



BLUE RIDGE
PAPER PRODUCTS INC.

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**SOLID WASTE SECTION
ASHEVILLE REGIONAL OFFICE**

August 8, 2007

Mr. James Coffey
NCDENR, Solid Waste Section
2090 U.S. Highway 70
Swannanoa, NC 28778

Subject: Blue Ridge Paper Products
Landfill No. 6 (Permit 44-06) – Areas B, C, F, G, and H
Closure Documentation Report

Dear Mr. Coffey:

Enclosed please find three copies of construction documentation related to the closure of Areas B, C, F, G, and H at Blue Ridge Paper Products Inc., Landfill No. 6 in Canton, North Carolina, Permit #44-06. These closures were contracted by Blue Ridge starting in 1995 through 1999. The information for each closure was compiled by Sevee & Maher Engineers, Inc. (SME) from data provided by Blue Ridge. SME then compared the information to the specifications in effect at the time of closure for each Area.

Based on SME's review of the data, additional testing was necessary for Areas F, G, and H. SME obtained the necessary samples and performed soil grain size testing to complete the quality assurance documentation needed to verify compliance with the specifications. Based on the data compiled by SME, a statement of compliance for Areas B, C, F, G, and H is provided by SME. The information provided in the binder is tabbed by Area for your reference.

Blue Ridge requests approval of the closure projects by NCDENR for Areas B, C, F, G, and H. If you have any questions or require additional information please do not hesitate to contact us.

Sincerely,

Jim Giauque
Waste Compliance & Landfill Supervisor
Blue Ridge Paper Products Inc
giauqj@blueridgepaper.com
828-646-2028 FAX 828-646-6892

Paul Dickens
Manager Environmental Affairs
Blue Ridge Paper Products Inc
dickep@blueridgepaper.com
828-646-6141 FAX 828-646-6892

Copy: Derric Brown
G. Cote, SME

Attachments
File:BCFGH closure 080807

**CONSTRUCTION DOCUMENTATION
FOR
LANDFILL NO. 6
AREAS B, C, F, G, and H CLOSURE**

**BLUE RIDGE PAPER PRODUCTS, INC.
CANTON, NORTH CAROLINA**

AUGUST 2007

SME

Sevee & Maher Engineers, Inc.
*Waste Management and Hydrogeologic Consultants
Cumberland Center, Maine*



AREA B

**STATEMENT OF COMPLIANCE
WITH APPROVED PLANS AND SPECIFICATIONS**

Project Owner: *Blue Ridge Paper Products*
Project Title: *Landfill No. 6 Area B Closure*
Project Location: *Canton, North Carolina*
Engineer: *Sevee & Maher Engineers, Inc.*
Cumberland, Maine

The undersigned, registered Professional Engineer in the State of North Carolina and in the employ of Sevee & Maher Engineers, Inc., which is responsible for construction monitoring pursuant to its contract with Blue Ridge Paper Products, states to the North Carolina Department of Environmental Services that it is the professional engineering opinion of Sevee & Maher Engineers, Inc., based on the attached information, was in general accordance and compliance with the contract, plans, specifications, and conditions as approved by the North Carolina Department of Environmental Services.

Date: 7/30/07

President: *John E. Sevee*
John E. Sevee, P.E. C. 20589
/Reg. No. 20589

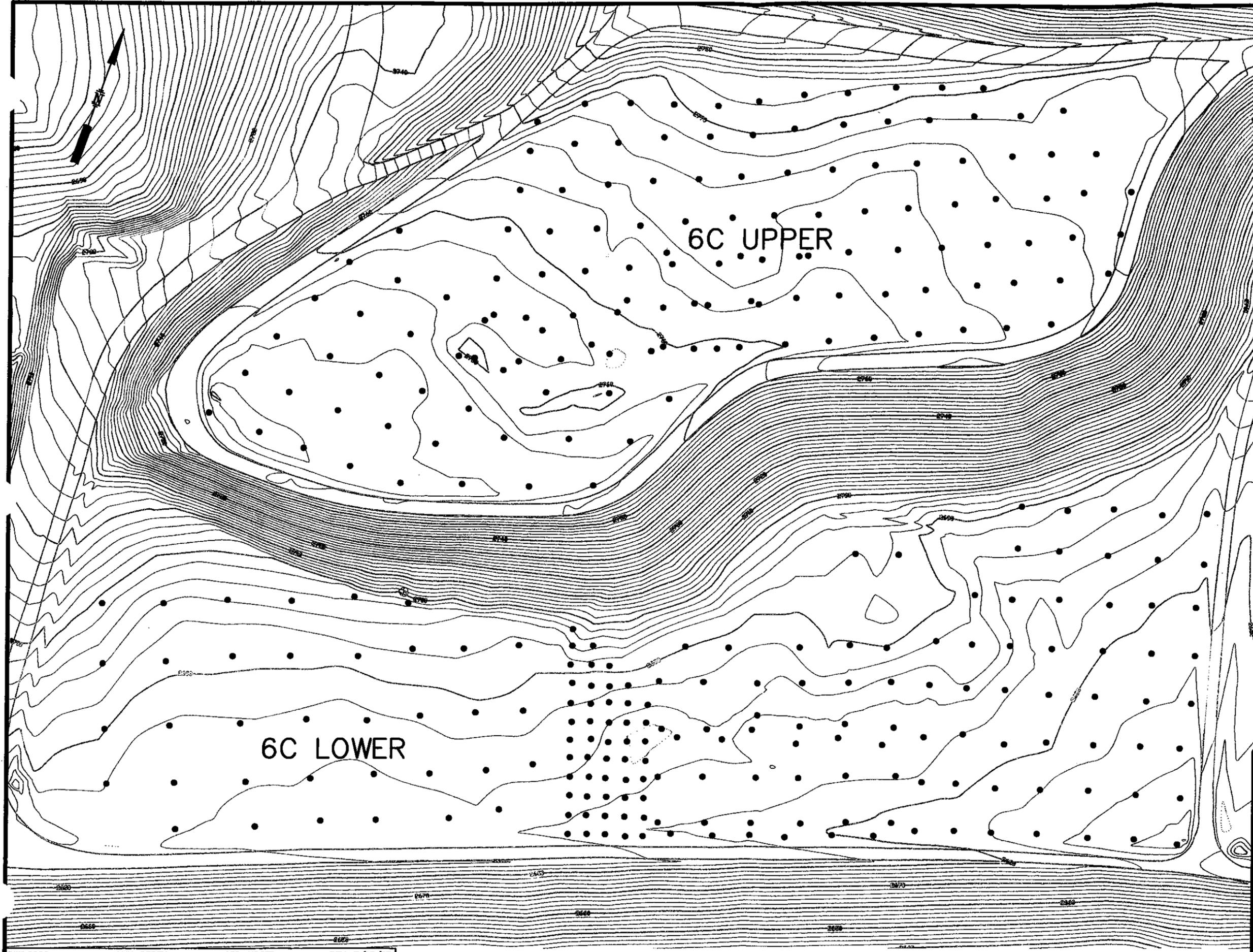


**BLUE RIDGE PAPER PRODUCTS
CANTON, NORTH CAROLINA
LANDFILL NO. 6
AREA B CLOSURE**

1.0 PROJECT DESCRIPTION

Blue Ridge Paper Products (Blue Ridge) owns and operates a 240 acre landfill referred to as Landfill #6 in Canton, North Carolina, Permit #44-06. The landfill is used for the disposal of sludge, lime mud, ash, and wood waste into discrete areas, A through H. In July 1995, Blue Ridge reached capacity in Area B and constructed a soil cover over the waste. The requirement for closure of Area B was a minimum cover soil depth of 24 inches. Based on the worksheets provided by Blue Ridge, a total of 204 sample locations were measured for thickness. A copy of the worksheets is attached and the locations compiled on a site plan, see Figure 1. The measurements show that a minimum of 24 inches of cover soil was placed over the waste in Area B.

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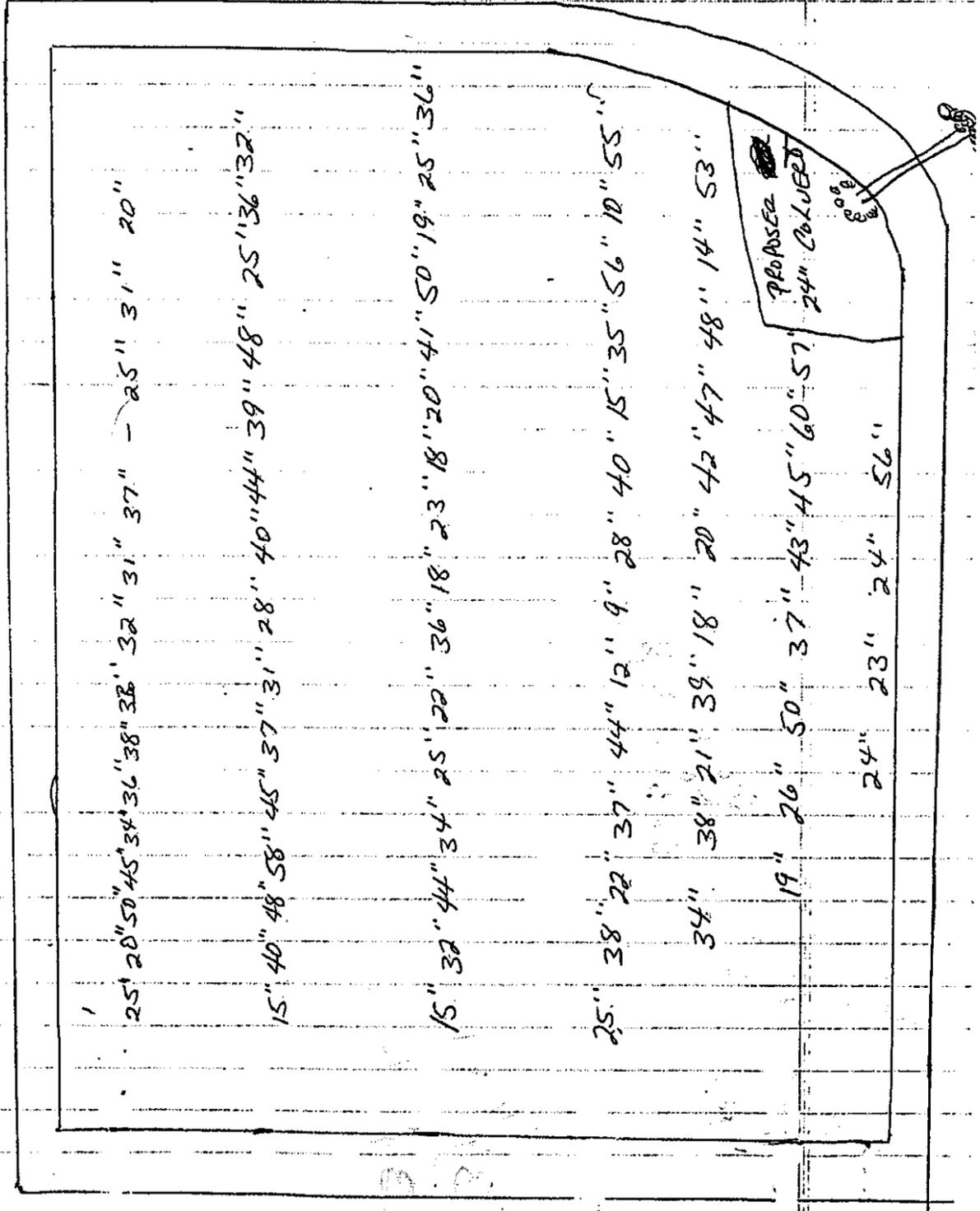
LEGEND
• SOIL DEPTH LOCATIONS



FIGURE 1
DEPTH LOCATIONS
CELL 6C UPPER & 6C LOWER
BLUE RIDGE PAPER
CANTON, NC

SME
Sevee & Maher Engineers, Inc.

B- upper FILL DIRT



B-LOWER FILL DIRT

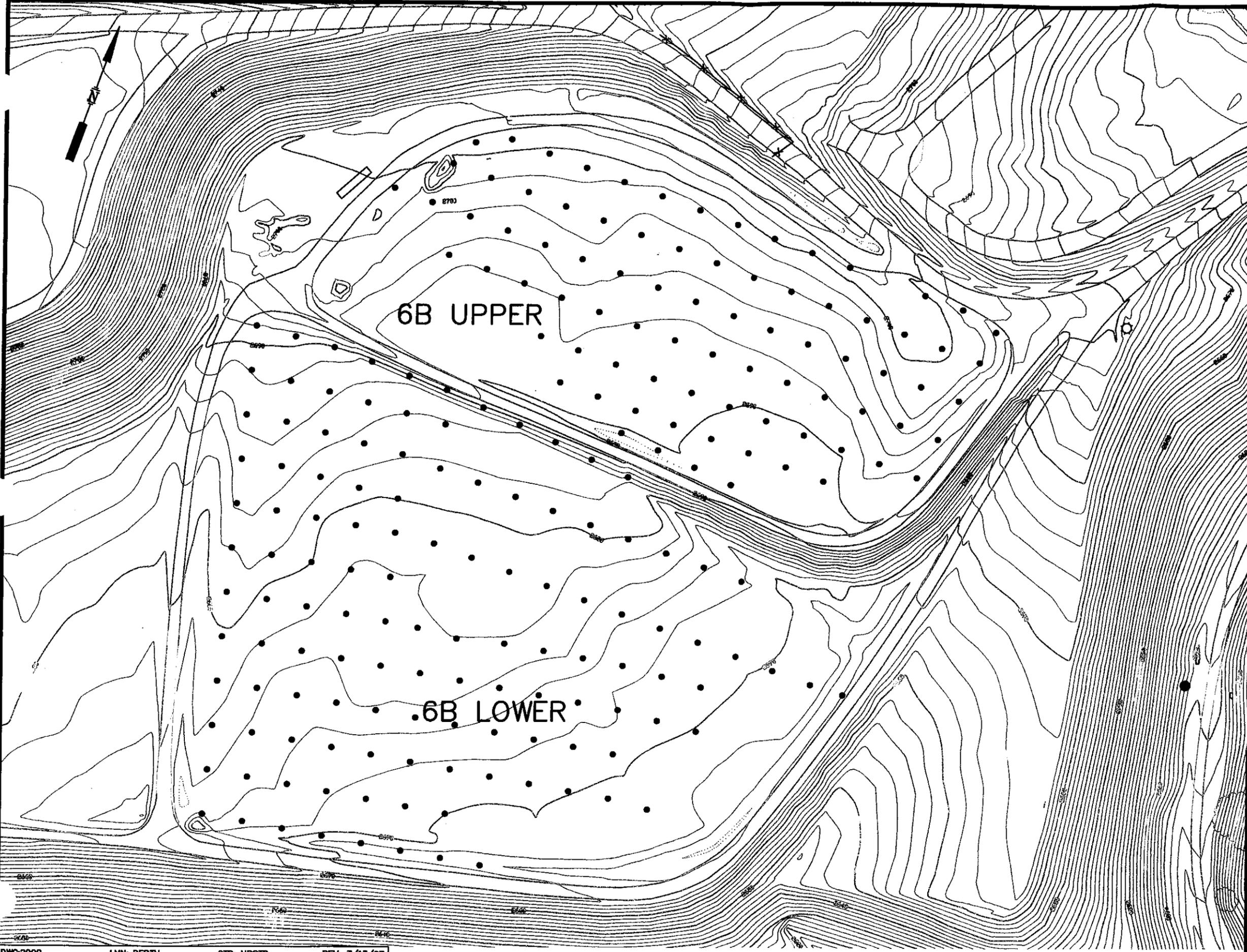
25" 20" 28" 35" 39" 53" 20" 57" 45" 44" 40"
 46" 11" 15" 27" 27" 39"
 55" 14" 27" 32" 35" 34" 37" 43" 20" 59" 34" 30"
 13" 16" 32" 27" 47"
 36" 32" 37" 29" 49" 51" 59" 49" 51" 40" 47" 34" 25" 60" 29" 28"
 43" 39" 37" 57" 50"
 31" 50" 59" 66" 24" 55" 33" 56" 44" 32" 34" 61" 33"
 30" 43" 59" 46" 37" 21" 14" 56" 34" 12" 35" 58" 58"
 40" 32" 38" 27" 32" 27" 55" 59" 56" 33" 27"
 38" 42" 60" 35" 30" 15" 59" 61" 41" 35" 27" 28"
 42" 47" 39" 61" 38" 35" 39"

PROP 36" 2nd

PROP 36" 2nd

24" CAP

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LEGEND

- SOIL DEPTH LOCATIONS

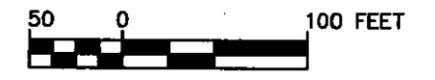


FIGURE 2
DEPTH LOCATIONS
CELL 6B UPPER & 6B LOWER
BLUE RIDGE PAPER
CANTON, NC



Sevee & Maher Engineers, Inc.
Waste Management and Hydrogeologic Consultants

**STATEMENT OF COMPLIANCE
WITH APPROVED PLANS AND SPECIFICATIONS**

Project Owner: *Blue Ridge Paper Products*

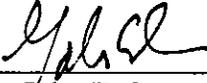
Project Title: *Landfill No. 6 Area C Closure*

Project Location: *Canton, North Carolina*

Engineer: *Sevee & Maher Engineers, Inc.*
Cumberland, Maine

The undersigned, registered Professional Engineer in the State of North Carolina and in the employ of Sevee & Maher Engineers, Inc., which is responsible for construction monitoring pursuant to its contract with Blue Ridge Paper Products, states to the North Carolina Department of Environmental Services that it is the professional engineering opinion of Sevee & Maher Engineers, Inc., based on the attached information, was in general accord and compliance with the contract, plans, specifications, and conditions as approved by the North Carolina Department of Environmental Services.

Date: 7/30/07

President: 
John E. Sevee, P.E. C.
Reg. No. 20589

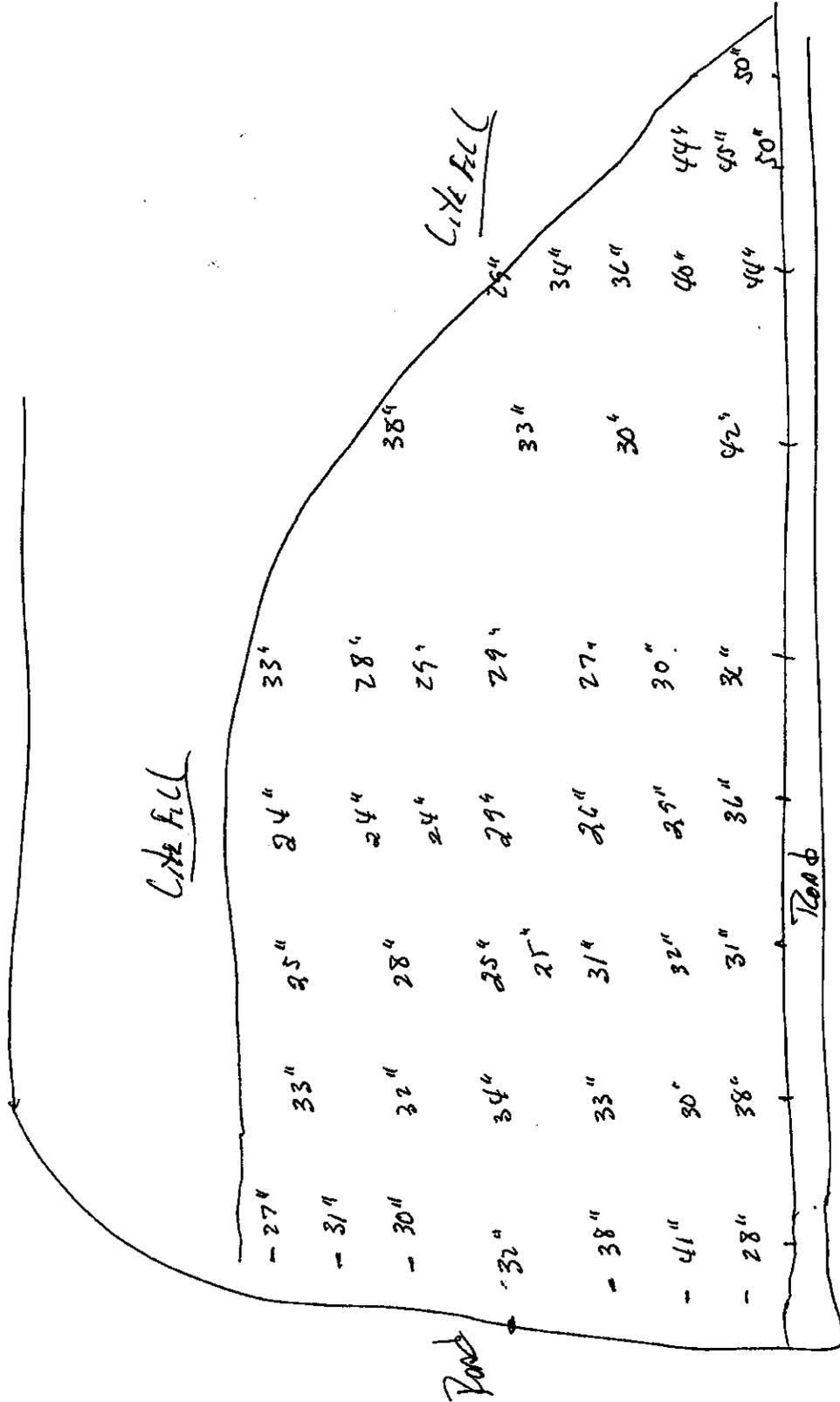


**BLUE RIDGE PAPER PRODUCTS
CANTON, NORTH CAROLINA
LANDFILL NO. 6
AREA C CLOSURE**

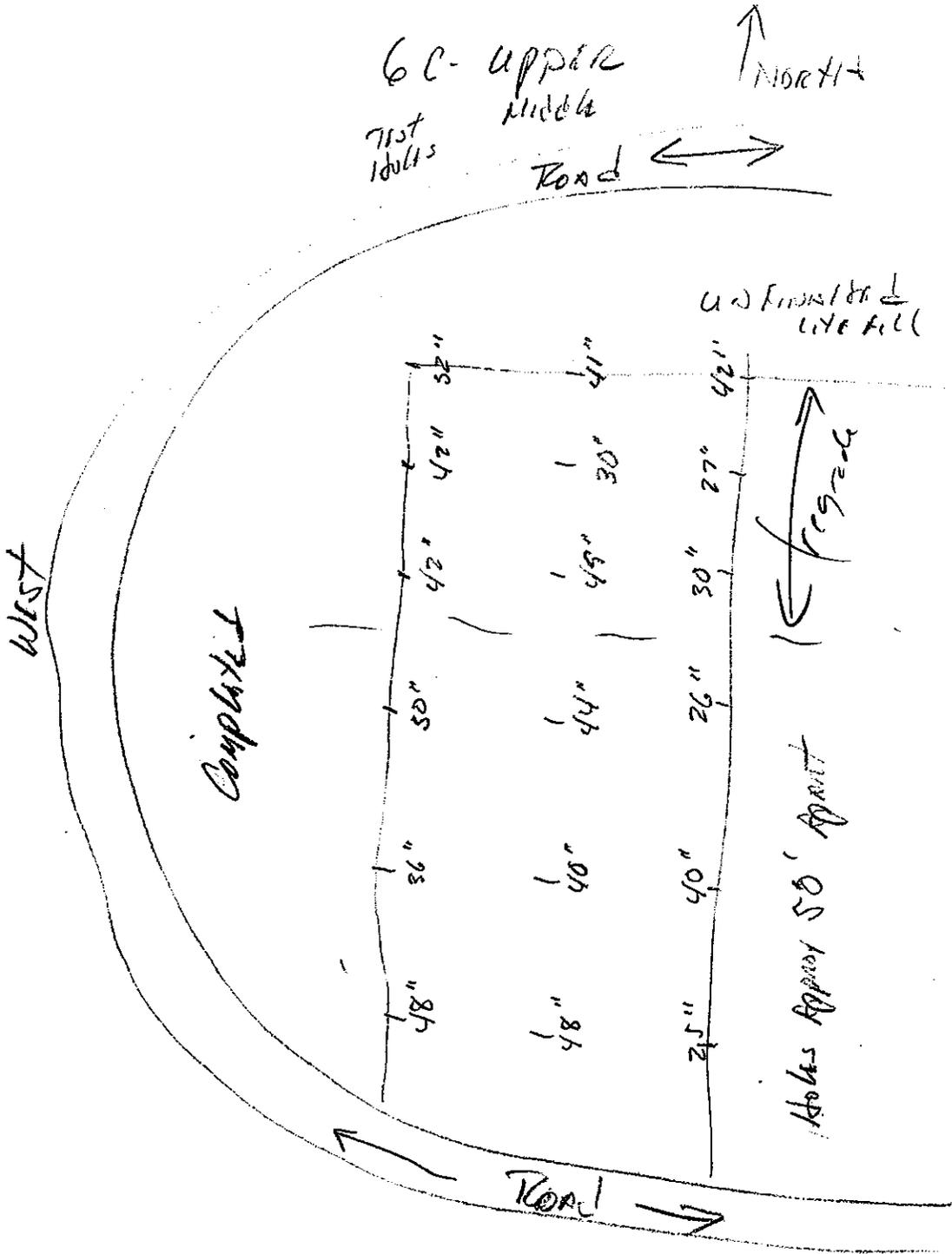
1.0 PROJECT DESCRIPTION

Blue Ridge Paper Products (Blue Ridge) owns and operates a 240 acre landfill referred to as Landfill #6 in Canton, North Carolina, Permit #44-06. The landfill is used for the disposal of sludge, lime mud, ash, and wood waste into discrete areas, A through H. In 1997, Blue Ridge reached capacity in Area C and constructed a soil cover over the waste. The requirement for closure of Area C was a minimum cover soil depth of 24 inches. Based on the worksheets provided by Blue Ridge, a total of 321 sample locations were measured for thickness. A copy of the worksheets is attached and the locations compiled on a site plan, see Figure 1. The measurements show that a minimum of 24 inches of cover soil was placed over the waste in Area C.

North ↑



Holes Approx 20' Apart
15' from Road
Road Boundaries
Copper West Test Holes
9-3-97

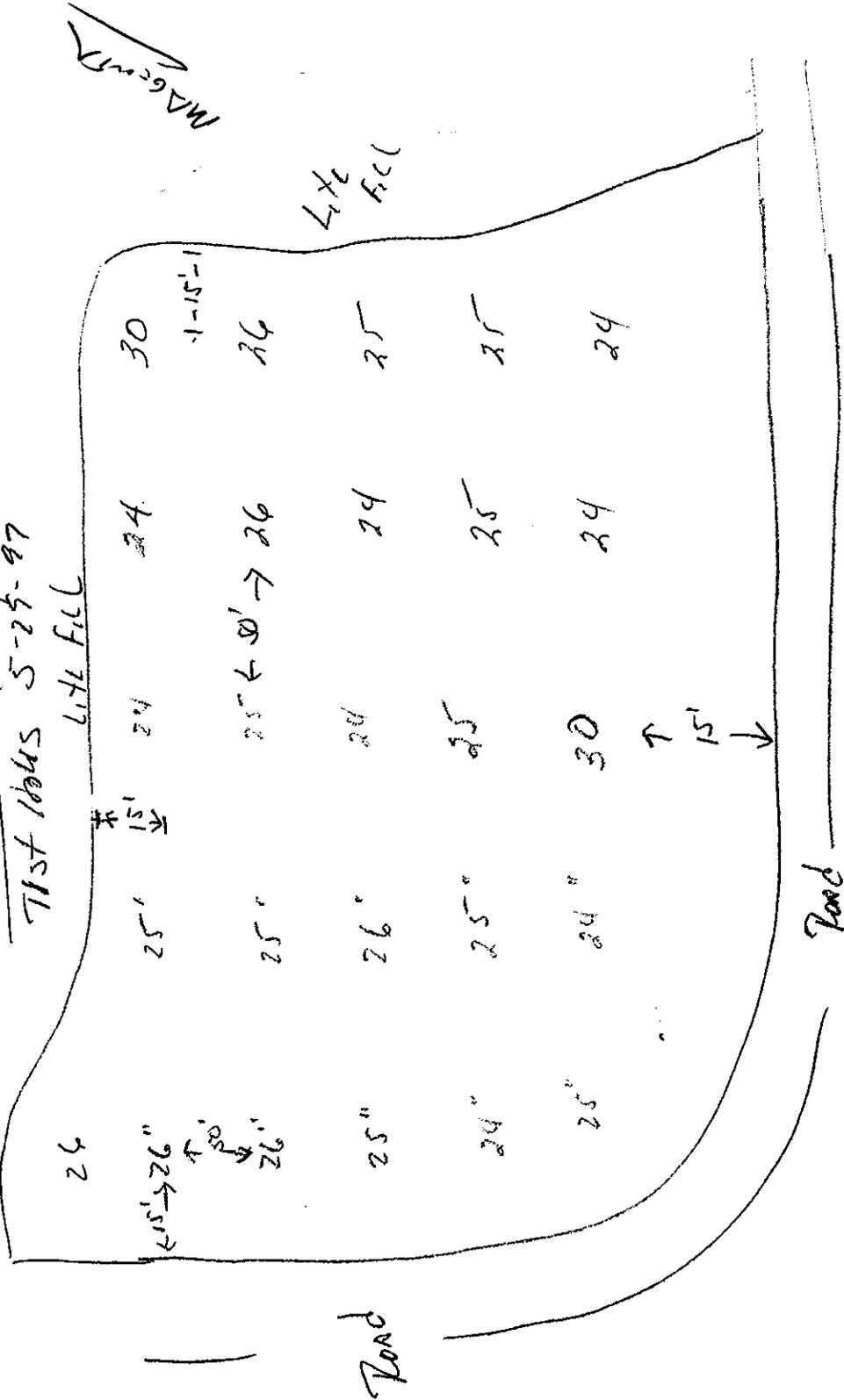


9-4-97

C-Upper (West)

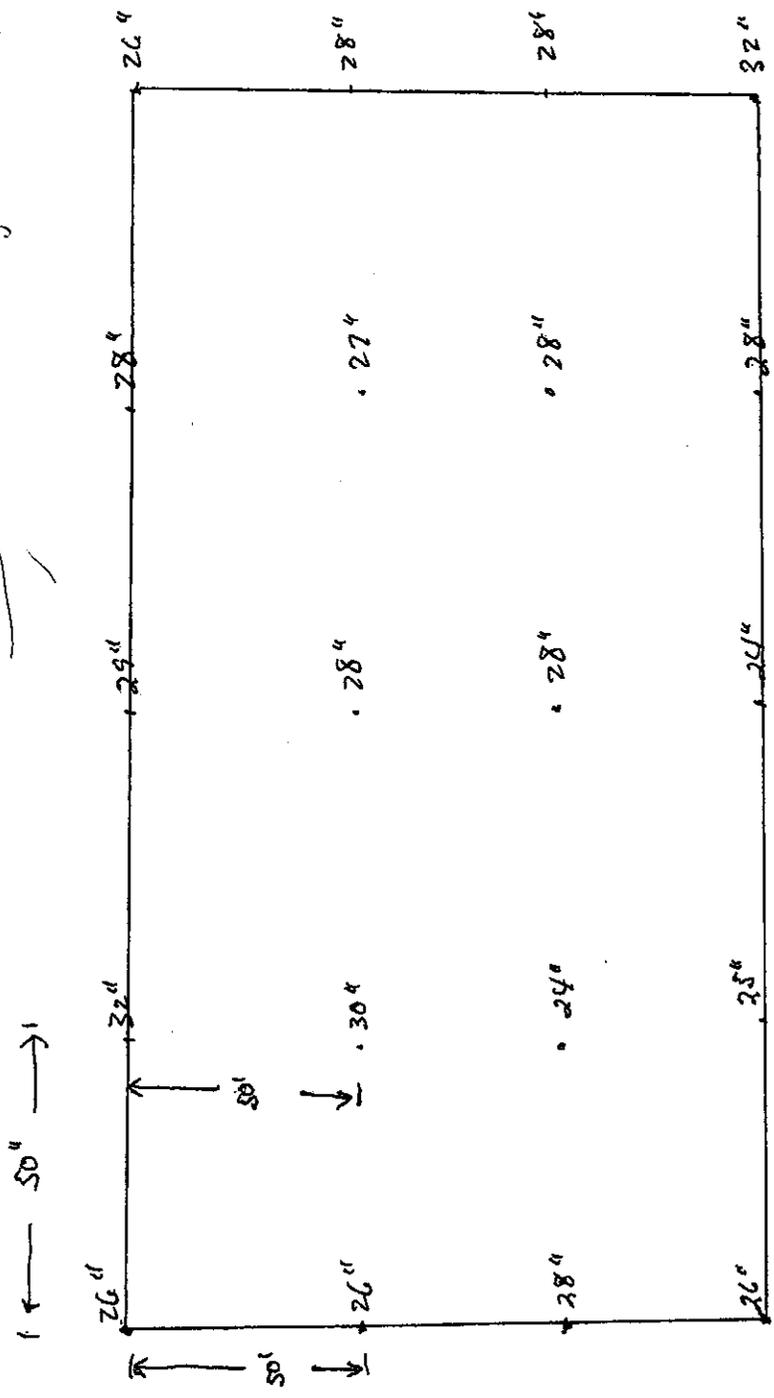
71st holes 5-27-97

like fill



Holes approx. 50' apart

Test Holes
 6-C Lower Middle



Hole Area 50" Apart

9-15-98
 By Mike Johnson

600 Clasket 71st Aides

600 Lower West

Dike

Ditch

25'

32

26

25

24

25

35

↑ 50'

↓ 31

24

25

24

25

25

25

25

28

Road

24

27

27

27

26

25

25

28

Road

25

24

24

28

22

26

25

24

Road

24

28

22

24

24

26

26

24

24

↑ 15'

↓

↑ 15'

↓

Road

5-16-57

Madings Tank 87

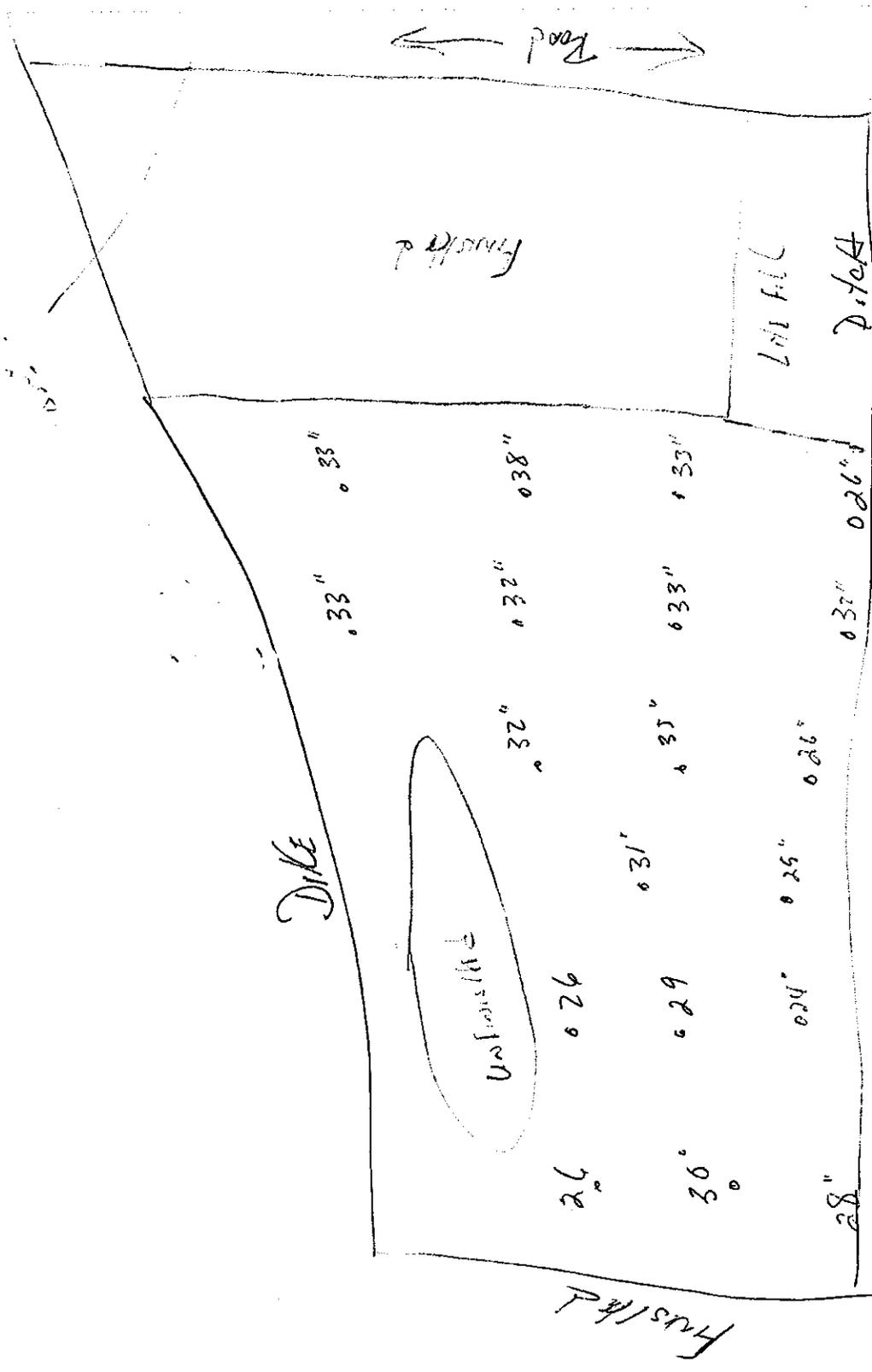
Milla Anderson

10-15-16-97

C-LOANER PROBLE
+ FACT

TEST HOLE

↑ NORTH

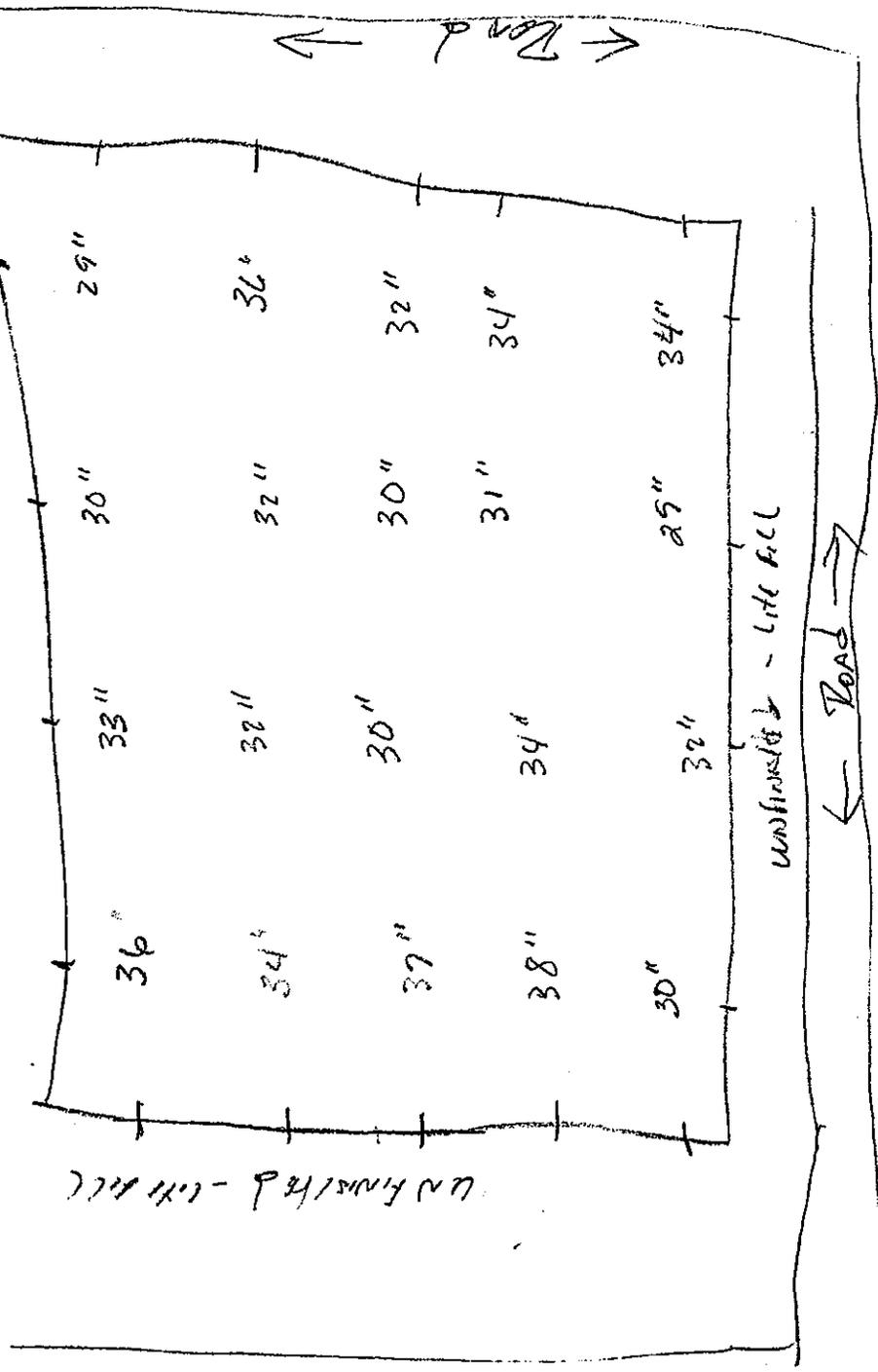


TEST TABLES

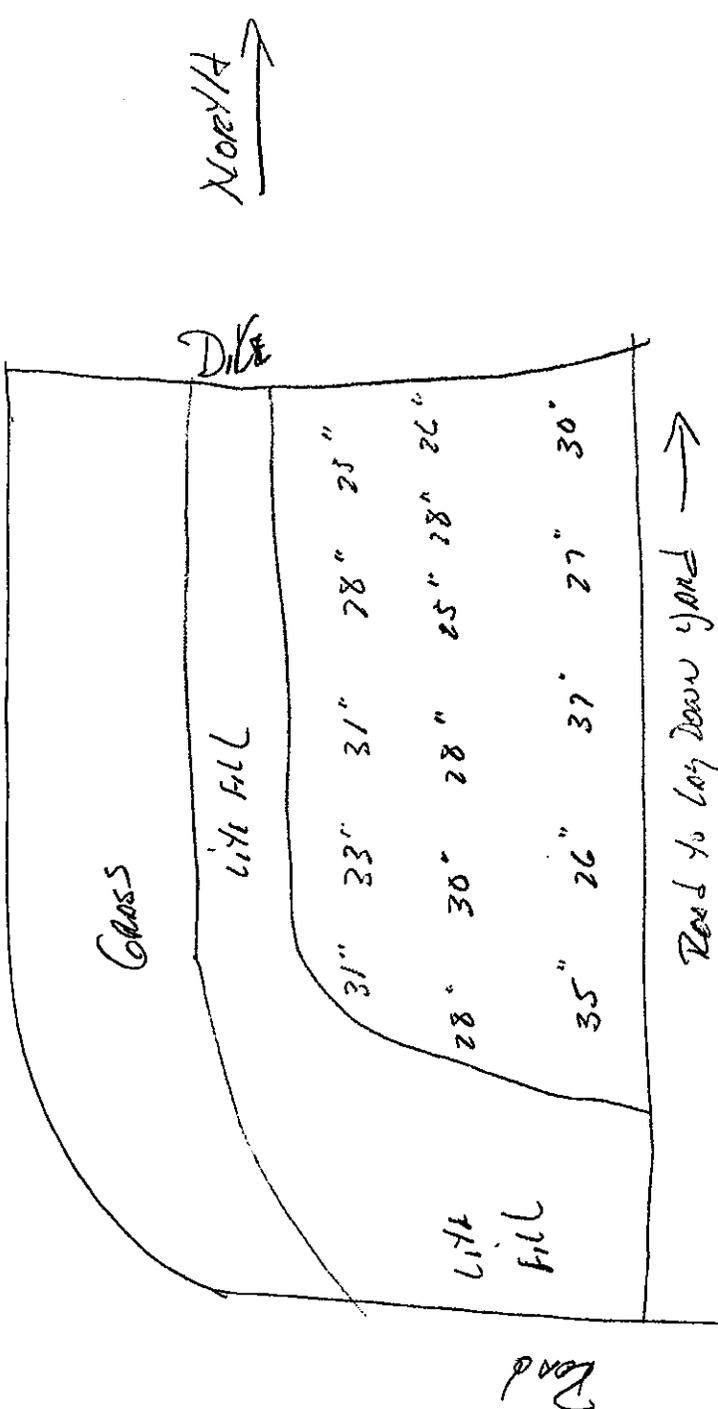
X1021A ↗
9-4-57

6 C LOWERC EAST
1 table APPROX 58' APART

Dike



West



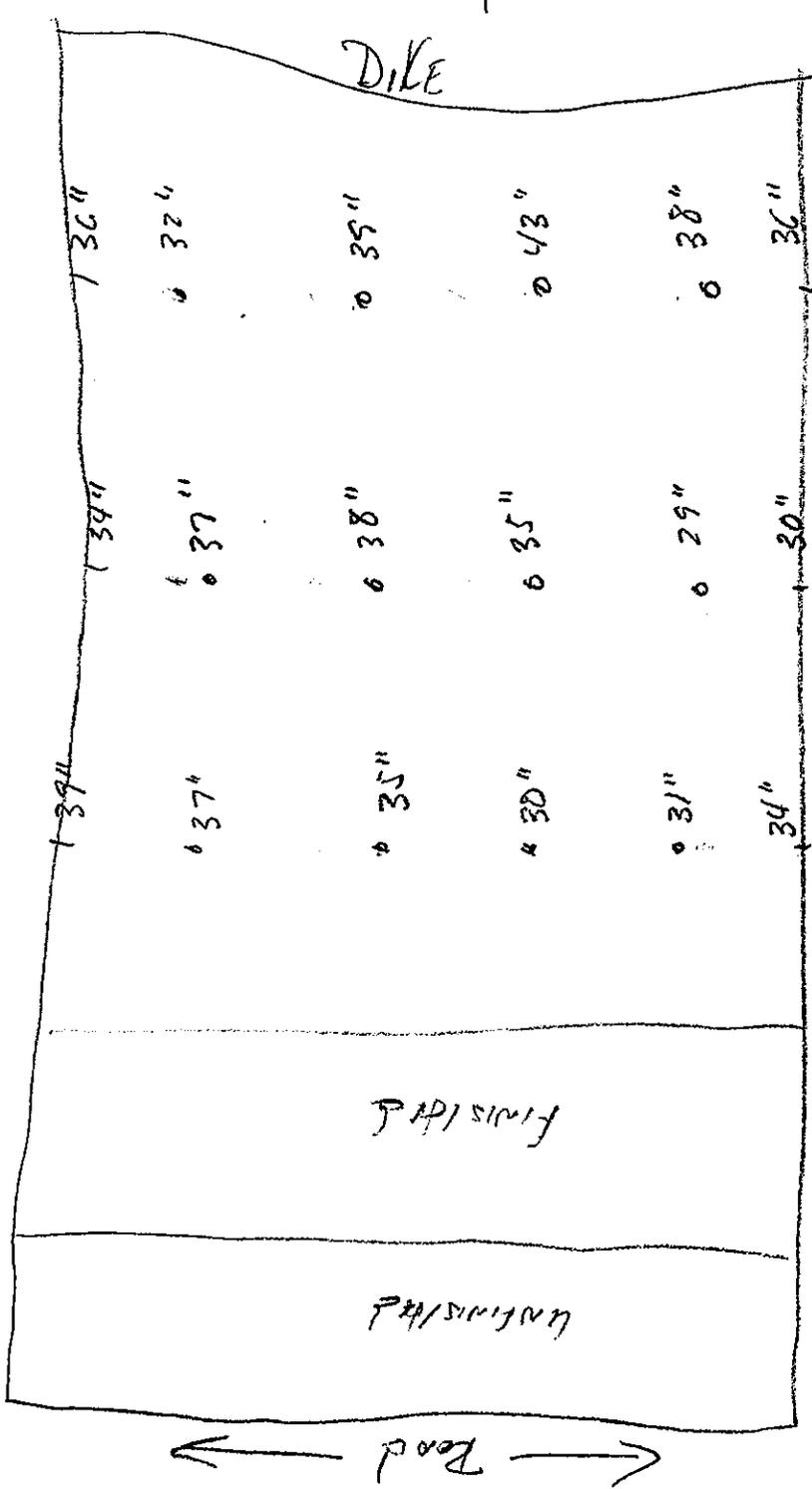
7-2-57
M/A

H/C lower East

Test holes

Test holes approx 50' distance apart.
15' from edge of Road, Dike & Lite Fill

unfinished



Holes Approx 25'

Apert

710710605

6 C- GOWAN NE END

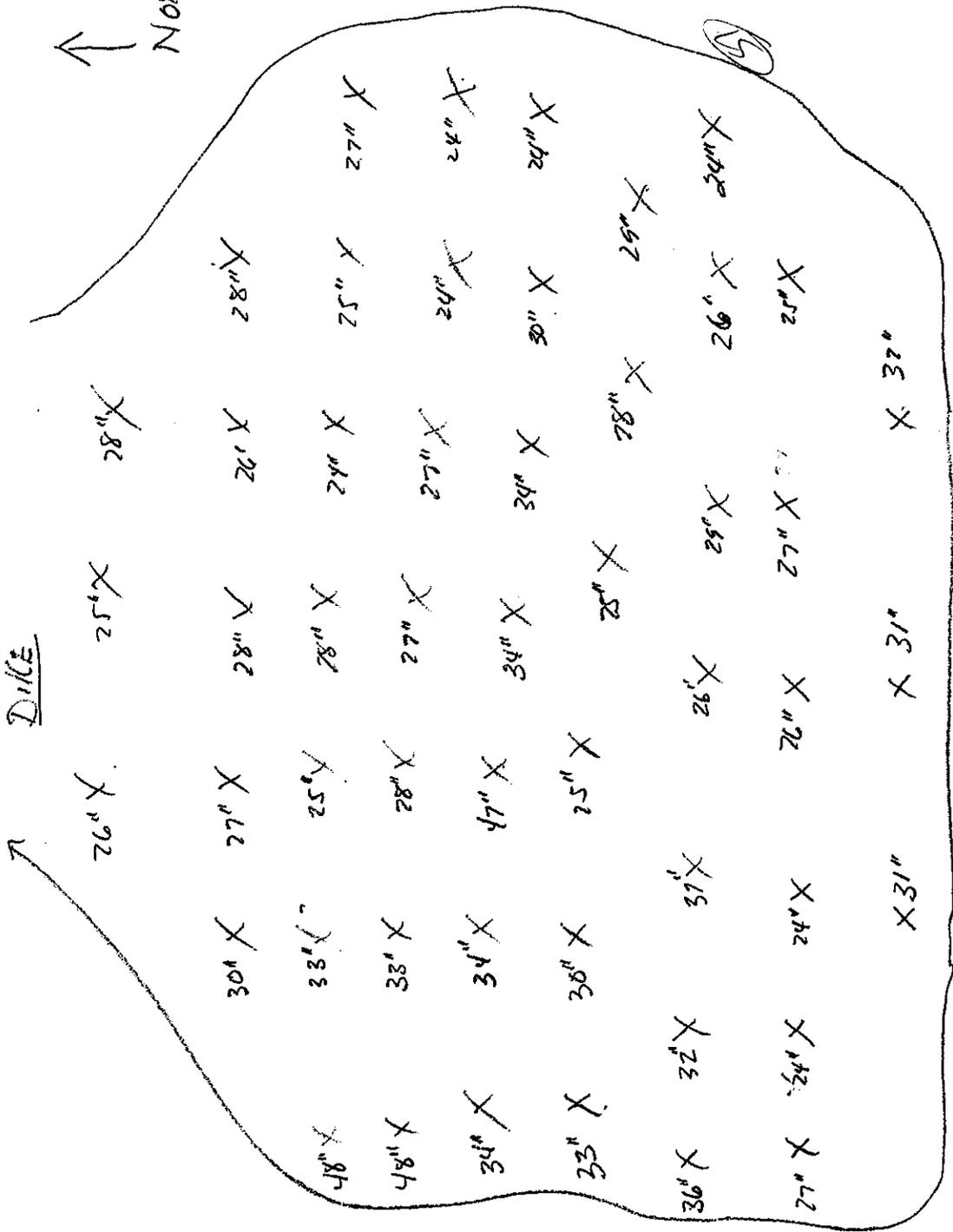
9-23-57

← Road →

← Road →

DILLE

↑ NORTH



Holes Approx. 50' Apart

C- Lower Test Holes

Middle 11-17-57

AREA F

Sevee & Maher Engineers, Inc.
Waste Management and Hydrogeologic Consultants

**STATEMENT OF COMPLIANCE
WITH APPROVED PLANS AND SPECIFICATIONS**

Project Owner: ***Blue Ridge Paper Products***
Project Title: ***Landfill No. 6 Area F Closure***
Project Location: ***Canton, North Carolina***
Contractor: ***Perry M. Alexander Grading Company***
Engineer: ***Sevee & Maher Engineers, Inc.***
Cumberland, Maine

The undersigned, registered Professional Engineer in the State of North Carolina and in the employ of Sevee & Maher Engineers, Inc., which is responsible for construction monitoring pursuant to its contract with Blue Ridge Paper Products, states to the North Carolina Department of Environmental Services that it is the professional engineering opinion of Sevee & Maher Engineers, Inc., based on the attached information, was in general accordance and compliance with the contract, plans, specifications, and conditions as approved by the North Carolina Department of Environmental Services.

Date: 7/30/07

President: _____

John E. Sevee
John E. Sevee, E.C.
Reg. No. 20589



**BLUE RIDGE PAPER PRODUCTS
CANTON, NORTH CAROLINA
LANDFILL NO. 6
AREA F CLOSURE**

1.0 PROJECT DESCRIPTION

Blue Ridge Paper Products (Blue Ridge) owns and operates a 240 acre landfill referred to as Landfill #6 in Canton, North Carolina, Permit #44-06. The landfill is used for the disposal of sludge, lime mud, ash, and wood waste into discrete areas, A through H. In October 1996, Blue Ridge reached capacity in Area F, and the area was covered with a soil cap. In June 1999, Blue Ridge was required to construct a low permeable cap over the waste. The requirement for the low permeable cap was the result of groundwater monitoring and hydrogeologic study that indicated that Area F was potentially impacting the quality of the local groundwater regime. The requirement for the final cover system from bottom to top was a 30-mil polyvinyl chloride (PVC) liner, a geonet sandwiched between non-woven geotextiles, 12 inches of common borrow, overlain by 6 inches of a plant growth medium.

Quality Assurance and Quality Control for the cover construction was performed by Law Engineering and Environmental Services, Inc. (Law) of Asheville, North Carolina. A report was prepared by Law that included field and laboratory test reports for the soil and geosynthetic materials, and daily observation records, see attached. Based on Sevee & Maher Engineers, Inc.'s (SME) review of Law's report it was determined that an additional test was required of the 12 inch common borrow layer to meet the specifications. The test consisted of grain size analyses to determine that the common borrow contained a minimum of 20 percent fines (200 sieve). SME obtained eight soil samples from the common borrow layer in Area F. The grain size test results showed that the common borrow contained a minimum of 20 percent fines. A copy of the grain size tests is attached.

LAW

LAWGIBB Group Member 

**QUALITY ASSURANCE/QUALITY CONTROL
REPORT**

LANDFILL CELL 6-F COVER CONSTRUCTION

for

**Blue Ridge Paper Products, Inc.
Canton, North Carolina**

by

**Law Engineering and Environmental Services, Inc.
1308-C Patton Avenue
Asheville, North Carolina 28806**

LAW Project 30300-8-0313.02

January 24, 2000

Mr. William D. von Vitzthume
Blue Ridge Paper Products, Inc.
Post Office Box 4000
Canton, North Carolina 28716

Subject: **Quality Assurance/Quality Control Report
Landfill Cell 6-F Cover Construction
Blue Ridge Paper Products, Inc.
Canton, North Carolina
LAW Project 30300-8-0313.02**

Dear Mr. von Vitzthume:

Law Engineering and Environmental Services, Inc. (LAW) is pleased to provide this report of quality assurance/quality control testing and monitoring services for the construction of the Landfill Cell 6-F cover. Our services were provided in general accordance with our Proposal 30300-8-9000.0168 dated July 10, 1998. This report is intended to contain the information required for submittal to the North Carolina Department of Environment and Natural Resources.

This Quality Assurance/Quality Control Report provides documentation of construction monitoring and QA/QC testing for the cover of landfill cell 6-F. Included with this report are copies of field and laboratory test reports, copies of our on-site technician's daily observations, summary of daily site meetings and as-built drawings.

Thank you, for the opportunity to provide our professional services during this phase of your project. If you have any questions regarding this document or require additional information, please do not hesitate to contact us.

Sincerely,
LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.


Sam Interlicchia
Staff Professional


Stephen E. Blevins, P.E.
Principal
Registered, North Carolina 6207

SCI/SEB:sci

cc: Sevee & Maher Engineers, Inc. / GIBB Environmental Services, Inc.
1308-C Patton Avenue
Asheville, NC 28806
828-252-8130 • Fax 828-251-9890

**QUALITY ASSURANCE/QUALITY CONTROL
REPORT**

LANDFILL CELL 6-F COVER CONSTRUCTION

for

**Blue Ridge Paper Products, Inc.
Canton, North Carolina**

by

**Law Engineering and Environmental Services, Inc.
1308-C Patton Avenue
Asheville, North Carolina 28806**

LAW Project 30300-8-0313.02

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1.0 PROJECT LOCATION AND DESCRIPTION

The Blue Ridge Paper Products, Inc. landfill cell 6-F is located in the eastern part of Haywood county adjacent to Incinerator Road. The southern boundary is the landfill cell 6-H and the eastern boundary is the Haywood County demolition landfill. There are active and inactive cells located to the west, southwest and south of cell 6-F.

Cover construction began on May 12, 1999 and was completed on June 1, 1999. The work entailed subgrade preparation, placement of a 30-mil PVC liner, placement of a geocomposite drainage layer, construction of the soil cap and seeding.

The construction specifications were provided by Sevee & Maher Engineers, Inc. Perry M. Alexander Grading Company performed the earthwork and Geomembrane Services, Inc. (a subcontractor to Perry M. Alexander) installed the synthetic liner and geocomposite (geotextile-geonet-geotextile) drainage layer. Law Engineering and Environmental Services, Inc. (LAW) provided the construction quality assurance/quality control testing and monitoring services.

2.0 CONSTRUCTION AND QUALITY ASSURANCE

2.1 SUBGRADE PREPARATION

Subgrade preparation consisted of finish grading of the existing soil cover and rolling with a smooth drum roller to create a smooth and stable surface on which to construct the landfill cover. After finish grading, the subgrade was proofrolled with a 15 to 20-ton, four-wheeled, rubber-tired roller. The proofroller made at least four passes over each location, with the last two passes perpendicular to the first two. Proofrolling of the subgrade was observed by a LAW technician working under the direct supervision of the principal engineer. No pumping or large deflections were observed during proofrolling. The final prepared subgrade was observed to be free of irregularities, protrusions, loose soil, roots or stones as documented on the Subgrade Acceptance Certificate (Appendix I). A topographic survey of the surface of the subgrade was performed by C.O. Hampton Company Surveyors on April 23, 1999, immediately prior to liner placement. This topographic survey is presented as Drawing 1 in Appendix IX (As-Built Drawings).

2.2 SYNTHETIC LINER AND GEOCOMPOSITE DRAINAGE LAYER PLACEMENT

A synthetic liner (30-mil PVC) was placed directly on the prepared and accepted subgrade. Manufacturer's specifications for the PVC liner are presented in Appendix II. The liner was shipped to the site in large (70 by 300 feet) factory seamed panels. Results of the manufacturer's quality control testing of the factory seams is presented in Appendix III.

Panels were field seamed using the thermal wedge welding method (Figure 1). Repairs and detail work were welded by the chemical method (Figure 2). The panel layout showing the field welded seams and destructive, quality assurance test locations is provided on As-Built Drawing No. 2 in Appendix IX. Both thermal and chemical field welded seams were tested for seam integrity and leaks by air lancing. The air lance method uses a jet of air at approximately (50-lb/in.²) pressure coming through an orifice of (3/16-in.) diameter. It is directed beneath the upper edge of the overlapped seam and is held within (4 in.) from the edge of the seamed area in order to detect un-bonded areas.

When such an area is located, the air passes through the opening in the seam causing an inflation and fluttering in the localized area. A distinct change in sound emitted can generally be heard. Seamed areas which failed were patched and chemical welded, followed by re-testing. Each welding machine and its operator were qualified twice daily (morning and afternoon) prior to welding.

LAW was present on a full time basis during installation of the PVC liner. Appendix IV presents detailed quality assurance documents summarizing LAW's observations and the results of field tests on each field welded seam.

Samples of the field welded seams were obtained every 500 linear feet and tested in the laboratory for compliance with seam strength and peel adhesion requirements of at least 55.2 lbs./in. and 10 lbs./in., respectively. Samples were obtained at the locations shown on the Panel and Seam Sample Location Plan (Drawing No. 2 in Appendix IX – As-Built Drawings). All field seams passed the specified minimum requirements. The laboratory test reports for the welded liner seams are presented in Appendix V.

After acceptance of the field and laboratory QA testing of the liner seams, the geocomposite (non-woven geotextile/geonet/non-woven geotextile) drainage layer was placed directly on top of the synthetic liner. Manufacturer's specifications for the geocomposite drainage layer are presented in Appendix II. Manufacturer's test reports and certifications for the geocomposite drainage layer materials are presented in Appendix III. The geocomposite was shipped to the site in 14.5 foot wide by 300 foot long rolls. The geocomposite was rolled onto the liner surface with each panel overlapping at least 4 inches. The panels were secured by sewing the top layer of geotextile. A LAW representative was present on a full time basis during installation of the geocomposite drainage layer and observed proper placement of this component of the landfill cover.

2.3 SOIL COVER CONSTRUCTION

Placement of the soil cover over the liner and drainage layer began on May 17, 1999. Soil material was carefully selected from on-site sources of silty sand and sandy silt. Representative samples of the fill material were collected at the borrow source and tested in the laboratory to determine the maximum dry density and optimum moisture content. These laboratory compaction test results are presented in Appendix VI.

The cover soil was excavated at the borrow source using a large trackhoe in combination with a dozer. The soil was hauled from the borrow area to the cell using tandem-axle dump trucks and dumped/pushed onto the drainage layer. The soil cover was spread with a Caterpillar D5C dozer and disced to promote drying as needed. After placement to a thickness of approximately 20 to 24 inches, the cover soil was compacted by tracking with the dozer and with loaded tandem axle dump trucks.

A sufficient number of density tests were performed by an experienced LAW technician working under the direction of the principal engineer to measure the degree of compaction being obtained. The thickness of the soil cover was also checked at each density test location and recorded. Density tests and thickness measurements were performed at the locations shown on Figure 3. All results of compaction testing met the construction specifications (90 percent of the standard Proctor maximum dry density). A summary of the density and thickness test results are provided in Table 1 and the field density test reports are presented in Appendix VII.

The surface of the cover was fine graded and seeding was performed on June 3, 1999. A topographic survey was performed by C.O. Hampton Company Surveyors on June 9, 1999. This survey is presented as Drawing 3 in Appendix IX (As-Built Drawings). Erosion of the cover occurred in an area northeast of the catch basin for the perimeter drain after the area had been seeded as shown on Figure 4. Fill was placed in this eroded area and the surface seeded. A representative of LAW performed hand auger borings to document the cover thickness in the filled area. The results of these borings and thickness checks are presented on Figure 4 and confirm that the required 18 inches of soil cover was placed in the eroded area.

2.4 CONSTRUCTION MONITORING

A representative of LAW observed construction of the soil cover and documented observations daily. Records of these daily observations and site meetings with the contractor are presented in Appendix VIII. As-Built drawings are presented in Appendix IX and record photographs are presented in Appendix X.

TABLE

TABLE 1
SOIL CAP DENSITY & THICKNESS TEST RESULTS

BLUE RIDGE PAPER PRODUCTS, INC.

CELL 6-F

LAW PROJECT NO. 30300-8-0313.02

AREA NUMBER	TEST NUMBER	PERCENT COMPACTION ⁽¹⁾	SOIL THICKNESS (inches)
# 1	1	98	19
# 2	2	97	19
# 3	3	99	19
# 4	4	98	18
# 5	5	98	20
# 6	6	100	18
# 7	7	94	20
# 8	8	98	19
# 9	9	97	19
# 10	10	99	19
# 11	11	97	19
# 12	12	98	19
# 13	13	98	19
# 14	14	98	19
# 15	15	96	20
# 16	16	95	20
# 17	17	98	20
# 18	18	96	20
# 19	19	93	20
# 20	20	97	21
# 28	21	90	19
# 22	22	92	18
# 23	23	92	18
#25	24	95	19
#29	25	94	19
#21	26	98	19
#22	27	96	20
#37	28	98	20
#44	29	95	20
#24	30	98	22
#23	31	94	22
#31	32	95	22
#41	33	96	20
#32	34	94	20
#40	35	92	19
#47	36	96	18

TABLE 1
SOIL CAP DENSITY & THICKNESS TEST RESULTS

BLUE RIDGE PAPER PRODUCTS, INC.

CELL 6-H

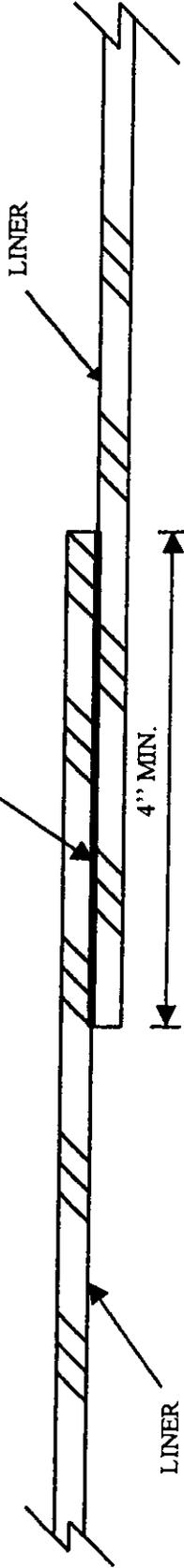
LAW PROJECT NO. 30300-8-0313.02

AREA NUMBER	TEST NUMBER	PERCENT COMPACTION⁽¹⁾	SOIL THICKNESS (inches)
#39	37	91	18
#30	38	96	18
#38	39	91	19
#45	40	99	19
#46	41	94	19
#51	42	96	19
#50	43	93	19
#49	44	94	19
#52	45	93	19
#48	46	90	19
#43	47	91	18
#36	48	90	18
#42	50	91	26

⁽¹⁾Relative to standard Proctor maximum dry density

FIGURES

THERMAL FUSION WELD



LAW

Engineering and Environmental Services
Asheville, North Carolina

TYPICAL DETAIL:
THERMAL WEDGE WELD FOR PVC LINER
BLUE RIDGE PAPER PRODUCTS, INC.
CANTON, NORTH CAROLINA

Prepared By: SCI

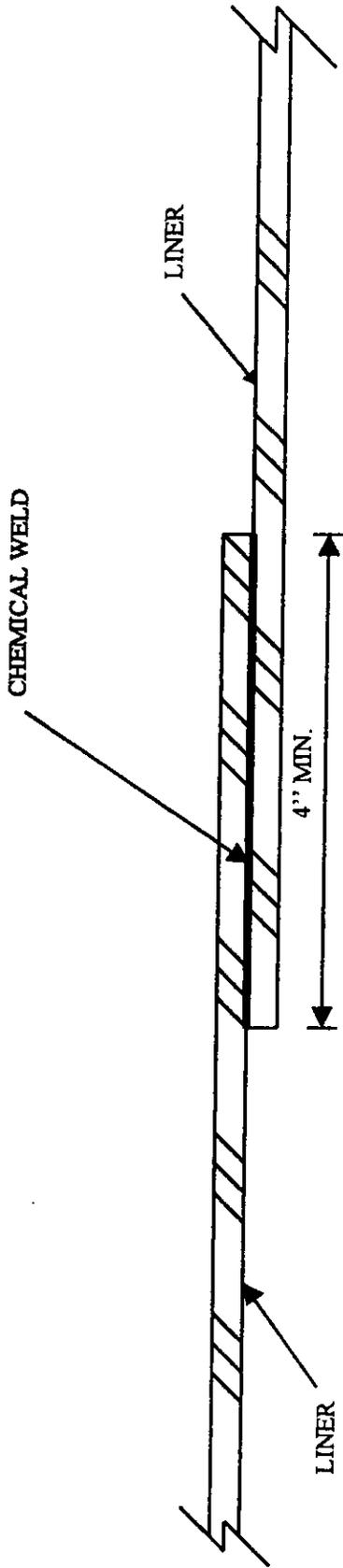
Date: 12/10/98

Checked By: SEB

Date: 12/18/98

Job Number: 30300-8-0313.02

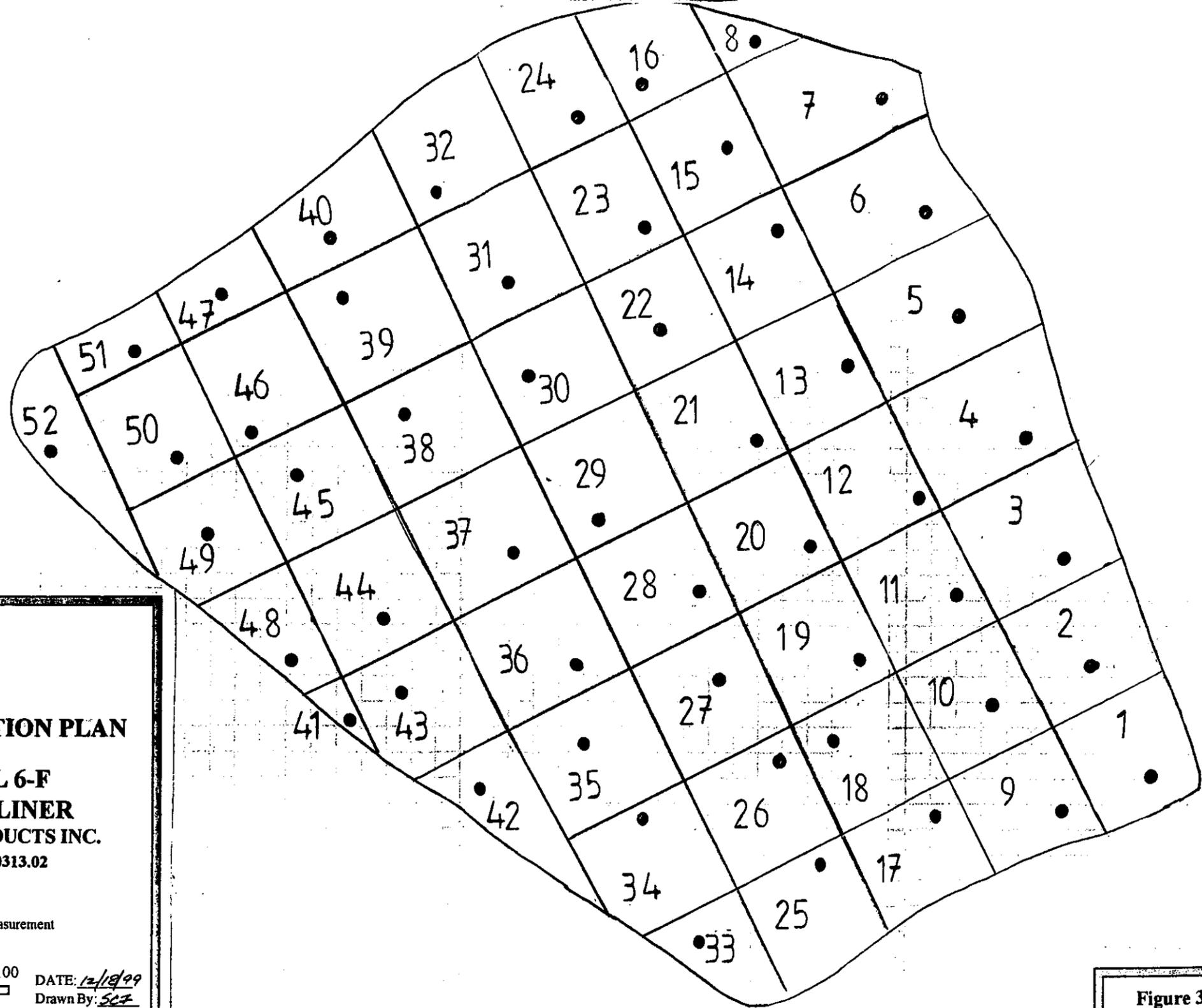
Figure: 1



TYPICAL DETAIL:
CHEMICAL WELD FOR PVC LINER
BLUE RIDGE PAPER PRODUCTS, INC.
CANTON, NORTH CAROLINA

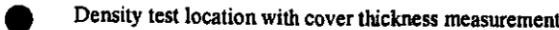
LAW
 Engineering and Environmental Services
 Asheville, North Carolina

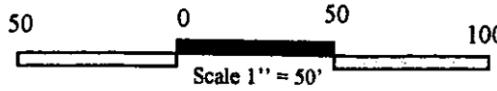
Prepared By: SCI	Date: 12/10/98	Checked By: SEB	Date: 12/18/98	Job Number: 30300-8-0313.02	Figure: 2
------------------	----------------	-----------------	----------------	-----------------------------	-----------



DENSITY TEST LOCATION PLAN
 for
LANDFILL CELL 6-F
GEOMEMBRANE LINER
BLUE RIDGE PAPER PRODUCTS INC.
LAW PROJECT-30300-8-0313.02







DATE: 12/18/99
 Drawn By: SCF
 Checked By: SEB

Figure 3

SCALE: 1" = 60'
 North

LEGEND



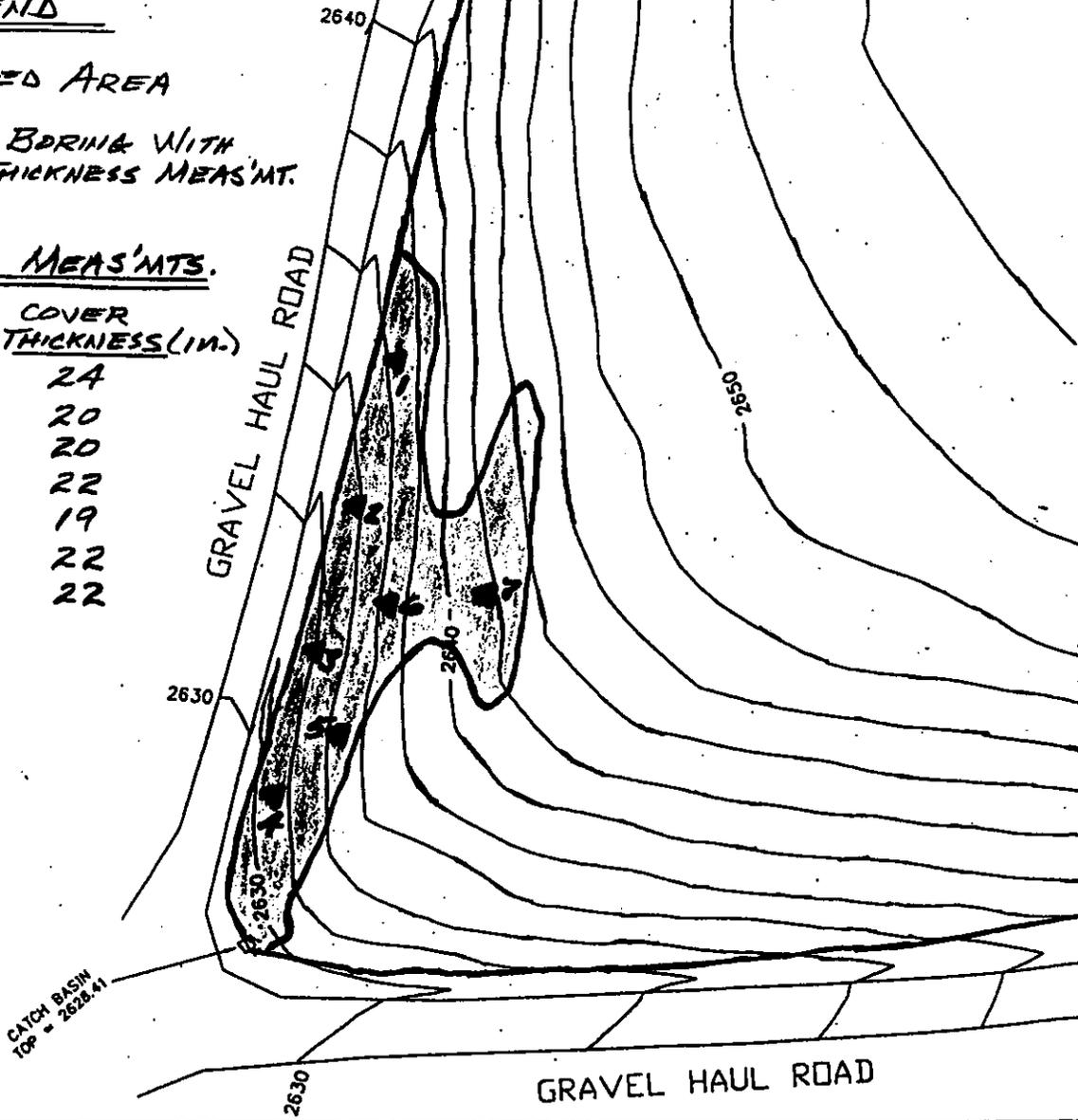
ERODED AREA



AUGER BORING WITH
 COVER THICKNESS MEAS'MT.

