June 1, 2012

Mr. Steve Morgan
Florida Department of Environmental Protection
Southwest District
13051 N. Telecom Parkway
Temple Terrace, FL 33637

Re: Sarasota County
Central County Solid Waste Disposal Complex
Phase II Cell 2 Gas Vent Repairs
WACS No. SWD/58/51614
Permit No. 130542-007-SO/01

Dear Steve:

On May 21, 2012, HDR Engineering, Inc. (HDR), on behalf of Sarasota County Solid Waste Operations (County), submitted notification via email to the Department of the County's intent to begin waste filling operations in Phase II Cell 2 at the Central County Solid Waste Disposal Complex (CCSWDC). As explained in the notification, before waste filling can begin in Cell 2 the County was required to remove the gas vents installed in Cell 2 during construction and repair the bottom liner in the location of the gas vents. The repairs were to be completed in accordance with the attached repair figure (Attachment A), which was also attached to the email notification on May 21, 2012.

The repairs to the gas vents in Cell 2 were completed on May 30, 2012 by Thalle Construction Company Inc. (Thalle) and Hallaton, Inc. (Hallaton), the general contractor and liner installer, respectively, for the Phase I Closure project currently in progress. Both companies are qualified to perform this work and the work was observed and documented by onsite representatives of the County, HDR, and Ardaman and Associates, Inc. The repairs were completed as follows:

1. The sand layer surrounding the vents was carefully removed to the liner.
2. The gas vent piping was removed from the liner surface and the subgrade.
3. Additional soil added to subgrade to provide a flat surface (please note that very little soil was required in the locations, only a few shovels full).
4. Liner layers were cut away to provide sufficient overlap for the patches for each layer.
5. The GCL was patched using GSE NWL 60 Bentoliner. The GCL was obtained from GSE with the certification/testing reports and product data sheets provided in Attachment B.

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
Phone: (813) 282-2300
Fax: (813) 282-2430
www.hdrinc.com

Before placing the patch with a minimum 18-inch overlap, GSE approved granular bentonite was poured in the overlap area as supplement bentonite for the patch.

6. After installation of the GCL, the secondary 60-mil HDPE liner was patched using 60-mil Agru HDPE, same material used for the Phase II overliner on the west slope of Phase I. Before welding the liner, Hallaton performed extrusion trial welds between the existing GSE 60-mil HDPE liner and the Agru 60-mil HDPE liner. Upon completion of the extrusion weld patch on the secondary liner, the weld was vacuum box tested (testing reports and trial weld reports are provided in Attachment C).
7. The secondary geocomposite was then patched using GSE Permanet from the Phase II overliner on the west slope of Phase II (please note that this was the same material used in the Phase II bottom liner construction). The geocomposite was overlapped and tied per the project specifications and the geotextile heat welded over the seam.
8. The primary 60-mil HDPE liner was then patched and welded using the same methods as discussed in Step 6 for the secondary liner and the primary geocomposite was patched using the same methods as discussed in Step 7.
9. Following completion of the patches and required vacuum box testing, the protective sand layer was replaced by Thalle.

HDR and Ardaman were onsite for all repair work and observed the work for conformance with accepted standards and specifications. The repairs were performed in accordance with the project requirements and have been accepted as suitable repairs. Photos of the repair work and short descriptions of the steps of the repair work are provided in Attachment D for the Department's review.

With the completion of the gas vent repairs in Cell 2, the County intends to continue waste filling operations into Cell 2 beginning on or about June 4, 2012. Please contact us at 813-282-2300 if you have any questions or require any additional information regarding the gas vent repairs discussed herein.

Sincerely,
HDR Engineering, Inc.

