4127**	756.78	1.01	**11127**	758.50	1.72	2.73	-0.18
3128	765.76	**128**	762.33	**4128**	763.19	0.86	**11128**	764.74	1.55	2.41	-1.02
3129	767.93	**129**	765.20	**4129**	766.21	1.01	**11129**	767.88	1.67	2.68	-0.05
3130	768.92	**130**	766.49	**4130**	767.29	0.80	**11130**	768.93	1.64	2.44	0.01
3131	768.66	**131**	766.38	**4131**	767.19	0.81	**11131**	768.84	1.65	2.46	0.18
3132	765.41	**132**	762.51	**4132**	763.16	0.65	**11132**	765.22	2.06	2.71	-0.19

DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE

AREA 1 AND AREA 3 SUMMER AND FALL 2005

Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**Δ Grades**	**Existing Grade 10/09/05**		**Δ Grades**	**Δ Grades**	**Δ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3133	760.25	**133**	757.71	**4133**	758.30	0.59	**11133**	759.90	1.60	2.19	-0.35
3134	752.36	**134**	750.76	**4134**	751.51	0.75	**11134**	753.25	1.74	2.49	0.89
3135	741.14	**135**	739.34	**4135**	740.14	0.80	**11135**	741.95	1.81	2.61	0.81
3136	727.73	**136**	724.99	**4136**	725.70	0.71	**11136**	727.62	1.92	2.63	-0.11
3138	750.46	**138**	747.91	**4138**	749.08	1.17	**11138**	750.82	1.74	2.91	0.36
3139	747.00	**139**	745.58	**4139**	746.29	0.71	**11139**	748.07	1.78	2.49	1.07
3140	744.99	**140**	743.87	**4140**	744.54	0.67	**11140**	746.39	1.85	2.52	1.40
3141	745.47	**141**	743.10	**4141**	744.19	1.09	**11141**	745.89	1.70	2.79	0.42
3142	748.51	**142**	745.00	**4142**	746.37	1.37	**11142**	748.07	1.70	3.07	-0.44
3143	752.55	**143**	748.77	**4143**	750.06	1.29	**11143**	751.72	1.66	2.95	-0.83
3144	758.20	**144**	753.89	**4144**	755.51	1.62	**11144**	757.15	1.64	3.26	-1.05
3145	764.43	**145**	760.28	**4145**	761.26	0.98	**11145**	766.05	4.79	5.77	1.62
3146	767.85	**146**	764.92	**4146**	766.11	1.19	**11146**	767.80	1.69	2.88	-0.05
3147	769.35	**147**	768.11	**4147**	769.27	1.16	**11147**	770.91	1.64	2.80	1.56
3148	770.42	**148**	769.27	**4148**	770.41	1.14	**11148**	771.92	1.51	2.65	1.50
3149	771.22	**149**	768.86	**4149**	770.41	1.55	**11149**	771.71	1.30	2.85	0.49
3150	771.24	**150**	768.57	**4150**	769.64	1.07	**11150**	771.17	1.53	2.60	-0.07
3151	770.15	**151**	767.26	**4151**	768.22	0.96	**11151**	770.05	1.83	2.79	-0.10
3152	766.15	**152**	763.45	**4152**	764.16	0.71	**11152**	766.25	2.09	2.80	0.10
3153	756.85	**153**	754.08	**4153**	754.74	0.66	**11153**	757.30	2.56	3.22	0.45
3154	744.87	**154**	742.95	**4154**	743.59	0.64	**11154**	746.13	2.54	3.18	1.26
3155	731.66	**155**	729.09	**4155**	729.67	0.58	**11155**	731.31	1.64	2.22	-0.35
3156	718.56	**156**	715.25	**4156**	716.74	1.49	**11156**	718.54	1.80	3.29	-0.02
3158	761.56	**158**	756.85	**4158**	759.19	2.34	**11158**	763.15	3.96	6.30	1.59
3159	759.01	**159**	755.67	**4159**	756.96	1.29	**11159**	758.98	2.02	3.31	-0.03
3160	757.29	**160**	754.65	**4160**	755.61	0.96	**11160**	757.79	2.18	3.14	0.50
3161	757.72	**161**	754.73	**4161**	755.74	1.01	**11161**	757.61	1.87	2.88	-0.11
3162	760.46	**162**	757.04	**4162**	758.06	1.02	**11162**	762.41	4.35	5.37	1.95
3163	764.79	**163**	760.82	**4163**	761.66	0.84	**11163**	763.26	1.60	2.44	-1.53
3164	767.81	**164**	765.53	**4164**	766.21	0.68	**11164**	767.79	1.58	2.26	-0.02
3165	769.56	**165**	768.92	**4165**	770.08	1.16	**11165**	771.65	1.57	2.73	2.09

DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE

AREA 1 AND AREA 3 SUMMER AND FALL 2005

Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**Δ Grades**	**Existing Grade 10/09/05**		**Δ Grades**	**Δ Grades**	**Δ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3166	770.63	**166**	770.54	**4166**	771.79	1.25	**11166**	773.37	1.58	2.83	2.74
3167	771.48	**167**	770.99	**4167**	772.06	1.07	**11167**	773.57	1.51	2.58	2.09
3168	772.00	**168**	771.17	**4168**	772.34	1.17	**11168**	773.84	1.50	2.67	1.84
3169	772.00	**169**	770.21	**4169**	771.50	1.29	**11169**	773.05	1.55	2.84	1.05
3170	772.00	**170**	769.68	**4170**	770.83	1.15	**11170**	772.36	1.53	2.68	0.36
3171	770.66	**171**	767.80	**4171**	769.30	1.50	**11171**	771.19	1.89	3.39	0.53
3172	764.82	**172**	761.07	**4172**	762.81	1.74	**11172**	764.99	2.18	3.92	0.17
3173	754.70	**173**	752.05	**4173**	752.63	0.58	**11173**	755.74	3.11	3.69	1.04
3174	743.90	**174**	741.58	**4174**	742.16	0.58	**11174**	743.80	1.64	2.22	-0.10
3175	730.44	**175**	728.32	**4175**	729.38	1.06	**11175**	731.40	2.02	3.08	0.96
3176	718.56	**176**	714.63	**4176**	715.92	1.29	**11176**	717.55	1.63	2.92	-1.01
3179	765.83	**179**	763.29	**4179**	764.56	1.27	**11179**	766.14	1.58	2.85	0.31
3180	765.62	**180**	763.26	**4180**	764.81	1.55	**11180**	766.44	1.63	3.18	0.82
3181	765.34	**181**	764.20	**4181**	765.01	0.81	**11181**	766.72	1.71	2.52	1.38
3182	765.53	**182**	763.52	**4182**	765.61	2.09	**11182**	767.32	1.71	3.80	1.79
3183	766.68	**183**	766.67	**4183**	767.68	1.01	**11183**	769.30	1.62	2.63	2.62
3184	768.50	**184**	769.61	**4184**	770.68	1.07	**11184**	772.24	1.56	2.63	3.74
3185	770.39	**185**	771.10	**4185**	772.16	1.06	**11185**	773.71	1.55	2.61	3.32
3186	771.63	**186**	771.57	**4186**	772.81	1.24	**11186**	774.37	1.56	2.80	2.74
3187	772.00	**187**	772.21	**4187**	773.37	1.16	**11187**	774.89	1.52	2.68	2.89
3188	772.00	**188**	772.09	**4188**	773.50	1.41	**11188**	775.03	1.53	2.94	3.03
3189	772.00	**189**	772.25	**4189**	773.29	1.04	**11189**	774.83	1.54	2.58	2.83
3190	772.00	**190**	770.44	**4190**	771.82	1.38	**11190**	773.39	1.57	2.95	1.39
3191	772.00	**191**	769.61	**4191**	770.69	1.08	**11191**	772.29	1.60	2.68	0.29
3192	769.52	**192**	766.75	**4192**	768.13	1.38	**11192**	769.86	1.73	3.11	0.34
3193	760.87	**193**	758.12	**4193**	758.77	0.65	**11193**	760.97	2.20	2.85	0.10
3194	751.23	**194**	748.15	**4194**	749.00	0.85	**11194**	750.93	1.93	2.78	-0.30
3195	739.05	**195**	736.57	**4195**	737.35	0.78	**11195**	739.03	1.68	2.46	-0.02
3196	725.68	**196**	723.09	**4196**	724.05	0.96	**11196**	726.25	2.20	3.16	0.57
3197	716.14	**197**	712.75	**4197**	713.57	0.82	**11197**	715.24	1.67	2.49	-0.90
3200	768.67	**200**	765.47	**4200**	766.73	1.26	**11200**	768.30	1.57	2.83	-0.37

DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE

AREA 1 AND AREA 3 SUMMER AND FALL 2005

Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**Δ Grades**	**Existing Grade 10/09/05**		**Δ Grades**	**Δ Grades**	**Δ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3201	768.13	**201**	766.32	**4201**	767.41	1.09	**11201**	769.20	1.79	2.88	1.07
3202	767.89	**202**	766.85	**4202**	768.39	1.54	**11202**	770.57	2.18	3.72	2.68
3203	768.06	**203**	768.42	**4203**	769.42	1.00	**11203**	771.62	2.20	3.20	3.56
3204	769.34	**204**	769.88	**4204**	770.89	1.01	**11204**	772.91	2.02	3.03	3.57
3205	769.52	**205**	770.43	**4205**	771.53	1.10	**11205**	773.48	1.95	3.05	3.96
3206	771.13	**206**	771.14	**4206**	772.19	1.05	**11206**	773.74	1.55	2.60	2.61
3207	772.00	**207**	771.71	**4207**	772.90	1.19	**11207**	774.42	1.52	2.71	2.42
3208	772.00	**208**	771.94	**4208**	773.06	1.12	**11208**	774.60	1.54	2.66	2.60
3209	772.00	**209**	771.99	**4209**	773.29	1.30	**11209**	774.79	1.50	2.80	2.79
3210	772.00	**210**	771.59	**4210**	772.64	1.05	**11210**	774.18	1.54	2.59	2.18
3211	772.00	**211**	769.68	**4211**	771.07	1.39	**11211**	772.66	1.59	2.98	0.66
3212	770.70	**212**	767.75	**4212**	769.29	1.54	**11212**	770.82	1.53	3.07	0.12
3213	766.83	**213**	763.71	**4213**	764.49	0.78	**11213**	769.19	4.70	5.48	2.36
3214	756.94	**214**	753.98	**4214**	754.75	0.77	**11214**	756.46	1.71	2.48	-0.48
3215	745.30	**215**	742.58	**4215**	743.56	0.98	**11215**	745.19	1.63	2.61	-0.11
3216	732.21	**216**	729.40	**4216**	730.53	1.13	**11216**	732.24	1.71	2.84	0.03
3217	719.41	**217**	716.10	**4217**	716.87	0.77	**11217**	719.26	2.39	3.16	-0.15
3219	768.02	**219**	764.15	**4219**	765.55	1.40	**11219**	767.13	1.58	2.98	-0.89
3220	768.00	**220**	765.24	**4220**	766.42	1.18	**11220**	768.09	1.67	2.85	0.09
3221	768.00	**221**	766.02	**4221**	767.28	1.26	**11221**	769.21	1.93	3.19	1.21
3222	768.03	**222**	766.42	**4222**	767.73	1.31	**11222**	769.33	1.60	2.91	1.30
3223	768.09	**223**	767.69	**4223**	768.76	1.07	**11223**	770.32	1.56	2.63	2.23
3224	768.33	**224**	768.55	**4224**	769.66	1.11	**11224**	771.21	1.55	2.66	2.88
3225	768.82	**225**	769.03	**4225**	770.29	1.26	**11225**	772.17	1.88	3.14	3.35
3226	770.23	**226**	769.60	**4226**	770.87	1.27	**11226**	772.70	1.83	3.10	2.47
3227	770.63	**227**	770.18	**4227**	771.31	1.13	**11227**	773.07	1.76	2.89	2.44
3228	770.94	**228**	770.32	**4228**	771.52	1.20	**11228**	773.29	1.77	2.97	2.35
3229	771.04	**229**	770.18	**4229**	771.41	1.23	**11229**	773.35	1.94	3.17	2.31
3230	771.16	**230**	769.02	**4230**	770.13	1.11	**11230**	771.78	1.65	2.76	0.62
3231	771.07	**231**	767.24	**4231**	768.66	1.42	**11231**	770.17	1.51	2.93	-0.90
3232	769.37	**232**	765.73	**4232**	766.79	1.06	**11232**	768.35	1.56	2.62	-1.02

DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE

AREA 1 AND AREA 3 SUMMER AND FALL 2005

Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**∆ Grades**	**Existing Grade 10/09/05**		**∆ Grades**	**∆ Grades**	**∆ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3233	762.24	**233**	759.16	**4233**	760.45	1.29	**11233**	762.18	1.73	3.02	-0.06
3234	750.99	**234**	748.42	**4234**	749.30	0.88	**11234**	750.91	1.61	2.49	-0.08
3235	738.35	**235**	735.85	**4235**	736.54	0.69	**11235**	739.50	2.96	3.65	1.15
3236	725.06	**236**	722.45	**4236**	723.32	0.87	**11236**	724.97	1.65	2.52	-0.09
3239	765.50	**239**	763.24	**4239**	763.76	0.52	**11239**	765.46	1.70	2.22	-0.04
3240	765.51	**240**	763.21	**4240**	764.24	1.03	**11240**	765.93	1.69	2.72	0.42
3241	765.48	**241**	763.37	**4241**	764.36	0.99	**11241**	766.44	2.08	3.07	0.96
3242	765.54	**242**	763.31	**4242**	764.58	1.27	**11242**	766.21	1.63	2.90	0.67
3243	765.61	**243**	763.57	**4243**	764.68	1.11	**11243**	766.35	1.67	2.78	0.74
3244	765.79	**244**	763.28	**4244**	764.05	0.77	**11244**	765.76	1.71	2.48	-0.03
3245	766.11	**245**	763.74	**4245**	764.31	0.57	**11245**	766.24	1.93	2.50	0.13
3246	766.81	**246**	764.55	**4246**	765.79	1.24	**11246**	767.45	1.66	2.90	0.64
3247	767.51	**247**	765.48	**4247**	766.16	0.68	**11247**	767.89	1.73	2.41	0.38
3248	768.17	**248**	766.09	**4248**	766.76	0.67	**11248**	768.60	1.84	2.51	0.43
3249	768.28	**249**	765.67	**4249**	766.55	0.88	**11249**	768.26	1.71	2.59	-0.02
3250	768.47	**250**	765.17	**4250**	766.25	1.08	**11250**	767.98	1.73	2.81	-0.49
3251	768.63	**251**	764.38	**4251**	765.55	1.17	**11251**	767.27	1.72	2.89	-1.36
3252	766.07	**252**	762.48	**4252**	763.43	0.95	**11252**	765.16	1.73	2.68	-0.91
3253	756.20	**253**	753.61	**4253**	754.33	0.72	**11253**	756.06	1.73	2.45	-0.14
3254	743.37	**254**	740.89	**4354**	741.64	0.75	**11354**	743.31	1.67	2.42	-0.06
3255	730.27	**255**	727.58	**4255**	728.64	1.06	**11255**	730.40	1.76	2.82	0.13
3256	718.00	**256**	715.30	**4256**	716.07	0.77	**11256**	717.86	1.79	2.56	-0.14
3258	759.02	**258**	756.34	**4258**	757.75	1.41	**11258**	759.49	1.74	3.15	0.47
3259	758.66	**259**	756.43	**4259**	757.22	0.79	**11259**	758.84	1.62	2.41	0.18
3260	758.77	**260**	755.61	**4260**	756.38	0.77	**11260**	757.98	1.60	2.37	-0.79
3261	759.04	**261**	755.46	**4261**	755.97	0.51	**11261**	757.48	1.51	2.02	-1.56
3262	759.05	**262**	754.32	**4262**	754.86	0.54	**11262**	756.68	1.82	2.36	-2.37
3263	757.63	**263**	754.09	**4263**	754.64	0.55	**11263**	756.73	2.09	2.64	-0.90
3264	755.69	**264**	752.72	**4264**	753.31	0.59	**11264**	755.84	2.53	3.12	0.15
3265	755.60	**265**	752.81	**4265**	753.50	0.69	**11265**	755.49	1.99	2.68	-0.11
3266	756.96	**266**	754.11	**4266**	755.00	0.89	**11266**	756.70	1.70	2.59	-0.26

DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE

AREA 1 AND AREA 3 SUMMER AND FALL 2005

Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**∆ Grades**	**Existing Grade 10/09/05**		**∆ Grades**	**∆ Grades**	**∆ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3267	759.12	**267**	755.57	**4267**	756.38	0.81	**11267**	BERM	NA	#VALUE!	#VALUE!
3268	760.42	**268**	756.66	**4268**	757.45	0.79	**11268**	760.48	3.03	3.82	0.06
3269	761.50	**269**	756.77	**4269**	757.76	0.99	**11269**	759.39	1.63	2.62	-2.11
3270	763.51	**270**	759.15	**4270**	759.84	0.69	**11270**	761.50	1.66	2.35	-2.01
3271	759.33	**271**	756.28	**4271**	757.35	1.07	**11271**	761.90	4.55	5.62	2.57
3272	748.59	**272**	745.95	**4272**	746.75	0.80	**11272**	748.82	2.07	2.87	0.23
3273	735.20	**273**	733.11	**4273**	733.70	0.59	**11273**	737.07	3.37	3.96	1.87
3274	722.33	**274**	719.68	**4274**	720.40	0.72	**11274**	722.08	1.68	2.40	-0.25
3277	746.62	**277**	745.60	**4277**	746.89	1.29	**11277**	748.54	1.65	2.94	1.92
3278	746.43	**278**	745.88	**4278**	746.59	0.71	**11278**	748.38	1.79	2.50	1.95
3279	746.36	**279**	744.48	**4279**	745.78	1.30	**11279**	747.46	1.68	2.98	1.10
3280	746.55	**280**	744.54	**4280**	745.16	0.62	**11280**	746.79	1.63	2.25	0.24
3281	747.18	**281**	743.46	**4281**	744.28	0.82	**11281**	745.93	1.65	2.47	-1.25
3282	745.25	**282**	743.03	**4282**	744.14	1.11	**11282**	745.91	1.77	2.88	0.66
3283	743.06	**283**	741.35	**4283**	741.93	0.58	**11283**	744.09	2.16	2.74	1.03
3284	743.80	**284**	741.08	**4284**	741.66	0.58	**11284**	743.38	1.72	2.30	-0.42
3285	745.39	**285**	742.13	**4285**	743.38	1.25	**11285**	745.00	1.62	2.87	-0.39
3286	747.36	**286**	744.13	**4286**	744.89	0.76	**11286**	749.09	4.20	4.96	1.73
3287	749.26	**287**	745.55	**4287**	746.13	0.58	**11287**	748.35	2.22	2.80	-0.91
3288	751.66	**288**	747.43	**4288**	748.34	0.91	**11288**	750.10	1.76	2.67	-1.56
3289	753.89	**289**	750.32	**4289**	750.91	0.59	**11289**	753.10	2.19	2.78	-0.79
3290	751.12	**290**	748.49	**4290**	749.47	0.98	**11290**	751.36	1.89	2.87	0.24
3291	740.10	**291**	737.65	**4291**	738.65	1.00	**11291**	741.15	2.50	3.50	1.05
3292	727.18	**292**	724.99	**4292**	725.64	0.65	**11292**	729.91	4.27	4.92	2.73
3293	715.27	**293**	712.61	**4293**	713.28	0.67	**11293**	714.96	1.68	2.35	-0.31
3295	734.00	**295**	734.10	**4295**	735.02	0.92	**11295**	736.73	1.71	2.63	2.73
3296	733.76	**296**	733.53	**4296**	734.14	0.61	**11296**	735.79	1.65	2.26	2.03
3297	733.82	**297**	731.83	**4297**	732.51	0.68	**11297**	734.15	1.64	2.32	0.33
3298	734.10	**298**	730.79	**4298**	731.76	0.97	**11298**	735.21	3.45	4.42	1.11
3299	734.80	**299**	731.59	**4299**	732.51	0.92	**11299**	734.20	1.69	2.61	-0.60
3300	732.43	**300**	731.43	**4300**	731.76	0.33	**11300**	734.07	2.31	2.64	1.64

DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE

AREA 1 AND AREA 3 SUMMER AND FALL 2005

Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**∆ Grades**	**Existing Grade 10/09/05**		**∆ Grades**	**∆ Grades**	**∆ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3301	731.21	**301**	730.02	**4301**	732.13	2.11	**11301**	732.81	0.68	2.79	1.60
3302	732.11	**302**	729.10	**4302**	732.14	3.04	**11302**	732.17	0.03	3.07	0.06
3303	733.51	**303**	730.33	**4303**	730.72	0.39	**11303**	732.76	2.04	2.43	-0.75
3304	735.68	**304**	732.20	**4304**	732.77	0.57	**11304**	737.63	4.86	5.43	1.95
3305	738.22	**305**	734.82	**4305**	735.47	0.65	**11305**	738.71	3.24	3.89	0.49
3306	741.17	**306**	738.08	**4306**	738.85	0.77	**11306**	740.45	1.60	2.37	-0.72
3307	743.94	**307**	741.21	**4307**	742.03	0.82	**11307**	743.79	1.76	2.58	-0.15
3308	741.63	**308**	740.39	**4308**	741.16	0.77	**11308**	745.06	3.90	4.67	3.43
3309	731.72	**309**	728.99	**4309**	730.98	1.99	**11309**	732.48	1.50	3.49	0.76
3310	719.35	**310**	717.06	**4310**	717.87	0.81	**11310**	719.53	1.66	2.47	0.18
3312	721.77	**312**	719.36	**4312**	721.33	1.97	**11312**	723.07	1.74	3.71	1.30
3313	721.50	**313**	719.10	**4313**	720.78	1.68	**11313**	722.88	2.10	3.78	1.38
3314	721.26	**314**	718.38	**4314**	719.69	1.31	**11314**	721.31	1.62	2.93	0.05
3315	721.30	**315**	716.74	**4315**	717.54	0.80	**11315**	719.35	1.81	2.61	-1.95
3316	721.58	**316**	715.75	**4316**	716.73	0.98	**11316**	720.75	4.02	5.00	-0.83
3317	722.39	**317**	717.46	**4317**	718.51	1.05	**11317**	720.22	1.71	2.76	-2.17
3318	720.20	**318**	717.74	**4318**	718.90	1.16	**11318**	720.55	1.65	2.81	0.35
3319	719.24	**319**	716.80	**4319**	717.95	1.15	**11319**	719.76	1.81	2.96	0.52
3320	719.38	**320**	716.40	**4320**	717.57	1.17	**11320**	719.83	2.26	3.43	0.45
3321	721.31	**321**	717.78	**4321**	718.71	0.93	**11321**	720.61	1.90	2.83	-0.70
3322	723.16	**322**	719.89	**4322**	720.46	0.57	**11322**	722.47	2.01	2.58	-0.69
3323	726.20	**323**	723.80	**4323**	724.36	0.56	**11323**	725.97	1.61	2.17	-0.23
3324	730.44	**324**	727.47	**4324**	728.06	0.59	**11324**	729.81	1.75	2.34	-0.63
3325	734.18	**325**	731.61	**4325**	732.21	0.60	**11325**	733.85	1.64	2.24	-0.33
3326	733.09	**326**	731.38	**4326**	731.96	0.58	**11326**	735.06	3.10	3.68	1.97
3327	723.91	**327**	721.41	**4327**	722.40	0.99	**11327**	724.46	2.06	3.05	0.55
3328	712.82	**328**	709.21	**4328**	709.98	0.77	**11328**	714.78	4.80	5.57	1.96
3329	709.29	**329**	703.44	**4329**	706.80	3.36	**11329**	708.89	2.09	5.45	-0.40
3330	709.00	**330**	703.17	**4330**	704.82	1.65	**11330**	706.89	2.07	3.72	-2.11
3331	708.74	**331**	702.98	**4331**	703.86	0.88	**11331**	706.88	3.02	3.90	-1.86
3332	708.90	**332**	702.84	**4332**	704.09	1.25	**11332**	707.50	3.41	4.66	-1.40

DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE

AREA 1 AND AREA 3 SUMMER AND FALL 2005

Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**Δ Grades**	**Existing Grade 10/09/05**		**Δ Grades**	**Δ Grades**	**Δ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3333	709.56	**333**	703.68	**4333**	704.84	1.16	**11333**	707.78	2.94	4.10	-1.78
3334	711.18	**334**	704.84	**4334**	706.05	1.21	**11334**	708.36	2.31	3.52	-2.82
3335	708.87	**335**	705.23	**4335**	705.97	0.74	**11335**	708.71	2.74	3.48	-0.16
3336	707.12	**336**	704.74	**4336**	705.30	0.56	**11336**	708.61	3.31	3.87	1.49
3337	707.92	**337**	705.08	**4337**	706.10	1.02	**11337**	708.19	2.09	3.11	0.27
3338	709.18	**338**	706.22	**4338**	707.32	1.10	**11338**	711.36	4.04	5.14	2.18
3339	711.34	**339**	707.70	**4339**	708.95	1.25	**11339**	711.05	2.10	3.35	-0.29
3340	715.31	**340**	711.85	**4340**	713.34	1.49	**11340**	715.15	1.81	3.30	-0.16
3341	720.74	**341**	717.18	**4341**	718.54	1.36	**11341**	720.18	1.64	3.00	-0.56
3342	725.31	**342**	722.71	**4342**	723.44	0.73	**11342**	725.22	1.78	2.51	-0.09
3343	726.08	**343**	724.48	**4343**	725.21	0.73	**11343**	727.22	2.01	2.74	1.14
3344	717.80	**344**	715.28	**4344**	715.85	0.57	**11344**	720.25	4.40	4.97	2.45
3346	696.84	**346**	691.26	**4346**	693.24	1.98	**11346**	695.29	2.05	4.03	-1.55
3347	696.50	**347**	690.20	**4347**	691.70	1.50	**11347**	694.18	2.48	3.98	-2.32
3348	696.25	**348**	690.00	**4348**	691.65	1.65	**11348**	693.98	2.33	3.98	-2.27
3349	696.34	**349**	691.41	**4349**	692.30	0.89	**11349**	695.12	2.82	3.71	-1.22
3350	697.71	**350**	692.74	**4350**	693.81	1.07	**11350**	696.31	2.50	3.57	-1.40
3351	700.43	**351**	694.25	**4351**	695.39	1.14	**11351**	697.74	2.35	3.49	-2.69
3352	699.11	**352**	694.54	**4352**	696.37	1.83	**11352**	698.06	1.69	3.52	-1.05
3353	697.47	**353**	694.29	**4353**	695.82	1.53	**11353**	698.20	2.38	3.91	0.73
3354	697.74	**354**	694.53	**4354**	695.74	1.21	**11354**	698.61	2.87	4.08	0.87
3355	698.00	**355**	695.08	**4355**	696.11	1.03	**11355**	699.53	3.42	4.45	1.53
3356	698.71	**356**	695.61	**4356**	696.48	0.87	**11356**	698.95	2.47	3.34	0.24
3357	704.82	**357**	701.31	**4357**	702.76	1.45	**11357**	705.09	2.33	3.78	0.27
3358	710.83	**358**	707.45	**4358**	709.08	1.63	**11358**	710.86	1.78	3.41	0.03
3359	716.11	**359**	712.75	**4359**	714.37	1.62	**11359**	718.30	3.93	5.55	2.19
3360	718.24	**360**	716.43	**4360**	717.12	0.69	**11360**	721.35	4.23	4.92	3.11
3361	710.55	**361**	708.46	**4361**	709.78	1.32	**11361**	711.74	1.96	3.28	1.19
3362	701.63	**362**	697.78	**4362**	699.14	1.36	**11362**	701.30	2.16	3.52	-0.33
3363	705.64	**363**	702.79	**4363**	703.51	0.72	**11363**	705.93	2.42	3.14	0.29
3364	707.83	**364**	705.07	**4364**	706.14	1.07	**11364**	708.99	2.85	3.92	1.16

DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE

AREA 1 AND AREA 3 SUMMER AND FALL 2005

Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**Δ Grades**	**Existing Grade 10/09/05**		**Δ Grades**	**Δ Grades**	**Δ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3378	728.53	**378**	722.30	**4378**	724.20	1.90	**11378**	725.80	1.60	3.50	-2.73
3379	734.00	**379**	727.09	**4379**	727.62	0.53	**11379**	729.25	1.63	2.16	-4.75
3380	743.81	**380**	738.80	**4380**	739.30	0.50	**11380**	740.99	1.69	2.19	-2.82
3381	753.29	**381**	749.57	**4381**	750.89	1.32	**11381**	752.62	1.73	3.05	-0.67
3382	764.13	**382**	759.74	**4382**	760.49	0.75	**11382**	762.24	1.75	2.50	-1.89
3383	766.53	**383**	762.38	**4383**	764.39	2.01	**11383**	766.04	1.65	3.66	-0.49
3385	769.21	**385**	762.64	**4385**	765.74	3.10	**11385**	767.23	1.49	4.59	-1.98
3386	768.01	**386**	761.60	**4386**	765.37	3.77	**11386**	766.95	1.58	5.35	-1.06
3387	765.55	**387**	759.01	**4387**	762.98	3.97	**11387**	764.70	1.72	5.69	-0.85
3388	759.16	**388**	756.12	**4388**	757.73	1.61	**11388**	759.60	1.87	3.48	0.44
3389	746.79	**389**	744.91	**4389**	746.24	1.33	**11389**	748.01	1.77	3.10	1.22
3390	734.34	**390**	733.20	**4390**	734.11	0.91	**11390**	736.91	2.80	3.71	2.57
3391	721.87	**391**	719.33	**4391**	720.25	0.92	**11391**	722.45	2.20	3.12	0.58
3392	709.41	**392**	704.21	**4392**	705.02	0.81	**11392**	707.52	2.50	3.31	-1.89
3393	696.96	**393**	691.05	**4393**	691.83	0.78	**11393**	694.67	2.84	3.62	-2.29
3394	694.88	**394**	689.83	**4394**	690.46	0.63	**11394**	692.91	2.45	3.08	-1.97
3396	696.84	**396**	687.78	**4396**	689.16	1.38	**11396**	690.78	1.62	3.00	-6.06
3397	692.00	**397**	687.42	**4397**	687.92	0.50	**11397**	690.04	2.12	2.62	-1.96
3398	NA	**398**	687.30	**4398**	688.29	0.99	**11398**	690.51	2.22	3.21	#VALUE!
3399	692.00	**399**	687.73	**4399**	689.08	1.35	**11399**	691.25	2.17	3.52	-0.75
3400	692.00	**400**	688.70	**4400**	689.36	0.66	**11400**	691.74	2.38	3.04	-0.26
3401	NA	**401**	688.24	**4401**	688.75	0.51	**11401**	SEE NOTE		#VALUE!	#VALUE!
3402	692.99	**402**	689.24	**4402**	689.75	0.51	**11402**	SEE NOTE		#VALUE!	#VALUE!
3403	695.08	**403**	691.29	**4403**	692.37	1.08	**11403**	694.03	1.66	2.74	-1.05
3404	696.88	**404**	694.62	**4404**	695.80	1.18	**11404**	697.53	1.73	2.91	0.65
3405	699.85	**405**	696.52	**4405**	697.92	1.40	**11405**	700.01	2.09	3.49	0.16
3406	701.26	**406**	697.65	**4406**	698.91	1.26	**11406**	701.13	2.22	3.48	-0.13
3407	701.39	**407**	698.65	**4407**	699.96	1.31	**11407**	701.63	1.67	2.98	0.24
3408	703.08	**408**	700.83	**4408**	701.89	1.06	**11408**	704.58	2.69	3.75	1.50
3409	NA	**409**	702.19	**4409**	703.37	1.18	**11409**	706.06	2.69	3.87	#VALUE!
3410	NA	**410**	702.43	**4410**	703.42	0.99	**11410**	705.72	2.30	3.29	#VALUE!

DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE

AREA 1 AND AREA 3 SUMMER AND FALL 2005

Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**∆ Grades**	**Existing Grade 10/09/05**		**∆ Grades**	**∆ Grades**	**∆ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3411	NA	**411**	693.32	**4411**	693.84	0.52	**11411**	695.58	1.74	2.26	#VALUE!
3412	706.62	**412**	703.59	**4412**	704.84	1.25	**11412**	707.72	2.88	4.13	1.10
3413	NA	**413**	705.08	**4413**	706.02	0.94	**11413**	708.68	2.66	3.60	#VALUE!
3414	708.37	**414**	705.68	**4414**	706.70	1.02	**11414**	708.97	2.27	3.29	0.60
3415	709.42	**415**	706.78	**4415**	707.92	1.14	**11415**	711.17	3.25	4.39	1.75
3416	710.94	**416**	707.96	**4416**	709.10	1.14	**11416**	710.71	1.61	2.75	-0.23
3417	711.93	**417**	708.96	**4417**	710.06	1.10	**11417**	711.90	1.84	2.94	-0.03
3418	712.32	**418**	709.25	**4418**	710.32	1.07	**11418**	712.81	2.49	3.56	0.49
3419	713.58	**419**	710.25	**4419**	711.48	1.23	**11419**	713.41	1.93	3.16	-0.17
3420	NA	**420**	710.48	**4420**	711.68	1.20	**11420**	713.36	1.68	2.88	#VALUE!
3421	NA	**421**	710.69	**4421**	711.71	1.02	**11421**	713.35	1.64	2.66	#VALUE!
3422	714.29	**422**	711.54	**4422**	712.67	1.13	**11422**	714.30	1.63	2.76	0.01
3423	714.58	**423**	711.63	**4423**	712.64	1.01	**11423**	714.25	1.61	2.62	-0.33
3424	NA	**424**	711.65	**4424**	712.56	0.91	**11424**	714.19	1.63	2.54	#VALUE!
3425	NA	**425**	712.33	**4425**	713.38	1.05	**11425**	715.50	2.12	3.17	#VALUE!
3426	716.15	**426**	713.60	**4426**	714.62	1.02	**11426**	716.35	1.73	2.75	0.20
3427	718.10	**427**	715.43	**4427**	716.52	1.09	**11427**	718.23	1.71	2.80	0.13
3428	718.74	**428**	716.05	**4428**	717.12	1.07	**11428**	720.89	3.77	4.84	2.15
3429	722.22	**429**	718.91	**4429**	720.05	1.14	**11429**	722.05	2.00	3.14	-0.17
3430	724.33	**430**	721.03	**4430**	722.15	1.12	**11430**	724.51	2.36	3.48	0.18
3431	731.17	**431**	728.22	**4431**	729.38	1.16	**11431**	731.00	1.62	2.78	-0.17
3432	738.38	**432**	735.43	**4432**	736.46	1.03	**11432**	738.03	1.57	2.60	-0.35
3433	744.99	**433**	742.02	**5533**	743.11	1.09	**12533**	745.72	2.61	3.70	0.73
3434	750.86	**434**	748.45	**4434**	749.30	0.85	**11434**	751.38	2.08	2.93	0.52
3435	755.14	**435**	752.19	**4435**	753.24	1.05	**11435**	754.89	1.65	2.70	-0.25
3436	758.47	**436**	755.26	**4436**	756.42	1.16	**11436**	758.06	1.64	2.80	-0.41
3437	757.50	**437**	755.89	**4437**	757.05	1.16	**11437**	758.65	1.60	2.76	1.15
3438	751.66	**438**	748.56	**4438**	749.86	1.30	**11438**	752.98	3.12	4.42	1.32
3439	745.11	**439**	741.68	**4439**	743.10	1.42	**11439**	744.74	1.64	3.06	-0.37
3440	NA	**440**	734.28	**4440**	735.54	1.26	**11440**	737.16	1.62	2.88	#VALUE!
3441	NA	**441**	726.62	**4441**	727.61	0.99	**11441**	729.41	1.80	2.79	#VALUE!

		DAVIDSON COUNTY LANDFILL PARTIAL CLOSURE									
		AREA 1 AND AREA 3 SUMMER AND FALL 2005									
Permitted Design		**Existing Grade 06/05/05**		**Existing Grade 07/21/05**		**∆ Grades**	**Existing Grade 10/09/05**		**∆ Grades**	**∆ Grades**	**∆ Grades**
Point #	Elevation in feet	Point #	Elevation in feet	Point #	Elevation in feet	Intermediate Cover Thickness	Point #	Elevation in feet	Protective Soil Cover	Complete Cap Section	Deviation from Design Grades
3442	NA	**442**	719.00	**4442**	720.27	1.27	**11442**	721.91	1.64	2.91	#VALUE!
3443	717.27	**443**	713.70	**4443**	715.02	1.32	**11443**	717.62	2.60	3.92	0.35
3444	716.00	**444**	711.01	**4444**	712.43	1.42	**11444**	718.15	5.72	7.14	2.15
3445	716.00	**445**	711.99	**4445**	713.32	1.33	**11445**	716.40	3.08	4.41	0.40
3446	720.10	**446**	717.45	**4446**	718.81	1.36	**11446**	720.47	1.66	3.02	0.37
3447	726.45	**447**	721.79	**4447**	722.30	0.51	**11447**	725.51	3.21	3.72	-0.94
NOTE:	POINTS # 11401 & 11402 ARE OUTSIDE THE LINER- NO CHANGE IN ELEVATION										
	INTERMEDIATE COVER THICKNESS OF 12 INCHES ON TOP OF CLOSURE AREA PER PRE-BID MEETING										
	POINTS HIGHLIGHTED IN YELLOW INDICATE 12-INCH MINIMUM THICKNESS.										

APPENDIX VII

Drawing 1	Top of Intermediate Cover
Drawing 2	Geomembrane Plan with Destructive Tests and Repair Locations
Drawing 3	Final Cover Topography
Drawing 4	Survey Point File with Elevations

CERTIFICATE OF SUBSTANTIAL COMPLETION

DATE OF ISSUANCE: **November 21, 2005**

OWNER: **Davidson County Integrated Solid Waste**
CONTRACTOR: **Shamrock Environmental Corporation**
Contract: **Davidson County Integrated Solid Waste**
Project: **Partial Closure of Areas 1 and 3**

OWNER's Contract No. _____ ENGINEER's Project No. **379.00.35**

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

As required in General Conditions paragraph 14.04, this Certificate of Substantial Completion is issued to Shamrock Environmental Corporation for completion of the above cited project with the exception of a Final Inspection and completion of any subsequent Punch List. Upon completion of the Punch List, Shamrock Environmental Corporation may submit a Final Application for Payment along with all required Contract Document Submittals.

To: **Davidson County Integrated Solid Waste**
OWNER

And To: **Shamrock Environmental Corporation**
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

November 21, 2005
DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is below. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within **14** days of the above date of Substantial Completion.