THICKNESS MEAS'MTS.

<u>LOCATION</u>	<u>COVER THICKNESS (IN.)</u>
1	24
2	20
3	20
4	22
5	19
6	22
7	22



LAW

Engineering and Environmental Services
 Asheville, North Carolina

**COVER THICKNESS CHECK IN
 AREA FILLED AFTER FINAL
 GRADING**

LANDFILL CELL 6-F

**BLUE RIDGE PAPER PRODUCTS,
 CANTON, NORTH CAROLINA**

Drawn By: SEB

Date: 1/25/00

Checked By: SCI

Date: 1/25/00

Project Number: 30300-8-0313.02

Figure 4

APPENDIX I
SUBGRADE ACCEPTANCE CERTIFICATION

LAW

LAWGIBB Group Member 

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

SUBGRADE ACCEPTANCE CERTIFICATION
QUALITY ASSURANCE DOCUMENT
CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT: 30300-8-0313 Phase .02

The earthwork contractor Perry M. Alexander is responsible for preparing the supporting material for geomembrane placement. Before the geomembrane installation begins, the owner's representative (LAW), the owner (Champion) and the Installer (Geomembrane Services, Inc) document by the signatures below that in their opinion the subgrade providing support for the liner has been rolled, compacted, or handworked so as to be free of irregularities, protrusions, loose soil, and does not contain stones which may be damaging to the geomembrane.

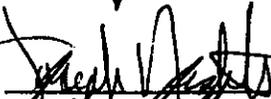
Perry M. Alexander:



Date:

4-27-99

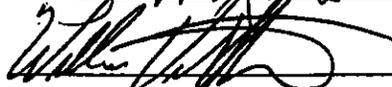
Law Engineering and
Environmental Services, Inc.:



Date:

4-27-99

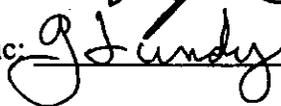
Champion International:



Date:

4/27/99

Geomembrane Services Inc:



Date:

4-27-99

APPENDIX II
MANUFACTURER'S SPECIFICATIONS
FOR LINER AND GEOCOMPOSITE



Established 1953

WATERSAVER COMPANY, INC.

P.O. BOX 16465 DENVER, COLORADO 80216-0465

Phone 303-289-1818 Fax 303-287-3136
Plant and Office - 5870 E 56th Avenue Commerce City, Colorado 80022-3932

April 21, 1999

RE: CHAMPION INTERNATIONAL CORP.
LANDFILL CELL F & G

- To Whom It May Concern:

This is to certify that the 30 mil PVC Geomembrane Liner that will be supplied for the above mentioned project has physical properties that will equal or exceed the minimum values listed in the project specifications.

Sincerely,

WATERSAVER COMPANY, INC.

Bob Dapogny
Technical Department Coordinator

RFD:sfy

enc: (30 mil PVC Specification Sheet)

WATERSAVER PVC

GEOMEMBRANE LINER ENGINEERING SPECIFICATION GUIDE

POLYVINYL CHLORIDE (PVC)



Est. 1953

Property	Test Method	Specified Values				
Thickness mils (Nominal ±5%)	ASTM D-1593	20	30	40	50	60
Specific Gravity, min.	ASTM D 792	1.23	1.23	1.23	1.23	1.23
Tensile Strength, psi, min. (Breaking Factor, lbs./in. width, min.)	ASTM D 882	2300 46	2300 69	2300 92	2300 115	2300 138
Elongation, @ Break, % min.	ASTM D 882	325	350	400	450	450
Modulus @ 100% Elongation, psi, min. (lbs./in. width min.)	ASTM D 882	1000 (20.0)	1000 (30.0)	1000 (40.0)	1000 (50.0)	1000 (60.0)
Tear Resistance, lbs./in., min. (lbs., min.)	ASTM D 1004	300 (6.0)	300 (9.0)	300 (12.0)	300 (15.0)	250 (15.0)
Low Temperature, °F	ASTM D 1790	-15	-20	-25	-30	-30
Dimensional Stability, % change, max.	ASTM D 1204 (212°F, 15min.)	3.5	3.5	3.5	3.5	3.5
Water Extraction % loss, max.	ASTM D 3083	0.25	0.25	0.35	0.35	0.35
Volatility % loss, max.	ASTM D 1203	0.90	0.70	0.50	0.50	0.50
Resistance to Soil Burial % change, max.	ASTM D 3083					
Tensile Strength		-5	-5	-5	-5	-5
Elongation, @ Break		-20	-20	-20	-20	-20
Modulus @ 100% Elongation		+20	+20	+20	+20	+20
Hydrostatic Resistance, psi, min.	ASTM D 751	60	85	92	125	165
Factory Seam Requirements*						
Bonded Seam Strength (factory seam, breaking factor, lbs./in. width)	ASTM D 3083, Modified	36.8	55.2	74.0	92	110.4

*Factory bonded seam strength is the responsibility of the fabricator.

WATER SAVER PVC

GEOMEMBRANE LINER ENGINEERING SPECIFICATION GUIDE

POLYVINYL CHLORIDE (PVC)



Est. 1963

Property	Test Method	Specified Values				
		20	30	40	50	60
Thickness mills (Nominal $\pm 5\%$)	ASTM D-1593					
Specific Gravity, min.	ASTM D 792	1.23	1.23	1.23	1.23	1.23
Tensile Strength, psi, min. (Breaking Factor, lbs./in. width, min.)	ASTM D 882	2300 48	2300 69	2300 92	2300 115	2300 138
Elongation, @ Break, % min.	ASTM D 882	325	350	400	450	450
Modulus @ 100% Elongation, psi, min. (lbs./in. width min.)	ASTM D 882	1000 (20 n)	1000 (30.0)	1000 (40.0)	1000 (50.0)	1000 (60.0)
Tear Resistance, lbs./in., min. (lbs., min.)	ASTM D 1004	300 (6.0)	300 (9.0)	300 (12.0)	300 (15.0)	250 (15.0)
Low Temperature, °F	ASTM D 1790	-15	-20	-25	-30	-30 <i>ok</i>
Dimensional Stability, % change, max.	ASTM D 1204 (212°F, 15min.)	3.5	3.5	3.5	3.5	3.5
Water Extraction % loss, max.	ASTM D 3083	0.25	0.25	0.35	0.35	0.35
Volatility % loss, max.	ASTM D 1203	0.80	0.70	0.50	0.50	0.50
Resistance to Soil Burial % change, max.	ASTM D 3083					
Tensile Strength		-5	-5	-5	-5	-5
Elongation, @ Break		-20	-20	-20	-20	-20
Modulus @ 100% Elongation		+20	+20	+20	+20	+20
Hydrostatic Resistance, psi, min.	ASTM D 151	60	85	92 82	125	165 <i>ok</i>
Factory Seam Requirements*						
Bonded Seam Strength (factory seam, breaking factor, lbs./in. width)	ASTM D 3083, Modified	36.8	55.2	74.0	92	110.4

*Factory bonded seam strength is the responsibility of the fabricator.

Okay to use for pvc

SPECIFIC PVC FLEXIBLE MEMBRANE LINER INFORMATION

PVC membrane liners are the most widely used of all polymeric membranes for waste impoundments. They show good chemical resistance to many inorganic chemicals; however, the inclusion of certain organic chemicals may limit their applicability (consult Watersaver Company, Inc. for specific applications). Special "Oil Resistant" (PVC-OR) grades of PVC are also available that possess a high resistance to oil and/or organic chemicals and hydrocarbon attack.

PVC liner materials are produced in roll form in various widths and thicknesses. Most liners are used as unsupported sheeting, but fabric reinforcement can be incorporated. PVC compounds contain 25% to 35% of one or more plasticizers to make the sheeting flexible and rubberlike. They also contain 1% to 5% of a chemical stabilizer and various amount of other additives. The PVC compound should not contain any water soluble ingredients. There is a wide choice of plasticizers that can be used in PVC sheeting, depending upon the application and service conditions under which the PVC compound will be used. Plasticizer selection is an extremely important aspect of a PVC liner material, since the loss of plasticizer will result in a change in physical properties. There are three basic mechanisms for plasticizer loss: volatilization, extraction and microbiologic attack. The use of the proper plasticizers and an effective biocide can virtually eliminate microbiological attack and minimize volatility and extraction. The PVC polymer, per se, is not affected by these factors.

The principal reason for loss of plasticizer is by volatilization due to the heat of the sun rather than solubility in the waste fluid. Carbon black prevents ultraviolet attack, but does cause the absorption of solar energy, raising the temperature to a level that could increase the volatilization of the plasticizer. A soil or other suitable cover material must be used to protect the PVC from heat, ultraviolet and weathering. Covering a liner also results in increased protection from unusual weather conditions, mechanical damage and vandalism.

Plasticized PVC sheeting has excellent Tensile, Elongation Puncture and Abrasion Resistance properties. It is readily seamed by chemical welding, hot wedge and dielectric welding methods.

Watersaver Company supplies PVC, which utilizes only first quality resin, primary plasticizers, stabilizers, biocides and other additives. Watersaver Company offers a wide variety of custom fabricated PVC panels.

USES OF PVC LINERS

PVC liners can be used in many different applications, including:

- solid waste landfills
- landfill caps
- water treatment ponds
- sewage lagoons
- sand filter beds
- evapotranspiration fields
- golf course ponds
- decorative lakes
- fish hatcheries
- mining heap leach pads
- tailings impoundments
- irrigation reservoirs
- reserve pit liners
- fly ash disposal cells
- irrigation canals
- moisture barriers
- leachate collection ponds
- fire water ponds
- stormwater detention ponds
- solar evaporation ponds
- industrial waste ponds & impoundments

The above information is furnished to aid the Design Engineer in selecting PVC for use as a geomembrane. Watersaver Company, Inc., as a material supplier, does not assume responsibility for errors in selection, design, engineering, quantities, dimensions or installation.

For additional information, contact Watersaver Company, Inc.

**WATERSAVER CO, INC. • Plant/General Office • 5870 E. 56th Avenue • Commerce City, CO 80022
P.O. Box 16465 • Denver, CO 80216 • (303) 289-1818 • Fax (303) 287-3136**

TEX-NET® SPECIFICATIONS

GEOCOMPOSITE PROPERTIES

PROPERTY	TEST	UNITS	MINIMUM ²	
			TN3002/1120	TN3002/1125
Transmissivity ¹ (15,000 psf)	ASTM D 4716	m ² /sec	6 x 10 ⁻⁵ 1.5 x 10 ⁻⁴ (typ.)	3 x 10 ⁻⁵ 1 x 10 ⁻⁴ (typ.)
Ply Adhesion	ASTM D 413 or F 904	lb/in	2.0	2.0
Tensile Strength (MD)	ASTM D 4632	lbs	535	580

COMPONENT PROPERTIES³

GEONET	TEST	UNITS	PN 3000	
Density	ASTM D 1505	g/cm ³	0.94	
Carbon Black Content	ASTM D 4218	%	2.0	
Thickness	ASTM D 5199	inches	0.200	
Mass Per Unit Area	ASTM D 5261	lbs/ft ²	0.162	
Transmissivity ¹	ASTM D 4716	m ² /sec	1x10 ⁻³ @ 15,000 psf	
Tensile Strength	ASTM D 5035	lbs/in	45	

GEOTEXTILE	TEST	UNITS	1120	1125
Fabric Weight	ASTM D 5261	oz/yd ²	5.7	7.1
Thickness	ASTM D 5199	mils	75	95
Grab Strength	ASTM D 4632	lbs	160	210
Water Flow Rate	ASTM D 4491	gpm/ft ²	130	110
AOS	ASTM D 4751	Sieve Size	70	70
		mm	0.210	0.210

1. Measured using water @ 20° C (68°F) with a gradient of one, between two steel plates, after one hour. Value may vary, based on dimensions of the transmissivity specimen and specific laboratory.
2. These values represent minimum acceptable test values for a roll as tested according to NSC/FSI's Manufacturing Quality Control Manual. Individual test specimen values are not addressed in this specification.
3. Component properties are tested prior to the lamination process. They cannot be tested on the final product.

Information regarding the physical properties of National Seal Company products, including the information contained in this specification sheet, is, to the best of our knowledge, information and belief, representative of National Seal Company products. All information, data, suggestions, opinions and recommendations are offered without guarantee or warranty of any kind. The final determination as to the appropriateness or suitability of any National Seal Company product in any particular application rests with the user and is the user's sole responsibility.

National Seal Company reserves the right to alter, change or modify its products and its product specifications at any time without notice. Please check with your National Seal Company sales or technical representative to assure that specifications are current.

TN3002/1120/1125-0797



NATIONAL SEAL COMPANY
1245 Corporate Blvd. • Suite 300
Aurora, IL 60504
(830) 898-1181 • (800) 323-3820
FAX: (830) 898-8558

TOP GEOTEXTILE LAYER OF GEOCOMPOSITE

Product Description

Trevira® Spunbond Type 011/250

Will be used on the top part of H cell

Technical Fibers Group
Hoechst Celanese Corporation
Spunbond Business Unit
Post Office Box 3650
Spartanburg, SC 29304-3650
803 570 6607
Toll Free 1 800 845 7597
Fax 803 579 5920

ok to use for the cover of all three

Trevira® Spunbond Type 011/250 is a 100% continuous filament polyester nonwoven needlepunched engineering fabric. The fabric is resistant to biological and normally encountered chemicals, alkalis, acids, and ultraviolet light exposure. Trevira® Spunbond Type 011/250 conforms to the property values listed in the following table

FABRIC PROPERTY	UNIT	TEST METHOD	TYPICAL VALUE ¹	MINIMUM TEST VALUES ²
Fabric Weight	oz/yd ²	ASTM D-5261	7.5	7.1
Fabric Thickness, t	mils	ASTM D-5199	110	95
Grab Strength (MD/CD)	lbs	ASTM D-4632	300/235	210
Grab Elongation (MD/CD)	%	ASTM D-4632	75/80	60
Trapezoid Tear Strength (MD/CD)	lbs	ASTM D-4533	105/95	75
Puncture Resistance	lbs	ASTM D-4833	115	95
Mullen Burst Strength	psi	ASTM D-3786	400	360
Water Flow Rate	gpm/ft ²	ASTM D-4491	150	110
Permeability, Ψ	cm ³	ASTM D-4491	2.01	1.47
Permeability, k = $\Psi \times t$	cm/sec	ASTM D-4491	.56	.35
AOS	Sieve Size mm	ASTM D-4751	70-100 .210-.149	70 .210
Standard Roll Widths ³	ft	12.5 and 15.0		
Standard Roll Lengths ³	ft	300		

MD = Machine Direction CD = Cross Machine Direction

¹ The values listed are average values.

² These minimum values represent minimum test values as determined from Quality Control (QC) testing.

³ Other width and length rolls are available upon request.

011250

Hoechst 

MIDDLE GEONET LAYER OF GEOCOMPOSITE

**POLY-NET® PN3000
PRODUCT DESCRIPTION**

POLY-NET® is a profiled geonet manufactured by extruding two sets of polyethylene strands to form a diamond shape drainage material. The resulting net provides superior planar water flow, is inert to biological attack, naturally encountered chemicals, alkalis, and acids and is resistant to UV light exposure. POLY-NET PN3000 conforms to the property values listed below.

PROPERTY	METHOD	UNITS	MINIMUM ¹
Roll Length (typical)	.	R	300
Roll Width (typical)	.	R	7.84 & 14.5
Thickness ¹	ASTM D5199	inches	0.200
Area per Roll (typical)	.	m ²	2262 & 4350
Weight per Roll (typical)	.	lbs	365 & 705
Mass per Unit Area ¹	ASTM D5281	lb/ft ²	0.182
Carbon Black Content ¹	ASTM D4218	percent	2.0
Density ¹	ASTM D1505	g/cm ³	0.94
Tensile Strength ¹ (Machine Direction) (Modified)	ASTM D6035	lb/in.	40
Transmissivity ^{1,2} (gradient = 1.0 at 15,000 psf)	ASTM D4718	m ² /sec	1 x 10 ⁻³

- ¹ Indicates standard quality control test.
- ² This value represents the minimum acceptable test value for a roll as tested according to NSCFST's Manufacturing Quality Control Manual, unless otherwise indicated. Individual test values are not addressed in the specification.
- ³ Measured between two steel plates one hour after application of the confining pressure in the machine direction.

Needs to be at least 50MD
* Okayed by Seveet Mahler
from field Data

Information regarding the physical properties of National Seal Company products, including the information contained in this specification sheet, is to the best of our knowledge, information and belief, representative of National Seal Company products. All information, data, suggestions, opinions and recommendations are offered without guarantee or warranty of any kind. The final determination as to the appropriateness or suitability of any National Seal Company product in any particular application rests with the user and is the user's sole responsibility.

National Seal Company reserves the right to alter, change or modify its products and its product specifications at any time without notice. Please check with your National Seal Company sales or technical representative to ensure that specifications are current.

P2-0787



NATIONAL SEAL COMPANY
1245 Corporate Blvd. • Suite 300
Aurora, IL 60504
(430) 898-1161 • (800) 723-7827
FAX: (630) 898-5458

630-898-1161

BOTTOM GEOTEXTILE LAYER OF BEDCOMPOSITE

Amoco 4508

Technical Fibers Group
 Hoechst Celanese Corporation
 Spunbond Business Unit
 Post Office Box 6650
 Spartanburg, SC 29304-0650
 803 674 8007
 Toll Free 1 800 643 7387
 Fax 003 670 6670

[Handwritten signature]

Product Description
 Trevira® Spunbond Type 011/200
 For F, G + the rest of H cell

Trevira® Spunbond Type 011/200 is a 100% continuous filament polyester nonwoven needlepunched engineering fabric. The fabric is resistant to biological and naturally encountered chemicals, alkalies, acids, and ultraviolet light exposure. Trevira® Spunbond Type 011/200 conforms to the property values listed in the following table:

FABRIC PROPERTY	UNIT	TEST METHOD	TYPICAL VALUE	MINIMUM TEST VALUES
Fabric Weight	oz/yd ²	ASTM D-5261	6.0	5.7 6.0 _x
Fabric Thickness, t	mils	ASTM D-5199	90	75
Grab Strength (MD/CD)	lbs	ASTM D-4632	230/180	160 150 _x
Grab Elongation (MD/CD)	%	ASTM D-4632	75/85	60
Trapezoid Tear Strength (MD/CD)	lbs	ASTM D-4533	80/75	60 65 _{dx}
Puncture Resistance	lbs	ASTM D-4833	95	80 90 _{dx}
Mullen Burst Strength	pd	ASTM D-3786	330	285 350 _R
Water Flow Rate	gpm/ft ²	ASTM D-4491	170	130
Permittivity, Ψ	sec ⁻¹	ASTM D-4491	2.27	1.74
Permeability, k = Ψ/Δ	cm/sec	ASTM D-4491	.52	.33
AOS	Sieve Size mm	ASTM D-4751	70-100 .210-.149	70 .210
Standard Roll Widths ²	ft		12.5 and 15.0	
Standard Roll Lengths ²	ft		300	

MD = Machine Direction CD = Cross Machine Direction

- ¹ The values listed are average values.
- ² These minimum values represent minimum test values as determined from Quality Control (QC) testing.
- ³ Other width and length rolls are available upon request.

Would be 6⁰³/ for the geotextile
 Hoechst 

011200

APPENDIX III

FACTORY PRODUCTION AND QUALITY CONTROL TEST REPORTS

Friday April 27, 1999
Mr. Tom Hauck
Northern Geosystems, Inc.
3767 Warwick Dr.
Rochester Hills MI, 48309

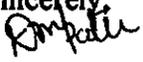
Ref. : **Champion International Corp., Canton, NC**
Transnet 220-2-6 Geocomposite
Shipper # 961

Mr. Tom Hauck,

We certify that the Transnet 220-2-6 double sided drainage composite, shipped on the above Shipper No., meets the project requirements as stated in Section 02741, of the specifications. The properties listed in this section include :

Net Property	Test Method	Unit	Minimum Required Value
Mass per Unit Area	ASTM D 3776	lbs/ft ²	0.162
Thickness	ASTM D 5199	inches	.22/-0.022
Carbon Black	ASTM D 1603	%	2
Tensile Strength	ASTM D 5035	lb/in	50
Density	ASTM D 1505	lb/in	0.93
Composite Property	Test Method	Unit	Minimum Required Value
Transmissivity	ASTM D 4716	m ² /s	3 X 10 ⁻⁴ *
Ply Adhesion	ASTM D 413	lb/in	2
Fabric Property	Test Method	Unit	Minimum Required Value
Fabric Weight	ASTM D 5261	oz/yd ²	6
Tear Strength	ASTM D 4533	lbs	65
Grab Strength	ASTM D 4632	lbs	150
Mullen Burst	ASTM D 3786	psi	350
Puncture Resistance	ASTM D 4833	lbs	90
AOS	ASTM D 4751	US Sieve	70

* Transmissivity measured using water 20 Degree C (68 degree F) with a gradient of 0.02 and a confining pressure of 20,000 psf, between two steel plates after 15 min.

Sincerely,

Dipa Patel
QA Manager



SKAPS INDUSTRIES
571 INDUSTRIAL PARKWAY
COMMERCE, GA 30529
(706) 336-7000

SHIPPERS NO.
961

c/o Geomembrane Services Inc.

EXTERNAL REF # CHAMPION INTERNATIONAL
SIGNED TO - 175 MAIN STREET
DESTINATION - CANTON, NC 28716

DATE SHIPPED 04/27/99
CUST. P.O. # 99005

STATE:
INTERNAL REF # 961
MATERIAL REQ # 99005

COMMENTS FROM M.R. *Jim Hundy*
616-264-9030

JOB #
SHIPPERS # 961
BUS / MARKET SEQ #
TERMS: PREPAID

DRIVER MUST CALL 24 HOURS PRIOR TO DELIVERY

NO # SQ FT	PRODUCT CODE #	ROLL #	KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS
3500.0	TN22066	21631.	220 NT-2 SD 6 OZ
3500.0	TN22066	21634.	220 NT-2 SD 6 OZ
3500.0	TN22066	21639.	220 NT-2 SD 6 OZ
3500.0	TN22066	21633.	220 NT-2 SD 6 OZ
3500.0	TN22066	21692.	220 NT-2 SD 6 OZ
3500.0	TN22066	21686.	220 NT-2 SD 6 OZ
3500.0	TN22066	21687.	220 NT-2 SD 6 OZ
3500.0	TN22066	21690.	220 NT-2 SD 6 OZ
3500.0	TN22066	21688.	220 NT-2 SD 6 OZ
3500.0	TN22066	21685.	220 NT-2 SD 6 OZ
3500.0	TN22066	21695.	220 NT-2 SD 6 OZ
3500.0	TN22066	21696.	220 NT-2 SD 6 OZ
3500.0	TN22066	21697.	220 NT-2 SD 6 OZ
3500.0	TN22066	21698.	220 NT-2 SD 6 OZ
3500.0	TN22066	21699.	220 NT-2 SD 6 OZ
3500.0	TN22066	21700.	220 NT-2 SD 6 OZ
3500.0	TN22066	21701.	220 NT-2 SD 6 OZ
3500.0	TN22066	21702.	220 NT-2 SD 6 OZ
3500.0	TN22066	21703.	220 NT-2 SD 6 OZ
3500.0	TN22066	21704.	220 NT-2 SD 6 OZ
3500.0	TN22066	21705.	220 NT-2 SD 6 OZ
3500.0	TN22066	21706.	220 NT-2 SD 6 OZ
3500.0	TN22066	21707.	220 NT-2 SD 6 OZ
3500.0	TN22066	21708.	220 NT-2 SD 6 OZ
3500.0	TN22066	21709.	220 NT-2 SD 6 OZ
3500.0	TN22066	21710.	220 NT-2 SD 6 OZ
3500.0	TN22066	21711.	220 NT-2 SD 6 OZ

*2 Bags of
Ties.*

TOTAL SQFT: 34500

TOTAL WEIGHT: 28344

TRUCK / CONTAINER #

LOAD VERIFICATION SIGNED X _____

SEAL #

TRUCKERS P.O. # 99005

CARRIER REF. WRIGHT TRUCKING

CARRIER NAME *Oliver Wright*

DATE: *4-27-99*

SIGN HERE FOR SHIPPER

SIGN HERE FOR AGENT

SHIPPER: _____
ADDRESS: 571 INDUSTRIAL PARKWAY
COMMERCE, GA 30529

OF SHIPPER _____
AGENT FOR SHIPPER: _____

ed at Commerce, GA from Skaps Industries the property described above, in apparent good order except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated above, which said Carrier (the word "Carrier" understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all or any of said property, over all or any of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is Skaps Industries as indicated by the designation of "S" to be Skaps Industries, then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties or (b) if the Shipper noted herein is not Skaps Industries then Skaps Industries hereby as the agent for the denoted Shipper, and that every aspect of the service to be performed hereunder between the Shipper and the Carrier shall be subject to all the terms and conditions of the Uniform Domestic Freight Bill of Lading set forth in Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for the Shipper in placing the material in transit on behalf of a Shipper, Skaps Industries accepts no liability for loss of cargo, damage to containers, or any other consequences occurring during transportation. Carrier having agreed that the transportation arrangement is by the Shipper and not by Skaps Industries.

Engineered Synthetic
Products, Inc.

SKAPS Industries
Composite Ply Adhesion

CANTON NC

Roll #	Net #	Side A		Side B		Other Roll	Net #						
		Min. MD Top (g/in)	Avg. MD Top (g/in)	Min. MD Top	Avg. MD Top (g/in)								
21685	26085	1101	1589	1180	1544	21686	25873	21687	25776	21688	26099	21689	26090
21690	26109	998	1135	1044	1180	21691	26112	21692	26110	21693	26111	21694	26107
21695	26098	1044	1089	1044	1453	21696	26113	21697	26093	21698	26088	21699	26106
21700	26101	1453	1589	1089	1180	21701	26092	21702	26105	21703	26114	21704	26106
21705	26116	1407	1453	1180	1407	21706	26097	21707	26108	21708	26117	21709	25818
21710	25928	1089	1226	1135	1407	21711	26100						

Tuesday, April 27, 1999

SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529
Phone: 706-338-7000 Fax: 706-338-7007



SKAPS Industries

Engineered Synthetic
Products, Inc.

Geonet

CANTON, NC

Roll #	Lot #	Min. Thickness (mil)	Carbon Black (%)	Density (g/cc)	Wt/Unit Area (net) lb/sf	TS@Break, MD (ppi)
025815	H121096	224	2.4	.951	.201	74
025870	H121096	225	2.4	.951	.206	68
025925	H121096	215	2.4	.951	.203	74
025975	H121096	220	2.3	.951	.190	72
026085	H121096	205	2.4	.951	.180	74
026090	H121096	205	2.4	.951	.190	65
026095	H121096	210	2.5	.951	.196	68
026100	H121096	210	2.4	.951	.190	75
026105	H121096	215	2.4	.951	.197	65
026110	H121096	210	2.1	.951	.193	74
026115	H121096	205	2.2	.951	.167	65

PLEASE NOTE: TESTING IS PERFORMED EVERY 5TH ROLL

SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529
Phone: (706) 336-7000 Fax: (706) 336-7007

Tuesday, April 27, 1999



Page 1

Engineered Synthetic Products/Skaps Industries

571 Industrial Pkwy.
Commerce, GA 30529
Phone : 770-564-1857 Fax : 770-564-1818

April 27, 1999

Canton, NC

Dear Sir/Madam:

This is to certify the transmissivity of GeoComposite. Testing was performed every 40,000 square feet of production using ASTM 4716.

GeoComposite				
Roll Number	Gradient/Load	Normal Time (min)	Transmissivity (gal/ft/min)	Transmissivity (m²/sec)
21,655	0.02/20,000	15	2.63	5.45 x 10 ⁻⁴
21,665	0.02/20,000	15	4.30	8.91 x 10 ⁻⁴
21,775	0.02/20,000	15	3.50	7.25 x 10 ⁻⁴

Engineered Synthetic Products/Skaps Industries

571 Industrial Pkwy.
Commerce, GA 30529
Phone : 770-564-1857 Fax : 770-564-1818

April 27, 1999

Canton, NC

Dear Sir/Madam:

This is to certify the transmissivity of GeoComposite. Testing was performed every 40,000 square feet of production using ASTM 4716.

GeoComposite				
Roll Number	Gradient/Load	Normal Time (min)	Transmissivity (gal/ft/min)	Transmissivity (m ² /sec)
21,685	0.02/20,000	15	2.63	5.45 x 10 ⁻⁴
21,697	0.02/20,000	15	4.3	8.91 x 10 ⁻⁴
21,710	0.02/20,000	15	3.50	7.25 x 10 ⁻⁴

Engineered Synthetic **SKAPS Industries**
Products, Inc.

RESIN
CANTON, NC

Supplier's Result

Lot #	Melt Index	Density	Melt Index	Polymer Density
H121096	.19	.952	0.19	.9505





Chevron

U.S. Chemical

April 27, 1999

~~Bobby Espersen~~ *DIPA*
SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529

CERTIFICATE OF ANALYSIS

Product:	LM0350A	Lot Number:	H121096
Chevron Order #:	217161 - 4000	Destination:	Commerce
Package:	GOCX058377	Weight (lbs):	45,020
Customer Order #:	22577	Ship Date:	4/22/99

Following is the data on the subject material as determined by the Quality Control Department:

<u>Property</u>	<u>Value</u>	<u>Units</u>
Mek Index	0.19	gms/10 min
Density	0.9505	gms/cc

The data set forth herein has been carefully compiled by Chevron Chemical Company. 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.

Customer Fax: 706-336-7007

For inquiry, contact Customer Service at the following number:

Film, Coating, Pipe Applications: 1-800-231-3826

Molding Applications: 1-800-231-3828

This is to certify that the information appearing on property described hereafter is correct and intended as a true and correct statement of the actual condition of the property at the date of shipment.

STRAIGHT BILL OF LADING
ORIGINAL - NOT NEGOTIABLE

Piedmont Express



Invoice No. 41478
Carrier No. 4-21-99
Date 4-21-99

To Consignee SKaps		Shipper TNS ADVANCED TECHNOLOGIES	
Street 511 Ind Parkway		Street 1075 West Hill Road	
Destination Commerce GA. Zip Code		Origin Greenville, SC Zip Code 29651	

No. Shipping Units	Kind of Packaging, Description of Articles, Special Marks and Inscriptions	Weight (Actual or Corrected)	RATE	CHARGES
	ROLLS OF POLYPROPYLENE GEOTEXTILES			
	CLASS 65			
27	E060 180 X 700			16,685
	P.O. #			
	PHONE #			

Note - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \$

Subject to Section 7 of the conditions, if the shipment is to be delivered to the consignee without payment on the account, the consignee shall sign the following receipt: The carrier shall not make delivery of the shipment without payment of freight and all other lawful charges.

TOTAL CHARGES \$
FREIGHT CHARGES
FREIGHT RECEIVED
FREIGHT COLLECT

When subject to the classification and tariffs in effect on the date of this Bill of Lading, the property described above is approved good order, except as noted (including and a list of contents of packages enclosed), marked, numbered, and destined as indicated above which said carrier (his agent) will be responsible for the safe arrival of the property at the destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any of said property, that every carrier to be performed hereunder shall be subject to all the Bill of Lading terms and conditions in the governing classification and the date of shipment. Shipper hereby certifies that he is familiar with all the Bill of Lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and consignee and his agents.

SHIPPER TNS ADVANCED TECHNOLOGIES	CARRIER Piedmont Express
PER [Signature]	PER Kick up
	DATE 4-21-99

* Mark with "X" to designate Hazardous Materials as defined in Title 49 of the Code of Federal Regulations.

0987119
0987125
0987131

April 26, 1999
REF: TNS E060
Quantity Shipped: 27 rolls
BOL# 41478

Skaps

571 Industrial Pkwy.
Commerce, GA 30529

Dear Sir/Madam:

This is to certify that TNS E060 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E060 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E060 conforms to the physical properties listed in the following table:

<u>FABRIC PROPERTY</u>	<u>TEST METHOD</u>	<u>UNITS</u>	<u>M.A.R.V</u>
Weight	ASTM D 5261	oz/sy	6.0
Thickness	ASTM D 5199	mils	85
Grab Tensile	ASTM D 4632	lbs	160
Grab Elongation	ASTM D 4632	%	60
Trap Tear	ASTM D 4533	lbs	65
Puncture	ASTM D 4833	lbs	95
Mullen Burst	ASTM D 3786	psi	350
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permittivity	ASTM D 4491	l/sec	1.63
Water Flow	ASTM D 4491	gpm/sq.ft.	125
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.45

Regards,



J. Melissa Keller
TNS Advanced Technologies

Roll #	Styl	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	Elong MD	Elong XMD	Trap MD	Trap XMD	Punc Rest	Bret Strg	Flow Rate	Perm -abl	Perm -ltv	AOS
400922	E060	180	900	6.9	105	168	214	62	84	95	129	110	363	133	.56	1.8	80
400939	E060	180	900	6.6	90	174	190	75	88	76	121	105	353	133	.56	1.8	80
400948	E060	180	900	6.5	93	168	202	73	90	102	135	110	358	133	.56	1.8	80
400967	E060	180	900	6.7	103	180	195	72	78	113	147	119	388	133	.56	1.8	80
400968	E060	180	900	6.7	103	180	195	72	78	113	147	119	388	133	.56	1.8	80
400981	E060	180	900	6.4	92	168	177	63	72	68	91	122	368	133	.56	1.8	80
464403	E060	180	900	6.4	103	184	197	69	88	96	120	120	367	161	.62	2.5	80
464412	E060	180	900	6.1	97	173	171	69	87	96	120	120	367	161	.62	2.5	80
465818	E060	180	900	6.8	107	181	192	72	93	82	121	114	360	220	.85	1.8	80
465823	E060	180	900	6.5	107	189	189	63	92	82	121	114	360	220	.85	1.8	80
465831	E060	180	900	6.7	111	191	161	62	90	99	96	142	400	132	.50	1.7	80
465851	E060	180	900	6.9	110	214	186	61	97	87	111	134	363	146	.60	2.3	80
465852	E060	180	900	6.9	110	214	186	61	97	87	111	134	363	146	.60	2.3	80
465862	E060	180	900	6.3	111	192	161	62	95	74	73	106	383	146	.60	2.3	80
465863	E060	180	900	6.3	111	192	161	62	95	74	73	106	383	146	.60	2.3	80
465865	E060	180	900	6.3	111	192	161	62	95	74	73	106	383	146	.60	2.3	80
465866	E060	180	900	6.3	111	192	161	62	95	74	73	106	383	146	.60	2.3	80
466070	E060	180	900	6.9	111	212	168	69	89	74	73	106	383	146	.60	2.3	80
466919	E060	180	900	6.7	110	171	165	68	81	84	90	110	366	181	.70	2.8	80
982624	E060	180	900	6.2	98	162	169	68	72	88	116	97	383	133	.56	1.8	80
982636	E060	180	900	6.7	124	168	198	80	93	79	110	111	368	133	.56	1.8	80
982655	E060	180	900	6.3	105	172	168	68	104	77	92	97	358	172	.80	2.7	80
982679	E060	180	900	7.6	113	170	177	69	101	79	97	101	378	145	.60	2.3	80
982715	E060	180	900	6.7	124	168	198	80	93	79	110	111	368	133	.56	1.8	80
987119	E060	180	900	6.5	113	188	186	88	116	81	121	106	356	138	.56	1.8	80
987126	E060	180	900	6.4	108	161	176	88	100	88	103	99	350	133	.56	1.8	80
987131	E060	180	900	6.0	113	168	180	90	105	84	107	98	351	133	.56	1.8	80

Cross Reference Table For Shipper No 961 : Canaton, NC

COMPOSITE		NONWOVEN	
ROLL NUMBER	NET NUMBER	SIDE A	SIDE B
21,685	26,085	465,831	465,851
21,686	25,873	465,831	465,851
21,687	25,776	465,831	465,851
21,688	26,099	465,852	982,636
21,689	26,090	465,852	982,636
21,690	26,109	465,852	982,636
21,691	26,112	465,870	465,862
21,692	26,110	465,870	465,862
21,693	26,111	465,870	465,862
21,694	26,107	465,863	465,866
21,695	26,098	465,863	465,866
21,696	26,113	465,863	465,866
21,697	26,093	462,658	462,620
21,698	26,088	462,658	462,620
21,699	26,106	462,658	462,620
21,700	26,101	462,621	465,808
21,701	26,092	462,621	465,808
21,702	26,105	462,621	465,808
21,703	26,114	463,492	463,478
21,704	26,106	463,492	463,478
21,705	26,116	463,492	463,478
21,706	26,097	463,475	463,771
21,707	26,108	463,475	463,771
21,708	26,117	463,475	463,771
21,709	25,818	463,464	463,754
21,710	25,928	463,464	463,754
21,711	26,100	463,464	463,754

This is to certify that the below named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

This Memorandum

is an acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

Shipper No. 41376

Carrier No. _____

Date 4-23-99

Piedmont Express

(Name of Carrier)

(SCAC)

TO: Consignee SKAPS		FROM: Shipper TNS ADVANCED TECHNOLOGIES	
Street 571 Ind Park Way		Street 1075 Victor Hill Road	
Destination Commerce GA Zip Code _____		Origin Greer, SC Zip Code 29651	

No. Shipping Units	HM	Kind of Packaging, Description of Articles, Special Marks and Exceptions	Weight (Subject to Correction)	RATE	CHARGES
		ROLLS OF POLYPROPYLENE GEOTEXTILES			
		CLASS 65			
27		E 660 180 X 900	17,000		
		P.O. # <i>D.W. Ward 4-23-99 2:45 PM</i>			
		PHONE #			

Note - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to not exceed _____ per _____

Subject to Section 7 of the conditions, if the shipment is to be delivered to the consignee without recourse to the consignee, the consignee shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

TOTAL CHARGES: \$ _____

FREIGHT CHARGES: FREIGHT PREPAID FREIGHT COLLECT

Signature of Consignor: _____

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party of any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER TNS ADVANCED TECHNOLOGIES	CARRIER <i>Piedmont Ex.</i>
BY <i>[Signature]</i>	PER <i>[Signature]</i>
	DATE 4-23-99

BLCC-902-4

* Mark with "X" to designate Hazardous Material as defined in Title 49 of the Code of Federal Regulations.

(10)

April 28, 1999
REF: TNS E060
Quantity Shipped: 28 rolls
BOL#: 41376

Skaps

571 Industrial Pkwy.
Commerce, GA 30529

Dear Sir/Madam:

This is to certify that TNS E060 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E060 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E060 conforms to the physical properties listed in the following table:

<u>FABRIC PROPERTY</u>	<u>TEST METHOD</u>	<u>UNITS</u>	<u>M.A.R.V</u>
Weight	ASTM D 5261	oz/sy	6.0
Thickness	ASTM D 5199	mils	85
Grab Tensile	ASTM D 4632	lbs	160
Grab Elongation	ASTM D 4632	%	60
Trap Tear	ASTM D 4533	lbs	65
Puncture	ASTM D 4833	lbs	95
Mullen Burst	ASTM D 3786	psi	350
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permittivity	ASTM D 4491	1/sec	1.63
Water Flow	ASTM D 4491	gpm/sq.ft.	125
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.45

Regards,



J. Melissa Keller
TNS Advanced Technologies

Roll #	Styl	Wdt	Lng	Fabr Hght	Thck	Strg MD	Strg XMD	Elong MD	Elong XMD	Trap MD	Trap XMD	Punc Reat	Bret Strg	Flow Rate	Perm -dbl	Perm -lty	AOS
462048	E060	180	900	6.2	97	174	190	72	86	72	94	115	401	177	.74	2.7	80
462620*	E060	180	900	6.2	101	184	190	67	74	86	121	111	396	158	.68	2.4	80
462621*	E060	180	900	6.2	101	184	190	67	74	86	121	111	396	158	.68	2.4	80
462658*	E060	180	900	6.1	102	169	174	68	96	83	100	126	363	191	.77	3.0	80
462676*	E060	180	900	6.1	104	183	180	68	80	98	136	108	410	147	.57	2.3	80
463396	E060	180	900	6.0	87	178	174	54	93	96	119	101	358	158	.62	2.4	80
463439*	E060	180	900	6.1	97	168	173	60	79	86	83	112	402	158	.62	2.4	80
463454*	E060	180	900	6.6	97	213	186	69	88	86	83	112	402	158	.62	2.4	80
463461*	E060	180	900	6.4	97	181	173	62	86	86	83	112	402	158	.62	2.4	80
463464*	E060	180	900	6.3	93	187	164	68	84	79	77	109	378	171	.71	2.6	80
463472*	E060	180	900	6.8	97	184	183	67	81	79	77	109	378	158	.62	2.4	80
463474*	E060	180	900	6.8	97	184	183	67	81	79	77	109	378	158	.62	2.4	80
463475	E060	180	900	6.5	96	187	171	68	86	79	77	109	378	158	.62	2.4	80
463478*	E060	180	900	6.5	95	187	171	68	86	79	77	109	378	158	.62	2.4	80
463492*	E060	180	900	6.5	95	186	167	67	82	79	77	109	378	158	.62	2.4	80
464392*	E060	180	900	6.3	104	176	179	64	79	91	120	107	378	222	.48	3.6	80
464399*	E060	180	900	6.6	110	180	186	64	81	91	120	107	378	222	.48	1.8	80
465771*	E060	180	900	6.5	106	178	164	67	87	98	94	100	390	146	.60	2.3	80
465790*	E060	180	900	6.3	104	187	171	63	102	87	111	134	363	146	.60	2.3	80
465808*	E060	180	900	6.3	104	187	171	63	102	87	111	134	363	146	.60	2.3	80
465812*	E060	180	900	6.5	106	178	164	67	87	98	94	100	390	146	.60	2.3	80
465836*	E060	180	900	6.7	111	191	161	62	90	99	96	142	400	132	.50	1.7	80
465841	E060	180	900	7.0	106	201	167	68	94	99	96	142	400	133	.50	1.7	80
982647*	E060	180	900	7.2	110	172	193	62	96	94	110	109	388	172	.80	2.7	80
982685*	E060	180	900	7.5	104	163	166	67	87	80	89	101	366	133	.56	1.8	80
987133*	E060	180	900	6.0	113	168	180	90	106	84	107	98	351	133	.56	1.8	80

Thursday April 29, 1999
Mr. Tom Hauck
Northern Geosystems, Inc.
3767 Warwick Dr.
Rochester Hills MI, 48309

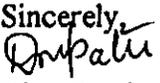
Ref. : Champion International Corp., Canton, NC
Transnet 220-2-6 Geocomposite
Shipper # 963

Mr. Tom Hauck,

We certify that the Transnet 220-2-6 double sided drainage composite, shipped on the above Shipper No., meets the project requirements as stated in Section 02741, of the specifications. The properties listed in this section include :

Net Property	Test Method	Unit	Minimum Required Value
Mass per Unit Area	ASTM D 3776	lbs/ft ²	0.162
Thickness	ASTM D 5199	inches	.22/- .022
Carbon Black	ASTM D 1603	%	2
Tensile Strength	ASTM D 5035	lb/in	50
Density	ASTM D 1505	lb/in	0.93
Composite Property	Test Method	Unit	Minimum Required Value
Transmissivity	ASTM D 4716	m ² /s	3 X 10 ⁻⁴ *
Ply Adhesion	ASTM D 413	lb/in	2
Fabric Property	Test Method	Unit	Minimum Required Value
Fabric Weight	ASTM D 5261	oz/yd ²	6
Tear Strength	ASTM D 4533	lbs	65
Grab Strength	ASTM D 4632	lbs	150
Mullen Burst	ASTM D 3786	psi	350
Puncture Resistance	ASTM D 4833	lbs	90
AOS	ASTM D 4751	US Sieve	70

* Transmissivity measured using water 20 Degree C (68 degree F) with a gradient of 0.02 and a confining pressure of 20,000 psf, between two steel plates after 15 min.

Sincerely,

Dipa Patel
QA Manager



SKAPS INDUSTRIES
571 INDUSTRIAL PARKWAY
COMMERCE, GA 30529
(706) 336-7000

SHIPPERS NO.
963

C/O GEOMEMBRANE SERVICES INC.

INTERNAL REF # CHAMPION INTERNATIONAL CORP.
DESIGNED TO - 175 MAIN STREET
DESTINATION - CANTON NC 28716

DATE SHIPPED 04/28/99
CUST. P.O. # 99005

COMMENTS FROM M.R. JIM LUNDY
616-264-9030

STATE:
INTERNAL REF # 963
MATERIAL REQ # 99005
JOB #
SHIPPERS # 963
BUS / MARKET SEQ #
TERMS: PREPAID

DRIVER MUST CALL 24 HOURS PRIOR TO DELIVERY

NO # SQ FT	PRODUCT CODE #	ROLL #	KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS
3500.0	TN22066	21768.	220 NT-2 SD 6 OZ
3500.0	TN22066	21756.	220 NT-2 SD 6 OZ
3500.0	TN22066	21755.	220 NT-2 SD 6 OZ
3500.0	TN22066	21759.	220 NT-2 SD 6 OZ
3500.0	TN22066	21754.	220 NT-2 SD 6 OZ
3500.0	TN22066	21760.	220 NT-2 SD 6 OZ
3500.0	TN22066	21762.	220 NT-2 SD 6 OZ
3500.0	TN22066	21764.	220 NT-2 SD 6 OZ
3500.0	TN22066	21758.	220 NT-2 SD 6 OZ
3500.0	TN22066	21763.	220 NT-2 SD 6 OZ
3500.0	TN22066	21752.	220 NT-2 SD 6 OZ
3500.0	TN22066	21751.	220 NT-2 SD 6 OZ
3500.0	TN22066	21757.	220 NT-2 SD 6 OZ
3500.0	TN22066	21761.	220 NT-2 SD 6 OZ
3500.0	TN22066	21753.	220 NT-2 SD 6 OZ
3500.0	TN22066	21765.	220 NT-2 SD 6 OZ
3500.0	TN22066	21766.	220 NT-2 SD 6 OZ
3500.0	TN22066	21770.	220 NT-2 SD 6 OZ
3500.0	TN22066	21767.	220 NT-2 SD 6 OZ
3500.0	TN22066	21769.	220 NT-2 SD 6 OZ
3500.0	TN22066	21771.	220 NT-2 SD 6 OZ
3500.0	TN22066	21775.	220 NT-2 SD 6 OZ
3500.0	TN22066	21777.	220 NT-2 SD 6 OZ
3500.0	TN22066	21774.	220 NT-2 SD 6 OZ
3500.0	TN22066	21772.	220 NT-2 SD 6 OZ
3500.0	TN22066	21776.	220 NT-2 SD 6 OZ
3500.0	TN22066	21773.	220 NT-2 SD 6 OZ

2 Bags of
Ties

TOTAL SQFT: 94,500

TOTAL WEIGHT: 29938

TRUCK / CONTAINER #

LOAD VERIFICATION SIGNED X
TRUCKERS P.O. # 99005

SEAL #

WRIGHT TRUCKING

CARRIER REF.

CARRIER NAME

CARRIER SIGN

Oliver J. Wright

DATE: 4-28-99

SIGN HERE FOR SHIPPER

SIGN HERE FOR AGENT
OF SHIPPER

SHIPPER:

ADDRESS: 571 INDUSTRIAL PARKWAY
COMMERCE, GA 30529

AGENT FOR SHIPPER:

I at Commerce, GA from Skaps Industries the property described above, in apparent good order except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated above, which said Carrier (the word "Carrier" is defined throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery as said destination. It is mutually agreed as to each Carrier of all or any of said property, over all or part of said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein to Skaps Industries as indicated by the designation "or" to be Skaps Industries, then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties or (b) if the Shipper noted herein to not Skaps Industries then Skaps Industries shall be the agent for the designated Shipper, and that every aspect of the service to be performed hereunder between the Shipper and the Carrier shall be subject to the terms and conditions of the Uniform Customs and Practice for Documentary Credits (UCP) Southern, Western, and Alaska Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable water carrier classification or tariff if this is a water carrier shipment. When acting in the capacity of an agent, I am placing the material in transit on behalf of a Shipper. Skaps Industries accepts no liability for loss of cargo, damage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangements are for the Shipper and not for Skaps Industries.

Engineered Synthetic SKAPS Industries
Products, Inc. Composite Ply Adhesion

CANTON, NC

Roll #	Net #	Side A		Side B		Other Roll	Net #						
		Min. MD Top (g/in)	Avg. MD Top (g/in)	Min. MD Top	Avg. MD Top (g/in)								
21750	24771	953	1089	998	1137	21751	24051	21752	24769	21753	24032	21754	24664
21755	24523	1089	1407	1180	1453	21756	24067	21757	24174	21758	24275	21759	24787
21760	24191	1044	1407	1180	1453	21761	24186	21762	24192	21763	24093	21764	24195
21765	24193	1089	1498	998	1407	21766	24203	21767	24204	21768	24046	21769	24167
21770	22778	1135	1544	1089	1453	21771	24049	21772	24127	21773	24121	21774	24101
21775	24102	1180	1589	1044	1498	21776	24089	21777	24097	21778	26139	21779	26154

SKAPS Industries

Engineered Synthetic
Products, Inc.

Geonet
CANTON, NC

Roll #	Lot #	Min. Thickness (mil)	Carbon Black (%)	Density (g/cc)	Wt/Unit Area (net) lb/sf	TS@Break, MD (ppl)
022775	22096-1	225	2.4	.950	.205	58
024020	22096-1	218	2.2	.950	.192	68
024030	22096-1	219	2.4	.950	.194	68
024045	22096-1	220	2.3	.950	.184	73
024050	22096-1	220	2.5	.950	.197	75
024065	22096-1	222	2.4	.950	.186	68
024085	22096-1	220	2.2	.950	.197	64
024090	22096-1	217	2.5	.950	.198	63
024095	22096-1	215	2.3	.950	.191	67
024120	22096-1	216	2.3	.950	.198	62
024165	22096-1	215	2.4	.950	.192	70
024170	22096-1	218	2.3	.950	.201	62
024175	22096-1	217	2.2	.950	.192	62
024185	22096-1	215	2.3	.950	.191	65
024190	22096-1	215	2.4	.950	.194	64
024195	22096-1	218	2.2	.950	.184	74
024200	22096-1	217	2.5	.950	.184	75
024665	H091040	210	2.4	.950	.190	71
024725	H091040	215	2.3	.950	.200	75
024765	H091040	215	2.2	.950	.204	61
024785	H091040	218	2.3	.950	.208	66
024990	H091040	257	2.6	.950	.274	67

PLEASE NOTE: TESTING IS PERFORMED EVERY 5TH ROLL.



CERTIFICATE OF COMPLIANCE

Date: 4-19-99

SKAPS
571 Industrial Parkway
Commerce, Georgia 30529

The following confirms the properties of your shipment as requested on your Purchase Order 22538:

Product:	HDPE
Ship Dates:	1-28, 1-29, 1-30, 2-1-99
Railcar No:	GPLX 74724
Lot No:	22096-1
Melt Index:	.21
Density:	.946
Weight:	179,800 LBS.

David A. Duckwall



Chevron

U.S. Chemical

February 15, 1999

Bobby Esperson
SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529

CERTIFICATE OF ANALYSIS

Product:	LM0350A	Lot Number:	H091040
Chevron Order #:	209045 - 5000	Destination:	Commerce
Package:	CHVX898575	Weight (lbs):	48,320
Customer Order #:	22546	Ship Date:	2/11/99

Following is the data on the subject material as determined by the Quality Control Department:

<u>Property</u>	<u>Value</u>	<u>Units</u>
Melt Index	0.33	gms/10 min
Density	0.9507	gms/cc

The data set forth herein has been carefully compiled by Chevron Chemical Company. 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.

Sincerely,

Gary MacMurtrie
Supervisor
Quality Control

Customer Fax: 706-336-7007

For inquiry, contact Customer Service at the following number:

Film, Coating, Pipe Applications: 1-800-231-3826
Molding Applications: 1-800-231-3828

Cross Reference Table For Shipper No 963 : Canaton, NC

COMPOSITE		NONWOVEN	
ROLL NUMBER	NET NUMBER	SIDE A	SIDE B
21,751	24,051	465,790	463,464
21,752	24,769	465,790	463,464
21,753	24,032	465,790	463,464
21,754	24,664	462,048	465,812
21,755	24,523	462,048	465,812
21,756	24,067	462,048	465,812
21,757	24,174	463,454	464,392
21,758	24,175	463,454	464,392
21,759	24,787	463,454	464,392
21,760	24,191	462,675	463,472
21,761	24,186	462,675	463,472
21,762	24,192	462,675	463,472
21,763	24,093	463,396	463,461
21,764	24,195	463,396	463,461
21,765	24,193	463,396	463,461
21,766	24,203	982,647	463,474
21,767	24,204	982,647	463,474
21,768	24,046	982,647	463,474
21,769	24,167	987,133	463,461
21,770	22,778	987,133	463,461
21,771	24,049	987,133	463,461
21,772	24,127	465,835	902,685
21,773	24,121	465,835	902,685
21,774	24,101	465,835	902,685
21,775	24,102	465,841	465,808
21,776	24,089	465,841	465,808
21,777	24,097	465,841	465,808



681 DeYoung Road
Greer, South Carolina 29615
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 867-5181

April 28, 1999
REF: TNS E060
Quantity Shipped: 28 rolls
BOL#: 41376

Skaps

571 Industrial Pkwy.
Commerce, GA 30529

Dear Sir/Madam:

This is to certify that TNS E060 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E060 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E060 conforms to the physical properties listed in the following table:

<u>FABRIC PROPERTY</u>	<u>TEST METHOD</u>	<u>UNITS</u>	<u>M.A.R.V</u>
Weight	ASTM D 5261	oz/sy	6.0
Thickness	ASTM D 5199	mils	85
Grab Tensile	ASTM D 4632	lbs	160
Grab Elongation	ASTM D 4632	%	60
Trap Tear	ASTM D 4533	lbs	65
Puncture	ASTM D 4833	lbs	95
Mullen Burst	ASTM D 3786	psi	350
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permittivity	ASTM D 4491	l/sec	1.63
Water Flow	ASTM D 4491	gpm/sq.ft.	125
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.45

Regards,

J. Melissa Keller
TNS Advanced Technologies

Roll #	Styl	Wgt	Lng	Fabr	Thck	Strg	Strg	Strg	Elong	Elong	Trap	Trap	Punc	Brac	Flow	Perm	Perm	AOS
				Hght	MD	XMD	MD	XMD	MD	XMD	MD	XMD	Reel	Stro	Rate	-dbl	-lty	
46204R	E060	180	900	6.2	97	174	190	72	86	72	94	115	401	177	.74	2.7	80	
462620-	E060	180	900	6.2	101	184	190	67	74	86	121	111	396	158	.68	2.4	80	
462621-	E060	180	900	6.2	101	184	190	67	74	86	121	111	396	158	.68	2.4	80	
462668-	E060	180	900	6.1	102	169	174	68	95	83	100	126	363	191	.77	3.0	80	
462675-	E060	180	900	6.1	104	183	180	68	80	98	136	108	410	147	.67	2.3	80	
463396	E060	180	900	6.0	87	178	174	64	93	96	119	101	358	150	.62	2.4	80	
463433-	E060	180	900	6.1	97	168	173	60	79	86	83	112	402	158	.62	2.4	80	
463454-	E060	180	900	6.6	97	213	186	69	88	86	83	112	402	150	.62	2.4	80	
463461-	E060	180	900	6.4	97	181	173	62	85	86	83	112	402	150	.62	2.4	80	
463464-	E060	180	900	6.3	93	187	164	68	84	79	77	109	378	171	.71	2.6	80	
463472-	E060	180	900	6.8	97	184	183	67	81	79	77	109	378	158	.62	2.4	80	
463474-	E060	180	900	6.8	97	184	183	67	81	79	77	109	378	158	.62	2.4	80	
463475	E060	180	900	6.5	95	187	171	68	85	79	77	109	378	168	.62	2.4	80	
463478-	E060	180	900	6.5	95	187	171	68	85	79	77	109	378	168	.62	2.4	80	
463492-	E060	180	900	6.5	95	186	167	67	82	79	77	109	378	168	.62	2.4	80	
464392-	E060	180	900	6.3	104	176	179	64	79	91	120	107	378	168	.62	2.4	80	
464399-	E060	180	900	6.6	110	180	185	64	81	91	120	107	378	222	.48	3.6	80	
465771-	E060	180	900	6.5	105	178	164	67	87	94	94	100	390	146	.60	2.3	80	
465790-	E060	180	900	6.3	104	187	171	63	102	87	111	134	363	146	.60	2.3	80	
465808-	E060	180	900															
465812-	E060	180	900	6.5	105	178	164	67	87	98	94	100	390	146	.60	2.3	80	
465835-	E060	180	900	6.7	111	191	161	62	90	99	96	142	400	132	.50	1.7	80	
465841	E060	180	900	7.0	106	201	167	68	94	99	96	142	400	133	.50	1.7	80	
982647-	E060	180	900	7.2	110	172	193	62	95	94	110	109	388	172	.80	2.7	80	
982585-	E060	180	900	7.5	104	163	165	67	87	80	89	101	366	133	.56	1.8	80	
987133-	E060	180	900	6.0	113	168	180	90	105	84	107	98	351	133	.65	1.8	80	

Engineered Synthetic Products/Skaps Industries

571 Industrial Pkwy.
Commerce, GA 30529
Phone : 770-564-1857 Fax : 770-564-1818

April 29, 1999

Canton, NC

Dear Sir/Madam:

This is to certify the transmissivity of GeoComposite. Testing was performed every 40,000 square feet of production using ASTM 4716.

GeoComposite				
Roll Number	Gradient/Load	Normal Time (min)	Transmissivity (gal/ft/min)	Transmissivity (m ² /sec)
21,650	0.02/20,000	15	3.74	7.75 x 10 ⁻⁴
21,662	0.02/20,000	15	3.50	7.25 x 10 ⁻⁴
21,775	0.02/20,000	15	3.07	6.37 x 10 ⁻⁴

Engineered Synthetic **SKAPS Industries**
Products, Inc.

RESIN
CANTON, NC

Supplier's Result

Lot #	Melt Index	Density	Melt Index	Polymer Density
22098-1	.25	.948	0.21	.946
H091040	.35	.951	0.33	.9507

LINER

Panel

Recap

**CHAMPION INTERNATIONAL CORP.
LIST OF PANELS**

PANEL ID #	PANEL SIZE	FABRICATION DATE
S39RX1206	70' X 300'	10/12/98
S39RX1207	70' X 300'	10/12/98
S39RX1208	70' X 300'	10/12/98
S39RX1209	70' X 300'	10/12/98
S39RX1211	70' X 300'	10/12/98
S39RX1212	70' X 300'	10/12/98
S39RX1213	70' X 300'	10/12/98
S39RX1214	70' X 300'	10/12/98
S39RX1303	70' X 300'	10/13/98
S39RX1304	70' X 300'	10/13/98
S39RX1307	70' X 300'	10/13/98
S39RX1308	70' X 300'	10/13/98
S39RY0301	70' X 300'	11/3/98
S39RY0302	70' X 300'	11/3/98
S39RY0304	70' X 300'	11/3/98
S39RY2402	70' X 300'	11/24/98
S39RY2403	70' X 300'	11/24/98

PRODUCTION REPORT/LINE LOAD

CUSTOMER STOCK				FABRICATION DATE 10/12/98			
PROJECT				SHEET 2 OF			
WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS	MANUFACTURER NAME		MATERIAL FINISH	TEST #	
	PVC	030	R		FAILLE		
SPECIAL PANEL ID	S39RX1206	S39RX1207	S39RX1208	S39RX1209			
PANEL NO.							
PANEL SIZE	70 X 300	70 X 300	70 X 300	70 X 300			
PACKED PER BOX	1 PER BOX	1 PER BOX	1 PER BOX	1 PER BOX			
SQ. FT. OF PANEL	21000	21000	21000	21000			
PRODUCTION STATUS							
STOCK TAG							
	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	
MACHINE #1	16/2	2	2	2			
MACHINE #2	22/15	15	15	15			
MACHINE #3	21/9	9	9	9			
MACHINE #4	7/8	8	8	8			
MACHINE #5	6/20	20	20	20			
MACHINE #6	12/19	19	19	19			
MACHINE #7	14/11	11	11	11			
MACHINE #8	23/10	10	10	10			
MACHINE #9	13/1	1	1	1			
MACHINE #10	19/18	18	18	18			
MACHINE #11	13/14	14	14	14			
MACHINE #12							
INSPECTION/SEAMER	E 60/29 W	E W	E W	E W	E W	E W	
SUPERVISOR	VK TT						
ROLL NO.	MANUFACTURE #	MFG DATE	ROLL NO.	MANUFACTURE #	MFG DATE		
16	F890039-8		2	F890039-9			
22	F890039-9		15	F890039-1			
21	F890039-9		9	F890039-9			
7	F890039-9		8	F890039-9			
6	F890039-9		20	F890039-9			
12	F890039-9		19	F890039-9			
14	F890039-9		11	F890039-9			
23	F890039-9		10	F890039-9			
13	F890039-9		1	F890039-9			
19	F890039-8		18	F890039-9			
13	F890039-8		14	F890039-8			

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC R FF GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/12/88
 OPERATOR: _____ TYPE OF FABRICATION: S39RX1205 TEST DATE: 10/22/88 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	F890039-8	F890039-9	A			0.00	0.00	73.15	75.69
			B			0.00		78.20	
			C			0.00		73.12	
			D			0.00		76.55	
			E			0.00		77.45	
2	F890039-9	F890039-9	A			0.00	0.00	79.12	80.97
			B			0.00		81.10	
			C			0.00		82.40	
			D			0.00		81.85	
			E			0.00		80.37	
3	F890039-9	F890039-9	A			0.00	0.00	76.75	77.75
			B			0.00		77.62	
			C			0.00		78.40	
			D			0.00		78.35	
			E			0.00		76.62	
4	F890039-9	F890039-9	A			0.00	0.00	84.00	84.10
			B			0.00		84.55	
			C			0.00		84.40	
			D			0.00		84.95	
			E			0.00		82.60	
5	F890039-9	F890039-9	A			0.00	0.00	82.90	82.64
			B			0.00		84.80	
			C			0.00		85.22	
			D			0.00		78.32	
			E			0.00		81.97	
6	F890039-9	F890039-9	A			0.00	0.00	85.62	80.38
			B			0.00		77.35	
			C			0.00		78.82	
			D			0.00		80.05	
			E			0.00		80.07	
7	F890039-9	F890039-9	A			0.00	0.00	77.62	78.70
			B			0.00		76.82	
			C			0.00		77.95	
			D			0.00		80.27	
			E			0.00		80.85	
8	F890039-9	F890039-9	A	29.12	37.95	33.54	29.04	79.07	77.97
			B	22.40	31.72	27.06		78.22	
			C	23.57	31.40	27.49		78.32	
			D	23.35	32.67	28.01		75.60	
			E	25.62	32.60	29.11		75.65	
9	F890039-9	F890039-8	A			0.00	0.00	68.82	73.05
			B			0.00		75.42	
			C			0.00		69.75	
			D			0.00		73.82	
			E			0.00		77.42	
10	F890039-8	F890039-8	A			0.00	0.00	75.85	74.09
			B			0.00		75.62	
			C			0.00		74.75	
			D			0.00		73.57	
			E			0.00		72.65	

PEEL TEST DATA: Per					
Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F
					Charted

WATERSAVER COMPANY, INC.
LAB TEST REPORT - CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/12/98

OMER: _____ TYPE OF FABRICATION: S39RX1207 TEST DATE: 10/21/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	2 F890039-9	15 F890039-9	A		0.00	0.00	74.05	73.69	
			B		0.00		75.02		
			C		0.00		72.60		
			D		0.00		72.10		
			E		0.00		74.70		
2	15 F890039-9	9 F890039-9	A		0.00	0.00	75.55	75.96	
			B		0.00		77.75		
			C		0.00		76.20		
			D		0.00		75.17		
			E		0.00		75.12		
3	9 F890039-9	8 F890039-9	A		0.00	0.00	73.75	73.96	
			B		0.00		73.90		
			C		0.00		76.07		
			D		0.00		72.62		
			E		0.00		73.47		
4	8 F890039-9	20 F890039-9	A		0.00	0.00	78.72	76.83	
			B		0.00		76.55		
			C		0.00		77.20		
			D		0.00		75.60		
			E		0.00		76.07		
5	20 F890039-9	19 F890039-9	A		0.00	0.00	83.25	83.27	
			B		0.00		82.80		
			C		0.00		84.97		
			D		0.00		83.05		
			E		0.00		82.30		
6	19 F890039-9	11 F890039-9	A		0.00	0.00	78.15	78.23	
			B		0.00		77.15		
			C		0.00		78.60		
			D		0.00		77.20		
			E		0.00		80.15		
7	11 F890039-9	10 F890039-9	A		0.00	0.00	81.57	80.35	
			B		0.00		81.10		
			C		0.00		82.07		
			D		0.00		78.75		
			E		0.00		78.27		
8	10 F890039-9	1 F890039-9	A		0.00	0.00	80.67	79.38	
			B		0.00		79.65		
			C		0.00		78.77		
			D		0.00		79.45		
			E		0.00		78.47		
9	1 F890039-9	14 F890039-8	A		0.00	0.00	78.12	76.97	
			B		0.00		77.30		
			C		0.00		78.55		
			D		0.00		75.97		
			E		0.00		74.92		
10	14 F890039-8	18 F890039-9	A	29.72	29.42	29.57	26.83	72.67	76.66
			B	19.17	32.62	25.90		77.20	
			C	28.32	30.42	29.37		77.55	
			D	17.82	27.10	22.46		78.05	
			E	24.90	28.75	26.83		77.85	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC R FF GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/12/98
 TOMER: _____ TYPE OF FABRICATION: S39RX1209 TEST DATE: 10/22/98 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	2 FB90039-9	15 FB90039-9	A		0.00	0.00	82.72	82.95	
			B		0.00		81.97		
			C		0.00		84.67		
			D		0.00		81.87		
			E		0.00		83.50		
2	15 FB90039-9	9 FB90039-9	A		0.00	0.00	77.67	76.25	
			B		0.00		75.50		
			C		0.00		75.85		
			D		0.00		75.72		
			E		0.00		76.32		
3	9 FB90039-9	8 FB90039-9	A		0.00	0.00	78.35	78.18	
			B		0.00		75.80		
			C		0.00		78.95		
			D		0.00		75.65		
			E		0.00		81.15		
4	8 FB90039-9	20 FB90039-9	A		0.00	0.00	80.77	80.66	
			B		0.00		81.47		
			C		0.00		80.35		
			D		0.00		80.22		
			E		0.00		80.50		
5	20 FB90039-9	19 FB90039-9	A		0.00	0.00	84.32	82.35	
			B		0.00		83.52		
			C		0.00		84.37		
			D		0.00		84.25		
			E		0.00		75.27		
6	19 FB90039-9	11 FB90039-9	A		0.00	0.00	81.02	82.16	
			B		0.00		82.09		
			C		0.00		82.72		
			D		0.00		83.37		
			E		0.00		81.60		
7	11 FB90039-9	10 FB90039-9	A		0.00	0.00	78.82	80.09	
			B		0.00		79.65		
			C		0.00		80.95		
			D		0.00		80.00		
			E		0.00		81.02		
8	10 FB90039-9	1 FB90039-9	A		0.00	0.00	75.65	76.42	
			B		0.00		75.02		
			C		0.00		77.17		
			D		0.00		77.30		
			E		0.00		76.97		
9	1 FB90039-9	14 FB90039-8	A		0.00	0.00	78.82	76.20	
			B		0.00		78.75		
			C		0.00		74.05		
			D		0.00		74.02		
			E		0.00		75.35		
10	14 FB90039-8	18 FB90039-9	A	24.55	31.82	28.19	29.38	75.67	74.31
			B	26.12	34.57	30.35		74.17	
			C	27.87	35.95	31.91		74.02	
			D	23.35	32.37	27.86		71.50	
			E	22.62	34.52	28.57		76.17	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT - CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/12/98

TOMER: _____ TYPE OF FABRICATION: S39RX1211 TEST DATE: 10/20/98 BY: MDLKJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	2 F890039-9	15 F890039-9	A			0.00	0.00	76.47	74.33
			B			0.00		73.07	
			C			0.00		73.50	
			D			0.00		73.50	
			E			0.00		75.10	
2	15 F890039-9	9 F890039-9	A			0.00	0.00	77.35	76.14
			B			0.00		75.75	
			C			0.00		78.12	
			D			0.00		76.40	
			E			0.00		73.10	
3	9 F890039-9	8 F890039-9	A			0.00	0.00	73.92	75.22
			B			0.00		75.70	
			C			0.00		77.45	
			D			0.00		74.52	
			E			0.00		74.52	
4	8 F890039-9	20 F890039-9	A			0.00	0.00	72.57	76.18
			B			0.00		76.57	
			C			0.00		77.05	
			D			0.00		77.05	
			E			0.00		77.67	
5	20 F890039-9	19 F890039-9	A			0.00	0.00	85.32	83.29
			B			0.00		83.27	
			C			0.00		82.70	
			D			0.00		82.82	
			E			0.00		82.35	
6	19 F890039-9	11 F890039-9	A			0.00	0.00	78.87	78.39
			B			0.00		79.02	
			C			0.00		76.77	
			D			0.00		76.37	
			E			0.00		80.90	
7	11 F890039-9	10 F890039-9	A	25.02	32.97	28.00	27.46	80.72	79.65
			B	26.27	33.75	30.01		79.47	
			C	20.35	27.62	23.99		82.90	
			D	24.65	30.17	27.41		81.12	
			E	23.82	29.92	26.87		74.05	
8	10 F890039-9	1 F890039-9	A			0.00	0.00	78.37	79.63
			B			0.00		77.75	
			C			0.00		79.60	
			D			0.00		81.52	
			E			0.00		80.92	
9	1 F890039-9	14 F890039-8	A			0.00	0.00	72.10	72.27
			B			0.00		72.10	
			C			0.00		73.10	
			D			0.00		69.87	
			E			0.00		74.20	
10	14 F890039-8	18 F890039-9	A			0.00	0.00	74.20	76.05
			B			0.00		76.92	
			C			0.00		76.70	
			D			0.00		76.60	
			E			0.00		75.85	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC R FAILLE GUAGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/12/98
 OMER: _____ TYPE OF FABRICATION: S39RX1213 TEST DATE: 10/20/98 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413				GROUP AVG.	ASTM - D3083	
			PEEL TEST		AVG. (LB/IN)	SHEAR TEST		AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	16 F890039-5	18 F890039-5	A	25.57	34.77	30.17	26.43	82.95	84.65
			B	21.42	32.85	27.14		85.32	
			C	22.35	29.50	25.93		85.75	
			D	20.07	26.67	23.37		85.12	
			E	21.15	29.92	25.54		84.12	
2	18 F890039-5	21 F890039-5	A			0.00	0.00	76.37	77.14
			B			0.00		77.80	
			C			0.00		79.47	
			D			0.00		76.85	
			E			0.00		75.20	
3	21 F890039-5	19 F890039-5	A			0.00	0.00	76.67	77.76
			B			0.00		78.60	
			C			0.00		78.42	
			D			0.00		76.85	
			E			0.00		78.27	
4	19 F890039-5	22 F890039-5	A			0.00	0.00	83.52	81.88
			B			0.00		81.05	
			C			0.00		83.07	
			D			0.00		80.97	
			E			0.00		80.77	
5	22 F890039-5	3 F890039-1	A			0.00	0.00	81.02	80.73
			B			0.00		79.52	
			C			0.00		80.25	
			D			0.00		79.82	
			E			0.00		83.02	
6	3 F890039-1	4 F890039-1	A			0.00	0.00	80.42	82.94
			B			0.00		85.75	
			C			0.00		84.32	
			D			0.00		82.22	
			E			0.00		82.00	
7	4 F890039-1	15 F890039-9	A			0.00	0.00	82.37	80.95
			B			0.00		80.47	
			C			0.00		79.47	
			D			0.00		81.97	
			E			0.00		80.45	
8	15 F890039-9	1 F890039-1	A			0.00	0.00	76.35	76.26
			B			0.00		78.15	
			C			0.00		77.57	
			D			0.00		75.40	
			E			0.00		73.82	
9	1 F890039-1	16 F890039-9	A			0.00	0.00	78.17	79.15
			B			0.00		77.67	
			C			0.00		80.70	
			D			0.00		79.67	
			E			0.00		79.52	
10	16 F890039-9	5 F890039-9	A			0.00	0.00	75.85	75.17
			B			0.00		74.47	
			C			0.00		74.67	
			D			0.00		76.05	
			E			0.00		74.82	

PEEL TEST DATA: Per

Sample Width: _____	Speed: _____ in./min.	Load Range: _____	Temperature: _____ degree F	Charted _____
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WATERSAVER COMPANY, INC.
LAB TEST REPORT - CERTIFIED RESULTS

MATERIAL TYPE: PVC R FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10-12-98

ITEM: _____ TYPE OF FABRICATION: S39RX1214 TEST DATE: 10-21-98 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083	
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)
			PEAK 1	PEAK 2				
1	16	18	A			0.00	82.92	82.58
			B			0.00	84.52	
			C			0.00	80.75	
			D			0.00	81.75	
			E			0.00	82.97	
	F890039-5	F890039-5						
2	18	21	A	21.02	28.85	24.94	83.45	82.20
			B	22.70	32.72	27.71	80.72	
			C	26.17	31.25	28.71	81.27	
			D	25.42	33.77	29.60	84.60	
			E	27.25	36.42	31.84	80.95	
	F890039-5	F890039-5						
3	21	19	A			0.00	79.77	81.37
			B			0.00	81.00	
			C			0.00	81.32	
			D			0.00	82.35	
			E			0.00	82.40	
	F890039-5	F890039-5						
4	19	22	A			0.00	86.57	89.46
			B			0.00	82.17	
			C			0.00	91.77	
			D			0.00	88.42	
			E			0.00	88.37	
	F890039-5	F890039-5						
5	22	3	A			0.00	82.37	83.57
			B			0.00	84.00	
			C			0.00	81.70	
			D			0.00	84.97	
			E			0.00	84.82	
	F890039-5	F890039-1						
6	3	4	A			0.00	88.30	89.01
			B			0.00	89.43	
			C			0.00	90.82	
			D			0.00	87.20	
			E			0.00	89.30	
	F890039-1	F890039-1						
7	4	15	A			0.00	85.87	85.83
			B			0.00	86.05	
			C			0.00	87.25	
			D			0.00	82.95	
			E			0.00	87.05	
	F890039-1	F890039-9						
8	15	1	A			0.00	78.92	80.19
			B			0.00	81.85	
			C			0.00	77.75	
			D			0.00	82.50	
			E			0.00	79.92	
	F890039-9	F890039-1						
9	1	16	A			0.00	83.42	85.01
			B			0.00	86.55	
			C			0.00	85.30	
			D			0.00	83.07	
			E			0.00	86.72	
	F890039-1	F890039-9						
10	16	5	A			0.00	79.50	79.11
			B			0.00	79.32	
			C			0.00	79.57	
			D			0.00	78.70	
			E			0.00	78.47	
	F890039-9	F890039-9						