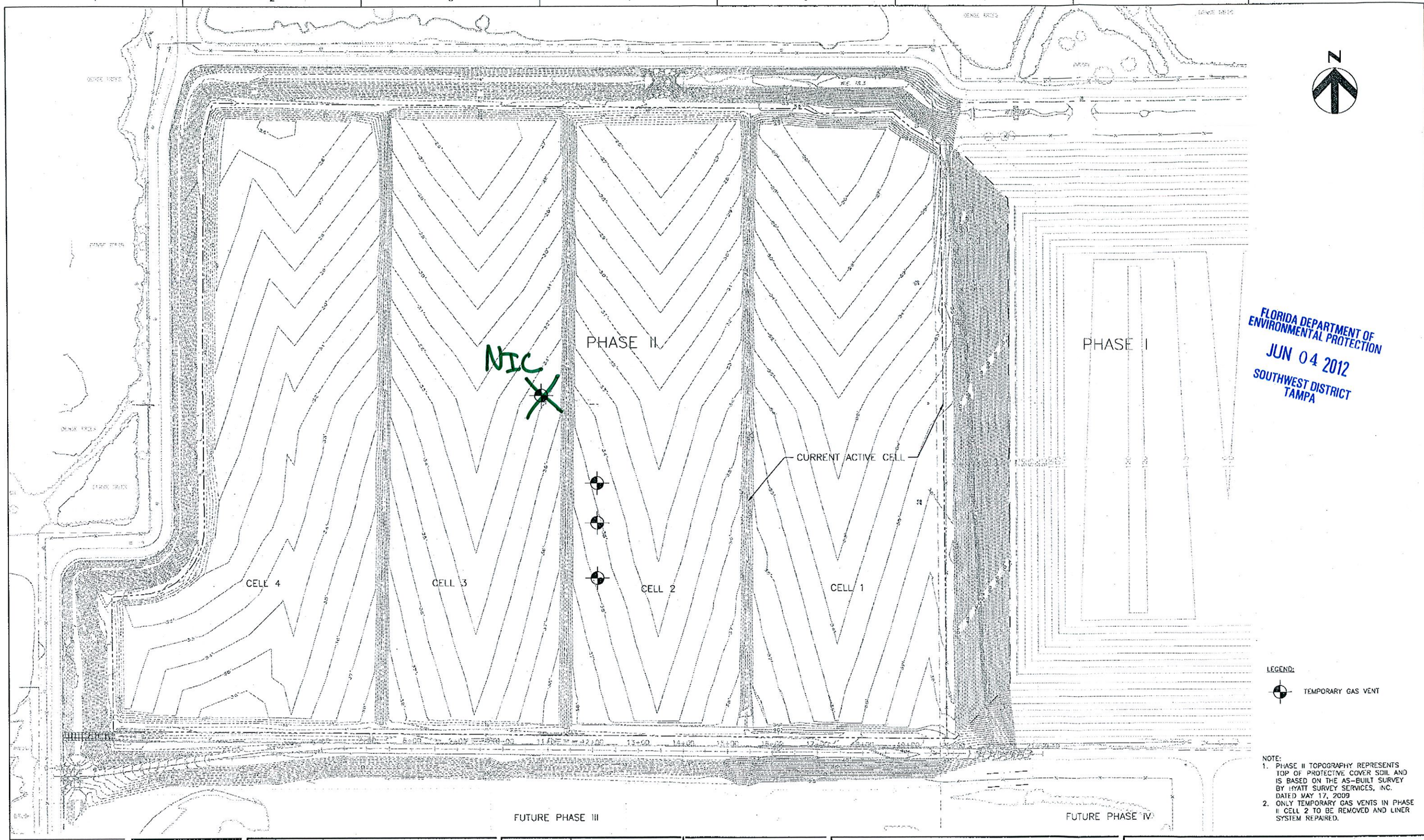
Jason Timmons, PE
Solid Waste Project Engineer

Richard Siemering
Solid Waste Department Manager

cc: Gary Bennett, Sarasota County
Lois Rose, Sarasota County

ATTACHMENT A

PHASE II GAS VENT REPAIR FIGURES



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
JUN 04 2012
SOUTHWEST DISTRICT TAMPA

HDR

HDR Engineering, Inc.
5426 Bay Center Drive, Ste. 400
Tampa, Florida 33609-3414
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
A	04/2012	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN	C. RESTREPO, T. YANOSCHAK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	

THOMAS M. YANOSCHAK, P.E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex Phase II Class I Landfill

SARASOTA COUNTY FLORIDA

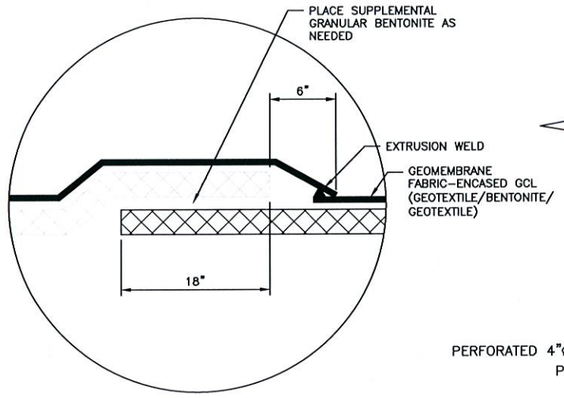
TEMPORARY GAS VENT SITE PLAN

0 1" 2"

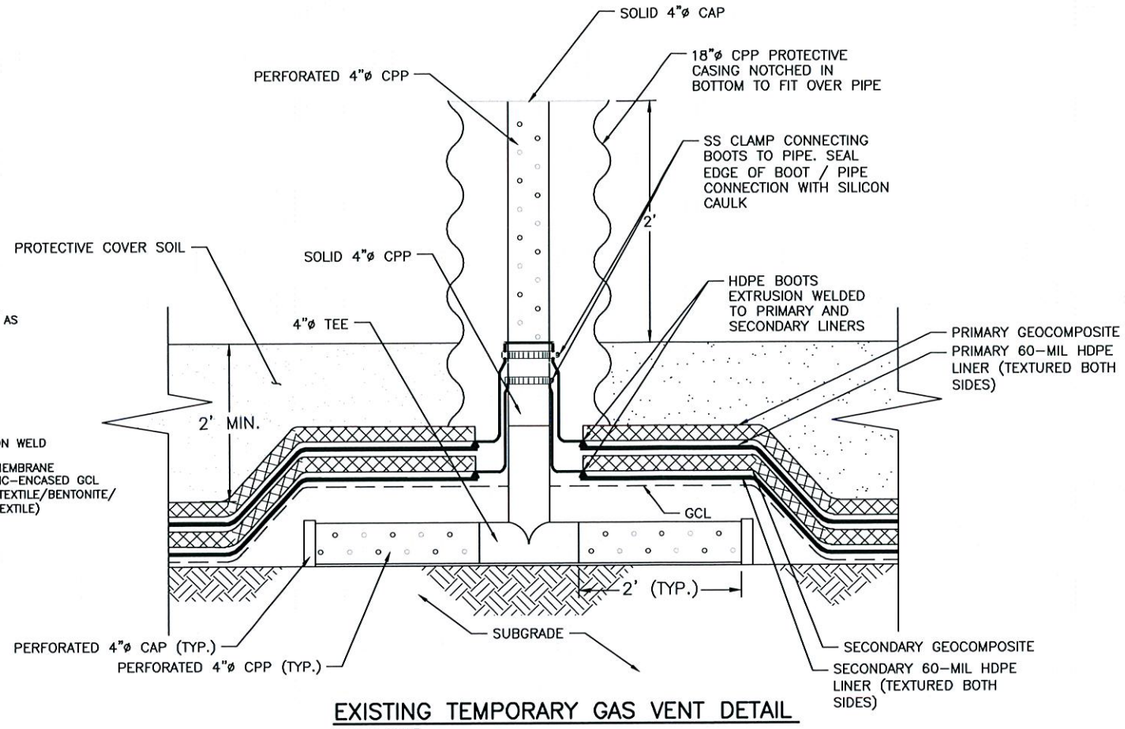
FILENAME	00C-02.DWG
SCALE	1"=100'