Punch List: -Final Inspection and
-Leachate System Inspection utilizing video camera

EJCDC No. 1910-8-D (1996 Edition)
Prepared by the Engineers' Joint Contract Documents Committee and endorsed by The Associated General Contractors of America and the Construction Specifications Institute.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees shall be as follows:

OWNER: **Project closeout contractual obligations**

CONTRACTOR: **Project closeout contractual obligations**

The following documents are attached to and made a part of this Certificate:
None.

[For items to be attached see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by Contract Documents.]

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

Executed by ENGINEER on 11/21/05
Date

Joyce Engineering, Inc.
ENGINEER

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____
Date

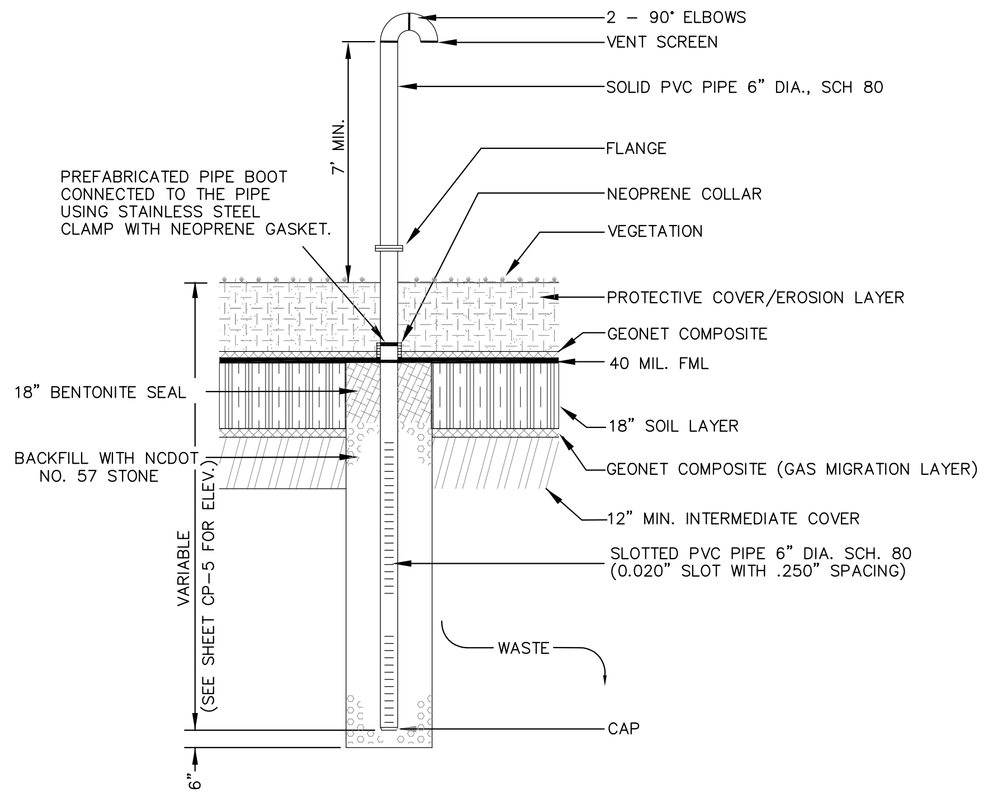
Shamrock Environmental Corporation
CONTRACTOR

By: _____
(Authorized Signature)

OWNER accepts this Certificate of Substantial Completion on _____
Date

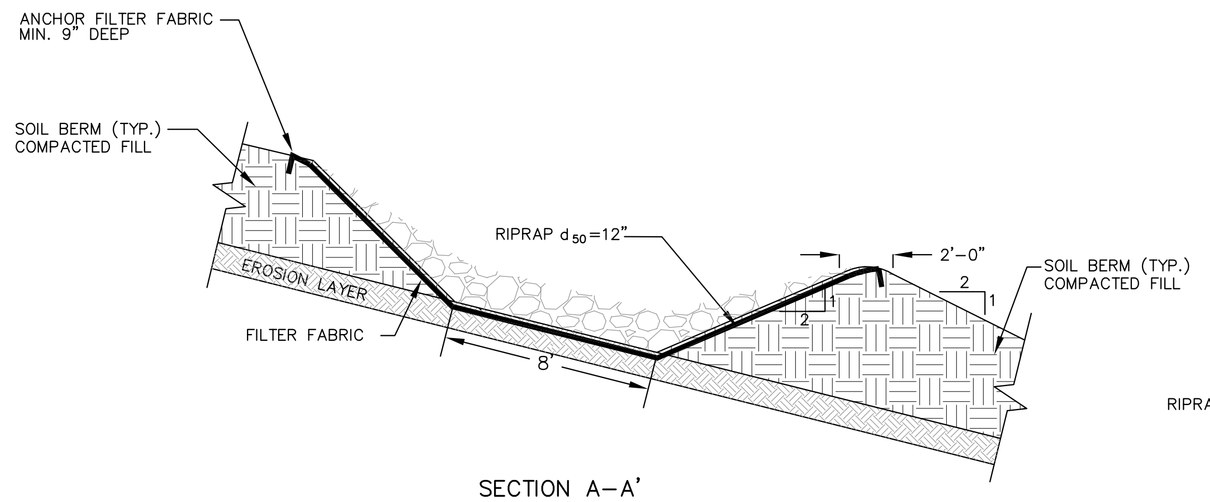
_____
OWNER

By: _____
(Authorized Signature)

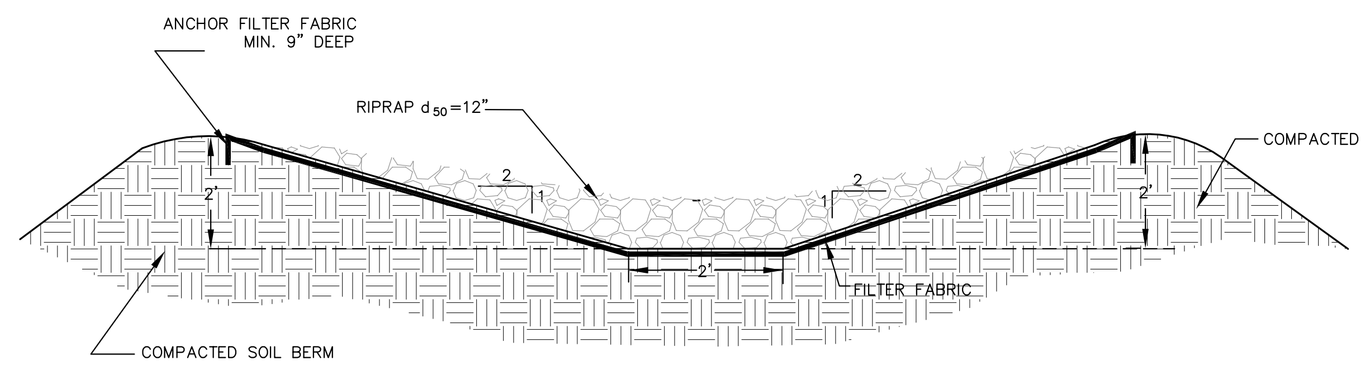


SOIL/FML LANDFILL GAS VENT (2 / 5 6)

N.T.S.



SECTION A–A'



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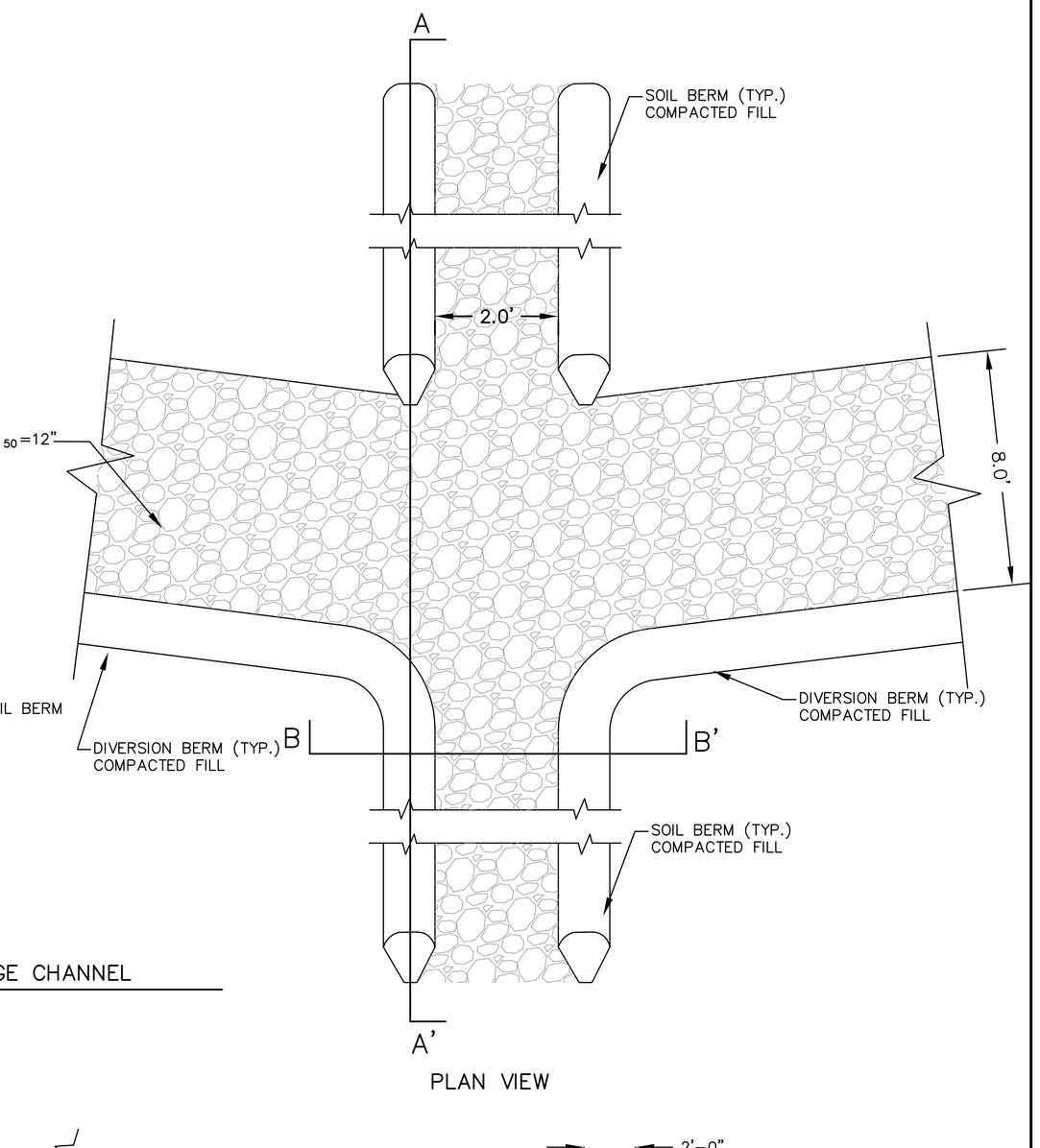
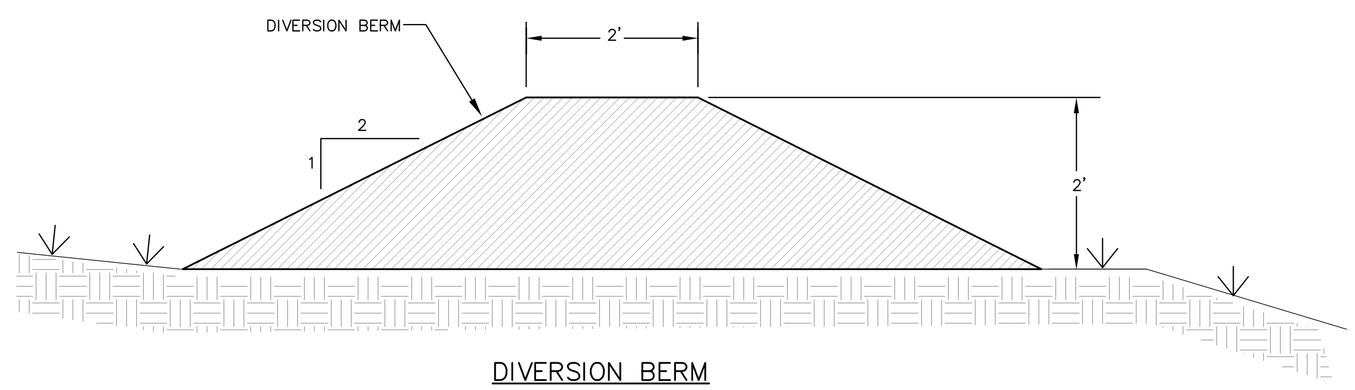


SIDE SLOPE DRAINAGE CHANNEL

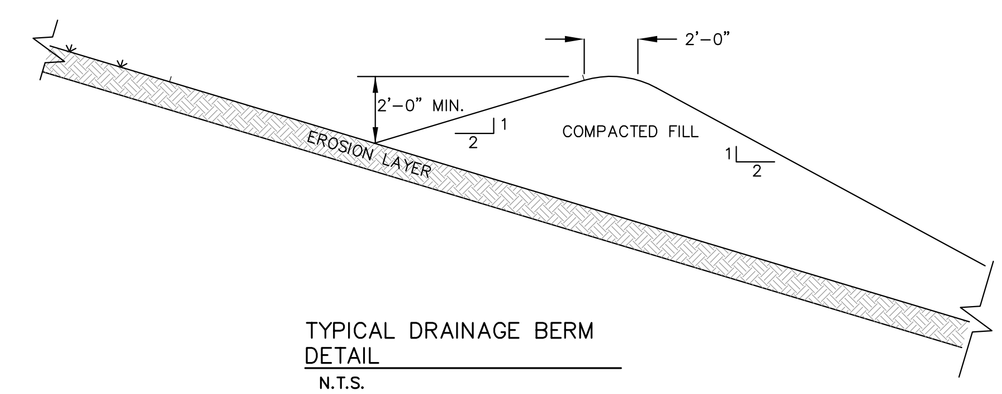
N.T.S.