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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PRODUCTION REPORT/LINE LOAD

CUSTOMER STOCK				FABRICATION DATE 10/13/98			
PROJECT				SHEET 1 OF			
WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS	MANUFACTURER NAME		MATERIAL FINISH	TEST #	
	PVC	030	R		FAILLE		
SPECIAL PANEL ID	S39RX1303	S39RX1304					
PANEL NO.							
PANEL SIZE	70 X 300	70 X 300					
PACKED PER BOX	1 PER BOX	1 PER BOX					
SQ. FT. OF PANEL	21,000	21,000					
PRODUCTION STATUS							
STOCK TAG							
	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	
MACHINE #1	7	7					
MACHINE #2	15	15					
MACHINE #3	4	4					
MACHINE #4	12	12					
MACHINE #5	9	9					
MACHINE #6	17	17					
MACHINE #7	14	14					
MACHINE #8	13	13					
MACHINE #9	10	10					
MACHINE #10	20	20					
MACHINE #11	3	3					
MACHINE #12							
INSPECTION/SEAMER	E 60/2R	W 84/65	E	W	E	W	
SUPERVISOR	VK MW						
ROLL NO.	MANUFACTURE #	MFG DATE	ROLL NO.	MANUFACTURE #	MFG DATE		
7	F890039-5						
15	F890039-5						
4	F890039-5						
12	F890039-5						
9	F890039-5						
17	F890039-5						
14	F890039-5						
13	F890039-5						
10	F890039-5						
20	F890039-5						
3	F890039-9						

PRODUCTION REPORT/LINE LOAD

CUSTOMER STOCK				FABRICATION DATE 10/13/98			
PROJECT				SHEET 2 OF			
WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS	MANUFACTURER NAME		MATERIAL FINISH	TEST #	
	PVC	030	R		FAILLE		
SPECIAL PANEL ID	S39RX1307	S39RX1308					
PANEL NO.							
PANEL SIZE	70 X 300	70 X 300					
PACKED PER BOX	1 PER BOX	1 PER BOX					
SQ. FT. OF PANEL	21000	21000					
PRODUCTION STATUS							
STOCK TAG							
	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	
MACHINE #1	1	1					
MACHINE #2	21	21					
MACHINE #3	6	6					
MACHINE #4	17	17					
MACHINE #5	22	22					
MACHINE #6	3	3					
MACHINE #7	1	1					
MACHINE #8	11	11					
MACHINE #9	8	8					
MACHINE #10	5	5					
MACHINE #11	2	2					
MACHINE #12							
INSPECTION/SEAMER	E	W	E	W	E	W	E
SUPERVISOR	VK TT						
ROLL NO.	MANUFACTURE #	MFG DATE	ROLL NO.	MANUFACTURE #	MFG DATE		
1	F890039-8						
21	F890039-7						
6	F890039-5						
17	F890039-7						
22	F890039-7						
3	F890039-5						
1	F890039-5						
11	F890039-5						
8	F890039-5						
5	F890039-5						
2	F890039-5						

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC - R - FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/13/98

CUSTOMER: _____ TYPE OF FABRICATION: S39RX1301 TEST DATE: 10/20/98 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	16	18	A		0.00	0.00	77.82	74.73	
			B		0.00		74.47		
			C		0.00		74.97		
			D		0.00		73.12		
			E		0.00		73.25		
2	18	21	A		0.00	0.00	74.52	72.85	
			B		0.00		71.95		
			C		0.00		74.30		
			D		0.00		71.72		
			E		0.00		71.77		
3	21	19	A		0.00	0.00	75.62	76.20	
			B		0.00		75.97		
			C		0.00		76.47		
			D		0.00		77.37		
			E		0.00		75.57		
4	19	22	A		0.00	0.00	80.15	78.99	
			B		0.00		78.97		
			C		0.00		77.52		
			D		0.00		78.67		
			E		0.00		78.62		
5	22	3	A		0.00	0.00	82.37	81.57	
			B		0.00		82.92		
			C		0.00		82.35		
			D		0.00		82.70		
			E		0.00		77.50		
6	3	4	A		0.00	0.00	77.07	77.11	
			B		0.00		73.50		
			C		0.00		76.12		
			D		0.00		80.05		
			E		0.00		78.80		
7	4	15	A		0.00	0.00	78.45	77.95	
			B		0.00		79.02		
			C		0.00		74.75		
			D		0.00		79.75		
			E		0.00		77.80		
8	15	1	A		0.00	0.00	80.77	79.59	
			B		0.00		80.35		
			C		0.00		80.02		
			D		0.00		76.17		
			E		0.00		80.62		
9	1	16	A		0.00	0.00	75.90	75.30	
			B		0.00		79.07		
			C		0.00		73.65		
			D		0.00		73.07		
			E		0.00		74.82		
10	16	5	A	18.80	19.42	19.11	20.19	74.72	74.28
			B	17.32	23.05	20.19		74.05	
			C	17.77	19.85	18.81		73.50	
			D	21.40	20.10	20.75		74.25	
			E	19.40	24.80	22.10		74.87	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC R FF GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/13/98

TOMER: _____ TYPE OF FABRICATION: S39RX1303 TEST DATE: 10/21/98 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	7	15	A		0.00	0.00	82.12	84.77	
			B		0.00		84.05		
			C		0.00		86.25		
			D		0.00		86.95		
			E		0.00		84.47		
2	15	4	A		0.00	0.00	77.75	76.76	
			B		0.00		75.12		
			C		0.00		76.15		
			D		0.00		78.15		
			E		0.00		76.65		
3	4	12	A		0.00	0.00	78.55	80.85	
			B		0.00		80.95		
			C		0.00		82.87		
			D		0.00		81.27		
			E		0.00		80.60		
4	12	9	A		0.00	0.00	83.67	82.43	
			B		0.00		81.20		
			C		0.00		83.30		
			D		0.00		82.62		
			E		0.00		81.35		
5	9	17	A		0.00	0.00	83.02	80.59	
			B		0.00		82.10		
			C		0.00		78.40		
			D		0.00		79.87		
			E		0.00		79.57		
6	17	14	A		0.00	0.00	81.02	79.99	
			B		0.00		80.15		
			C		0.00		75.47		
			D		0.00		82.50		
			E		0.00		80.80		
7	14	13	A		0.00	0.00	82.10	81.15	
			B		0.00		81.07		
			C		0.00		80.30		
			D		0.00		82.50		
			E		0.00		79.80		
8	13	10	A		0.00	0.00	75.57	77.36	
			B		0.00		74.67		
			C		0.00		77.30		
			D		0.00		79.37		
			E		0.00		79.87		
9	10	20	A		0.00	0.00	80.70	78.57	
			B		0.00		75.65		
			C		0.00		75.65		
			D		0.00		79.55		
			E		0.00		81.32		
10	20	3	A	20.27	32.75	26.51	27.95	75.15	72.78
			B	18.32	31.37	24.85		69.72	
			C	26.05	37.42	31.74		71.92	
			D	22.57	33.87	26.22		71.90	
			E	24.60	32.25	28.43		75.22	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/13/98
 CUSTOMER: _____ TYPE OF FABRICATION: S39RX1305 TEST DATE: 10/22/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	7 F890039-5	15 F890039-5	A		0.00	0.00	79.57	78.05	
			B		0.00		78.12		
			C		0.00		77.22		
			D		0.00		76.90		
			E		0.00		78.45		
2	15 F890039-5	4 F890039-5	A		0.00	0.00	82.75	82.88	
			B		0.00		83.45		
			C		0.00		84.40		
			D		0.00		82.95		
			E		0.00		80.85		
3	4 F890039-5	12 F890039-5	A		0.00	0.00	81.05	79.54	
			B		0.00		79.30		
			C		0.00		79.80		
			D		0.00		78.02		
			E		0.00		78.52		
4	12 F890039-5	9 F890039-5	A		0.00	0.00	84.25	81.81	
			B		0.00		78.32		
			C		0.00		81.57		
			D		0.00		81.30		
			E		0.00		83.60		
5	9 F890039-5	17 F890039-5	A		0.00	0.00	78.42	79.44	
			B		0.00		78.15		
			C		0.00		78.52		
			D		0.00		79.02		
			E		0.00		81.10		
6	17 F890039-5	14 F890039-5	A		0.00	0.00	79.10	78.39	
			B		0.00		78.75		
			C		0.00		77.27		
			D		0.00		76.92		
			E		0.00		79.90		
7	14 F890039-5	13 F890039-5	A		0.00	0.00	81.95	82.68	
			B		0.00		81.87		
			C		0.00		82.52		
			D		0.00		82.95		
			E		0.00		84.12		
8	13 F890039-5	10 F890039-5	A	22.22	28.27	25.25	24.96	78.42	82.26
			B	20.65	27.25	23.95		83.02	
			C	23.77	30.67	27.22		83.85	
			D	19.97	27.90	23.94		83.10	
			E	22.50	26.42	24.46		82.90	
9	10 F890039-5	20 F890039-5	A		0.00	0.00	78.30	77.59	
			B		0.00		78.25		
			C		0.00		76.07		
			D		0.00		78.67		
			E		0.00		76.55		
10	20 F890039-5	3 F890039-9	A		0.00	0.00	78.32	79.34	
			B		0.00		79.02		
			C		0.00		79.35		
			D		0.00		79.25		
			E		0.00		80.77		

PEEL TEST DATA: Per

Sample Width: _____ Speed: _____ in./min. Load Range: _____ Temperature: _____ degree F Charted _____

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/13/98

FORMER: _____ TYPE OF FABRICATION: S39RX1308 TEST DATE: 10/22/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	1 F890039-8	21 F890039-7	A		0.00	0.00	80.55	78.55	
			B		0.00		79.55		
			C		0.00		76.42		
			D		0.00		78.85		
			E		0.00		77.40		
2	21 F890039-7	6 F890039-5	A		0.00	0.00	78.70	77.39	
			B		0.00		77.50		
			C		0.00		78.00		
			D		0.00		75.85		
			E		0.00		76.92		
3	6 F890039-5	17 F890039-7	A		0.00	0.00	77.90	79.02	
			B		0.00		80.07		
			C		0.00		79.20		
			D		0.00		77.02		
			E		0.00		80.90		
4	17 F890039-7	22 F890039-7	A		0.00	0.00	80.75	81.73	
			B		0.00		83.97		
			C		0.00		81.05		
			D		0.00		81.50		
			E		0.00		81.37		
5	22 F890039-7	3 F890039-5	A		0.00	0.00	81.45	78.53	
			B		0.00		77.47		
			C		0.00		76.25		
			D		0.00		80.65		
			E		0.00		76.85		
6	3 F890039-5	1 F890039-5	A		0.00	0.00	80.32	81.14	
			B		0.00		81.22		
			C		0.00		79.30		
			D		0.00		82.42		
			E		0.00		82.45		
7	1 F890039-5	11 F890039-5	A		0.00	0.00	82.57	80.45	
			B		0.00		78.57		
			C		0.00		81.97		
			D		0.00		78.97		
			E		0.00		80.15		
8	11 F890039-5	8 F890039-5	A	22.27	29.55	25.91	25.29	84.15	83.94
			B	20.70	27.37	24.04		85.67	
			C	22.67	31.42	27.05		82.67	
			D	21.02	28.77	24.90		83.70	
			E	21.85	27.22	24.54		83.52	
9	8 F890039-5	5 F890039-5	A		0.00	0.00	79.55	78.60	
			B		0.00		78.55		
			C		0.00		79.97		
			D		0.00		79.02		
			E		0.00		75.90		
10	5 F890039-5	2 F890039-5	A		0.00	0.00	80.57	79.30	
			B		0.00		81.67		
			C		0.00		78.47		
			D		0.00		79.15		
			E		0.00		76.62		

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Chartec
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PRODUCTION REPORT/LINE LOAD

CUSTOMER STOCK				FABRICATION DATE 11/3/98			
PROJECT				SHEET 1 OF			
WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS	MANUFACTURER NAME		MATERIAL FINISH	TEST #	
	PVC	030	R		FF		
SPECIAL PANEL ID	S39RY0301	S39RY0302	S39RY0304				
PANEL NO.							
PANEL SIZE	70 X 300	70 X 300	70 X 300				
PACKED PER BOX	1 PER BOX	1 PER BOX	1 PER BOX				
SQ. FT. OF PANEL	21000	21000	21000				
PRODUCTION STATUS							
STOCK TAG							
	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	
MACHINE #1	4/17	17	17				
MACHINE #2	12/21	21	21				
MACHINE #3	5/18	18	18				
MACHINE #4	2/1	1	1				
MACHINE #5	8/19	19	19				
MACHINE #6	20/13	13	13				
MACHINE #7	10/6	6	6				
MACHINE #8	23/3	3	3				
MACHINE #9	11/15	15	15				
MACHINE #10	9/16	16	16				
MACHINE #11	14/22	22	22				
MACHINE #12							
INSPECTION/SEAMER	E 84/29 W 22/85	E W	E W	E W	E W	E W	
SUPERVISOR	VK TT						
ROLL NO.	MANUFACTURE #	MFG DATE	ROLL NO.	MANUFACTURE #	MFG DATE		
4	F890040-1		17	F890040-1			
12	F890040-1		21	F890040-1			
5	F890040-1		18	F890040-1			
2	F890040-1		1	F890040-1			
8	F890040-1		19	F890040-1			
20	F890040-2		13	F890040-1			
10	F890040-1		6	F890040-1			
23	F890040-2		3	F890040-1			
11	F890040-1		15	F890040-1			
9	F890040-1		16	F890040-1			
14	F890040-1		22	F890040-1			

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC-R-FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 11/3/98
 TOMER: _____ TYPE OF FABRICATION: S39RY0301 TEST DATE: 11-6-98 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	F890040-1	F890040-1	A			0.00	0.00	84.15	85.37
			B			0.00		83.62	
			C			0.00		85.55	
			D			0.00		87.05	
			E			0.00		86.47	
2	F890040-1	F890040-1	A			0.00	0.00	84.25	86.16
			B			0.00		86.07	
			C			0.00		86.97	
			D			0.00		87.32	
			E			0.00		86.17	
3	F890040-1	F890040-1	A			0.00	0.00	87.60	89.39
			B			0.00		87.60	
			C			0.00		89.65	
			D			0.00		90.60	
			E			0.00		91.32	
4	F890040-1	F890040-1	A	16.15	30.57	23.36	26.05	78.70	82.61
			B	20.50	30.40	25.45		84.10	
			C	27.50	31.37	29.49		84.10	
			D	21.75	32.37	27.06		83.72	
			E	22.25	27.52	24.89		82.45	
5	F890040-1	F890040-1	A			0.00	0.00	82.50	83.22
			B			0.00		81.75	
			C			0.00		81.17	
			D			0.00		85.32	
			E			0.00		85.35	
6	F890040-1	F890040-1	A			0.00	0.00	86.05	83.82
			B			0.00		84.57	
			C			0.00		82.57	
			D			0.00		84.50	
			E			0.00		81.42	
7	F890040-1	F890040-1	A			0.00	0.00	81.52	81.84
			B			0.00		81.90	
			C			0.00		82.57	
			D			0.00		81.95	
			E			0.00		81.27	
8	F890040-1	F890040-1	A			0.00	0.00	84.30	85.84
			B			0.00		85.15	
			C			0.00		87.25	
			D			0.00		85.32	
			E			0.00		87.20	
9	F890040-1	F890040-1	A			0.00	0.00	87.10	86.34
			B			0.00		88.32	
			C			0.00		88.57	
			D			0.00		83.17	
			E			0.00		84.52	
10	F890040-1	F890040-1	A			0.00	0.00	76.22	79.53
			B			0.00		77.92	
			C			0.00		81.87	
			D			0.00		81.00	
			E			0.00		80.62	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC-R-FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 11-3-98
 FORMER: _____ TYPE OF FABRICATION: S39RY0303 TEST DATE: 11-9-98 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	17	21	A		0.00	0.00	83.42	83.86	
			B		0.00		82.80		
			C		0.00		84.87		
			D		0.00		85.32		
			E		0.00		82.90		
2	21	18	A		0.00	0.00	86.47	87.11	
			B		0.00		87.92		
			C		0.00		88.07		
			D		0.00		87.02		
			E		0.00		86.07		
3	18	1	A		0.00	0.00	76.00	79.42	
			B		0.00		77.47		
			C		0.00		77.62		
			D		0.00		82.95		
			E		0.00		81.05		
4	1	19	A		0.00	0.00	78.90	79.42	
			B		0.00		77.40		
			C		0.00		80.70		
			D		0.00		78.02		
			E		0.00		81.07		
5	19	13	A		0.00	0.00	86.17	86.89	
			B		0.00		89.27		
			C		0.00		81.47		
			D		0.00		89.00		
			E		0.00		86.52		
6	13	6	A	27.77	31.87	29.82	28.49	84.75	82.07
			B	30.15	30.77	30.46		85.10	
			C	29.02	31.00	30.01		80.55	
			D	21.50	35.55	28.53		81.90	
			E	20.55	26.70	23.63		78.05	
7	6	3	A		0.00	0.00	81.92	81.14	
			B		0.00		80.65		
			C		0.00		83.50		
			D		0.00		80.72		
			E		0.00		78.90		
8	3	15	A		0.00	0.00	78.22	82.10	
			B		0.00		85.12		
			C		0.00		82.10		
			D		0.00		83.06		
			E		0.00		82.00		
9	15	16	A		0.00	0.00	85.22	85.95	
			B		0.00		89.75		
			C		0.00		83.77		
			D		0.00		83.95		
			E		0.00		87.05		
10	16	22	A		0.00	0.00	82.02	84.83	
			B		0.00		81.57		
			C		0.00		84.45		
			D		0.00		89.60		
			E		0.00		86.50		

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC (RI) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 11/24/98

COMER: _____ TYPE OF FABRICATION: S39RY2401 TEST DATE: 12/1/98 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083	
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)
			PEAK 1	PEAK 2				
1	21	13	A			0.00	85.72	85.71
			B			0.00	86.27	
			C			0.00	84.92	
			D			0.00	84.85	
			E			0.00	86.80	
	F890040-4	F890040-4						
2	13	5	A			0.00	81.40	81.11
			B			0.00	82.82	
			C			0.00	81.47	
			D			0.00	79.80	
			E			0.00	80.07	
	F890040-4	F890040-4						
3	5	10	A			0.00	78.02	78.15
			B			0.00	78.67	
			C			0.00	77.92	
			D			0.00	78.40	
			E			0.00	77.75	
	F890040-4	F890040-4						
4	10	20	A			0.00	79.70	79.19
			B			0.00	79.50	
			C			0.00	78.92	
			D			0.00	78.02	
			E			0.00	79.80	
	F890040-4	F890040-4						
5	20	8	A			0.00	83.87	83.49
			B			0.00	83.30	
			C			0.00	82.97	
			D			0.00	83.52	
			E			0.00	83.80	
	F890040-4	F890040-4						
6	8	20	A			0.00	76.97	79.00
			B			0.00	78.42	
			C			0.00	78.20	
			D			0.00	80.05	
			E			0.00	80.37	
	F890040-4	F890040-1						
7	20	15	A			0.00	82.77	83.58
			B			0.00	85.17	
			C			0.00	83.02	
			D			0.00	85.05	
			E			0.00	81.90	
	F890040-1	F890040-4						
8	15	9	A	26.62	26.25	26.44	78.10	79.57
			B	27.85	27.75	27.80	80.70	
			C	27.70	26.50	27.10	80.05	
			D	20.97	26.57	23.77	78.57	
			E	23.52	27.22	25.37	80.42	
	F890040-4	F890040-4						
9	9	23	A			0.00	83.50	84.55
			B			0.00	85.65	
			C			0.00	84.35	
			D			0.00	83.67	
			E			0.00	85.57	
	F890040-4	F890040-1						
10	23	19	A			0.00	75.50	76.26
			B			0.00	76.32	
			C			0.00	76.52	
			D			0.00	76.17	
			E			0.00	76.77	
	F890040-1	F890040-4						

PEEL TEST DATA: Per

Sample Width: _____	Speed: _____ in./min.	Load Range: _____	Temperature: _____ degree F	Charted _____
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WATERSAVER COMPANY, INC.
LAB TEST REPORT - CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 11/24/98

TOMER: _____ TYPE OF FABRICATION: S39RY2404 TEST DATE: 12/1/98 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	21	13	A		0.00	0.00	80.02	87.67	
			B		0.00		89.75		
			C		0.00		86.10		
			D		0.00		86.62		
			E		0.00		83.67		
2	13	5	A		0.00	0.00	81.05	81.61	
			B		0.00		80.97		
			C		0.00		80.27		
			D		0.00		81.65		
			E		0.00		84.12		
3	5	10	A		0.00	0.00	82.92	82.09	
			B		0.00		80.15		
			C		0.00		81.45		
			D		0.00		82.40		
			E		0.00		83.55		
4	10	20	A		0.00	0.00	82.37	82.78	
			B		0.00		79.82		
			C		0.00		84.17		
			D		0.00		83.17		
			E		0.00		84.35		
5	20	8	A	25.45	24.32	25.34	84.07	83.15	
			B	23.05	26.72		24.89		81.77
			C	26.35	28.42		27.39		84.37
			D	24.87	27.25		26.06		82.55
			E	24.07	24.90		24.49		82.97
6	8	20	A		0.00	0.00	83.50	83.05	
			B		0.00		83.40		
			C		0.00		84.57		
			D		0.00		82.47		
			E		0.00		80.90		
7	20	15	A		0.00	0.00	85.52	84.18	
			B		0.00		86.77		
			C		0.00		80.82		
			D		0.00		81.22		
			E		0.00		84.55		
8	15	9	A		0.00	0.00	82.82	83.00	
			B		0.00		82.85		
			C		0.00		83.25		
			D		0.00		83.22		
			E		0.00		82.67		
9	9	23	A		0.00	0.00	76.60	77.48	
			B		0.00		78.57		
			C		0.00		77.22		
			D		0.00		76.10		
			E		0.00		75.92		
10	23	19	A		0.00	0.00	78.57	78.21	
			B		0.00		76.97		
			C		0.00		78.12		
			D		0.00		80.07		
			E		0.00		77.32		

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degrees F	Chartec
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) SMOOTH GAUGE: .020 JOB #: _____ PANEL #: _____ FABRICATION DATE: 11/24/98

TOMER: _____ TYPE OF FABRICATION: S39RY2406 TEST DATE: 12/3/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	21	20	A		0.00	0.00	52.65	52.59	
			B		0.00		52.50		
			C		0.00		52.05		
			D		0.00		52.22		
			E		0.00		53.55		
	F890041-7	F890041-7			0.00				
2	20	22	A		0.00	0.00	52.72	54.13	
			B		0.00		53.10		
			C		0.00		54.40		
			D		0.00		54.12		
			E		0.00		56.32		
	F890041-7	F890041-7			0.00				
3	22	11	A		0.00	0.00	59.95	61.73	
			B		0.00		61.12		
			C		0.00		62.97		
			D		0.00		61.67		
			E		0.00		62.95		
	F890041-7	F890041-7			0.00				
4	11	10	A		0.00	0.00	55.30	57.41	
			B		0.00		55.02		
			C		0.00		59.25		
			D		0.00		58.57		
			E		0.00		58.92		
	F890041-7	F890041-7			0.00				
5	10	12	A		0.00	0.00	55.37	55.62	
			B		0.00		55.35		
			C		0.00		55.20		
			D		0.00		55.45		
			E		0.00		56.72		
	F890041-7	F890041-7			0.00				
6	12	8	A		0.00	0.00	62.50	62.81	
			B		0.00		61.80		
			C		0.00		64.25		
			D		0.00		61.75		
			E		0.00		63.77		
	F890041-7	F890041-7			0.00				
7	8	9	A		0.00	0.00	53.47	53.87	
			B		0.00		53.80		
			C		0.00		54.05		
			D		0.00		53.70		
			E		0.00		54.35		
	F890041-7	F890041-7			0.00				
8	9	7	A	19.47	15.05	17.26	17.34	60.77	59.74
			B	21.02	16.70	18.86		57.45	
			C	17.92	19.82	16.87		59.82	
			D	14.87	16.35	15.61		60.15	
			E	16.20	15.95	16.08		60.52	
	F890041-7	F890041-7			0.00				
9	7	5	A		0.00	0.00	62.50	56.56	
			B		0.00		54.80		
			C		0.00		53.75		
			D		0.00		57.75		
			E		0.00		54.00		
	F890041-7	F890041-7			0.00				
10	5	6	A		0.00	0.00	57.80	56.37	
			B		0.00		56.85		
			C		0.00		57.32		
			D		0.00		57.50		
			E		0.00		52.37		
	F890041-7	F890041-7			0.00				

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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NAN YA PLASTICS CORPORATION, AMERICA

TESTING PROGRAM

<u>TEST</u>	<u>METHOD</u>	<u>RESPONSIBILITY AND FREQUENCY</u>	
		<u>FREQUENCY</u>	<u>CERTIFIED</u>
General Appearance	Visual	Continuous	----
Color	Visual	Continuous	----
Gloss	ASTM-D 2457	Every 8th roll	----
Thickness	ASTM-D 1593 OR D 751 Method A Automatic Gauging	Every 8th roll	Yes
Yield	ASTM-D 1393 (5.2 type I)	Continuous	----
Specific Gravity	ASTM-D 792	Every 8th roll	Yes
Dimensional stability	ASTM-D 1204 (212 15min.)	Every 8th roll	Yes
Width	2 Shift	----	----
Length	Automatic	----	----
Tensile	ASTM-D 882	Every 8th roll	Yes
Modulus	ASTM-D 882	Every 8th roll	Yes
Elongation	ASTM-D 882	Every 8th roll	Yes
Graves Tear	ASTM-D 1004	Every 8th roll	Yes
Low Temperature	ASTM-D 1790	Every 8th roll	Yes
Water Extraction	ASTM-D 3083	Every 8th roll	Yes
Volatility	ASTM-D 1203	Every 8th roll	Yes
Resistance to soil burial	ASTM-D 3083	Annually	Yes
Alkali Resistance	CRD-C 572-74	Annually	Yes
Hydro static resistance	ASTM-D 751 (method A)	Annually	Yes
Roll Characteristics			
Packaging	Visual	Every roll	----

Internal manufacturing process specifications are not published.

NAN YA PLASTICS CORPORATION, AMERICA

CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	F890040-1
	WATER- SAVER	TESTING RH/TEMP.	52% 23C				<i>W18C43</i>
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"		TEST METHOD REFERRED TO	STANDARDS	
ROLL #	1	8	16	23			
SPEC. GRAVITY	1.25	1.25	1.25	1.25			
THICKNESS (GAUGE)	30.66		30.86	30.61	31.24	ASTM D- 1593	30±5%
100 % MOD LB/IN WIDTH	MD	41.57	45.06	41.53	41.80	ASTM D- 882A	30 MIN
	CD	41.10	41.46	40.77	37.40		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	91.71	94.47	95.50	100.0	ASTM D- 882A	69 MIN
	CD	90.90	92.20	95.90	92.25		69 MIN
ELONGATION RATE %	MD	426.6	430.3	466.3	478.0	ASTM D- 882A	350 MIN
	CD	456.6	444.5	475.5	480.0		350 MIN
SHRINKAGE %	MD	-2.00	-1.80	-2.00	-1.96	ASTM D- 1204	-3.5 MAX
COLD CRACK	%c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	19.55	19.25	19.00	19.63	ASTM D- 1004	9.00 MIN
	CD	18.12	18.25	18.05	18.78		9.00 MIN
VOLATILE LOSS %	-0.64		-0.60	-0.64	-0.66	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.10		-0.15	-0.12	-0.13	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
	CD	PASS	PASS	PASS	PASS		
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>E. J. J. J.</i>			TESTER		LEJDIA	
DATE: 10-20-98							

RECEIVED

OCT 30 1998

Watersaver Company, Inc.

NAN YA PLASTICS CORPORATION, AMERICA

CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	F890040-2 <i>W18C43</i>
	WATER- SAVER	TESTING RH/TEMP.	52% 23C				
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	31.34		30.22	31.41	30.64	ASTM D- 1593	30±5%
100 ± MOD LB/IN WIDTH	MD	41.85	43.05	37.23	37.12	ASTM D- 882A	30 MIN
	CD	37.50	36.63	33.36	34.28		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	98.30	97.05	93.81	94.11	ASTM D- 882A	69 MIN
	CD	95.00	91.77	89.05	86.26		69 MIN
ELONGATION RATE %	MD	425.5	433.3	457.5	421.0	ASTM D- 882A	350 MIN
	CD	436.6	455.5	475.5	450.0		350 MIN
SHRINKAGE %	MD	-1.88	-1.55	-1.85	-1.45	ASTM D- 1204	-3.5 MAX
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	20.00	19.66	19.05	19.52	ASTM D- 1004	9.00 MIN
	CD	18.45	18.26	18.12	18.36		9.00 MIN
VOLATILE LOSS %	-0.62		-0.66	-0.60	-0.63	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.11		-0.14	-0.10	-0.10	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
	CD	PASS	PASS	PASS	PASS		
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>Estwe</i>			TESTER		LEJDIA	
DATE: 10-20-98							

NAN YA PLASTICS CORPORATION, AMERICA

CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	F890040-4
	WATER- SAVER	TESTING RH/TEMP.	52± 23C				<i>W18C43</i>
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERRED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	30.05		29.79	30.07	30.00	ASTM D- 1593	30±5±
100 ± MOD LB/IN WIDTH	MD	36.63	35.91	37.52	40.00	ASTM D- 882A	30 MIN
	CD	35.52	32.12	33.05	35.52		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	90.03	94.52	98.82	97.45	ASTM D- 882A	69 MIN
	CD	90.00	88.63	89.64	90.45		69 MIN
ELONGATION RATE %	MD	422.2	450.0	436.5	445.5	ASTM D- 882A	350 MIN
	CD	480.0	488.6	452.5	460.0		350 MIN
SHRINKAGE %	MD	-2.00	-2.12	-2.14	-2.36	ASTM D- 1204	-3.5 MAX
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	19.99	19.25	19.36	19.55	ASTM D- 1004	9.00 MIN
	CD	18.12	18.25	17.85	17.99		9.00 MIN
VOLATILE LOSS %	-0.64		-0.62	-0.67	-0.60	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.14		-0.12	-0.16	-0.10	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
	CD	PASS	PASS	PASS	PASS		
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>Steve</i>			TESTER		LEJDIA	
DATE: 10-20-98							

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	F890039-1
	WATER- SAVER	TESTING RH/TEMP.	52± 23C				<i>W18C42</i>
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERRED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	30.41		30.29	29.80	30.63	ASTM D- 1593	30±5%
100 ± MOD LB/IN WIDTH	MD	51.32	45.35	44.46	46.31	ASTM D- 882A	30 MIN
	CD	48.28	45.25	44.25	44.28		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	99.63	93.15	96.78	96.12	ASTM D- 882A	69 MIN
	CD	90.63	91.49	87.05	92.05		69 MIN
ELONGATION RATE %	MD	378.2	380.0	373.5	405.0	ASTM D- 882A	350 MIN
	CD	395.5	449.6	422.2	415.8		350 MIN
SHRINKAGE %	MD	-2.00	-1.89	-1.99	-2.02	ASTM D- 1204	-3.5 MAX
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	20.00	20.15	19.77	19.45	ASTM D- 1004	9.00 MIN
	CD	18.66	19.35	17.45	17.05		9.00 MIN
VOLATILE LOSS %	-0.57		-0.65	-0.67	-0.62	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.10		-0.14	-0.16	-0.12	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL ± CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
	CD	PASS	PASS	PASS	PASS		
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>[Signature]</i>			TESTER		LEJ DIA	
DATE: 09-23-98							

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	F890039-5
	WATER- SAVER	TESTING RH/TEMP.	52 23C				<i>W18C42</i>
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	30.37		30.77	30.09	30.30	ASTM D- 1593	30±5%
100 % MOD LB/IN WIDTH	MD	43.93	46.21	41.80	43.19	ASTM D- 882A	30 MIN
	CD	42.27	40.90	38.94	43.01		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	96.73	99.21	94.52	102.2	ASTM D- 882A	69 MIN
	CD	96.71	92.35	87.36	93.70		69 MIN
ELONGATION RATE %	MD	440.0	405.5	431.2	456.0	ASTM D- 882A	350 MIN
	CD	456.6	475.5	446.5	475.5		350 MIN
SHRINKAGE %	MD	-2.00	-2.11	-2.14	-2.21	ASTM D- 1204	-3.5 MAX
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	20.00	19.66	19.45	19.75	ASTM D- 1004	9.00 MIN
	CD	17.12	17.66	17.45	17.44		9.00 MIN
VOLATILE LOSS %	-0.63		-0.63	-0.62	-0.60	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.11		-0.12	-0.14	-0.10	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR
	CD	PASS	PASS	PASS	PASS		2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>Steve</i>			TESTER	LEJDIA		
DATE: 10-02-98							

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	F890039-7
	WATER- SAVER	TESTING RH/TEMP.	52A 23C				<i>W18C42</i>
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	31.10		30.69	29.84	29.85	ASTM D- 1593	30±5%
100 % MOD LB/IN WIDTH	MD	41.49	41.34	40.19	38.90	ASTM D- 882A	30 MIN
	CD	40.69	40.78	38.59	37.78		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	94.45	98.28	98.18	95.36	ASTM D- 882A	69 MIN
	CD	87.36	97.33	96.18	91.22		69 MIN
ELONGATION RATE %	MD	360.0	420.0	414.5	415.5	ASTM D- 882A	350 MIN
	CD	454.2	449.5	420.0	445.5		350 MIN
SHRINKAGE %	MD	-2.00	-2.45	-2.36	-2.25	ASTM D- 1204	-3.5 MAX
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	20.00	20.02	20.12	20.02	ASTM D- 1004	9.00 MIN
	CD	19.63	19.45	19.22	19.00		9.00 MIN
VOLATILE LOSS %	-0.60		-0.64	-0.61	-0.63	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.10		-0.11	-0.13	-0.13	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3063A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
	CD	PASS	PASS	PASS	PASS		
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>Letor</i>			TESTER		LEJDIA	
DATE: 10-02-98							

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	F890039-8 <i>W8C42</i>
	WATER- SAVER	TESTING RH/TEMP.	52% 23C				
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERRED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	29.67		30.43	30.04	30.05	ASTM D- 1593	30±5%
100 % MOD LB/IN WIDTH	MD	38.88	39.74	41.28	40.00	ASTM D- 882A	30 MIN
	CD	37.79	38.74	41.15	39.66		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	92.59	92.87	96.41	94.88	ASTM D- 882A	69 MIN
	CD	90.94	86.81	94.42	90.02		69 MIN
ELONGATION RATE %	MD	450.0	413.3	416.5	420.0	ASTM D- 882A	350 MIN
	CD	464.5	425.5	447.5	455.5		350 MIN
SHRINKAGE %	MD	-1.99	-2.00	-2.12	-2.04	ASTM D- 1204	-3.5 MAX
COLD CRACK	%c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	19.66	19.63	19.77	19.53	ASTM D- 1004	9.00 MIN
	CD	17.08	17.36	17.45	18.63		9.00 MIN
VOLATILE LOSS %	-0.65		-0.63	-0.62	-0.64	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.13		-0.12	-0.11	-0.10	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR
	CD	PASS	PASS	PASS	PASS		2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>Steve</i>			TESTER	LEJDIA		
DATE: 10-02-98							

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	F890039-9 <i>W1842</i>
	WATER- SAVER	TESTING RH/TEMP.	52% 23C				
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS
ROLL #	1	8	16	23			
SPEC. GRAVITY	1.25	1.25	1.25	1.25			
THICKNESS (GAUGE)	229.81		30.28	30.10	30.05	ASTM D- 1593	30±5%
100 % MOD LB/IN WIDTH	MD	42.27	43.54	41.54	40.22	ASTM D- 882A	30 MIN
	CD	40.14	38.36	36.86	38.63		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	93.70	95.90	90.69	91.12	ASTM D- 882A	69 MIN
	CD	88.46	93.25	86.36	89.12		69 MIN
ELONGATION RATE %	MD	436.6	436.5	422.2	452.5	ASTM D- 882A	350 MIN
	CD	463.6	455.6	466.3	470.5		350 MIN
SHRINKAGE %	MD	-2.12	-2.14	-2.02	-2.11	ASTM D- 1204	-3.5 MAX
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	20.00	20.00	19.88	19.45	ASTM D- 1004	9.00 MIN
	CD	17.14	17.55	18.85	18.13		9.00 MIN
VOLATILE LOSS %	-0.60		-0.65	-0.58	-0.55	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.13		-0.10	-0.13	-0.14	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN:	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
	CD	PASS	PASS	PASS	PASS		
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>L. Stone</i>			TESTER	LEJDIA		
DATE: 10-02-98							

APPENDIX IV

FIELD QA REPORTS FOR SYNTHETIC LINER INSTALLATION

LAW

LAWGIBB Group Member

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

Geomembrane Installation Quality Assurance Document

Project Name: CELL F Project Number: 30300-8-D313.02 Date: 4-27-99

CQA Inspector(s):
J. NESBITT / NIGHT
F. THOMAS

Weather Conditions: Overcast 60

Geomembrane Description
Material: PVC
Thickness: 30mil

TABLE 1
PANEL IDENTIFICATION/PLACEMENT

TIME	ROLL NUMBER	COMMENTS DAMAGE	PANEL NUMBER	LENGTH	PANEL LOCATION
8:30 am	539RX1303		1	300	SE COR
9:00 am	539RX1211		2	130	ESIDE P. 1
9:30 am	539RX1211		3	170	W of P. 1
9:50 am	539RX1212		4	300	N of P. 3
9:55 am	539RX1212		5	30	N of P. 4
10:00 am	539RX1209		6	300	W of 3
1:30 p	539RX1214		7	280	N of 6
3:45 p	539RX1214		8	80	N of 9
2:00 p	539RX1308		9	300	W of 7
4:00 p	539RX1307		10	300	W of 9 & 8

* See As-Built Drawing for any deviations of panel length and placement.

LAW

LAWGIBB Group Member 

1308-C Patton Avenue
 Asheville, North Carolina 28806
 (828) 252-8130 Phone
 (828) 251-9690 Fax

Geomembrane Installation Quality Assurance Document

Project Name: CELL F Project Number: 30300-8-0313-02 Date: 4-28-99

CQA Inspector(s):
J. Messer
S. Hagg

Weather Conditions: Clear

Geomembrane Description

Material: _____
 Thickness: _____

TIME	ROLL NUMBER	COMMENTS DAMAGE	PANEL NUMBER	LENGTH	PANEL LOCATION
7:45 AM	S39RX1211	-	11	131	NW CORNER
8:10	S39RX1207	-	12	187	SOUTH 11
8:20	"	-	13	120	SOUTH 12
8:30	S39RX2402	-	14	120	SOUTH 13
9:00	S39RX1307	-	15	45	W of 11
9:10	S39RX2402	-	16	25	W of 13
11:00	"	-	17	141	S of 16
11:20	S39RX1304	-	18	156	S of 9
12:10	S39RX1307	-	19	60'	WEST of 18
12:25	S39RX1304	-	20	50	S of 17
1:25	S39RX1304	-	21	10'	WEST of 20

* See As-Built Drawing for any deviations of panel length and placement.

LAW

LAWGIBB Group Member

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(828) 252-8130 Phone

(828) 251-9690 Fax

Geomembrane Installation
Quality Assurance Document

Project Name: CEL F Project Number: 30300-8-0313-02 Date: 4-27-99

CQA Inspector(s):

J. MESSITT

J. Hoyt

Weather Conditions: Copy 70%

Table 2
Field trail seams

Date	Test No.	Welder and Machine No.	Ambient Temperature	Time	Machine Temperature	Seaming Method	Peel Test-Strength At Break (lb./in)	Shear Test-Strength At Break (lb./in)	Results Pass/fail
4-27-99	19	KEN # 5	70	130	620/70	SE	25		P
	20						24		
	21						30		
	22							61	
	23							41	
	24							74	

PM

LAW

LAWGIBB Group Member

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Asheville, North Carolina 28806

(828) 252-8130 Phone

(828) 251-9690 Fax

Geomembrane Installation Quality Assurance Document

Project Name: CELLF Project Number: 30300-8-0313.02 Date: 4-28-99

CQA Inspector(s):

J Nesbitt
J High

Weather Conditions: Overcast

**TABLE 3
FIELD SEAMING**

TIME	SEAM NUMBER	SEAMING METHOD	SEAM LENGTH	MACHINE NUMBER	WELDER	AIR TEMP	MACHINE TEMP
9:25a	11/15	SF	15	4	TD	66	640/70
9:20	13/14	SF	113	5	KEN	66	600/70
9:35	11/12	SF	128	4	TD	66	640/70
9:45	13/16	SF	70	5	KEN	66	600/70
9:50	12/15	SF	40	4	TD	66	640/70
10:00	12/16	SF	35	5	KEN	66	600/70
10:10	13/13	SF	120	5	KEN	66	600/70
10:40	10/14	SF	70	5	KEN	64	600/70
10:50	10/13	SF	70	5	KEN	64	600/70
11:05	10/12	SF	70	5	KEN	64	600/70
11:15	10/11	SF	50	5	KEN	64	600/70
11:40	9/17	SF	60	4	TD	66	645/70
11:45	10/17	SF	75	4	TD	66	645/70
11:50	14/17	SF	69	4	TD	66	645/70
11:45	9/18	SF	69	5	KEN	66	600/70
1:00p	6/18	SF	146	D2	KEN	56	660/70
1:30	20/21	SF	17	4	TD	56	645/70
1:45	17/21	SF	15	4	TD	55	645/70
1:45	17/20	SF	10	4	TD	55	645/70
1:55	19/20	SF	40	D2	KEN	55	650/70
1:50	9/20	SF	10	D2	KEN	51	650/70
1:55	18/20	SF	41	D2	KEN	51	640/70
2:05	18/19	SF	60	D2	KEN	51	650/70

LAW

LAWGIBB Group Member

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

Geomembrane Installation
Quality Assurance Document

Project Name: CEM F Project Number: 30300.8.031302 Date: 4.27.99

CQA Inspector(s): _____
Weather Conditions: Cloudy

TABLE 4
NON-DESTRUCTIVE SEAM CONTINUITY TESTING

SEAM NUMBER	SECTION OF SEAM TESTED	INSPECTOR	TEST METHOD	RESULTS (PASS/FAIL)	NUMBER OF REPAIRS	DATE REPAIRS COMPLETED
1-3	1-3	S. HAY	AIR LAKE	P	—	—
3-4	3-4				—	—
1-4	1-4				—	—
1-2	1-2				—	—
2-4	2-4				—	—
5-4	5-4				—	—
5-7	5-7				—	—
4-7	4-7				—	—
6-7	6-7				—	—
6-4	6-4				—	—
6-5	6-5				—	—
6-9	6-9				—	—
7-9	7-9				—	—

LAW

LAWGIBB Group Member 

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Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

Geomembrane Installation
Quality Assurance Document

Project Name: Cal F Project Number: 30300-8031302 Date: 4.28.99

CQA Inspector(s):
S. High
J. Kessner
Weather Conditions: _____

**TABLE 4
NON-DESTRUCTIVE SEAM CONTINUITY TESTING**

SEAM NUMBER	SECTION OF SEAM TESTED	INSPECTOR	TEST METHOD	RESULTS (PASS/FAIL)	NUMBER OF REPAIRS	DATE REPAIRS COMPLETED
10-11	10-11	J. High	Air Lance	PASS		
10-12	10-12					
10-13	10-13					
10-14	10-14					
14-17	14-17					
14-13	14-13					
12-13	12-13					
12-14	12-14					
12-15	12-15					
11-12	11-12					
10-17	10-17					
9-17	9-17					
17-20	17-20					

LAW

LAWGIBB Group Member

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Geomembrane Installation
Quality Assurance Document

Project Name: Cem F Project Number: 30300-8-031302 Date: 4-27-99

CQA Inspector(s): Desbit / J. High Weather Conditions: Overcast TO

TABLE 6
PANEL REPAIR RECORD

REPAIR NUMBER	LOCATION*	DESCRIPTION OF DAMAGE	SIZE OF REPAIR	REPAIR METHOD	WELDER	N.D.T.** INSPECTOR	RESULTS (PASS/FAIL)	DATE OF N.D.T.**
1	1/3 1410 x 45R	Monitor Well	3 x 6	CEM	GIBB/L	S. High	PASS	4-27
2	1/3 1444 x 43R	Monitor Well	3 x 3	CEM	GIBB/L	S. High	PASS	
3	1/3 1460 x 37R	Monitor Well	8 x 3	CEM	TOAD	S. High	PASS	
4	1/3 1565 x 34R	Monitor Well	2 x 5	CEM	TOAD	S. High	PASS	
5	1/3 1500	DS-1	2 x 4	CEM	GIBB/L	S. High	PASS	4-27
6	3/6 D x 50	DS-2	2 x 4	CEM	GIBB/L	S. High	PASS	4-27
7	7/8 1A T	CONFORMANCE SAMPLE	3 x 6	CEM	GIBB/L	S. High	PASS	
8	8/9 0 x 27 x 8L	PUNCTURE	1 x 1	CEM	GIBB/L	S. High	PASS	
9	8/9 0 x 35 x 8L	PUNCTURE	1 x 1	CEM	GIBB/L	S. High	PASS	

*Include seam number and distance from reference points.
**N.D.T. = Nondestructive testing. Include test method

LAW

LAWGIBB Group Member

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(828) 251-9690 Fax

Geomembrane Installation
Quality Assurance Document

Project Name: CALIF Project Number: 30300-8-0313 02 Date: 4-27-99

CQA Inspector(s): NEBERT Jitew
Weather Conditions: Overcast 70

TABLE 6
PANEL REPAIR RECORD

REPAIR NUMBER	LOCATION*	DESCRIPTION OF DAMAGE	SIZE OF REPAIR	REPAIR METHOD	WELDER	N.D.T.** INSPECTOR	RESULTS (PASS/FAIL)	DATE OF N.D.T.**
10	8/9, 0110 x 42	PUNCTURE	1 X 1	CHEM	MK	JV [Signature]	OK	4-27
11	8/9, 0140 x 82	PUNCTURE	1 X 1	CHEM	GL	JV [Signature]	OK	4-27
12	8/9, 0141 x 42	PUNCTURE	1 X 1	CHEM	MK	JV [Signature]	OK	4-27
13	8/9, 0146 x 82	PUNCTURE	1 X 1	CHEM	GL	JV [Signature]	OK	4-27
14	8/9, 0150 x 42	PUNCTURE	1 X 1	CHEM	MK	JV [Signature]	OK	4-27
15	8/9, 0150 x 82	PUNCTURE	1 X 1	CHEM	GL	JV [Signature]	OK	4-27
16	8/9, 0160 x 42	PUNCTURE	1 X 1	CHEM	MK	JV [Signature]	OK	4-27
17	8/9, 0160 x 82	PUNCTURE	1 X 1	CHEM	GL	JV [Signature]	OK	4-27
18	8/9, 0160 x 42	PUNCTURE	1 X 1	CHEM	MK	JV [Signature]	OK	4-27

*Include seam number and distance from reference points.

**N.D.T. = Nondestructive testing. Include test method

LAW

LAWGIBB Group Member

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Asheville, North Carolina 28806

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(828) 251-9690 Fax

Geomembrane Installation
Quality Assurance Document

Project Name: CenF Project Number: 30300-0-03130Z Date: 4-27

CQA Inspector(s): Debbie J. Hester Weather Conditions: Overcast 70

TABLE 6
PANEL REPAIR RECORD

REPAIR NUMBER	LOCATION*	DESCRIPTION OF DAMAGE	SIZE OF REPAIR	REPAIR METHOD	WELDER	N.D.T.** INSPECTOR	RESULTS (PASS.FAIL)	DATE OF N.D.T.**
19	84.0x165x8L	Puncture	1x1	CHEM	GL	J. Deebits	OK	4-27
20	79.0x75	BURNOUT	1x1	CHEM	GL	SHG	P/F	4-27
21	4/6/7	T	1x1	CHEM	TO	SHG	Pass	4-27
22	7/8	DS-3	2x4	CHEM	GL	JV	OK	4-27
23	79.1x100x17L	Puncture	1x1	CHEM	TO	JH	OK	4-27
24	34.0x50.1R	Puncture	1x1	CHEM	GL	JV	OK	4-27
25	34.0x50.2R	Puncture	0.5x0.5	CHEM	GL	JV	OK	4-27

*Include seam number and distance from reference points.
**N.D.T. = Nondestructive testing. Include test method

LAW

LAWGIBB Group Member

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(828) 251-9690 Fax

Geomembrane Installation
Quality Assurance Document

Project Name: CELL F Project Number: 30300-8-0313-02 Date: 11-22-99

CQA Inspector(s):

C NESBITT
2 High

Weather Conditions: OVERCAST

TABLE 6
PANEL REPAIR RECORD

REPAIR NUMBER	LOCATION*	DESCRIPTION OF DAMAGE	SIZE OF REPAIR	REPAIR METHOD	WELDER	N.D.T.** INSPECTOR	RESULTS (PASS/FAIL)	DATE OF N.D.T.**
26	9/10, 11/24	DS-4	2x4	CHEM	TD	JW	OK	11-28
27	10/12, 01/05	CONFIRMATION SERVICE	2x4	CHEM	TD	JW	OK	11-28
28	12/15, 01/10	BURNOUT	1x1	CHEM	TD	JW	OK	11-28
29	10/20, 01/30	DS-5	2x4	CHEM	TD	OV	OK	11-28
30	14/17, 01/10	DS-6	2x4	CHEM	TD	OV	OK	11-28
31	9/17/20		1x1	CHEM	TD	OV	OK	11-28
32	9/18, 01/13	BURNOUT	1x1	CHEM	TD	JW	OK	11-28
33	18/19, 01/5	BURNOUT	1x1	CHEM	TD	JW	OK	11-28
34	4/7, 1/30	DS-7	2x4	CHEM	TD	JW	OK	11-29

*Include seam number and distance from reference points.

**N.D.T. = Nondestructive testing. Include test method

APPENDIX V

LABORATORY TEST REPORTS FOR WELDED PVC LINER SEAMS

TABLE 1.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6F Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 990307
PGL CONTROL NO. : 37158
CLIENT SAMPLE I.D. : DS-1 P1/3

30-Apr-99

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
66.6	FTB	BRK	29.5	FTB	SE
65.4	FTB	BRK	29.0	FTB	SE
68.1	FTB	BRK	33.5	FTB	SE
64.9	FTB	BRK	26.0	FTB	SE
63.8	FTB	BRK	30.1	FTB	SE
Avg.	65.8		29.6		
S.D.	1.6		2.7		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 2.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6F Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 990307

PGL CONTROL NO. : 37159

30-Apr-99

CLIENT SAMPLE I.D. : DS-2 P3/6

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
64.0	FTB	BRK	39.1	FTB	SE
69.1	FTB	BRK	33.3	FTB	SE
68.5	FTB	BRK	37.5	FTB	SE
69.4	FTB	BRK	37.6	FTB	SE
78.1	FTB	BRK	35.4	FTB	SE
Avg.	69.8		36.6		
S.D.	5.1		2.3		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

AD FAILURE IN ADHESION BETWEEN THE SHEETS.

BRK BREAK IN SHEETING.

SE BREAK AT SEAM EDGE.

AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.

FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 3.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6F Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 990307

PGL CONTROL NO. : 37160

30-Apr-99

CLIENT SAMPLE I.D. : DS-3 P7/8

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
58.9	FTB	BRK	33.1	FTB	SE
68.9	FTB	BRK	33.2	FTB	SE
63.9	FTB	BRK	34.0	FTB	SE
68.4	FTB	BRK	33.9	FTB	SE
58.4	FTB	BRK	36.8	FTB	SE
Avg.	63.7		34.2		
S.D.	5.0		1.5		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

AD FAILURE IN ADHESION BETWEEN THE SHEETS.

BRK BREAK IN SHEETING.

SE BREAK AT SEAM EDGE.

AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.

FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 4.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6F Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 990307

PGL CONTROL NO. : 37161

30-Apr-99

CLIENT SAMPLE I.D. : DS-4 P9/10

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
77.1	FTB	BRK	36.6	FTB	SE
79.8	FTB	BRK	38.6	FTB	SE
77.4	FTB	BRK	38.5	FTB	SE
82.6	FTB	BRK	36.9	FTB	SE
73.4	FTB	BRK	34.8	FTB	SE
Avg.	78.1		37.1		
S.D.	3.4		1.6		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 5.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6F Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 990307

PGL CONTROL NO. : 37162

30-Apr-99

CLIENT SAMPLE I.D. : DS- 5 P19/ 20

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
82.0	FTB	BRK	16.5	Non-FTB	AD
56.8	FTB	BRK	31.5	Non-FTB	AD
78.7	FTB	BRK	17.1	Non-FTB	AD
76.9	FTB	BRK	18.5	Non-FTB	AD
56.0	FTB	BRK	26.5	Non-FTB	AD
Avg.	70.1		22.0		
S.D.	12.6		6.7		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 6.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6F Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 990307

PGL CONTROL NO. : 37163

30-Apr-99

CLIENT SAMPLE I.D. : DS-6 P14/ 17

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
53.5	FTB	BRK	32.5	FTB	SE
60.2	FTB	BRK	33.0	FTB	SE
56.1	FTB	BRK	33.5	FTB	SE
59.0	FTB	BRK	34.4	FTB	SE
59.0	FTB	BRK	32.5	FTB	SE
Avg.	57.5		33.2		
S.D.	2.7		0.8		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 6.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6F Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 990325

PGL CONTROL NO. : 37262

4-May-99

CLIENT SAMPLE I.D. : DS-7 P4/ P7

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
70.9	FTB	BRK	30.0	Non-FTB	AD
67.4	FTB	BRK	33.8	FTB	SE
74.5	FTB	BRK	32.3	FTB	SE
71.3	FTB	BRK	23.5	FTB	SE
73.2	FTB	BRK	24.0	FTB	SE
Avg.	71.4		28.7		
S.D.	2.7		4.7		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

AD FAILURE IN ADHESION BETWEEN THE SHEETS.

BRK BREAK IN SHEETING.

SE BREAK AT SEAM EDGE.

AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.

FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 7.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6F Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 990307
PGL CONTROL NO. : 37164
CLIENT SAMPLE I.D. : CHEM DS

30-Apr-99

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
65.8	FTB	BRK	19.5	Non-FTB	AD
63.6	FTB	BRK	18.5	FTB	SE
66.4	FTB	BRK	21.0	FTB	SE
64.5	FTB	BRK	16.6	FTB	SE
64.9	FTB	BRK	19.8	FTB	SE
Avg.	65.0		19.1		
S.D.	1.1		1.6		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 7.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6F Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 990325

PGL CONTROL NO. : 37263

4-May-99

CLIENT SAMPLE I.D. : CHEM DS CELL F

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
62.6	FTB	BRK	17.3	Non-FTB	AD
65.1	FTB	BRK	15.0	Non-FTB	AD
69.2	FTB	BRK	15.2	Non-FTB	AD
60.0	FTB	BRK	16.8	Non-FTB	AD
63.2	FTB	BRK	15.0	Non-FTB	AD
Avg.	64.0		15.9		
S.D.	3.4		1.1		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 8.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6F Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 990325
PGL CONTROL NO. : 37264
CLIENT SAMPLE I.D. : CHEM DS CELL F

4-May-99

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
58.2	FTB	BRK	12.1	FTB	SE
56.7	FTB	BRK	15.3	FTB	SE
58.4	FTB	BRK	20.4	FTB	SE
58.0	FTB	BRK	13.9	FTB	SE
59.5	FTB	BRK	17.0	FTB	SE
Avg.	58.2		15.7		
S.D.	1.0		3.2		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

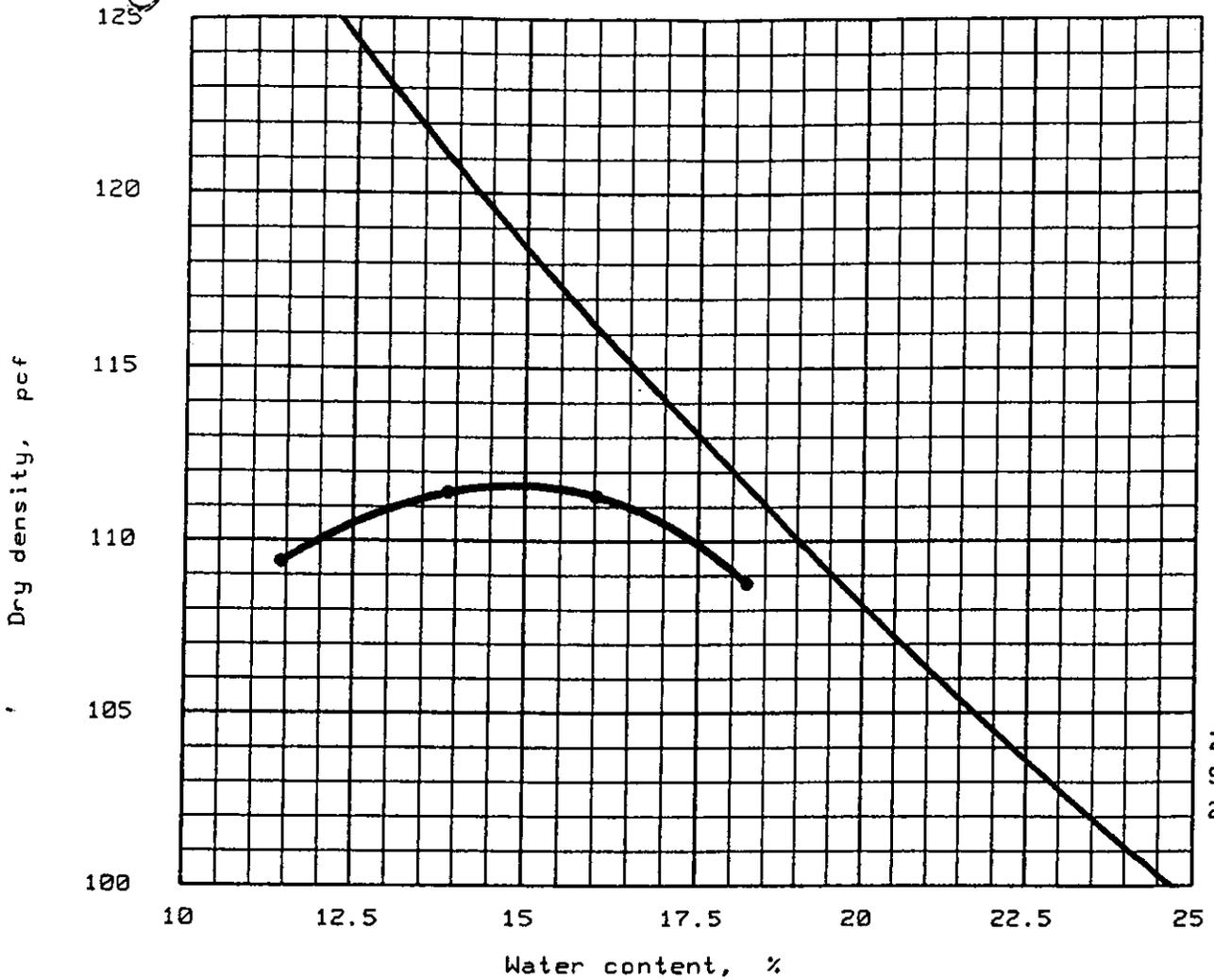
AD FAILURE IN ADHESION BETWEEN THE SHEETS.
BRK BREAK IN SHEETING.
SE BREAK AT SEAM EDGE.
AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

APPENDIX VI
LABORATORY COMPACTION TEST RESULTS ON SOIL USED IN COVER
CONSTRUCTION

PROCTOR TEST REPORT



ZAV for
Sp.G. =
2.65

"Standard" Proctor, ASTM D 698, Method A

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No. 4	% < No. 20
	USCS	AASHTO						
			17.7 %	2.65				

TEST RESULTS	MATERIAL DESCRIPTION
--------------	----------------------

Optimum moisture = 15.0 % Maximum dry density = 111.5 pcf	Tan Brown Micaceous Silty F/M Sand
--	------------------------------------

Project No.: 30300-8-0313.02 Project: Champion Cell F-G Location: Canton, NC. Date: 5-14-1999	Remarks: Borrow Site Old House
--	---------------------------------------

APPENDIX VII
FIELD DENSITY TEST REPORTS ON SOIL COVER



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6F SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 05/20/99							
1	16.6	109.4	3	98	90	1	SG
2	16.1	108.6	3	97	90	1	SG
3	15.6	110.8	3	99	90	1	SG
4	16.3	109.4	3	98	90	1	SG
5	16.4	108.8	3	98	90	1	SG
6	15.3	111.7	3	100	90	1	SG
7	16.1	104.7	3	94	90	1	SG
8	15.1	109.5	3	98	90	1	SG
9	15.7	107.6	3	97	90	1	SG
10	15.5	109.9	3	99	90	1	SG
TEST LOCATIONS:							
1	AREA #	1 (SUBGRADE SOIL THICKNESS	19	INCHES)			
2	AREA #	2 (SUBGRADE SOIL THICKNESS	19	INCHES)			
3	AREA #	3 (SUBGRADE SOIL THICKNESS	19	INCHES)			
4	AREA #	4 (SUBGRADE SOIL THICKNESS	18	INCHES)			
5	AREA #	5 (SUBGRADE SOIL THICKNESS	20	INCHES)			
6	AREA #	6 (SUBGRADE SOIL THICKNESS	18	INCHES)			
7	AREA #	7 (SUBGRADE SOIL THICKNESS	20	INCHES)			
8	AREA #	8 (SUBGRADE SOIL THICKNESS	19	INCHES)			
9	AREA #	9 (SUBGRADE SOIL THICKNESS	19	INCHES)			
10	AREA #	10 (SUBGRADE SOIL THICKNESS	19	INCHES)			

TEST COMPARED TO:

PROCTOR NUMBER	MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE (%)
3	111.5	15.0

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6F SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 05/24/99							
11	15.4	107.9	3	97	90	1	SG
12	15.8	108.8	3	98	90	1	SG
13	15.6	109.8	3	98	90	1	SG
14	14.7	109.1	3	98	90	1	SG
15	15.1	107.2	3	96	90	1	SG
16	14.6	106.1	3	95	90	1	SG
17	14.4	109.1	3	98	90	1	SG
18	15.0	107.0	3	96	90	1	SG
19	14.7	106.2	3	95	90	1	SG
20	15.3	103.9	3	93	90	1	SG
21	14.6	103.4	3	93	90	1	SG
TEST LOCATIONS:							
11	AREA #	11 (SUBGRADE SOIL THICKNESS	19	INCHES)			
12	AREA #	12 (SUBGRADE SOIL THICKNESS	19	INCHES)			
13	AREA #	13 (SUBGRADE SOIL THICKNESS	19	INCHES)			
14	AREA #	14 (SUBGRADE SOIL THICKNESS	19	INCHES)			
15	AREA #	15 (SUBGRADE SOIL THICKNESS	20	INCHES)			
16	AREA #	16 (SUBGRADE SOIL THICKNESS	20	INCHES)			
17	AREA #	17 (SUBGRADE SOIL THICKNESS	20	INCHES)			
18	AREA #	18 (SUBGRADE SOIL THICKNESS	20	INCHES)			
19	AREA #	19 (SUBGRADE SOIL THICKNESS	20	INCHES)			
20	AREA #	20 (SUBGRADE SOIL THICKNESS	20	INCHES)			
21	AREA #	28 (SUBGRADE SOIL THICKNESS	21	INCHES)			

TEST COMPARED TO:

PROCTOR NUMBER	MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE (%)
3	111.5	15.0

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

Page 2

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6F SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 05/24/99							
22	14.8	103.0	3	92	90	1	SG
23	15.2	102.1	3	92	90	1	SG
TEST LOCATIONS:							
22	AREA #	27 (SUBGRADE SOIL THICKNESS 18 INCHES)					
23	AREA #	26 (SUBGRADE SOIL THICKNESS 18 INCHES)					

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

3

111.5

15.0

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6F SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 05/25/99							
24	13.4	106.1	3	95	90	1	SG
25	13.1	104.8	3	94	90	1	SG
26	14.0	109.2	3	98	90	1	SG
27	13.7	106.6	3	96	90	1	SG
28	13.6	108.8	3	98	90	1	SG
29	13.3	106.5	3	95	90	1	SG
30	13.3	109.4	3	98	90	1	SG
31	13.1	105.3	3	94	90	1	SG
32	13.8	105.8	3	95	90	1	SG
33	13.5	107.1	3	96	90	1	SG
34	13.2	104.8	3	94	90	1	SG
TEST LOCATIONS:							
24	AREA #	25 (SUBGRADE SOIL THICKNESS 19 INCHES)					
25	AREA #	29 (SUBGRADE SOIL THICKNESS 19 INCHES)					
26	AREA #	21 (SUBGRADE SOIL THICKNESS 19 INCHES)					
27	AREA #	22 (SUBGRADE SOIL THICKNESS 20 INCHES)					
28	AREA #	37 (SUBGRADE SOIL THICKNESS 20 INCHES)					
29	AREA #	44 (SUBGRADE SOIL THICKNESS 20 INCHES)					
30	AREA #	24 (SUBGRADE SOIL THICKNESS 22 INCHES)					
31	AREA #	23 (SUBGRADE SOIL THICKNESS 22 INCHES)					
32	AREA #	31 (SUBGRADE SOIL THICKNESS 22 INCHES)					
33	AREA #	41 (SUBGRADE SOIL THICKNESS 20 INCHES)					
34	AREA #	32 (SUBGRADE SOIL THICKNESS 20 INCHES)					

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

3

111.5

15.0

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6F SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 05/26/99							
35	13.4	102.4	3	92	90	1	SG
36	12.7	106.8	3	96	90	1	SG
37	13.3	102.0	3	91	90	1	SG
38	13.1	106.7	3	96	90	1	SG
39	12.8	101.4	3	91	90	1	SG
40	13.7	110.6	3	99	90	1	SG
41	13.5	105.0	3	94	90	1	SG
42	12.9	107.4	3	96	90	1	SG
43	13.3	104.1	3	93	90	1	SG
44	13.4	105.3	3	94	90	1	SG
45	13.1	103.5	3	93	90	1	SG
TEST LOCATIONS:							
35	AREA #	40	(SUBGRADE SOIL THICKNESS 19 INCHES)				
36	AREA #	47	(SUBGRADE SOIL THICKNESS 18 INCHES)				
37	AREA #	39	(SUBGRADE SOIL THICKNESS 18 INCHES)				
38	AREA #	30	(SUBGRADE SOIL THICKNESS 18 INCHES)				
39	AREA #	38	(SUBGRADE SOIL THICKNESS 19 INCHES)				
40	AREA #	45	(SUBGRADE SOIL THICKNESS 19 INCHES)				
41	AREA #	46	(SUBGRADE SOIL THICKNESS 19 INCHES)				
42	AREA #	51	(SUBGRADE SOIL THICKNESS 19 INCHES)				
43	AREA #	50	(SUBGRADE SOIL THICKNESS 19 INCHES)				
44	AREA #	49	(SUBGRADE SOIL THICKNESS 19 INCHES)				
45	AREA #	52	(SUBGRADE SOIL THICKNESS 19 INCHES)				

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

3

111.5

15.0

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6F SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 05/27/99							
46	16.1	96.2	2	90	90	1	SG
47	14.9	101.8	3	91	90	1	SG
48	15.6	96.3	2	90	90	1	SG
49	15.9	97.2	2	91	90	1	SG
50	16.6	106.4	2	100		1	
TEST LOCATIONS:							
46	AREA #	48 (SUBGRADE SOIL THICKNESS 19 INCHES)					
47	AREA #	43 (SUBGRADE SOIL THICKNESS 18 INCHES)					
48	AREA #	36 (SUBGRADE SOIL THICKNESS 18 INCHES)					
49	AREA #	42 (SUBGRADE SOIL THICKNESS 18 INCHES)					
50	CHECK PLUG						

TEST COMPARED TO:

PROCTOR NUMBER	MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE (%)
2	106.5	17.0
3	111.5	15.0

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6F SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 05/28/99							
51	17.4	100.1	2	94	90	1	SG
52	24.5	95.7	2	90	90	1	SG
53	24.6	95.1	2	89 <<	90	1	SG
54	18.8	103.1	2	97		1	
TEST LOCATIONS:							
51	AREA #	35 (SUBGRADE SOIL THICKNESS 20 INCHES)					
52	AREA #	34 (SUBGRADE SOIL THICKNESS 19 INCHES)					
53	AREA #	33 (SUBGRADE SOIL THICKNESS 18 INCHES)					
54	CHECK PLUG						

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

2

106.5

17.0

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

<< Denotes Less than Specified Compaction

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA

APPENDIX VIII
SUMMARY OF DAILY OBSERVATIONS
AND SITE MEETINGS

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 4.16.99
WEATHER: P. Cloudy
TEMPERATURE RANGE: 40-55
TIME CONTRACTOR ON SITE: 9.5 AM

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
----------------------------	-------------------------	------------------------------------

<u>Perry Almona</u>	<u>Don Swartz</u>	<u>2</u>
---------------------	-------------------	----------

Materials Delivered

N/A

Work performed this date

PREPARED CELL FOR Liner Placement

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 4/16/99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy Hight	LAW

WORK PLANNED FOR THIS DATE

REMOVE REMAINING TOP SOIL & GRADE THE AREA FOR DRAINAGE.

DUE TO RAIN NO WORK WAS PERFORMED ON 4-15-99

ITEMS DISCUSSED

GED MEMBRANE ON SITE 4-26-99 TO PLACE LINER.

PER BILL VONTEGHE - TELL TO STAY ON SITE NO MORE THAN NEEDED UNTIL LINER IS READY TO BE PLACED

QUESTIONS DISCUSSED

Question	Person to answer?
N/A	

Submitted by:

LAW REPRESENTATIVE 

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 4/19/99
WEATHER: Clear 70-65
TEMPERATURE RANGE: 40-65
TIME CONTRACTOR ON SITE: 9:05

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>PERRY ALEXANDER</u>	<u>DON SWAGZ</u>	<u>2</u>

Materials Delivered

CATCH BASIN RISERS

Work performed this date

GRADING THE SURFACE FOR DRAINAGE

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 4-19-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

REMOVING THE HIGH AREA SOIL AND MOVING THEM TO THE LOW AREAS.
RAISING THE CATCH BASINS AS NEEDED

ITEMS DISCUSSED

SMA.

QUESTIONS DISCUSSED

Question	Person to answer?
n/jl	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 4-20-97
WEATHER: P. Cloudy
TEMPERATURE RANGE: 49-68
TIME CONTRACTOR ON SITE: 9.0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Anderson Don Swartz 1

Materials Delivered

N/A

Work performed this date

Preparing surface for liner placement

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Jim Hill

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 4.20.99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A
Jimmy Light	LAW

WORK PLANNED FOR THIS DATE

GRAVING THE SURFACE / ~~TO~~ CELL F FOR LOWER PLACEMENT.
REMOVING THE ROCKS & ROLLING THE SURFACE

ITEMS DISCUSSED

PLACEMENT / THE CATCH BASIN AT THE LOW POINT WITH THE PIPE ACROSS
THE ACCESS ROAD.

QUESTIONS DISCUSSED

Question	Person to answer?
N/A	

Submitted by:

LAW REPRESENTATIVE 

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 4-21-99
WEATHER: P. Cloudy
TEMPERATURE RANGE: 45-75
TIME CONTRACTOR ON SITE: 9.0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
Perry Alexander	Don Swartz	2

Materials Delivered

Smooth Drum Roller

Work performed this date

Preparing SG For Liner

Tests performed this date with results

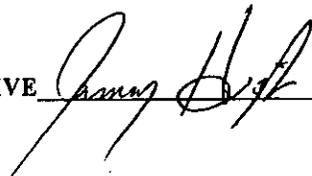
N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 4-21-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

GRAVING THE SG & REMOVING Big Rocks & Rolling THE SG WITH A Smooth
Draw Roller

ITEMS DISCUSSED

LINER SHOULD BE ON SITE Tomorrow

QUESTIONS DISCUSSED

Question	Person to answer?
<u>n/a</u>	

Submitted by:

LAW REPRESENTATIVE

Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 4-22-99
WEATHER: P. Cloudy
TEMPERATURE RANGE: 53-75
TIME CONTRACTOR ON SITE: 9-0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE Foreman or Supt. Number of Employees on site

PERRY Alexander DON SWARTZ 3

Materials Delivered

N/A

Work performed this date

ROLLED THE SURFACE OF THE CELL FOR LINER & REMOVED LARGE ROCKS THAT STUCK ABOVE THE SURFACE. ALSO WORKED WITH CLIFF LUNDGREN / LAW ENGINEERS IN 6-A WEST

Tests performed this date with results

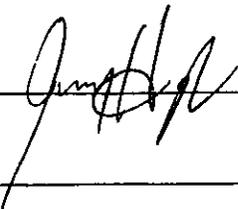
N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 4-22-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	PMA
Jimmy High	LAW
Guy Cooy	SEVEE / MANER
Jim High GIANQUE	CFC

WORK PLANNED FOR THIS DATE

ROLLING THE AREA FOR LINER PLACEMENT

ITEMS DISCUSSED

ROLLING THE LINER UP THE OUTSIDE WALL / THE FRONT DRAIN - AROUND TRENCH ONLY
BATHEN THE LINER TO THE CB WITH THE DOUGHERT RIG
PROOFROLLING THE SG WILL BE GOOD ENOUGH FOR THE SOB PER GUY COOY

QUESTIONS DISCUSSED

Question	Person to answer?
<u>NA</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 4-23-99
WEATHER: Mostly cloudy
TEMPERATURE RANGE: 52-77
TIME CONTRACTOR ON SITE: 9:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE Foreman or Supt. Number of Employees on site

Perry Alexander Don Suter 2

Materials Delivered

9 Boxes of 70x300 30 mil Liner For F • 8 Boxes For G

Work performed this date

Excavation For French Drain & Auxiliary Trenches within area BETWEEN 18" - 24" wide & Deep As Required

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 4-23-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	L.M.

WORK PLANNED FOR THIS DATE

EXCAVATING THE ANCHOR TRENCHES & DRAINS

ITEMS DISCUSSED

REMOVING EXISTING CB NORTH END OF CELL
EXCAVATING FOR CB @ NW CORNER OF CELL WITH PIPE ACROSS ROAD

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE 

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-4-99
WEATHER: P. Cloudy
TEMPERATURE RANGE: 53-76
TIME CONTRACTOR ON SITE: 9.0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>P.M.A</u>	<u>Don Swartz</u>	<u>3</u>

Materials Delivered

STONE For DRAIN & ANCHOR TRENCHES

Work performed this date

Placed STONE & PIPE in THE DRAIN & ANCHOR TRENCHES

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 5-4-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Steve	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

Placing the pipe • Stone in the Ancider • Drain Trenches

ITEMS DISCUSSED

MAKE SURE LINER IS UP THE OUTSIDE OF THE DRAIN TRENCH BEFORE STONE PLACEMENT

QUESTIONS DISCUSSED

Question	Person to answer?
N/A	

Submitted by:

LAW REPRESENTATIVE 

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-5-99
WEATHER: Cloudy & Rain
TEMPERATURE RANGE: 57-65
TIME CONTRACTOR ON SITE: _____

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE Foreman or Supt. Number of Employees on site

Perry Adams

3

Materials Delivered

N/A

Work performed this date

Placing PIPE & STONE IN THE DRAW AND ANCHOR TRENCHES

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 5-5-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
STEVE	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

Placing stone & pipe in DRAIN AREA

ITEMS DISCUSSED

KEEPING THE LINES PILED UP THE OUTSIDE OF THE DRAIN TRENCHES

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-6-99
WEATHER: RAIN
TEMPERATURE RANGE: _____
TIME CONTRACTOR ON SITE: 0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander Don Swartz

Materials Delivered

Work performed this date

NO WORK DUE TO RAIN

Tests performed this date with results

Non Compliance Items noted this date

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-2-99
WEATHER: LT Rain
TEMPERATURE RANGE:
TIME CONTRACTOR ON SITE: 0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander Doc Swartz

Materials Delivered

Work performed this date

NO WORK DUE TO RAIN

Tests performed this date with results

Non Compliance Items noted this date

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5/10/99
WEATHER: Clear
TEMPERATURE RANGE: 47-77
TIME CONTRACTOR ON SITE: 9:00

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY Alexander

Don Swartz

4

Materials Delivered

~~N/A~~ 963 CAT TRACK LOADS

Work performed this date

Placed Stone + Miraf 160W OVER THE 6" PIPE - NO FIN PAVED

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 5-10-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

PLACING STONE & FABRIC OVER THE 6" DRAIN & ANCHOR TIEBACK

ITEMS DISCUSSED

KEEPING THE LINER & GETTING UP THE BACKSIDE OF THE PERIMETER DRAIN & ANCHOR TIEBACK

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE 

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-11-99
WEATHER: P. Windy
TEMPERATURE RANGE: 45-73
TIME CONTRACTOR ON SITE: 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE Foreman or Supt. Number of Employees on site

PERRY ALEXANDER Doc SWARTZ 6

Materials Delivered

DSC DOZER

Work performed this date

PLACED STONE, FABRIK OVER THE PERIMETER DRAINS & ANCHORS.