SHEET C-01

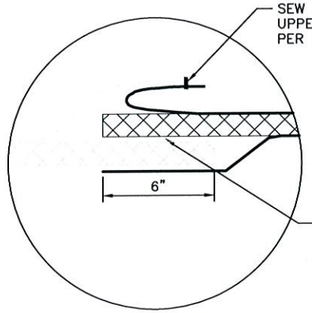
C:\pw\working\tpad\0366210\00C-02.dwg, 22x34 Plan, 4/9/2012 11:19:13 AM, bradjohn



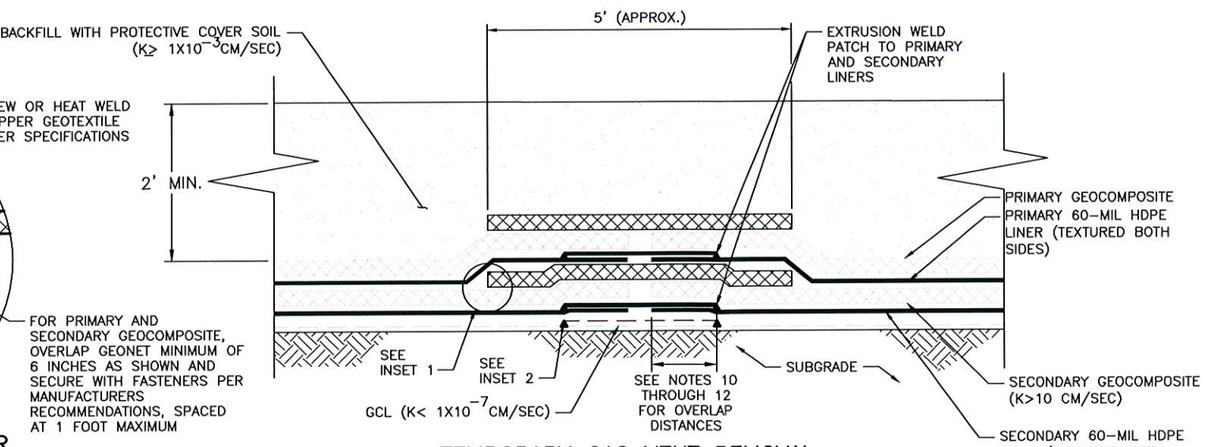
INSET 2
GCL REPAIR
NOT TO SCALE



EXISTING TEMPORARY GAS VENT DETAIL
NOT TO SCALE



INSET 1
GEOCOMPOSITE REPAIR
NOT TO SCALE



TEMPORARY GAS VENT REMOVAL AND LINER REPAIR DETAIL
NOT TO SCALE

TEMPORARY GAS VENT REMOVAL AND LINER REPAIR PROCEDURES:

1. REMOVE RAIN COVER IN VICINITY OF VENT AND EXCAVATE PROTECTIVE COVER SOIL NEAR REPAIR AREA.
2. REMOVE PROTECTIVE CASING FROM STANDPIPE.
3. REMOVE CLAMP FROM PRIMARY LINER BOOT, CUT PRIMARY LINER OUTSIDE OF BOOT WELD, AND LIFT BOOT OVER STANDPIPE.
4. REMOVE CLAMP FROM SECONDARY LINER BOOT, CUT SECONDARY LINER OUTSIDE OF BOOT WELD, AND LIFT BOOT OVER STANDPIPE.
5. REMOVE ANY HYDRATED OR DAMAGED GEOSYNTHETIC CLAY LINER (GCL) AS NECESSARY TO ALLOW REMOVAL OF VENT PIPE.
6. REMOVE VENT PIPE, BEING CAREFUL NOT TO DAMAGE IN–PLACE LINER COMPONENTS OR SUBGRADE.
7. INSPECT SUBGRADE, REPLACE ANY SOFT SOIL WITH MATERIAL MEETING REQUIREMENTS OF PHASE II PROJECT SPECIFICATIONS, AND PROVIDE SMOOTH SURFACE FOR PLACEMENT OF OVERLYING GEOSYNTHETICS.
8. PATCH GCL, SECONDARY LINER, SECONDARY GEOCOMPOSITE, PRIMARY LINER, AND PRIMARY GEOCOMPOSITE IN ACCORDANCE WITH THE REQUIREMENTS OF PHASE II PROJECT SPECIFICATIONS AND CQA PLAN WITH THE EXCEPTION THAT NO LABORATORY OR FIELD TESTING BEYOND VACUUM TESTING OF LINER WELDS WILL BE REQUIRED OF THE REPAIR MATERIALS DUE TO THE LIMITED EXTENT OF THE REPAIRS.
9. REPLACE PROTECTIVE COVER MATERIAL OVER REPAIR; AND, REPLACE RAIN COVER IF NEEDED.
10. OVERLAP FOR GCL: MINIMUM OF 18 INCHES.
11. OVERLAP FOR HDPE LINER: MINIMUM OF 12 INCHES.
12. OVERLAP FOR GEOCOMPOSITES: MINIMUM OF 6 INCHES.