PLAN VIEW



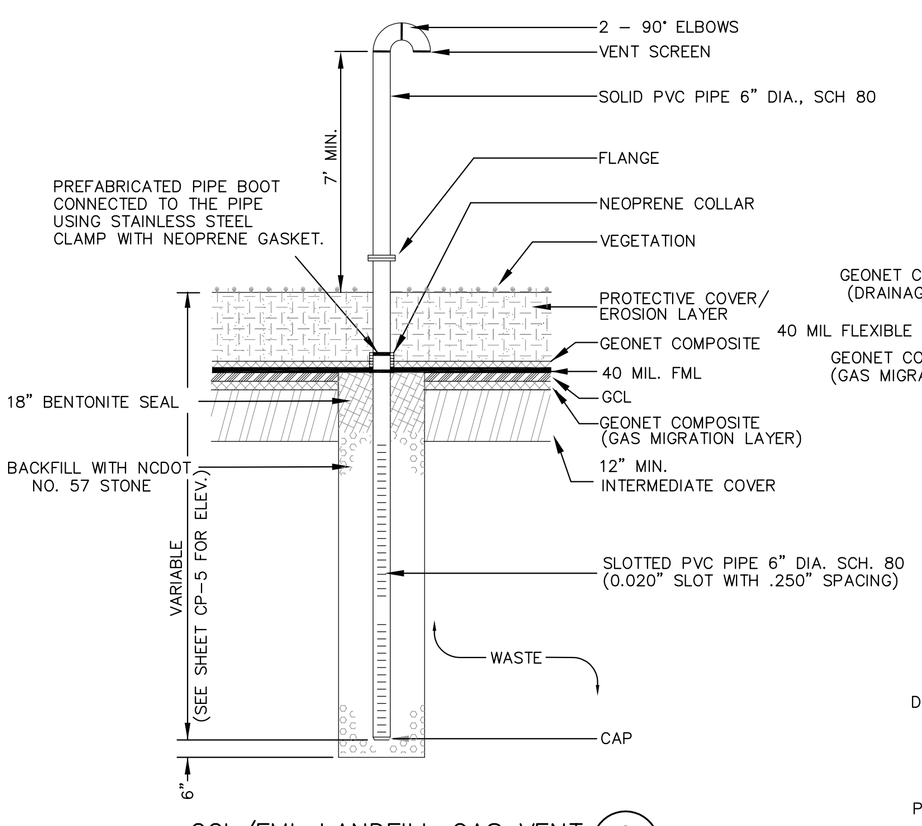
DIVERSION BERM

N.T.S.



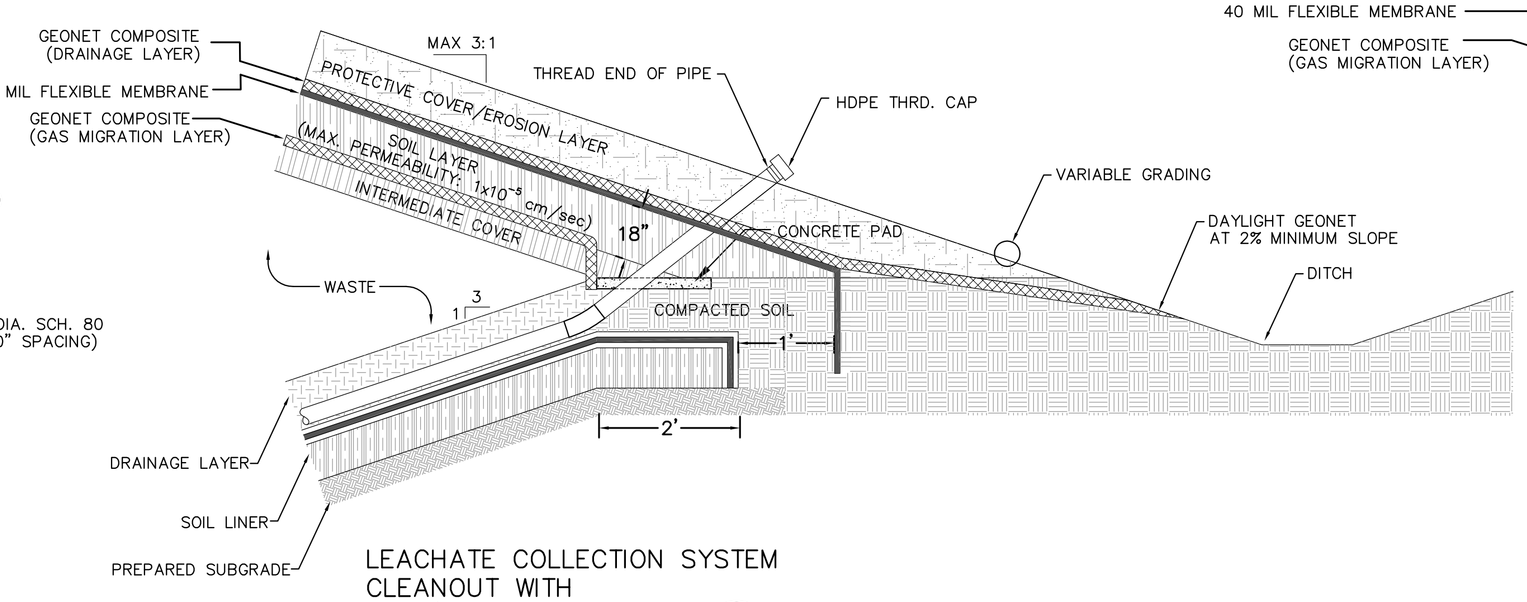
TYPICAL DRAINAGE BERM DETAIL

N.T.S.



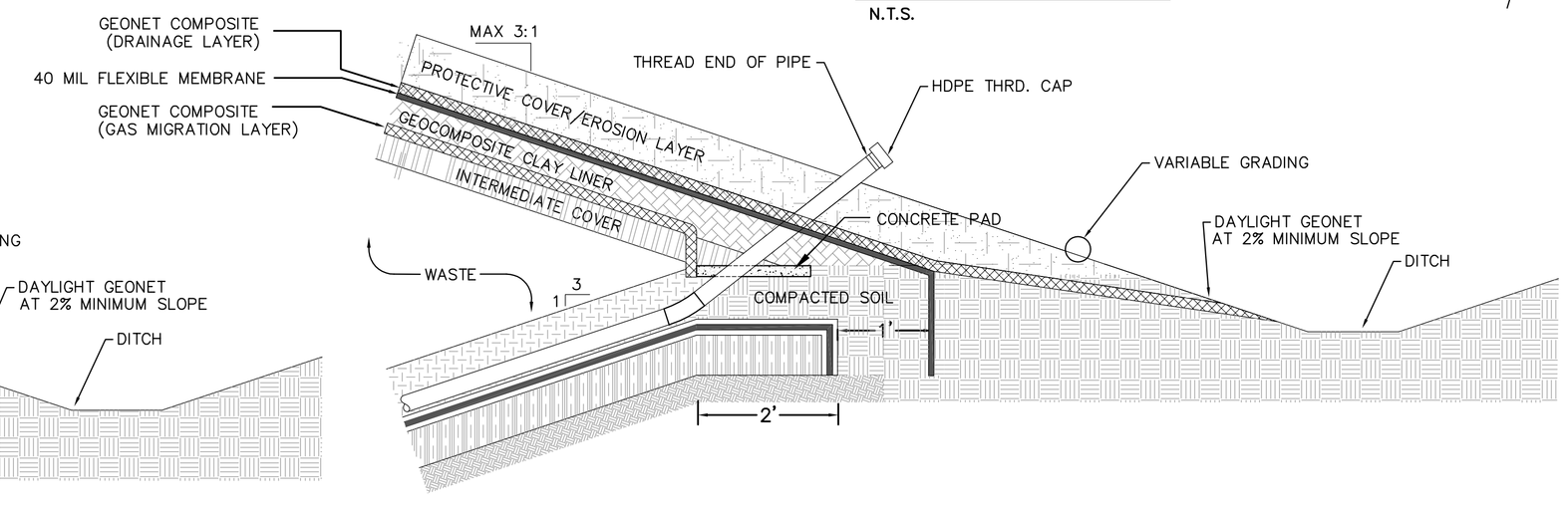
GCL/FML LANDFILL GAS VENT (2 / 5 6)

N.T.S.



LEACHATE COLLECTION SYSTEM CLEANOUT WITH SOIL/FML CAP IN PLACE (1 / 3 6)

N.T.S.



LEACHATE COLLECTION SYSTEM CLEANOUT WITH GCL/FML CAP IN PLACE (3 / 4 6)

N.T.S.

DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP
						06/27/06	REVISED DETAILS 1,2 AND 3	2	RWH	EA	EA
						06/20/05	REVISE DETAIL 2–5–6	1	RH	CH	CH

DESIGNED CH
DRAWN RWH
CHECKED CH
APPROVED CH
DATE 01/25/05

JOYCE ENGINEERING, INC.

2301 WEST MEADOWVIEW ROAD
GREENSBORO, NC 27407
PHONE: (336) 323-0092

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SCALE: AS SHOWN

PROJECT NO.: 379.34

DAVIDSON COUNTY LANDFILL
DAVIDSON COUNTY, NORTH CAROLINA

CLOSURE PLAN:
PROJECT DETAILS

DRAWING NO. CP–6

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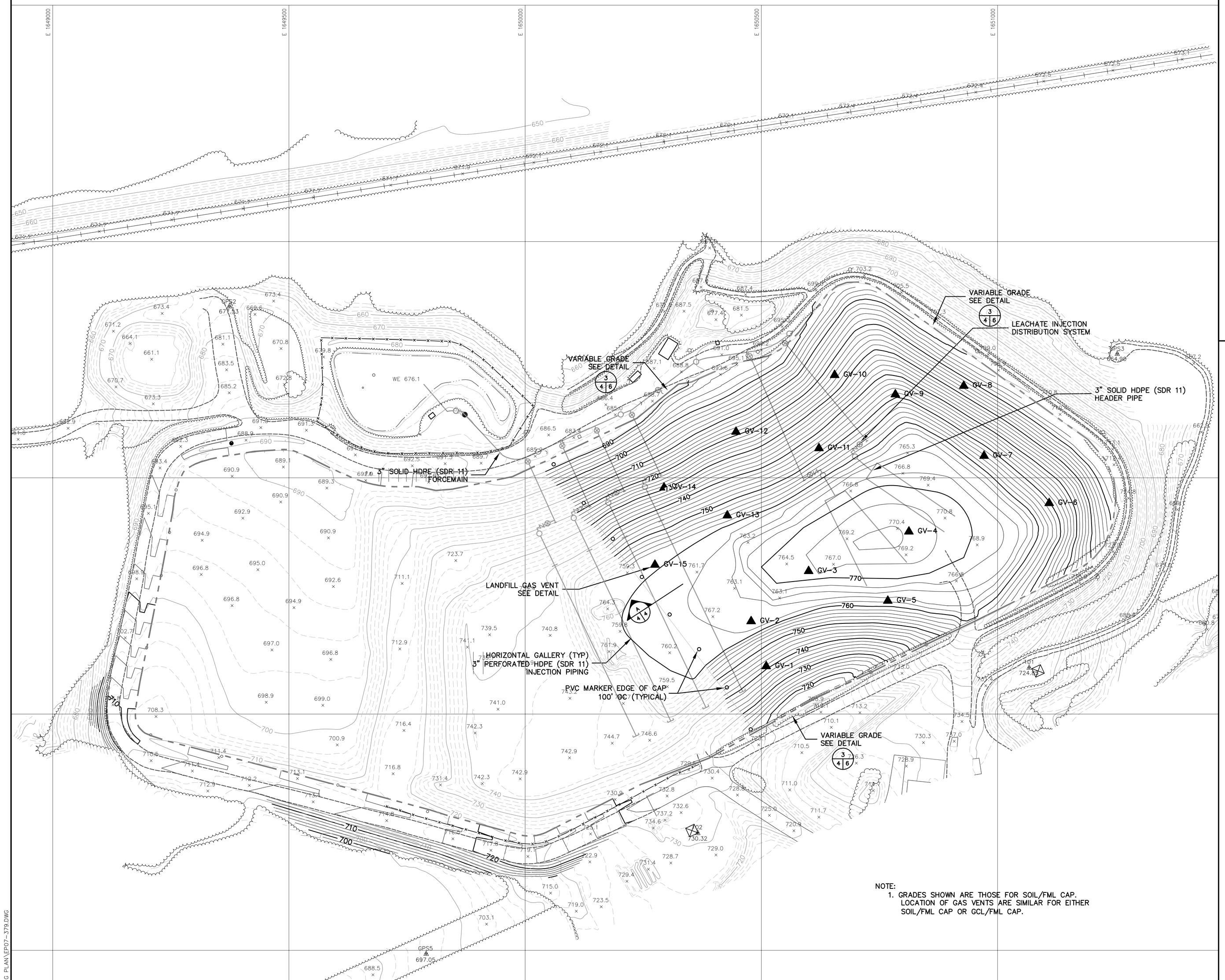

NOTE:
1. GRADES SHOWN ARE THOSE FOR SOIL/FML CAP. LOCATION OF GAS VENTS ARE SIMILAR FOR EITHER SOIL/FML CAP OR GCL/FML CAP.