Tests performed this date with results

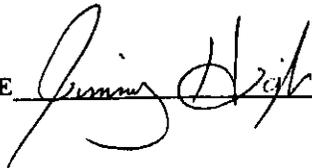
N/A
NO FILL PLACED

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
 CANTON, NORTH CAROLINA
 CAPPING OF LANDFILL CELL 6 F
 LAW PROJECT 30300-8-0313.02

DATE 5-11-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy Hight	LAW

WORK PLANNED FOR THIS DATE

WORKING ON THE PERIMETER DRAINS & ANCHORS

ITEMS DISCUSSED

NO FIN WILL BE PAID ON F UNTIL G IS COMPLETED

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE Jimmy Hight

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-12-99
WEATHER: Cloudy
TEMPERATURE RANGE: 45-68
TIME CONTRACTOR ON SITE: 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6: F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY ALLEN

DOUG SWARTZ

6

Materials Delivered

N/A

Work performed this date

FINISHED PAVING THE STONE FABRIC IN THE PERIMETER DRAIN THEN PAVING SOIL
OVER THE FABRIC FOR ANCHOR

Tests performed this date with results

NO FILL PLACED
N/A

Non Compliance Items noted this date

Submitted By:

LAW REPRESENTATIVE

Jimmy High

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6' F
LAW PROJECT 30300-8-0313.02

DATE 5-12-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy Hight	LA

WORK PLANNED FOR THIS DATE

COMPLETE THE PERIMETER DRAW

ITEMS DISCUSSED

SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE

Jimmy Hight

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-13-99
WEATHER: Cloudy - Lt. Rain ^{012°}
TEMPERATURE RANGE: 45-68
TIME CONTRACTOR ON SITE: - 0 -

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Materials Delivered

Work performed this date

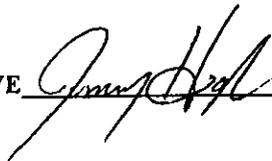
NO WORK PERFORMED TODAY.
WORKED ON CELL 6

Tests performed this date with results

Non Compliance Items noted this date

Submitted By:

LAW REPRESENTATIVE



Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5/5/99
WEATHER: Partly
TEMPERATURE RANGE: 45-72
TIME CONTRACTOR ON SITE: 0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Materials Delivered

Work performed this date

NO WORK ON CELL TODAY

Tests performed this date with results

Non Compliance Items noted this date

Submitted By:

LAW REPRESENTATIVE

Reviewed by:



LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-17-99
WEATHER: P. Cloudy
TEMPERATURE RANGE: 54-76
TIME CONTRACTOR ON SITE: 3.5

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE Foreman or Supt. Number of Employees on site

Perry Alexander Doc Swartz 4

Materials Delivered

N/A

Work performed this date

EXCAVATED THE REMAINING ANCHOR TRENCH AT THE SW CORNER OF CELL HAVING THE COVER FILL WITH STABILIZED AREAS 2100.

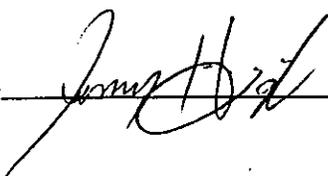
Tests performed this date with results

N/A
NO TEST TAKEN

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
 CANTON, NORTH CAROLINA
 CAPPING OF LANDFILL CELL 6 F
 LAW PROJECT 30300-8-0313.02

DATE 5-12-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

EVALUATE THE LAST 25' OF THE SOUTH WEST ANCHOR TRENCH & BANK FILL - FILL WAS STARTED
AROUND 2:00, WHICH WAS BEING MADE WITH 5 DUMP TRUCKS AND WORKING WITH A DSC CAT
DOZER. THE FILL WAS BEING PLACED IN 20 ± LOOSE INCHES BEFORE BEING TAMPED IN.

ITEMS DISCUSSED

N/A

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-18-99
WEATHER: Cloudy
TEMPERATURE RANGE: 53-70
TIME CONTRACTOR ON SITE: 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE Foreman or Supt. Number of Employees on site

Perry Alexander Don Swartz 5

Materials Delivered

N/A

Work performed this date

USED 5 TRUCKS TO HAUL THE FILL AND A CAT DISC TO WORK THE FILL WHICH WAS
PLACED IN 20 TO 22' LOOSE LIFT ACROSS THE GRADIENT

Tests performed this date with results

NO TESTS TAKEN

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____

LAW

LAWGIBB Group Member

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 5-18-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

Placing Fill Cover over GEOTEXTILE

ITEMS DISCUSSED

Placing a strip of fill from one end of the cell to other in order for the trucks to make a loop around site

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE



LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-19-99
WEATHER: Clear 1.46" RAIN overnight
TEMPERATURE RANGE: 54
TIME CONTRACTOR ON SITE: 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE Foreman or Supt. Number of Employees on site

Perry Anderson Don Swartz 4

Materials Delivered

N/A

Work performed this date

Placed fill in 20' x 22' loose lifts. The fill was placed from the top on the west side of the well's east to the perimeter drain/anchorage trench. Fill worked with a DSC cat dozer & hauler with 5 trucks which were loaded with a 963 lift truck loader. Due to overnight rain contractor had to blade the haul roads in order the haul hauling started around 9:00

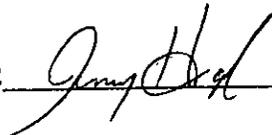
Tests performed this date with results

NO TEST TAKEN TODAY

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____



LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 5-19-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don SWARTZ	P.M.A
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

Placing Cover Fil over Geotextile

ITEMS DISCUSSED

How Fil was going to be placed.

QUESTIONS DISCUSSED

Question	Person to answer?
N/A	

Submitted by:

LAW REPRESENTATIVE

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-20-99
WEATHER: P. Cloudy
TEMPERATURE RANGE: 47-28
TIME CONTRACTOR ON SITE: 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE Foreman or Supt. Number of Employees on site

PERRY Alexander Don Swartz 4

Materials Delivered

N/A

Work performed this date

Hauled Fill for cover using 5 TRUCKS WHICH WAS LOADED WITH A 963 CAT TRACK LOADER. THE FILL WAS PLACED IN 22-24" LOOSE LIFTS AND WORKED WITH A DISC CAT DOZER. A DS DOZER WAS USED TO WORK THE SLOPE IN THE CUT AREA

Tests performed this date with results

DENSITY TESTS WERE PERFORMED ON THE IN PLACE FILL. THESE TESTS INDICATE THE COMPARISON TO BE ABOVE THE 90% STANDARD REQUIRED. RANDOM THICKNESS CHECKS INDICATE TO MATERIAL TO BE AT OR ABOVE THE REQUIRED 18". SEE REPORT OF FIELD DENSITY WORKSHEETS DATED 5-20-99 FOR DETAILS

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 5.20.99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy Hoff	LAW

WORK PLANNED FOR THIS DATE

Hauling & Placing Cover Fill

ITEMS DISCUSSED

SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

submitted by:

LAW REPRESENTATIVE 

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-21-99
WEATHER: P. Cloudy
TEMPERATURE RANGE: 47-78
TIME CONTRACTOR ON SITE: 9:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Don Swartz

5

Materials Delivered

- EROSION MAT FOR DRAINAGE DITCHES

Work performed this date

HANDLED COVER FILL USING 5 DUMP TRUCKS. FILL WAS PLACED IN 22'-24" GORGE
LIFTS AND WORKED WITH A D5L DOZER.

Tests performed this date with results

NO TESTS TAKEN TODAY

Non Compliance Items noted this date

W/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
 CANTON, NORTH CAROLINA
 CAPPING OF LANDFILL CELL 6 F
 LAW PROJECT 30300-8-0313.02

DATE 5-21-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Stewart	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

Placing Cover Fill

ITEMS DISCUSSED

How Fill will Be Placed

QUESTIONS DISCUSSED

Question	Person to answer?
<u>n/a</u>	

submitted by:

LAW REPRESENTATIVE

Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-24-99
WEATHER: Clear
TEMPERATURE RANGE: 51-75
TIME CONTRACTOR ON SITE: 10:00

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE Foreman or Supt. Number of Employees on site

Perry Alexander Don Swartz 4

Materials Delivered

N/A

Work performed this date

USED 5 TRUCKS TO HAUL THE COVER FIL WHICH WAS PLACED IN 22'24" LOGS LOTS.
A DSC CAT DOZER WAS USED TO WORK THE FIL AND TRUCK THE FIL AWAY.

* THE EROSION MAT WAS PLACED ON CELL # AS REQUIRED

* CONTRACTOR RESEDED CELL # AS REQUIRED.

Tests performed this date with results

DENSITY & THICKNESS CHECKS WERE PERFORMED ON THE 12 PINE FIL. THE COMPACTION
TEST INDICATE THE COMPACTION TO BE ABOVE THE 90% STANDARD REQUIRED. THE RANDOM
THICKNESS CHECKS INDICATE THE FIL TO BE ABOVE THE REQUIRED 18". SEE DENSITY
WORK SHEET DATED 5-24-99 FOR DETAILS

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
 CANTON, NORTH CAROLINA
 CAPPING OF LANDFILL CELL 6 F
 LAW PROJECT 30300-8-0313.02

DATE 5-24-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy Hoff	LA

WORK PLANNED FOR THIS DATE

HAULING COVER FIL

ITEMS DISCUSSED

PLACING EROSION MAT ON CELL G *
RESERVING CELL H

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE

Jimmy Hoff

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-25-99
WEATHER: P. Cloud
TEMPERATURE RANGE: 47-71
TIME CONTRACTOR ON SITE: 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Don Smith

4

Materials Delivered

N/A

Work performed this date

USED 5 TRUCKS TO HAUL THE COVER FIL WHICH WAS PLACED IN 22'-24" LOOSE LIFTS
AND WALKED WITH A OSC CAT DOZER.

Tests performed this date with results

DENSITY TESTS WERE TAKEN AS NEEDED. THESE TESTS INDICATE THE COMPACTION TO BE
AT OR ABOVE THE REQUIRED COMPACTION / 90% STANDARD. REMOVED THIRDS CHECKS WERE
TAKEN WHICH INDICATED THICKNESS TO BE AT OR ABOVE THE REQUIRED 18". SEE
REPORT OF FIELD DENSITY TEST WORKSHEET DATED 5-25-99 FOR DETAILS

Non Compliance Items noted this date

Submitted By:

LAW REPRESENTATIVE

Jimmy Hight

Reviewed by: _____

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
 CANTON, NORTH CAROLINA
 CAPPING OF LANDFILL CELL 6 F
 LAW PROJECT 30300-8-0313.02

DATE 5-25-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	Law

WORK PLANNED FOR THIS DATE

Review Local File

ITEMS DISCUSSED

Having to get out of the Rocky File

QUESTIONS DISCUSSED

Question	Person to answer?
N/A	

Submitted by:

LAW REPRESENTATIVE



LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-26-99
WEATHER: Cloudy - Light Rain
TEMPERATURE RANGE: 48-63
TIME CONTRACTOR ON SITE: 2.5

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Kenny Van Dyke

4

Materials Delivered

N/A

Work performed this date

Handled Land Fill until 505 was called off

Tests performed this date with results

DENSITIES WERE PERFORMED ON THE IMPURE FILL AS REQUIRED. THE TESTS INDICATE THE COMPACTED TO BE AT OR ABOVE THE 90% STANDARD REQUIRED. RANDOM THICKNESS CHECKS INDICATE THICKNESS TO BE AT OR MORE THE 18" REQUIRED. SEE REPORT OF FIELD DENSITY WORKSHEET DATED 5-26-99

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Jimmy High

Reviewed by: _____

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
 CANTON, NORTH CAROLINA
 CAPPING OF LANDFILL CELL 6 F
 LAW PROJECT 30300-8-0313.02

DATE 5-26-88

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Kenny Van Dyke	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

WORK WAS CALLED OFF @ 9:00 DUE TO THE OVERNIGHT DEATH OF THE
 JOB FOREMAN DON SWARTZ

ITEMS DISCUSSED

N/A

QUESTIONS DISCUSSED

Question	Person to answer?
N/A	

Submitted by:

LAW REPRESENTATIVE



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 5-26-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Kenny Van Dyke	P.M.A.
Jimmy High	Law

WORK PLANNED FOR THIS DATE

WORK WAS CALLED OFF @ 9:00 DUE TO THE OVERNIGHT DEATH OF THE
JOB FOREMAN DON SWARTZ

ITEMS DISCUSSED

NA

QUESTIONS DISCUSSED

Question	Person to answer?
NA	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-27-99
WEATHER: CLD
TEMPERATURE RANGE: 41-76
TIME CONTRACTOR ON SITE: 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Brian Alexander

4

Materials Delivered

N/A

Work performed this date

Placing LOVER FILL USING 5 TRUCKS. FILL WAS WORKED WITH A DSE AND PLACED IN 22" TO 24" LOOSE LIFTS.

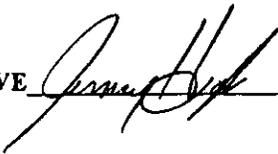
Tests performed this date with results

DENSITY TESTS WERE TAKEN ON THE IMPURE FILL AS NEEDED. THE DENSITIES INDICATED THE COMPACTION TO BE AT OR ABOVE THE 90% STANDARD REQUIRED. THE PENETRATION TESTS INDICATE THE DENSITIES TO BE AT OR ABOVE THE 18" REQUIRED.

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 5-27-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Brian Brian Alexander	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

Placing Cover Fill on Cell F

ITEMS DISCUSSED

SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 05.28.99
WEATHER: Clear
TEMPERATURE RANGE: 80°
TIME CONTRACTOR ON SITE: 7:25

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>Perry Alexander</u>	<u>Bryan Alexander</u>	<u>4</u>

Materials Delivered

N/A

Work performed this date

Placing Cover Fill using 5 Trucks. Fill was worked
N/A D5 Dozer placed in 22" to 24" loose lifts.

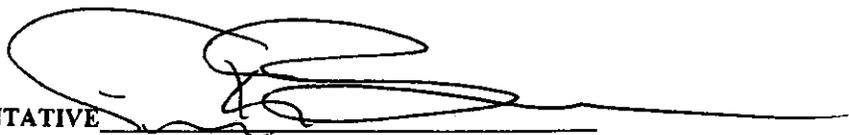
Tests performed this date with results

Density test were performed as needed, density test's
were found to be at 90% compaction or better. Random
thickness test were performed and found to be at 18"
compaction or better.

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
 CANTON, NORTH CAROLINA
 CAPPING OF LANDFILL CELL 6 F
 LAW PROJECT 30300-8-0313.02

DATE 05.28.99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Brian Alexander	P.M.A
Simms High	LA W

WORK PLANNED FOR THIS DATE

Placing Cover fill on Cell F.

ITEMS DISCUSSED

SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE



LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 6-1-99
WEATHER: P. Cloudy
TEMPERATURE RANGE: 46-75
TIME CONTRACTOR ON SITE: 10:00

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY ALEXANDER

BRAIN ALEXANDER

21

Materials Delivered

N/A

Work performed this date

WORKED ON THE DIET BRUSH ON THE EAST SIDE OF THE CELL WHICH INCLUDED
TRENCHING IN THE SOIL AND RAKING DOWN THE TOP. THE DRAINAGE DITCH ON THE EAST
END WAS ALSO CUT OUT. CONTRACTOR ALSO REPAIRED THE TRENCH AREAS ON CELL 17 AS
REQUESTED.

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

James High

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 6-1-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Brian Alexander	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

FINISH PREPARING THE SURFACE FOR SEEDING
REMOVING THE STONE CHECK DAMS AND REPAIRING THE SOIL IN THE DRAINAGE DREN ON CELL 6F

ITEMS DISCUSSED

SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 6-29-99
WEATHER: P Cloudy
TEMPERATURE RANGE: 54-81
TIME CONTRACTOR ON SITE: 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY Alexander

BRINK ~~Scott~~ Alexander

4

Materials Delivered

N/A

Work performed this date

THE COVER AREA WAS DISC BEFORE SEEDING WHICH STARTED AROUND 12:30. MATERIAL WAS PLACED BY SOILWORK MAINTENANCE AS REQUESTED BY P.M.A. A TOTAL OF 7 LOADS WAS PLACED TODAY AND WILL BE COMPLETED TOMORROW. ~~PERRY~~ TECH OBSERVED EACH LOAD BEFORE BEING PLACED FOR REQUIRED ITEMS NEEDED FOR EACH BATCH - AS REQUESTED

Tests performed this date with results

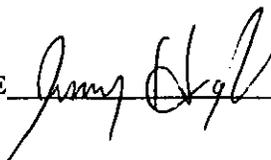
N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
 CANTON, NORTH CAROLINA
 CAPPING OF LANDFILL CELL 6 F
 LAW PROJECT 30300-8-0313.02

DATE 6.2.99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Brian Alexander	P.M.A
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

DISCING THE COVER AREA & START SEEDING WHICH WAS PERFORMED BY SOLIDIX MAINTENANCE AS REQUESTED BY P.M.A

ITEMS DISCUSSED

SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?
none	

Submitted by:

LAW REPRESENTATIVE

Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 6-3-99
WEATHER: P. Cloudy
TEMPERATURE RANGE: 56-81
TIME CONTRACTOR ON SITE: 10.0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 F
LAW PROJECT 30300-8-0313.02

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>SOUTHERN MAINTENANCE</u>	<u>Bill Jones</u>	<u>6</u>

Materials Delivered

ONE BAG of KENTUCKY 31 used to
(COMPLETE SEEDING)

Work performed this date

THE CONTRACTOR COMPLETED SEEDING THE CELL WITHOUT TENDR A TOTAL of 15 LOADS FOR
5.2 ACRES WITH 3 LOADS PLANTED PER ACRE.
AN ADDITIONAL 2 LOADS WERE PLANTED ON IT CELL ALONG THE CHICKEN DAM AREAS DUE TO
P.M.A. REPAIRING THE LOW AREAS AND GETTING THE AREAS TO DRAIN. THIS SHOULD
COMPLETE CELL F

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE 

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 F
LAW PROJECT 30300-8-0313.02

DATE 6/3/99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Bru Jones	SOUTHERN MAINTENANCE
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

Sealing Cell F & Resurfacing Ht. Along Check Dams & Road on West Side

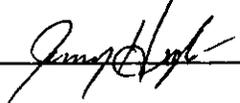
ITEMS DISCUSSED

SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE 

APPENDIX IX
AS-BUILT DRAWINGS

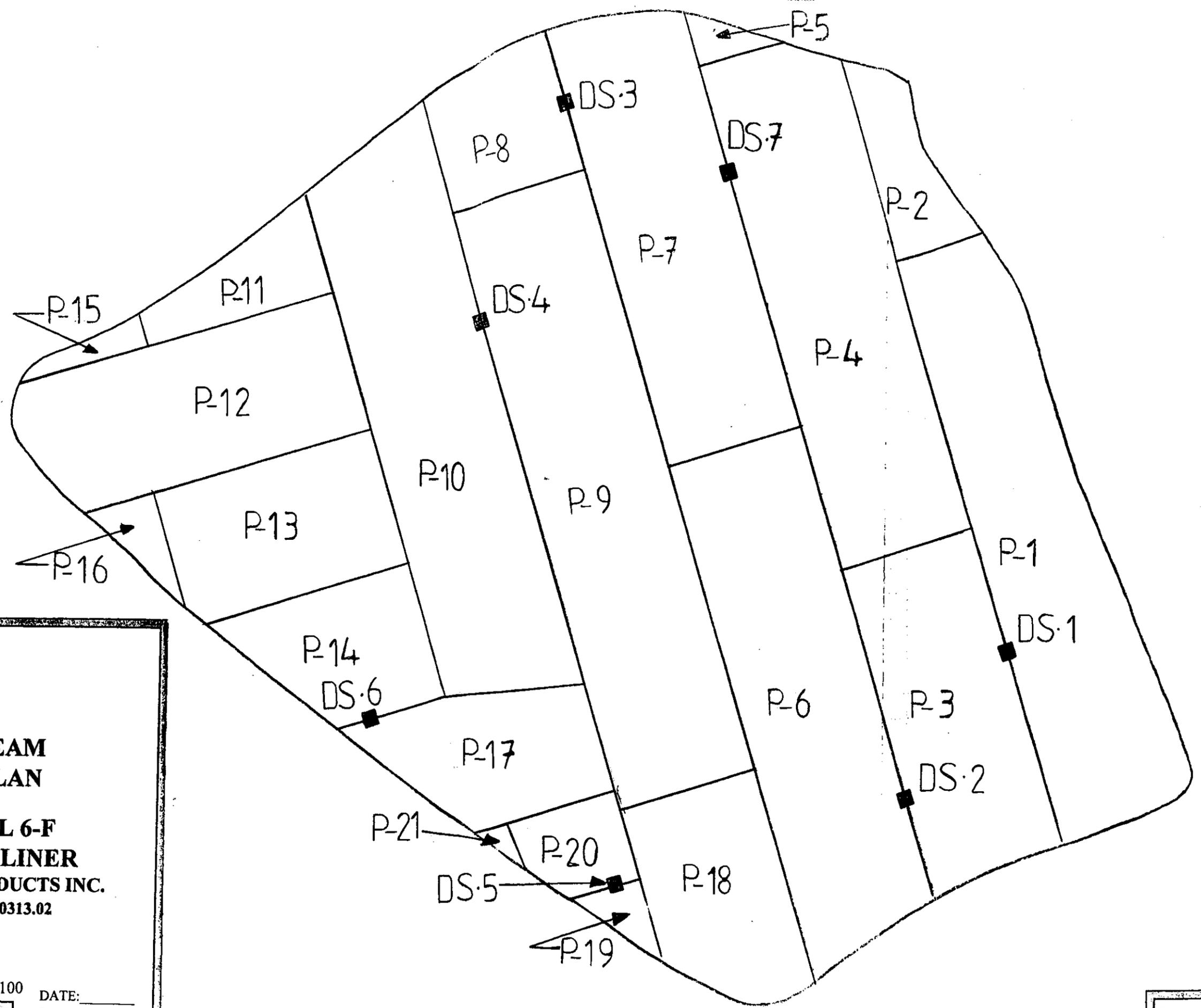


EDGE OF LANDFILL

SCALE: 1" = 60'

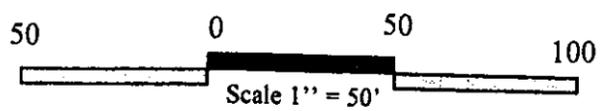
 LAW ENGINEERING AND ENVIRONMENTAL SERVICES ASHEVILLE, NORTH CAROLINA			
LINER SUBGRADE SURFACE GRADE-LANDFILL CELL 6-F BLUE RIDGE PAPER PRODUCTS, CANTON, NC			
PREPARED BY	DATE	CHECKED	DATE
3EB	1/21/00		
JOB NO. B-0313 PH02		DRAWING No 1	

REFERENCE: SURVEY PERFORMED BY C.O. HAMPTON COMPANY-LAND SURVEYORS ON APRIL 23, 1999

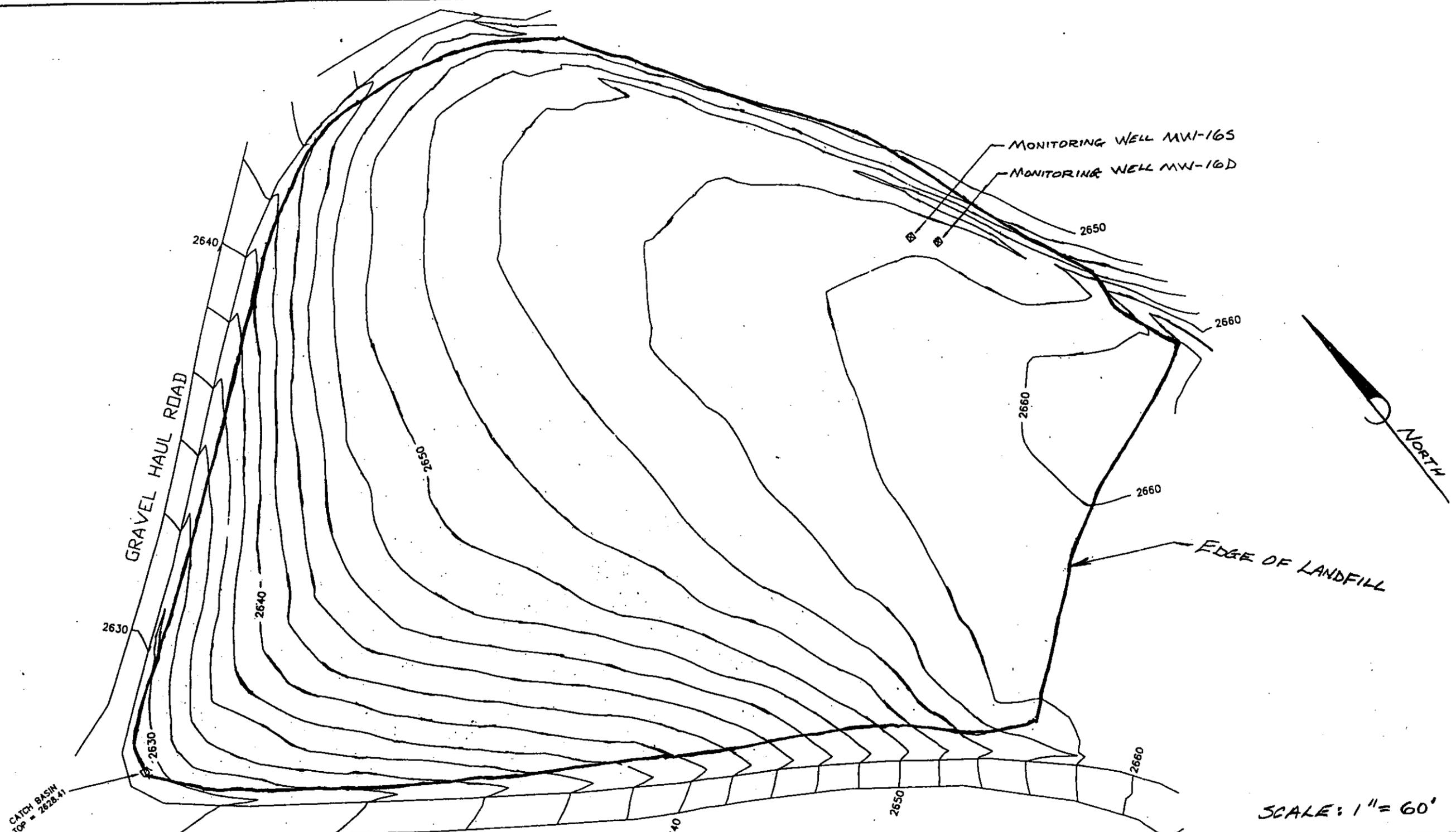


**PANEL AND SEAM
LOCATION PLAN**
for
**LANDFILL CELL 6-F
GEOMEMBRANE LINER**
BLUE RIDGE PAPER PRODUCTS INC.
LAW PROJECT-30300-8-0313.02

■ Destructive Test Location

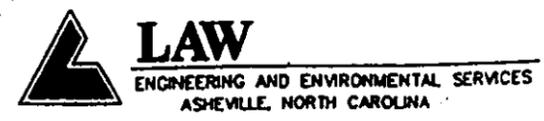


DATE: _____
Drawn By: _____
Checked By: _____



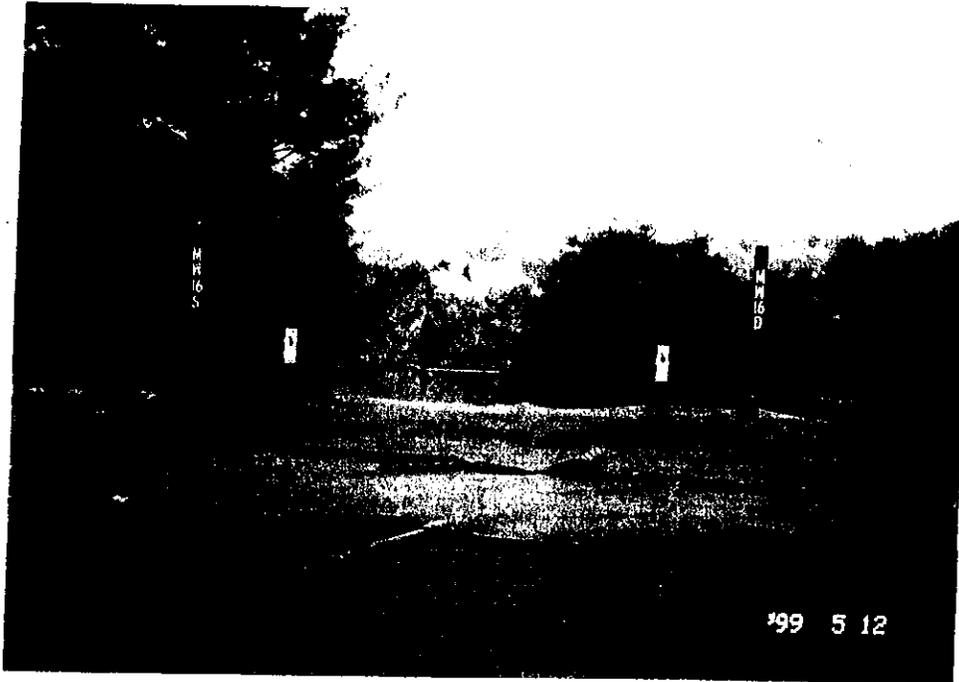
SCALE: 1" = 60'

REFERENCE: SURVEY PERFORMED BY C.D. HAMPTON
COMPANY - LAND SURVEYORS ON JUNE 9, 1999



FINAL COVER SURFACE
GRADE - LANDFILL CELL G-F
BLUE RIDGE PAPER PRODUCTS, CANTON, NC

PREPARED BY	SEP	DATE	1/21/00	CHECKED		DATE	
JOB NO.	B-0313 p4 02			DRAWING NO. 3			



Photograph 1-1: Synthetic liner and geocomposite drainage layer placement around monitoring wells



Photograph 1-2: Perimeter drain in anchor trench



Photograph 1-3: Completed synthetic liner and geocomposite drainage layer



Photograph 1-4: Cover soil being placed (beginning)



Photograph 1-5: Cover soil being placed (40 percent complete)



Photograph 1-6: Cover soil being placed (90 percent complete)



Photograph 1-7: Erosion control mat in perimeter drainage ditch



Photograph 1-8: Cover soil being disced for seeding

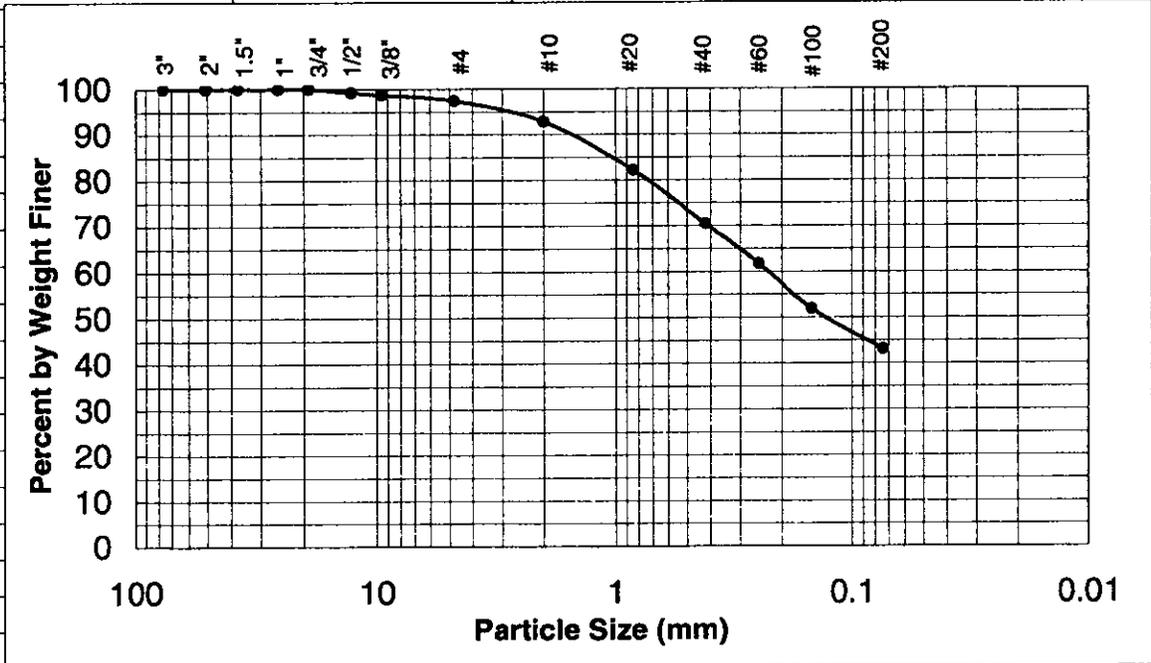
APPENDIX X
PHOTOGRAPHS

GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136
		DATE:	20-Jul-07
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	F-1
SAMPLE DESCRIP:	Reddish brown silty m-f SAND		
DATA			
		SPECIFICATION	
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u> <u>Max</u> <u>P / F</u>
3	76.2	100.0	
2	50.8	100.0	
1.5	37.5	100.0	
1	25.4	100.0	100 100 P
3/4	19.1	100.0	
1/2	12.7	99.2	
3/8	9.5	98.5	
#4	4.76	98.2	
#10	2.0	95.9	
#20	0.84	87.9	
#40	0.42	76.4	
#60	0.25	65.6	
#100	0.149	53.0	
#200	0.074	43.5	20 100 P
Water Content (%) = 8.7			

GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper	PROJECT No:	07136		
	Canton, N. Carolina		DATE:	20-Jul-07	
SAMPLE SOURCE:	Closure Testing		SAMPLE No:	F-2	
SAMPLE DESCRIP:	Reddish brown silty m-f SAND				
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P / F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	99.2			
3/8	9.5	98.7			
#4	4.76	97.4			
#10	2.0	92.8			
#20	0.84	82.1			
#40	0.42	70.5			
#60	0.25	61.7			
#100	0.149	51.9			
#200	0.074	43.1	20	100	P



	Water Content (%) =	9.5	

GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper	PROJECT No:	07136		
	Canton, N. Carolina	DATE:	20-Jul-07		
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	F-3		
SAMPLE DESCRIP:	Reddish brown silty m-f SAND				
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P / F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	100.0			
3/8	9.5	99.7			
#4	4.76	99.2			
#10	2.0	96.4			
#20	0.84	89.0			
#40	0.42	78.0			
#60	0.25	68.1			
#100	0.149	56.5			
#200	0.074	46.4	20	100	P

The graph plots Percent by Weight Finer (Y-axis, 0 to 100) against Particle Size in mm (X-axis, logarithmic scale from 100 to 0.01). The data points from the table are plotted and connected by a smooth curve. The curve remains at 100% until approximately 10mm, then gradually descends, passing through 96.4% at 2.0mm, 89.0% at 0.84mm, and finally reaching 46.4% at 0.075mm.

Water Content (%) =	11.0
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GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136		
		DATE:	20-Jul-07		
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	F-4		
SAMPLE DESCRIP:	Reddish brown silty m-f SAND				
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P / F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	100.0			
3/8	9.5	100.0			
#4	4.76	99.3			
#10	2.0	96.1			
#20	0.84	86.9			
#40	0.42	74.2			
#60	0.25	62.8			
#100	0.149	50.8			
#200	0.074	39.5	20	100	P

Particle Size (mm)	Percent by Weight Finer (%)
100	100.0
76.2	100.0
50.8	100.0
37.5	100.0
25.4	100.0
19.1	100.0
12.7	100.0
9.5	100.0
4.76	99.3
2.0	96.1
0.84	86.9
0.42	74.2
0.25	62.8
0.149	50.8
0.074	39.5

Water Content (%) =	10.1
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GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136		
		DATE:	20-Jul-07		
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	F-5		
SAMPLE DESCRIP:	Reddish brown silty m-f SAND				
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P / F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	99.9			
3/8	9.5	99.6			
#4	4.76	97.3			
#10	2.0	90.4			
#20	0.84	76.6			
#40	0.42	60.8			
#60	0.25	49.5			
#100	0.149	38.8			
#200	0.074	29.4	20	100	P

The graph plots the grain size distribution. The x-axis represents Particle Size in millimeters on a logarithmic scale, with major ticks at 100, 10, 1, 0.1, and 0.01. The y-axis represents Percent by Weight Finer on a linear scale from 0 to 100. The data points from the table are plotted and connected by a smooth curve. Key points include 100% finer at 76.2 mm, 90.4% at 2.0 mm, 60.8% at 0.425 mm, and 29.4% at 0.075 mm.

Water Content (%) =	8.5
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GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136		
		DATE:	20-Jul-07		
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	F-6		
SAMPLE DESCRIP:	Reddish brown silty m-f SAND				
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P / F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	100.0			
3/8	9.5	100.0			
#4	4.76	99.1			
#10	2.0	95.2			
#20	0.84	84.8			
#40	0.42	72.0			
#60	0.25	61.6			
#100	0.149	50.4			
#200	0.074	39.8	20	100	P

The graph plots Percent by Weight Finer (Y-axis, 0 to 100) against Particle Size in millimeters (X-axis, logarithmic scale from 100 to 0.01). The data points from the table are plotted and connected by a smooth curve. The curve shows that 100% of the sample is finer than 76.2 mm, and approximately 40% is finer than 0.075 mm.

Water Content (%) =	9.5
---------------------	-----

GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper		PROJECT No:	07136	
	Canton, N. Carolina		DATE:	20-Jul-07	
SAMPLE SOURCE:	Closure Testing		SAMPLE No:	F-7	
SAMPLE DESCRIP:	Reddish brown silty m-f SAND				
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P/F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	98.8			
3/8	9.5	98.8			
#4	4.76	95.6			
#10	2.0	85.3			
#20	0.84	66.0			
#40	0.42	50.0			
#60	0.25	41.0			
#100	0.149	32.7			
#200	0.074	25.8	20	100	P

The graph plots Percent by Weight Finer (Y-axis, 0 to 100) against Particle Size in millimeters (X-axis, logarithmic scale from 100 to 0.01). The data points from the table are plotted and connected by a smooth curve. Sieve sizes are labeled at the top of the graph.

Particle Size (mm)	Percent by Weight Finer (%)
100	100.0
76.2	100.0
50.8	100.0
37.5	100.0
25.4	100.0
19.1	100.0
12.7	98.8
9.5	98.8
4.76	95.6
2.0	85.3
0.84	66.0
0.42	50.0
0.25	41.0
0.149	32.7
0.074	25.8

Water Content (%) =	6.9
---------------------	-----

GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper	PROJECT No:	07136		
	Canton, N. Carolina	DATE:	20-Jul-07		
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	F-8		
SAMPLE DESCRIP:	Reddish brown silty m-f SAND				
DATA					
SPECIFICATION					
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P / F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	100.0			
3/8	9.5	98.9			
#4	4.76	93.9			
#10	2.0	83.1			
#20	0.84	66.9			
#40	0.42	52.2			
#60	0.25	42.8			
#100	0.149	34.0			
#200	0.074	25.8	20	100	P

The graph plots the grain size distribution. The x-axis represents Particle Size in millimeters on a logarithmic scale from 100 to 0.01. The y-axis represents Percent by Weight Finer on a linear scale from 0 to 100. The data points from the table are plotted and connected by a smooth curve. Key points include 100% finer for sizes down to 0.25 mm, and approximately 26% finer at the #200 sieve (0.075 mm).

Water Content (%) =	8.2
---------------------	-----



Product Quality Summary Report

Plant	107-Enka
Product	NC #67 067
Specification	NC #67
1" (25mm)	100.0
3/4" (19mm)	94.0
1/2" (12.5mm)	48.7
3/8" (9.5mm)	24.4
#4 (4.75mm)	7.8
#8 (2.36mm)	3.0

Product Notes

Product Note 3.106

Re: Standard Pipe Perforations

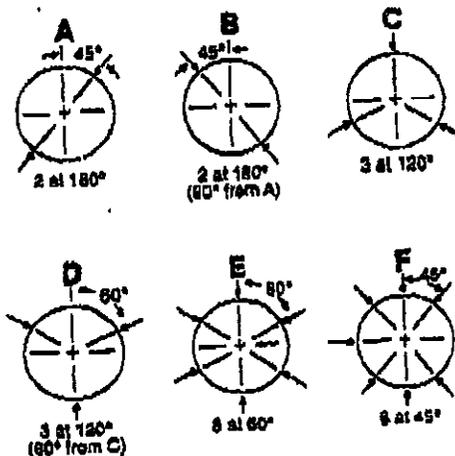
4-36" I.D. N-12" Pipe

Date: September 1, 1995

Nominal I.D. In. (mm)	Perforation Type	Slot Length or Diameter, Max. In. (mm)	Slot Width, Max. In. (mm)	Perforation Configuration
4 (100)	Slot	0.875 (22.2)	0.125 (3.18)	CD
6 (150)	Slot	0.875 (22.2)	0.125 (3.18)	CD
8 (200)	Slot	1.250 (31.8)	0.125 (3.18)	CD
10 (260)	Slot	1.250 (31.8)	0.125 (3.18)	CD
12 (300)	Circular	0.375 (9.52)	—	E
15 (375)	Circular	0.375 (9.52)	—	E
18 (450)	Circular	0.375 (9.52)	—	E
24 (600)	Circular	0.375 (9.52)	—	F
*30 (760)	Circular	0.375 (9.52)	—	4.5' (115 mm) Centers
*36 (900)	Circular	0.375 (9.52)	—	4.5' (115 mm) Centers

* Spiral Corrugation

Perforation Configurations



NOTE 1
ADS pipe is perforated for water entry with slots or circular perforations. The perforations are uniformly spaced along the length and circumference of the pipe.

NOTE 2
Unless otherwise specified, ADS pipe is manufactured to comply with the perforation requirements specified in the following industry standards: ASTM F405, ASTM F667, AASHTO M252, AASHTO M294, and SCS Code 60B.

SME

Sevee & Maher Engineers, Inc.
Waste Management and Hydrogeologic Consultants

**STATEMENT OF COMPLIANCE
WITH APPROVED PLANS AND SPECIFICATIONS**

Project Owner: ***Blue Ridge Paper Products***

Project Title: ***Landfill No. 6 Area G Closure***

Project Location: ***Canton, North Carolina***

Contractor: ***Perry M. Alexander Grading Company***

Engineer: ***Sevee & Maher Engineers, Inc.***
Cumberland, Maine

The undersigned, registered Professional Engineer in the State of North Carolina and in the employ of Sevee & Maher Engineers, Inc., which is responsible for construction monitoring pursuant to its contract with Blue Ridge Paper Products, states to the North Carolina Department of Environmental Services that it is the professional engineering opinion of Sevee & Maher Engineers, Inc., based on the attached information, was in general accordance and compliance with the contract, plans, specifications, and conditions as approved by the North Carolina Department of Environmental Services.

Date: 7/30/07

President: *John E. Sevee*
John E. Sevee, P.E., C.
Reg. No. 20589



**BLUE RIDGE PAPER PRODUCTS
CANTON, NORTH CAROLINA
LANDFILL NO. 6
AREA G CLOSURE**

1.0 PROJECT DESCRIPTION

Blue Ridge Paper Products (Blue Ridge) owns and operates a 240 acre landfill referred to as Landfill #6 in Canton, North Carolina, Permit #44-06. The landfill is used for the disposal of sludge, lime mud, ash, and wood waste into discrete areas, A through H. In December 1987, Blue Ridge reached capacity in Area G and the area was covered with a soil cap. In June 1999, Blue Ridge was required to construct a low permeable cap over the waste. The requirement for the low permeable cap was the result of groundwater monitoring and hydrogeologic study that indicated that Area G was potentially impacting the quality of the local groundwater regime. The requirement for the final cover system from bottom to top was a 30-mil polyvinyl chloride (PVC) liner, a geonet sandwiched between non-woven geotextiles, 12 inches of common borrow, overlain by 6 inches of a plant growth medium.

Quality Assurance and Quality Control for the cover construction was performed by Law Engineering and Environmental Services, Inc. (Law) of Asheville, North Carolina. A report was prepared by Law that included field and laboratory test reports for the soil and geosynthetic materials, and daily observation records, see attached. Based on Sevee & Maher Engineers, Inc.'s (SME) review of Law's report it was determined that an additional test was required of the 12-inch common borrow layer to meet the specifications. The test consisted of grain size analyses to determine that the common borrow contained a minimum of 20 percent fines (200 sieve). SME obtained four soil samples from the common borrow layer in Area G. The grain size test results showed that the common borrow contained a minimum of 20 percent fines. A copy of the grain size tests is attached.

LAW

LAWGIBB Group Member 

**QUALITY ASSURANCE/QUALITY CONTROL
REPORT**

LANDFILL CELL 6-G COVER CONSTRUCTION

for

**Blue Ridge Paper Products, Inc.
Canton, North Carolina**

by

**Law Engineering and Environmental Services, Inc.
1308-C Patton Avenue
Asheville, North Carolina 28806**

LAW Project 30300-8-0313.02

January 24, 2000

Mr. William D. von Vitzthume
Blue Ridge Paper Products, Inc.
Post Office Box 4000
Canton, North Carolina 28716

Subject: **Quality Assurance/Quality Control Report
Landfill Cell 6-G Cover Construction
Blue Ridge Paper Products, Inc.
Canton, North Carolina
LAW Project 30300-8-0313.02**

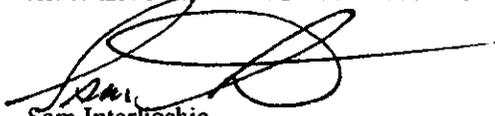
Dear Mr. von Vitzthume:

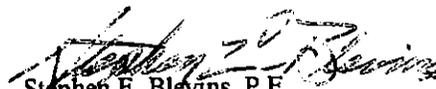
Law Engineering and Environmental Services, Inc. (LAW) is pleased to provide this report of quality assurance/quality control testing and monitoring services for the construction of the Landfill Cell 6-G cover. Our services were provided in general accordance with our Proposal 30300-8-9000.0168 dated July 10, 1998. This report is intended to contain the information required for submittal to the North Carolina Department of Environment and Natural Resources.

This Quality Assurance/Quality Control Report provides documentation of construction monitoring and QA/QC testing for the cover of landfill cell 6-G. Included with this report are copies of field and laboratory test reports, copies of our on-site technician's daily observations, summary of daily site meetings and as-built drawings.

Thank you, for the opportunity to provide our professional services during this phase of your project. If you have any questions regarding this document or require additional information, please do not hesitate to contact us.

Sincerely,
LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.


Sam Interlicchia
Staff Professional


Stephen E. Blevins, P.E.
Principal
Registered, North Carolina 6207

SCI/SEB:sci

cc: **Sevee & Maher Engineers, Inc /Guy Cole**
Law Engineering and Environmental Services, Inc.
1308-C Patton Avenue
Asheville, NC 28806
828-252-8130 • Fax 828-251-9890

**QUALITY ASSURANCE/QUALITY CONTROL
REPORT**

LANDFILL CELL 6-G COVER CONSTRUCTION

for

**Blue Ridge Paper Products, Inc.
Canton, North Carolina**

by

**Law Engineering and Environmental Services, Inc.
1308-C Patton Avenue
Asheville, North Carolina 28806**

LAW Project 30300-8-0313.02

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1.0 PROJECT LOCATION AND DESCRIPTION

The Blue Ridge Paper Products, Inc. landfill cell 6-F is located in the eastern part of Haywood county adjacent to Incinerator Road. The southern boundary is the Pigeon River. There are active and inactive cells located to the north, northwest and northeast of cell 6-G.

Cover construction began on May 11, 1999 and was completed on May 17, 1999. The work entailed subgrade preparation, placement of a 30-mil PVC liner, placement of a geocomposite drainage layer, construction of the soil cap and seeding.

The construction specifications were provided by Sevee & Maher Engineers, Inc. Perry M. Alexander Grading Company performed the earthwork and Geomembrane Services, Inc. (a subcontractor to Perry M. Alexander) installed the synthetic liner and geocomposite (geotextile-geonet-geotextile) drainage layer. Law Engineering and Environmental Services, Inc. (LAW) provided the construction quality assurance/quality control testing and monitoring services.

2.0 CONSTRUCTION AND QUALITY ASSURANCE

2.1 SUBGRADE PREPARATION

Subgrade preparation consisted of finish grading of the existing soil cover and rolling with a smooth drum roller to create a smooth and stable surface on which to construct the landfill cover. After finish grading, the subgrade was proofrolled with a 15 to 20-ton, four-wheeled, rubber-tired roller. The proofroller made at least four passes over each location, with the last two passes perpendicular to the first two. Proofrolling of the subgrade was observed by a LAW technician working under the direct supervision of the principal engineer. No pumping or large deflections were observed during proofrolling. The final prepared subgrade was observed to be free of irregularities, protrusions, loose soil, roots or stones as documented on the Subgrade Acceptance Certificate (Appendix I). A topographic survey of the surface of the subgrade was performed by C.O. Hampton Company Surveyors on April 23, 1999, prior to liner placement. This topographic survey is presented as Drawing 1 in Appendix IX (As-Built Drawings).

2.2 SYNTHETIC LINER AND GEOCOMPOSITE DRAINAGE LAYER PLACEMENT

A synthetic liner (30-mil PVC) was placed directly on the prepared and accepted subgrade. Manufacturer's specifications for the PVC liner are presented in Appendix II. The liner was shipped to the site in large (70 by 300 feet) factory seamed panels. Results of the manufacturer's quality control testing of the factory seams is presented in Appendix III.

Panels were field seamed using the thermal wedge welding method (Figure 1). Repairs and detail work were welded by the chemical method (Figure 2). The panel layout showing the field welded seams and destructive, quality assurance test locations is presented on As-Built Drawing No. 2 in Appendix IX. Both thermal and chemical field welded seams were tested for seam integrity and leaks by air lancing. The air lance method uses a jet of air at approximately (50-lb/in.²) pressure coming through an orifice of (3/16-in.) diameter. It is directed beneath the upper edge of the overlapped seam and is held within (4 in.) from the edge of the seamed area in order to detect un-bonded areas.

When such an area is located, the air passes through the opening in the seam causing an inflation and fluttering in the localized area. A distinct change in sound emitted can generally be heard. Seamed areas which failed were patched and chemical welded, followed by re-testing. Each welding machine and its operator were qualified twice daily (morning and afternoon) prior to welding.

LAW was present on a full time basis during installation of the PVC liner. Appendix IV presents detailed quality assurance documents summarizing LAW's observations and the results of field tests on each field welded seam.

Samples of the field welded seams were obtained every 500 linear feet and tested in the laboratory for compliance with seam strength and peel adhesion requirements of at least 55.2 lbs./in. and 10 lbs./in., respectively. Samples were obtained at the locations shown on the Panel and Seam Sample Location Plan (Drawing No. 2 in Appendix IX – As-Built Drawings). All field seams passed the specified minimum requirements. The laboratory test reports for the welded liner seams are presented in Appendix V.

After acceptance of the field and laboratory QA testing of the liner seams, the geocomposite (non-woven geotextile/geonet/non-woven geotextile) drainage layer was placed directly on top of the synthetic liner. Manufacturer's specifications for the geocomposite drainage layer are presented in Appendix II. Manufacturer's test reports and certifications for the geocomposite drainage layer materials are presented in Appendix III. The geocomposite was shipped to the site in 14.5 foot wide by 300 foot long rolls. The geocomposite was rolled onto the liner surface with each panel overlapping at least 4 inches. The panels were secured by sewing the top layer of geotextile. A LAW representative was present on a full time basis during installation of the geocomposite drainage layer and observed proper placement of this component of the landfill cover.

2.3 SOIL COVER CONSTRUCTION

Placement of the soil cover over the liner and drainage layer began on May 11, 1999. Soil material was carefully selected from on-site sources of silty sand and sandy silt. Representative samples of the fill material were collected at the borrow source and tested in the laboratory to determine the maximum dry density and optimum moisture content. These laboratory compaction test results are presented in Appendix VI.

The cover soil was excavated at the borrow source using a large trackhoe in combination with a dozer. The soil was hauled from the borrow area to the cell using tandem-axle dump trucks and dumped/pushed onto the drainage layer. The soil cover was spread with a Caterpillar D5C dozer. After placement to a thickness of approximately 15 to 18 inches (exclusive of a nominal 6-inch thick topsoil layer to be placed later), the cover soil was compacted by tracking with the dozer and with loaded tandem axle dump trucks.

Once compaction began, a sufficient number of density tests were performed by an experienced LAW technician working under the direction of the principal engineer to measure the degree of compaction being obtained. The thickness of the soil cover prior to placement of the topsoil layer was also checked at each density test location and recorded. All results of compaction testing met the construction specifications (90 percent of the standard Proctor maximum dry density). A summary of the density and thickness test results are provided in Table 1 and the field density test reports are presented in Appendix VII.

Topsoil (nominal 6 inches thick) was placed on the compacted soil cover and the cover fine graded prior to seeding. Seeding was performed on May 21, 1999. A topographic survey of the final, seeded surface of the cover was performed by C.O. Hampton Company Surveyors on June 9, 1999. This survey is presented as Drawing 3 in Appendix IX (As-Built Drawings). Comparison of the surveyed elevations of the surface of the final cover (Drawing 3, Appendix IX) with the surveyed elevations of the subgrade surface prior to liner placement (Drawing 1, Appendix IX) confirms that the nominal 18 inches of soil cover was placed.

2.4 CONSTRUCTION MONITORING

A representative of LAW observed construction of the soil cover and documented observations daily. Records of these daily observations and site meetings with the contractor are presented in Appendix VIII. As-built drawings are presented in Appendix IX and record photographs are presented in Appendix X.

TABLE

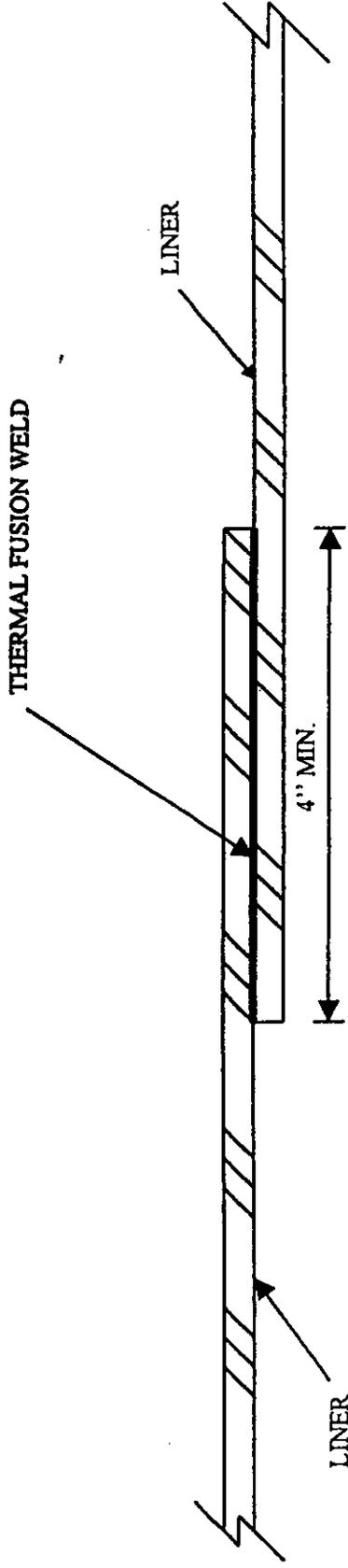
TABLE 1
SOIL CAP DENSITY & THICKNESS TEST RESULTS
BLUE RIDGE PAPER PRODUCTS, INC.
CELL 6-G
LAW PROJECT NO. 30300-8-0313.02

AREA NUMBER	TEST NUMBER	PERCENT COMPACTION⁽¹⁾	SOIL THICKNESS⁽²⁾ (inches)
# 1	1	96	12
# 2	2	98	12
# 3	3	98	14
# 3	4	97	14
# 4	6	97	13
# 5	7	98	15
# 6	8	97	16
# 7	9	96	14
# 8	10	96	15
# 9	11	95	16
# 10	12	97	12
# 11	14	98	13
# 12	15	97	16
# 13	16	98	16
# 14	17	100	15
# 15	18	99	16
# 16	19	98	16
# 17	20	95	15
# 18	21	95	13
# 19	22	97	16
# 20	23	97	15
#21	24	96	14
#22	25	98	16
#23	26	96	14
#24	27	98	15
#25	28	97	16

⁽¹⁾ Relative to standard Proctor maximum dry density

⁽²⁾ Prior to placement of final topsoil layer (nominal 6-inch thickness)

FIGURES



LAW
 Engineering and Environmental Services
 Asheville, North Carolina

TYPICAL DETAIL:
 THERMAL WEDGE WELD FOR PVC LINER
 BLUE RIDGE PAPER PRODUCTS, INC.
 CANTON, NORTH CAROLINA

Prepared By: SCI

Date: 12/10/98

Checked By: SEB

Date: 12/18/98

Job Number: 30300-8-0313.02

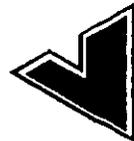
Figure: 1

CHEMICAL WELD

LINER

4" MIN.

LINER



LAW
Engineering and Environmental Services
Asheville, North Carolina

TYPICAL DETAIL:
CHEMICAL WELD FOR PVC LINER
BLUE RIDGE PAPER PRODUCTS, INC.
CANTON, NORTH CAROLINA

Prepared By: SCI

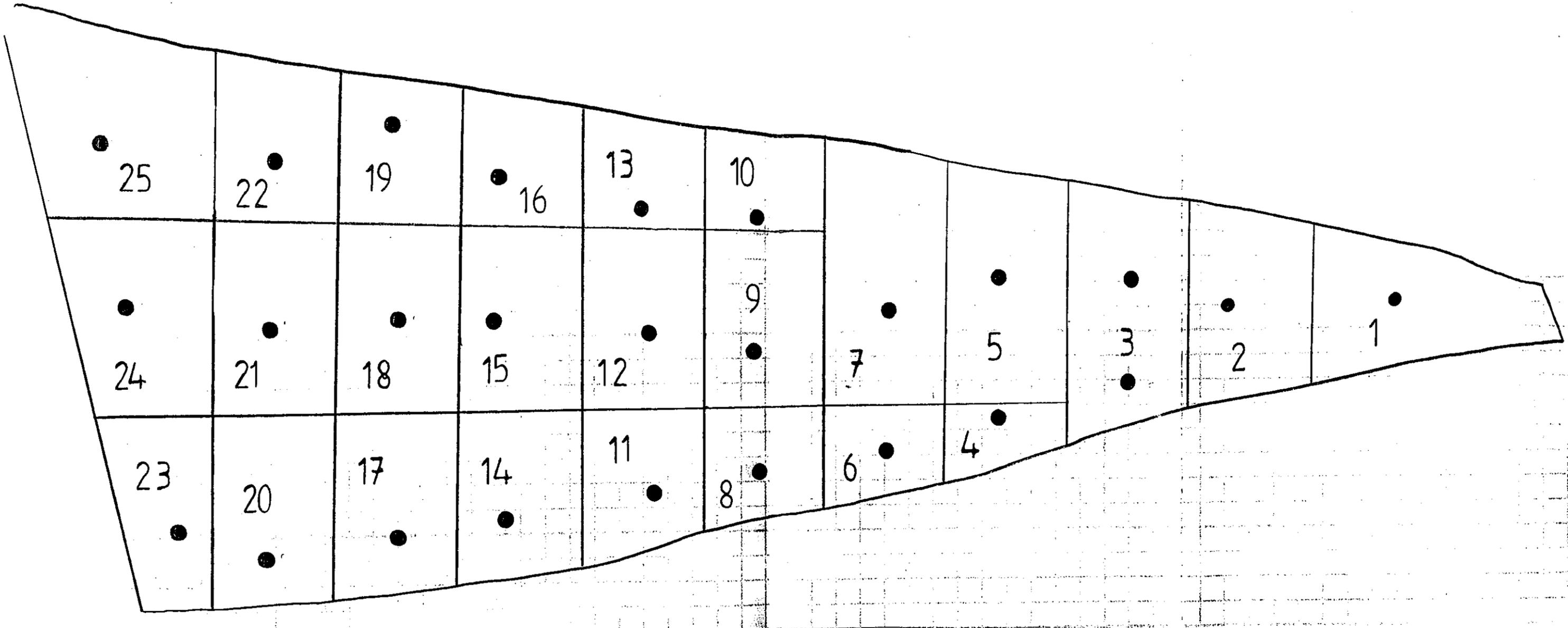
Date: 12/10/98

Checked By: SEB

Date: 12/18/98

Job Number: 30300-8-0313 02

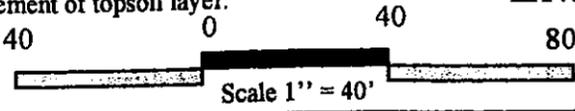
Figure: 2



DENSITY TEST LOCATION PLAN
for
LANDFILL CELL 6-G
GEOMEMBRANE LINER
BLUE RIDGE PAPER PRODUCTS, INC.
LAW PROJECT-30300-8-0313.02



● Density test location with soil thickness measurements prior to placement of topsoil layer.



Scale 1" = 40'

DATE: 12/18/99
 Drawn By: SLF
 Checked By: SEB

Figure 3

APPENDIX I
SUBGRADE ACCEPTANCE CERTIFICATION

LAW

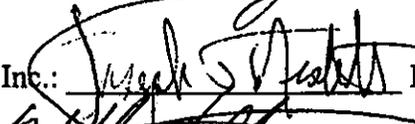
LAWGIBB Group Member 

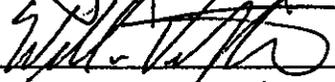
1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

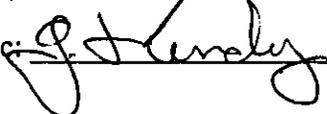
SUBGRADE ACCEPTANCE CERTIFICATION
QUALITY ASSURANCE DOCUMENT
CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 G
LAW PROJECT: 30300-8-0313 Phase .02

The earthwork contractor Perry M. Alexander is responsible for preparing the supporting material for geomembrane placement. Before the geomembrane installation begins, the owner's representative (LAW), the owner (Champion) and the Installer (Geomembrane Services, Inc) document by the signatures below that in their opinion the subgrade providing support for the liner has been rolled, compacted, or handworked so as to be free of irregularities, protrusions, loose soil, and does not contain stones which may be damaging to the geomembrane.

Perry M. Alexander:  Date: 5-3-99

Law Engineering and
Environmental Services, Inc.:  Date: 5-3-99

Champion International:  Date: 5-3-99

Geomembrane Services Inc:  Date: 5-3-99

APPENDIX II
MANUFACTURER'S SPECIFICATIONS
FOR LINER AND GEOCOMPOSITE



Established 1953

WATERSAVER COMPANY, INC.

P.O. BOX 16465 DENVER, COLORADO 80216-0465

Phone 303-289-1818 Fax 303-287-3136
Plant and Office — 5870 E 56th Avenue, Commerce City, Colorado 80022-3932

April 21, 1999

RE: CHAMPION INTERNATIONAL CORP.
LANDFILL CELL F & G

To Whom It May Concern:

This is to certify that the 30 mil PVC Geomembrane Liner that will be supplied for the above mentioned project has physical properties that will equal or exceed the minimum values listed in the project specifications.

Sincerely,

WATERSAVER COMPANY, INC.

A handwritten signature in cursive script that reads 'Bob Dapogny'.

Bob Dapogny
Technical Department Coordinator

RFD:sfy

enc: (30 mil PVC Specification Sheet)

**GEOMEMBRANE LINER
ENGINEERING SPECIFICATION GUIDE**

POLYVINYL CHLORIDE (PVC)



Est. 1953

Property	Test Method	Specified Values				
		20	30	40	50	60
Thickness mils (Nominal $\pm 5\%$)	ASTM D-1593	20	30	40	50	60
Specific Gravity, min.	ASTM D 792	1.23	1.23	1.23	1.23	1.23
Tensile Strength, psi, min. (Breaking Factor, lbs./in. width, min.)	ASTM D 882	2300 46	2300 69	2300 92	2300 115	2300 138
Elongation, @ Break, % min.	ASTM D 882	325	350	400	450	450
Modulus @ 100% Elongation, psi, min. (lbs./in. width min.)	ASTM D 882	1000 (20.0)	1000 (30.0)	1000 (40.0)	1000 (50.0)	1000 (60.0)
Tear Resistance, lbs./in., min. (lbs., min.)	ASTM D 1004	300 (6.0)	300 (9.0)	300 (12.0)	300 (15.0)	250 (15.0)
Low Temperature, °F	ASTM D 1790	-15	-20	-25	-30	-30
Dimensional Stability, % change, max.	ASTM D 1204 (212°F, 15min.)	3.5	3.5	3.5	3.5	3.5
Water Extraction % loss, max.	ASTM D 3083	0.25	0.25	0.35	0.35	0.35
Volatility % loss, max.	ASTM D 1203	0.90	0.70	0.50	0.50	0.50
Resistance to Soil Burial % change, max.	ASTM D 3083					
Tensile Strength		-5	-5	-5	-5	-5
Elongation, @ Break		-20	-20	-20	-20	-20
Modulus @ 100% Elongation		+20	+20	+20	+20	+20
Hydrostatic Resistance, psi, min.	ASTM D 751	60	85	92	125	165
Factory Seam Requirements*						
Bonded Seam Strength (factory seam, breaking factor, lbs./in. width)	ASTM D 3083, Modified	36.8	55.2	74.0	92	110.4

*Factory bonded seam strength is the responsibility of the fabricator.

TEX-NET[®] SPECIFICATIONS

GEOCOMPOSITE PROPERTIES

<u>PROPERTY</u>	<u>TEST</u>	<u>UNITS</u>	<u>MINIMUM²</u>	
			<u>TN3002/1120</u>	<u>TN3002/1125</u>
Transmissivity ¹ (15,000 psf)	ASTM D 4716	m ² /sec	5 x 10 ⁻³ 1.5 x 10 ⁻⁴ (typ.)	3 x 10 ⁻³ 1 x 10 ⁻⁴ (typ.)
Ply Adhesion	ASTM D 413 or F 904	lb/in	2.0	2.0
Tensile Strength (MD)	ASTM D 4632	lbs	535	580

COMPONENT PROPERTIES³

<u>GEONET</u>	<u>TEST</u>	<u>UNITS</u>	<u>PN 3000</u>
Density	ASTM D 1505	g/cm ³	0.94
Carbon Black Content	ASTM D 4218	%	2.0
Thickness	ASTM D 5199	inches	0.200
Mass Per Unit Area	ASTM D 5261	lbs/ft ²	0.162
Transmissivity ¹	ASTM D 4716	m ² /sec	1x10 ⁻³ @ 15,000 psf
Tensile Strength	ASTM D 5035	lbs/in	45

<u>GEOTEXTILE</u>	<u>TEST</u>	<u>UNITS</u>	<u>1120</u>	<u>1125</u>
Fabric Weight	ASTM D 5261	oz/yd ²	5.7	7.1
Thickness	ASTM D 5199	mils	75	95
Grab Strength	ASTM D 4632	lbs	160	210
Water Flow Rate	ASTM D 4491	gpm/ft ²	130	110
AOS	ASTM D 4751	Sieve Size	70	70
		mm	0.210	0.210

1. Measured using water @ 20° C (68°F) with a gradient of one, between two steel plates, after one hour. Value may vary, based on dimensions of the transmissivity specimen and specific laboratory.
2. These values represent minimum acceptable test values for a roll as tested according to NSC/FSI's Manufacturing Quality Control Manual. Individual test specimen values are not addressed in this specification.
3. Component properties are tested prior to the lamination process. They cannot be tested on the final product.

Information regarding the physical properties of National Seal Company products, including the information contained in this specification sheet, is to the best of our knowledge, information and belief, representative of National Seal Company products. All information, data, suggestions, opinions and recommendations are offered without guarantee or warranty of any kind. The final determination as to the appropriateness or suitability of any National Seal Company product in any particular application rests with the user and is the user's sole responsibility.

National Seal Company reserves the right to alter, change or modify its products and its product specifications at any time without notice. Please check with your National Seal Company sales or technical representatives to assure that specifications are current.

TN3002/1120/1125-0797

NSC

NATIONAL SEAL COMPANY
1245 Corporate Blvd. • Suite 300
Aurora, IL 60504
(830) 898-1181 • (800) 323-3820
FAX: (830) 898-8558

TOP GEOTEXTILE LAYER OF GEOCOMPOSITE

Product Description

Trevira® Spunbond Type 011/250

Will be used on the top part of H cell

Technical Fibers Group
Hoechst Celanese Corporation
Spunbond Business Unit
Post Office Box 3650
Spartanburg, SC 29304-3650
803 570 6407
Toll Free 1 800 843 7597
Fax 803 375 5930

ok to use for the cover of all three

Trevira® Spunbond Type 011/250 is a 100% continuous filament polyester nonwoven needlepunched engineering fabric. The fabric is resistant to biological and normally encountered chemicals, alkalies, acids, and ultraviolet light exposure. Trevira® Spunbond Type 011/250 conforms to the property values listed in the following table.

FABRIC PROPERTY	UNIT	TEST METHOD	TYPICAL VALUE ¹	MINIMUM TEST VALUES ²
Fabric Weight	oz/yd ²	ASTM D-5261	7.5	7.1
Fabric Thickness, t	mil	ASTM D-5199	110	95
Grab Strength (MD/CD)	lbs	ASTM D-4632	300/235	210
Grab Elongation (MD/CD)	%	ASTM D-4632	75/80	60
Trapezoid Tear Strength (MD/CD)	lbs	ASTM D-4533	105/95	75
Puncture Resistance	lbs	ASTM D-4833	115	95
Mullen Burst Strength	psi	ASTM D-3786	400	360
Water Flow Rate	gpm/ft ²	ASTM D-4491	150	110
Permeability, ψ	mm ²	ASTM D-4491	2.01	1.47
Permeability, $k = \psi/2$	cm/sec	ASTM D-4491	.56	.35
AOS	Sieve Size mm	ASTM D-4751	70-100 .210-.149	70 .210
Standard Roll Widths ³	ft	12.5 and 15.0		
Standard Roll Lengths ³	ft	300		

MD = Machine Direction CD = Cross Machine Direction

¹ The values listed are average values.

² These minimum values represent minimum test values as determined from Quality Control (QC) testing.

³ Other width and length rolls are available upon request.

011250

Hoechst 

MIDDLE GEONET LAYER OF GEDCOMPOSITE

**POLY-NET® PN3000
PRODUCT DESCRIPTION**

POLY-NET® is a profiled geonet manufactured by extruding two sets of polyethylene strands to form a diamond shape drainage material. The resulting net provides superior planar water flow, is inert to biological attack, naturally encountered chemicals, alkalis, and acids and is resistant to UV light exposure. POLY-NET PN3000 conforms to the property values listed below.

PROPERTY	METHOD	UNITS	MINIMUM ¹
Roll Length (typical)		R	300
Roll Width (typical)		R	7.54 & 14.5
Thickness ¹	ASTM D5189	inches	0.200
Area per Roll (typical)		R ²	2262 & 4358
Weight per Roll (typical)		lbs	385 & 705
Mass per Unit Area ¹	ASTM D1281	lb/ft ²	0.182
Carbon Black Content ¹	ASTM D4218	percent	2.0
Density ¹	ASTM D1505	g/cm ³	0.94
Tensile Strength ¹ (Machine Direction) (Modified)	ASTM D6035	lb/in.	40
Transmissivity ^{1,2} (Gradient = 1.0 at 15,000 psi)	ASTM D4718	m ² /sec	1 x 10 ⁻³

Needs to be at least 50MD
* Okayed by Seveet maker field
Data

- 1 Indicates standard quality control test.
- 2 This value represents the minimum acceptable test value for a roll as tested according to NSCF61's Manufacturing Quality Control Manual, unless otherwise indicated. Individual test values are not addressed in the specification.
- 3 Measured between two steel plates one hour after application of the confining pressure in the machine direction.

Information regarding the physical properties of National Seal Company products, including the information contained in this specification sheet, is to the best of our knowledge, information and belief, representative of National Seal Company products. All information, data, suggestions, opinions and recommendations are offered without guarantee or warranty of any kind. The final determination as to the appropriateness or suitability of any National Seal Company product in any particular application rests with the user and is the user's sole responsibility.

National Seal Company reserves the right to alter, change or modify its products and its product specifications at any time without notice. Please check with your National Seal Company sales or technical representative to ensure that specifications are current.

P2-0707



NATIONAL SEAL COMPANY
1245 Corporate Blvd. • Suite 300
Morton, IL 60090
(815) 898-9181 • (800) 723-7427
FAX: (815) 898-6688

-630-898-1161

APPENDIX III

FACTORY PRODUCTION AND QUALITY CONTROL TEST REPORTS

Friday April 27, 1999
Mr. Tom Hauck
Northern Geosystems, Inc.
3767 Warwick Dr.
Rochester Hills MI, 48309

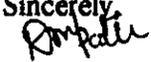
Ref. : **Champion International Corp., Canton, NC**
Transnet 220-2-6 Geocomposite
Shipper # 961

Mr. Tom Hauck,

We certify that the Transnet 220-2-6 double sided drainage composite, shipped on the above Shipper No., meets the project requirements as stated in Section 02741, of the specifications. The properties listed in this section include :

Net Property	Test Method	Unit	Minimum Required Value
Mass per Unit Area	ASTM D 3776	lbs/ft ²	0.162
Thickness	ASTM D 5199	inches	.22/-0.022
Carbon Black	ASTM D 1603	%	2
Tensile Strength	ASTM D 5035	lb/in	50
Density	ASTM D 1505	lb/in	0.93
Composite Property	Test Method	Unit	Minimum Required Value
Transmissivity	ASTM D 4716	m ² /s	3 X 10 ⁻⁴ *
Ply Adhesion	ASTM D 413	lb/in	2
Fabric Property	Test Method	Unit	Minimum Required Value
Fabric Weight	ASTM D 5261	oz/yd ²	6
Tear Strength	ASTM D 4533	lbs	65
Grab Strength	ASTM D 4632	lbs	150
Mullen Burst	ASTM D 3786	psi	350
Puncture Resistance	ASTM D 4833	lbs	90
AOS	ASTM D 4751	US Sieve	70

* Transmissivity measured using water 20 Degree C (68 degree F) with a gradient of 0.02 and a confining pressure of 20,000 psf, between two steel plates after 15 min.

Sincerely,

Dipa Patel
QA Manager



SKAPS INDUSTRIES
571 INDUSTRIAL PARKWAY
COMMERCE, GA 30529
(706) 336-7000

SHIPPERS NO.
961

c/o Geomembrane Services Inc.