HDR
HDR Engineering, Inc.
5426 Bay Center Drive, Ste. 400
Tampa, Florida 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
A	06/2012	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CML DESIGN	C. RESTREPO, T. YANOSCHAK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	

THOMAS M. YANOSCHAK, P.E.
CERTIFICATE NO. 44200

Central County Solid Waste Disposal Complex
Phase II Class I Landfill

Temporary Gas Vent Removal and Liner Repair

SARASOTA COUNTY FLORIDA

TEMPORARY GAS VENT REMOVAL AND LINER REPAIR DETAIL

0 1" 2"

FILENAME	00C-01.DWG
SCALE	NOT TO SCALE

SHEET C-02

ATTACHMENT B

GEOSYNTHETIC PRODUCT CERTIFICATION AND DATA SHEETS

GCL

PRODUCT DATA SHEET

GSE BentoLiner NWL-60 Geosynthetic Clay Liner

GSE BentoLiner "NWL-60" is a heavily needlepunched reinforced composite geosynthetic clay liner (GCL) comprised of a uniform layer of granular sodium bentonite encapsulated between a nonwoven and a scrim-nonwoven geotextile for dimensional stability. The product is intended for steep slopes and high load applications where increased internal shear strength is required.

[*]

AT THE CORE:

This composite clay liner is intended for steep slopes and high load applications where increased internal shear strength is required.

Product Specifications

Tested Property	Test Method	Frequency	VALUE
Geotextile Property			
Cap Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft²	6.0 oz/yd² MARV[1]
Carrier Scrim Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft²	6.0 oz/yd² MARV
Bentonite Property			
Swell Index	ASTM D 5890	1/100,000 lb	24 ml/2 g min
Moisture Content	ASTM D 4643	1/100,000 lb	12% max
Fluid Loss	ASTM D 5891	1/100,000 lb	18 ml max
Finished GCL Property			
Bentonite, Mass/Unit Area[2]	ASTM D 5993	1/40,000 ft²	0.75 lb/ft² MARV
Tensile Strength[4]	ASTM D 6768	1/40,000 ft²	50 lb/in MARV
Peel Strength	ASTM D 6496 ASTM D 4632[4]	1/40,000 ft²	12 lb/in MARV 60 lb MARV
Hydraulic Conductivity[5]	ASTM D 5887	1/Week	5×10^{-11} m/sec max
Index Flux[5]	ASTM D 5887	1/Week	1×10^{-8} m³/m²/sec max
Internal Shear Strength[6]	ASTM D 6243	Periodically	500 psf Typical
TYPICAL ROLL DIMENSIONS			
Width x Length[7]	Typical	Every Roll	15.5 ft x 150 ft
Area per Roll	Typical	Every Roll	2,325 ft²
Packaged Weight	Typical	Every Roll	2,600 lb

NOTES

- [1] Minimum Average Roll Value.
- [2] Oven-dried measurement. Equates to 0.84 lb/ft² when indexed to a 12% moisture content.
- [3] Tested in machine direction.
- [4] Modified ASTM D 4632 to use a 4 in. wide grip. The maximum peak of five specimens averaged in machine direction.
- [5] Deionized water @ 5 psi maximum effective confining stress and 2 psi head pressure.
- [6] Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf normal stress.
- [7] Roll widths and lengths have a tolerance of ±1%.

GSE is a leading manufacturer and marketer of geosynthetic lining products and services. We've built a reputation of reliability through our dedication to providing consistency of product, price and protection to our global customers.

Our commitment to innovation, our focus on quality and our industry expertise allow us the flexibility to collaborate with our clients to develop a custom, purpose-fit solution.

GSE ENVIRONMENTAL™

[DURABILITY RUNS DEEP] For more information on this product and others, please visit us at GSEworld.com, call 800.435.2008 or contact your local sales office.

GSE BentoLiner®

QUALITY CONTROL CERTIFICATE

Lot #	Roll #	Date Produced	Product	Length	Width
				ft / m	ft / m
20082312	502165843	8/24/2010	BentoLiner NWL60 CAR	114.0	15.5
				34.75	4.72

Finished Product

Type		BentoLiner NWL60 CAR	
Mass	ASTM D5993	5514 g/m²	1.129 lb/ft²
Grab Strength	ASTM D4632	1894.9 N	426 lbs
Grab Elongation	ASTM D4632		71 %
Tensile Strength	ASTM D6768	13.4 kN/m	76.3 ppi
Peel Strength	ASTM D4632 mod	284.7 N	64 lbs
Peel Strength	ASTM D6496	2329.2 N/m	13.3 ppi
Index Flux	ASTM D5887	<1E-8 m³/m²/sec	
Permeability	ASTM D5084	<5E-9 cm/s	