GAS VENT SCHEDULE:

GAS VENT#	DEPTH
GV-1	31.0'
GV-2	58.0'
GV-3	62.0'
GV-4	31.0'
GV-5	34.0'
GV-6	12.0'
GV-7	21.0'
GV-8	10.0'
GV-9	34.0'
GV-10	26.0'
GV-11	32.0'
GV-12	14.0'
GV-13	57.0'
GV-14	32.0'
GV-15	59.0'

GRAPHIC SCALE
0 50 100 200
(FEET)

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DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP

DESIGNED CH
DRAWN RWH
CHECKED CH
APPROVED CH
DATE 01/25/05

JOYCE ENGINEERING, INC.
436 SPRING GARDEN ST.
GREENSBORO, NORTH CAROLINA 27401

SCALE: 1"=100'

PROJECT NO.: 379.34

DAVIDSON COUNTY LANDFILL
DAVIDSON COUNTY, NORTH CAROLINA

CLOSURE PLAN:
GAS VENT
LOCATION PLAN

DRAWING NO.: CP-5

\\DAVIDSON\TASK-02\ENGINEERING PLAN\EP07-379.DWG

VARIABLE GRADE
SEE DETAIL
3
4 6

VARIABLE GRADE
SEE DETAIL
3
4 6

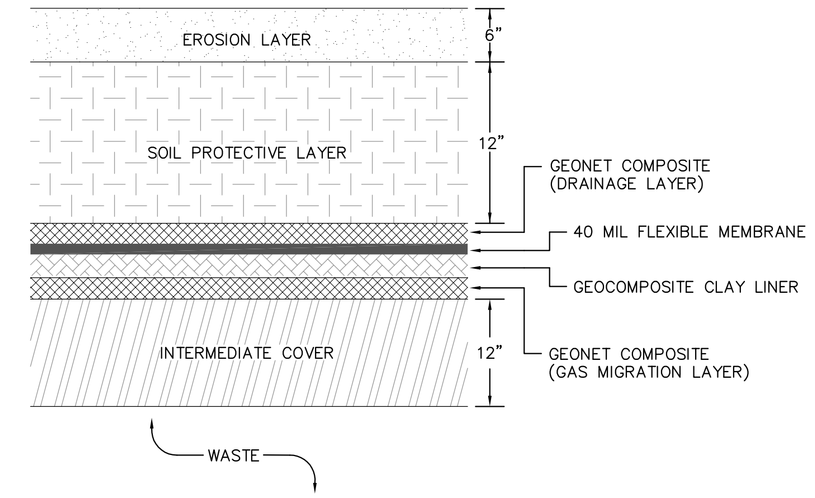
GPS3
664.90

101
724.85

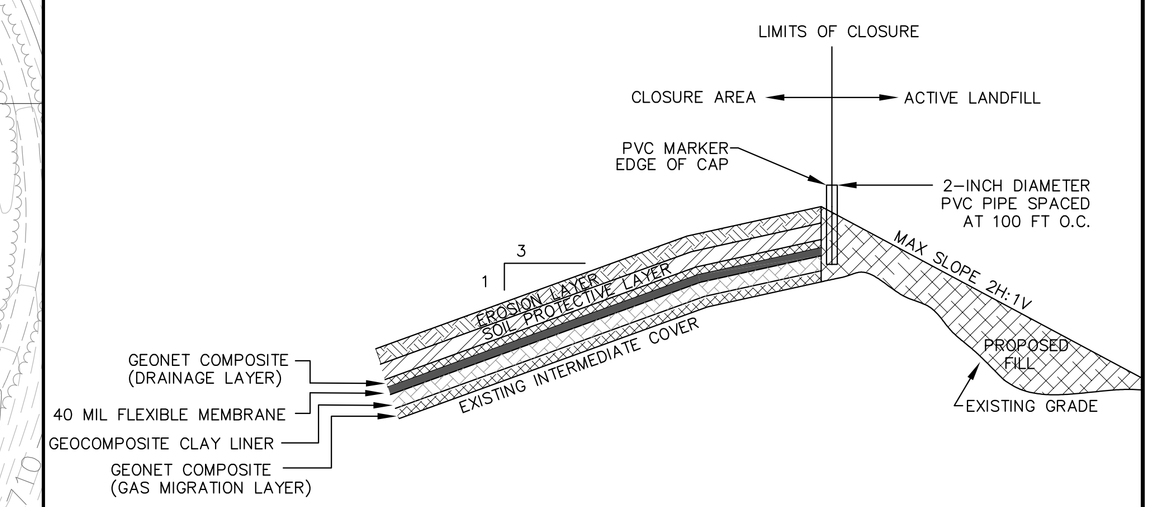
PVC MARKER EDGE OF CAP
100' OC (TYPICAL)

A
4 4

VARIABLE GRADE
SEE DETAIL
3
4 6



FINAL COVER
(ALTERNATIVE)
N.T.S.



CAP TIE-IN TO
ACTIVE LANDFILL
SECTION
N.T.S.
A
4 4

NOTE:
1. LANDFILL AREA IS CURRENTLY ACTIVE.
EXISTING GRADES WITHIN THE LANDFILL AREA
MAY DIFFER FROM THAT SHOWN.
2. FINAL GRADES ARE CONCEPTUAL, AND MAY VARY
FROM THOSE DEPICTED ON THIS DRAWING.
3. LIMITS OF WASTE APPROXIMATE.
4. PLACE PVC MARKERS AT EDGE OF CAP
AS SHOWN, 100' OC.

GRAPHIC SCALE
0 50 100 200
(FEET)

NOTE:
AERIAL MAPPING PROVIDED BY SPATIAL DATA CONSULTANTS, INC.
DATE OF FLYOVER: 06/18/04

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DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP
05-18-05	Revised cap grades to reflect updated topo from Michael Green	1	RWH	EA	EA

DESIGNED CH
DRAWN RWH
CHECKED CH
APPROVED CH
DATE 01/25/04

JOYCE ENGINEERING, INC.
436 SPRING GARDEN ST.
GREENSBORO, NORTH CAROLINA 27401

SCALE: 1"=100'

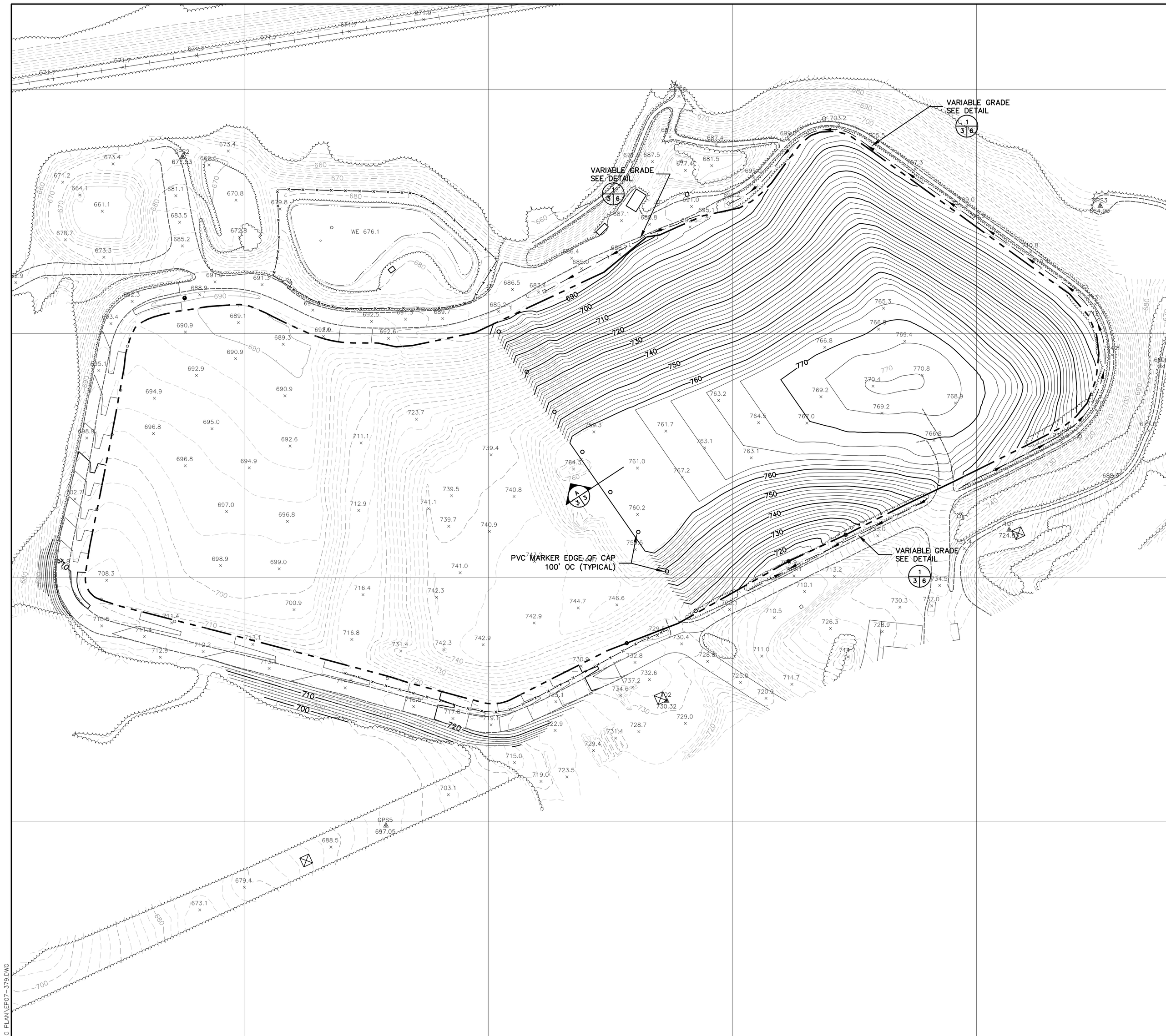
PROJECT NO.: 379.34

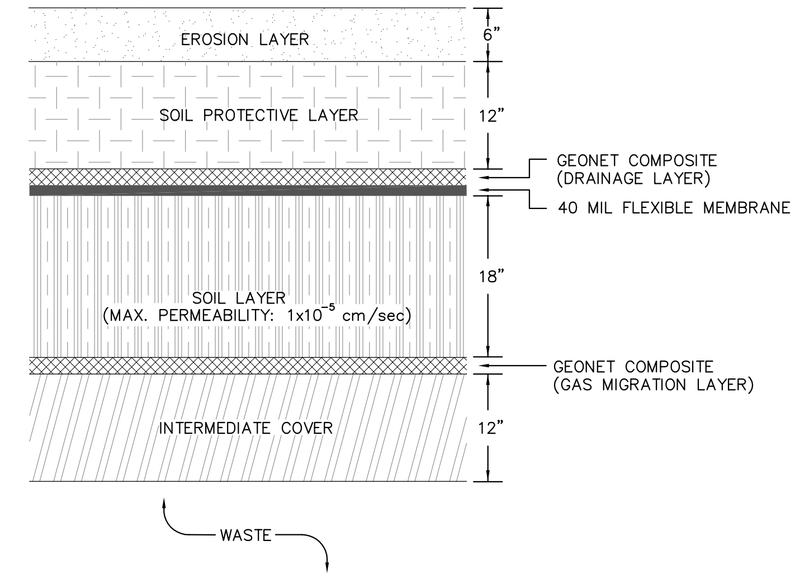
DAVIDSON COUNTY LANDFILL
DAVIDSON COUNTY, NORTH CAROLINA

CLOSURE PLAN:
PARTIAL CLOSURE
ALTERNATE A-GEOSYNTHETIC CAP

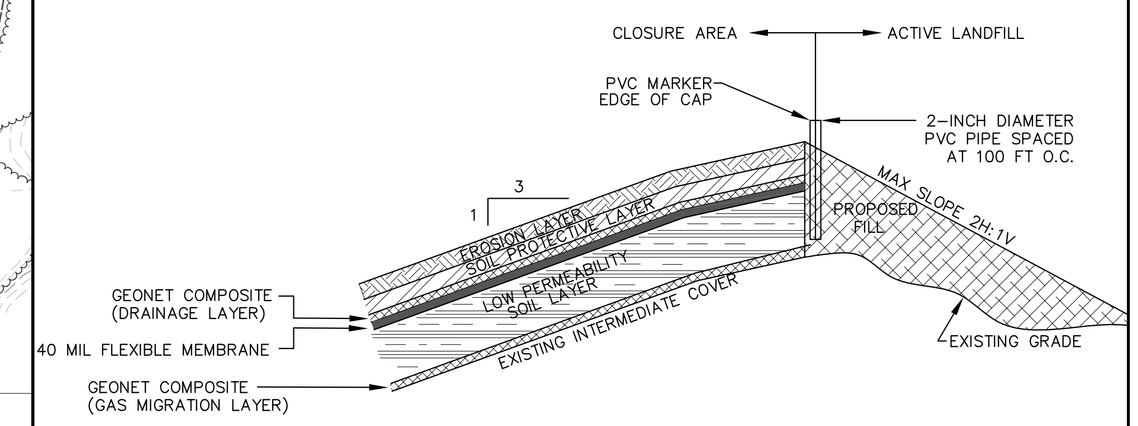
DRAWING NO.
CP-4

\\DAVIDSON\TASK-02\ENGINEERING PLAN\EP07-379.DWG





FINAL COVER
N.T.S.