INTERNAL REF # CHAMPION INTERNATIONAL
SIGNED TO - 175 MAIN STREET
DESTINATION - CANTON, NC 28716

DATE SHIPPED 04/27/99
CUST. P.O. # 99005

COMMENTS FROM M.R. *Jim Hundy*
616-264-9030

STATE:
INTERNAL REF # 961
MATERIAL REQ # 99005
JOB #:
SHIPPERS # 961
BUS / MARKET SEQ #
TERMS: PREPAID

DRIVER MUST CALL 24 HOURS PRIOR TO DELIVERY

NO # SQ FT	PRODUCT CODE #	ROLL #	KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS
3500.0	TN22066	21691.	220 NT-2 SD 6 02
3500.0	TN22066	21694.	220 NT-2 SD 6 02
3500.0	TN22066	21699.	220 NT-2 SD 6 02
3500.0	TN22066	21693	220 NT-2 SD 6 02
3500.0	TN22066	21692.	220 NT-2 SD 6 02
3500.0	TN22066	21686	220 NT-2 SD 6 02
3500.0	TN22066	21687.	220 NT-2 SD 6 02
3500.0	TN22066	21690.	220 NT-2 SD 6 02
3500.0	TN22066	21688.	220 NT-2 SD 6 02
3500.0	TN22066	21685.	220 NT-2 SD 6 02
3500.0	TN22066	21695.	220 NT-2 SD 6 02
3500.0	TN22066	21696.	220 NT-2 SD 6 02
3500.0	TN22066	21697.	220 NT-2 SD 6 02
3500.0	TN22066	21698	220 NT-2 SD 6 02
3500.0	TN22066	21699	220 NT-2 SD 6 02
3500.0	TN22066	21700	220 NT-2 SD 6 02
3500.0	TN22066	21701	220 NT-2 SD 6 02
3500.0	TN22066	21702	220 NT-2 SD 6 02
3500.0	TN22066	21703	220 NT-2 SD 6 02
3500.0	TN22066	21704	220 NT-2 SD 6 02
3500.0	TN22066	21705	220 NT-2 SD 6 02
3500.0	TN22066	21706	220 NT-2 SD 6 02
3500.0	TN22066	21707	220 NT-2 SD 6 02
3500.0	TN22066	21708	220 NT-2 SD 6 02
3500.0	TN22066	21709	220 NT-2 SD 6 02
3500.0	TN22066	21710	220 NT-2 SD 6 02
3500.0	TN22066	21711	220 NT-2 SD 6 02

*2 Bags of
Ties.*

TOTAL SQFT: 34500

TOTAL WEIGHT: 28344

RUCK / CONTAINER #

LOAD VERIFICATION SIGNED X _____

EAL #

TRUCKERS P.O. # 99005

CARRIER REF. WRIGHT TRUCKING

CARRIER NAME

Oliver [Signature]

DATE: *4. 27. 99*

CARRIER SIGN

SIGN HERE FOR SHIPPER

SHIPPER:

SIGN HERE FOR AGENT

OF SHIPPER _____

SS: 571 INDUSTRIAL PARKWAY
COMMERCE, GA 30529

AGENT FOR SHIPPER: _____

Commerce, GA from Skaps Industries the property described above, in apparent good order except as noted (contents and condition of packages unknown), marked, consigned, and destined as indicated above, which said Carrier (the word "Carrier" used throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination, it is mutually agreed as to each Carrier of all or any of said property, over all or any said route to destination, and as to each party at any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein is Skaps Industries as indicated by the designation of "SI" to be Skaps Industries, then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties or (b) if the Shipper noted herein is not Skaps Industries then Skaps Industries is as the agent for the named Shipper, and thus every aspect of the service to be performed hereunder between the Shipper and the Carrier shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth in Southern, Western, and Illinois Freight Classifications in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for placing the material in transit on behalf of a Shipper, Skaps Industries accepts no liability for loss of cargo, damage to containers, or any other consequences occurring during transportation, Carrier having agreed that the transportation arrangement was the Shipper and not by Skaps Industries.

Engineered Synthetic
Products, Inc.

SKAPS Industries

Composite Ply Adhesion

CANTON NC

Roll #	Net #	Side A		Side B		Other Roll	Net #						
		Min. MD Top (g/in)	Avg. MD Top (g/in)	Min. MD Top	Avg. MD Top (g/in)								
21685	26085	1101	1589	1180	1544	21686	25873	21687	25776	21688	26099	21689	26090
21690	26109	998	1135	1044	1180	21691	26112	21692	26110	21693	26111	21694	26107
21695	26098	1044	1089	1044	1453	21696	26113	21697	26093	21698	26088	21699	26106
21700	26101	1453	1589	1089	1180	21701	26092	21702	26105	21703	26114	21704	26106
21705	26116	1407	1453	1180	1407	21706	26097	21707	26108	21708	26117	21709	25818
21710	25928	1089	1226	1135	1407	21711	26100						

Tuesday, April 27, 1999

SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529
Phone: 708-336-7000 Fax: 708-336-7007



Page 1

Engineered Synthetic
Products, Inc.

SKAPS Industries

Geonet

CANTON, NC

Roll #	Lot #	Min. Thickness (mil)	Carbon Black (%)	Density (g/cc)	Wt/Unit Area (net) lb/sf	TS@Break, MD (ppi)
025815	H121096	224	2.4	.951	.201	74
025870	H121096	225	2.4	.951	.206	68
025925	H121096	215	2.4	.951	.203	74
025975	H121096	220	2.3	.951	.190	72
026085	H121096	205	2.4	.951	.180	74
026090	H121096	205	2.4	.951	.190	65
026095	H121096	210	2.5	.951	.196	68
026100	H121096	210	2.4	.951	.190	75
026105	H121096	215	2.4	.951	.197	65
026110	H121096	210	2.1	.951	.193	74
026115	H121096	205	2.2	.951	.167	65

PLEASE NOTE: TESTING IS PERFORMED EVERY 5TH ROLL

Tuesday, April 27, 1999

SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529
Phone: (706) 336-7000 Fax: (706) 336-7007



Page 1

Engineered Synthetic Products/Skaps Industries

571 Industrial Pkwy.

Commerce, GA 30529

Phone : 770-564-1857 Fax : 770-564-1818

April 27, 1999

Canton, NC

Dear Sir/Madam:

This is to certify the transmissivity of GeoComposite. Testing was performed every 40,000 square feet of production using ASTM 4716.

GeoComposite				
Roll Number	Gradient/Load	Normal Time (min)	Transmissivity (gal/ft/min)	Transmissivity (m ² /sec)
21,655	0.02/20,000	15	2.63	5.45 x 10 ⁻⁴
21,665	0.02/20,000	15	4.30	8.91 x 10 ⁻⁴
21,775	0.02/20,000	15	3.50	7.25 x 10 ⁻⁴

Engineered Synthetic Products/Skaps Industries

571 Industrial Pkwy.

Commerce, GA 30529

Phone : 770-564-1857 Fax : 770-564-1818

April 27, 1999

Canton, NC

Dear Sir/Madam:

This is to certify the transmissivity of GeoComposite. Testing was performed every 40,000 square feet of production using ASTM 4716.

GeoComposite				
Roll Number	Gradient/Load	Normal Time (min)	Transmissivity (gal/ft/min)	Transmissivity (m ² /sec)
21,685	0.02/20,000	15	2.63	5.45 x 10 ⁻⁴
21,697	0.02/20,000	15	4.3	8.91 x 10 ⁻⁴
21,710	0.02/20,000	15	3.50	7.25 x 10 ⁻⁴

Engineered Synthetic **SKAPS Industries**
Products, Inc.

RESIN
CANTON, NC

Supplier's Result

Lot #	Melt Index	Density	Melt Index	Polymer Density
H121098	.19	.952	0.19	.9505

Tuesday, April 27, 1999

SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529
Phone: (706) 336-7000 Fax: (706) 336-7007



Page 1



Chevron

U.S. Chemical

April 27, 1999

DIPA
Bobby Espersen
SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529

CERTIFICATE OF ANALYSIS

Product:	LM0350A	Lot Number:	H121096
Chevron Order #:	217161 - 4000	Destination:	Commerce
Package:	GOCX058377	Weight (lbs):	45,020
Customer Order #:	22577	Ship Date:	4/22/99

Following is the data on the subject material as determined by the Quality Control Department:

<u>Property</u>	<u>Value</u>	<u>Units</u>
Melt Index	0.19	gms/10 min
Density	0.9505	gms/cc

The data set forth herein has been carefully compiled by Chevron Chemical Company. 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.

Customer Fax: 706-336-7007

For inquiry, contact Customer Service at the following number:

Film, Coating, Pipe Applications: 1-800-231-3826

Molding Applications: 1-800-231-3828

No. 1 to certify that the herein-stated contents are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

STRAIGHT BILL OF LADING
ORIGINAL - NOT NEGOTIABLE

Piedmont Express



Shipper No. **41478**

Carrier No. **4-21-89**

Date: **4-21-89**

To Consignee SKaps		Shipper TNS ADVANCED TECHNOLOGIES	
Street 571 Ind Parkway		Street 1075 West Hill Road	
Destination Commerce CA. Zip Code		Origin Greer, SC Zip Code 29651	

No. Shipping Units	Kind of Packaging, Description of Articles, Special Marks and Inscriptions	Weight (Subject to Conversion)	RATE	CHARGES
	ROLLS OF POLYPROPYLENE GEOTEXTILES			
	CLASS 65			
27	EO60 180 X 900	16,665		
	P.O. #			
	PHONE #			

Note - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
 The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____.

Subject to Section 7 of the conditions, if the shipment is to be delivered to the consignee without payment on the invoice, the consignee shall sign the following agreement:
 The carrier shall not make delivery of the shipment without payment of freight and all other lawful charges.

TOTAL CHARGES: \$

FREIGHT CHARGES:
 FREIGHT PAID FREIGHT COLLECT

It is subject to the classification and tariffs in effect on the date of the issue of this bill of lading, the property described above is accepted good order, except as noted hereon and of contents of packages unknown, marked, numbered, and described as indicated above which said carrier (his agent) being understood throughout this receipt as receiving any person or representative in possession of the property under the contract express to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination, it is actually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the bills of lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the bills of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted by the carrier and his agents.

SHIPPER TNS ADVANCED TECHNOLOGIES	CARRIER Piedmont Express
BY <i>[Signature]</i>	PER Kick up
	DATE 4-21-89

* Mark with "X" to designate Hazardous Material as defined in Title 49 of the Code of Federal Regulations.

0987119
0987125
0987131



681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0592
Fax: (864) 879-4639
Toll Free: (800) 867-5181

April 26, 1999
REF: TNS E060
Quantity Shipped: 27 rolls
BOL#: 41478

Skaps

571 Industrial Pkwy.
Commerce, GA 30529

Dear Sir/Madam:

This is to certify that TNS E060 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E060 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E060 conforms to the physical properties listed in the following table:

<u>FABRIC PROPERTY</u>	<u>TEST METHOD</u>	<u>UNITS</u>	<u>M.A.R.V</u>
Weight	ASTM D 5261	oz/sy	6.0
Thickness	ASTM D 5199	mils	85
Grab Tensile	ASTM D 4632	lbs	160
Grab Elongation	ASTM D 4632	%	60
Trap Tear	ASTM D 4533	lbs	65
Puncture	ASTM D 4833	lbs	95
Mullen Burst	ASTM D 3786	psi	350
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permittivity	ASTM D 4491	l/sec	1.63
Water Flow	ASTM D 4491	gpm/sq.ft.	125
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.45

Regards,

J. Melissa Keller
TNS Advanced Technologies

Cross Reference Table For Shipper No 961 : Canaton, NC

COMPOSITE	NONWOVEN		
ROLL NUMBER	NET NUMBER	SIDE A	SIDE B
21,685	26,085	465,831	465,851
21,686	25,873	465,831	465,851
21,687	25,776	465,831	465,851
21,688	26,099	465,852	982,636
21,689	26,090	465,852	982,636
21,690	26,109	465,852	982,636
21,691	26,112	465,870	465,862
21,692	26,110	465,870	465,862
21,693	26,111	465,870	465,862
21,694	26,107	465,863	465,866
21,695	26,098	465,863	465,866
21,696	26,113	465,863	465,866
21,697	26,093	462,658	462,620
21,698	26,088	462,658	462,620
21,699	26,106	462,658	462,620
21,700	26,101	462,621	465,808
21,701	26,092	462,621	465,808
21,702	26,105	462,621	465,808
21,703	26,114	463,492	463,478
21,704	26,106	463,492	463,478
21,705	26,116	463,492	463,478
21,706	26,097	463,475	463,771
21,707	26,108	463,475	463,771
21,708	26,117	463,475	463,771
21,709	25,818	463,464	463,754
21,710	25,928	463,464	463,754
21,711	26,100	463,464	463,754



881 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 968-0582
Fax: (864) 879-4639
Toll Free: (800) 867-5181

April 28, 1999
REF: TNS E060
Quantity Shipped: 28 rolls
BOL#: 41376

Skaps

571 Industrial Pkwy.
Commerce, GA 30529

Dear Sir/Madam:

This is to certify that TNS E060 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E060 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E060 conforms to the physical properties listed in the following table:

<u>FABRIC PROPERTY</u>	<u>TEST METHOD</u>	<u>UNITS</u>	<u>M.A.R.V</u>
Weight	ASTM D 5261	oz/sy	6.0
Thickness	ASTM D 5199	mils	85
Grab Tensile	ASTM D 4632	lbs	160
Grab Elongation	ASTM D 4632	%	60
Trap Tear	ASTM D 4533	lbs	65
Puncture	ASTM D 4833	lbs	95
Mullen Burst	ASTM D 3786	psi	350
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permittivity	ASTM D 4491	1/sec	1.63
Water Flow	ASTM D 4491	gpm/sq.ft.	125
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.45

Regards,

J. Melissa Keller
TNS Advanced Technologies

Roll #	Styl	Wgt	Lng	Fabr	Thck	Strg	Strg	ElnG	ElnG	Trap	Trap	Trap	Punc	Brst	Flow	Perm	Perm	AOS	
				Wght	MD	MD	XMD	MD	XMD	MD	XMD	XMD	Rate	Srqs	Rate	Abt	Abt		
462048	E060	180	900	6.2	97	174	190	72	86	72	86	94	116	401	177	.74	.74	2.7	80
462620*	E060	180	900	6.2	101	184	190	67	74	86	74	121	111	396	158	.68	.68	2.4	80
462621*	E060	180	900	6.2	101	184	190	67	74	86	74	121	111	396	158	.68	.68	2.4	80
462658*	E060	180	900	6.1	102	169	174	68	96	83	96	100	126	363	191	.77	.77	3.0	80
462676*	E060	180	900	6.1	104	183	180	68	80	98	80	136	108	410	147	.57	.57	2.3	80
463396	E060	180	900	6.0	87	170	174	64	93	96	93	119	101	358	158	.62	.62	2.4	80
463439*	E060	180	900	6.1	97	168	173	60	79	86	83	83	112	402	158	.62	.62	2.4	80
463464*	E060	180	900	6.6	97	213	186	69	88	86	86	83	112	402	158	.62	.62	2.4	80
463461*	E060	180	900	6.4	97	181	173	62	85	86	85	83	112	402	158	.62	.62	2.4	80
463464*	E060	180	900	6.3	99	187	164	68	84	79	84	77	109	378	171	.71	.71	2.6	80
463472*	E060	180	900	6.8	97	184	183	67	81	79	81	77	109	378	158	.62	.62	2.4	80
463474*	E060	180	900	6.8	97	184	183	67	81	79	81	77	109	378	158	.62	.62	2.4	80
463475	E060	180	900	6.5	96	187	171	68	86	79	86	77	109	378	158	.62	.62	2.4	80
463478*	E060	180	900	6.5	95	187	171	68	86	79	86	77	109	378	158	.62	.62	2.4	80
463492*	E060	180	900	6.5	95	186	167	67	82	79	82	77	109	378	158	.62	.62	2.4	80
464392*	E060	180	900	6.3	104	176	179	64	79	91	120	120	107	378	222	.48	.48	3.6	80
464399*	E060	180	900	6.6	110	180	185	64	81	91	81	120	107	378	222	.48	.48	1.8	80
465771*	E060	180	900	6.5	106	178	164	67	87	98	87	94	100	390	146	.60	.60	2.3	80
465790*	E060	180	900	6.3	104	187	171	63	102	87	102	111	134	363	146	.60	.60	2.3	80
465808*	E060	180	900	6.3	104	187	171	63	102	87	102	111	134	363	146	.60	.60	2.3	80
465812*	E060	180	900	6.6	106	178	164	67	87	98	87	94	100	390	146	.60	.60	2.3	80
465836*	E060	180	900	6.7	111	191	161	62	90	99	90	96	142	400	132	.50	.50	1.7	80
465841	E060	180	900	7.0	106	201	167	68	94	99	94	96	142	400	133	.50	.50	1.7	80
982647*	E060	180	900	7.2	110	172	193	62	96	94	96	110	109	388	172	.80	.80	2.7	80
982685*	E060	180	900	7.5	104	163	165	67	87	80	87	89	101	366	133	.56	.56	1.0	80
987133*	E060	180	900	6.0	113	160	180	90	106	84	106	107	98	351	133	.56	.56	1.8	80

Thursday April 29, 1999
Mr. Tom Hauck
Northern Geosystems, Inc.
3767 Warwick Dr.
Rochester Hills MI, 48309

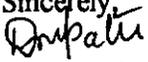
**Ref. : Champion International Corp., Canton, NC
Transnet 220-2-6 Geocomposite
Shipper # 963**

Mr. Tom Hauck,

We certify that the Transnet 220-2-6 double sided drainage composite, shipped on the above Shipper No., meets the project requirements as stated in Section 02741, of the specifications. The properties listed in this section include :

Net Property	Test Method	Unit	Minimum Required Value
Mass per Unit Area	ASTM D 3776	lbs/ft ²	0.162
Thickness	ASTM D 5199	inches	.22/- .022
Carbon Black	ASTM D 1603	%	2
Tensile Strength	ASTM D 5035	lb/in	50
Density	ASTM D 1505	lb/in	0.93
Composite Property	Test Method	Unit	Minimum Required Value
Transmissivity	ASTM D 4716	m ² /s	3 X 10 ⁻⁴ *
Ply Adhesion	ASTM D 413	lb/in	2
Fabric Property	Test Method	Unit	Minimum Required Value
Fabric Weight	ASTM D 5261	oz/yd ²	6
Tear Strength	ASTM D 4533	lbs	65
Grab Strength	ASTM D 4632	lbs	150
Mullen Burst	ASTM D 3786	psi	350
Puncture Resistance	ASTM D 4833	lbs	90
AOS	ASTM D 4751	US Sieve	70

* Transmissivity measured using water 20 Degree C (68 degree F) with a gradient of 0.02 and a confining pressure of 20,000 psf, between two steel plates after 15 min.

Sincerely,

Dipa Patel
QA Manager



SKAPS INDUSTRIES
571 INDUSTRIAL PARKWAY
COMMERCE, GA 30529
(706) 336-7000

SHIPPERS NO.
565

C/G GEOMEMBRANE SERVICES INC.

INTERNAL REF # CHAMPION INTERNATIONAL CORP.
SIGNED TO - 175 MAIN STREET
DESTINATION - CANTON NC 28716

DATE SHIPPED 04/28/99
CUST. P.O. # 99003

STATE:
INTERNAL REF # 963
MATERIAL REQ # 99005

COMMENTS FROM M.R. JIM LUNDY
616-264-9030

JOB #
SHIPPERS # 963
BUS / MARKET SEQ #
TERMS: PREPAID

DRIVER MUST CALL 24 HOURS PRIOR TO DELIVERY

NO # SQ FT	PRODUCT CODE #	ROLL #	KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS
3500.0	TN22066	21768.	220 NT-2 SD 6 OZ
3500.0	TN22066	21756.	220 NT-2 SD 6 OZ
3500.0	TN22066	21755.	220 NT-2 SD 6 OZ
3500.0	TN22066	21759.	220 NT-2 SD 6 OZ
3500.0	TN22066	21754.	220 NT-2 SD 6 OZ
3500.0	TN22066	21760.	220 NT-2 SD 6 OZ
3500.0	TN22066	21762.	220 NT-2 SD 6 OZ
3500.0	TN22066	21764.	220 NT-2 SD 6 OZ
3500.0	TN22066	21758.	220 NT-2 SD 6 OZ
3500.0	TN22066	21763.	220 NT-2 SD 6 OZ
3500.0	TN22066	21752.	220 NT-2 SD 6 OZ
3500.0	TN22066	21751.	220 NT-2 SD 6 OZ
3500.0	TN22066	21757.	220 NT-2 SD 6 OZ
3500.0	TN22066	21761.	220 NT-2 SD 6 OZ
3500.0	TN22066	21753.	220 NT-2 SD 6 OZ
3500.0	TN22066	21765.	220 NT-2 SD 6 OZ
3500.0	TN22066	21766.	220 NT-2 SD 6 OZ
3500.0	TN22066	21770.	220 NT-2 SD 6 OZ
3500.0	TN22066	21767.	220 NT-2 SD 6 OZ
3500.0	TN22066	21769.	220 NT-2 SD 6 OZ
3500.0	TN22066	21771.	220 NT-2 SD 6 OZ
3500.0	TN22066	21775.	220 NT-2 SD 6 OZ
3500.0	TN22066	21777.	220 NT-2 SD 6 OZ
3500.0	TN22066	21774.	220 NT-2 SD 6 OZ
3500.0	TN22066	21772.	220 NT-2 SD 6 OZ
3500.0	TN22066	21776.	220 NT-2 SD 6 OZ
3500.0	TN22066	21773.	220 NT-2 SD 6 OZ

2 Bags of
Ties

TOTAL SQFT: 94,500

TOTAL WEIGHT: 29938

TRUCK / CONTAINER #

LOAD VERIFICATION SIGNED X
TRUCKERS P.O. # 99003

SEAL #

WRIGHT TRUCKING

CARRIER REF.

CARRIER NAME

CARRIER SIGN

Oliver F...

DATE: 4-28-99

SIGN HERE FOR SHIPPER

SHIPPER:

RESS: 571 INDUSTRIAL PARKWAY
COMMERCE, GA 30529

SIGN HERE FOR AGENT
OF SHIPPER

AGENT FOR SHIPPER:

... at Commerce, GA from Skaps Industries the property described above. In apparent good order except as noted (contents and condition of package unknown), marked, consigned, and destined as indicated above, which said Carrier (the word "Car" understood throughout this Shipping Order as meaning the person or corporation in possession of the property) agrees to carry to the place of delivery at said destination. It is mutually agreed as to each Carrier of all or any of said property, over all or any of said route to destination, and as to each party as any time interested in all or any of said property, that every service performed hereunder shall be subject to either: (a) if the Shipper noted herein in Skaps Industries as indicated by the designation of "Skaps" to be Skaps Industries, then the Shipper and Carrier are subject to the terms and conditions contained in the Contract for Truck Transportation existing between the parties or (b) if the Shipper noted herein to not Skaps Industries then Skaps Industries shall act as the agent for the carrier of the property, and this every aspect of the service to be performed hereunder between the Shipper and the Carrier shall be subject to the terms and conditions of the Uniform Domestic Freight Bill of Lading set forth in the Southern, Western, and Illinois Freight Classification in effect on the date hereof, if this is a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. When acting in the capacity of an agent for the Shipper in placing the material in transit on behalf of a Shipper, Skaps Industries accepts no liability for loss of cargo, damage to containers, or any other consequences occurring during transportation. Carrier having agreed that the transportation arrangements are made by the Shipper and not by Skaps Industries.

Engineered Synthetic SKAPS Industries
Products, Inc. Composite Ply Adhesion

CANTON, NC

Roll #	Net #	Side A		Side B		Other Roll	Net #						
		Min. MD Top (α/in)	Avg. MD Top (α/in)	Min. MD Top	Avg. MD Top (α/in)								
21750	24771	953	1089	998	1137	21751	24051	21752	24769	21753	24032	21754	24664
21755	24523	1089	1407	1180	1453	21756	24067	21757	24174	21758	24275	21759	24787
21760	24191	1044	1407	1180	1453	21761	24186	21762	24192	21763	24093	21764	24195
21765	24193	1089	1498	998	1407	21766	24203	21767	24204	21768	24046	21769	24167
21770	22778	1135	1544	1089	1453	21771	24049	21772	24127	21773	24121	21774	24101
21775	24102	1180	1589	1044	1498	21776	24089	21777	24097	21778	26139	21779	26154

SKAPS Industries

Engineered Synthetic
Products, Inc.

Geonet
CANTON, NC

Roll #	Lot #	Min. Thickness (mil)	Carbon Black (%)	Density (g/cc)	Wt/Unit Area (net) lb/sf	TS@Break, MD (ppi)
022775	22096-1	225	2.4	.950	.205	58
024020	22096-1	218	2.2	.950	.192	68
024030	22096-1	219	2.4	.950	.194	68
024045	22096-1	220	2.3	.950	.184	73
024050	22096-1	220	2.5	.950	.197	75
024065	22096-1	222	2.4	.950	.186	68
024085	22096-1	220	2.2	.950	.197	64
024090	22096-1	217	2.5	.950	.198	63
024095	22096-1	215	2.3	.950	.191	67
024120	22096-1	216	2.3	.950	.198	62
024165	22096-1	215	2.4	.950	.192	70
024170	22096-1	218	2.3	.950	.201	62
024175	22096-1	217	2.2	.950	.192	62
024185	22096-1	215	2.3	.950	.191	65
024190	22096-1	215	2.4	.950	.194	64
024195	22096-1	218	2.2	.950	.184	74
024200	22096-1	217	2.5	.950	.184	75
024665	H091040	210	2.4	.950	.190	71
024725	H091040	215	2.3	.950	.200	75
024765	H091040	215	2.2	.950	.204	61
024785	H091040	218	2.3	.950	.208	66
024990	H091040	257	2.6	.950	.274	67

PLEASE NOTE: TESTING IS PERFORMED EVERY 5TH ROLL.



Plastic Raw Materials

CERTIFICATE OF COMPLIANCE

Date: 4-19-99

SKAPS
571 Industrial Parkway
Commerce, Georgia 30529

The following confirms the properties of your shipment as requested on your Purchase Order 22538:

Product:	HDPE
Ship Dates:	1-28, 1-29, 1-30, 2-1-99
Railcar No:	GPLX 74724
Lot No:	22096-1
Melt Index:	.21
Density:	.946
Weight:	179,800 LBS.

David A. Duckwall



Chevron

U.S. Chemical

February 15, 1999

Bobby Esperson
SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529

CERTIFICATE OF ANALYSIS

Product:	LM0350A	Lot Number:	H091040
Chevron Order #:	209045 - 5000	Destination:	Commerce
Package:	CHVX898575	Weight (lbs):	48,320
Customer Order #:	22546	Ship Date:	2/11/99

Following is the data on the subject material as determined by the Quality Control Department:

<u>Property</u>	<u>Value</u>	<u>Units</u>
Melt Index	0.33	gms/10 min
Density	0.9507	gms/cc

The data set forth herein has been carefully compiled by Chevron Chemical Company. 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.

Sincerely,

Gary MacMurtrie
Supervisor
Quality Control

Customer Fax: 706-336-7007

For inquiry, contact Customer Service at the following number:
Film, Coating, Pipe Applications: 1-800-231-3826
Molding Applications: 1-800-231-3828

Cross Reference Table For Shipper No 963 : Canaton, NC

COMPOSITE		NONWOVEN	
ROLL NUMBER	NET NUMBER	SIDE A	SIDE B
21,751	24,051	465,790	463,464
21,752	24,769	465,790	463,464
21,753	24,032	465,790	463,464
21,754	24,664	462,048	465,812
21,755	24,523	462,048	465,812
21,756	24,067	462,048	465,812
21,757	24,174	463,454	464,392
21,758	24,175	463,454	464,392
21,759	24,787	463,454	464,392
21,760	24,191	462,675	463,472
21,761	24,186	462,675	463,472
21,762	24,192	462,675	463,472
21,763	24,093	463,396	463,461
21,764	24,195	463,396	463,461
21,765	24,193	463,396	463,461
21,766	24,203	982,647	463,474
21,767	24,204	982,647	463,474
21,768	24,046	982,647	463,474
21,769	24,167	987,133	463,461
21,770	22,778	987,133	463,461
21,771	24,049	987,133	463,461
21,772	24,127	465,835	902,685
21,773	24,121	465,835	902,685
21,774	24,101	465,835	902,685
21,775	24,102	465,841	465,808
21,776	24,089	465,841	465,808
21,777	24,097	465,841	465,808

It is to certify that the below named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

This Memorandum

is an acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

Shipper No. 41376

Carrier No. _____

Date 4-23-99

(Name of Carrier) FedEx (SCAC)

Dr. consignee <u>SKAPS</u>		FROM Shipper <u>TNS ADVANCED TECHNOLOGIES</u>	
Street <u>571 Ind Parkway</u>		Street <u>1075 Victor Hill Road</u>	
destination <u>Commerce GA</u> Zip Code _____		Origin <u>Greer, SC</u> Zip Code <u>29651</u>	

No. Shipping Units	MM	Kind of Packaging, Description of Articles, Special Marks and Exceptions	Weight (Subject to Correction)	RATE	CHARGES
		ROLLS OF POLYPROPYLENE GEOTEXTILES			
		CLASS 65			
<u>27</u>		<u>E060 180 X 900</u>	<u>17,000</u>		
		P.O. # <u>D. Ward 4-23-99 3:45 PM</u>			
		PHONE #			

<p>Where the rate is dependent on value, shippers are required to state specifically in the bill of lading the agreed or declared value of the property.</p> <p>The agreed or declared value of the property is hereby specifically stated by the shipper to not exceed _____ per _____</p>	<p>Subject to Section 7 of the conditions, if the shipment is to be delivered to the consignee without payment at the destination, the consignee shall sign the following statement:</p> <p>The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.</p> <p>_____ (Signature of Consignee)</p>	<p>TOTAL CHARGES: \$ _____</p> <p>FREIGHT CHARGES:</p> <p>FREIGHT PREPAID <input type="checkbox"/> FREIGHT COLLECT <input type="checkbox"/></p>
---	---	---

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER <u>TNS ADVANCED TECHNOLOGIES</u>	CARRIER <u>FedEx</u>
<u>[Signature]</u>	PER <u>[Signature]</u>
	DATE <u>4-23-99</u>



681 DeYoung Road
Greer, South Carolina 29651
Tel: (864) 868-0592
Fax: (864) 879-4639
Toll Free: (800) 867-5181

April 28, 1999
REF: TNS E060
Quantity Shipped: 28 rolls
BOL#: 41376

Skaps

571 Industrial Pkwy.
Commerce, GA 30529

Dear Sir/Madam:

This is to certify that TNS E060 is a 100% polypropylene, nonwoven, needle-punched fabric. TNS E060 is resistant to degradation due to ultraviolet exposure and resists commonly encountered soil chemicals, insects, mildew, and is non-biodegradable. Polypropylene is stable within a pH range of 2 to 13. TNS E060 conforms to the physical properties listed in the following table:

<u>FABRIC PROPERTY</u>	<u>TEST METHOD</u>	<u>UNITS</u>	<u>M.A.R.V</u>
Weight	ASTM D 5261	oz/sy	6.0
Thickness	ASTM D 5199	mils	85
Grab Tensile	ASTM D 4632	lbs	160
Grab Elongation	ASTM D 4632	%	60
Trap Tear	ASTM D 4533	lbs	65
Puncture	ASTM D 4833	lbs	95
Mullen Burst	ASTM D 3786	psi	350
A.O.S.	ASTM D 4751	U.S. Sieve	80
Permittivity	ASTM D 4491	l/sec	1.63
Water Flow	ASTM D 4491	gpm/sq.ft.	125
U.V. Resistance	ASTM D 4355	% retained	70
Permeability	ASTM D 4491	cm/sec	.45

Regards,

J. Melissa Keller
TNS Advanced Technologies

Roll #	Styl	Wdt	Lng	Fabr Wght	Thck	Strg MD	Strg XMD	EJng MD	EJng XMD	Trap MD	Trap XMD	Punc REEL	Bret SCS	Flow RATE	Perm -SPL	Perm -ITY	AOS
462048	E060	180	900	6.2	97	174	190	72	86	72	94	115	401	177	.74	2.7	80
462620	E060	180	900	6.2	101	184	190	67	74	86	121	111	396	158	.68	2.4	80
462621	E060	180	900	6.2	101	184	190	67	74	86	121	111	396	158	.68	2.4	80
462658	E060	180	900	6.1	102	169	174	68	95	83	100	126	363	191	.77	3.0	80
462675	E060	180	900	6.1	104	183	180	68	80	90	136	108	410	147	.57	2.3	80
463396	E060	180	900	6.0	87	170	174	64	93	96	119	101	358	150	.62	2.4	80
463439	E060	180	900	6.1	97	168	173	60	79	86	83	112	402	158	.62	2.4	80
463454	E060	180	900	6.6	97	213	186	63	88	86	83	112	402	158	.62	2.4	80
463461	E060	180	900	6.4	97	181	173	62	85	86	83	112	402	158	.62	2.4	80
463464	E060	180	900	6.3	99	187	164	68	84	79	77	109	378	171	.71	2.6	80
463472	E060	180	900	6.8	97	184	183	67	81	79	77	109	378	168	.62	2.4	80
463474	E060	180	900	6.8	97	184	183	67	81	79	77	109	378	168	.62	2.4	80
463475	E060	180	900	6.5	96	187	171	68	86	79	77	109	378	168	.62	2.4	80
463478	E060	180	900	6.5	96	187	171	68	86	79	77	109	378	168	.62	2.4	80
463492	E060	180	900	6.5	96	187	171	68	86	79	77	109	378	168	.62	2.4	80
464392	E060	180	900	6.5	95	186	167	67	82	79	77	109	378	168	.62	2.4	80
464399	E060	180	900	6.3	104	176	179	64	79	91	120	107	378	222	.48	3.5	80
465771	E060	180	900	6.6	110	180	186	64	81	91	120	107	378	222	.48	1.8	80
465790	E060	180	900	6.6	106	178	164	67	87	98	94	100	390	146	.60	2.3	80
465800	E060	180	900	6.3	104	187	171	63	102	87	111	134	363	146	.60	2.3	80
465812	E060	180	900	6.6	106	178	164	67	87	98	94	100	390	146	.60	2.3	80
465836	E060	180	900	6.7	111	191	161	62	90	99	96	142	400	132	.50	1.7	80
465841	E060	180	900	7.0	106	201	167	58	94	99	96	142	400	133	.60	1.7	80
982647	E060	180	900	7.2	110	172	193	62	96	94	110	109	388	172	.80	2.7	80
982685	E060	180	900	7.5	104	163	166	67	87	80	89	101	366	133	.56	1.8	80
987133	E060	180	900	6.0	113	160	180	90	105	84	107	98	351	133	.66	1.8	80

Engineered Synthetic Products/Skaps Industries

571 Industrial Pkwy.

Commerce, GA 30529

Phone : 770-564-1857 Fax : 770-564-1818

April 29,1999

Canton, NC

Dear Sir/Madam:

This is to certify the transmissivity of GeoComposite. Testing was performed every 40,000 square feet of production using ASTM 4716.

GeoComposite				
Roll Number	Gradient/Load	Normal Time (min)	Transmissivity (gal/ft/min)	Transmissivity (m ² /sec)
21,650	0.02/20,000	15	3.74	7.75 x 10 ⁻⁴
21,662	0.02/20,000	15	3.50	7.25 x 10 ⁻⁴
21,775	0.02/20,000	15	3.07	6.37 x 10 ⁻⁴

Engineered Synthetic **SKAPS Industries**
Products, Inc.

RESIN
CANTON, NC

Supplier's Result

Lot #	Melt Index	Density	Melt Index	Polymer Density
22096-1	.25	.948	0.21	.946
H091040	.35	.951	0.33	.9507

**CHAMPION INTERNATIONAL CORP.
LIST OF PANELS**

PANEL ID #	PANEL SIZE	FABRICATION DATE
S39RX1206	70' X 300'	10/12/98
S39RX1207	70' X 300'	10/12/98
S39RX1208	70' X 300'	10/12/98
S39RX1209	70' X 300'	10/12/98
S39RX1211	70' X 300'	10/12/98
S39RX1212	70' X 300'	10/12/98
S39RX1213	70' X 300'	10/12/98
S39RX1214	70' X 300'	10/12/98
S39RX1303	70' X 300'	10/13/98
S39RX1304	70' X 300'	10/13/98
S39RX1307	70' X 300'	10/13/98
S39RX1308	70' X 300'	10/13/98
S39RY0301	70' X 300'	11/3/98
S39RY0302	70' X 300'	11/3/98
S39RY0304	70' X 300'	11/3/98
S39RY2402	70' X 300'	11/24/98
S39RY2403	70' X 300'	11/24/98

APPENDIX III
FACTORY PRODUCTION AND QUALITY CONTROL TEST REPORTS

PRODUCTION REPORT/LINE LOAD

CUSTOMER		STOCK		FABRICATION DATE				10/12/98			
PROJECT		SHEET 2 OF									
WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS	MANUFACTURER NAME				MATERIAL FINISH	TEST #			
	PVC	030	R				FAILLE				
SPECIAL PANEL ID	S39RX1206	S39RX1207	S39RX1208	S39RX1209							
PANEL NO.											
PANEL SIZE	70 X 300	70 X 300	70 X 300	70 X 300							
PACKED PER BOX	1 PER BOX	1 PER BOX	1 PER BOX	1 PER BOX							
SQ. FT. OF PANEL	21000	21000	21000	21000							
PRODUCTION STATUS											
STOCK TAG											
	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #				
MACHINE #1	16/2	2	2	2							
MACHINE #2	22/15	15	15	15							
MACHINE #3	21/9	9	9	9							
MACHINE #4	7/8	8	8	8							
MACHINE #5	6/20	20	20	20							
MACHINE #6	12/19	19	19	19							
MACHINE #7	14/11	11	11	11							
MACHINE #8	23/10	10	10	10							
MACHINE #9	13/1	1	1	1							
MACHINE #10	19/18	18	18	18							
MACHINE #11	13/14	14	14	14							
MACHINE #12											
INSPECTION/SEAMER	E 60/29	W	E	W	E	W	E	W	E	W	
SUPERVISOR	VK TT										
ROLL NO.	MANUFACTURE #	MFG DATE	ROLL NO.	MANUFACTURE #	MFG DATE						
16	F890039-8		2	F890039-9							
22	F890039-9		15	F890039-1							
21	F890039-9		9	F890039-9							
7	F890039-9		8	F890039-9							
6	F890039-9		20	F890039-9							
12	F890039-9		19	F890039-9							
14	F890039-9		11	F890039-9							
23	F890039-9		10	F890039-9							
13	F890039-9		1	F890039-9							
19	F890039-8		18	F890039-9							
13	F890039-8		14	F890039-8							

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC R FF GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/12/98
 FOMER: _____ TYPE OF FABRICATION: S39RX1205 TEST DATE: 10/22/98 BY: MDL/KJL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	F890039-8	F890039-9	A		0.00	0.00	73.15	75.69	
			B		0.00		78.20		
			C		0.00		73.12		
			D		0.00		76.55		
			E		0.00		77.45		
2	F890039-9	F890039-9	A		0.00	0.00	78.12	80.97	
			B		0.00		81.10		
			C		0.00		82.40		
			D		0.00		81.85		
			E		0.00		80.37		
3	F890039-9	F890039-9	A		0.00	0.00	76.75	77.75	
			B		0.00		77.62		
			C		0.00		78.40		
			D		0.00		79.35		
			E		0.00		76.62		
4	F890039-9	F890039-9	A		0.00	0.00	84.00	84.10	
			B		0.00		84.55		
			C		0.00		84.40		
			D		0.00		84.95		
			E		0.00		82.60		
5	F890039-9	F890039-9	A		0.00	0.00	82.90	82.64	
			B		0.00		84.80		
			C		0.00		85.22		
			D		0.00		78.32		
			E		0.00		81.97		
6	F890039-9	F890039-9	A		0.00	0.00	85.62	80.38	
			B		0.00		77.35		
			C		0.00		78.82		
			D		0.00		80.05		
			E		0.00		80.07		
7	F890039-9	F890039-9	A		0.00	0.00	77.62	78.70	
			B		0.00		76.82		
			C		0.00		77.95		
			D		0.00		80.27		
			E		0.00		80.85		
8	F890039-9	F890039-9	A	29.12	37.95	29.04	79.07	77.97	
			B	22.40	31.72		27.06		78.22
			C	23.57	31.40		27.49		78.32
			D	23.35	32.67		28.01		78.60
			E	25.62	32.60		29.11		75.65
9	F890039-9	F890039-8	A		0.00	0.00	68.82	73.05	
			B		0.00		75.42		
			C		0.00		69.75		
			D		0.00		73.82		
			E		0.00		77.42		
10	F890039-8	F890039-8	A		0.00	0.00	75.85	74.09	
			B		0.00		73.62		
			C		0.00		74.75		
			D		0.00		73.57		
			E		0.00		72.65		

PEEL TEST DATA: Per					
Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F
					Charted

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/12/98
 ORDER: _____ TYPE OF FABRICATION: S39RX1207 TEST DATE: 10/21/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	2	15	A		0.00	0.00	74.05	73.69	
			B		0.00		75.02		
	F890039-9	F890039-9	C		0.00		72.60		
			D		0.00		72.10		
			E		0.00		74.70		
2	15	9	A		0.00	0.00	75.55	75.96	
			B		0.00		77.75		
	F890039-9	F890039-9	C		0.00		76.20		
			D		0.00		75.17		
			E		0.00		75.12		
3	9	8	A		0.00	0.00	73.75	73.96	
			B		0.00		73.90		
	F890039-9	F890039-9	C		0.00		76.07		
			D		0.00		72.62		
			E		0.00		73.47		
4	8	20	A		0.00	0.00	78.72	76.83	
			B		0.00		76.55		
	F890039-9	F890039-9	C		0.00		77.20		
			D		0.00		75.60		
			E		0.00		76.07		
5	20	19	A		0.00	0.00	83.25	83.27	
			B		0.00		82.80		
	F890039-9	F890039-9	C		0.00		84.97		
			D		0.00		83.05		
			E		0.00		82.30		
6	19	11	A		0.00	0.00	78.15	78.23	
			B		0.00		77.15		
	F890039-9	F890039-9	C		0.00		78.50		
			D		0.00		77.20		
			E		0.00		80.15		
7	11	10	A		0.00	0.00	81.57	80.35	
			B		0.00		81.10		
	F890039-9	F890039-9	C		0.00		82.07		
			D		0.00		78.75		
			E		0.00		78.27		
8	10	1	A		0.00	0.00	80.57	79.38	
			B		0.00		79.65		
	F890039-9	F890039-9	C		0.00		78.77		
			D		0.00		75.45		
			E		0.00		78.47		
9	1	14	A		0.00	0.00	78.12	76.97	
			B		0.00		77.30		
	F890039-9	F890039-8	C		0.00		78.55		
			D		0.00		75.97		
			E		0.00		74.92		
10	14	18	A	29.72	29.42	29.57	26.83	72.67	76.66
			B	19.17	32.62	25.90		77.20	
	F890039-8	F890039-9	C	28.32	30.42	29.37		77.55	
			D	17.82	27.10	22.46		78.05	
			E	24.90	28.75	26.83		77.85	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC R FF GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/12/98
 OMER: _____ TYPE OF FABRICATION: S39RX1209 TEST DATE: 10/22/98 BY: MDL/KJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	2 F890039-9	15 F890039-9	A			0.00	0.00	82.72	82.95
			B			0.00		81.97	
			C			0.00		84.67	
			D			0.00		81.67	
			E			0.00		83.50	
2	15 F890039-9	9 F890039-9	A			0.00	0.00	77.67	76.25
			B			0.00		75.50	
			C			0.00		75.85	
			D			0.00		75.72	
			E			0.00		76.32	
3	9 F890039-9	8 F890039-9	A			0.00	0.00	78.35	78.18
			B			0.00		75.80	
			C			0.00		79.95	
			D			0.00		75.65	
			E			0.00		81.15	
4	8 F890039-9	20 F890039-9	A			0.00	0.00	80.77	80.66
			B			0.00		81.47	
			C			0.00		80.35	
			D			0.00		80.22	
			E			0.00		80.50	
5	20 F890039-9	19 F890039-9	A			0.00	0.00	84.32	82.35
			B			0.00		83.52	
			C			0.00		84.37	
			D			0.00		84.25	
			E			0.00		75.27	
6	19 F890039-9	11 F890039-9	A			0.00	0.00	81.02	82.16
			B			0.00		82.09	
			C			0.00		82.72	
			D			0.00		83.37	
			E			0.00		81.60	
7	11 F890039-9	10 F890039-9	A			0.00	0.00	78.82	80.09
			B			0.00		79.65	
			C			0.00		80.95	
			D			0.00		80.00	
			E			0.00		81.02	
8	10 F890039-9	1 F890039-9	A			0.00	0.00	75.65	76.42
			B			0.00		75.02	
			C			0.00		77.17	
			D			0.00		77.30	
			E			0.00		76.97	
9	1 F890039-9	14 F890039-8	A			0.00	0.00	78.82	76.20
			B			0.00		78.75	
			C			0.00		74.05	
			D			0.00		74.02	
			E			0.00		75.35	
10	14 F890039-8	18 F890039-9	A	24.55	31.82	28.19	29.38	75.67	74.31
			B	26.12	34.57	30.35		74.17	
			C	27.87	35.95	31.91		74.02	
			D	23.35	32.37	27.86		71.50	
			E	22.62	34.52	28.57		76.17	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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PRODUCTION REPORT/LINE LOAD

CUSTOMER		STOCK				FABRICATION DATE				10/12/98				
PROJECT						SHEET 3 OF								
WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS		MANUFACTURER NAME		MATERIAL FINISH		TEST #						
	PVC	030		R		FAILLE								
SPECIAL PANEL ID	S39RX1211	S39RX1212		S39RX1213		S39RX1214								
PANEL NO.														
PANEL SIZE	70 X 300	70 X 300		70 X 300		70 X 300								
PACKED PER BOX	1 PER BOX	1 PER BOX		1 PER BOX		1 PER BOX								
SQ. FT. OF PANEL	21000	21000		21000		21000								
PRODUCTION STATUS														
STOCK TAG														
	ROLL #	ROLL #		ROLL #		ROLL #		ROLL #		ROLL #		ROLL #		
MACHINE #1	2/16	16		16		16		16						
MACHINE #2	15/18	18		18		18		18						
MACHINE #3	9/21	21		21		21		21						
MACHINE #4	8/19	19		19		19		19						
MACHINE #5	20/22	22		22		22		22						
MACHINE #6	19/3	3		3		3		3						
MACHINE #7	11/4	4		4		4		4						
MACHINE #8	10/15	15		15		15		15						
MACHINE #9	1/1	1		1		1		1						
MACHINE #10	18/16	16		16		16		16						
MACHINE #11	14/5	5		5		5		5						
MACHINE #12														
INSPECTION/SEAMER	E 60/29	W 22/65	E	W	E	W	E	W	E	W	E	W		
SUPERVISOR	VK MW													
ROLL NO.	MANUFACTURE #		MFG DATE		ROLL NO.	MANUFACTURE #		MFG DATE						
2	F890039-9				16	F890039-5								
15	F890039-1				18	F890039-5								
9	F890039-9				21	F890039-5								
8	F890039-9				19	F890039-5								
20	F890039-9				22	F890039-5								
19	F890039-9				3	F890039-1								
11	F890039-9				4	F890039-1								
10	F890039-9				15	F890039-9								
1	F890039-9				1	F890039-1								
18	F890039-9				16	F890039-9								
14	F890039-8				5	F890039-9								

WATERSAVER COMPANY, INC.
LAB TEST REPORT - CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/12/98
 TOMER: _____ TYPE OF FABRICATION: S39RX1211 TEST DATE: 10/20/98 BY: MDLKJD

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	2 F890039-9	15 F890039-9	A		0.00	0.00	76.47	74.33	
			B		0.00		73.07		
			C		0.00		73.50		
			D		0.00		73.50		
			E		0.00		75.10		
2	15 F890039-9	9 F890039-9	A		0.00	0.00	77.35	76.14	
			B		0.00		75.75		
			C		0.00		78.12		
			D		0.00		76.40		
			E		0.00		73.10		
3	9 F890039-9	8 F890039-9	A		0.00	0.00	73.92	75.22	
			B		0.00		75.70		
			C		0.00		77.45		
			D		0.00		74.52		
			E		0.00		74.52		
4	8 F890039-9	20 F890039-9	A		0.00	0.00	72.57	76.18	
			B		0.00		76.57		
			C		0.00		77.05		
			D		0.00		77.05		
			E		0.00		77.67		
5	20 F890039-9	19 F890039-9	A		0.00	0.00	85.32	83.29	
			B		0.00		83.27		
			C		0.00		82.70		
			D		0.00		82.82		
			E		0.00		82.35		
6	19 F890039-9	11 F890039-9	A		0.00	0.00	78.87	78.39	
			B		0.00		79.02		
			C		0.00		76.77		
			D		0.00		76.37		
			E		0.00		80.90		
7	11 F890039-9	10 F890039-9	A	25.02	32.97	27.46	80.72	79.65	
			B	26.27	33.75		30.01		79.47
			C	20.35	27.62		23.99		82.90
			D	24.65	30.17		27.41		81.12
			E	23.82	29.92		26.87		74.05
8	10 F890039-9	1 F890039-9	A		0.00	0.00	78.37	79.63	
			B		0.00		77.75		
			C		0.00		79.60		
			D		0.00		81.52		
			E		0.00		80.92		
9	1 F890039-9	14 F890039-8	A		0.00	0.00	72.10	72.27	
			B		0.00		72.10		
			C		0.00		73.10		
			D		0.00		69.87		
			E		0.00		74.20		
10	14 F890039-8	18 F890039-9	A		0.00	0.00	74.20	76.05	
			B		0.00		76.92		
			C		0.00		76.70		
			D		0.00		76.60		
			E		0.00		75.85		

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC R FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/12/98
 TOMER: _____ TYPE OF FABRICATION: S39RX1213 TEST DATE: 10/20/98 BY: MDL/KJC

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	16 F890039-5	18 F890039-5	A	25.57	34.77	30.17	26.43	82.95	84.65
			B	21.42	32.85	27.14		85.32	
			C	22.35	29.50	25.93		85.75	
			D	20.07	26.67	23.37		85.12	
			E	21.15	29.92	25.54		84.12	
2	18 F890039-5	21 F890039-5	A			0.00	0.00	76.37	77.14
			B			0.00		77.80	
			C			0.00		79.47	
			D			0.00		76.85	
			E			0.00		75.20	
3	21 F890039-5	19 F890039-5	A			0.00	0.00	76.67	77.76
			B			0.00		78.60	
			C			0.00		78.42	
			D			0.00		76.85	
			E			0.00		78.27	
4	19 F890039-5	22 F890039-5	A			0.00	0.00	83.52	81.88
			B			0.00		81.05	
			C			0.00		83.07	
			D			0.00		80.97	
			E			0.00		80.77	
5	22 F890039-5	3 F890039-1	A			0.00	0.00	81.02	80.73
			B			0.00		79.52	
			C			0.00		80.25	
			D			0.00		79.82	
			E			0.00		83.02	
6	3 F890039-1	4 F890039-1	A			0.00	0.00	80.42	82.94
			B			0.00		85.75	
			C			0.00		84.32	
			D			0.00		82.22	
			E			0.00		82.00	
7	4 F890039-1	15 F890039-9	A			0.00	0.00	82.37	80.95
			B			0.00		80.47	
			C			0.00		79.47	
			D			0.00		81.97	
			E			0.00		80.45	
8	15 F890039-9	1 F890039-1	A			0.00	0.00	76.35	76.26
			B			0.00		78.15	
			C			0.00		77.57	
			D			0.00		75.40	
			E			0.00		73.82	
9	1 F890039-1	16 F890039-9	A			0.00	0.00	78.17	79.15
			B			0.00		77.67	
			C			0.00		80.70	
			D			0.00		79.67	
			E			0.00		79.52	
10	16 F890039-9	5 F890039-9	A			0.00	0.00	75.85	75.17
			B			0.00		74.47	
			C			0.00		74.67	
			D			0.00		76.05	
			E			0.00		74.82	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT - CERTIFIED RESULTS

MATERIAL TYPE: PVC R FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10-12-98

TOMER: _____ TYPE OF FABRICATION: S39RX1214 TEST DATE: 10-21-98 BY: MDL/KJ

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	16 F890039-5	18 F890039-5	A			0.00	0.00	82.92	82.58
			B			0.00		84.52	
			C			0.00		80.75	
			D			0.00		81.75	
			E			0.00		82.97	
2	18 F890039-5	21 F890039-5	A	21.02	28.85	24.94	28.56	83.45	82.20
			B	22.70	32.72	27.71		80.72	
			C	26.17	31.25	26.71		81.27	
			D	25.42	33.77	29.60		84.60	
			E	27.25	36.42	31.84		80.95	
3	21 F890039-5	19 F890039-5	A			0.00	0.00	79.77	81.37
			B			0.00		81.00	
			C			0.00		81.32	
			D			0.00		82.35	
			E			0.00		82.40	
4	19 F890039-5	22 F890039-5	A			0.00	0.00	86.57	89.46
			B			0.00		92.17	
			C			0.00		91.77	
			D			0.00		88.42	
			E			0.00		88.37	
5	22 F890039-5	3 F890039-1	A			0.00	0.00	82.37	83.57
			B			0.00		84.00	
			C			0.00		81.70	
			D			0.00		84.97	
			E			0.00		84.82	
6	3 F890039-1	4 F890039-1	A			0.00	0.00	88.30	89.01
			B			0.00		89.43	
			C			0.00		90.82	
			D			0.00		87.20	
			E			0.00		89.30	
7	4 F890039-1	15 F890039-9	A			0.00	0.00	85.87	85.83
			B			0.00		86.05	
			C			0.00		87.25	
			D			0.00		82.95	
			E			0.00		87.05	
8	15 F890039-9	1 F890039-1	A			0.00	0.00	78.92	80.19
			B			0.00		81.85	
			C			0.00		77.75	
			D			0.00		82.50	
			E			0.00		79.92	
9	1 F890039-1	16 F890039-9	A			0.00	0.00	83.42	85.01
			B			0.00		86.55	
			C			0.00		85.30	
			D			0.00		83.07	
			E			0.00		86.72	
10	16 F890039-9	5 F890039-9	A			0.00	0.00	79.50	79.11
			B			0.00		79.32	
			C			0.00		79.57	
			D			0.00		78.70	
			E			0.00		78.47	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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PRODUCTION REPORT/LINE LOAD

CUSTOMER STOCK				FABRICATION DATE 10/13/96			
PROJECT				SHEET 1 OF			
WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS	MANUFACTURER NAME		MATERIAL FINISH	TEST #	
	PVC	030	R		FAILLE		
ECIAL PANEL ID	S39RX1303	S39RX1304					
PANEL NO.							
PANEL SIZE	70 X 300	70 X 300					
PACKED PER BOX	1 PER BOX	1 PER BOX					
SQ. FT. OF PANEL	21,000	21,000					
PRODUCTION STATUS							
STOCK TAG							
	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	
MACHINE #1	7	7					
MACHINE #2	15	15					
MACHINE #3	4	4					
MACHINE #4	12	12					
MACHINE #5	9	9					
MACHINE #6	17	17					
MACHINE #7	14	14					
MACHINE #8	13	13					
MACHINE #9	10	10					
MACHINE #10	20	20					
MACHINE #11	3	3					
MACHINE #12							
INSPECTION/SEAMER	E 60/29	W 94/65	E	W	E	W	
SUPERVISOR	VK MW						
ROLL NO.	MANUFACTURE #	MFG DATE	ROLL NO.	MANUFACTURE #	MFG DATE		
7	F890039-5						
15	F890039-5						
4	F890039-5						
12	F890039-5						
9	F890039-5						
17	F890039-5						
14	F890039-5						
13	F890039-5						
10	F890039-5						
20	F890039-5						
3	F890039-9						

PRODUCTION REPORT/LINE LOAD

CUSTOMER				STOCK				FABRICATION DATE				10/13/98			
PROJECT								SHEET 2 OF							
WORK ORDER #		TYPE OF MATERIAL		MIL THICKNESS		MANUFACTURER NAME				MATERIAL FINISH		TEST #			
		PVC		030		R				FAILLE					
SPECIAL PANEL ID		S39RX1307		S39RX1308											
PANEL NO.															
PANEL SIZE		70 X 300		70 X 300											
PACKED PER BOX		1 PER BOX		1 PER BOX											
SQ. FT. OF PANEL		21000		21000											
PRODUCTION STATUS															
STOCK TAG															
		ROLL #		ROLL #		ROLL #		ROLL #		ROLL #		ROLL #			
MACHINE #1		1		1											
MACHINE #2		21		21											
MACHINE #3		6		6											
MACHINE #4		17		17											
MACHINE #5		22		22											
MACHINE #6		3		3											
MACHINE #7		1		1											
MACHINE #8		11		11											
MACHINE #9		8		8											
MACHINE #10		5		5											
MACHINE #11		2		2											
MACHINE #12															
INSPECTION/SEAMER		E	W	E	W	E	W	E	W	E	W	E	W		
SUPERVISOR		VK TT													
ROLL NO.		MANUFACTURE #		MFG DATE		ROLL NO.		MANUFACTURE #		MFG DATE					
1		F890039-8													
21		F890039-7													
6		F890039-5													
17		F890039-7													
22		F890039-7													
3		F890039-5													
1		F890039-5													
11		F890039-5													
8		F890039-5													
5		F890039-5													
2		F890039-5													

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC - R - FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/13/98

OMER: _____ TYPE OF FABRICATION: S39RX1301 TEST DATE: 10/20/98 BY: MDL/KJC

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	16	18	A		0.00	0.00	77.82	74.73	
			B		0.00		74.47		
	F890039-5	F890039-5	C		0.00		74.97		
			D		0.00		73.12		
			E		0.00		73.25		
2	18	21	A		0.00	0.00	74.52	72.85	
			B		0.00		71.95		
	F890039-5	F890039-5	C		0.00		74.30		
			D		0.00		71.72		
			E		0.00		71.77		
3	21	19	A		0.00	0.00	75.62	76.20	
			B		0.00		75.97		
	F890039-5	F890039-5	C		0.00		76.47		
			D		0.00		77.37		
			E		0.00		75.57		
4	19	22	A		0.00	0.00	80.15	78.99	
			B		0.00		78.97		
	F890039-5	F890039-5	C		0.00		77.52		
			D		0.00		79.67		
			E		0.00		78.62		
5	22	3	A		0.00	0.00	82.37	81.57	
			B		0.00		82.92		
	F890039-5	F890039-1	C		0.00		82.35		
			D		0.00		82.70		
			E		0.00		77.50		
6	3	4	A		0.00	0.00	77.07	77.11	
			B		0.00		73.50		
	F890039-1	F890039-1	C		0.00		76.12		
			D		0.00		80.05		
			E		0.00		78.80		
7	4	15	A		0.00	0.00	78.45	77.95	
			B		0.00		79.02		
	F890039-1	F890039-9	C		0.00		74.75		
			D		0.00		79.75		
			E		0.00		77.80		
8	15	1	A		0.00	0.00	80.77	79.59	
			B		0.00		80.35		
	F890039-9	F890039-1	C		0.00		80.02		
			D		0.00		76.17		
			E		0.00		80.62		
9	1	16	A		0.00	0.00	75.90	75.30	
			B		0.00		79.07		
	F890039-1	F890039-9	C		0.00		73.65		
			D		0.00		73.07		
			E		0.00		74.82		
10	16	5	A	18.80	19.42	19.11	20.19	74.72	74.28
			B	17.32	23.05	20.19		74.05	
	F890039-9	F890039-9	C	17.77	19.85	18.81		73.50	
			D	21.40	20.10	20.75		74.25	
			E	19.40	24.80	22.10		74.87	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC R FF GUAGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/13/98
 OPER: _____ TYPE OF FABRICATION: S39RX1303 TEST DATE: 10/21/98 BY: MDL/KJC

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	7 F890039-5	15 F890039-5	A		0.00	0.00	82.12	84.77	
			B		0.00		84.05		
			C		0.00		86.25		
			D		0.00		86.95		
			E		0.00		84.47		
2	15 F890039-5	4 F890039-5	A		0.00	0.00	77.75	76.76	
			B		0.00		75.12		
			C		0.00		76.15		
			D		0.00		78.15		
			E		0.00		76.65		
3	4 F890039-5	12 F890039-5	A		0.00	0.00	78.55	80.85	
			B		0.00		80.95		
			C		0.00		82.87		
			D		0.00		81.27		
			E		0.00		80.60		
4	12 F890039-5	9 F890039-5	A		0.00	0.00	83.67	82.43	
			B		0.00		81.20		
			C		0.00		83.30		
			D		0.00		82.62		
			E		0.00		81.35		
5	9 F890039-5	17 F890039-5	A		0.00	0.00	83.02	80.59	
			B		0.00		82.10		
			C		0.00		78.40		
			D		0.00		79.87		
			E		0.00		79.57		
6	17 F890039-5	14 F890039-5	A		0.00	0.00	81.02	79.99	
			B		0.00		80.15		
			C		0.00		75.47		
			D		0.00		82.50		
			E		0.00		80.80		
7	14 F890039-5	13 F890039-5	A		0.00	0.00	82.10	81.15	
			B		0.00		81.07		
			C		0.00		80.30		
			D		0.00		82.50		
			E		0.00		79.80		
8	13 F890039-5	10 F890039-5	A		0.00	0.00	75.57	77.36	
			B		0.00		74.67		
			C		0.00		77.30		
			D		0.00		79.37		
			E		0.00		79.87		
9	10 F890039-5	20 F890039-5	A		0.00	0.00	80.70	78.57	
			B		0.00		75.65		
			C		0.00		75.65		
			D		0.00		79.55		
			E		0.00		81.32		
10	20 F890039-5	3 F890039-9	A	20.27	32.75	26.51	27.95	75.15	72.7
			B	18.32	31.37	24.85		69.72	
			C	26.05	37.42	31.74		71.92	
			D	22.57	33.87	26.22		71.90	
			E	24.60	32.25	28.43		75.22	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/13/98
 OPER: _____ TYPE OF FABRICATION: S39RX1305 TEST DATE: 10/22/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083			
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)		
			PEAK 1	PEAK 2						
1	7 F890039-5	15 F890039-5	A			0.00	0.00	79.57	78.05	
			B					0.00		78.12
			C					0.00		77.22
			D					0.00		76.90
			E					0.00		78.45
2	15 F890039-5	4 F890039-5	A			0.00	0.00	82.75	82.88	
			B					0.00		83.45
			C					0.00		84.40
			D					0.00		82.95
			E					0.00		80.85
3	4 F890039-5	12 F890039-5	A			0.00	0.00	81.05	79.54	
			B					0.00		79.30
			C					0.00		79.80
			D					0.00		78.02
			E					0.00		79.52
4	12 F890039-5	9 F890039-5	A			0.00	0.00	84.25	81.81	
			B					0.00		78.32
			C					0.00		81.57
			D					0.00		81.30
			E					0.00		83.60
5	9 F890039-5	17 F890039-5	A			0.00	0.00	79.42	79.44	
			B					0.00		79.15
			C					0.00		78.52
			D					0.00		79.02
			E					0.00		81.10
6	17 F890039-5	14 F890039-5	A			0.00	0.00	79.10	78.39	
			B					0.00		78.75
			C					0.00		77.27
			D					0.00		76.92
			E					0.00		79.90
7	14 F890039-5	13 F890039-5	A			0.00	0.00	81.95	82.68	
			B					0.00		81.87
			C					0.00		82.52
			D					0.00		82.95
			E					0.00		84.12
8	13 F890039-5	10 F890039-5	A	22.22	28.27	24.96	24.96	78.42	82.26	
			B	20.65	27.25			23.95		83.02
			C	23.77	30.67			27.22		83.85
			D	19.97	27.90			23.94		83.10
			E	22.50	26.42			24.46		82.90
9	10 F890039-5	20 F890039-5	A			0.00	0.00	78.30	77.59	
			B					0.00		78.25
			C					0.00		76.07
			D					0.00		78.67
			E					0.00		76.65
10	20 F890039-5	3 F890039-9	A			0.00	0.00	78.32	79.34	
			B					0.00		79.02
			C					0.00		79.35
			D					0.00		79.25
			E					0.00		80.77

PEEL TEST DATA: Per

Sample Widthn:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT - CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 10/13/98
 ORDER: _____ TYPE OF FABRICATION: S39RX1308 TEST DATE: 10/22/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	F890039-8	F890039-7	A			0.00	0.00	80.55	78.55
			B			0.00		79.55	
			C			0.00		76.42	
			D			0.00		78.85	
			E			0.00		77.40	
2	F890039-7	F890039-5	A			0.00	0.00	78.70	77.39
			B			0.00		77.50	
			C			0.00		78.00	
			D			0.00		75.85	
			E			0.00		76.92	
3	F890039-5	F890039-7	A			0.00	0.00	77.90	79.02
			B			0.00		80.07	
			C			0.00		79.20	
			D			0.00		77.02	
			E			0.00		80.90	
4	F890039-7	F890039-7	A			0.00	0.00	80.75	81.73
			B			0.00		83.97	
			C			0.00		81.05	
			D			0.00		81.50	
			E			0.00		81.37	
5	F890039-7	F890039-5	A			0.00	0.00	81.45	78.53
			B			0.00		77.47	
			C			0.00		76.25	
			D			0.00		80.65	
			E			0.00		76.85	
6	F890039-5	F890039-5	A			0.00	0.00	80.32	81.14
			B			0.00		81.22	
			C			0.00		79.30	
			D			0.00		82.42	
			E			0.00		82.45	
7	F890039-5	F890039-5	A			0.00	0.00	82.57	80.45
			B			0.00		78.57	
			C			0.00		81.97	
			D			0.00		78.97	
			E			0.00		80.15	
8	F890039-5	F890039-5	A	22.27	29.55	25.91	25.29	84.15	83.94
			B	20.70	27.37	24.04		85.67	
			C	22.67	31.42	27.05		82.67	
			D	21.02	28.77	24.90		83.70	
			E	21.85	27.22	24.54		83.52	
9	F890039-5	F890039-5	A			0.00	0.00	79.55	78.60
			B			0.00		78.55	
			C			0.00		79.97	
			D			0.00		79.02	
			E			0.00		75.90	
10	F890039-5	F890039-5	A			0.00	0.00	80.57	79.30
			B			0.00		81.67	
			C			0.00		78.47	
			D			0.00		79.15	
			E			0.00		76.62	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 G
LAW PROJECT 30300-8-0313.02

DATE 5-13-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

Placing Soil Cover over Cell 6G & continuing the Permit Draw

ITEMS DISCUSSED

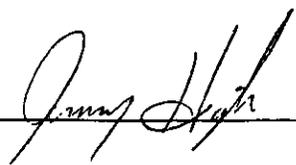
SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE



LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-14-99
WEATHER: Cloudy
TEMPERATURE RANGE: 45-68
TIME CONTRACTOR ON SITE: _____

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 G
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY Alexander

Don Sumner

5

Materials Delivered

N/A

Work performed this date

RUNED COVER SOIL IN 12 TO 16" AS REQUIRED BEFORE TOP SOIL IS PLACED. FILL WAS NEEDED WITH 5 TRUCKS LOADED WITH A 963 CAT TRUCK LOADER & WORKED WITH A D5C CAT DOZER. STONE & FABRIC WAS PLACED OVER THE PREVIOUS DRAW E AREA AS REQUIRED.

Tests performed this date with results

DENSITY TESTS WERE PERFORMED ON THE IMPURE FILL AS REQUIRED, ALONG WITH THICKNESS CHECKS. THE COMPACTOR WAS ABOVE THE 90% STANDARD REQUIRED. SEE REPORT & FIELD DENSITY TEST WORK SHEET FOR DETAILS

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 G
LAW PROJECT 30300-8-0313.02

DATE 5-14-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A
Jimmy Hight	Law
Bill VonKittling	CPL

WORK PLANNED FOR THIS DATE

Placing lower fill in 12+ " AS Required For Capston.

ITEMS DISCUSSED

Placing last 6" in same fill material instead of top soil. Per Bill Ventatzin

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE



LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-15-99
WEATHER: P. Cloudy
TEMPERATURE RANGE: 45 - 72
TIME CONTRACTOR ON SITE: 8:00

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 G
LAW PROJECT 30300-8-0313.02

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>PERRY Alexander</u>	<u>Don Swartz</u>	<u>5</u>

Materials Delivered

N/A

Work performed this date

USED 5 TRUCKS TO HAUL FILL MATERIAL AND COVER MATERIAL.

Tests performed this date with results

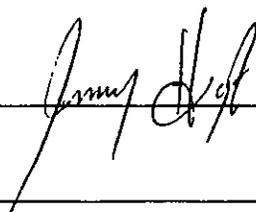
DENSITY TEST WERE TAKEN ON THE IN PLACE FILL AS PREVIOUS WITHOUT SHOWING BE THE LAST TEST NEEDED. SOIL THICKNESS WERE ALSO TAKEN AT EACH DENSITY TEST. SEE REPORT OF FIELD DENSITY TEST WHICH SHOWS DATA 5-15-99 FOR DETAILS.

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 G
LAW PROJECT 30300-8-0313.02

DATE 5-15-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P. 21. A
Jimmy Hoff	LAW

WORK PLANNED FOR THIS DATE

Complete TRIG Fill Placement AT SW CORNER. THEN START TRIG LAST 6" COVER

ITEMS DISCUSSED

GOING TO USE THE SAME MATERIAL AS USED TO COVER GEOTEXTILE, FOR UNDER THE VEG. COVER

QUESTIONS DISCUSSED

Question	Person to answer?
NA	

Submitted by:

LAW REPRESENTATIVE Jimmy Hoff

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 G
LAW PROJECT 30300-8-0313.02

DATE 5-17-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.

WORK PLANNED FOR THIS DATE

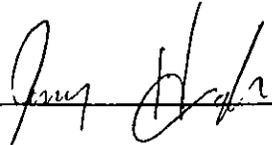
Completing the cover fill for seeding. Completed digging the north end area for trench & filling. This cell complete around 2:00. And moving to cell F.

ITEMS DISCUSSED

Raising the CB at the SW corner of the cell about 3' and placing fill from existing grade to top of new grade elevation. Then possibly placing a stone down with run around grade. Raising the grade will be performed by Southern Maintenance.