Top Layer

Type			Non-woven
Layer #			130355575
Mass	ASTM D5261	305 g/m²	9.0 oz/yd²

Bottom Layer

Type			Scrim Non-woven
Layer #			2021155248
Mass	ASTM D5261	227 g/m²	6.7 oz/yd²

Bentonite

Shipment Lot #			1619259
Moisture Content	ASTM D4643		9.4 %
Swell Index	ASTM D5890		35.0 ml
Fluid Loss	ASTM D5891		9.0 ml
Bentonite Mass Per Unit Area @ 0% mc	ASTM D5993	4550 g/m²	0.932 lb/ft²

GSE BentoLiner®

3150 1st Ave
Spearfish, SD 57783

TEL: 605-642-8531
FAX: 605-642-8539

BentoLiner ROLL LIST

PROJECT:
STYLE: BentoLiner CAR NWL-60
DATE: April 12, 2012

	BentoLiner ROLL #	BentoLiner LOT #	LENGTH (feet)	WIDTH (feet)
1	502165843	20082312	114.0	15.5
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
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30				

GSE BentoLiner
3150 1st. Ave
Spearfish, SD 57783

Quality Assurance Laboratory Test Results

Report Date
4/12/2012

Job Name:
SO Number:
Product: BentoLiner NWL-60 CAR

Test: Hydraulic Conductivity ASTM D5887

DATE	LOT NUMBER	ROLL NUMBER	RESULT	Effective stress
8/23/2010	20082312	502165811	8.51E-10 cm/s	5 psi

Approved By:

Lab Technician

Date: 4-12-12

GSE BentoLiner
3150 1st. Ave
Spearfish, SD 57783

Quality Assurance Laboratory Test Results

Report Date
4/12/2012

Job Name:
SO Number:
Product: BentoLiner NWL-60 CAR

Test: Index Flux ASTM D5887

DATE	LOT NUMBER	ROLL NUMBER	RESULT		Effective stress
8/23/2010	20082312	502165811	1.93E-09	$m^3/m^2/s$	5 psi

Approved By:

Lab Technician

Date:

4-12-12

GSE Lining Technology, Inc.

Large Scale Direct Shear Report

Project Name: Profile

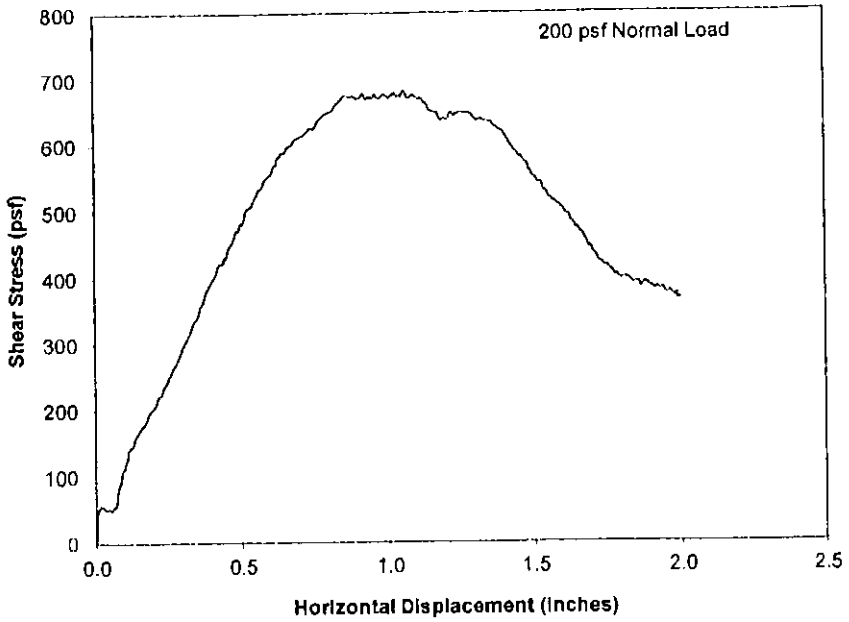
Project No: T10030

Testing Date: 8/10/2010

Internal Shear of BentoLiner BLI-075-06N-06W-D-6R, Roll # 502164162, Lot #20072212

DISPLACEMENT vs SHEAR STRESS		
Normal Stress (psf)	*Peak Stress (psf)*	*L.D. Stress (psf)*
200	680	368

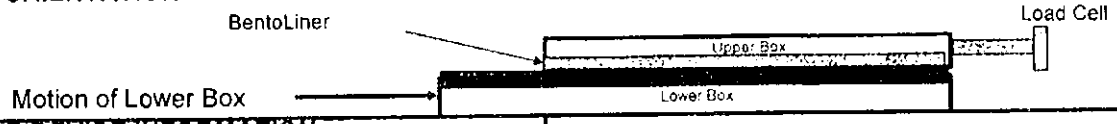
The GCL slipped against the gripper plates with a peak shear stress of 680 psf. There was no internal failure of the GCL.



TESTING INFORMATION:

1. Tests were conducted in general accordance with ASTM 6243.
2. Tests were conducted with the profile immersed in tap water.
3. The GCL was hydrated for 24 hours at 200 psf before the start of shearing.
4. Testing Speed: 0.04 in/min
5. Large Displacement (LD): 2.0 inches
6. The 200 psf normal load was applied with a dead weight load.