CAP TIE-IN TO ACTIVE LANDFILL
SECTION
N.T.S.
A
3 3

NOTE:
1. LANDFILL AREA IS CURRENTLY ACTIVE.
   EXISTING GRADES WITHIN THE LANDFILL AREA
   MAY DIFFER FROM THAT SHOWN.
2. FINAL GRADES ARE CONCEPTUAL, AND MAY VARY
   FROM THOSE DEPICTED ON THIS DRAWING.
3. LIMITS OF WASTE APPROXIMATE.
4. PLACE PVC MARKERS AT EDGE OF CAP
   AS SHOWN, 100' OC.

GRAPHIC SCALE
0 50 100 200
(FEET)

NOTE:
AERIAL MAPPING PROVIDED BY SPATIAL DATA CONSULTANTS, INC.
DATE OF FLYOVER: 06/18/04

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DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP

DESIGNED CH
DRAWN RWH
CHECKED CH
APPROVED CH
DATE 01/25/05

JOYCE ENGINEERING, INC.
436 SPRING GARDEN ST.
GREENSBORO, NORTH CAROLINA 27401

SCALE	PROJECT NO.
1"=100'	379.34

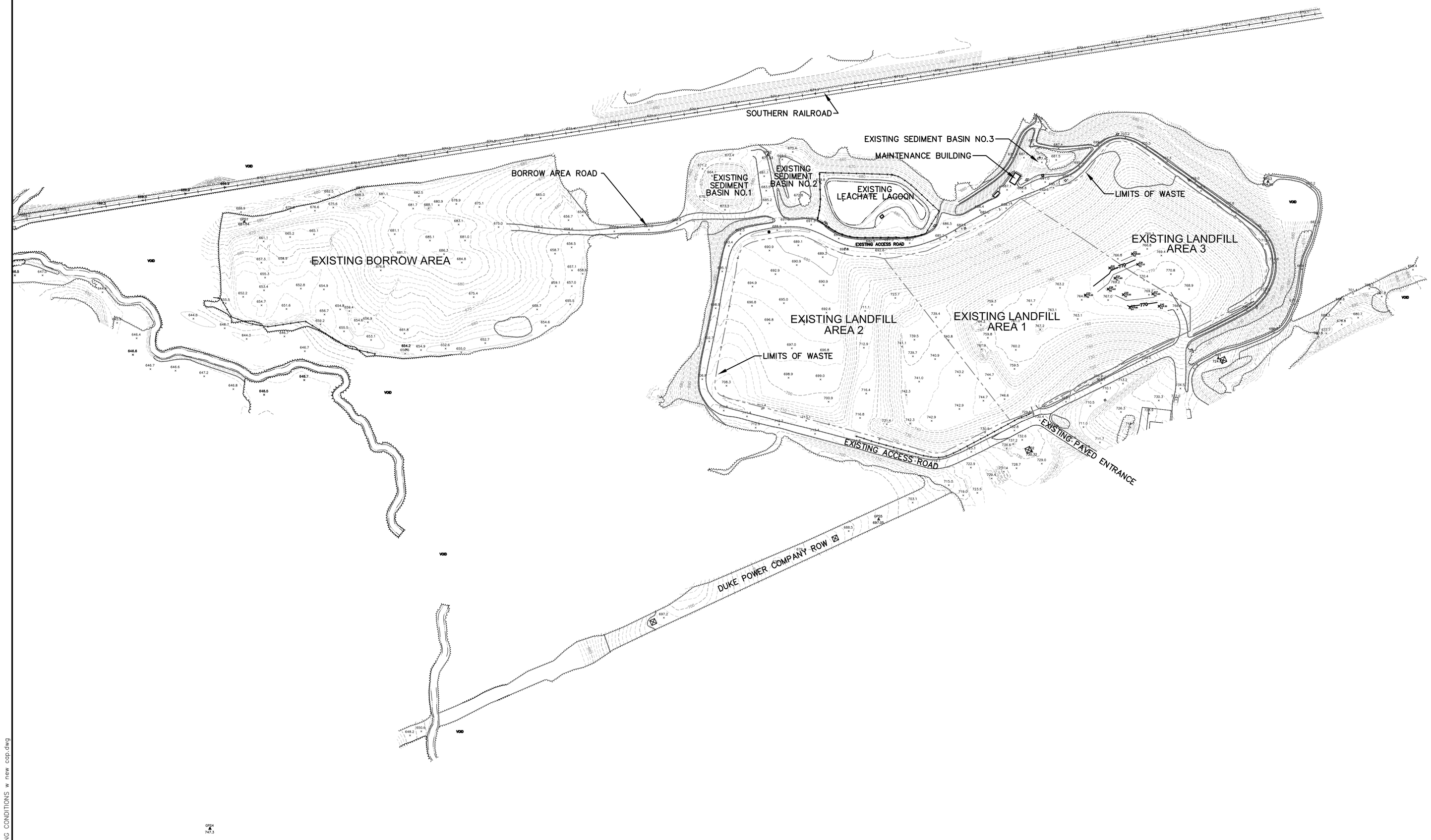
DAVIDSON COUNTY LANDFILL
DAVIDSON COUNTY, NORTH CAROLINA

CLOSURE PLAN:
PARTIAL CLOSURE
SOIL/FML CAP

DRAWING NO.
CP-3

\\DAVIDSON\TASK-02\ENGINEERING PLAN\EP07-379.DWG

NOTE:
AERIAL MAPPING PROVIDED BY SPATIAL DATA CONSULTANTS, INC.
DATE OF FLYOVER: 06/18/04



GRAPHIC SCALE
0 100 200 400
(FEET)

DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP

DESIGNED CH
DRAWN RWH
CHECKED CH
APPROVED CH
DATE 01/25/05

JOYCE ENGINEERING, INC.

2301 WEST MEADOWVIEW ROAD
GREENSBORO, NC 27407
PHONE: (336) 323-0092

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SCALE: 1"=200'

PROJECT NO.: 379.34

DAVIDSON COUNTY LANDFILL
DAVIDSON COUNTY, NORTH CAROLINA

CLOSURE PLAN:
EXISTING CONDITIONS

DRAWING NO.: CP-2

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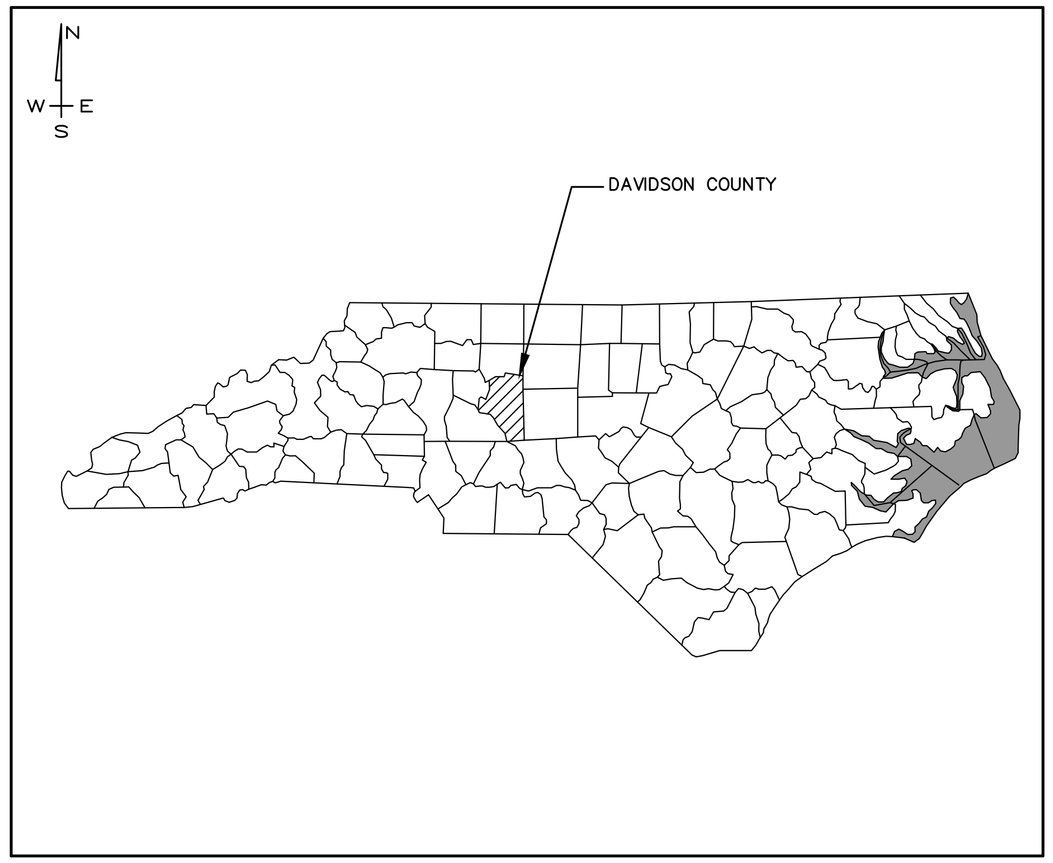
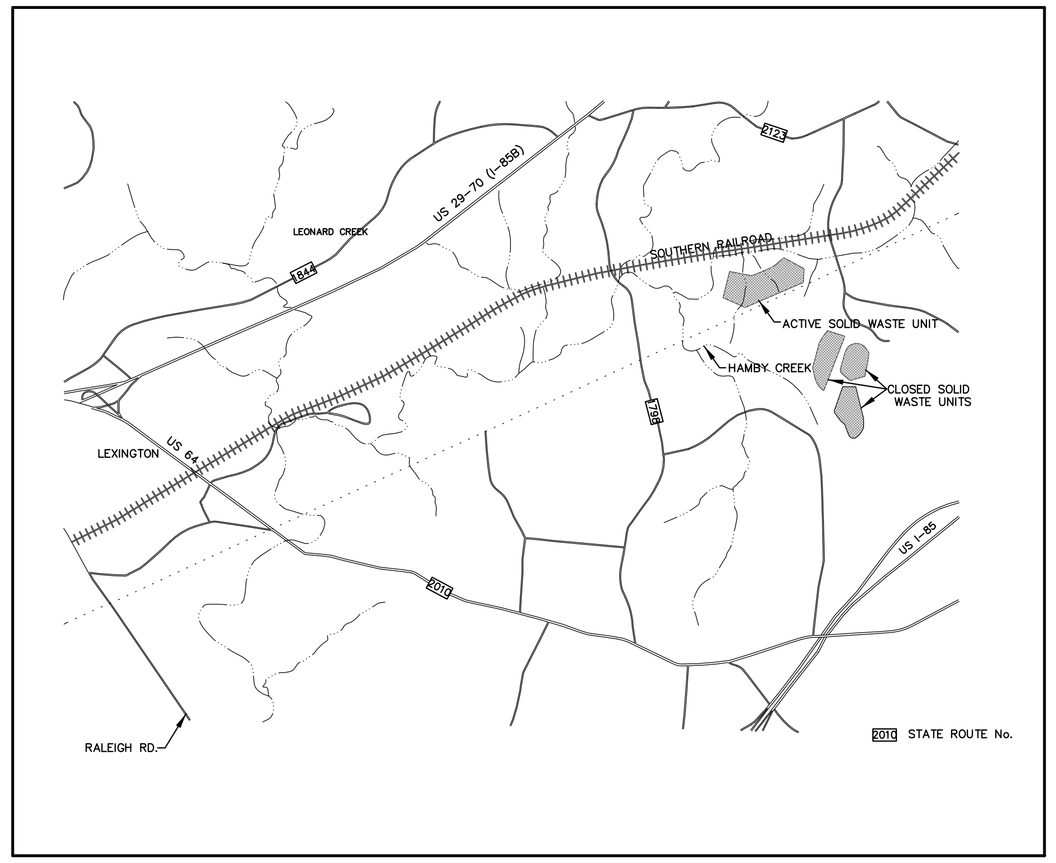


NORTH CAROLINA
COUNTY LOCATION MAP
N.T.S.