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:
LAW REPRESENTATIVE 

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY OBSERVATIONS

DATE: 5-21-98
WEATHER: P. Cloudy
TEMPERATURE RANGE: _____
TIME CONTRACTOR ON SITE: _____

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 G
LAW PROJECT 30300-8-0313.02

CONTRACTORS ON SITE Foreman or Supt. Number of Employees on site

SOUTHWEST MAINTENANCE Bill Jones 5

Materials Delivered

SEEDING MATERIAL ARRIVED ON 5-19-98

Work performed this date

CONTRACTOR PLACED THE PERVIEW OR ABOVE SEED, MULCH + FERTILIZER ON THE CAPPED AREA. MATERIAL PUT IN EACH LOAD ARE AS FOLLOWS: 1/2 BAG EACH ORCHARD GRASS + KENTUCKY 31 TALL FESCUE AND 2 1/3 BAG ANNUAL RYEGRASS ALONG WITH 5 BAGS / FIBER MULCH, 10 BAGS / LIME + 4 BAGS / 16-46-0 FERTILIZER. SEE ATTACHED SHEET FOR MATERIAL DETAILS. CONTRACTOR PLACED 3 LOADS / MATERIAL PER ACRE, TOTAL OF 7 LOADS PLACED

Tests performed this date with results

N/A

Non Compliance Items noted this date

None N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LANDFILL CELL 6 G
LAW PROJECT 30300-8-0313.02

DATE 5-21-99

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

SEEDING THE FIN AREA

ITEMS DISCUSSED

USING 2 TO 8 LINES TO COVER THE AREA PER BILL JONES / SOUTHAN MAINTENANCE

QUESTIONS DISCUSSED

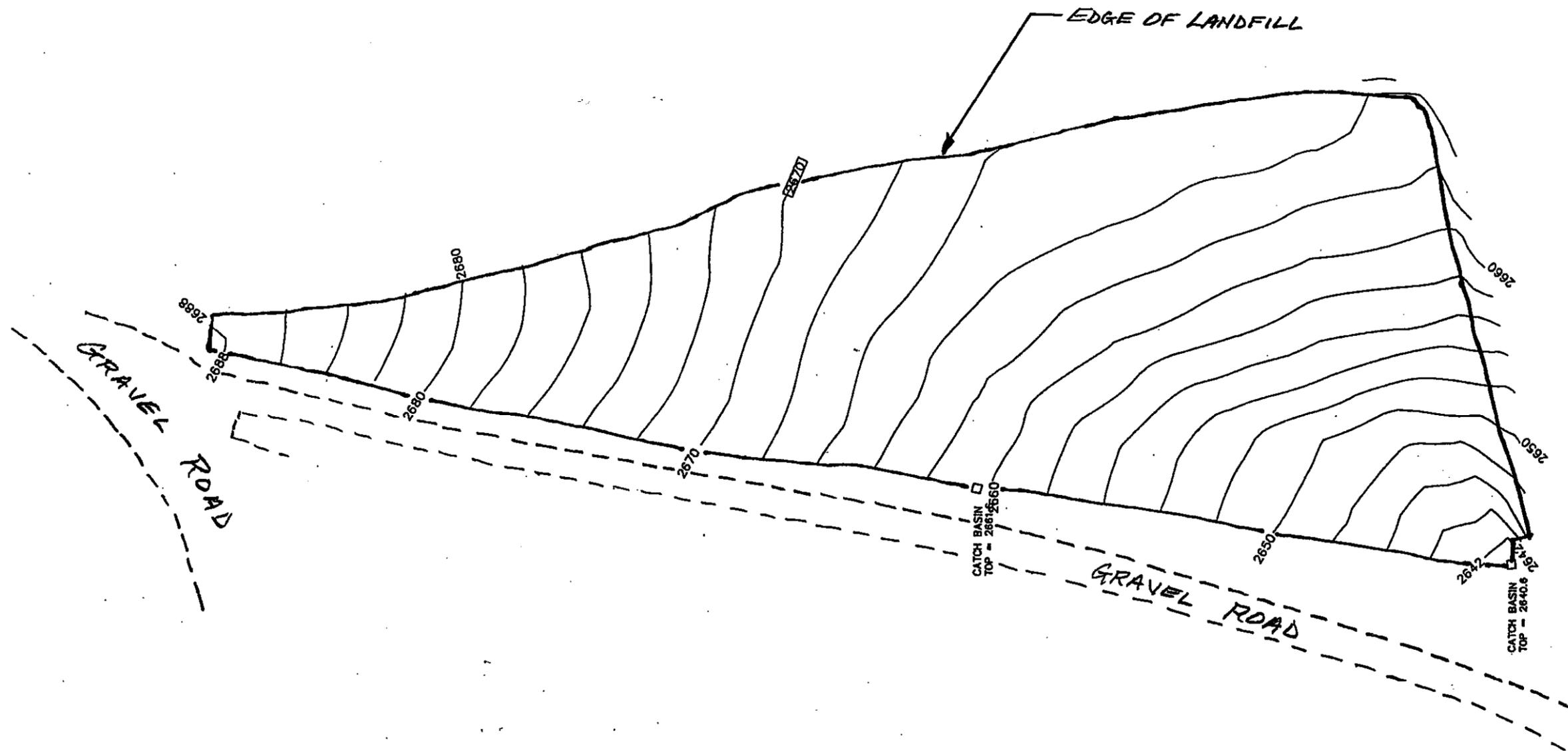
Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

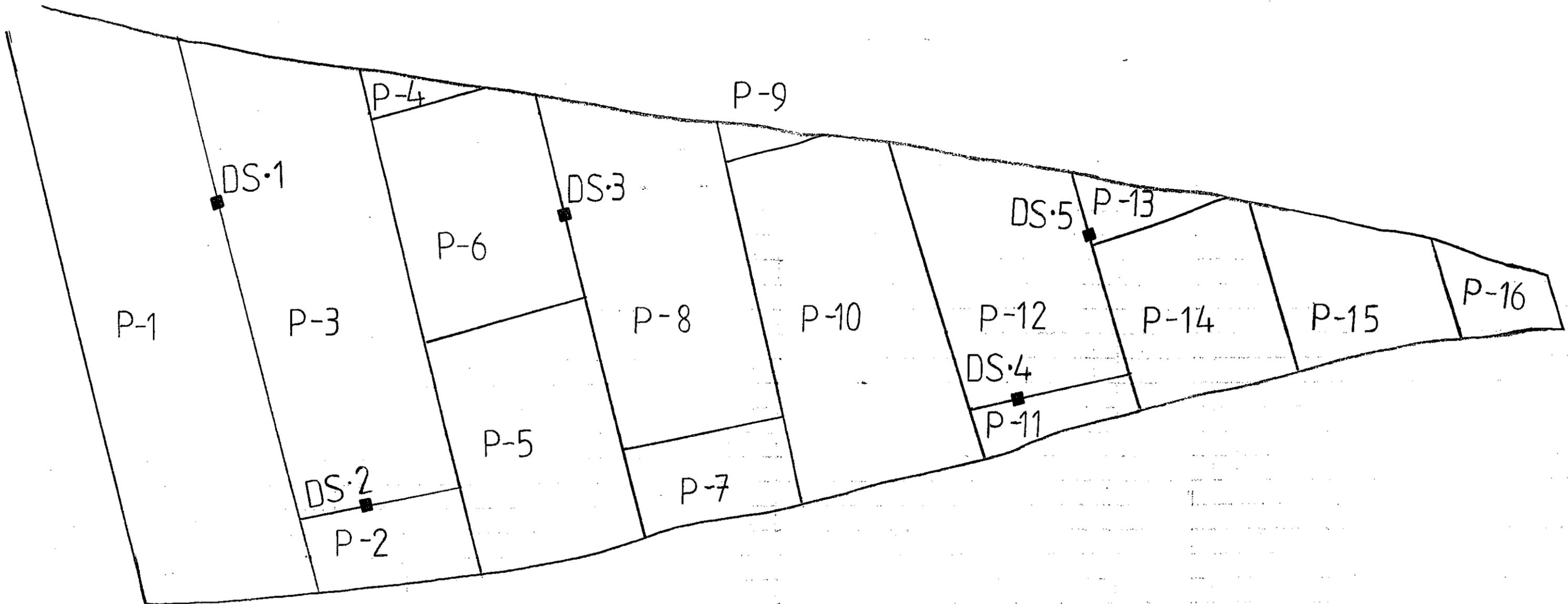
APPENDIX IX
AS-BUILT DRAWINGS

NORTH
 SCALE: 1" = 60'



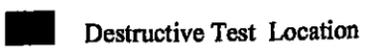
REFERENCE: SURVEY PERFORMED BY C.O. HAMPTON
 COMPANY - LAND SURVEYORS ON APRIL 23, 1999

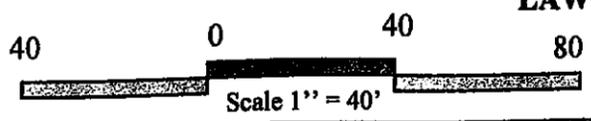
 LAW ENGINEERING AND ENVIRONMENTAL SERVICES ASHEVILLE, NORTH CAROLINA			
LINER SUBGRADE SURFACE GRADE-LANDFILL CELL G-G BLUE RIDGE PAPER PRODUCTS, CANTON, NC			
PREPARED BY SEB	DATE 1/21/00	CHECKED SC1	DATE 1/25/00
JOB NO. B-0313 ph 02		DRAWING NO. 1	



PANEL AND SEAM SAMPLE LOCATION PLAN
for
LANDFILL CELL 6-G
GEOMEMBRANE LINER
BLUE RIDGE PAPER PRODUCTS INC.
LAW PROJECT-30300-8-0313.02

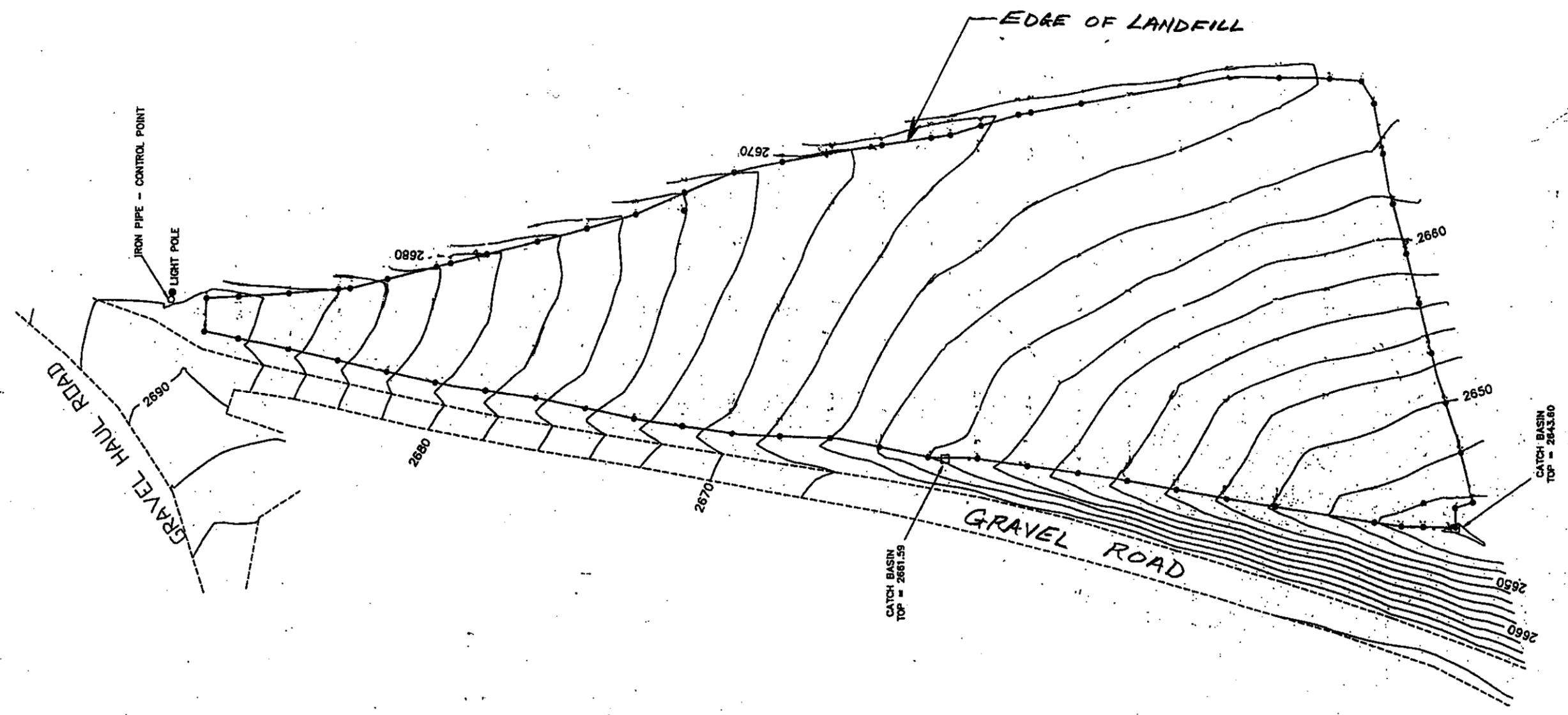






DATE: 6-28-99
 Drawn By: SC1
 Checked By: _____

NORTH
 SCALE: 1" = 60'



REFERENCE: SURVEY PERFORMED BY C.O. HAMPTON
 COMPANY - LAND SURVEYORS ON JUNE 9, 1999

 LAW ENGINEERING AND ENVIRONMENTAL SERVICES ASHEVILLE, NORTH CAROLINA			
FINAL COVER SURFACE GRADE - LANDFILL CELL G-G BLUE RIDGE PAPER PRODUCTS, CANTON, N.C.			
PREPARED BY	DATE	CHECKED	DATE
SES	1/21/00	SLI	1/23/00
JOB NO. 8-0313 PH 02		DRAWING NO. 3	

APPENDIX X
PHOTOGRAPHS



Photograph 1-1: Anchor trench



Photograph 1-2: Cover soil being placed (beginning)



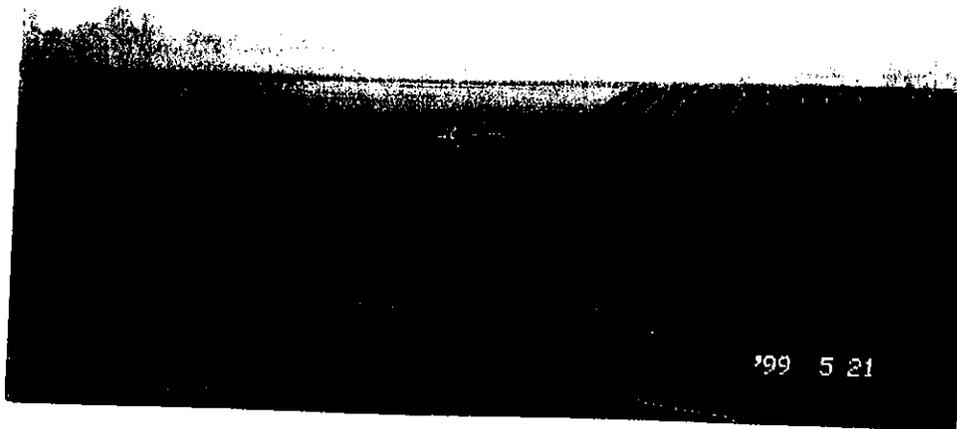
Photograph 1-3: Cover soil



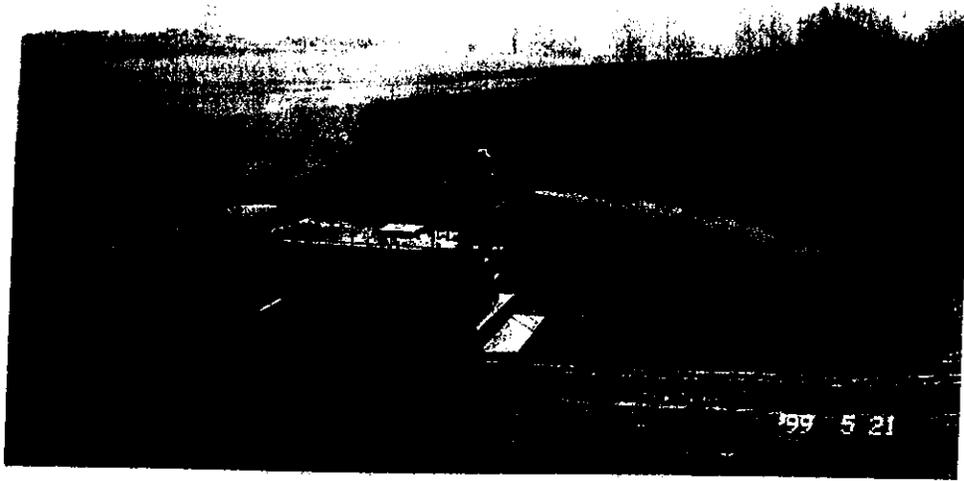
Photograph 1-4: Cover soil being spread with a dozer



Photograph 1-5: Cover soil placement 90 percent complete



Photograph 1-6: Cover soil being disced for seeding



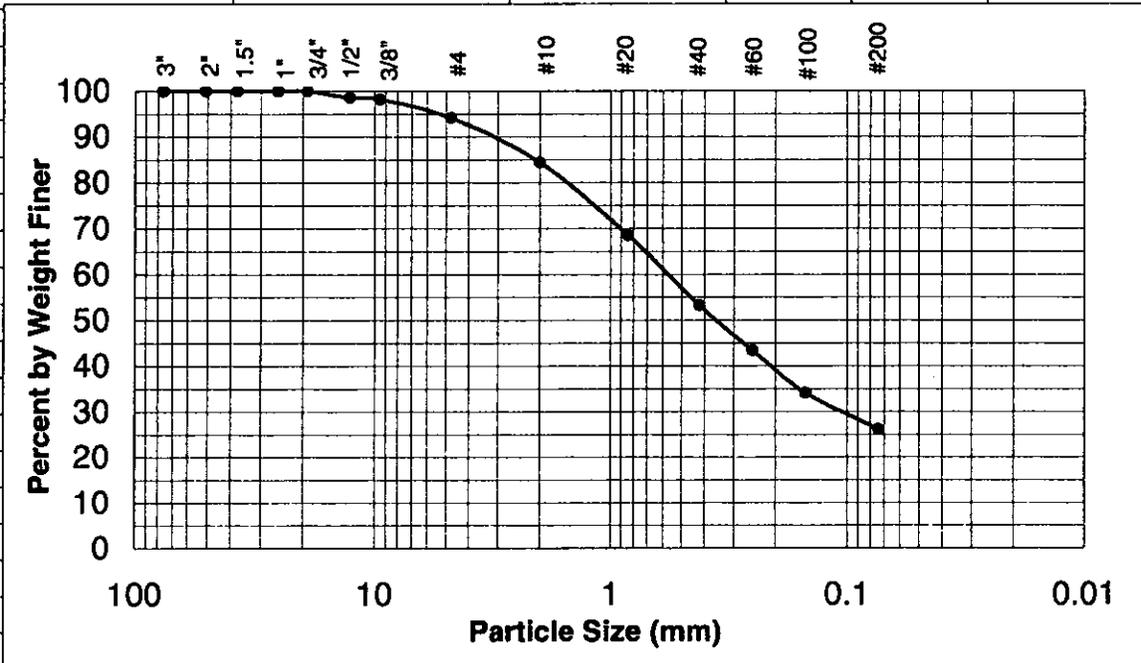
Photograph 1-7: Hydro-seeding of cover



Photograph 1-8: Completed and seeded cover

GRAIN SIZE ANALYSIS - ASTM D422

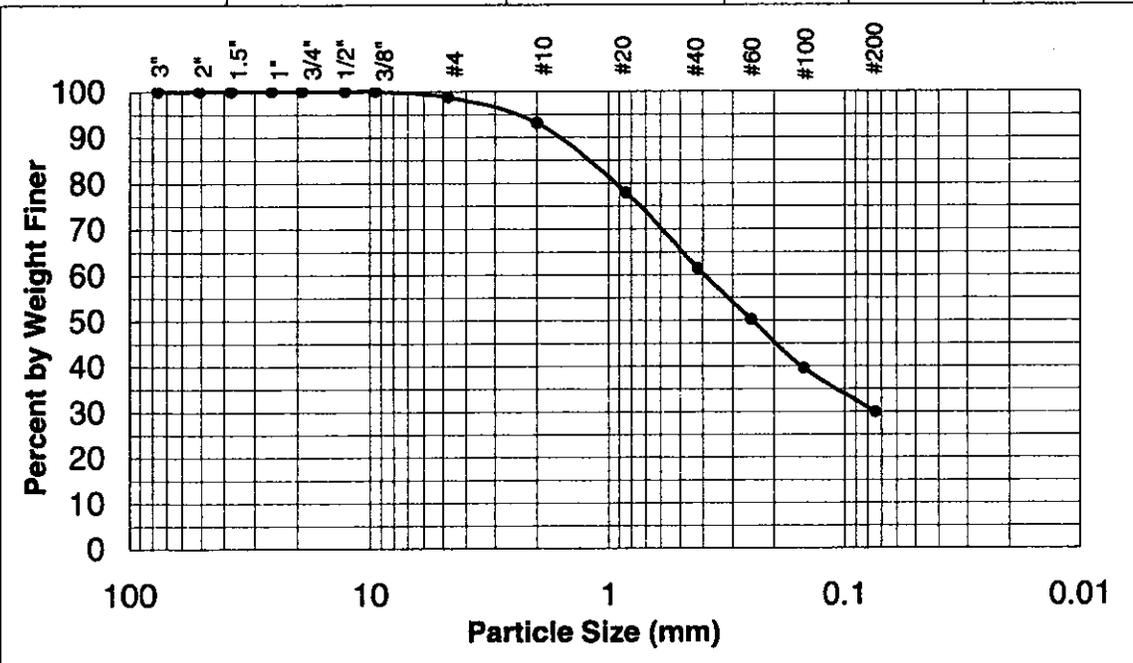
PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136
		DATE:	20-Jul-07
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	G-1
SAMPLE DESCRIP:	Reddish brown silty m-f SAND		
DATA			
		SPECIFICATION	
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u> <u>Max</u> <u>P/F</u>
3	76.2	100.0	
2	50.8	100.0	
1.5	37.5	100.0	
1	25.4	100.0	100 100 P
3/4	19.1	100.0	
1/2	12.7	98.5	
3/8	9.5	98.2	
#4	4.76	94.1	
#10	2.0	84.4	
#20	0.84	68.5	
#40	0.42	53.2	
#60	0.25	43.4	
#100	0.149	34.1	
#200	0.074	26.2	20 100 P



Water Content (%) =	5.4
---------------------	-----

GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136
		DATE:	20-Jul-07
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	G-2
SAMPLE DESCRIP:	Reddish brown silty m-f SAND		
DATA			
			SPECIFICATION
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u> <u>Max</u> <u>P / F</u>
3	76.2	100.0	
2	50.8	100.0	
1.5	37.5	100.0	
1	25.4	100.0	100 100 P
3/4	19.1	100.0	
1/2	12.7	100.0	
3/8	9.5	100.0	
#4	4.76	98.7	
#10	2.0	93.1	
#20	0.84	77.9	
#40	0.42	61.4	
#60	0.25	50.2	
#100	0.149	39.5	
#200	0.074	29.9	20 100 P



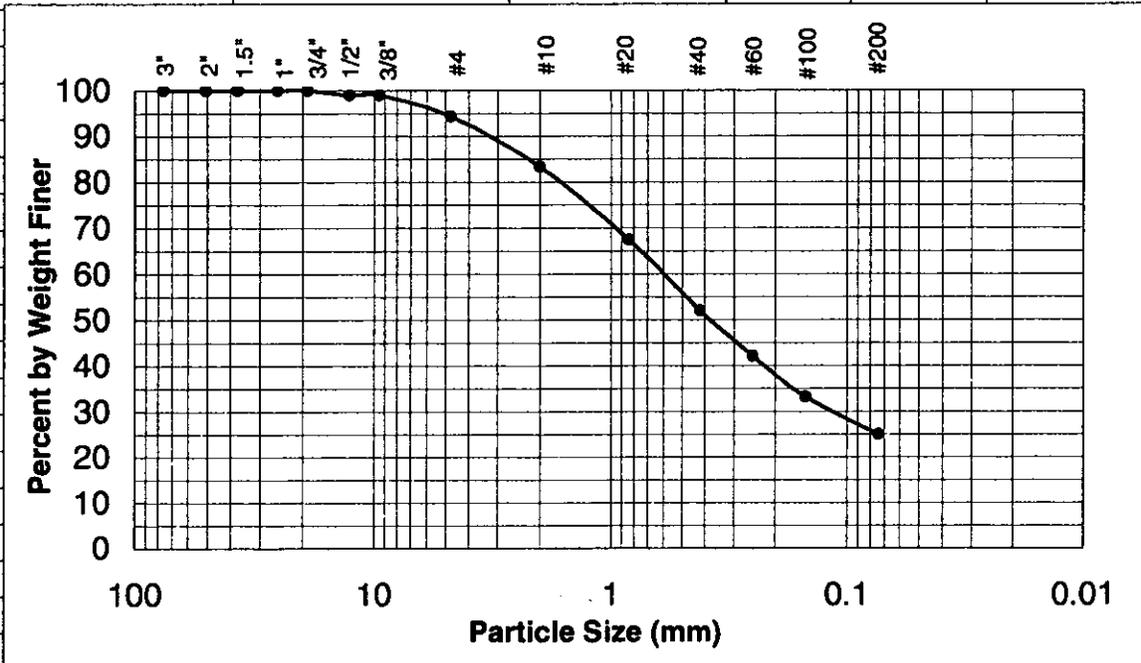
Water Content (%) =	5.4
---------------------	-----

GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136
		DATE:	23-Jul-07
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	G-3
SAMPLE DESCRIP:	Reddish brown silty m-f SAND		

DATA

U.S Std SIEVE (in.)	PARTICLE SIZE (mm)	% by WT. FINER	SPECIFICATION		P/F
			Min	Max	
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	99.0			
3/8	9.5	99.0			
#4	4.76	94.3			
#10	2.0	83.4			
#20	0.84	67.4			
#40	0.42	52.1			
#60	0.25	42.1			
#100	0.149	33.2			
#200	0.074	24.9	20	100	P



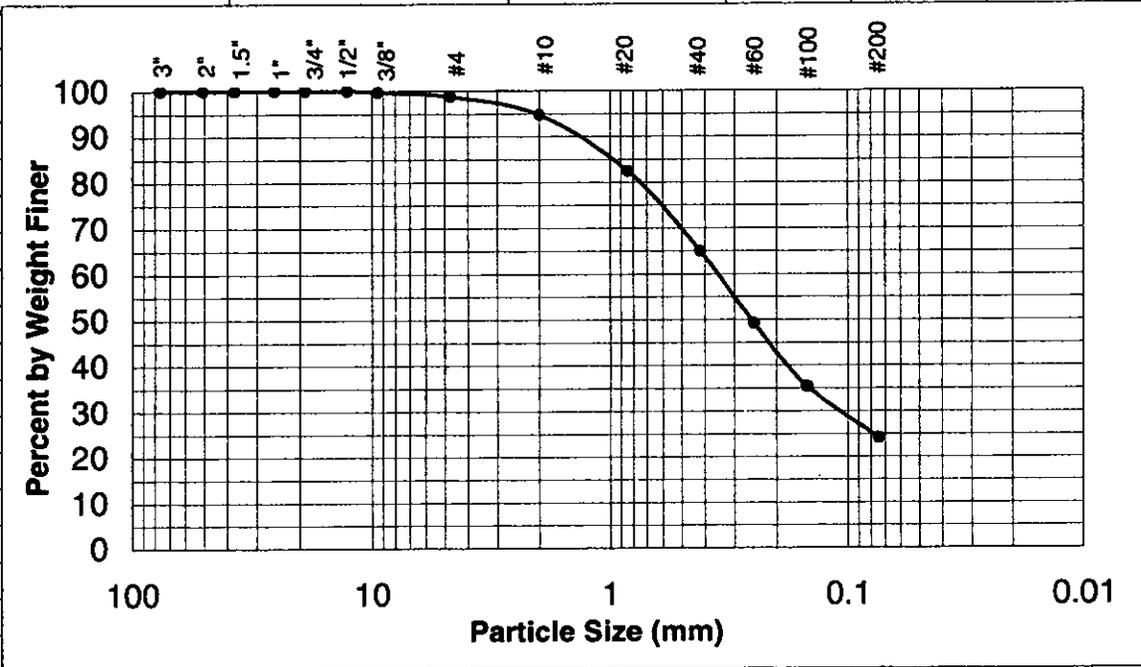
Water Content (%) = 6.2

GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136
		DATE:	23-Jul-07
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	G-4
SAMPLE DESCRIP:	Reddish brown silty m-f SAND		

DATA

U.S Std SIEVE (in.)	PARTICLE SIZE (mm)	% by WT. FINER	SPECIFICATION		P/F
			Min	Max	
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	100.0			
3/8	9.5	99.7			
#4	4.76	98.7			
#10	2.0	94.8			
#20	0.84	82.5			
#40	0.42	65.0			
#60	0.25	49.1			
#100	0.149	35.4			
#200	0.074	24.1	20	100	P



Water Content (%) = 11.5



Product Quality Summary Report

Plant	107-Enka
	Product NC #67 067
	Specification NC #67
1" (25mm)	100.0
3/4" (19mm)	94.0
1/2" (12.5mm)	48.7
3/8" (9.5mm)	24.4
#4 (4.75mm)	7.8
#8 (2.38mm)	3.0

Product Notes

Product Note 3.106

Re: Standard Pipe Perforations

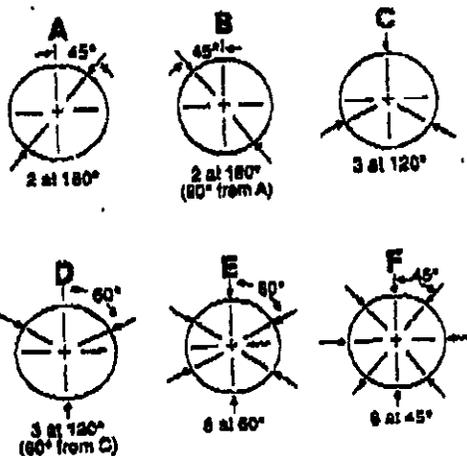
4-36" I.D. N-12" Pipe

Date: September 1, 1995

Nominal I.D. In. (mm)	Perforation Type	Slot Length or Diameter, Max. In. (mm)	Slot Width, Max. In. (mm)	Perforation Configuration
4 (100)	Slot	0.875 (22.2)	0.125 (3.18)	CD
6 (150)	Slot	0.875 (22.2)	0.125 (3.18)	CD
8 (200)	Slot	1.250 (31.8)	0.125 (3.18)	CD
10 (250)	Slot	1.250 (31.8)	0.125 (3.18)	CD
12 (300)	Circular	0.375 (9.52)	—	E
15 (375)	Circular	0.375 (9.52)	—	E
18 (450)	Circular	0.375 (9.52)	—	E
24 (600)	Circular	0.375 (9.52)	—	F
*30 (750)	Circular	0.375 (9.52)	—	4.5' (115 mm) Centers
*36 (900)	Circular	0.375 (9.52)	—	4.5' (115 mm) Centers

* Spiral Corrugation

Perforation Configurations



NOTE 1
ADS pipe is perforated for water entry with slots or circular perforations. The perforations are uniformly spaced along the length and circumference of the pipe.

NOTE 2
Unless otherwise specified, ADS pipe is manufactured to comply with the perforation requirements specified in the following industry standards: ASTM F405, ASTM F667, AASHTO M252, AASHTO M294, and SCS Code 608.

Sevee & Maher Engineers, Inc.
Waste Management and Hydrogeologic Consultants

**STATEMENT OF COMPLIANCE
WITH APPROVED PLANS AND SPECIFICATIONS**

Project Owner: *Blue Ridge Paper Products*

Project Title: *Landfill No. 6 Area H Closure*

Project Location: *Canton, North Carolina*

Contractor: *Perry M. Alexander Grading Company*

Engineer: *Sevee & Maher Engineers, Inc.*
Cumberland, Maine

The undersigned, registered Professional Engineer in the State of North Carolina and in the employ of Sevee & Maher Engineers, Inc., which is responsible for construction monitoring pursuant to its contract with Blue Ridge Paper Products, states to the North Carolina Department of Environmental Services that it is the professional engineering opinion of Sevee & Maher Engineers, Inc., based on the attached information, was in general accordance and compliance with the contract, plans, specifications, and conditions as approved by the North Carolina Department of Environmental Services.

Date: 7/30/07

President: *[Signature]*
John E. Sevee, P.E. C. 20589
Reg. No. 20589



**STATEMENT OF COMPLIANCE
WITH APPROVED PLANS AND SPECIFICATIONS**

Project Owner: *Blue Ridge Paper Products*

Project Title: *Landfill No. 6 Area H Closure*

Project Location: *Canton, North Carolina*

Contractor: *Perry M. Alexander Grading Company*

Engineer: *Sevee & Maher Engineers, Inc.*
Cumberland, Maine

The undersigned, registered Professional Engineer in the State of North Carolina and in the employ of Sevee & Maher Engineers, Inc., which is responsible for construction monitoring pursuant to its contract with Blue Ridge Paper Products, states to the North Carolina Department of Environmental Services that it is the professional engineering opinion of Sevee & Maher Engineers, Inc., based on the attached information, was in general accordance and compliance with the contract, plans, specifications, and conditions as approved by the North Carolina Department of Environmental Services.

Date: 7/30/07

President: *[Signature]*

John E. Sevee, P.E. C. 20589
Reg. No. 20589



**BLUE RIDGE PAPER PRODUCTS
CANTON, NORTH CAROLINA
LANDFILL NO. 6
AREA H CLOSURE**

1.0 PROJECT DESCRIPTION

Blue Ridge Paper Products (Blue Ridge) owns and operates a 240 acre landfill referred to as Landfill #6 in Canton, North Carolina, Permit #44-06. The landfill is used for the disposal of sludge, lime mud, ash, and wood waste into discrete areas, A through H. In July 1995, Blue Ridge reached capacity in Area H, and in June 1999 was required to construct a low permeable cap over the waste. The requirement for the low permeable cap was the result of groundwater monitoring and hydrogeologic study that indicated that Area H was potentially impacting the quality of the local groundwater regime. The requirement for the final cover system from bottom to top was a 30-mil polyvinyl chloride (PVC) liner, a geonet sandwiched between non-woven geotextiles, 12 inches of common borrow, overlain by 6 inches of a plant growth medium.

Quality Assurance and Quality Control for the cover construction was performed by Law Engineering and Environmental Services, Inc. (Law) of Asheville, North Carolina. A report was prepared by Law that included field and laboratory test reports for the soil and geosynthetic materials, and daily observation records, see attached. Based on Sevee & Maher Engineers, Inc.'s (SME) review of Law's report it was determined that an additional test was required of the 12-inch common borrow layer to meet the specifications. The test consisted of grain size analyses to determine that the common borrow contained a minimum of 20 percent fines (200 sieve). SME obtained ten soil samples from the common borrow layer in Area H. The grain size test results showed that the common borrow contained a minimum of 20 percent fines. A copy of the grain size tests is attached.

LAW

LAWGIBB Group Member 

**QUALITY ASSURANCE/QUALITY CONTROL
REPORT**

LANDFILL CELL 6-H COVER CONSTRUCTION

for

**Champion International Corporation
Canton, North Carolina**

by

**Law Engineering and Environmental Services, Inc.
1308-C Patton Avenue
Asheville, North Carolina 28806**

LAW Project 30300-8-0313.02

LAW

LAWGIBB Group Member 

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

To: Bill D. von Vitzthume

From: Sam Interlicchia

Mr. von Vitzthume,

Here is the report for cell 6-H. The archive samples from the destructive samples taken are enclosed, and the tags off of the geotextile fabric used for the drainage layer also enclosed.

If you have any questions about the report please call.

Thanks



Sam

LAW

ENGINEERING AND ENVIRONMENTAL SERVICES, INC.



December 18, 1998

Mr. William D. von Vitzthume
Champion International Corporation
Post Office Box 4000
Canton, North Carolina 28716

Subject: **Report of Quality Assurance/Quality Control
Champion International Corporation
Landfill Cell 6-H Cover Construction
Canton, North Carolina
LAW Project 30300-8-0313.02**

Dear Mr. von Vitzthume:

Law Engineering and Environmental Services, Inc. (LAW) is pleased to provide this report of quality assurance/quality control testing and monitoring services for the construction of the Champion Landfill Cell 6-H cover. Our services were provided in general accordance with our Proposal 30300-8-9000.0168 dated July 10, 1998. This report is intended to contain the information required for submittal to the North Carolina Department of Environment and Natural Resources.

This Quality Assurance/Quality Control Report provides documentation of construction monitoring and QA/QC testing for the cover of landfill cell 6-H. Included with this report are copies of field and laboratory test reports, copies of our on-site technician's daily observations, summary of daily site meetings, summary of weekly progress meetings, as-built drawings and photographs.

Thank you, for the opportunity to provide our professional services during this phase of your project. If you have any questions regarding this document or require additional information, please do not hesitate to contact us.

Sincerely,
LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

Sam Interlicchia
Staff Professional

Stephen E. Blevins, P.E.
Principal
Registered, North Carolina 6207

SCI/SEB:sci

cc: Sevee & Maher Engineers, Inc./Guy Cote

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| 3 | Typical Chemical Weld Detail for PVC Liner |
| 4 | Modified Cap Edge With Anchor Detail |

1.0 PROJECT LOCATION AND DESCRIPTION

The Champion International landfill cell 6-H is located in the eastern part of Haywood county adjacent to Incinerator Road. The southern boundary is the Pigeon River and the western boundary is the Haywood County demolition landfill. There are active and inactive cells located to the west and southwest of cell 6-H.

Cover construction began on October 12, 1998 and was completed on November 25, 1998. The work entailed subgrade preparation, placement of a 30-mil PVC liner, placement of a geocomposite drainage layer and construction of the soil cap.

The construction specifications were provided by Sevee & Maher Engineers, Inc. Perry M. Alexander Grading Company performed the earthwork and Geomembrane Services, Inc. (a subcontractor to Perry M. Alexander) installed the synthetic liner and geocomposite (geotextile-geonet-geotextile) drainage layer. Law Engineering and Environmental Services, Inc. (LAW) provided the construction quality assurance/quality control testing and monitoring services.

2.0 CONSTRUCTION AND QUALITY ASSURANCE

2.1 SUBGRADE PREPARATION

Subgrade preparation consisted of finish grading of the lime fill and rolling with a smooth drum roller to create a smooth and stable surface on which to construct the landfill cover. After finish grading, the subgrade was proofrolled with a 15 to 20-ton, four-wheeled, rubber-tired roller. The proofroller made at least four passes over each location, with the last two passes perpendicular to the first two. Proofrolling of the subgrade was observed by a LAW technician working under the direct supervision of the principal engineer. No pumping or large deflections were observed during proofrolling. The entire landfill surface (i.e. area for cover construction), as shown on Figure 1, was proofrolled. The final prepared subgrade was observed to be free of irregularities, protrusions, loose soil, roots or stones as documented on the Subgrade Acceptance Certificate (Appendix I).

2.2 SYNTHETIC LINER AND GEOCOMPOSITE DRAINAGE LAYER PLACEMENT

A synthetic liner (30-mil PVC) was placed directly on the prepared and accepted subgrade. Manufacturer's specifications for the PVC liner are presented in Appendix II. The liner was shipped to the site in large (70 by 300 feet) factory seamed panels. Results of the manufacturer's quality control testing of the factory seams is presented in Appendix III.

Panels were field seamed using the thermal wedge welding method (Figure 2). Repairs and detail work were welded by the chemical method (Figure 3). Both thermal and chemical field welded seams were tested for seam integrity and leaks by air lancing. The air lance method uses a jet of air at approximately (50-lb/in.²) pressure coming through an orifice of (3/16-in.) diameter. It is directed beneath the upper edge of the overlapped seam and is held within (4 in.) from the edge of the seamed area in order to detect un-bonded areas. When such an area is located, the air passes through the opening in the seam causing an inflation and fluttering in the localized area. A distinct change in sound emitted can generally be heard. Seamed areas which failed were patched and chemical welded, followed by re-testing. Each welding machine and its operator were qualified twice daily (morning and afternoon) prior to welding.

LAW was present on a full time basis during installation of the PVC liner. Appendix IV presents detailed quality assurance documents summarizing Law's observations and the results of field tests on each field welded seam.

Samples of the field welded seams were obtained every 500 linear feet and tested in the laboratory for compliance with seam strength and peel adhesion requirements, of at least 55.2 lbs./in. and 10 lbs./in., respectively. Samples were obtained at the locations shown on the Panel and Seam Sample Location Plan (Drawing No. 2 in Appendix X – As-Built Drawings). All field seams passed the specified minimum requirements. The laboratory test reports for the welded liner seams are presented in Appendix V.

After acceptance of the field and laboratory QA testing of the liner seams, the geocomposite (non-woven geotextile/geonet/non-woven geotextile) drainage layer was placed directly on top of the synthetic liner. Manufacturer's specifications for the geocomposite drainage layer are presented in Appendix II. The geocomposite was shipped to the site in 14.5 foot wide by 300 foot long rolls. The geocomposite was rolled onto the liner surface with each panel overlapping at least 4 inches. The panels were secured by sewing the top layer of geotextile. A LAW representative was present on a full time basis during installation of the geocomposite drainage layer and observed proper placement of this component of the landfill cover.

2.3 SOIL COVER CONSTRUCTION

Placement of the soil cover over the liner and drainage layer began on November 3, 1998. Soil material was carefully selected from on-site sources of silty sand and sandy silt. Representative samples of each fill material were collected at the borrow source and tested in the laboratory to determine the maximum dry density and optimum moisture content. These laboratory compaction test results are presented in Appendix VI.

The cover soil was excavated at the borrow source using a large trackhoe in combination with a dozer. The soil was hauled from the borrow area to the cell using several tandem-axle dump trucks, and dumped/pushed onto the drainage layer. After placement to a thickness of 18 inches, the cover soil was compacted using a loaded tandem axle dump truck.

Once compaction began, a sufficient number of density tests were performed by an experienced LAW technician working under the direction of the principal engineer to measure the degree of compaction being obtained. The thickness of the soil cover was also checked at each density test location and recorded. All results of compaction testing and thickness measurements met the construction specifications (18 inches of soil cover compacted to at least 90 percent of the standard Proctor maximum dry density). A summary of the density and thickness test results are provided in Table 2 and the field density test reports are presented in Appendix VII.

2.4 CONSTRUCTION MONITORING

A representative of LAW observed construction of the soil cover and documented observations daily. A record of these daily observations (and site meetings with the contractor) is presented in Appendix VIII. Meetings with the Owner, Contractor and LAW were held weekly to review construction progress and address any issues that came up during construction. Reports of these meetings are presented in Appendix IX.

As-built drawings for the constructed cover and record photographs are presented in Appendices X and XI, respectively.

3.0 MODIFICATIONS

3.1 ANCHOR TRENCH

The Cap Edge with Anchor detail as originally prepared by Sevee & Maher (on drawing C-300 sheet 10 of 10) was modified to show the liner stopping at the outside bottom of the anchor trench rather than extending up the outside face of the trench (see Figure A). This was the only approved and implemented modification to the construction plans and specifications.

TABLE

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11

?

TABLE 1
SOIL CAP DENSITY & THICKNESS TEST RESULTS

CHAMPION INTERNATIONAL CORPORATION

CELL 6-H

LAW PROJECT NO. 30300-8-0313.02

AREA NUMBER	TEST NUMBER	PERCENT COMPACTION	SOIL THICKNESS (inches)
# 9	1	90	19
# 14	2	94	20
# 13	3	99	18
# 12	4	99	18
# 11	5	92	20
# 8	6	95	18
# 4	7	93	18
# 7	8	96	18
# 6	9	93	20
# 10	10	95	18
# 3	11	92	18
# 5	12	94	18
# 2	13	96	19
# 1	14	93	20
# 15	15	93	20
# 16	16	97	18
# 17	17	95	18
# 18	18	98	22
# 19	19	96	20
# 20	20	97	20
# 21	21	94	19
# 22	22	97	18
# 23	23	91	21
# 24	24	95	20
# 25	25	96	19
# 26	26	95	20
# 30	27	95	21
# 31	28	96	20
# 27	29	96	20
# 28	30	93	18
# 29	31	94	20
# 32	32	96	22
# 33	33	93	21
# 34	34	94	19
# 35	35	97	22
# 36	36	95	23

Prepared by: SCI
 Checked by: DFM

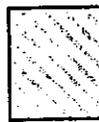
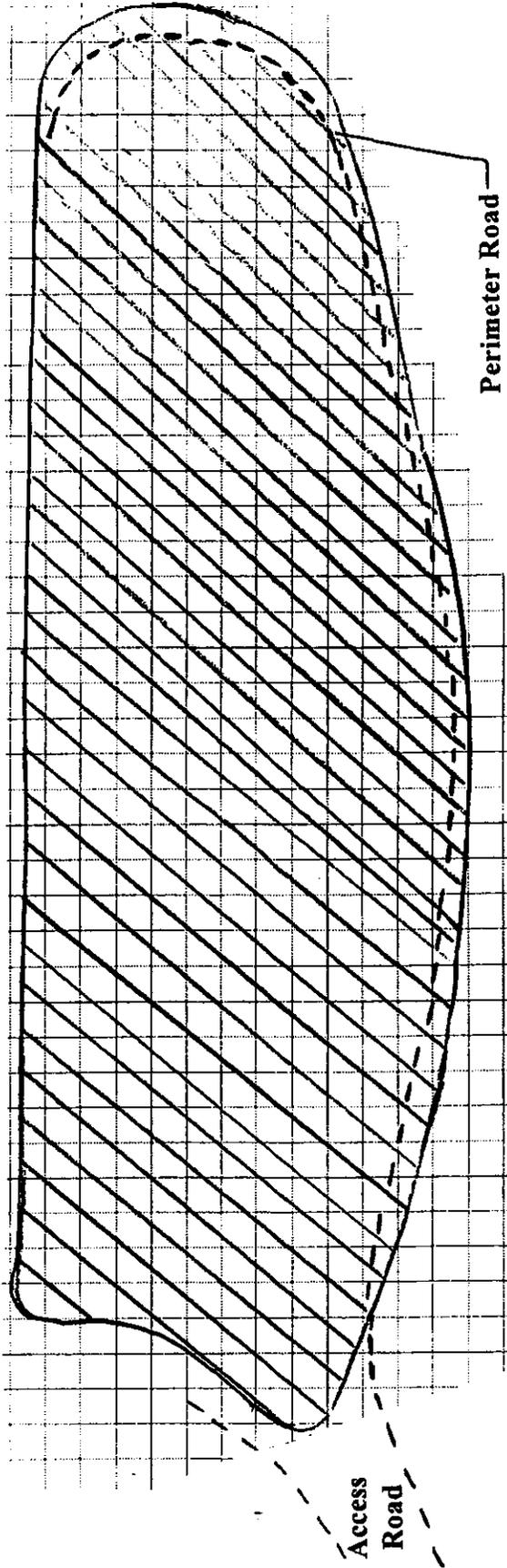
TABLE 1
SOIL CAP DENSITY & THICKNESS TEST RESULTS
 CHAMPION INTERNATIONAL CORPORATION
 CELL 6-H
 LAW PROJECT NO. 30300-8-0313.02

AREA NUMBER	TEST NUMBER	PERCENT COMPACTION	SOIL THICKNESS (inches)
# 37	37	97	22
# 38	38	94	28
# 39	39	93	22
# 40	40	95	22
# 41	41	96	26
# 42	42	95	23
# 43	43	96	26
# 44	44	92	20
# 45	45	96	25
# 46	46	95	25
# 50	47	98	25
# 51	48	93	28
# 55	50	94	26
# 56	51	91	28
# 60	52	93	26
# 49	53	91	35
# 48	54	93	27
# 53	55	91	27
# 52	56	91	27
# 54	57	94	28
# 59	58	90	29
# 64	59	91	24
# 62	60	97	28
# 61	61	95	26
# 57	62	94	24
# 73	63	95	18
# 72	64	96	18
# 71	65	93	25
# 58	66	91	35
# 63	67	92	26
# 67	68	97	27
# 70	69	94	30
# 69	70	90	26
# 66	71	93	24
# 65	72	92	24
# 68	73	94	25

Prepared by: SCI
 Checked by: DFM

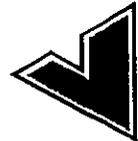


West Edge of Anchor Ditch



PROOFROLLED AREA (SUBGRADE FOR SYNTHETIC LINER)

N.T.S.



LAW
Engineering and Environmental Services
Asheville, North Carolina

SUBGRADE AREA PROOFROLLED
CELL 6-H
CHAMPION INTERNATIONAL
CANTON, NORTH CAROLINA

Prepared By: SCI

Date: 12/10/98

Checked By: SEB

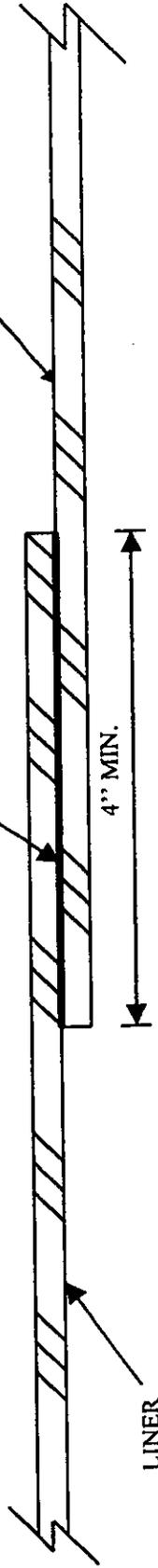
Date: 12/18/98

Job Number: 30300-8-0313.02

Figure 1

THERMAL FUSION WELD

LINER



TYPICAL THERMAL WEDGE WELD
FOR PVC LINER DETAIL
CHAMPION INTERNATIONAL
CANTON, NORTH CAROLINA

LAW
Engineering and Environmental Services
Asheville, North Carolina

Prepared By: SCI

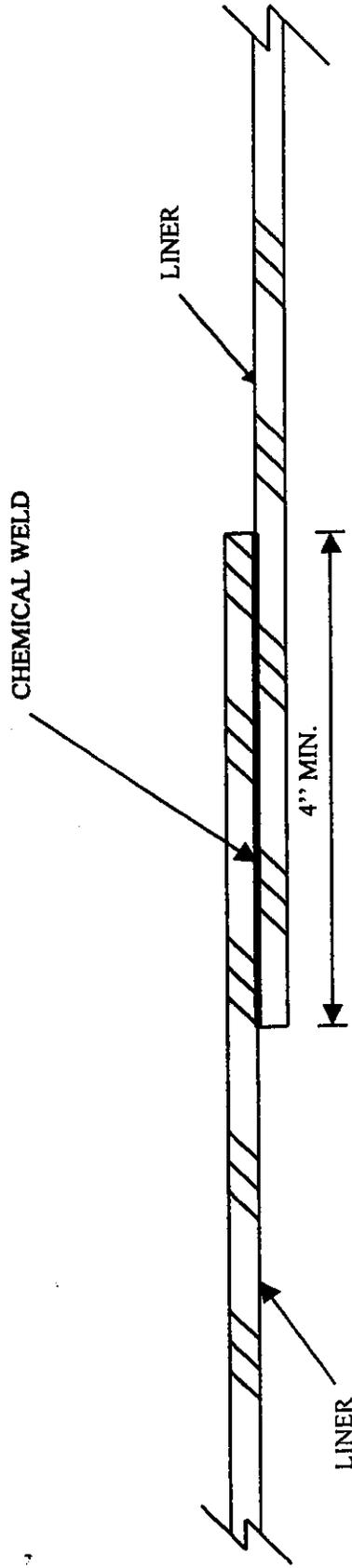
Date: 12/10/98

Checked By: SEB

Date: 12/18/98

Job Number: 30300-8-0313.02

Figure: 2



TYPICAL CHEMICAL WELD
 DETAIL FOR PVC LINER
 CHAMPION INTERNATIONAL
 CANTON, NORTH CAROLINA

LAW
 Engineering and Environmental Services
 Asheville, North Carolina

Figure: 3

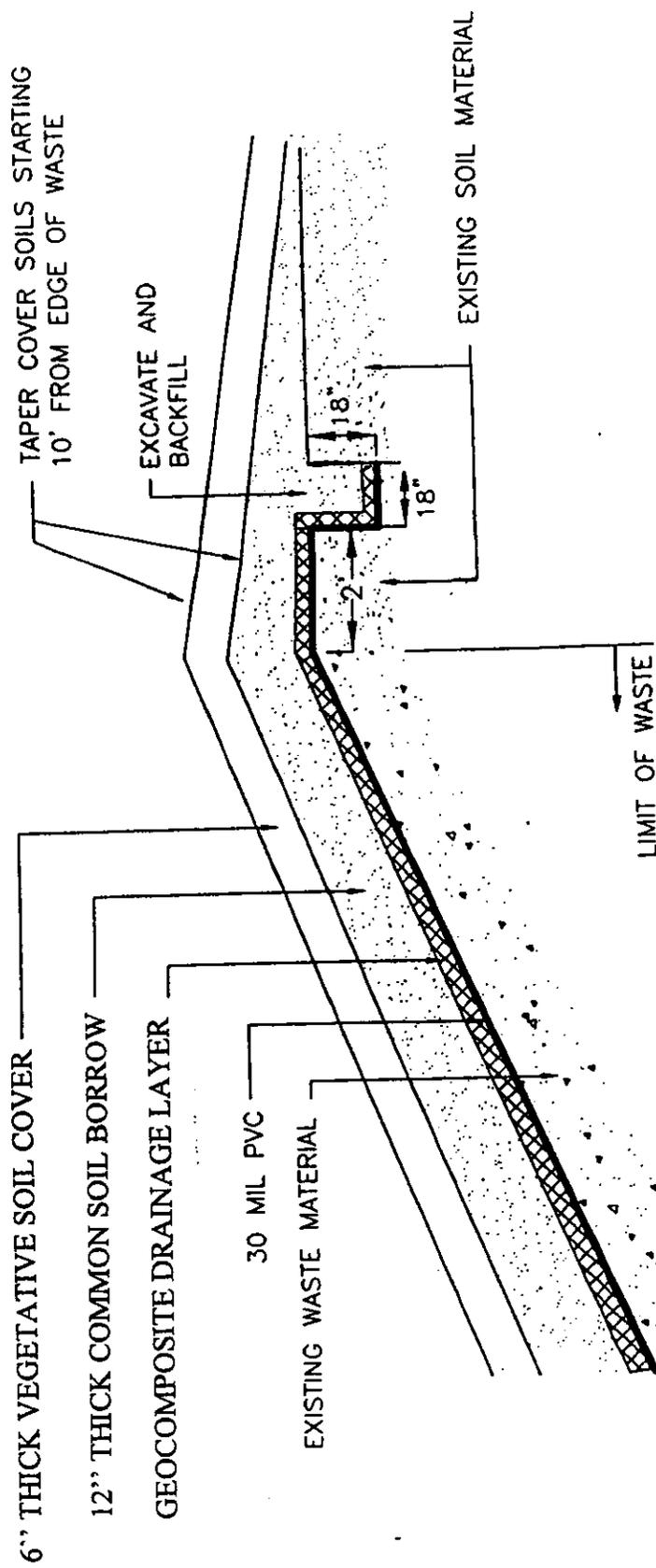
Job Number: 30300-8-0313.02

Date: 12/18/98

Checked By: SEB

Date: 12/10/98

Prepared By: SCI



CAP EDGE WITH ANCHOR B
 N.T.S.
 C-102
 C-103
 C-104

REF: Sevec & Maher Engineers, Inc. Champion International Paper Detail Drawing C-300 Sheet 10 of 10



LAW
 Engineering and Environmental Services
 Asheville, North Carolina

**MODIFIED CAP EDGE WITH ANCHOR
 DETAIL**
 CHAMPION INTERNATIONAL CORP
 CANTON, NORTH CAROLINA

Prepared By: **SCI**

Date: **12/10/98**

Checked By: **SEB**

Date: **12/18/98**

Job Number: **30300-8-0313.02**

Figure: **4**

APPENDIX I

SUBGRADE ACCEPTANCE CERTIFICATION

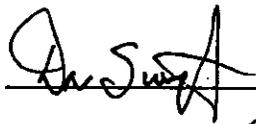
LAW

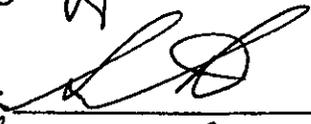
LAWGIBB Group Member 

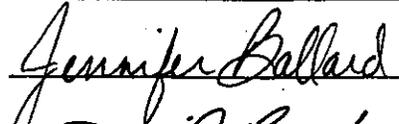
1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

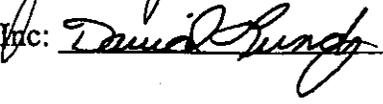
SUBGRADE ACCEPTANCE CERTIFICATION
QUALITY ASSURANCE DOCUMENT
CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT: 30300-8-0313 Phase .02

The earthwork contractor Perry M. Alexander is responsible for preparing the supporting material for geomembrane placement. Before the geomembrane installation begins, the owner's representative (LAW), the owner (Champion) and the Installer (Geomembrane Services, Inc) document by the signatures below that in their opinion the subgrade providing support for the liner soil has been rolled, compacted, or handworked so as to be free of irregularities, protrusions, loose soil, and does not contain stones which may be damaging to the geomembrane.

Perry M. Alexander:  Date: 10-122/98

Law Engineering and Environmental Services, Inc.:  Date: 10/27/98

Champion International:  Date: 10/27/98

Geomembrane Services Inc:  Date: 10-27-98

APPENDIX II

**MANUFACTURER'S SPECIFICATIONS
FOR LINER AND GEOCOMPOSITE**

WATER SAVER PVC

GEOMEMBRANE LINER ENGINEERING SPECIFICATION GUIDE

POLYVINYL CHLORIDE (PVC)



Property	Test Method	Specified Values				
		20	30	40	50	80
Thickness mils (Nominal = 5%)	ASTM D-1583	20	30	40	50	80
Specific Gravity, min.	ASTM D 792	1.23	1.23	1.23	1.23	1.23
Tensile Strength, psi, min. (Breaking Factor, lbs./in. width, min.)	ASTM D 882	2300 46	2300 69	2300 92	2300 115	2300 138
Elongation, @ Break, % min.	ASTM D 882	325	350	400	450	450
Modulus @ 100% Elongation, psi, min. (lbs./in. width min.)	ASTM D 882	1000 (20.0)	1000 (30.0)	1000 (40.0)	1000 (50.0)	1000 (60.0)
Tear Resistance, lbs./in., min. (lbs., min.)	ASTM D 1004	300 (6.0)	300 (9.0)	300 (12.0)	300 (15.0)	250 (15.0)
Low Temperature, °F	ASTM D 1790	-15	-20	-25	-30	-30 <i>ok</i>
Dimensional Stability, % change, max.	ASTM D 1204 (212°F, 15min.)	3.5	3.5	3.5	3.5	3.5
Water Extraction % loss, max.	ASTM D 3083	0.25	0.25	0.35	0.35	0.95
Volatility % loss, max.	ASTM D 1203	0.90	0.70	0.50	0.50	0.50
Resistance to Soil Burial % change, max.	ASTM D 3083					
Tensile Strength		-5	-5	-5	-5	-5
Elongation, @ Break		-20	-20	-20	-20	-20
Modulus @ 100% Elongation		+20	+20	+20	+20	+20
Hydrostatic Resistance, psi, min.	ASTM D 751	60	85	92 82	125	165 <i>ok</i>
Factory Seam Requirements* Banded Seam Strength (factory seam, breaking factor, lbs./in. width)	ASTM D 3083, Modified	36.8	55.2	74.0	92	110.4

*Factory banded seam strength is the responsibility of the fabricator.

Okay to use for pvc

TEX-NET[®] SPECIFICATIONS

GEOCOMPOSITE PROPERTIES

<u>PROPERTY</u>	<u>TEST</u>	<u>UNITS</u>	<u>MINIMUM²</u>	
			<u>TN3002/1120</u>	<u>TN3002/1125</u>
Transmissivity ¹ (15,000 psf)	ASTM D 4716	m ² /sec	5 x 10 ⁻³ 1.5 x 10 ⁻⁴ (typ.)	3 x 10 ⁻³ 1 x 10 ⁻⁴ (typ.)
Ply Adhesion	ASTM D 413 or F 904	lb/in	2.0	2.0
Tensile Strength (MD)	ASTM D 4632	lbs	535	580

COMPONENT PROPERTIES³

<u>GEONET</u>	<u>TEST</u>	<u>UNITS</u>	<u>PN 3000</u>
Density	ASTM D 1505	g/cm ³	0.94
Carbon Black Content	ASTM D 4218	%	2.0
Thickness	ASTM D 5199	inches	0.200
Mass Per Unit Area	ASTM D 5261	lbs/ft ²	0.162
Transmissivity ¹	ASTM D 4716	m ² /sec	1x10 ⁻³ @ 15,000 psf
Tensile Strength	ASTM D 5035	lbs/in	45

<u>GEOTEXTILE</u>	<u>TEST</u>	<u>UNITS</u>	<u>1120</u>	<u>1125</u>
Fabric Weight	ASTM D 5261	oz/yd ²	5.7	7.1
Thickness	ASTM D 5199	mils	75	95
Grab Strength	ASTM D 4632	lbs	160	210
Water Flow Rate	ASTM D 4491	gpm/ft ²	130	110
AOS	ASTM D 4751	Sieve Size	70	70
		mm	0.210	0.210

1. Measured using water @ 20° C (68°F) with a gradient of one, between two steel plates, after one hour. Value may vary, based on dimensions of the transmissivity specimen and specific laboratory.
2. These values represent minimum acceptable test values for a roll as tested according to NSC/FSI's Manufacturing Quality Control Manual. Individual test specimen values are not addressed in this specification.
3. Component properties are tested prior to the lamination process. They cannot be tested on the final product.

Information regarding the physical properties of National Seal Company products, including the information contained in this specification sheet, is, to the best of our knowledge, information and belief, representative of National Seal Company products. All information, data, suggestions, opinions and recommendations are offered without guarantee or warranty of any kind. The final determination as to the appropriateness or suitability of any National Seal Company product in any particular application rests with the user and is the user's sole responsibility.

National Seal Company reserves the right to alter, change or modify its products and its product specifications at any time without notice. Please check with your National Seal Company sales or technical representative to assure that specifications are current.

TN3002/1120/1125-0797



NATIONAL SEAL COMPANY
1245 Corporate Blvd. • Suite 300
Aurora, IL 60504
(830) 898-1181 • (800) 323-3820
FAX: (830) 898-6558

TOP GEOTEXTILE LAYER OF GEOCOMPOSITE

Product Description

Trevira® Spunbond Type 011/250

Will be used on the top part of H Cell

Technical Fibers Group
Hoechst Celanese Corporation
Spunbond Business Unit
Post Office Box 3850
Spartanburg, SC 29304-3850
803 578 8407
Toll Free 1 800 845 7597
Fax 803 579 5930

ok to use for the cover of all three

Trevira® Spunbond Type 011/250 is a 100% continuous filament polyester nonwoven needlepunched engineering fabric. The fabric is resistant to biological and normally encountered chemicals, alkalies, acids, and ultraviolet light exposure. Trevira® Spunbond Type 011/250 conforms to the property values listed in the following table.

FABRIC PROPERTY	UNIT	TEST METHOD	TYPICAL VALUE ¹	MINIMUM TEST VALUES ²
Fabric Weight	oz/yd ²	ASTM D-5261	7.5	7.1
Fabric Thickness, t	mils	ASTM D-5199	110	95
Grab Strength (MD/CD)	lb	ASTM D-4632	300/235	210
Grab Elongation (MD/CD)	%	ASTM D-4632	75/80	60
Trapezoid Tear Strength (MD/CD)	lbs	ASTM D-4533	105/95	75
Puncture Resistance	lbs	ASTM D-4833	115	95
Mullen Burst Strength	psi	ASTM D-3786	400	360
Water Flow Rate	gpm/ft ²	ASTM D-4491	150	110
Permeability, Ψ	ms ⁻¹	ASTM D-4491	2.01	1.47
Permeability, $k = \Psi \times t$	cm/sec	ASTM D-4491	.56	.35
AOS	Sieve Size mm	ASTM D-4751	70-100 .210-.149	70 .210
Standard Roll Widths ³	ft	12.5 and 15.0		
Standard Roll Lengths ³	ft	300		

MD = Machine Direction CD = Cross Machine Direction

¹ The values listed are average values.

² These minimum values represent minimum test values as determined from Quality Control (QC) testing.

³ Other width and length rolls are available upon request.

011250

Hoechst 

MIDDLE GEONET LAYER OF GED COMPOSITE

**POLY-NET® PN3000
PRODUCT DESCRIPTION**

POLY-NET® is a profiled geonet manufactured by extruding two sets of polyethylene strands to form a diamond shape drainage material. The resulting net provides superior planar water flow, is inert to biological attack, naturally encountered chemicals, alkalis, and acids and is resistant to UV light exposure. POLY-NET PN3000 conforms to the property values listed below.

PROPERTY	METHOD	UNITS	MINIMUM ¹
Roll Length (typical)	.	R	300
Roll Width (typical)	.	R	7.54 & 14.5
Thickness ¹	ASTM D6109	inches	0.200
Area per Roll (typical)	.	R ²	2292 & 4350
Weight per Roll (typical)	.	lbs	389 & 705
Mass per Unit Area ¹	ASTM D8261	lb/ft ²	0.182
Carbon Black Content ¹	ASTM D4216	percent	2.0
Density ¹	ASTM D1505	g/cm ³	0.94
Tensile Strength ¹ (Machine Direction) (Modified)	ASTM D6035	lb/in.	40
Transmissivity ^{1,3} (gradient = 1.0 at 15,000 psf)	ASTM D4716	m ² /sec	1 x 10 ⁻³

- ¹ Indicates standard quality control test.
- ² This value represents the minimum acceptable test value for a roll as tested according to NSCFSI's Manufacturing Quality Control Manual, unless otherwise indicated. Individual test values are not addressed in the specification.
- ³ Measured between two steel plates one hour after application of the confining pressure in the machine direction.

Needs to be at least 50MD
* Okayed by Seve-t Maher from field Data

Information regarding the physical properties of National Seal Company products, including the information contained in this specification sheet, is to the best of our knowledge, information and belief, representative of National Seal Company products. All information, data, suggestions, opinions and recommendations are offered without guarantee or warranty of any kind. The final determination as to the appropriateness or suitability of any National Seal Company product in any particular application is made with the user and is the user's sole responsibility.

National Seal Company reserves the right to alter, change or modify its products and its product specifications at any time without notice. Please check with your National Seal Company sales or technical representative to ensure that specifications are current.

P2-0707



NATIONAL SEAL COMPANY
1245 Corporate Blvd. • Suite 300
Aurora, IL 60004
(312) 898-1161 • (800) 323-7827
FAX: (312) 898-4558

630-898-1161

BOTTOM GEOTEXTILE LAYER OF BEDCOMPOSITE

Amoco 4508

Product Description

Trevira® Spunbond Type 011/200
For F, G + therest of H cell

Technical Fibers Group
Hoechst Celanese Corporation
Spunbond Business Unit
Post Office Box 8660
Spartanburg, SC 29304-8660
803 574 8007
Toll Free 1 800 845 7387
Fax 0CS 570 8870

[Handwritten signature]

Trevira® Spunbond Type 011/200 is a 100% continuous filament polyester nonwoven needlepunched engineering fabric. The fabric is resistant to biological and naturally encountered chemicals, alkalies, acids, and ultraviolet light exposure. Trevira® Spunbond Type 011/200 conforms to the property values listed in the following table:

FABRIC PROPERTY	UNIT	TEST METHOD	TYPICAL VALUE ¹	MINIMUM TEST VALUES ²
Fabric Weight	oz/yd ²	ASTM D-5261	6.0	5.7 6.0*
Fabric Thickness, t	mils	ASTM D-5199	90	75
Grab Strength (MD/CD)	lbs	ASTM D-4632	230/180	160 150*
Grab Elongation (MD/CD)	%	ASTM D-4632	75/85	60
Trapezoid Tear Strength (MD/CD)	lbs	ASTM D-4533	80/75	60 65*
Puncture Resistance	lbs	ASTM D-4833	95	80 90*
Mullen Burst Strength	psi	ASTM D-3786	330	285 350*
Water Flow Rate	gpm/ft ²	ASTM D-4491	170	130
Permittivity, Ψ	sec ⁻¹	ASTM D-4491	2.27	1.74
Permeability, k = Ψ/σ	cm/sec	ASTM D-4491	.52	.33
AOS	Slit Size mm	ASTM D-4751	70-100 .210-.149	70 .210
Standard Roll Widths ³	ft		12.5 and 15.0	
Standard Roll Lengths ³	ft		300	

MD = Machine Direction CD = Cross Machine Direction

- ¹ The values listed are average values.
- ² These minimum values represent minimum test values as determined from Quality Control (QC) testing.
- ³ Other width and length rolls are available upon request.

Would be 6'3" for the geotextile
Hoechst

011200

APPENDIX III

**FACTORY PRODUCTION AND QUALITY CONTROL
TEST REPORTS**



Established 1953

WATERSAVER COMPANY, INC.

P.O. BOX 16465 DENVER, COLORADO 80216-0465

Phone 303-289-1818 Fax 303-287-3136
Plant and Office — 5870 E 56th Avenue, Commerce City, Colorado 80022-3932

October 21, 1998

Mr. Jack Blezins
Perry Alexander
1061 US Hwy 70
Swannanoa, N.C. 28778

RE: SUBMITTAL INFORMATION
CHAMPION INTERNATIONAL CORP.

Dear Mr. Blezins:

Enclosed are Production Reports, Test Reports and Material Certifications for the geomembrane liner that was shipped to the above referenced project.

Watersaver performs destructive testing on factory fabricated seams at the beginning and end of each production shift. The enclosed tests are the beginning and ending results for the days your panels were produced. The roll numbers on the test results may or may not match the roll numbers on the production reports, but the test results do represent the seams that were produced on that day.

Sincerely,

WATERSAVER COMPANY, INC.


Bob Dapogny
Technical Department Coordinator

RFD:sfy
Enclosures
cc: File

PANEL RECAP

**LIST OF PANELS SHIPPED TO
CHAMPION INTERNATIONAL CORP
PANEL SIZE: 70' X 300'**

PANEL ID#	STOCK TAG #	FABRICATION DATE
SHIPPED FROM DENVER		
S98021911	S013568	2/19/98
S98022701	S013638	2/27/98
S98022706	S013649	2/27/98
S98030308	S013695	3/3/98
S98030310	S013697	3/3/98
S98030311	S013698	3/3/98
S98030313	S013700	3/3/98
S98030314	S013701	3/3/98
S98030315	S013702	3/3/98
S98030402	S013704	3/4/98
S98030403	S013705	3/4/98
SHIPPED SEPARATELY		
S39RP2004	N/A	4/20/98
S39RP2007	N/A	4/20/98

WATERSAVER COMPANY INC.