TEST ORIENTATION



SHEAR DEVICE INFORMATION:

1. Manufactured by GeoSyntec Consultants
2. Upper box dimensions: 12" x 12" x 3"
3. Lower box dimensions: 12" x 16" x 3"
4. Large Displacement: Up to 4"

60-MIL HDPE

agru america
quality control dept

quality certificate

ROLL # **203564-12** Lot #: **8211575** **Liner Type: MICROSPIKE™ HDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH		Thickness.....	**1.5 mm** / **60 mil**
	MIN:	**1.47**	mm	**58**	mil	Length.....	**153.924** m / **505.0** feet
	MAX:	**1.72**	mm	**68**	mil	Width.....	**7.01** m; **23.0** feet
Asperity ASTM D7466: **30/36** mil TOP / BOTTOM	AVE:	**1.57**	mm	**62**	mil	OIT(Standard) ASTM D3895 minutes **179**	

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		**.944**
MFI ASTM D1238 COND. E GRADE: **K307**	Melt Flow Index 190°C /2160 g	g/10 min		**.26**
Carbon Black Content ASTM D4218	Range	%		**2.32**
Carbon Black Dispersion ASTM D5596	Category			**10 In Cat 1**
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	**28** N/mm (kN/m)	**161** ppi	2,482 2,741 **2,612** psi
	Average Strength @ Break	**36** N/mm (kN/m)	**208** ppi	3,576 3,153 **3,365** psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%		19.62 14.48 **17.05**
Lo = 2.0" Break	Average Elongation @ Break	%		471.1 566.3 **518.7**
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		**-.99**
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	**265.2** N		**59.617** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**449.4** N		**101.04** lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**608.3** N		**136.76** lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		**CERTIFIED**
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs		**ONGOING**
Smooth Edge Testing ASTM D1004	**Average Tear Resistance**		Label	**52.404**

Customer: **Thalle Constr uction**
PO: **P7573 Sarasota Cty LF ph1 cl1**
Destination **Nokomis, FL**

Date: **1/19/2012**

Signature:

Quality Control Department

60HDmic FRM
REV 03
12/23/05

ARDAMAN & ASSOCIATES, INC. GEOSYNTHETICS LABORATORY

GEOMEMBRANE TEST REPORT

CLIENT: HDR, Inc.

PROJECT: Sarasota Co. Phase I Landfill

FILE NO.: 09-36-7375

DATE TESTED: 01/24/12

DATE REPORTED: 01/25/12

GEOMEMBRANE TYPE: **60-mil HDPE**

DATE SAMPLE RECEIVED: 01/24/12

INCOMING SAMPLE NO.: **Roll No. 203565.12 T/T**

LABORATORY IDENTIFICATION NO.: 097375/CT-T-18

CONDITIONING: 3.2 HOURS 73 °F 37 - 39 % RH

Property		Test Method	Specimen										Average	Standard Deviation	COV (%)
			1	2	3	4	5	6	7	8	9	10			
Yield Elongation, %	MD	ASTM D6693	19	22	20	23	23						21	1.8	8.6
	XD		16	15	15	15	15						15	0.3	2.0
Yield Strength, lb/in	MD		150	153	159	157	140						152	7.6	5.0
	XD		153	170	177	173	159						166	9.8	5.9
Break Elongation, %	MD		511	482	437	479	458						473	28	5.9
	XD		562	568	507	631	536						561	46	8.2
Break Strength, lb/in	MD		200	228	202	234	210						215	16	7.4
	XD		183	193	186	219	176						191	17	8.9

Comments:

Checked By: JM Date: 01/25/12

GEOCOMPOSITE

GSE Lining Technology, LLC.

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 2/10/2012

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-066268	Thalle Construction Company, Inc	Nokomis FL US	FR2-300E-06-06-E-00	

Roll Number	ASTM D5199 Geomet Thickness (mils)	ASTM D7179 Tensile Strength (ppi)	Density ASTM D1505 (g/cc)	Carbon Black Content ASTM D4218 (%)	ASTM D7005 Ply Adhesion Average (ppi) Side A	ASTM D7005 Ply Adhesion Average (ppi) Side B	ASTM D7005 Ply Adhesion Minimum (ppi) Side A	ASTM D7005 Ply Adhesion Minimum (ppi) Side B	ASTM D5261 Mass per Unit Area (lbs/ft²)
131385888	340	174	0.959	2.06	1.5	2.2	1.0	1.4	0.495
131385889	340	174	0.959	2.06	1.5	2.2	1.0	1.4	0.495
131385890	340	174	0.959	2.06	1.5	2.2	1.0	1.4	0.495
131385891	340	174	0.959	2.06	1.5	2.2	1.0	1.4	0.495
131385892	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385893	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385894	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385895	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385896	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385897	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385898	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385899	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385900	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385901	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385902	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385903	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385904	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385905	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385906	341	164	0.959	2.05	1.6	3.3	1.0	1.7	0.490
131385907	377	173	0.960	2.04	2.7	4.3	1.7	3.0	0.491
131385908	377	173	0.960	2.04	2.7	4.3	1.7	3.0	0.491
131385909	377	173	0.960	2.04	2.7	4.3	1.7	3.0	0.491
131385910	377	173	0.960	2.04	2.7	4.3	1.7	3.0	0.491
131385911	377	173	0.960	2.04	2.7	4.3	1.7	3.0	0.491
131385912	377	173	0.960	2.04	2.7	4.3	1.7	3.0	0.491
131385913	377	173	0.960	2.04	2.7	4.3	1.7	3.0	0.491
131385914	377	173	0.960	2.04	2.7	4.3	1.7	3.0	0.491
131385915	377	173	0.960	2.04	2.7	4.3	1.7	3.0	0.491
131385916	377	173	0.960	2.04	2.7	4.3	1.7	3.0	0.491
131385917	377	173	0.960	2.04	4.8	4.4	3.5	3.4	0.478
131385918	377	173	0.960	2.04	4.8	4.4	3.5	3.4	0.478
131385919	377	173	0.960	2.04	4.8	4.4	3.5	3.4	0.478
131385920	377	173	0.960	2.04	4.8	4.4	3.5	3.4	0.478
131385921	377	173	0.960	2.04	4.8	4.4	3.5	3.4	0.478

TABLE 3.