LOCATION MAP
N.T.S.

INDEX TO DRAWINGS

SHEET	DESCRIPTION
CP-1	DRAWING INDEX, LEGEND AND ABBREVIATIONS
CP-2	CLOSURE PLAN: EXISTING CONDITIONS
CP-3	CLOSURE PLAN: PARTIAL CLOSURE SOIL/FML CAP
CP-4	CLOSURE PLAN: PARTIAL CLOSURE ALTERNATE B-GEOSYNTHETIC CAP
CP-5	CLOSURE PLAN: GAS VENT LOCATION PLAN
CP-6	CLOSURE PLAN: PROJECT DETAILS
CP-7	CLOSURE PLAN: EROSION AND SEDIMENT CONTROL PLAN

LEGEND

EXISTING 10 FT CONTOUR — 950 —
EXISTING 2 FT CONTOUR
PROPOSED 10 FT CONTOUR — 1010 —
PROPOSED 2 FT CONTOUR
PROPERTY LINE
DRAINAGE FEATURE
TREELINE
GRAVEL ROAD
PAVED ROAD
UTILITY POLE
FENCE
CONTROL POINT
LIMITS OF WASTE

L:\Davidson\dwg\CLOSURE PLAN 04\CP1-INDEX.dwg

DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP

DESIGNED CH
DRAWN CADD/RWH
CHECKED CH
APPROVED CH
DATE 01/25/05

JOYCE ENGINEERING, INC.
2301 WEST MEADOWVIEW ROAD
GREENSBORO, NC 27407
PHONE: (336) 323-0092
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SCALE: AS SHOWN
PROJECT NO.: 379.34

DAVIDSON COUNTY LANDFILL
DAVIDSON COUNTY, NORTH CAROLINA

DRAWING INDEX, LEGEND AND ABBREVIATIONS

DRAWING NO. 1

DAVIDSON COUNTY LANDFILL

AREAS 1 AND 3

CLOSURE PLANS

PREPARED FOR:

DAVIDSON COUNTY
INTEGRATED SOLID WASTE MGT. DEPARTMENT
P.O. BOX 1067
DAVIDSON COUNTY, NC 27292

JANUARY 2005

PREPARED BY:

JOYCE ENGINEERING, INC.
2301 WEST MEADOWVIEW ROAD
GREENSBORO, NORTH CAROLINA 27407
PHONE: (336) 323-0092

PROJECT: 379.00.34

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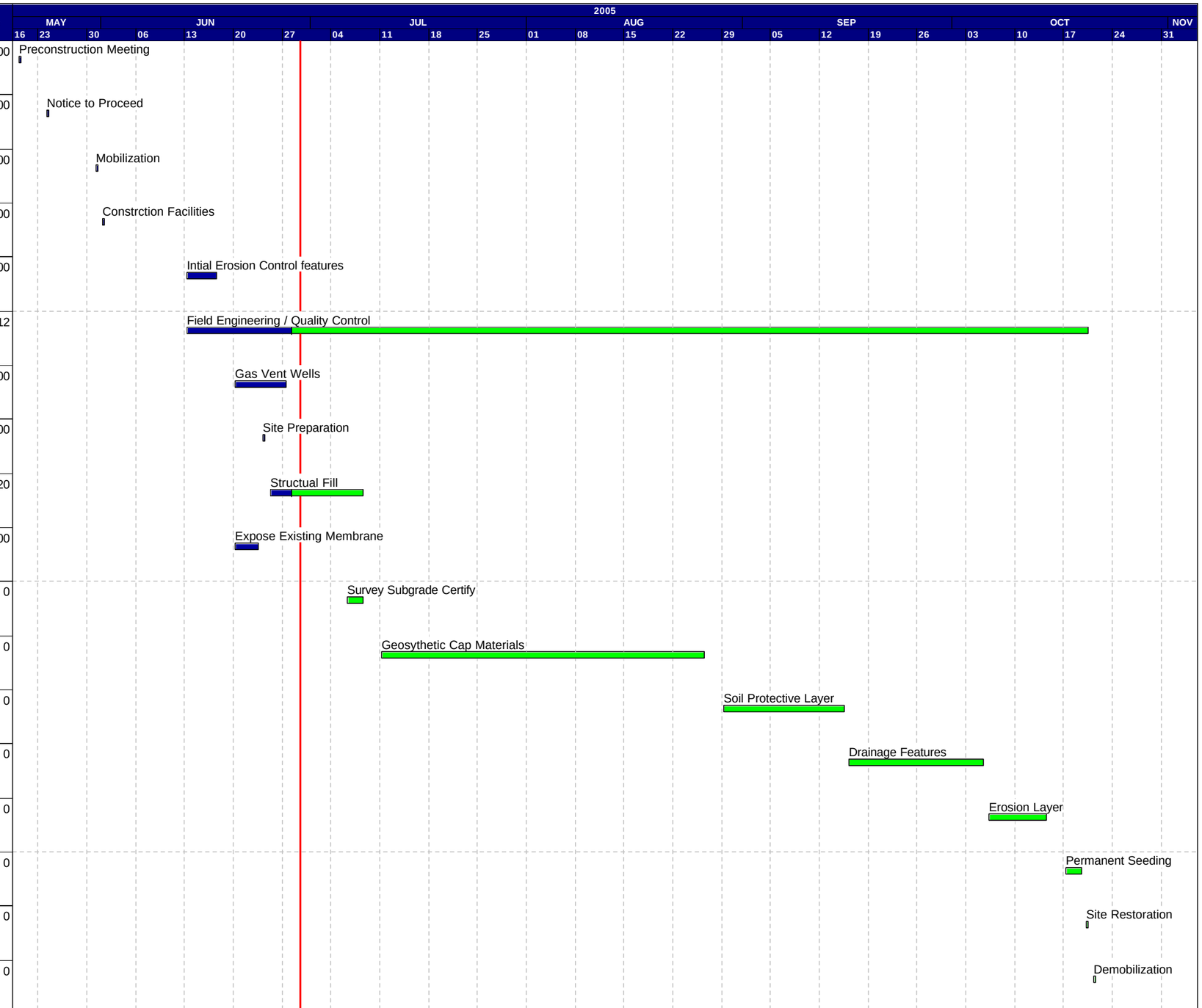
Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish	%
1000	Preconstruction Meeting	1d	0	20MAY05 A	20MAY05 A	100
1010	Notice to Proceed	1d	0	24MAY05 A	24MAY05 A	100
1020	Mobilization	1d	0	31MAY05 A	31MAY05 A	100
1030	Constrction Facilities	1d	0	01JUN05 A	01JUN05 A	100
1040	Intial Erosion Control features	5d	0	13JUN05 A	17JUN05 A	100
1050	Field Engineering / Quality Control	93d	82d	13JUN05 A	20OCT05	12
1055	Gas Vent Wells	5d	0	20JUN05 A	27JUN05 A	100
1060	Site Preparation	1d	0	24JUN05 A	24JUN05 A	100
1070	Structual Fill	10d	8d	25JUN05 A	08JUL05	20
1080	Expose Existing Membrane	4d	0	20JUN05 A	23JUN05 A	100
1090	Survey Subgrade Certify	3d	3d	06JUL05	08JUL05	0
1100	Geosythetic Cap Materials	35d	35d	11JUL05	26AUG05	0
1110	Soil Protective Layer	14d	14d	29AUG05	15SEP05	0
1120	Drainage Features	14d	14d	16SEP05	05OCT05	0
1130	Erosion Layer	7d	7d	06OCT05	14OCT05	0
1140	Permanent Seeding	3d	3d	17OCT05	19OCT05	0
1150	Site Restoration	1d	1d	20OCT05	20OCT05	0
1160	Demobilization	1d	1d	21OCT05	21OCT05	0



Start date	20MAY05
Finish date	21OCT05
Data date	28JUN05
Run date	28JUN05
Page number	1A

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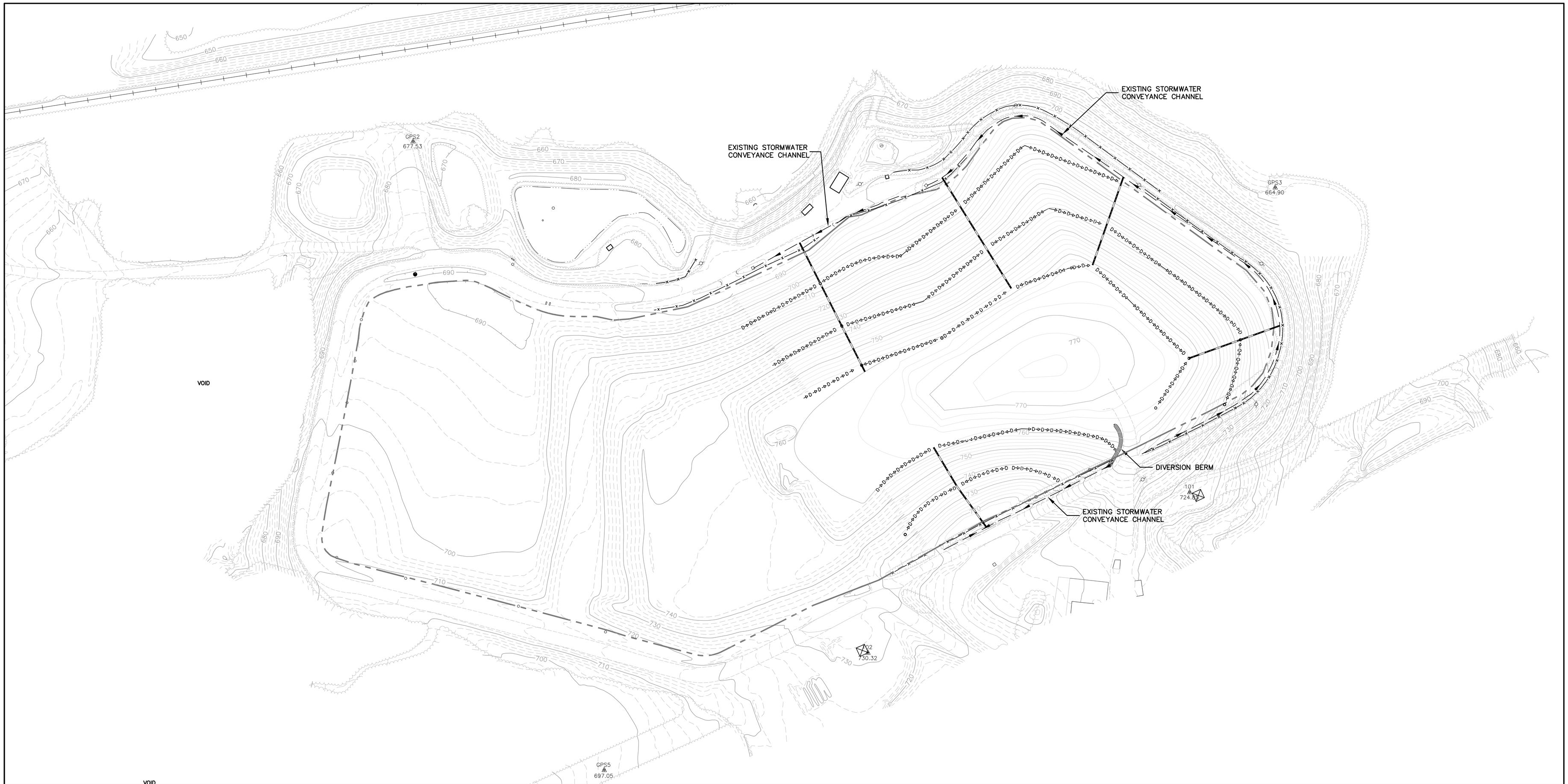
Davidson County Landfill
Partial Closure

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point



EROSION AND SEDIMENT CONTROL PLAN:

ALTERNATE CAP

LEGEND

DRAINAGE BERM

DIVERSION BERM

SLOPE DRAIN

NOTE:
DIVERSION BERM LOCATIONS ARE APPROXIMATE. GRADE BERMS AT A MINIMUM 2% SLOPE.

GRAPHIC SCALE
0 50 100 200
(FEET)

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DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP
05-18-05	Revised cap grades to reflect updated topo from Michael Green	1	RWH	EA	EA

DESIGNED CH
DRAWN RWH
CHECKED CH
APPROVED CH
DATE 01/25/05

JOYCE ENGINEERING, INC.
436 SPRING GARDEN ST.
GREENSBORO, NORTH CAROLINA 27401

SCALE	PROJECT NO.
1"=100'	379.34

DAVIDSON COUNTY LANDFILL
DAVIDSON COUNTY, NORTH CAROLINA

CLOSURE PLAN:
EROSION AND SEDIMENT CONTROL PLAN

DRAWING NO.
CP-7

\DAVIDSON\TASK-02\ENGINEERING PLAN\EP07-379.DWG