**PRODUCTION REPORTS
TEST REPORTS**

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC-R-FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 4/20/98

ORDER: STK009 1745 TYPE OF FABRICATION: S39RP2004 TEST DATE: 4/27/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D751	
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)
			PEAK 1	PEAK 2				
1	20	7	A	18.65	22.97	20.81	77.05	80.05
			B	19.35	22.72	21.04	80.32	
	FR84084-2	FR84084-3	C	18.47	24.85	21.66	81.55	
			D	20.55	25.62	23.09	81.45	
			E	18.37	20.77	19.57	79.90	
2	7	23	A			0.00	76.12	73.08
			B			0.00	74.57	
	FR84084-3	FR84084-3	C			0.00	71.80	
			D			0.00	70.57	
			E			0.00	72.35	
3	23	4	A			0.00	74.20	74.32
			B			0.00	74.25	
	FR84084-3	FR84084-3	C			0.00	74.75	
			D			0.00	74.30	
			E			0.00	74.12	
4	4	12	A			0.00	78.15	74.95
			B			0.00	76.57	
	FR84084-3	FR84084-3	C			0.00	72.90	
			D			0.00	72.85	
			E			0.00	74.30	
5	12	13	A			0.00	77.45	76.14
			B			0.00	75.05	
	FR84084-3	FR84084-3	C			0.00	75.35	
			D			0.00	74.05	
			E			0.00	78.82	
6	13	17	A			0.00	75.20	76.61
			B			0.00	76.20	
	FR84084-3	FR84084-2	C			0.00	75.17	
			D			0.00	77.17	
			E			0.00	79.32	
7	17	10	A			0.00	85.45	81.51
			B			0.00	78.60	
	FR84084-2	FR84084-3	C			0.00	83.05	
			D			0.00	80.72	
			E			0.00	79.72	
8	10	21	A			0.00	78.30	78.08
			B			0.00	78.12	
	FR84084-3	FR84084-2	C			0.00	75.05	
			D			0.00	76.70	
			E			0.00	82.25	
9	21	22	A			0.00	83.45	81.09
			B			0.00	80.62	
	FR84084-2	FR84084-2	C			0.00	82.75	
			D			0.00	79.52	
			E			0.00	79.12	
10	22	21	A			0.00	79.80	79.90
			B			0.00	79.40	
	FR84084-2	FR84084-5	C			0.00	79.60	
			D			0.00	80.10	
			E			0.00	80.60	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: 030 PVC R FAILLE GAUGE: 030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 4-20-98

OMER: STK009 1745 TYPE OF FABRICATION: S39RP2007 TEST DATE: 4-27-98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D751		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	18	19	A			0.00	0.00	73.00	71.71
			B			0.00		71.35	
	FR84084-3	FR84084-3	C			0.00		71.47	
			D			0.00		73.60	
			E			0.00		69.15	
2	19	2	A			0.00	0.00	71.35	70.01
			B			0.00		68.45	
	FR84084-3	FR84084-3	C			0.00		71.65	
			D			0.00		67.40	
			E			0.00		71.20	
3	2	6	A	22.37	31.20	26.79	22.52	72.40	69.07
			B	19.55	27.42	23.49		70.55	
	FR84084-3	FR84084-3	C	20.17	21.95	21.06		67.37	
			D	19.82	21.99	20.91		68.25	
			E	18.77	21.95	20.36		66.77	
4	6	3	A			0.00	0.00	76.92	76.26
			B			0.00		75.50	
	FR84084-3	FR84084-3	C			0.00		75.65	
			D			0.00		77.05	
			E			0.00		76.20	
5	3	1	A			0.00	0.00	74.05	72.22
			B			0.00		73.37	
	FR84084-3	FR84084-3	C			0.00		71.50	
			D			0.00		70.32	
			E			0.00		71.85	
6	1	9	A			0.00	0.00	74.47	74.41
			B			0.00		74.70	
	FR84084-3	FR84084-3	C			0.00		74.70	
			D			0.00		73.00	
			E			0.00		75.17	
7	9	5	A			0.00	0.00	81.75	75.86
			B			0.00		80.02	
	FR84084-3	FR84084-3	C			0.00		76.97	
			D			0.00		71.52	
			E			0.00		69.02	
8	5	11	A			0.00	0.00	69.45	70.67
			B			0.00		68.12	
	FR84084-3	FR84084-3	C			0.00		72.82	
			D			0.00		73.42	
			E			0.00		69.55	
9	11	8	A			0.00	0.00	74.17	73.95
			B			0.00		77.15	
	FR84084-3	FR84084-3	C			0.00		74.55	
			D			0.00		73.20	
			E			0.00		70.70	
10	8	23	A			0.00	0.00	76.12	73.20
			B			0.00		71.95	
	FR84084-3	FR84084-5	C			0.00		71.07	
			D			0.00		73.52	
			E			0.00		73.32	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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AMALGATRON PRODUCTION REPORT/LINE LOAD

CUSTOMER STOCK					FABRICATION DATE		2/19/98			
PROJECT					SHEET 1 OF 1					
WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS	MANUFACTURER NAME			MATERIAL FINISH	TEST #			
	PVC	.030	R			FAILLE				
SPECIAL PANEL ID	S98021911									
PANEL NO.										
PANEL SIZE	70 X 300									
PACKED PER BOX	1 PER BOX									
SQ. FT. OF PANEL	21000									
PRODUCTION STATUS										
STOCK TAG	S013568									
	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #			
MACHINE #1	21									
MACHINE #2	16									
MACHINE #3	21									
MACHINE #4	12									
MACHINE #5	20									
MACHINE #6	19									
MACHINE #7	23									
MACHINE #8	17									
MACHINE #9	1									
MACHINE #10	19									
MACHINE #11	12									
MACHINE #12										
INSPECTION/SEAMER	E 16/57	W 22/65	E	W	E	W	E	W	E	W
SUPERVISOR	MW VK									
ROLL NO.	MANUFACTURE #	MFG DATE	ROLL NO.	MANUFACTURE #	MFG DATE					
21	FR81029-7									
16	FR81029-7									
21	FR81029-6									
12	FR81029-7									
20	FR81029-7									
19	FR81029-7									
23	FR81029-6									
17	FR81029-7									
1	FR81029-7									
19	FR81029-6									
12	FR81029-1									

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC-R-FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 2-19-98

COMER: STOCK TYPE OF FABRICATION: S98021911 TEST DATE: 2-20-98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D751		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	21	16	A		0.00	0.00	68.37	71.14	
			B		0.00		72.82		
	FR81029-7	FR81029-7	C		0.00		70.05		
			D		0.00		72.32		
			E		0.00		72.12		
2	16	21	A		0.00	0.00	72.20	72.08	
			B		0.00		71.27		
	FR81029-7	FR81029-6	C		0.00		72.97		
			D		0.00		72.90		
			E		0.00		71.07		
3	21	12	A		0.00	0.00	72.90	72.30	
			B		0.00		72.22		
	FR81029-6	FR81029-7	C		0.00		71.47		
			D		0.00		72.72		
			E		0.00		72.17		
4	12	20	A	26.95	27.25	27.10	24.14	69.70	69.46
			B	16.45	27.80	22.13		69.10	
	FR8102*-7	FR81029-7	C	24.67	27.30	25.99		69.17	
			D	24.67	25.57	25.12		68.95	
			E	16.02	24.67	20.35		70.37	
5	20	19	A		0.00	0.00	71.87	72.88	
			B		0.00		72.82		
	FR81029-7	FR81029-7	C		0.00		72.82		
			D		0.00		73.07		
			E		0.00		73.80		
6	19	23	A		0.00	0.00	71.00	72.36	
			B		0.00		72.87		
	FR81029-7	FR81029-6	C		0.00		73.35		
			D		0.00		72.17		
			E		0.00		72.42		
7	23	17	A		0.00	0.00	74.30	74.16	
			B		0.00		74.80		
	FR81029-6	FR81029-7	C		0.00		75.97		
			D		0.00		73.12		
			E		0.00		72.62		
8	17	1	A		0.00	0.00	73.25	71.90	
			B		0.00		74.50		
	FR81029-7	FR81029-7	C		0.00		68.07		
			D		0.00		72.07		
			E		0.00		71.60		
9	1	19	A		0.00	0.00	74.20	73.45	
			B		0.00		75.95		
	FR81029-7	FR81029-6	C		0.00		70.42		
			D		0.00		72.85		
			E		0.00		73.82		
10	19	12	A		0.00	0.00	68.50	67.68	
			B		0.00		67.40		
	FR81029-6	FR81029-1	C		0.00		67.17		
			D		0.00		67.20		
			E		0.00		68.12		

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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AMALGATRON PRODUCTION REPORT/LINE LOAD

CUSTOMER STOCK	FABRICATION DATE 2/27/98
PROJECT	SHEET 1 OF

WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS	MANUFACTURER NAME		MATERIAL FINISH	TEST #
	PVC	.030	R		FAILLE	
SPECIAL PANEL ID	598022701	598022706				
PANEL NO.						
PANEL SIZE	70 X 300	79 X 300				
PACKED PER BOX	1 PER BOX	1 PER BOX				
SQ. FT. OF PANEL	21000	21000				
PRODUCTION STATUS						
STOCK TAG	S013638	S013649				
	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #
MACHINE #1	6/5	5/20				
MACHINE #2	8/4	4/14				
MACHINE #3	1/9	9/23				
MACHINE #4	9/6	6/15				
MACHINE #5	5/11	11/10				
MACHINE #6	11/3	3/8				
MACHINE #7	15/4	4/17				
MACHINE #8	10/2	2/12				
MACHINE #9	22/3	3/18				
MACHINE #10	7/7	7/13				
MACHINE #11	1/14	14/2				
MACHINE #12						
INSPECTION/SEAMER	E 60/57 W 22/65	E 60/57 W 22/65	E	W	E	W
SUPERVISOR	VK MW					

ROLL NO.	MANUFACTURE #	MFG DATE	ROLL NO.	MANUFACTURE #	MFG DATE
6	FR81030-2		4	FR81030-2	
8	FR81030-2		2	FR81029-8	
1	FR81029-8		3	FR81029-2	
9	FR81030-2		7	FR81029-8	
5	FR81030-2		14	FR81030-2	
11	FR81030-2		20	FR81029-8	
15	FR81030-2		14	FR81029-8	
10	FR81030-2		23	FR81029-8	
22	FR81030-2		15	FR81029-8	
7	FR81030-2		10	FR81029-8	
1	FR81030-2		8	FR81029-8	
5	FR81029-8		17	FR81029-8	
4	FR81029-8		12	FR81029-8	
9	FR81029-8		18	FR81029-8	
6	FR81029-8		13	FR81029-8	
11	FR81029-8		2	FR81030-2	
3	FR81029-8				

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC (R) FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 2/27/98

TOMER: _____ TYPE OF FABRICATION: S98022702 TEST DATE: 3/2/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D751	
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)
			PEAK 1	PEAK 2				
1	FR81030-2	FR81030-2	A			0.00	68.32	70.62
			B			0.00	71.15	
			C			0.00	68.70	
			D			0.00	71.40	
			E			0.00	73.52	
2	FR81030-2	FR81029-8	A			0.00	75.62	74.20
			B			0.00	74.85	
			C			0.00	71.62	
			D			0.00	73.45	
			E			0.00	75.47	
3	FR81029-8	FR81030-2	A	25.57	26.25	25.91	73.47	74.05
			B	21.37	21.17	21.27	73.97	
			C	21.35	22.00	21.68	76.05	
			D	18.67	19.12	18.90	76.30	
			E	22.95	23.15	23.05	70.47	
4	FR81030-2	FR81030-2	A			0.00	71.95	72.66
			B			0.00	72.75	
			C			0.00	74.22	
			D			0.00	72.27	
			E			0.00	72.10	
5	FR81030-2	FR81030-2	A			0.00	74.37	74.35
			B			0.00	72.42	
			C			0.00	75.50	
			D			0.00	74.57	
			E			0.00	74.87	
6	FR81030-2	FR81030-2	A			0.00	69.30	69.68
			B			0.00	68.80	
			C			0.00	69.55	
			D			0.00	70.27	
			E			0.00	70.47	
7	FR81030-2	FR81030-2	A			0.00	75.67	73.82
			B			0.00	73.15	
			C			0.00	74.70	
			D			0.00	73.60	
			E			0.00	72.00	
8	FR81030-2	FR81030-2	A			0.00	67.95	70.10
			B			0.00	69.97	
			C			0.00	70.20	
			D			0.00	70.75	
			E			0.00	71.62	
9	FR81030-2	FR81030-2	A			0.00	74.30	72.56
			B			0.00	70.17	
			C			0.00	70.57	
			D			0.00	72.97	
			E			0.00	74.77	
10	FR81030-2	FR81030-2	A			0.00	74.47	74.71
			B			0.00	74.10	
			C			0.00	75.92	
			D			0.00	75.35	
			E			0.00	73.72	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC-R-FAILLE GAUGE: 030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 2/27/98

COMER: _____ TYPE OF FABRICATION: S98022708 TEST DATE: 3/2/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D3083*		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	20	14	A		0.00	0.00	75.17	70.33	
			B		0.00		69.75		
	FR81029-8	FR81029-8	C		0.00		71.51		
			D		0.00		65.27		
			E		0.00		69.95		
2	14	23	A		0.00	0.00	70.25	70.95	
			B		0.00		71.70		
	FR81029-8	FR81029-8	C		0.00		70.82		
			D		0.00		71.87		
			E		0.00		70.10		
3	23	15	A		0.00	0.00	76.72	74.17	
			B		0.00		72.90		
	FR81029-8	FR81029-8	C		0.00		73.87		
			D		0.00		73.80		
			E		0.00		73.55		
4	15	10	A		0.00	0.00	72.42	71.98	
			B		0.00		70.90		
	FR81029-8	FR81029-8	C		0.00		72.82		
			D		0.00		72.42		
			E		0.00		71.35		
5	10	8	A		0.00	0.00	73.10	72.63	
			B		0.00		74.35		
	FR81029-8	FR81029-8	C		0.00		71.85		
			D		0.00		72.35		
			E		0.00		71.50		
6	8	17	A		0.00	0.00	74.32	71.80	
			B		0.00		72.77		
	FR81029-8	FR81029-8	C		0.00		73.65		
			D		0.00		69.67		
			E		0.00		68.60		
7	17	12	A	17.00	17.50	17.25	18.06	68.62	69.27
			B	18.17	18.02	18.10		71.42	
	FR81029-8	FR81029-8	C	17.57	17.37	17.47		71.20	
			D	17.70	18.55	18.13		67.75	
			E	19.82	18.87	19.35		67.35	
8	12	18	A		0.00	0.00	72.07	70.50	
			B		0.00		72.35		
	FR81029-8	FR81029-8	C		0.00		66.60		
			D		0.00		70.45		
			E		0.00		71.02		
9	18	13	A		0.00	0.00	74.05	73.94	
			B		0.00		74.17		
	FR81029-8	FR81029-8	C		0.00		72.92		
			D		0.00		73.17		
			E		0.00		75.40		
10	13	2	A		0.00	0.00	69.32	70.64	
			B		0.00		71.12		
	FR81029-8	FR81029-2	C		0.00		72.05		
			D		0.00		70.55		
			E		0.00		70.15		

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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AMALGATRON PRODUCTION REPORT/LINE LOAD

CUSTOMER	STOCK		FABRICATION DATE	3/3/98
PROJECT			SHEET 1 OF	

WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS	MANUFACTURER NAME				MATERIAL FINISH	TEST #				
	PVC	.030	R				FAILLE					
SPECIAL PANEL ID	S98030308	S98030310	S98030311	S98030313	S98030314	S98030315						
PANEL NO.												
PANEL SIZE	70 X 300	70 X 300	70 X 300	70 X 300	70 X 300	70 X 300	70 X 300					
PACKED PER BOX	1 PER BOX	1 PER BOX	1 PER BOX	1 PER BOX	1 PER BOX	1 PER BOX	1 PER BOX					
SQ. FT. OF PANEL	21000	21000	21000	21000	21000	21000	21000					
PRODUCTION STATUS												
STOCK TAG	S013695	S013697	S013698	S013700	S013701	S013702						
	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #					
MACHINE #1	6	6	6/4	4	4	4	4					
MACHINE #2	2	2	2/15	15	15	15	15					
MACHINE #3	2	2	2/11	11	11	11	11					
MACHINE #4	15	15	15/16	16	16	16	16					
MACHINE #5	21	21	21/8	8	8	8	8					
MACHINE #6	11	11	11/6	6	6	6	6					
MACHINE #7	12	12	12/14	14	14	14	14					
MACHINE #8	18	18	18/9	9	9	9	9					
MACHINE #9	1	1	1/10	10	10	10	10					
MACHINE #10	23	23	23/1	1	1	1	1					
MACHINE #11	4	4	4/8	8	8	8	8					
MACHINE #12												
INSPECTION/SEAMER	E 60/57	W 94/22/65	E 60/57	W 94/22/65	E 60/57	W 94/65	E 60/57	W 94/65	E 60/57	W 94/65	E 60/57	W 94/65
SUPERVISOR	VK MW											

ROLL NO.	MANUFACTURE #	MFG DATE	ROLL NO.	MANUFACTURE #	MFG DATE
6	FR82145-7		9	FR82145-7	
2	FR82145-1		10	FR82144-2	
2	FR82145-7		1	FR82145-7	
15	FR82145-7		8	FR82145-1	
21	FR82145-7				
11	FR82145-7				
12	FR82145-7				
18	FR82145-7				
1	FR82145-1				
23	FR82145-7				
4	FR82145-7				
4	FR82145-1				
15	FR82144-2				
11	FR82144-2				
16	FR82144-2				
8	FR82144-2				
6	FR82145-1				
14	FR82144-2				

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC R FAILLE GAUGE: .030 JOB #: _____ PANEL #: _____ FABRICATION DATE: 3/3/98

ORDER: _____ TYPE OF FABRICATION: S98030307 TEST DATE: 6/8/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D751		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	6 FR82145-7	2 FR82145-1	A		0.00	0.00	72.32	71.28	
			B		0.00		72.55		
			C		0.00		72.75		
			D		0.00		68.77		
			E		0.00		70.00		
2	2 FR82145-1	2 FR82145-7	A		0.00	0.00	74.60	73.70	
			B		0.00		74.52		
			C		0.00		75.05		
			D		0.00		73.87		
			E		0.00		70.45		
3	2 FR82145-7	15 FR82145-7	A		0.00	0.00	74.05	74.39	
			B		0.00		73.02		
			C		0.00		75.10		
			D		0.00		77.65		
			E		0.00		72.15		
4	15 FR82145-7	21 FR82145-7	A		0.00	0.00	73.42	73.12	
			B		0.00		73.27		
			C		0.00		71.52		
			D		0.00		73.85		
			E		0.00		73.52		
5	21 FR82145-7	11 FR82145-7	A		0.00	0.00	74.82	72.55	
			B		0.00		73.10		
			C		0.00		69.45		
			D		0.00		71.17		
			E		0.00		74.20		
6	11 FR82145-7	12 FR82145-7	A		0.00	0.00	69.52	69.83	
			B		0.00		68.87		
			C		0.00		69.82		
			D		0.00		71.27		
			E		0.00		69.67		
7	12 FR82145-7	18 FR82145-7	A		0.00	0.00	77.37	75.44	
			B		0.00		75.70		
			C		0.00		74.80		
			D		0.00		73.55		
			E		0.00		75.77		
8	18 FR82145-7	1 FR82145-1	A		0.00	0.00	79.32	77.75	
			B		0.00		77.25		
			C		0.00		78.85		
			D		0.00		77.12		
			E		0.00		76.20		
9	1 FR82145-1	23 FR82145-7	A	16.27	28.27	22.27	23.02	80.92	81.54
			B	23.17	26.45	24.81		80.62	
			C	15.90	25.80	20.85		83.80	
			D	19.80	21.95	20.88		82.97	
			E	24.60	28.00	26.30		79.40	
10	23 FR82145-7	4 FR82145-7	A			0.00	0.00	75.25	73.94
			B			0.00		73.40	
			C			0.00		73.42	
			D			0.00		73.50	
			E			0.00		74.12	

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC FAILLE R

GAUGE: 030 JOB #:

PANEL #:

FABRICATION DATE:

3/3/98

CUSTOMER:

TYPE OF FABRICATION:

S98030312

TEST DATE:

6/15/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D751		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	4	15	A		0.00	0.00	78.10	80.51	
			B		0.00		80.80		
	FR82145-1	FR82144-2	C		0.00		81.57		
			D		0.00		79.50		
			E		0.00		82.57		
2	15	11	A		0.00	0.00	84.30	79.40	
			B		0.00		81.97		
	FR82144-2	FR82144-2	C		0.00		81.57		
			D		0.00		77.37		
			E		0.00		71.77		
3	11	16	A		0.00	0.00	76.47	77.26	
			B		0.00		77.70		
	FR82144-2	FR82144-2	C		0.00		78.10		
			D		0.00		76.17		
			E		0.00		77.85		
4	16	8	A		0.00	0.00	76.22	77.73	
			B		0.00		78.70		
	FR82144-2	FR82144-2	C		0.00		77.60		
			D		0.00		76.15		
			E		0.00		79.97		
5	8	6	A		0.00	0.00	80.60	78.78	
			B		0.00		81.20		
	FR82144-2	FR82145-1	C		0.00		82.25		
			D		0.00		82.62		
			E		0.00		67.25		
6	6	14	A		0.00	0.00	77.60	75.49	
			B		0.00		76.47		
	FR82145-1	FR82144-2	C		0.00		74.87		
			D		0.00		75.27		
			E		0.00		73.22		
7	14	9	A		0.00	0.00	84.30	84.31	
			B		0.00		81.37		
	FR82144-2	FR82145-7	C		0.00		83.77		
			D		0.00		84.75		
			E		0.00		87.37		
8	9	10	A	22.80	22.77	22.79	21.56	78.80	78.52
			B	22.27	21.35	21.81		79.10	
	FR82145-7	FR82144-2	C	21.47	20.87	21.17		78.42	
			D	19.27	23.45	21.36		77.32	
			E	17.95	23.35	20.65		78.97	
9	10	1	A		0.00	0.00	80.65	79.55	
			B		0.00		78.67		
	FR82144-2	FR82145-7	C		0.00		79.50		
			D		0.00		80.20		
			E		0.00		78.75		
10	1	8	A		0.00	0.00	81.90	80.48	
			B		0.00		80.00		
	FR82145-7	FR82145-1	C		0.00		80.80		
			D		0.00		78.65		
			E		0.00		81.07		

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC - R - FAILLE GAUGE: .030 JOB #: _____ PANEL #: END FABRICATION DATE: 3/3/98
 ORDER: STOCK TYPE OF FABRICATION: S98030315 TEST DATE: 3/5/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D751		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	FR82145-1	FR82144-2	A			0.00	0.00	68.92	70.84
			B			0.00		71.02	
			C			0.00		68.72	
			D			0.00		72.32	
			E			0.00		73.20	
2	FR82144-2	FR82144-2	A			0.00	0.00	72.90	72.68
			B			0.00		72.90	
			C			0.00		70.77	
			D			0.00		72.72	
			E			0.00		74.10	
3	FR82144-2	FR82144-2	A			0.00	0.00	73.97	72.28
			B			0.00		72.10	
			C			0.00		70.70	
			D			0.00		71.67	
			E			0.00		72.97	
4	FR82144-2	FR82144-2	A			0.00	0.00	78.45	76.98
			B			0.00		77.45	
			C			0.00		75.97	
			D			0.00		76.62	
			E			0.00		76.42	
5	FR82144-2	FR82145-1	A			0.00	0.00	74.47	73.95
			B			0.00		71.40	
			C			0.00		74.27	
			D			0.00		74.02	
			E			0.00		75.57	
6	FR82145-1	FR82144-2	A			0.00	0.00	79.07	77.99
			B			0.00		77.42	
			C			0.00		79.22	
			D			0.00		78.25	
			E			0.00		75.97	
7	FR82144-2	FR82145-7	A	20.65	20.00	20.33	22.52	72.37	72.95
			B	20.80	20.75	20.78		72.32	
			C	21.10	24.95	23.03		71.90	
			D	20.30	26.10	23.20		74.15	
			E	24.75	25.80	25.28		74.00	
8	FR82145-7	FR82144-2	A			0.00	0.00	74.05	74.34
			B			0.00		75.35	
			C			0.00		76.72	
			D			0.00		72.77	
			E			0.00		72.82	
9	FR82144-2	FR82145-7	A			0.00	0.00	70.00	71.67
			B			0.00		70.40	
			C			0.00		73.65	
			D			0.00		71.72	
			E			0.00		72.57	
10	FR82145-7	FR82145-1	A			0.00	0.00	71.40	72.26
			B			0.00		71.67	
			C			0.00		72.05	
			D			0.00		74.40	
			E			0.00		71.77	

PEEL TEST DATA: Per						
Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted

AMALGATRON PRODUCTION REPORT/LINE LOAD

CUSTOMER STOCK				FABRICATION DATE 3/4/98			
PROJECT				SHEET 1 OF			
WORK ORDER #	TYPE OF MATERIAL	MIL THICKNESS	MANUFACTURER NAME		MATERIAL FINISH	TEST #	
	PVC	.030	R		FAILLE		
SPECIAL PANEL ID	S98030402	S98030403					
PANEL NO.							
PANEL SIZE	70 X 300	70 X 300					
PACKED PER BOX	1 PER BOX	1 PER BOX					
SQ. FT. OF PANEL	21000	21000					
PRODUCTION STATUS							
STOCK TAG	S013704	S013705					
	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	ROLL #	
MACHINE #1	5	5					
MACHINE #2	4	4					
MACHINE #3	2	2					
MACHINE #4	3	3					
MACHINE #5	6	6					
MACHINE #6	12	12					
MACHINE #7	1	1					
MACHINE #8	5	5					
MACHINE #9	7	7					
MACHINE #10	13	13					
MACHINE #11	9	9					
MACHINE #12							
INSPECTION/SEAMER	E 60/22/57 W 16/65	E 22/57 W 16/55	E	W	E	W	
SUPERVISOR	VK MW						
ROLL NO.	MANUFACTURE #	MFG DATE	ROLL NO.	MANUFACTURE #	MFG DATE		
5	FR82145-7						
4	FR82144-2						
2	FR82144-2						
3	FR82144-2						
6	FR82144-2						
12	FR82144-2						
1	FR82144-2						
5	FR82144-2						
7	FR82144-2						
13	FR82144-2						
9	FR82144-2						

WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC - F - FAILLE GAUGE: .030 JOB #: _____ PANEL #: BEG FABRICATION DATE: 3/4/98

COMER: STOCK TYPE OF FABRICATION: S98030401 TEST DATE: 3/5/98 BY: MDL

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D751		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	4	15	A		0.00	0.00	73.70	72.22	
			B		0.00		70.23		
	FR82145-1	FR82144-2	C		0.00		72.62		
			D		0.00		70.62		
			E		0.00		73.95		
2	15	11	A		0.00	0.00	74.42	73.51	
			B		0.00		73.35		
	FR82144-2	FR82144-2	C		0.00		72.67		
			D		0.00		73.42		
			E		0.00		73.67		
3	11	16	A		0.00	0.00	72.42	72.49	
			B		0.00		72.27		
	FR82144-2	FR82144-2	C		0.00		70.57		
			D		0.00		73.95		
			E		0.00		73.25		
4	16	8	A		0.00	0.00	74.80	72.21	
			B		0.00		72.70		
	FR82144-2	FR82144-2	C		0.00		69.55		
			D		0.00		72.10		
			E		0.00		71.90		
5	8	6	A		0.00	0.00	70.95	69.65	
			B		0.00		72.37		
	FR82144-2	FR82145-1	C		0.00		70.32		
			D		0.00		67.95		
			E		0.00		66.65		
6	6	14	A	23.30	23.70	23.50	24.80	70.12	71.49
			B	23.85	22.80	23.33		69.42	
	FR82145-1	FR82144-2	C	23.90	23.45	23.68		71.07	
			D	27.05	27.85	27.45		73.40	
			E	26.65	25.45	26.05		73.42	
7	14	9	A		0.00	0.00	70.50	71.31	
			B		0.00		71.82		
	FR82144-2	FR82145-7	C		0.00		70.30		
			D		0.00		72.32		
			E		0.00		71.60		
8	9	10	A		0.00	0.00	72.20	71.48	
			B		0.00		70.35		
	FR82145-7	FR82144-2	C		0.00		73.15		
			D		0.00		70.57		
			E		0.00		71.12		
9	10	1	A		0.00	0.00	72.15	70.85	
			B		0.00		71.15		
	FR82144-2	FR82145-7	C		0.00		69.45		
			D		0.00		70.32		
			E		0.00		71.17		
10	1	8	A		0.00	0.00	65.97	66.81	
			B		0.00		67.17		
	FR82145-7	FR82145-1	C		0.00		64.17		
			D		0.00		67.45		
			E		0.00		69.27		

PEEL TEST DATA: Per

Sample Width:	Speed:	in./min.	Load Range:	Temperature:	degree F	Charted
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WATERSAVER COMPANY, INC.
LAB TEST REPORT -- CERTIFIED RESULTS

MATERIAL TYPE: PVC FAILLE R

GUAGE: .030

JOB #:

PANEL #:

FABRICATION DATE:

3/4/98

CUSTOMER:

TYPE OF FABRICATION:

S98030405

TEST DATE:

6/9/98

BY: MDI

SEAM NO.	ROLL DATA	ROLL DATA	ASTM - D413			GROUP AVG.	ASTM - D751		
			PEEL TEST		AVG. (LB/IN)		SHEAR TEST	AVG. (LB/IN)	
			PEAK 1	PEAK 2					
1	FR82145-7	FR82144-2	A		0.00	0.00	72.80	71.73	
			B		0.00		73.17		
			C		0.00		72.15		
			D		0.00		68.80		
			E		0.00		71.72		
2	FR82144-2	FR82144-2	A		0.00	0.00	69.20	68.92	
			B		0.00		65.62		
			C		0.00		67.52		
			D		0.00		70.85		
			E		0.00		71.42		
3	FR82144-2	FR82144-2	A		0.00	0.00	74.77	74.90	
			B		0.00		73.07		
			C		0.00		73.90		
			D		0.00		76.02		
			E		0.00		76.75		
4	FR82144-2	FR82144-2	A	27.70	31.12	25.59	76.15	72.23	
			B	19.45	28.77		24.11		73.80
			C	12.72	27.12		19.92		73.40
			D	25.20	28.17		26.69		70.15
			E	23.07	32.57		27.82		67.67
5	FR82144-2	FR82144-2	A		0.00	0.00	71.12	69.76	
			B		0.00		69.25		
			C		0.00		69.40		
			D		0.00		67.72		
			E		0.00		71.30		
6	FR82144-2	FR82144-2	A		0.00	0.00	84.65	78.63	
			B		0.00		81.05		
			C		0.00		76.00		
			D		0.00		77.02		
			E		0.00		74.42		
7	FR82144-2	FR82144-2	A		0.00	0.00	70.87	70.71	
			B		0.00		71.50		
			C		0.00		71.25		
			D		0.00		69.62		
			E		0.00		70.30		
8	FR82144-2	FR82144-2	A		0.00	0.00	68.77	68.92	
			B		0.00		68.07		
			C		0.00		69.10		
			D		0.00		69.37		
			E		0.00		69.30		
9	FR82144-2	FR82144-2	A		0.00	0.00	73.07	73.90	
			B		0.00		74.55		
			C		0.00		75.07		
			D		0.00		73.97		
			E		0.00		72.82		
10	FR82144-2	FR82144-2	A		0.00	0.00	69.50	69.29	
			B		0.00		68.02		
			C		0.00		68.45		
			D		0.00		69.97		
			E		0.00		70.52		

**MANUFACTURER'S
CERTIFIED TEST RESULTS**

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

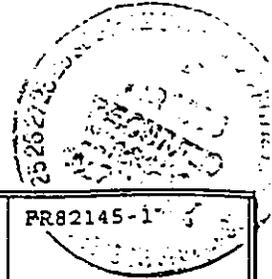
CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	FR84084-2
	WATER- SAVER	TESTING RH/TEMP.	52 & 23C				<i>W18A95</i>
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	30.14		30.53	29.41	29.85	ASTM D- 1593	30±5%
100 & MOD LB/IN WIDTH	MD	37.62	41.85	41.26	39.93	ASTM D- 882A	30 MIN
	CD	33.33	38.11	35.39	36.25		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	92.04	91.77	94.25	90.83	ASTM D- 882A	69 MIN
	CD	84.60	83.50	82.12	86.31		69 MIN
ELONGATION RATE %	MD	429.7	418.9	428.5	405.4	ASTM D- 882A	350 MIN
	CD	464.7	427.4	453.4	426.9		350 MIN
SHRINKAGE %	MD	-1.95	-2.35	-1.72	-1.85	ASTM D- 1204	-3.5 MAX
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	16.21	17.42	16.23	17.67	ASTM D- 1004	9.00 MIN
	CD	19.09	20.98	19.18	19.43		9.00 MIN
VOLATILE LOSS %	-0.50		-0.55	-0.53	-0.54	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.21		-0.16	-0.18	-0.20	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ.IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR
	CD	PASS	PASS	PASS	PASS		2. ELONGATION AT BREAK
							3. MODULUS AT 100% ELONGATION
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>Chis</i>			TESTER		LEJDIA	
DATE: 04-14-98							

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	FR84084-3
	WATER- SAVER	TESTING RH/TEMP.	52± 23C				<i>W/8A95</i>
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	30.24		29.79	30.62	30.15	ASTM D- 1593	30±5%
100 % MOD LB/IN WIDTH	MD	40.86	39.17	42.88	41.05	ASTM D- 882A	30 MIN
	CD	38.09	37.39	40.94	38.81		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	98.32	85.70	92.32	91.29	ASTM D- 882A	69 MIN
	CD	90.11	90.39	87.36	88.84		69 MIN
ELONGATION RATE %	MD	445.6	416.4	427.1	435.2	ASTM D- 882A	350 MIN
	CD	452.6	453.3	430.6	455.7		350 MIN
SHRINKAGE %	MD	-1.72	-1.91	-2.46	-2.03	ASTM D- 1204	-3.5 MAX
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	17.22	17.53	18.09	17.62	ASTM D- 1004	9.00 MIN
	CD	21.56	21.14	19.15	19.26		9.00 MIN
VOLATILE LOSS %	-0.62		-0.65	-0.51	-0.63	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.22		-0.19	-0.16	-0.25	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ.IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR
	CD	PASS	PASS	PASS	PASS		2. ELONGATION AT BREAK
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>[Signature]</i>			TESTER		LEJDIA	
DATE: 04-14-98							

NAN YA PLASTICS CORPORATION, AMERICA

CERTIFICATE OF ANALYSIS



CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	FR82145-1
	WATER- SAVER	TESTING RH/TEMP.	52% 23C				<i>6018A46</i>
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	29.45		29.66	29.15	29.96	ASTM D- 1593	30±5%
100 % MOD LB/IN WIDTH	MD	37.52	35.52	34.12	35.82	ASTM D- 882A	30 MIN
	CD	36.00	35.12	32.52	33.36		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	90.52	88.96	87.63	88.45	ASTM D- 882A	69 MIN
	CD	89.66	85.52	82.12	81.78		69 MIN
ELONGATION RATE %	MD	466.6	478.5	480.6	477.4	ASTM D- 882A	350 MIN
	CD	500.3	505.5	512.2	500.6		350 MIN
SHRINKAGE %	MD	-2.07	-2.11	-2.00	-2.01	ASTM D- 1204	-3.5 MAX
COLD CRACK	°C	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	19.88	20.25	20.12	20.00	ASTM D- 1004	9.00 MIN
	CD	19.12	19.22	19.31	18.25		9.00 MIN
VOLATILE LOSS %	-0.63		-0.68	-0.64	-0.60	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.10		-0.14	-0.16	-0.12	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
	CD	PASS	PASS	PASS	PASS		
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>LTW</i>			TESTER	LEJDIA		
DATE: 02-25-98							

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	FR82145-7
	WATER- SAVER	TESTING RH/TEMP.	52+ 23C				<i>W/SA46</i>
SPEC.	THICKNESS (MM) 0.763	WIDTH (IN) 76.25"			TEST METHOD REFERRED TO	STANDARDS	
ROLL #	1	8	16	23			
SPEC. GRAVITY	1.25	1.25	1.25	1.25			
THICKNESS (GAUGE)	30.11	30.25	30.05	29.90	ASTM D- 1593	30±5%	
100 % MOD LB/IN WIDTH	MD	37.25	38.00	35.52	36.10	ASTM D- 882A	30 MIN
	CD	33.64	33.25	34.22	35.52		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	85.70	83.66	84.60	83.36	ASTM D- 882A	69 MIN
	CD	83.22	82.25	83.22	82.05		69 MIN
ELONGATION RATE %	MD	435.5	430.0	466.5	478.5	ASTM D- 882A	350 MIN
	CD	458.6	500.0	512.2	502.3		350 MIN
SHRINKAGE %	MD	-2.00	-1.96	-2.00	-2.01	ASTM D- 1204	-3.5 MAX
COLD CRACK	°C	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	19.45	19.05	19.22	19.36	ASTM D- 1004	9.00 MIN
	CD	18.04	17.85	17.45	17.05		9.00 MIN
VOLATILE LOSS %	-0.60		-0.55	-0.55	-0.60	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.16		-0.18	-0.17	-0.15	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR
	CD	PASS	PASS	PASS	PASS		2. ELONGATION AT BREAK
							3. MODULUS AT 100% ELONGATION
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>L. L. L.</i>			TESTER	LEJDIA		
DATE: 02-26-98							

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	FR82144-2 <i>W18A45</i>	
	WATER- SAVER	TESTING RH/TEMP.	52± 23C					
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS	
ROLL #	1		8	16	23			
SPEC. GRAVITY	1.25		1.25	1.25	1.25			
THICKNESS (GAUGE)	30.11		30.77	30.00	30.12	ASTM D- 1593	30±5%	
100 % MOD LB/IN WIDTH	MD	40.52	39.91	40.00	40.20	ASTM D- 882A	30 MIN	
	CD	38.35	35.65	36.64	37.45		30 MIN	
TENSILE STRENGTH LB/IN WIDTH	MD	94.25	90.25	89.90	90.02	ASTM D- 882A	69 MIN	
	CD	89.85	87.64	85.70	88.63		69 MIN	
ELONGATION RATE %	MD	491.5	477.5	463.3	470.5	ASTM D- 882A	350 MIN	
	CD	518.5	500.1	494.5	512.0		350 MIN	
SHRINKAGE %	MD	-2.45	-2.33	-2.28	-2.31	ASTM D- 1204	-3.5 MAX	
COLD CRACK	°C	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C	
TEAR STRENGTH LB	MD	20.06	18.85	20.12	20.12	ASTM D- 1004	9.00 MIN	
	CD	17.36	17.06	16.63	17.25		9.00 MIN	
VOLATILE LOSS %	-0.55		-0.43	-0.60	-0.56	ASTM D1203-A	-0.7 MAX	
WATER EXTRACTION %	-0.12		-0.17	-0.13	-0.15	ASTM D- 3083-A	-0.35 MAX	
HYDROSTATIC RESISTANCE LB/SQ.IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN	
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS		PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION	
	CD	PASS		PASS	PASS			
TECHNICAL DEPARTMENT OPINION	PASS							
SUPERVISOR	<i>Stwe</i>			TESTER		LEJDIA		
DATE: 02-23-98								

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	FR81030-2 <i>W/8A08</i>
	WATER- SAVER	TESTING RH/TEMP.	52% 23C				
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	29.81		30.00	29.12	30.25	ASTM D- 1593	30±5%
100 % MOD LB/IN WIDTH	MD	41.44	40.52	39.45	37.52	ASTM D- 882A	30 MIN
	CD	37.12	36.63	35.52	33.52		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	85.81	85.83	85.52	88.85	ASTM D- 882A	69 MIN
	CD	84.00	82.52	84.00	83.96		69 MIN
ELONGATION RATE %	MD	448.6	427.4	431.2	445.5	ASTM D- 882A	350 MIN
	CD	455.5	456.6	455.5	468.3		350 MIN
SHRINKAGE %	MD	-1.91	-1.89	-1.96	-2.10	ASTM D- 1204	-3.5 MAX
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	18.00	19.52	18.45	18.05	ASTM D- 1004	9.00 MIN
	CD	17.08	17.41	16.85	17.12		9.00 MIN
VOLATILE LOSS %	-0.60		-0.58	-0.58	-0.57	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.11		-0.17	-0.14	-0.15	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
	CD	PASS	PASS	PASS	PASS		
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>Steve</i>			TESTER	LEJDIA		
DATE: 01-22-97							

NAN YA PLASTICS CORPORATION, AMERICA

CERTIFICATE OF ANALYSIS



CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX				PRODUCT NUMBER	FR 1028-1 1977 <i>W18A07</i>		
	WATER- SAVER	TESTING RH/TEMP.	52± 23C							
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"				TEST METHOD REFERED TO	STANDARDS		
ROLL #	1		8	16	23					
SPEC. GRAVITY	1.25		1.25	1.25	1.25					
THICKNESS (GAUGE)	30.59		28.87	30.00	30.05	ASTM D- 1593	30±5%			
100 % MOD LB/IN WIDTH	MD	43.10	36.61	35.25	36.22	ASTM D- 882A	30	MIN		
	CD	36.55	38.45	33.03	32.52		30	MIN		
TENSILE STRENGTH LB/IN WIDTH	MD	93.63	86.63	82.52	88.12	ASTM D- 882A	69	MIN		
	CD	87.36	84.52	85.70	75.85		69	MIN		
ELONGATION RATE %	MD	388.2	412.2	387.5	400.5	ASTM D- 882A	350	MIN		
	CD	465.6	435.5	405.5	415.2		350	MIN		
SHRINKAGE %	MD	-2.11	-2.00	-2.25	-2.05	ASTM D- 1204	-3.5	MAX		
COLD CRACK	°C	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C			
TEAR STRENGTH LB	MD	17.52	18.00	17.52	18.05	ASTM D- 1004	9.00	MIN		
	CD	16.52	17.45	16.36	17.05		9.00	MIN		
VOLATILE LOSS %	-0.53		-0.60	-0.62	-0.64	ASTM D1203-A	-0.7	MAX		
WATER EXTRACTION %	-0.12		-0.16	-0.18	-0.11	ASTM D- 3083-A	-0.35	MAX		
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85	MIN		
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR			
	CD	PASS	PASS	PASS	PASS		2. ELONGATION AT BREAK			
							3. MODULUS AT 100% ELONGATION			
TECHNICAL DEPARTMENT OPINION	PASS									
SUPERVISOR	<i>[Signature]</i>				TESTER	EARL B.				
DATE: 01-24-97										

NAN YA PLASTICS CORPORATION, AMERICA
CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	FR81029-6
	WATER- SAVER	TESTING RH/TEMP.	52± 23C				<i>W18A07</i>
SPEC.	THICKNESS (MM) 0.763	WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS	
ROLL #	1	8	16	23			
SPEC. GRAVITY	1.25	1.25	1.25	1.25			
THICKNESS (GAUGE)	29.77	29.89	30.25	30.00	ASTM D- 1593	30±5%	
100 % MOD LB/IN WIDTH	MD	37.55	38.81	40.60	39.52	ASTM D- 882A	30 MIN
	CD	34.99	35.82	37.61	37.52		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	89.56	84.60	89.05	90.05	ASTM D- 882A	69 MIN
	CD	81.85	82.40	81.52	83.12		69 MIN
ELONGATION RATE %	MD	440.5	420.9	414.0	422.3	ASTM D- 882A	350 MIN
	CD	441.9	451.5	422.25	463.3		350 MIN
SHRINKAGE %	MD	-1.89	-1.77	-1.45	-1.85	ASTM D- 1204	-3.5 MAX
COLD CRACK	°C	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	18.00	17.96	17.45	17.63	ASTM D- 1004	9.00 MIN
	CD 16.52	16.05	16.78	16.25	16.00		9.00 MIN
VOLATILE LOSS %	-0.58		-0.66	-0.51	-0.55	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.13		-0.16	-0.18	-0.14	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
	CD	PASS	PASS	PASS	PASS		
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>Steve</i>			TESTER	LEJDIA		
DATE: 01-23-97							

NAN YA PLASTICS CORPORATION, AMERICA

CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	FR81029-7
	WATER- SAVER	TESTING RH/TEMP.	52± 23C				<i>WISA07</i>
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS
ROLL #	1		8	16	23		
SPEC. GRAVITY	1.25		1.25	1.25	1.25		
THICKNESS (GAUGE)	29.94		29.99	30.00	31.02	ASTM D- 1593	30±5%
100 % MOD LB/IN WIDTH	MD	41.04	39.11	36.52	35.52	ASTM D- 882A	30 MIN
	CD	36.52	36.25	36.55	31.08		30 MIN
TENSILE STRENGTH LB/IN WIDTH	MD	89.05	89.29	82.21	84.52	ASTM D- 882A	69 MIN
	CD	81.88	77.44	80.84	82.47		69 MIN
ELONGATION RATE %	MD	448.5	405.5	380.0	433.3	ASTM D- 882A	350 MIN
	CD	457.1	421.2	402.5	453.3		350 MIN
SHRINKAGE %	MD	-1.88	-1.63	-1.58	-2.00	ASTM D- 1204	-3.5 MAX
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D- 1790	-29°C
TEAR STRENGTH LB	MD	17.96	17.44	18.05	17.55	ASTM D- 1004	9.00 MIN
	CD 16.52	16.88	16.74	16.44	16.21		9.00 MIN
VOLATILE LOSS %	-0.60		-0.58	-0.55	-0.50	ASTM D1203-A	-0.7 MAX
WATER EXTRACTION %	-0.12		-0.15	-0.11	-0.17	ASTM D- 3083-A	-0.35 MAX
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D- 751A	85 MIN
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D- 3083A	1. BREAKING FACTOR 2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION
	CD	PASS	PASS	PASS	PASS		
TECHNICAL DEPARTMENT OPINION	PASS						
SUPERVISOR	<i>Steve</i>			TESTER		LEJDIA	
DATE: 01-23-97							

NAN YA PLASTICS CORPORATION, AMERICA

CERTIFICATE OF ANALYSIS

CUSTOMER NAME	ROCHEUX CA-02	PRODUCT CODE	PPTX			PRODUCT NUMBER	FR81029-8 <i>W18A07</i>	
	WATER-SAVER	TESTING RH/TEMP.	52 & 23C					
SPEC.	THICKNESS (MM) 0.763		WIDTH (IN) 76.25"			TEST METHOD REFERED TO	STANDARDS	
ROLL #	1		8	16	23			
SPEC. GRAVITY	1.25		1.25	1.25	1.25			
THICKNESS (GAUGE)	29.56		29.78	29.18	30.00	ASTM D-1593	30 ± 5%	
100 % MOD LB/IN WIDTH	MD	38.52	40.00	36.62	33.12	ASTM D-882A	30 MIN	
	CD	31.25	33.25	32.52	32.00		30 MIN	
TENSILE STRENGTH LB/IN WIDTH	MD	87.12	86.52	83.45	85.52	ASTM D-882A	69 MIN	
	CD	82.52	80.06	81.45	84.08		69 MIN	
ELONGATION RATE %	MD	431.0	422.1	410.6	411.3	ASTM D-882A	350 MIN	
	CD	460.0	428.52	433.3	452.1		350 MIN	
SHRINKAGE %	MD	-2.12	-1.96	-1.74	-1.88	ASTM D-1204	-3.5 MAX	
COLD CRACK	°c	PASS	PASS	PASS	PASS	ASTM D-1790	-29°C	
TEAR STRENGTH LB	MD	18.05	18.63	18.22	18.45	ASTM D-1004	9.00 MIN	
	CD	17.22 16.52	16.52	16.36	17.05		9.00 MIN	
VOLATILE LOSS %	-0.58		-0.55	-0.47	-0.56	ASTM D1203-A	-0.7 MAX	
WATER EXTRACTION %	-0.15		-0.13	-0.12	-0.10	ASTM D-3083-A	-0.35 MAX	
HYDROSTATIC RESISTANCE LB/SQ. IN.	PASS		PASS	PASS	PASS	ASTM D-751A	85 MIN	
SOIL BURIAL % CHANGE MAX. IN ORIGINAL VALUE	MD	PASS	PASS	PASS	PASS	ASTM D-3083A	1. BREAKING FACTOR	
	CD	PASS	PASS	PASS	PASS		2. ELONGATION AT BREAK 3. MODULUS AT 100% ELONGATION	
TECHNICAL DEPARTMENT OPINION	PASS							
SUPERVISOR	<i>Steve</i>			TESTER		LEJDIA		
DATE: 01-23-97								

APPENDIX IV

FIELD QA REPORTS FOR SYNTHETIC LINER INSTALLATION

LAW

LAWGIBB Group Member 

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

Geomembrane Installation Quality Assurance Document

Project Name: Champion Cell 6 H Project Number: 30300-8-0313.02 Date: 10-28-98

CQA Inspector(s):
Sam Interlicchia
Joe Nesbitt, Jimmy High

Weather Conditions: Partly Sunny
60° - 75°F

Geomembrane Description

Material: PVC
Thickness: 30 mil width 70'

TABLE 1
PANEL IDENTIFICATION/PLACEMENT

TIME	ROLL NUMBER	COMMENTS DAMAGE	PANEL NUMBER	LENGTH	PANEL LOCATION
8:00 am	ID-S-98030311	ok	8	45'	North of 5
8:15 am	ID-S-98RP2007	ok	9	115'	North of 6
8:30 am	ID-S-98022701	ok	10	145'	Northwest of 6
8:50 am	ID-S-98022701	ok	11	155'	North of 8 & 9
9:10 am	ID-S-98021910	ok	12	158'	North of 10
12:35 pm	ID-S-98021910	ok	13	142'	North of 11
12:50 pm	ID-S-98030403	ok	14	172'	North of 12
2:30 pm	ID-S-98030403	ok	15	128'	North of 13
2:50 pm	ID-S-98030314	ok	16	176'	North of 14
3:50 pm	ID-S-98030314	ok	17	124'	North of 15
4:10 pm	ID-S-98022706	ok	18	170'	North of 16

* See As-Built Drawing for any deviations of panel length and placement.

LAW

LAWGIBB Group Member

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

Geomembrane Installation Quality Assurance Document

Project Name: Champion Cell 6A Project Number: 30300-8-0313.02 Date: 10-29-98

CQA Inspector(s):
Sam Interlicchia
Jimmy High, Joe Newbitt

Weather Conditions: Partly Cloudy
65-75°F Slight Breeze

Geomembrane Description

Material: PVC
Thickness: 60 mil width 70'

TABLE 1
PANEL IDENTIFICATION/PLACEMENT

TIME	ROLL NUMBER	COMMENTS DAMAGE	PANEL NUMBER	LENGTH	PANEL LOCATION
8:15 am	IDS-98022706	OK	19	130'	Noethof 17
8:21 am	IDS-98030313	OK	20	162'	Noethof 18
8:36 am	IDS-98030313	OK	21	125'	Noethof 19
8:45 am	IDS-98030308	OK	22	151'	Noethof 20
8:53 am	IDS-98030308	OK	23	154'	Noethof 21
9:08 am	IDS-98030310	OK	24	127'	Noethof 22
9:21 am	IDS-98030310	OK	25	172'	Noethof 24
9:32 am	IDS-98030402	OK	26	92'	Noethof 23
9:48 am	IDS-98030402	OK	27	220'	Noethof 27
10:14 am	IDS-98030402	OK	28	25' Pie	Noethof 28
10:00 pm	IDS-98030402	OK	29	80' Pie	Noethof 27

* See As-Built Drawing for any deviations of panel length and placement.

LAW

LAWGIBB Group Member

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

Geomembrane Installation Quality Assurance Document

Project Name: Champion Cell 611 Project Number: 20300-8-0313-02 Date: 10-29-98

CQA Inspector(s): Sam Instelischia
Weather Conditions: Partly Cloudy
65-85°f Slight Breeze

Table 2
Field trail seams

Date	Test No.	Welder and Machine No.	Ambient Temperature	Time	Machine Temperature	Seaming Method	Peel Test-Strength At Break (lb./in)	Shear Test-Strength At Break (lb./in)	Results Pass/fail
10/29	6	Ken #5	72°f	1006A	530°f	Fusion	27	65	P
↓	↓	↓	↓	↓	↓	↓	30	64	P
10/29	7	Paul DL-1	72°f	1011A	540°f	Fusion	28	71	P
↓	↓	↓	↓	↓	↓	↓	22	74	P
↓	↓	↓	↓	↓	↓	↓	21	75	P
10/29	8	Ken #4	74°f	1145A	520°f	Fusion	24	71	P
↓	↓	↓	↓	↓	↓	↓	30	68	P
↓	↓	↓	↓	↓	↓	↓	31	70	P
↓	↓	↓	↓	↓	↓	↓	33	64	P

LAW

LAWGIBB Group Member

1308-C Patton Avenue
 Asheville, North Carolina 28806
 (828) 252-8130 Phone
 (828) 251-9690 Fax

Geomembrane Installation Quality Assurance Document

Project Name: Champion Cell 6 H Project Number: 30300-8-0313-02 Date: 10-28-98

CQA Inspector(s):
Sam Tuttlechia

Weather Conditions: Partly Sunny
60-75°F

**TABLE 3
 FIELD SEAMING**

TIME	SEAM NUMBER	SEAMING METHOD	SEAM LENGTH	MACHINE NUMBER	WELDER	AIR TEMP	MACHINE TEMP
755 A	11-12	Fusion	69'	D-1	Paul	65°F	545°F
1000 A	5-6		70'	*5	Ken	65°F	550°F
1020 A	9-10		69'	D-1	Paul	65°F	545°F
1034 A	8-9		69'	D-1	Paul	68°F	545°F
1015 A	4-6		227'	*5	Ken	70°F	550°F
1045 A	4-5		35'	*5	Ken	70°F	550°F
1100 A	10-12		140'	D-1	Paul	73°F	545°F
1120 A	9-12		7'	D-1	Paul	73°F	545°F
1121 A	9-11		115'	D-1	Paul	73°F	545°F
1135 A	8-11		34'	D-1	Paul	73°F	545°F
1105 A	6-10		117'	*5	Ken	73°F	540°F
1120 A	9-6		116'	*5	Ken	73°F	545°F
1145 A	9-5		23'	*5	Ken	74°F	540°F
1149 A	8-5		35'	*5	Ken	76°F	540°F
155 P	13-14		68'	G-4	Paul	60°F	545°F
145 P	11-13		134'	*5	Ken	70°F	530°F
203 P	12-13		6'	*5	Ken	70°F	530°F
204 P	12-14		155'	*5	Ken	70°F	530°F
310 P	15-16		69'	G-4	Paul	60°F	545°F

Total 1558

LAW

LAWGIBB Group Member 

1308-C Patton Avenue

Asheville, North Carolina 28806

(828) 252-8130 Phone

(828) 251-9690 Fax

Geomembrane Installation Quality Assurance Document

Project Name: Champion Cell 6 H Project Number: 30300-8-0313.02 Date: 10-29-98

CQA Inspector(s):
Sam Interbrucia

Weather Conditions: Partly Cloudy
65-75°F slight Breeze

**TABLE 3
FIELD SEAMING**

TIME	SEAM NUMBER	SEAMING METHOD	SEAM LENGTH	MACHINE NUMBER	WELDER	AIR TEMP	MACHINE TEMP
1110 A	18-20	Fusion	149'	"5	Ken	72°F	530°F
1109 A	18-19		17'	"5	Ken	75°F	530°F
1054 A	17-19		114'	"5	Ken	75°F	530°F
1037 A	19-20		68'	"5	Ken	75°F	530°F
144 P	20-22		147'	"4	Ken	75°F	520°F
205 P	20-21		11'	"4	Ken	75°F	520°F
206 P	19-21		122'	"4	Ken	75°F	520°F
155 P	22-24		124'	D-1	Paul	76°F	540°F
220 P	21-24		25'	"4	Ken	75°F	520°F
125 P	21-22		69'	"4	Ken	75°F	520°F
224 P	21-23		122'	"4	Ken	75°F	520°F
1029 A	24-25		121'	D-1	Paul	75°F	540°F
1245 P	23-24		68'	D-1	Paul	75°F	540°F
125 P	23-25		48'	D-1	Paul	75°F	540°F
1055 A	25-26		69'	D-1	Paul	75°F	540°F
130 P	23-26		90'	D-1	Paul	75°F	540°F
1115 A	25-27		162'	D-1	Paul	75°F	540°F
1155 A	26-27		52'	D-1	Paul	75°F	540°F
1201 P	28-26		20'	D-1	Paul	75°F	540°F
1040 A	27-28		32'	D-1	Paul	75°F	540°F
224 P	27-29		76'	"4	Ken	75°F	520°F

Total 1706'

LAW

LAWGIBB Group Member

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

Geomembrane Installation
Quality Assurance Document

Project Name: Champion Cell 6H, Project Number: 30300-8-0313.02 Date: 10/29/98

CQA Inspector(s): Sam Intestabile
Jimmy High
Weather Conditions: Partly Cloudy
65-75°F Slight Breeze

TABLE 4
NON-DESTRUCTIVE SEAM CONTINUITY TESTING

SEAM NUMBER	SECTION OF SEAM TESTED	INSPECTOR	TEST METHOD	RESULTS (PASS/FAIL)	NUMBER OF REPAIRS	DATE REPAIRED (PASS/FAIL)
26-27	Entire	Jimmy High	Rilance	Pass	—	
25-26				Pass	—	
25-27				Pass	1 DS # 8	10/22/98 Pass
29-27				Pass	—	
17-15		Sam Intestabile		Pass	—	
17-16				Fail	1 DS Hole	10/29/98 Pass
17-18				Pass	—	
18-16				Pass	—	
20-18				Pass	DS # 5	10/29/98 Pass
18-19				Pass	—	
19-17				Pass	—	

LAW

LAWGIBB Group Member

1308-C Patton Avenue

Asheville, North Carolina 28806

(828) 252-8130 Phone

(828) 251-9690 Fax

Geomembrane Installation

Quality Assurance Document

Project Name: Champion Cell 6A Project Number: 30300-8-0313.01 Date: 10/28/98

CQA Inspector(s):

SAM Interservice

Weather Conditions: P Sunny 60°-75°f

TABLE 5
DESTRUCTIVE SEAM STRENGTH TESTING

TEST NUMBER	SEAM NUMBER	LOCATION	REASON FOR TEST	AMBIENT AIR TEMP*	WELDER*	MACHINE NUMBER*	MACHINE TEMP*	PEEL TEST-STRENGTH AT BREAK (IB/IN)	SHEAR TEST-STRENGTH AT BREAK (IB/IN)	RESULTS PASS OR FAIL
1	2-4	0+10'	Required 500'	75°F	KEN	# 5	585°F	24.8/35.3/33.0/30.8	62.7 75.1 70.6 78.0 60.5	PASS
2	9-11	0+93'		75°F	PAW1	D-1	545°F	38.8 33.0 35.7 38.2	61.2 61.9 58.8 62.3	PASS
3	9-6	0+45'		75°F	KEN	# 5	540°F	32.2 28.2 24.4	66.5 64.1 59.4 62.8	PASS
4	13-14	0+35'		75°F	PAW1	G-4	545°F	32.4 27.0 36.7	75.6 74.8 70.0 70.1	PASS
5	18-20	0+72'		73°F	KEN	# 5	530°F	33.7 30.4 26.7	65.8 71.5 72.0 68.2	PASS
6	19-21	0+20'		72°F	KEN	# 4	520°F	15.5 16.7 13.0	79.9 76.1 77.1 77.6	PASS
7	27-26	0+40'	↓	74°F	KEN	# 4	520°F	20.0 23.0 20.0	72.6 72.4 76.4 76.4	PASS
								17.9 24.0	71.6 64.9	PASS

* Obtained from Table 3.

LAW

LAWGIBB Group Member

1308-C Patton Avenue

Asheville, North Carolina 28806

(828) 252-8130 Phone

(828) 251-9690 Fax

Geomembrane Installation
Quality Assurance Document

Project Name: Champion Cell 6H Project Number: 30300-8-0313.03 Date: 10/28/98

CQA Inspector(s): SAM Intesticebino
Weather Conditions: Partly Sunny
60°-75°F

TABLE 5
DESTRUCTIVE SEAM STRENGTH TESTING

TEST NUMBER	SEAM NUMBER	LOCATION	REASON FOR TEST	AMBIENT AIR TEMP*	WELDER*	MACHINE NUMBER*	MACHINE TEMP*	PEEL TEST-STRENGTH AT BREAK (IB/IN)	SHEAR TEST-STRENGTH AT BREAK (IB/IN)	RESULTS PASS OR FAIL
8	25-27	0+15	Required 500'	74° F	Paul	D-1	540° F	39.0 28.9 30.3 23.0 30.0 28.7 27.0 30.1	66.4 20.3 21.1 69.9 69.5 57.9 58.4 63.9	Pass
9	24-25	0+58	↓	73° F	Ken	D-1	520° F	31.1 11.3 10.0 11.0 12.0 10.0	53.7 54.6 57.4 53.2	Pass
Chemical	—	—	Trail Seams (Field Weld)		Shawn					
			(Solvent)		Willowise					

* Obtained from Table 3.

LAW

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(828) 251-9690 Fax

Geomembrane Installation
Quality Assurance Document

Project Name: Champion Cell 6 H₂ Project Number: 30300-8-0313.0A Date: 10/28/98

CQA Inspector(s): Sam Intlichia Weather Conditions: P Sunny 60-75°F

**TABLE 6
PANEL REPAIR RECORD**

REPAIR NUMBER	LOCATION*	DESCRIPTION OF DAMAGE	SIZE OF REPAIR	REPAIR METHOD	WELDER	N.D.T.** INSPECTOR	RESULTS (PASS/FAIL)	DATE OF N.D.T.**
1	Panel #1	Boat (Pipe)	Pipe Holes	Solvent	Shawn Willase	S Intlichia	Pass	10/28/98
2	Panel 3 DS#1	Puncture	4"	Patch/Solvent		Air lance	Pass	10/28/98
3	Panel 2 DS#1	DS#1	4"x2'	Patch/Solvent			Pass	
4	Panel 2 O+16	Puncture	12"	Patch/Solvent			Pass	
5	Panel 7 O+01	Puncture	12"	Patch/Solvent			Pass	
6	Panel 6 DS#3	DS#3	4"x2'	Patch/Solvent			Pass	
7	11/9 1+05	Burr through	12"	Patch/Solvent			Pass	
8	Panel 9 DS#2	DS#2	4"x2'	Patch/Solvent			Pass	
9	Panel 12 O+3B	Puncture	12"	Patch/Solvent			Pass	

*Include seam number and distance from reference points.

**N.D.T. = Nondestructive testing. Include test method
Air lance

LAW

LAWGIBB Group Member

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Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

Geomembrane Installation
Quality Assurance Document

Project Name: Chambers Cell 6.H Project Number: 30300-B-0313.02 Date: 10-28-98

COA Inspector(s): Sam Intestichia Weather Conditions: Partly Sunny
60-75°F

TABLE 6
PANEL REPAIR RECORD

REPAIR NUMBER	LOCATION*	DESCRIPTION OF DAMAGE	SIZE OF REPAIR	REPAIR METHOD	WELDER	N.D.T.** INSPECTOR	RESULTS (PASS/FAIL)	DATE OF N.D.T.**
10	3-4 0+22	Burn through	14"	Patch/Sealant	Shawn Williams	Intestichia	Pass	10/28/98
11	13-14 0+03	Burn through	12"			Air lance	Pass	
12	Panel 18 10' N	Tear	12"				Pass	
13	Panel 19 0+40	Run out	12"				Pass	
14	22-20 0+53	Burn through	12"				Pass	
15	Panel 19 0+08	Run out	12"				Pass	
16	24-22 11' N	Burn through	12"				Pass	
17	Panel 25 0+35'	Tear	12"				Pass	
18	13-14 0+35'	DS*4	4'x2'				Pass	

*Include seam number and distance from reference points.

**N.D.T. = Nondestructive testing. Include test method
Air lance

LAW

LAWGIBB Group Member

1308-C Patton Avenue

Asheville, North Carolina 28806

(828) 252-8130 Phone

(828) 251-9690 Fax

Geomembrane Installation

Quality Assurance Document

Project Name: Champions Cell 6 H Project Number: 30300-8-0313-02 Date: 10-28-98

CQA Inspector(s):

Sam Instalikalis

Jimmy High

Weather Conditions: Partly Sunny

60-75°F

TABLE 6
PANEL REPAIR RECORD

REPAIR NUMBER	LOCATION*	DESCRIPTION OF DAMAGE	SIZE OF REPAIR	REPAIR METHOD	WELDER	N.D.T.** INSPECTOR	RESULTS (PASS/FAIL)	DATE OF N.D.T.**
19	20-18 0+72'	DS # 5	4'x2'	Patch/Solvent	Shawn Willess	Substantia	Pass	10-29-98
20	19-21 0+20'	DS # 6	4'x2'				Pass	
21	24-25 0+58'	DS # 9	4'x2'				Pass	
22	26-27 0+40'	DS # 7	4'x2'				Pass	
23	25-27 0+15'	DS # 8	4'x2'			High	Pass	
24	11-9 0+03'	Boon through	12"			Substantia	Pass	
25	10-12 0+41'	Pig Hole	Solvent	Solvent			Pass	10-29-98
26	13-16 0+70'	Pig Hole	Solvent	Solvent			Pass	10-29-98
27	17-16 0+58'	Pig Hole	Solvent	Solvent			Pass	10-29-98

*Include seam number and distance from reference points.

**N.D.T. = Nondestructive testing. Include test method

APPENDIX V

**LABORATORY TEST REPORTS FOR WELDED PVC
LINER SEAMS**



Precision Geosynthetic Laboratories

October 29, 1998

Mr. Sam Interlicchia
LAWGIBB GROUP MEMBER
1308-C Patton Avenue
Asheville, North Carolina 28806

Dear Mr. Interlicchia:

RE: Champion International Corp.

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

Enclosed is the laboratory report for the testing of four (4) PVC seam samples received October 29, 1998.

It should be noted that the test specimen and test sample used for this report were believed to be representative of the material produced under the designation herein stated. However, these results are indicative of only the specimen 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.

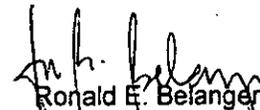
The test data and all associated project information shall be held in confidence and disclosed to other parties only with the authorization of Client or Precision Geosynthetic Laboratories.

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


Cora B. Queja
Quality Assurance


Ronald E. Belanger
Technical Director

Enclosure: (Job No. 981803)



Precision Geosynthetic Laboratories

October 29, 1998

VERIFICATION OF MATERIAL PROPERTIES

PVC Seam

Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02

For: **LAWGIBB GROUP MEMBER**
(Reference: PGL Job No. 981803)

MATERIAL DESCRIPTION: PVC seam

No. of MATERIALS: (4)

ORIGIN OF MATERIAL: LAWGIBB GROUP MEMBER / Asheville, North Carolina

DATE RECEIVED: October 29, 1998

SHIPPER: Federal Express.

SAMPLE IDENTIFICATIONS:

SAMPLE ID

PRECISION CONTROL NUMBER

DS- 1 P2/ 4
DS- 2 P1/ 9
DS- 3 P9/ 6
Chem Trial

C #34821
C #34822
C #34823
C #34824

TESTS REQUIRED:

DESCRIPTION

TEST METHOD

Bonded Seam Strength
Seam Peel Adhesion

ASTM D3083
(As modified by NSF-54, 1993)
ASTM D413
(As modified by NSF-54, 1993)

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $23 \pm 2^{\circ}\text{C}$ ($73.1 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 through 4. The units in which the data are reported are included on the tables. Break types are defined as Film- tear bond (FTB) and separation (AD).

PRECISION GEOSYNTHETIC LABORATORIES


Cora B. Queja
Quality Assurance

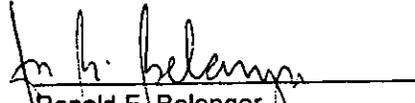

Ronald E. Belanger
Technical Director

TABLE 1.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams
Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02
FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 981803
PGL CONTROL NO. : 34821
CLIENT SAMPLE I.D. : DS-1 P2/4

29-Oct-98

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
67.7	FTB	BRK	34.8	FTB	SE
70.6	FTB	BRK	35.3	FTB	SE
75.1	FTB	BRK	33.0	FTB	SE
78.0	FTB	BRK	30.8	Non-FTB	AD
60.5	FTB	BRK	29.0	Non-FTB	AD
Avg.	70.4		32.6		
S.D.	6.8		2.7		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 2.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams
Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02
FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 981803
PGL CONTROL NO. : 34822
CLIENT SAMPLE I.D. : DS-2 P1/ 9

29-Oct-98

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
61.2	FTB	BRK	38.8	FTB	SE
61.9	FTB	BRK	32.5	FTB	SE
58.8	FTB	BRK	33.0	FTB	SE
61.9	FTB	BRK	35.7	FTB	SE
62.3	FTB	BRK	38.2	FTB	SE
Avg.	61.2		35.6		
S.D.	1.4		2.9		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 3.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams
Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02
FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 981803
PGL CONTROL NO. : 34823
CLIENT SAMPLE I.D. : DS-3 P9/6

29-Oct-98

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
66.5	FTB	BRK	32.2	FTB	SE
65.9	FTB	BRK	29.9	FTB	SE
64.1	FTB	BRK	28.2	Non-FTB	AD
59.4	FTB	BRK	28.0	FTB	SE
62.8	FTB	BRK	24.4	Non-FTB	AD
Avg.	63.7		28.5		
S.D.	2.8		2.9		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 4.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams
Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02
FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 981803
PGL CONTROL NO. : 34824
CLIENT SAMPLE I.D. : Chem Trial

29-Oct-98

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
53.7	FTB	BRK	11.1	FTB	SE
54.6	FTB	BRK	12.0	Non-FTB	AD
57.4	FTB	BRK	11.3	Non-FTB	AD
53.2	FTB	BRK	10.0	Non-FTB	AD
56.4	FTB	BRK	11.0	FTB	SE
Avg.	55.1		11.1		
S.D.	1.8		0.7		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories



Precision Geosynthetic Laboratories

October 30, 1998

Mr. Sam Interlicchia
LAWGIBB GROUP MEMBER
1308-C Patton Avenue
Asheville, North Carolina 28806

Dear Mr. Interlicchia:

RE: Champion International Corp.

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

Enclosed is the laboratory report for the testing of six (6) PVC seam samples received October 30, 1998.

It should be noted that the test specimen and test sample used for this report were believed to be representative of the material produced under the designation herein stated. However, these results are indicative of only the specimen 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 and disclosed to other parties only with the authorization of Client or Precision Geosynthetic Laboratories.

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


Cora B. Queja
Quality Assurance


Ronald E. Belanger
Technical Director

Enclosure: (Job No. 981813)



Precision Geosynthetic Laboratories

October 30, 1998

VERIFICATION OF MATERIAL PROPERTIES

PVC Seam
Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02

For: **LAWGIBB GROUP MEMBER**
(Reference: PGL Job No. 981813)

MATERIAL DESCRIPTION: PVC seam

No. of MATERIALS: (6)

ORIGIN OF MATERIAL: LAWGIBB GROUP MEMBER / Asheville, North Carolina

DATE RECEIVED: October 30, 1998

SHIPPER: Federal Express.

SAMPLE IDENTIFICATIONS:

SAMPLE ID

PRECISION CONTROL NUMBER

DS-4 P13/ 14
DS-5 P20/ 18
DS-6 P21/ 19
DS-7 P27/ 26
DS-8 P27/ 25
DS-9 P25/ 24

C #34887
C #34888
C #34889
C #34890
C #34891
C #34892

TESTS REQUIRED:

DESCRIPTION

TEST METHOD

Bonded Seam Strength

ASTM D3083
(As modified by NSF-54, 1993)

Seam Peel Adhesion

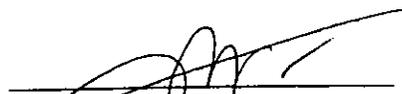
ASTM D413
(As modified by NSF-54, 1993)

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $23 \pm 2^{\circ}\text{C}$ ($73.1 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 through 6. The units in which the data are reported are included on the tables. Break types are defined as Film- tear bond (FTB) and separation (AD).

PRECISION GEOSYNTHETIC LABORATORIES


Cora B. Queja
Quality Assurance

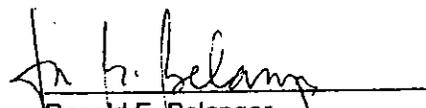

Ronald E. Belanger
Technical Director

TABLE 1.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams
Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02
FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 981813
PGL CONTROL NO. : 34887
CLIENT SAMPLE I.D. : DS- 4 P13/ 14

30-Oct-98

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
75.6	FTB	BRK	32.4	FTB	SE
58.4	FTB	BRK	36.8	FTB	SE
74.8	FTB	BRK	27.0	FTB	SE
70.0	FTB	BRK	35.0	FTB	SE
70.9	FTB	BRK	38.7	FTB	SE
Avg.	69.9		34.0		
S.D.	6.9		4.5		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 2.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams
Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02
FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 981813
PGL CONTROL NO. : 34888
CLIENT SAMPLE I.D. : DS- 5 P20/ 18

30-Oct-98

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
65.8	FTB	BRK	33.7	FTB	SE
72.0	FTB	BRK	33.0	FTB	SE
76.5	FTB	BRK	30.4	FTB	SE
77.0	FTB	BRK	33.0	FTB	SE
68.2	FTB	BRK	26.7	FTB	SE
Avg.	71.9		31.4		
S.D.	4.9		2.9		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 3.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 981813

PGL CONTROL NO. : 34889

30-Oct-98

CLIENT SAMPLE I.D. : DS-6 P21/ 19

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
79.4	FTB	BRK	15.5	Non-FTB	AD
74.4	FTB	BRK	22.9	Non-FTB	AD
75.1	FTB	BRK	16.7	Non-FTB	AD
77.1	FTB	BRK	26.0	Non-FTB	AD
77.6	FTB	BRK	13.0	Non-FTB	AD
Avg.	76.7		18.8		
S.D.	2.0		5.4		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 4.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams
Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02
FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 981813
PGL CONTROL NO. : 34890
CLIENT SAMPLE I.D. : DS-7 P27/ 26

30-Oct-98

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
77.6	FTB	BRK	20.0	Non-FTB	AD
71.6	FTB	BRK	17.9	Non-FTB	AD
76.4	FTB	BRK	23.0	Non-FTB	AD
64.9	FTB	BRK	24.0	Non-FTB	AD
75.4	FTB	BRK	20.0	Non-FTB	AD
Avg.	73.2		21.0		
S.D.	5.1		2.5		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 5.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams
Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02
FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 981813
PGL CONTROL NO. : 34891
CLIENT SAMPLE I.D. : DS- 8 P27/ 25

30-Oct-98

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
66.4	FTB	BRK	29.0	FTB	SE
69.5	FTB	BRK	30.0	FTB	SE
70.3	FTB	BRK	28.9	Non-FTB	AD
73.1	FTB	BRK	30.3	FTB	SE
69.9	FTB	BRK	29.0	FTB	SE
Avg.	69.8		29.4		
S.D.	2.4		0.7		
Specs					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories

TABLE 6.
MATERIAL PROPERTIES

Polyvinyl Chloride Seams

Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

PGL JOB NO. : 981813

PGL CONTROL NO. : 34892

30-Oct-98

CLIENT SAMPLE I.D. : DS-9 P25/ 24

BONDED SEAM STRENGTH			SEAM PEEL ADHESION		
SHEAR STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE	PEEL STRENGTH (lbs/in)	BREAK TYPE	LOCUS OF BREAK CODE
65.1	FTB	BRK	34.0	FTB	SE
57.9	FTB	BRK	31.1	FTB	SE
58.4	FTB	BRK	28.7	FTB	SE
68.4	FTB	BRK	27.0	FTB	SE
63.9	FTB	BRK	30.1	FTB	SE
<i>Avg.</i>	62.7		30.2		
<i>S.D.</i>	4.5		2.6		
<i>Specs</i>					

BREAK DESCRIPTION, (NSF 54, 1993):

- AD FAILURE IN ADHESION BETWEEN THE SHEETS.
- BRK BREAK IN SHEETING.
- SE BREAK AT SEAM EDGE.
- AD-BRK BREAK IN SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE SHEETS.
- FTB FILM-TEAR BOND.



Precision Geosynthetic Laboratories



Precision Geosynthetic Laboratories

November 2, 1998

Mr. Sam Interlicchia
LAWGIBB GROUP MEMBER
1308-C Patton Avenue
Asheville, North Carolina 28806

Dear Mr. Interlicchia:

RE: Champion International Corp.

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

Enclosed is the laboratory report for the testing of one (1) PVC geomembrane sample received October 29, 1998.

It should be noted that the test specimen and test sample used for this report were believed to be representative of the material produced under the designation herein stated. However, these results are indicative of only the specimen 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 and disclosed to other parties only with the authorization of Client or Precision Geosynthetic Laboratories.

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


Cora B. Queja
Quality Assurance


Ronald E. Belanger
Technical Director

Enclosure: (Job No. 981811)



Precision Geosynthetic Laboratories

November 2, 1998

VERIFICATION OF MATERIAL PROPERTIES

PVC Geomembrane

Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02

For: **LAWGIBB GROUP MEMBER**
(Reference: PGL Job No. 981811)

MATERIAL DESCRIPTION: PVC geomembrane

No. of MATERIALS: (1)

ORIGIN OF MATERIAL: LAWGIBB GROUP MEMBER / Asheville, North Carolina

DATE RECEIVED: October 29, 1998

SHIPPER: Federal Express.

SAMPLE IDENTIFICATIONS:

SAMPLE ID

PRECISION CONTROL NUMBER

S-98030313 Top S013700

C #34885

TESTS REQUIRED:

DESCRIPTION

TEST METHOD

Thickness
Specific Gravity
Tensile Properties

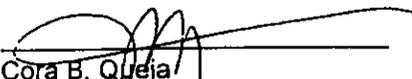
ASTM D1593, Para 10.1.3
ASTM D792, *Method A*
ASTM D882, *Method A*

TEST CONDITIONS: The sample was conditioned for a minimum one hour in the laboratory at $23 \pm 2^{\circ}\text{C}$ ($73.1 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Table 1. The units in which the data are reported are included on the table.

PRECISION GEOSYNTHETIC LABORATORIES


Cora B. Queja
Quality Assurance

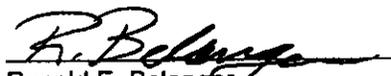

Ronald E. Belanger
Technical Director

TABLE 1.

MATERIAL PROPERTIES

PVC geomembrane

Champion International Corp. / Landfill Cell 6H Closure / 30300-8-0313.02

FOR: LAWGIBB GROUP MEMBER

Date Received : 10/29/98

Date Reported : 11/2/98

Client Sample I.D.: S-98030313 Top S013700

PGL Job No. : 981811

PGL Control No. : 34885

METHOD	DESCRIPTION	SPECIMENS										Avg.	Std. Dev.	Proj. Specs.	
		1	2	3	4	5	6	7	8	9	10				
ASTM D1593	Thickness (mils)	30.7	30.9	30.5	30.7	30.8							30.7	0.1	
Para. 10.1.3															
ASTM D792	Specific Gravity (23/23°C)	1.250	1.244										1.247	0.004	
Method A															
ASTM D882	Tensile Properties:														
Method A															
	Breaking Strength (lbs/in.-width)	MD 89.9	90.4	91.7	90.8	88.5							90.2	1.2	
		TD 86.3	86.1	88.4	83.5	80.2							84.9	3.1	
	Elongation at Break (percent)	MD 609	612	630	630	604							617	12	
		TD 670	652	672	633	588							643	35	
	Modulus (Force) at 100% Elongation (lbs/in.-width)	MD 39.9	41.1	40.7	39.3	38.9							40.0	0.9	
		TD 37.6	37.5	37.5	36.7	36.4							37.1	0.5	

Gauge Length = 2.0 in.