MATERIAL PROPERTIES

CLIENT: Ardaman & Associates, Inc.

PROJECT: Saratosa County CCSW Phase I Class I Lf Closure

Date Received: **1/26/2012**
Date Reported: **2/6/2012**
Client Sample ID: **R#131385884 L#C111102L01**
Material Description: **300mil PermaNet UL Double-Sided Geocomposite**

QC'd By: Maria Espitia
PGLI Job No.: **G120041**
PGLI Control No.: **79065**

METHOD DESCRIPTION	SPECIMENS 1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
GEONET COMPONENT: **C#79072**															
ASTM D5199 Thickness (mils)															
Apparatus: Dead weight dial micrometer with 56.4mm (2.22in) dia presser foot and 509gm dead weight (equivalent pressure= 2kPA or 0.29psi).															
Loading time: 5sec Specimen Size: 4" x 4"															
	347	342	340	347	341	346	350	347	342	348	345	4	340	350	
GEOCOMPOSITE:															
ASTM D4716 Transmissivity *Tested at Normal Pressure : 20,000 psf, Gradient: 0.02 , Seating Time: 100 hrs*															
Temperature of Test Water: 20.3 ^{0}C Specimen Size: 12" x 14"															
Transmissivity ($m.^2$/ sec.)															
MD **1.39E-02**											1.39E-02	-	-	-	$1.8x10^{-3}$
Flow Rate (gal/min)															
MD **1.36**											1.36	-	-	-	
Transmissivity (gal/min/ft)															
MD **67.25**											67.25	-	-	-	
Test Set-Up:															
Plate _____															
Drainage Sand (C#78902) oooooooo ***88.6 PCF at as-received moisture content***															
PermaNet UL Geocomposite XXXXXX															
60 mil HDPE Microspike R#443564-11 ========= ***Thickness :*** 415 ***mils (Before)***															
Plate _____ ***Thickness :*** 380 ***mils (After)***															
ASTM D7005 Ply Bond Adhesion (lbs/ in.- width)															
Instron Tensile Testing Machine is set for 305mm(12 in./min) constant rate of extension with initial gauge length of 50mm.															
Full scale force range used for testing: 100 lbs.															
Side A of Composite															
MD	5.9	7.0	5.9	5.9	5.5						6.0	0.6	5.5	7.0	1 MARV
Side B of Composite															
MD	7.4	5.6	5.8	6.0	6.3						6.2	0.7	5.6	7.4	1 MARV

MD - MACHINE DIRECTION

ATTACHMENT C

OBSERVATION LOGS AND WELD TESTING REPORTS

ARDAMAN & ASSOCIATES, INC.
DAILY FIELD REPORT

File No.	09-36-7375	Page No.	1	Of	1
Date:	5-30-12	Day of Week	Wednesday		
Weather:	Sunny, 90	**Rain: 0.0"**	Accum. 5.8"		

Project Name:	CCSWDC	Project Address:	Knight's Trail Road, Laurel, FL.
Client:	HDR	Client's Representative:	Jason Timmons/Dean Ferry
General Contractor:	Thalle	Contractor's Representative:	Ryan
Specialty Contractor:	Hallaton	Specialty's Representative:	Homero
Project Engineer:	Jerry Kuehn, P.E.	Field Representative:	Kyle Nizer

Equipment:

Dozers	0	Dump Trucks	0	Pay Loaders	0	Discs	0
Scraper Pans	0	Motor Graders	0	Backhoes	0	Gradalls	0
Pumps	0	Water Trucks	0	Compactors	0	JGB Lift	2

Activities observed for 5-30-12:

- Hallaton performed one AM extrusion startup.
- Hallaton made three repairs in cell 2. All three repairs involved removing gas vents and repairing all five layers. Once the gas vent was removed, granular bentonite was spread around the open hole in the GCL. Then a new piece of GCL was placed over the hole with a 2 ft. overlap. Geocomposite from roll # 131385908 was used to make all GC repairs. The Geonet was cut to to overlap and then zip tied together, then leistered the Geotextile back together. 60 mil. Agru liner from roll # 203564 was used to make all liner repairs. Each liner repair was vacuum tested afterwards.
- The measurements of the repairs for Gas Vent 1 (GV1): Secondary 6x8, Primary 10x13.
  The measurements of the repairs for Gas Vent 2 (GV2): Secondary 5x8, Primary 8x10.
  The measurements of the repairs for Gas Vent 3 (GV3): Secondary 5x10, Primary 8x13.

NOTICE: The presence and activities of the field representatives do not relieve the contractor's obligation to meet contractual requirements. The contractor retains sole responsibility for site safety, and the methods and sequence of construction.

This report is provided solely as evidence that field observations were performed. Evaluations and/or recommendations conveyed in the engineer's report may vary from and shall take precedence over those indicated in the Daily Field Report. The equipment list is also subject to variables and is not to be used for pay purposes.

Field Representative: Kyle Nizer — Date: 5-30-12

Reviewed by: — Date:

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Repair Log (Field Use)

Project No.: 1164-12
Project Name: Sarasota Central LF
Date: 5-30-12
Project Location: NOKOMIS FL
Page: 1 of 1

Material: HDPE-TX
Thickness: 60 mil
Lo grueso del Plastico: 66 mil

PRIMARY

Repair # Reparar #	Defect Code El Codigo del Defecto	Defect Location Lugar del Defecto	Repair Date Dia del Reparo	Repair Time La Hora de Reparo	Repair Type Tipo de Reparasion	Approx Size Que Grande Fue	Machine ID Numero de Maquina	Repair Tech El Reparador Technico	Vacuum Test Aspiradora P/F Paso/No Paso	Vacuum Test Aspiradora Date Dia
P-01	GV-01	info. R-S-1	5-30-12	10:53	P	10'X13'	X-8	MY	P	5-30
P-02	GV-02	info. R-S-2	5-30-12	11:27	P	8'X10'	X-8	MY	P	5-30
P-03	GV-03	info. R-S-3	5-30-12	11:50	P	8'X13'	X-8	MY	P	5-30

Defect Code:
BO - Burn Out
CR - Crease
DT - Destructive Test Number
EE - Earthwork Equipment Damage
FM - Fishmouth
PT - Pressure Test Cut
J - Joint
SI - Soil Surface Irregularity
DD - Deployment Damage
MD - Material Damage
WR - Wrinkle
WS - Welder restart
FD - Factory Defect
AT - Air Test

Repair Type:
C - Cap Strip
P - Patches
B - Extrudate Bead
GB - Grind & Bead
BT - Boot

Test Result:
P - Pass
F - Fail

Notations: BOS - Beginning of Seam EOS - End of Seam → to an area > From an area NOAT - No AT

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Repair Log (Field Use)

Project No.: 1164-1911
Project Name: Sarasota central LF
Date: 5-30-12
Project Location: Nokomis FL
Page: 1 of 1

Material: HOLLEE-TX
Thickness: 60 mil
Lo grueso del Plastico: 60 mil

Repair # Reparar #	Defect Code El Codigo del Defecto	Defect Location Lugar del Defecto	Repair Date Dia del Reparo	Repair Time La Hora de Reparo	Repair Type Tipo de Reparasion	Approx Size Que Grande Fue	Machine ID Numero de Maquina	Repair Tech El Reparador Technico	Vacuum Test Aspiradora P/F Paso/No Pase	Vacuum Test Aspiradora Date Dia
S-01	GV-01	Wide Bead Line Seam	5-30-12	9:10	P	6'X8'	X-8	MY	P	5-30
S-02	GV-02	Wide Bead Line Seam	5-30-12	9:41	P	5'X8'	X-8	MY	P	5-30
S-03	GV-03	Wide Bead Line Seam	5-30-12	10:17	P	5'X10'	X-8	MY	P	5-30

Secondary

Defect Code:
BO - Burn Out
CR - Crease
DT - Destructive Test Number
EE - Technicians Equipment Damage
FM - Fisheye
PT - Pressure Test Cut
T - Tear
SI - Soil Surface Irregularity
DD - Deployment Damage
MD - Material Damage
WR - Wrinkle
WS - Welder restart
FD - Factory Defect
AT - Air Test

Repair Type:
C - Cap Strip
P - Patches
B - Extrudate Bead
GB - Grind & Beac
BT - Bead
Test Result:
P - Pass
F - Fail

Notations: BOS - Beginning of Seam EOS - End of Seam ↔ to an area > From an area NOAT - No AT

[illegible]
1216 SPARKS ROAD, SPARKS, MD 21152
410-583-7783 Fax 410-583-7228

Geomembrane Field Trial Seam Log

Project Name: [illegible]
Project Seam Date:
Project Location:
Page: 1 of 1

HDPE
Smooth
PVC
EPE
Mil Thickness
(Lo grueso del Plastico)

Textured
Hypalon

Project Seam Requirements

Tension:		Extension:	
Peel:	[illegible]	Peel:	[illegible]
Shear:	[illegible]	Shear:	[illegible]

Sample # / Muestra	Date / Hoy	Ambient Temp. / Temperatura de Ambiente	Welder ID: Machine / Maquina	Welder ID: Operator / Operador	Wedge - Rate: Temp/Speed Psion (or % Mot) Temperatura / Velocidad (Psion o Motor)	Extruder Pistole: Barrel/Ambient Temp / Temperatura	Seam Strength - Test de Plastico: Peel - Despegar in "T" (pli) IN / OUT - Adentro/Fuera 1	2	3	4	5	Shear - Jalar in linia uno contra (ppi) 1	2	3	4	5	Test/Trail - Pass/Pa Paso Tech ID - Technico ID	Remarks - Repa
[illegible]																		

Seams Trial Test Trial Seam Log Ver. 2.0 Printable

ATTACHMENT D

PHOTOS

1. **May 30, 2012 – Gas vent location with gas vent removed and geosynthetic layers exposed.**

2. **May 30, 2012 – Placing supplemental bentonite at GCL overlap.**

3. May 30, 2012 – Installing GCL patch.

4. May 30, 2012 – Secondary geomembrane patch extrusion welded.

5. May 30, 2012 - Installing secondary geocomposite patch.

6. May 30, 2012 - Installing primary geomembrane patch.

7. May 30, 2012 – Installing primary geocomposite patch.

8. May 30, 2012 – Replacing sand over patch area.