MD - M' NE DIRECTION
TD - T ERSE DIRECTION

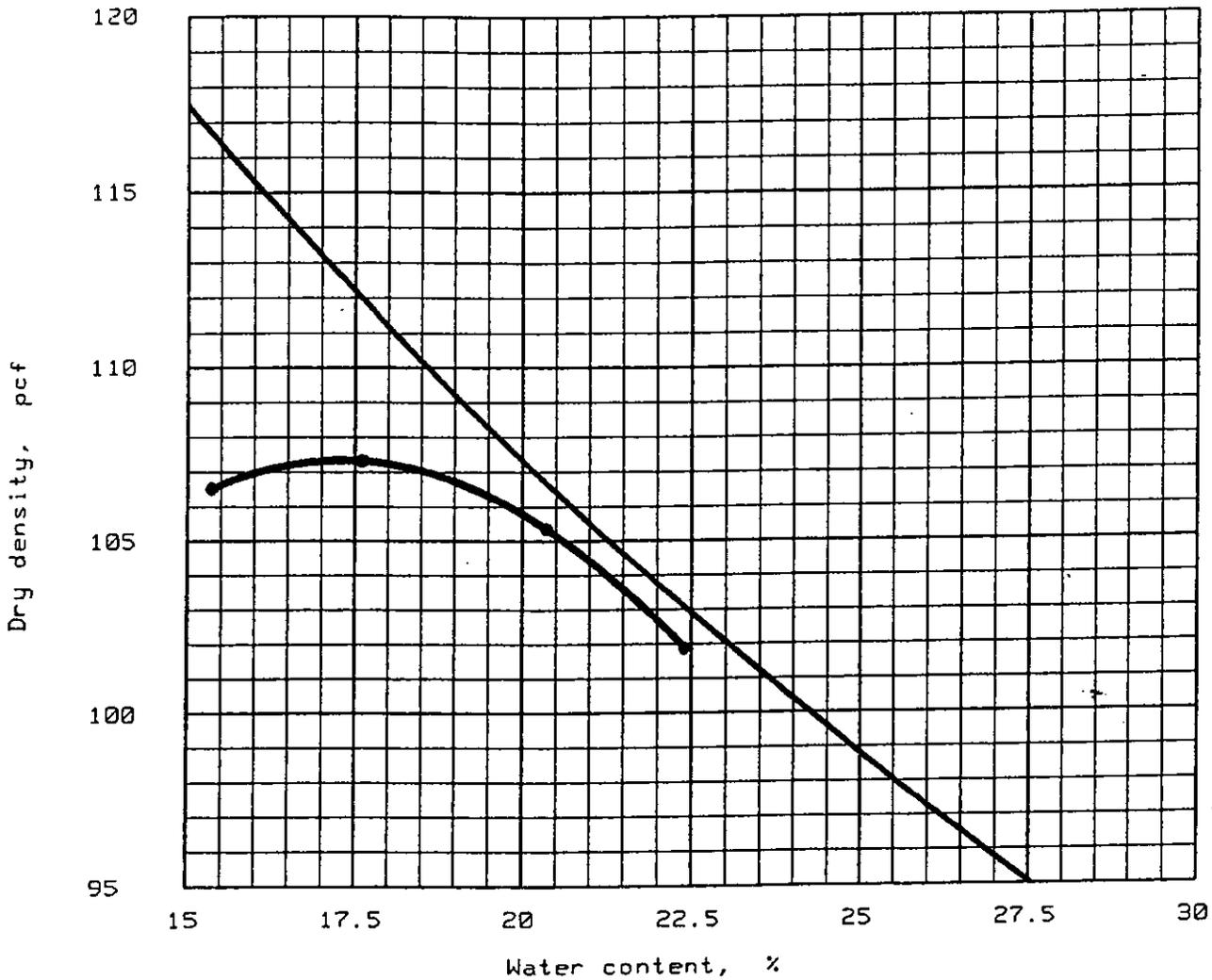


Precision Geosynthetic Laboratory

APPENDIX VI

**LABORATORY COMPACTION TEST RESULTS ON SOIL
USED IN COVER CONSTRUCTION**

PROCTOR TEST REPORT



ZAV for
Sp.G. =
2.62

"Standard" Proctor, ASTM D 698, Method A

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No. 4	% < No. 200
	USCS	AASHTO						
			15.7 %					

TEST RESULTS	MATERIAL DESCRIPTION
--------------	----------------------

Optimum moisture = 17.5 % Maximum dry density = 107.5 pcf	Brown micaceous silty F-M SAND
--	-----------------------------------

Project No.: 30300-8-0313.02
 Project: Champion International Cell 6 H
 Location: Canton North Carolina

Date: 11-13-1998

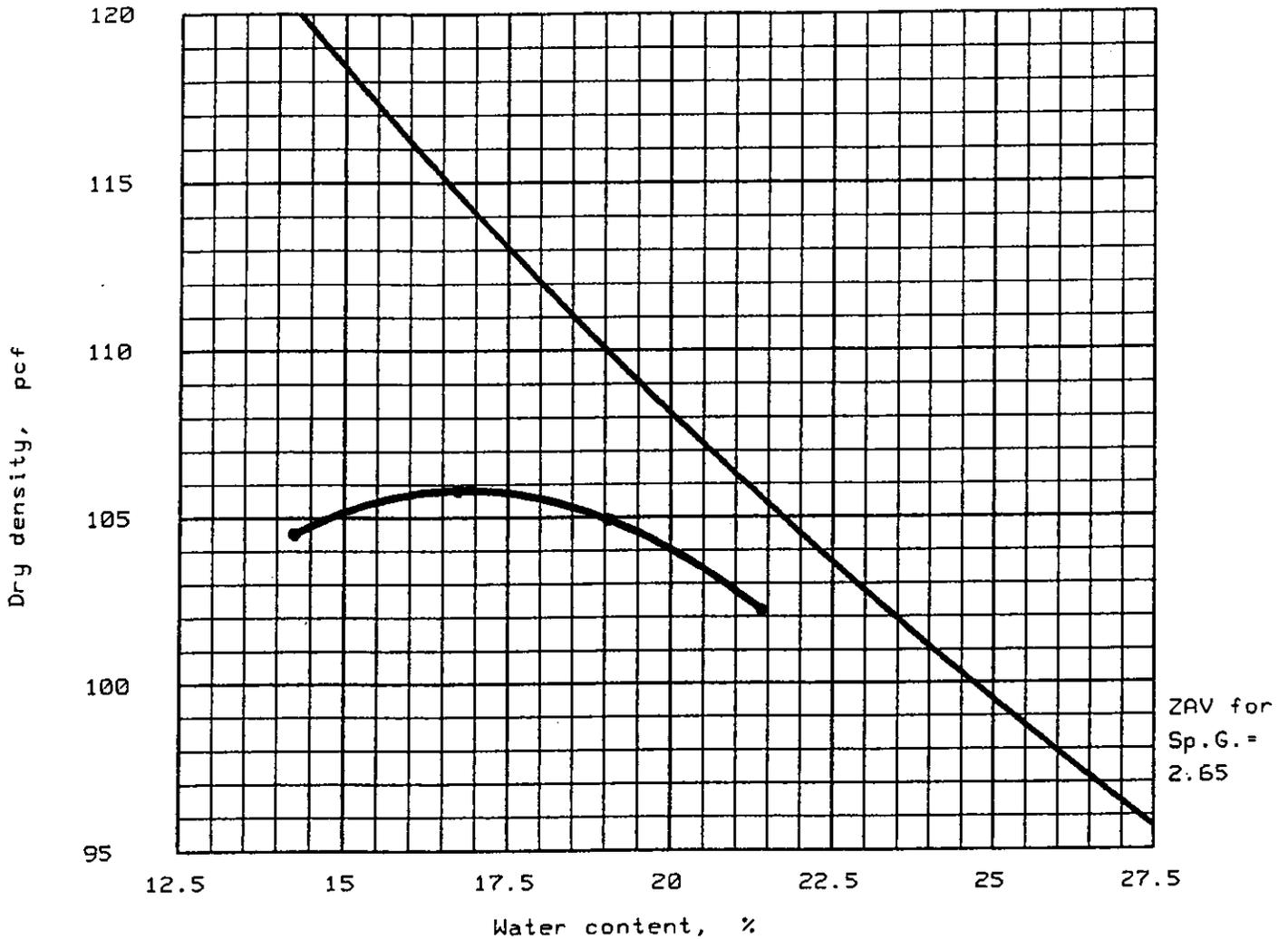
Remarks:
 Borrow Material

[Signature] 11/13/98

PROCTOR TEST REPORT
LAW ENGINEERING
ASHEVILLE, NORTH CAROLINA

Figure No. 1

PROCTOR TEST REPORT



"Standard" Proctor, ASTM D 698, Method A

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No. 4	% < No. 200
	USCS	AASHTO						
			18.2 %	2.65				

TEST RESULTS	MATERIAL DESCRIPTION
--------------	----------------------

Optimum moisture = 17.0 % Maximum dry density = 106.0 pcf	Tan Brown Silty Sand
--	----------------------

Project No.: 30300-B-0313.02
 Project: Champion Soil Cap 6H
 Location: Canton, NC.
 Date: 11-20-1998

Remarks:
 Borrow Site

APPENDIX VII

FIELD DENSITY TEST REPORTS ON SOIL COVER

LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6H SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 11/13/98							
1	19.4	96.8	1	90	90	1	
2	20.3	100.8	1	94	90	1	
3	19.9	106.1	1	99	90	1	
4	16.6	106.6	1	99	90	1	
5	19.5	98.4	1	92	90	1	
6	18.8	102.1	1	95	90	1	
7	19.4	99.8	1	93	90	1	
8	18.2	103.6	1	96	90	1	
9	20.3	99.8	1	93	90	1	
10	19.0	102.4	1	95	90	1	
11	19.6	98.6	1	92	90	1	
TEST LOCATIONS:							
1	AREA #	9 (SUBGRADE SOIL THICKNESS 19 INCHES)					
2	AREA #	14 (SUBGRADE SOIL THICKNESS 20 INCHES)					
3	AREA #	13 (SUBGRADE SOIL THICKNESS 18 INCHES)					
4	AREA #	12 (SUBGRADE SOIL THICKNESS 18 INCHES)					
5	AREA #	11 (SUBGRADE SOIL THICKNESS 20 INCHES)					
6	AREA #	8 (SUBGRADE SOIL THICKNESS 18 INCHES)					
7	AREA #	4 (SUBGRADE SOIL THICKNESS 18 INCHES)					
8	AREA #	7 (SUBGRADE SOIL THICKNESS 18 INCHES)					
9	AREA #	6 (SUBGRADE SOIL THICKNESS 20 INCHES)					
10	AREA #	10 (SUBGRADE SOIL THICKNESS 18 INCHES)					
11	AREA #	3 (SUBGRADE SOIL THICKNESS 18 INCHES)					

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

1

107.5

17.5

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA

LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

Page 2

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6H SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 11/13/98							
12	19.9	100.9	1	94	90	1	
13	19.5	103.4	1	96	90	1	
14	20.3	99.8	1	93	90	1	
TEST LOCATIONS:							
12	AREA # 5	(SUBGRADE SOIL THICKNESS 18 INCHES)					
13	AREA # 2	(SUBGRADE SOIL THICKNESS 19 INCHES)					
14	AREA # 1	(SUBGRADE SOIL THICKNESS 20 INCHES)					

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

1

107.5

17.5

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6H SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 11/16/98							
15	22.7	100.0	1	93	90	1	
16	18.9	104.5	1	97	90	1	
17	19.2	102.5	1	95	90	1	
18	18.5	105.6	1	98	90	1	
19	19.5	103.2	1	96	90	1	
20	18.6	104.2	1	97	90	1	
21	17.8	101.2	1	94	90	1	
22	17.3	103.9	1	97	90	1	
23	16.6	97.8	1	91	90	1	
24	18.2	102.1	1	95	90	1	
25	18.3	103.7	1	96	90	1	
TEST LOCATIONS:							
15	AREA #	15	(SUBGRADE SOIL THICKNESS 20 INCHES)				
16	AREA #	16	(SUBGRADE SOIL THICKNESS 18 INCHES)				
17	AREA #	17	(SUBGRADE SOIL THICKNESS 18 INCHES)				
18	AREA #	18	(SUBGRADE SOIL THICKNESS 22 INCHES)				
19	AREA #	19	(SUBGRADE SOIL THICKNESS 20 INCHES)				
20	AREA #	20	(SUBGRADE SOIL THICKNESS 20 INCHES)				
21	AREA #	21	(SUBGRADE SOIL THICKNESS 19 INCHES)				
22	AREA #	22	(SUBGRADE SOIL THICKNESS 18 INCHES)				
23	AREA #	23	(SUBGRADE SOIL THICKNESS 21 INCHES)				
24	AREA #	24	(SUBGRADE SOIL THICKNESS 20 INCHES)				
25	AREA #	25	(SUBGRADE SOIL THICKNESS 19 INCHES)				

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

1

107.5

17.5

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA

LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

Page 2

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6H SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 11/16/98							
26	17.8	102.2	1	95	90	1	
27	14.2	102.5	1	95	90	1	
28	14.9	103.2	1	96	90	1	
TEST LOCATIONS:							
26	AREA #	26	(SUBGRADE SOIL THICKNESS 20 INCHES)				
27	AREA #	30	(SUBGRADE SOIL THICKNESS 21 INCHES)				
28	AREA #	31	(SUBGRADE SOIL THICKNESS 20 INCHES)				

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

1

107.5

17.5

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA

LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6H SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 11/17/98							
29	16.1	103.4	1	96	90	1	
30	15.5	100.0	1	93	90	1	
31	17.0	101.1	1	94	90	1	
32	18.8	102.8	1	96	90	1	
33	16.0	100.1	1	93	90	1	
34	16.8	100.5	1	94	90	1	
TEST LOCATIONS:							
29	AREA #	27	(SUBGRADE SOIL THICKNESS 20 INCHES)				
30	AREA #	28	(SUBGRADE SOIL THICKNESS 18 INCHES)				
31	AREA #	29	(SUBGRADE SOIL THICKNESS 20 INCHES)				
32	AREA #	32	(SUBGRADE SOIL THICKNESS 22 INCHES)				
33	AREA #	33	(SUBGRADE SOIL THICKNESS 21 INCHES)				
34	AREA #	34	(SUBGRADE SOIL THICKNESS 19 INCHES)				

TEST COMPARED TO:	REMARKS	
PROCTOR NUMBER	MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE (%)
1	107.5	17.5

Performed In General Accordance With:
1 - ASTM D2937

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6H SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 11/19/98							
35	15.4	104.0	1	97	90	1	
36	15.9	102.0	1	95	90	1	
37	15.1	104.1	1	97	90	1	
38	17.1	100.5	2	94	90	1	
39	17.6	99.6	1	93	90	1	
40	18.4	102.4	1	95	90	1	
41	16.1	102.1	2	96	90	1	
42	15.9	101.2	2	95	90	1	
43	17.4	101.7	2	96	90	1	
44	18.3	98.5	1	92	90	1	
45	15.3	103.1	1	96	90	1	
TEST LOCATIONS:							
35	AREA #	35	(SUBGRADE SOIL THICKNESS 22 INCHES)				
36	AREA #	36	(SUBGRADE SOIL THICKNESS 23 INCHES)				
37	AREA #	37	(SUBGRADE SOIL THICKNESS 22 INCHES)				
38	AREA #	38	(SUBGRADE SOIL THICKNESS 28 INCHES)				
39	AREA #	39	(SUBGRADE SOIL THICKNESS 22 INCHES)				
40	AREA #	40	(SUBGRADE SOIL THICKNESS 22 INCHES)				
41	AREA #	41	(SUBGRADE SOIL THICKNESS 26 INCHES)				
42	AREA #	42	(SUBGRADE SOIL THICKNESS 23 INCHES)				
43	AREA #	43	(SUBGRADE SOIL THICKNESS 26 INCHES)				
44	AREA #	44	(SUBGRADE SOIL THICKNESS 20 INCHES)				
45	AREA #	45	(SUBGRADE SOIL THICKNESS 25 INCHES)				

TEST COMPARED TO:			REMARKS
PROCTOR NUMBER	MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE (%)	
1	107.5	17.5	Performed In General Accordance With: 1 - ASTM D2937
2	106.5	17.0	

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA

LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

Page 2

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6H SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 11/19/98							
46	16.2	101.8	1	95	90	1	
47	15.5	105.8	1	98	90	1	
48	14.4	100.5	1	93	90	1	
49	17.0	107.4	1				
TEST LOCATIONS:							
46	AREA # 46 (SUBGRADE SOIL THICKNESS 25 INCHES)						
47	AREA # 50 (SUBGRADE SOIL THICKNESS 25 INCHES)						
48	AREA # 51 (SUBGRADE SOIL THICKNESS 28 INCHES)						
49	CHECK PLUG						

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

1

107.5

17.5

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6H SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 11/20/98							
50	18.4	101.1	1	94	90	1	
51	14.1	97.4	1	91	90	1	
52	15.5	99.5	1	93	90	1	
TEST LOCATIONS:							
50	AREA #	55 (SUBGRADE SOIL THICKNESS 26 INCHES)					
51	AREA #	56 (SUBGRADE SOIL THICKNESS 28 INCHES)					
52	AREA #	60 (SUBGRADE SOIL THICKNESS 26 INCHES)					

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

1

107.5

17.5

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA



LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6H SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 11/21/98							
53	14.0	96.4	2	91	90	1	
54	13.5	99.7	1	93	90	1	
55	13.1	97.9	1	91	90	1	
56	13.8	98.2	1	91	90	1	
57	20.8	101.6	1	94	90	1	
58	13.5	97.1	1	90	90	1	
59	15.7	97.3	2	91	90	1	
60	14.8	104.3	1	97	90	1	
61	14.1	101.8	1	95	90	1	
62	13.4	100.6	1	94	90	1	
TEST LOCATIONS:							
53	AREA #	49	(SUBGRADE SOIL THICKNESS	35	INCHES)		
54	AREA #	48	(SUBGRADE SOIL THICKNESS	27	INCHES)		
55	AREA #	53	(SUBGRADE SOIL THICKNESS	27	INCHES)		
56	AREA #	52	(SUBGRADE SOIL THICKNESS	27	INCHES)		
57	AREA #	54	(SUBGRADE SOIL THICKNESS	28	INCHES)		
58	AREA #	59	(SUBGRADE SOIL THICKNESS	29	INCHES)		
59	AREA #	64	(SUBGRADE SOIL THICKNESS	24	INCHES)		
60	AREA #	62	(SUBGRADE SOIL THICKNESS	28	INCHES)		
61	AREA #	61	(SUBGRADE SOIL THICKNESS	26	INCHES)		
62	AREA #	57	(SUBGRADE SOIL THICKNESS	24	INCHES)		

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

2
1

106.5
107.5

17.0
17.5

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA

LAW ENGINEERING

1308 C PATTON AVENUE, ASHEVILLE, NORTH CAROLINA 28806

REPORT OF FIELD DENSITY TESTS

CLIENT: CHAMPION INTERNATIONAL

JOB NO.: 3030080313.02

PROJECT: CHAMPION LANDFILL CELL 6H SOIL CAP
CANTON, NORTH CAROLINA

TEST NUMBER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PROCTOR NUMBER	COMPACTION (%)	SPECIFIED COMPACTION (%)	TEST METHOD	ELEVATION OR DEPTH
Tests Performed on 11/23/98							
63	18.0	102.5	1	95	90	1	
64	18.5	103.1	1	96	90	1	
65	17.7	100.0	1	93	90	1	
66	12.7	97.5	1	91	90	1	
67	14.2	99.1	1	92	90	1	
68	13.1	104.5	1	97	90	1	
69	13.7	101.1	1	94	90	1	
70	12.4	96.9	1	90	90	1	
71	14.0	100.1	1	93	90	1	
72	13.4	99.0	1	92	90	1	
73	14.9	101.1	1	94	90	1	
TEST LOCATIONS:							
63	AREA #	73 (SUBGRADE SOIL THICKNESS 18 INCHES)					
64	AREA #	72 (SUBGRADE SOIL THICKNESS 18 INCHES)					
65	AREA #	71 (SUBGRADE SOIL THICKNESS 25 INCHES)					
66	AREA #	58 (SUBGRADE SOIL THICKNESS 35 INCHES)					
67	AREA #	63 (SUBGRADE SOIL THICKNESS 26 INCHES)					
68	AREA #	67 (SUBGRADE SOIL THICKNESS 27 INCHES)					
69	AREA #	70 (SUBGRADE SOIL THICKNESS 30 INCHES)					
70	AREA #	69 (SUBGRADE SOIL THICKNESS 26 INCHES)					
71	AREA #	66 (SUBGRADE SOIL THICKNESS 24 INCHES)					
72	AREA #	65 (SUBGRADE SOIL THICKNESS 24 INCHES)					
73	AREA #	68 (SUBGRADE SOIL THICKNESS 25 INCHES)					

TEST COMPARED TO:

PROCTOR NUMBER

MAXIMUM DRY DENSITY (PCF)

OPTIMUM MOISTURE (%)

1

107.5

17.5

REMARKS

Performed In General Accordance With:
1 - ASTM D2937

RESPECTFULLY SUBMITTED:

SAM C. INTERLICCHIA

APPENDIX VIII

**SUMMARY OF DAILY OBSERVATIONS
AND SITE MEETINGS**

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 10-12-98
WEATHER: P. Cloudy
TEMPERATURE RANGE: _____
TIME CONTRACTOR ON SITE: 7:00-6:30-11:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY ALEXANDER

Don Swartz

4

Materials Delivered

N/A

work performed this date

USED A DSN DOZEN WITH AN EST WT OF 100,000 LBS TO TRACK THE ENTIRE SURFACE OF THE LIME CELL TO LOCATE, IF ANY, SOFT AREAS. NO SOFT AREAS NOTED AT THIS TIME. CONTRACTOR ALSO LEAKED ON THE SLOPES OF THE LIME CELL

Tests performed this date with results

N/A

NO FILL PAVED

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

[Signature]

Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10.12.98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	

WORK PLANNED FOR THIS DATE

LOCATING SOFT AREA IF ANY & REPAIRING

ITEMS DISCUSSED

USING THE DSN TO TRAIL OVER THE LINE AREA & STARTING TO REMOVE STONE @ EAST SIDE

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 10-13-98
WEATHER: P. Cloudy
TEMPERATURE RANGE: _____
TIME CONTRACTOR ON SITE: 12:17

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Materials Delivered

Work performed this date

NO WORK TODAY BY CONTRACTOR
AREA GRADES NEED TO BE SET

Tests performed this date with results

Non Compliance Items noted this date

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 10-14-98
WEATHER: P. Cloudy
TEMPERATURE RANGE: _____
TIME CONTRACTOR ON SITE: 7:00 - 6:30 - 11:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY ALEXANDER

DON SWARTZ

3

Materials Delivered

N/A

Work performed this date

WORKING THE SLOPES ON THE LIME AND SMOOTHING THE TOP OF THE CELL TO REMOVE ANY
LOW AREA - NO FINAL GRADE SET TO WORK TO AT THIS TIME. AREA WAS WORKED WITH THE
TRAXOR AND A D6/D5 DOZER.

Tests performed this date with results

N/A

NO FILL PAVED

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10-14-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
Don Swartz	P.M.A.

WORK PLANNED FOR THIS DATE

WORK ON Slopes & SUBGRADE

ITEMS DISCUSSED

MEETING AREA GRADES SET

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 10-15-98
WEATHER: P. Cloudy
TEMPERATURE RANGE: _____
TIME CONTRACTOR ON SITE: 7:00-6:30 -110

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>PERRY ALEXANDER</u>	<u>Don Swartz</u>	<u>3</u>

Materials Delivered
N/A

Work performed this date
USED TRACKHOE & DBM DOZER TO REMOVE THE STONE ALONG THE EAST SIDE AS NEEDED BEFORE LINER PLACEMENT

Tests performed this date with results
N/A
NO FIL PAVED

Non Compliance Items noted this date
N/A

Submitted By: _____
LAW REPRESENTATIVE Jimmy High
Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10-15-88

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	Law
Don Swartz	PMA

WORK PLANNED FOR THIS DATE

REMOVE THE STONE ALONG THE EAST SIDE OF THE CELL

ITEMS DISCUSSED

SEE WORK PLANNED

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 10-16-78
WEATHER: P. Cloudy
TEMPERATURE RANGE: _____
TIME CONTRACTOR ON SITE: 7:00 - 6:30 - 11:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY ALEXANDER

OSCAR SCHWARTZ

4

Materials Delivered

N/A

Work performed this date

USED D5L & D8N DOZER TO REMOVE THE STONE AT THE NW CORNER OF THE CELL. AND TRACKED
IN THE DISTURBED LIME. A MEETING WAS ALSO HELD ON SITE TO HAVE P.M.A CUT THE ACCESS
ROAD DOWN 5 TO 6' AND USE THE MATERIAL TO MAKE A 3:1 SLOPE TO HELP WITH LINER PLACEMENT

Tests performed this date with results

N/A

NO FILL PLACES

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10-16-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
DON SWARTZ - Kerry Vandyrke	PMA
Bill vonKlitzke - DERRIL BROWN	CIC
Sim Galygue - Anay Apostolopoulos	CIC

WORK PLANNED FOR THIS DATE

ADDRESSING UP THE EAST SIDE OF THE CELL WHICH INCLUDES REMOVING THE STONE OFF THE TOP SURFACE OF LIME

ITEMS DISCUSSED

IN A ON SITE MEETING WITH THE NAME LISTED ABOVE TO DISCUSS CUTTING DOWN THE ACCESS ROAD 5'10" TO MAKE A 3:1 SLOPE FOR BETTER LIME PLACEMENT. CHAMPION REQUESTED P.M.A CUT DOWN THE ACCESS ROAD.

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE _____

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 10-19-98
WEATHER: Pluwy
TEMPERATURE RANGE: 48-65
TIME CONTRACTOR ON SITE: 7:00-6:30-110

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Don Swartz

2

Materials Delivered

N/A

Work performed this date

STARTED CUTTING DOWN THE ACCESS ROAD 5'-6' AS REQUESTED BY CHAMPION ON 10/16/98 ON SITE
MIXING WITH THE SOIL GOING INTO MAKING UP THE 7:10 SLOPE FOR LINER PLACEMENT

Tests performed this date with results

N/A

Non Compliance Items noted this date

Submitted By:

LAW REPRESENTATIVE

Jimmy Hill

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10-19-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

REMOVE ACCESS ROAD 5'-6" Keeping Big Poles & Grass out of Fill Piles on Slope - Covering with 4" to 6" of Lime

ITEMS DISCUSSED

Keeping Soil Piles in TIDE Slope TRUCKED IN FOR Compression.

QUESTIONS DISCUSSED

Question	Person to answer?
N/A	

Submitted by:

LAW REPRESENTATIVE

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 10-20-98
WEATHER: P. Cloudy
TEMPERATURE RANGE: 48-53
TIME CONTRACTOR ON SITE: 7:00 6:20 -11:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Don Swartz

3

Materials Delivered

N/A

Work performed this date

CUT THE ACCESS ROAD DOWN 5' AS REQUESTED BY CHAMPION ON 10-16-98 TO MAKE A 3RD 1 SCOPE FOR GOOD LIME PLACEMENT. LIME WAS ROLLED OVER THE SOIL & TRACKED IN WITH A DSW DOZER

Tests performed this date with results

N/A

NO FIN PLANS

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Jimmy High

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10-20-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A
JENNIFER BALLARD	CIC
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

CUT DOWN THE ACCESS ROAD 5' TO GIVE A 30" SWEEP FOR LINER PLACEMENT. LIME WAS ALSO PLACED OVER THE SOIL WITH 4" MIN. COVER AS REQUESTED BY CHAMPION. THE LIME & SOIL WAS TRACKED IN USING A DSN WITH EST WT of 100,000 LBS.

ITEMS DISCUSSED

ANCHOR TRENCH WILL BE PLACED AT THE BOTTOM OF THE EAST SLOPE INSTEAD AS SHOWN AT THE TOP OF THE SLOPE PER PHONE CONVERSATION WITH GUY LOTY BY JENNIFER BALLARD

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE

SUMMARY OF DAILY OBSERVATIONS

DATE: 10-21-98
WEATHER: P. Cloudy
TEMPERATURE RANGE: 50-70
TIME CONTRACTOR ON SITE: 7:00 - 6:30 11:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>Perry Anderson</u>	<u>Don Swartz</u>	<u>3</u>

Materials Delivered

N/A

Work performed this date

Placed a lime cover over the soil placed in the Swell Area when the Access Road was cut down in order to cover any holes for liner placement. Also worked on the drain Swell at the north end of the cell which runs east to west

Tests performed this date with results

N/A

no Fin Placed

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10-²¹28

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
Don Swartz	P.M.A.

WORK PLANNED FOR THIS DATE

PLACING LIME OVER THE FILL PLACED FROM THE ACCESS ROAD - THE SWELL AT THE NORTH END
WAS CUT FROM EAST END TO WEST END @ FRONT DRIVE

ITEMS DISCUSSED

WORKING ON SMOOTHING THE SURFACE

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: ~~#9-86~~ 10-22-88
WEATHER: P. Cloudy
TEMPERATURE RANGE: 40-68
TIME CONTRACTOR ON SITE: 7:00-6:30-110

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>PERRY ALEXANDER</u>	<u>KONNY VAN DYKE</u>	<u>3</u>

Materials Delivered

11 BOXES 30 mil Liner. Short Two Small Boxes To Be Brought To
JOB SITE BY LINER CREW

Work performed this date

STARTED EXCAVATING FOR THE 36" PIPE AND THE ANCHOR TRENCHES - WORKED ON THE SURFACE OF THE
CELL TO REMOVE LOW AREAS

Tests performed this date with results

N/A
NO FILL PLACED

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10-22-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Kenny Van Dyke Van Dyke	P.M.A.
Jimmy Hight	LAW

WORK PLANNED FOR THIS DATE

WORK ON THE SURFACE OF THE CELL USING A DBM - DSC DOZER.

ITEMS DISCUSSED

TRUCK HAS SHOULD BE ON SITE TODAY TO START THE PIPE EXCAVATION ALONG WITH THE AMERICAN TRUCK.

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE Jimmy Hight

SUMMARY OF DAILY OBSERVATIONS

DATE: 10-23-98
WEATHER: 40-63 P. Cloudy
TEMPERATURE RANGE: 40-63
TIME CONTRACTOR ON SITE: 9:00-6:00-10:00

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>PERRY ANDERSON</u>	<u>KERRY VAN DYKE</u>	<u>3</u>

Materials Delivered
36" PIPE FOR SOUTH END
D8N LEFT SITE TODAY

Work performed this date
USED DSC POLD TO WORK THE SWELL FOR THE FRENCH DRAIN & EXCAVATED FOR THE 36" PIPE

Tests performed this date with results
N/A
NO FILL PLACES

Non Compliance Items noted this date
N/A

Submitted By:
LAW REPRESENTATIVE 
Reviewed by: _____

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10.23.98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Scudiffe KENNY VAN DYKE	P.M.A
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

WORKING ON SURFACE OF CELL + RAKE THE 36" PIPE AT THE SOUTH END OF CELL

ITEMS DISCUSSED

USING 36" PIPE INSTEAD OF THE SPEC 30" DUE 30" NOT ON SITE

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 10-26-78

WEATHER: P. Cloudy

TEMPERATURE RANGE: 40-71

TIME CONTRACTOR ON SITE: 7:00 6:00 - 10:5

CHAMPION INTERNATIONAL CORPORATION

CANTON, NORTH CAROLINA

CAPPING OF LAND FILL CELL 6 H

LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Don Supt

5

Materials Delivered

18 ROLL / 6" FRENCH DRAIN PIPE & 3 SECTION of 30" PIPE
18 ROLL / GEOTEXTILE
LINER CRAN ARRIVED AROUND 3:00 P M

Work performed this date

WORKED ON COMPLETING THE FRENCH DRAIN & AROUND TRENCHES - USED A MOTOR GRADER & SWEEP DRUM
ROLLS TO PREPARE THE LINER SURFACE FOR THE P.V.C. LINER. NO LINER ROLLS TODAY

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Jimmy White

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10-26-94

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
Don Swartz	P.M.A.

WORK PLANNED FOR THIS DATE

WORK ON ANCHOR TRENCHES & FRENCH DRAINS ALONG WITH DRESSING THE SURFACE

ITEMS DISCUSSED

MAKING SURE NO ROCKS OR LOW AREA REMAIN ON THE SURFACE

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 10 27 98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy Hight	LAW
Don Swartz	P.M.A
JENNIFER BALLARD	C.I.C

WORK PLANNED FOR THIS DATE

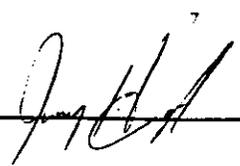
~~COMPLETE~~ French Dredge - Ammon Tremit and turning over to LINDA CREW TO START PLACEMENT

ITEMS DISCUSSED

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE 

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 10-27-98
WEATHER: P. Cloudy
TEMPERATURE RANGE: 48-69
TIME CONTRACTOR ON SITE: 7:00 6:00 10:5

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>Permy Perry Alexander</u>	<u>Don SWARTZ</u>	<u>4</u>
<u>GERMANN BRAND</u>	<u>DAVE - GREG LINDY</u>	<u>8</u>

Materials Delivered

36 ROLLS of GEOTEXTILE

Work performed this date

COMPLETED THE AVENUE TRENCH AND LION STARTED PLACING THE 20' x 300' PANELS AROUND 12:30

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11.3.98
WEATHER: Cloudy
TEMPERATURE RANGE: 45-63
TIME CONTRACTOR ON SITE: _____

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>Perry/ALEXANDER</u>	<u>DON SWARTZ</u>	<u>8</u>
_____	_____	_____
_____	_____	_____

Materials Delivered

N/A

Work performed this date

USED 4 TRUCKS TO HAUL FILL FOR THE FRENCH DRAIN COVER & ANCHOR TRENCH AREA. 6" STONE WAS PLACED OVER THE PIPE BEFORE FILL PLACEMENT. AREA WAS WORKED WITH A D5C CAT DOZER. THE FILL WAS PLACED IN A 3' LIFT FOR TRUCK TRAVEL AS REQUIRED. FILL MATERIAL WAS KEPT OUT OF THE FRENCH DRAIN AREA BEFORE THE STONE WAS PLACED

Tests performed this date with results

N/A

AREA NOT READY FOR TESTING DUE TO FILL THICKNESS

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by: _____

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-3-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy Hight	LAW
Don Swartz	P.M.A.

WORK PLANNED FOR THIS DATE

Placing stone & soil over French drain & filling the Annon trench

ITEMS DISCUSSED

Trying not to get ahead of the French drain fill with the fill / the Annon trench as requested. Keeping fill material out of French drain before stone was placed

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy Hight

SUMMARY OF DAILY OBSERVATIONS

DATE: 11-4-98
WEATHER: Cloudy
TEMPERATURE RANGE: 45-55
TIME CONTRACTOR ON SITE: 7:00 - 5:30 - 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>PERRY ALEXANDER</u>	<u>DON SWARTZ</u>	<u>8</u>

Materials Delivered

N/A

Work performed this date

Placed 6" / "62 STONE OVER THE FRENCH DRAIN PIPE • Placed a 3' COULD OVER THE AREA FOR TRUCK TRAVEL. 4 TANDEM AXLE DUMP TRUCKS WERE USED TO HAUL THE FILL - CONTRACTOR REMOVED ROOTS FROM FILL MATERIAL AS NEEDED • KEPT THE STONE AROUND / THE FILL TO KEEP SOIL OUT OF THE DRAIN AREA.

Tests performed this date with results

N/A

AREA NOT READY FOR TESTING

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-9-78

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	LAW
JENNIFER BALLARD	CIC
BILL VONKIRCHNER	CIC

WORK PLANNED FOR THIS DATE

Fill Anchor Trench & French Drain.

ITEMS DISCUSSED

Filling THE ANCHOR TRENCH AFTER THEY HAVE STARTED PLACING STONE & SOIL OVER THE FRENCH DRAIN - THIS WAS APPROVED BY CHAMPION AS LONG AS THEY KEEP THE FRENCH DRAIN FILL IN FRONT OF THE ANCHOR TRENCH FILL

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11-5-98
WEATHER: Cloudy
TEMPERATURE RANGE: 38-47
TIME CONTRACTOR ON SITE: 7:00-6:00-10:5

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
Don Swartz	1	
<u>Perzy Alexander</u>	<u>Don Swartz</u>	<u>9</u>

Materials Delivered

N/A

Work performed this date

USED 4 TRUCKS TO HAUL THE FILL TO COVER THE 6" / STONE PLACED OVER THE FRENCH DRAIN. WORK WAS SLOWED FOR ABOUT 1 HR DUE TO CHAMPION'S REQUEST TO REBORO A BERM ALONG THE WEST & SOUTH ENDS THAT WAS LOST WHEN P.M.A LOWERED THE ACCESS ROAD PER CHAMPION REQUEST. CONTRACTOR KEPT THE FILL MATERIAL OUT / THE FRENCH DRAIN UNTIL STONE WAS PLACED & KEPT THE LINER UP NEXT TO THE BACK WALL AS REQUIRED.

Tests performed this date with results

N/A

AREAS NOT READY FOR TESTING

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-5-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
Don Swartz	P.M.A.
Bill vonKittling	C.I.C.

WORK PLANNED FOR THIS DATE

Fill French Drain with wash stone & cover with fill material -
Fill Anion Trent as French Drain is filled

ITEMS DISCUSSED

LAW WAS INFORMED BY BILL VONKITTUNG / C.I.C. PER CITY / SPEC = MAINTAIN THE LINER LEFT IN THE ANION
TREAT SHOULD HAVE NO WRENCHES AND SHOULD IT BE BUSHED UP AT THE BACK / THE TRENCH TECH INFORMED DRAIN
WITH P.M.A. WROTE AT THAT TIME WENT INTO THE REMAINING TRENCH AND PAVED THE LINER AS BEST AS POSSIBLE

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11-6-98
WEATHER: P. Cloudy
TEMPERATURE RANGE: 35-51
TIME CONTRACTOR ON SITE: 7:00-4:00-8:5

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY ALVARADO

DAVE SCHWARTZ

10

Materials Delivered

N/A

REMOVED TRAIL HOSE USED IN PLACING STONE

Work performed this date

DISCONTINUED PLACING STONE & SOIL OVER THE FILLING DRAIN SYSTEM AND COMPLETED FILLING THE AROUND TRENCHES. A SECTION OF SILT FENCE WAS PLACED OVER THE 36" PIPE AS REQUESTED BY CHAMPION. THE LINE WAS KEPT AS STRAIGHT AS POSSIBLE IN THE AROUND TRENCH AND FILL WAS PLACED.

Tests performed this date with results

N/A

NO FILL READY FOR TESTING

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-6-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don SWARTZ	P.M.A.
Jimmy High	L.M.

WORK PLANNED FOR THIS DATE

Filling over French Drain & Anchor TRENCH

ITEMS DISCUSSED

NEEDING TO COMPLETE THE FILL OVER THE FRENCH DRAIN IN ORDER TO MOVE OUR TRACK HOME

QUESTIONS DISCUSSED

Question	Person to answer?
<u>NEEDING A BETTER DETAIL FOR THE DRAINAGE RIM AT THE 36" PIPE</u>	<u>Jimmy High</u>
<u>NOT CLEAR AS SHOWN ON DETAIL J ON C-300</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11.9.98
WEATHER: Cloudy - LT RAIN AFTER LUNCH
TEMPERATURE RANGE: 40-66
TIME CONTRACTOR ON SITE: 7:00 - 4:00 - 8.5

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Don Perry / Alexander

Don Swartz

8

Materials Delivered

Work performed this date

Hauled lower material on the western end of the cell - used a DSC Dozer to work the fill.
AS APPROVED VERBALLY BY BOTH GUY COFFY / SEAN P. MANAR & JIM LUNDY / GEO MEMBRANE IT WAS OK
TO DRIVE TANDUM AXLE TRUCKS OVER THE 18" MATERIAL AS LONG AS THE TRUCK DID NOT TWIST OR
TURN OVER THE LINER.

Tests performed this date with results

N/A

FILL NOT READY FOR TESTING

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-9-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Bill Van Vitenhout	LIC
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

PLACING COVER OVER THE NORTH END OF THE CELL - USED 4 TRUCKS TO HAUL THE COVER MATERIAL FROM THE BORROW SITE. PLACING STONE AROUND THE 36" PIPE FOR THE DRAINAGE RING AS DIRECTED BY PAT BELL OF CHAMPION.

ITEMS DISCUSSED

PER PAT BELL & COUNTY EROSION CONTROL MANAGER - PLACE SILT FENCE MATERIAL OVER THE INSIDE END OF THE PIPE & PLACE THE 3" STONE TO THE TOP OF THE PIPE THE COVER WITH 6" STONE FOR FILTERING SEDIMENT

QUESTIONS DISCUSSED

Question	Person to answer?
DRIVING TANDUM AXLE TRUCKS ON THE 15" FILL TO SPEED UP THE JOB	Guy Long - Jim Long/Lundy -
Guy Long VERY OLD IF WANT AFFECT LINDER WARRANTY - Jim Long / USED MEMBRANE - LINDER WARRANTY WILL BE OK AS LONG IF TANDUM TRUCK = USED MONEY	

Submitted by:

LAW REPRESENTATIVE

Jimmy High

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11.10.98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

Placing the cover material on the north end

ITEMS DISCUSSED

Verbal OK to drive ~~to~~ Tandon Ave trucks on the 18" of soil cover has been given by both Guy Coy of Sewer & Water & Jim Long of GEDMEMBER.

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11/10/98
WEATHER: Cloudy
TEMPERATURE RANGE: 53-68
TIME CONTRACTOR ON SITE: 7:00-5:30-10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Dow Swartz

9

Materials Delivered

N/A

Work performed this date

LOWER SOIL WAS HAULED USING 4 TANCOU AYLE TRAIL AND A DSC DOZER WAS USED TO WORK THE FILL. FILL WAS PLACED IN 18" TO 22" LIFT AS RECOMMENDED

Tests performed this date with results

N/A

AREA NOT READY FOR TESTING

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Jimmy Hoff

Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-10-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Don Swartz	P.M.A.
Jimmy High	LAW

WORK PLANNED FOR THIS DATE

Placing the cover material on the north end

ITEMS DISCUSSED

Verbal OK to drive ~~on~~ tandem axle trucks on the 18" soil cover has been given by both Guy Coy of SENSE & MAHAL & Jim Long of GEOMEMBRANE.

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11-11-98
WEATHER: P Cloudy - .95" Rain overnight
TEMPERATURE RANGE: 48-62
TIME CONTRACTOR ON SITE: 7:00 - 5:30 = 10.0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Don Swartz

8

Materials Delivered

TD 7 Dozer

Work performed this date

USED 4 TRUCKS TO HAUL THE COVER MATERIAL. USED A DISC DOZER TO WORK THE FILL AND KEEP LINES AROUND 21" THICK FOR TRUCKS TO RIDE ON. ALSO HAD TO REPAIR THE DOUGHNUT RING WHERE THE SILT MATERIAL CAME OFF THE TOP OF 36" PIPE AND LET STONE INTO PIPE. PAT BELL / CHAMPION REQUESTED DON SWARTZ REMOVE THE STONE AND STACK RIP-RAP BACK IN FRONT OF THE PIPE AND THEN PLACE THE 3" STONE & COVER WITH "6". THIS WAS BEING WORKED ON TODAY

Tests performed this date with results

N/A

AREA NOT READY FOR TESTING

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-11-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
Don Swartz	P.M.A.

WORK PLANNED FOR THIS DATE

Placing Soil Cover 18" x 18" x 102" Lift

ITEMS DISCUSSED

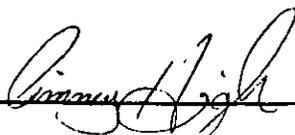
NEEDING TO REPAIR ~~ENGINE~~ DOUGHNUT RING AT 36" PIPE

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE



LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11/2/28
WEATHER: Mostly Cloudy
TEMPERATURE RANGE: 33 - 60
TIME CONTRACTOR ON SITE: 7:00 - 5:30 - 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY ALEXANDER

DR. SCHEIBTZ

9

Materials Delivered

Work performed this date

COARSE MATERIAL WAS HAULED FROM THE BORROW AREA USING FOUR TRUCKS. THE COARSE MATERIAL WAS PLACED IN 18' X 22" LIFTS USING A D5C DOZER.

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11/12/98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
DON SWARTZ	P.M.A
Jimmy Hight	LAW

WORK PLANNED FOR THIS DATE

HAULING COVER MATERIAL FROM BORROW AREA TO CELL

ITEMS DISCUSSED

COMPLETED THE REPAIR ON THE DOWNHILL RUN @ THE 36" PIPE AS DIRECTED BY PAT BEN
CHAMPION

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE Jimmy Hight

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11.13.98
WEATHER: Cloudy - on/off Light Rain
TEMPERATURE RANGE: 45-60
TIME CONTRACTOR ON SITE: 7:00 - 5:30 - 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander (P.M.A)

Don Swartz

8

Materials Delivered

Work performed this date

SOIL COVER MATERIAL WAS PLACED USING FOUR TRUCKS TO NEW MATERIAL FROM BORROW SITE -
A DSC DOZER WAS USED TO WORK THE FILL.

Tests performed this date with results

DENSITY TESTS WERE TAKEN IN 14 AREAS ALONG WITH THICKNESS CHECKS ON THE IN PLACE SOIL AT
EACH TEST LOCATION. THE TESTS INDICATE THE SOIL TO BE AT OR ABOVE THE REQUIRED 90% STANDARD
PROVISION. SEVERAL THICKNESS CHECKS INDICATE MATERIAL TO BE BELOW THE 18" REQUIRED. DON SWARTZ
P.M.A WAS INFORMED AND SHOWN THE LOCATIONS WHICH ARE AT AREA # 4-3-7-12. SEE ATTACHED
SKETCH DATED 11-13-98 FOR DETAILS. ALSO SEE DENSITY WORKSHEETS DATED 11-13-98 FOR DETAILS

Non Compliance Items noted this date

THICKNESS of SOIL CAP LOW IN 4 AREAS

Area - #4-3-7-12

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11/13/98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
Don Swartz	P.M.A.

WORK PLANNED FOR THIS DATE

Placing Soil Cap - 18-22" LFT

ITEMS DISCUSSED

SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11-16-98
WEATHER: Cloudy - RAIN LATE
TEMPERATURE RANGE: 28-56
TIME CONTRACTOR ON SITE: 7:00-2:30-7.0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY ALEXANDER

DON SWARTZ

2

Materials Delivered

SMOOTH DRESS POLYMER
FOR SEALING OFF TOP
of CAP

Work performed this date

FOUR TRUCKS WERE USED TO HAUL THE SOIL FROM FROM THE BORON SITE - A D5C
DOZER WAS USED TO PILE THE SOIL IN 18"-24" LIFTS, SOIL WAS ALSO PILED IN
THE LOW AREAS FOUND ON FRIDAY 11-13-98 - WORK CALLED OFF DUE TO RAIN

Tests performed this date with results

14 DENSITY TESTS WERE TAKEN ALONG WITH 14 CAP THICKNESS CHECKS. THE DENSITIES WERE
TAKEN IN AREAS 15-26 & 30-31. THEY INDICATE A COMPACTION OF 90% OR ABOVE. THE THICKNESS
ALSO INDICATE A CAP THICKNESS OF 18" TO 21". BOTH MEET THE JOB REQUIREMENTS PER THE
SPECS

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11/16/98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy Hight	LAW
Don Swartz	P.M.A.

WORK PLANNED FOR THIS DATE

Haul Soil Cap Material From Borrow Area to Cell

ITEMS DISCUSSED

Place Fill in Low Areas Found Last Week

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE Jimmy Hight

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11.17.98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
Don Swartz	P.M.A.

WORK PLANNED FOR THIS DATE

Hauling Cover Material From Borrow Area To Cell

ITEMS DISCUSSED

DUE TO YESTERDAY'S RAIN TRUCK WILL ROW ON THE EAST SIDE OFF THE GEOMET AREA AND PLACE FILL TO BE MOVED BY THE DOZER

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11-17-98
WEATHER: Clear
TEMPERATURE RANGE: 51-63
TIME CONTRACTOR ON SITE: 7:00-5:30 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Don Swartz

8

Materials Delivered

Work performed this date

4 TRUCKS WERE USED TO HAUL THE COVER MATERIAL FROM BORROW AREA TO THE CELL & PLACED IN A 22 TO 24" LOOSE LIFT & PAVED WITH A D5C DOZER

Tests performed this date with results

SIX DENSITY TEST WERE TAKEN TODAY WHICH INDICATE THE COMPACTION TO BE AT OR ABOVE THE REQUIRED 90%. ALONG WITH EACH DENSITY TEST A THICKNESS CHECK WAS RUN WHICH INDICATED THE THICKNESS TO BE AT OR ABOVE THE 18" REQUIRED. SEE DENSITY WORKSHEET AND ATTACHED SKETCH DATED 11-17-98

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Ronny High

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11.18.98
WEATHER: P. Cloudy
TEMPERATURE RANGE: 28 - 56
TIME CONTRACTOR ON SITE: 7:00 - 5:30 - 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY ALEXANDER

Don Swartz

12

Materials Delivered

TRUCK HOE FOR DRAINAGE DITCH

Work performed this date

USED 4 TRUCKS TO HAUL THE COVER SOIL FROM BORROW SITE TO CELL. THE SOIL WAS PLACED IN 24" LOOSE LIFTS USING A DISC DOZER. PIPE CROW STARTED THE RIP RAP DRAINAGE DITCH AT THE 36" OUTLET PIPE AT THE SOUTH END OF THE JOB SITE. ALSO RETURNED A SOIL SAMPLE TO THE LAB FOR TESTING

Tests performed this date with results

N/A

PLACED SOIL NOT READY FOR TESTING

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Jimmy Hoff

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11/18/98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy Hight	LAW
DON SWARTZ	PMA

WORK PLANNED FOR THIS DATE

Hauling & Placing THE SOIL COVER & STARTING THE Rip Rap DRAINAGE DITCH AT THE SOUTH END
of THE JOB SITE AT THE 36" Pipe.

ITEMS DISCUSSED

SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?
N/A	

Submitted by:

LAW REPRESENTATIVE

Jimmy Hight

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11/19/98
WEATHER: Cloudy
TEMPERATURE RANGE: 49-63
TIME CONTRACTOR ON SITE: 7:00 - 5:30 - 10:00

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Don Swartz

11

Materials Delivered

EROSION MAT FOR DRAINAGE DITCH

work performed this date

USED 5 TRUCKS TO HAUL COVER SOIL FROM BORROW AREA TO CELL. USED DSC DOZER TO PLACE THE COVER MATERIAL IN A 20-22" LIFT. THE DRAINAGE DITCH WAS ALSO EXCAVATED FROM THE END RIP RIP TWO THE BRANKIT. EROSION MAT WAS ALSO PLACED.

Tests performed this date with results

DENSITY TESTS & THICKNESS CHECK WERE RUN AS NEEDED & REQUIRED. THE DENSITIES INDICATE THE COMPACTION TO BE AT OR ABOVE THE 90% REQUIRED AND THE THICKNESS TO BE AT OR ABOVE THE 18" MIN REQUIRED. SEE DENSITY WORKSHEET & SKETCH DATED 11/19/98 FOR DETAILS

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-19-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
Bill Von Viszner	CIC
Jim Grayne	CIC
JENNIFER BALLAN	CIC
DON SWARTZ	PIMA

WORK PLANNED FOR THIS DATE

HAULING COVER SOIL - WORKING ON DRAINAGE DITCH SOUTH WASH

ITEMS DISCUSSED

HOW TO SLOPE THE EXISTING EAST BANK TO LEAVE ACCESS TO ~~EXISTING~~ WELLS AND HAVE IT COMPLETED BEFORE SEEDING.

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11-20-98
WEATHER: Cloudy LT. Rain
TEMPERATURE RANGE: 48-60
TIME CONTRACTOR ON SITE: 7:00 - 5:30 - 10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>Perry Alexander</u>	<u>Don Swartz</u>	<u>10</u>

Materials Delivered

Work performed this date

USED 5 TRUCKS TO HAUL THE COVER MATERIAL I USED A DSC DOZER TO PLACE THE MATERIAL IN 2' LIFTS. CONTRACTOR ALSO COMPLETED THE DRAINAGE DITCH

Tests performed this date with results

TECH PERFORMED SEVERAL DENSITY TESTS TO CATCH UP WITH CONTRACTOR. DENSITY'S INDICATED THE COMPACTION TO BE AT OR ABOVE THE 90% REQUIRED COMPACTION. THE THICKNESS CHECKS ALSO INDICATE THE MATERIAL TO BE AT OR ABOVE THE REQUIRED 18"

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-20-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy Hight	LAW
Don Swartz	P.M.A.

WORK PLANNED FOR THIS DATE

HAULING SOIL CAP MATERIAL + COMPLETING THE DRAINAGE DITCH

ITEMS DISCUSSED

SAME AS ABOVE

QUESTIONS DISCUSSED

Question	Person to answer?
<u>N/A</u>	

Submitted by:

LAW REPRESENTATIVE Jimmy Hight

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11-21-98
WEATHER: Cloudy
TEMPERATURE RANGE: 32-51
TIME CONTRACTOR ON SITE: 7:00-5:30-10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

PERRY ALEXANDER

DAVE SWARTZ

9

Materials Delivered

Work performed this date

USED 5 TRUCKS TO HAUL THE COVER MATERIAL FROM THE BORROW AREA TO THE CELL. A D5C DOZER WAS USED TO PLACE THE MATERIAL IN A 22" LOOSE LIFT. FILL PLACEMENT SHOULD BE COMPLETED TOMORROW.

Tests performed this date with results

DENSITY TESTS & THICKNESS CHECKS WERE TAKEN IN TEN AREAS. THE DENSITY'S INDICATE THE COMPACTION TO BE AT OR ABOVE THE REQUIRED 90% AND THE THICKNESS CHECKS INDICATE THE SOIL CAP TO BE ABOVE THE 18" REQUIRED THICKNESS. SEE REPORT OF DENSITY TEST WORKSHEET & LOCATION PLAN DATED 11-21-98 FOR DETAILS.

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Jenny Hoyle

Reviewed by:

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-21-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
Don Swartz	P.M.A

WORK PLANNED FOR THIS DATE

HAULING COVER MATERIAL

ITEMS DISCUSSED

NEEDING TO REPAIR DOUGLASS RING AS DIRECTED BY STATE & MARIAN PER DRAWING DATED 11-18-95. WORK REQUESTED TO DO SO BY CHAMPION PER CHANGE ORDER SUBMITTED BY P. ALEXANDER.

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE

Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11-23-98

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
Don Swartz	PMA

WORK PLANNED FOR THIS DATE

HAUL SOIL CAP MATERIAL & WORK ON EAST SLOPE AS DIRECTED BY CHAMPION

ITEMS DISCUSSED

COMPLETE THE CAP TODAY & SEED TOMORROW

CREATE A STONE CHECK DAM AROUND THE DRAINAGE RING AREA AS IT IS TOUGH TO HOLD THE WATER AND REPAIR IN THE SPRING PER DEBBIE BROWN OF CHAMPION

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE

SUMMARY OF DAILY OBSERVATIONS

DATE: 11-23-98
WEATHER: Cloudy
TEMPERATURE RANGE: 34-61
TIME CONTRACTOR ON SITE: _____

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

<u>CONTRACTORS ON SITE</u>	<u>Foreman or Supt.</u>	<u>Number of Employees on site</u>
<u>Perry Alexander</u>	<u>Don Schwartz</u>	<u>9</u>

Materials Delivered

Work performed this date

HAULED THE SOIL CAP MATERIAL WITH 5 TRUCKS AND USED A DSC TO PACK THE FILL IN A 22" LIFT. ALSO WORKED ON THE EAST SCOPE AS REQUESTED BY CFC. THE FILL WAS COMPLETED TODAY & SHOULD BE SEEDING TOMORROW

Tests performed this date with results

DENSITIES & THICKNESS CHECKS WERE TAKEN TODAY. THE DENSITIES INDICATED THE COMPACTION TO BE AT OR ABOVE THE REQUIRED 90%. THE THICKNESS CHECKS INDICATED THE SOIL CAP TO BE AT OR ABOVE THE 18" REQUIRED CAP. SEE REPORT OF FIELD DENSITY WORKSHEET / LOCATION FROM DATED 11-23-98 FOR DETAILS

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE



Reviewed by: _____

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11-24-98
WEATHER: Placid
TEMPERATURE RANGE: 45-63
TIME CONTRACTOR ON SITE: 7:00-5:30-10:0

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Don Swartz

7

Materials Delivered

SEED - FERTILIZER - LIME

Work performed this date

PREPARED THE SOIL CAP & ENTIRE SCOPE FOR SEEDING - PLACED CHECK DAMS ON 100' CENTER AND AS DESIGNED BY SEELE'S MANUAL PER 11-18-98 DRAWINGS. AS OF 2:30 TODAY AREA NOT SEEDING. TECH REQUESTED BACK ON SITE TOMORROW AND REPORT WORK PERFORMED TO CHAMPION FOR FINAL REPORT

Tests performed this date with results

N/A

FILL COMPLETED & TESTED

Non Compliance Items noted this date

N/A

Submitted By:

LAW REPRESENTATIVE

Reviewed by:

LAW

LAWGIBB Group Member 

SUMMARY OF DAILY SITE MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313

DATE 11.24.88

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Jimmy High	LAW
BILL VON KITZBUMER	CIC
Jim GIANQUE	CIC
Don SWARTZ	PMT

WORK PLANNED FOR THIS DATE

DRESSING THE CAP AREA & WORKING THE EAST SLOPE FOR SEEDING
PLACING THE CHECK DAMS

ITEMS DISCUSSED

WALKING IN THE SLOPE FOR SEEDING
ADDING STONE TO DOWNHILL RUN ON THE EAST-WEST SLOPE AS DIRECTED BY CHAMPION
USING HAY INSTEAD OF WOOD FIBER HYDRO SEED MULCH - CHAMPION REQUESTED THE HYDRO SEED
MULCH OVER THE USE OF HAY AS SEED COVER

QUESTIONS DISCUSSED

Question	Person to answer?

Submitted by:

LAW REPRESENTATIVE Jimmy High

LAW

LAWGIBB Group Member



SUMMARY OF DAILY OBSERVATIONS

DATE: 11-25-98
WEATHER: Cloudy
TEMPERATURE RANGE: 45-62
TIME CONTRACTOR ON SITE: 7:00

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
CAPPING OF LAND FILL CELL 6 H
LAW PROJECT 30300-8-0313.01

CONTRACTORS ON SITE

Foreman or Supt.

Number of Employees on site

Perry Alexander

Don Swartz

5

Materials Delivered

N/A

Work performed this date

LIME WAS PLACED & DISC IN USING A MASSIVE Ferguson TRACTOR WITH A DISC HARROW
AT TIME TECH METRIC FOR SITE SEEDING HAD NOT STARTED WHICH WAS 11:00. BUT SHOULD BE
COMPLETED TODAY

Tests performed this date with results

N/A

Non Compliance Items noted this date

N/A

mitted By:

LAW REPRESENTATIVE

Reviewed by:

APPENDIX IX

WEEKLY PROGRESS MEETING SUMMARIES

LAW

LAWGIBB Group Member 

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

SUMMARY OF WEEKLY PROGRESS MEETING

**CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
LANDFILL CELL 6H Closure
LAW PROJECT 30300-8-0313.02**

DATE - November 24, 1998

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Sam Interlicchia	Law Engineering and Environmental Services Inc.
Jimmy High	Law Engineering and Environmental Services Inc.
Jim Giauque	Champion International Corporation
Lynn Sellars	Champion International Corporation
Andy Apostolopous	Champion International Corporation
Jennifer Ballard	Champion International Corporation
William von Vitzthume	Champion International Corporation
Don Swartz	Perry M. Alexander Grading Company

ITEMS DISCUSSED

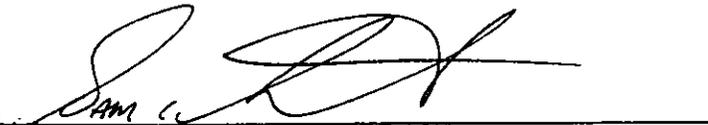
- 1) Last week's Summary of Weekly Progress Meeting (November 17, 1998) was distributed reviewed and approved.
- 2) Don Swartz indicated the check dams would be completed today. Don Swartz also will add an extra check dam midway above the outlet pipe on the East Side of the cell.
- 3) Don Swartz indicated that Perry M. Alexander has completed the soil cover for cell 6 H.
- 4) Jimmy High indicated that the compaction tests and thickness checks performed on the soil cover meet or exceed the project requirements.
- 5) Seeding of the soil cover will start and will be completed today.
- 6) Mr. von Vitzthume indicated all disturbed areas need to be seeded.
- 7) Mr. von Vitzthume visited the cell and observed the riprap channel from the storm water outlet to the creek. Mr. von Vitzthume informed personnel at the meeting that the riprap channel looked fine.
- 8) Champion personnel asked that Perry M. Alexander add silt fence in several place across the rip rap channel. Don Swartz indicated he would take care of this.

- 9) Champion personnel requested a topographic survey of the completed cell. Mr. von Vitzthume will check on the cost of this survey.
- 10) Mr. Andy Apostolopous indicated that he would like for Mr. Guy Cote to review a draft copy of the closure report. Sam Interlicchia will fax or e-mail him a copy. The final report will be delivered to Champion the week of December 14, 1998.
- 11) Champion personnel will make a final inspection of the cell before Perry M. Alexander demobilizes.

The above items represent my records of the November 24, 1998 progress meeting. Anyone wishing to add comments or corrections to this summary should submit their comments to LAW in writing or at the next progress meeting on December 1, 1998.

Submitted by:

LAW REPRESENTATIVE

A handwritten signature in black ink, appearing to read 'SAM', is written over a horizontal line. The signature is stylized and cursive.

Sam Interlicchia

LAW

LAWGIBB Group Member 

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

SUMMARY OF WEEKLY PROGRESS MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
LANDFILL CELL 6H Closure
LAW PROJECT 30300-8-0313.02

DATE - November 17, 1998

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Sam Interlicchia	Law Engineering and Environmental Services Inc.
Jimmy High	Law Engineering and Environmental Services Inc.
Jim Giauque	Champion International Corporation
Susan Rogers	Champion International Corporation
Andy Apostolopous	Champion International Corporation
Jennifer Ballard	Champion International Corporation
William von Vitzthume	Champion International Corporation
Kenneth Van Dyke	Perry M. Alexander Grading Company
Don Swartz	Perry M. Alexander Grading Company

ITEMS DISCUSSED

- 1) Last weeks Summary of Weekly Progress Meeting (November 17, 1998) was distributed reviewed and approved.
- 2) The detail for the check dams is expected to arrive today from Mr. Guy Cote.
- 3) The contractor will start installation of the check dams today.
- 4) Don Swartz indicated that Perry M. Alexander is approximately 70 to 75 percent complete with the soil cover for cell H closure.
- 5) Jimmy High indicated that the compaction tests already performed on part of the soil cover are meeting the job requirements of 90 percent.
- 6) Champion personnel indicated that seeding of the soil cover should take place as soon as the cover placement is complete.
- 7) Perry M. Alexander will start on the rip rap channel from the storm water outlet to the creek during the latter part of the week.

- 8) Jim Giaouque indicated that Mr. Louie Justus is refining the final drawing for the permit for the storm water out fall.

The above items represent my records of the November 17, 1998 progress meeting. Anyone wishing to add comments or corrections to this summary should submit their comments to LAW in writing or at the next progress meeting on November 24, 1998.

Submitted by:

LAW REPRESENTATIVE

A handwritten signature in black ink, appearing to read "SAM", is written over a horizontal line. The signature is stylized and somewhat illegible.

Sam Interlicchia

LAW

LAWGIBB Group Member 

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

SUMMARY OF WEEKLY PROGRESS MEETING

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
LANDFILL CELL 6H Closure
LAW PROJECT 30300-8-0313.02

DATE –November 10, 1998

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Allen Hughes	Law Engineering and Environmental Services Inc.
Sam Interlicchia	Law Engineering and Environmental Services Inc.
Jimmy High	Law Engineering and Environmental Services Inc.
Jim Giauque	Champion International Corporation
Lynn Sellars	Champion International Corporation
Pat Bell	Champion International Corporation
Jennifer Ballard	Champion International Corporation
Andy Apostolopous	Champion International Corporation
William von Vitzthume	Champion International Corporation
Kenneth Van Dyke	Perry M. Alexander Grading Company
Don Swartz	Perry M. Alexander Grading Company

ITEMS DISCUSSED

- 1) We reviewed the summary of last weeks progress meeting and Post Liner Installation Discussions. Andy A. of Champion asked about Item 3 under the *Summary of Progress Meeting*. This item should have read "The results of the testing on these samples comply with the project specifications.
- 2) Bill V. indicated that his understanding of the proposed perimeter drain was slightly different that the detail supplied by LAW as an attachment to the "*Summary of Post Liner Installation Discussions*". It was his understanding, that the bottom would be flatter with more rounded and gently sloped sides. Those at the meeting agreed that the description provided by Bill V would be easier to install and satisfactory to achieve the desired intent.
- 3) During this past week discussions concerning the excess liner in the bottom of the anchor trench were held. It was Bill V's understanding that the excess material was to be cut off flush

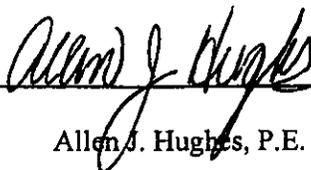
with the back of the anchor trench, not folded or bunched in the bottom of the trench. This information was given to the contractor who adjusted his procedures at the time of the discussion. The persons attending this meeting agreed that this item was no longer an issue on cell "H" and that no remediation measures were required.

- 4) Pat Bell of Champion had visited the site and had some concerns about the erosion control measures. These items had been addressed and were now under control..
- 5) Perry M. Alexander Grading has completed the filling of the anchor trench and perimeter drains. They have started placement of the soil cap on the rest of the cell.
- 6) The contractor has requested that he be allowed to back the dumptrucks over the liner with only 18 inches of soil fill in place over the liner. The specifications require that there be at least 3 feet of soil under a dumptruck. It is our understanding that Sevee and Maher has approved this provided that the liner installer will still warranty the liner. It is our understanding that letters confirming this have been received from the liner subcontractor and Guy Cote of Sevee and Maher. The letters reportedly require that no large off road dumptrucks be used and that the dumptrucks travel in a straight line only to assure that the liner is not distorted by the twisting of wheels on the soil above the liner.
- 7) Pat Bell indicated that the stone check dams should be installed at the indicated location as soon as an area is complete and tested.
- 8) Don Swartz indicated that Perry M. Alexander Grading should be finished with placing the soil cover in 10 days weather permitting. Anticipated completion dated for cell H" closure, including seeding and placement of check dams is November 25, 1998. The contractor indicated that he should be able to complete the rip rap channel by this date also.
- 9) Pat Bell is reviewing the erosion control requirements for cells "F" and "G". It is likely that some additional silt fences will be required for these two cells. Champion personnel will review the requirements and provide a solution in time for the contractor to begin the closure of these cells in March 1999.

The above items represent my records of the November 10, 1998 progress meeting for cell "H". Anyone wishing to add comments or corrections to this summary should submit their comments to LAW in writing or at the next progress meeting on November 17, 1998.

Submitted by:

LAW REPRESENTATIVE



Allen J. Hughes, P.E.

LAW

LAWGIBB Group Member 

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

SUMMARY OF WEEKLY PROGRESS MEETING

**CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
LANDFILL CELL 6H Closure
LAW PROJECT 30300-8-0313.02**

DATE -November 3, 1998

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Allen Hughes	Law Engineering and Environmental Services Inc.
Sam Interlicchia	Law Engineering and Environmental Services Inc.
Jimmy High	Law Engineering and Environmental Services Inc.
Jim Giauque	Champion International Corporation
Lynn Sellars	Champion International Corporation
Mike Cody	Champion International Corporation
Jennifer Ballard	Champion International Corporation
William von Vitzthume	Champion International Corporation
Derek Brown	Champion International Corporation
Guy Cote	Sevee & Maher
Alex Keith	Perry M. Alexander Grading Company
Don Swartz	Perry M. Alexander Grading Company

ITEMS DISCUSSED

- 1) Placement of the liner began on Tuesday October 27, 1998 and was completed on Thursday October 29, 1998
- 2) Placement of the geonet began on Saturday October 31, 1998 and was completed on Monday November 2, 1998.
- 3) LAW obtained 9 samples of the field prepared seams for destructive testing and 1 sample for chemical conformance analysis. The results of the testing on these samples appear to comply with the project specifications.
- 4) The liner was not installed in complete compliance with details A and B on drawing C300 (sheet 10 of 10). The details show the liner material installed down one side, across the bottom and up the opposite side of the anchor ditch. The liner was installed such that only one side

and the bottom of the anchor ditch were lined. Guy Cote of Sevee & Maher indicated they had calculated the needed surface area and that as long as the 1 side and the bottom were covered with the liner, the anchor trench would perform satisfactorily.

- 5) The sequence of filling the anchor trench, filling the French drain, and placing the soil cap were discussed. It is our understanding that the contractor is to complete the French drain ahead of filling the anchor trench. Once a section of French drain is complete, the contractor can begin following behind, filling the anchor trench. This process has begun.
- 6) The test requirements for the soil cap were discussed. LAW will be performing density tests on an ongoing basis once the contractor begins placement and compaction of the soil cap. LAW will perform 45 to 50 field density tests on the soil cap for cell H.
- 7) The seeding requirements were discussed and the specifications reviewed. It was noted that the seeding requirements after September 15 require the addition of 35 pounds per acre of winter rye to the standard seed mix.
- 8) Mike Cody expressed concern about the poor communication that occurred during portions of the liner placement. While the lack of communication did not result in any deficiencies in the liner installation. Mike was concerned and requested that the Champion personnel, LAW personnel, Guy Cote, and a representative of the general contractor have a meeting to discuss ways to improve communication for cells F and G. This meeting was scheduled and occurred on this date following this meeting. A summary of this meeting was prepared and is attached.

The above items represent my records of the November 3, 1998 progress meeting. Anyone wishing to add comments or corrections to this summary should submit their comments to LAW in writing or at the next progress meeting on November 10, 1998.

Submitted by:

LAW REPRESENTATIVE



Allen J. Hughes, P.E.

LAW

LAWGIBB Group Member 

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

SUMMARY OF POST LINER INSTALLATION DISCUSSIONS

CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
LANDFILL CELL 6H Closure
LAW PROJECT 30300-8-0313.02

DATE -November 3, 1998

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Allen Hughes	Law Engineering and Environmental Services Inc.
Sam Interlicchia	Law Engineering and Environmental Services Inc.
Jennifer Ballard	Champion International Corporation
William von Vitzthume	Champion International Corporation
Guy Cote	Sevee & Maher
Alex Keith	Perry M. Alexander Grading Company

ITEMS DISCUSSED

As requested by Mike Cody of Champion International, the above persons met after the regularly scheduled Progress/QA/QC meeting for Cell 6H closure. The purpose of the meeting was to discuss areas that could be improved during the installation of the liner in cells 6F and 6G. The following actions were agreed upon by the persons present.

- 1) Guy Cote of Sevee & Maher is going to modify detail "D" "*Perimeter Drain with Anchor*" on sheet 300 to clarify the horizontal limits of the liner.
- 2) Guy Cote of Sevee & Maher is going to modify detail "B" "*Cap Edge with Anchor*" on sheet 300 to show that it is not necessary to extend the liner up the outside edge of the trench as long as the complete width of the trench bottom is covered with liner.
- 3) Guy Cote of Sevee & Maher is going to create a detail showing how to attach the liner to the existing monitoring wells and manholes in cells 6G and 6F.
- 4) Everyone present agreed that the perimeter drain would be easier to install in a well defined swale instead of a vertical sided ditch. Guy Cote agreed that for other perimeter drains that are not used as an anchor trench, a swale can be used, though there may not be a need for this on

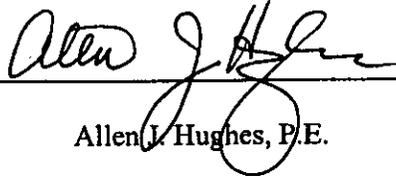
cells 6F and 6G. A copy of the detail which is acceptable to Guy Cote was prepared by Allen Hughes of LAW and is attached.

- 5) While the specifications do not specifically require that the soil cap be placed starting on the low side and proceeding towards the high side, it was agreed that for cells 6F, 6G, and 6H that this placement procedure would be utilized. Alex Keith of Perry M. Alexander suggested that if this was to be a project requirement, it would be helpful to include this requirement in the specifications and plans to eliminate the potential of the contractor wanting a change order for using this procedure.
- 6) It was agreed by Mr. Guy Cote that on the subsequent cells (6G and 6F), the contractor can begin filling the anchor trench after the placement of the first sheets of geonet so that the contractor can create access for the lift which is used to transport the geonet to the cell location.
- 7) In order to assist with making sure that each person knows what the project requirements for each cell are, a preinstallation meeting will be held before the installation of the liner begins on cells 6F and 6G. The meeting will include representatives of LAW, Perry M. Alexander Grading Company, Champion International, and the subcontractor installing the liner. At this meeting the project requirements and details will be reviewed and discussed. In addition a communication path for resolution of any discrepancies or concerns which arise during the installation of the liner will be established during this meeting. A record of the meeting will be prepared by LAW and distributed to the appropriate parties.

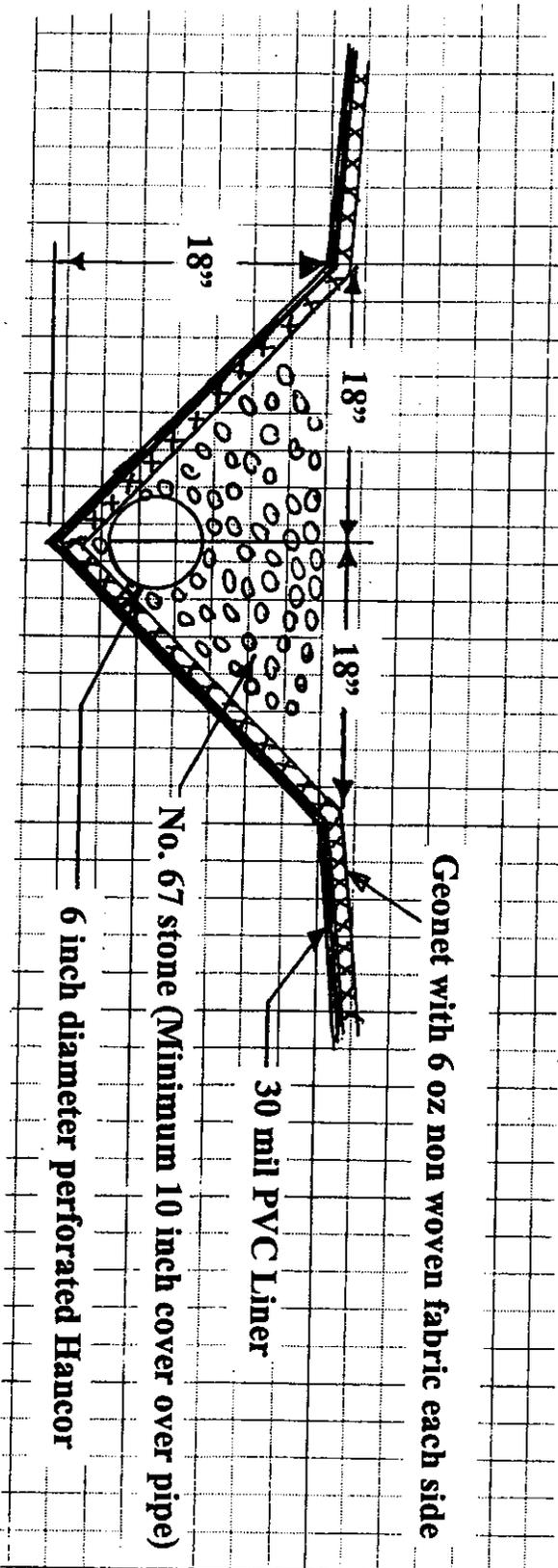
The above items represent my records of the November 3, 1998 post liner installation discussions. Anyone wishing to add comments or corrections to this summary should submit their comments to LAW in writing no later than November 12, 1998.

Submitted by:

LAW REPRESENTATIVE



Allen J. Hughes, P.E.



SCALE



LAW
 Engineering and Environmental Services
 Asheville, North Carolina

PERIMETER DRAIN WITHOUT ANCHOR DETAIL
 LANDFILL CELL 6H CLOSURE
 CHAMPION INTERNATIONAL CORP
 CANTON, NORTH CAROLINA

Technician: SM	Date: 11/9/1998	Checked By:	Date:	Job Number: 30300-8-0313.02	Perimeter Drain Detail Figure 1
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LAW

LAWGIBB Group Member 

1308-C Patton Avenue
Asheville, North Carolina 28806
(828) 252-8130 Phone
(828) 251-9690 Fax

SUMMARY OF WEEKLY PROGRESS MEETING

**CHAMPION INTERNATIONAL CORPORATION
CANTON, NORTH CAROLINA
LANDFILL CELL 6H Closure
LAW PROJECT 30300-8-0313.02**

DATE - October 27, 1998

PERSONS IN ATTENDANCE

NAME	COMPANY REPRESENTED
Allen Hughes	Law Engineering and Environmental Services Inc.
Jimmy High	Law Engineering and Environmental Services Inc.
Jim Giauque	Champion International Corporation
Lynn Sellars	Champion International Corporation
Andy Apostolopous	Champion International Corporation
Jennifer Ballard	Champion International Corporation
William von Vitzthume	Champion International Corporation

ITEMS DISCUSSED

- 1) The cell has been graded in general accordance with the project plans.
- 2) The surface of the cell is relatively smooth and appears to be graded to provided positive drainage.
- 3) The contractor is continuing to fine grade the surface and is rolling the surface with a steel drum roller. In addition the contractor is watching for and removing rocks sticks and other items on the surface, which have the potential for damaging the PVC liner. In general the surface appears to be firm and smooth and ready for placement of the liner.
- 4) The contractor has excavated the ditches for the French drain and is in the process of excavating the anchor ditch.
- 5) Jennifer Ballard indicated that she had received the necessary documentation to verify that the design included a 30 mil PVC liner and that the specified compaction requirement was 90 percent of the maximum dry density as determined by a standard Proctor test (ASTM D698).
- 6) The contractor has turned in the required submittals for the liner to be used on this project.
- 7) The liner material has been shipped to the site in large panels with factory seams. The use of factory seams should improve the overall quality of the project as the controlled conditions of

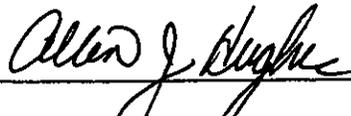
the factory allow for better control and fabrication of seams. The Quality assurance testing required for the factory seams was performed and documented by the factory prior to shipping the liner.

- 8) The placement of the liner will likely take 2 to 3 days. Testing of the field seams will not be complete until 3 to 5 days after the placement of the liner is complete. It is our understanding that the contractor will place the geonet as soon as the placement of the liner is complete, but that placement of the soil cover will not be implemented until satisfactory tests results on the field seams are complete.
- 9) Placement of the liner is anticipated to begin today. LAW will have Sam Interlicchia , Joe Nesbitt, and Jimmy High onsite during the placement on October 27, and 28, 1998. Mr. Interlicchia will be available part of the day on the 29th and the last of the liner will likely be observed and sampled by Mr. High on the 29th.

The above items represent my records of the October 27, 1998 progress meeting. Anyone wishing to add comments or corrections to this summary should submit their comments to LAW in writing or at the next progress meeting on November 3, 1998.

Submitted by:

LAW REPRESENTATIVE



Allen J. Hughes, P.E.

APPENDIX X

AS-BUILT DRAWINGS

TOP OF SUBGRADE FOR SYNTHETIC LINER

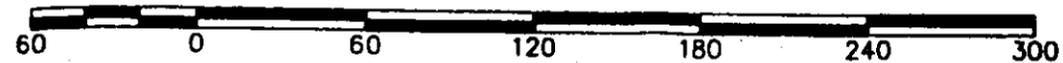
*Topographic Survey**

**CHAMPION INTERNATIONAL
LANDFILL "6H"**

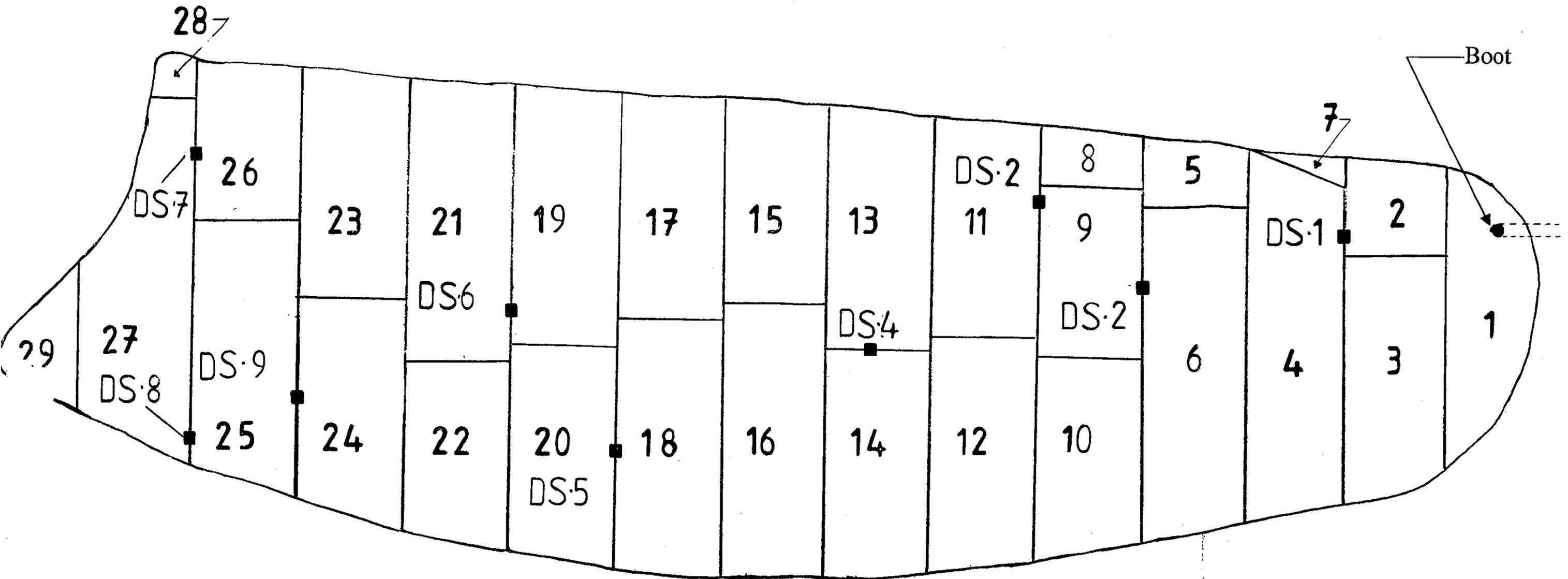
EXISTING CONDITIONS AS OF OCTOBER 25, 1998

BEAVERDAM TOWNSHIP, HAYWOOD COUNTY, NORTH CAROLINA

C. O. HAMPTON COMPANY - LAND SURVEYORS
P.O. DRAWER 1319, FLETCHER, NORTH CAROLINA



Drawing No. 98042002 Point File No. 98042002
Scale: 1" = 60' Job No. 98042 Date: October 26, 1998



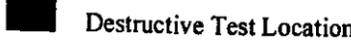
PANEL AND SEAM SAMPLE LOCATION PLAN
for
LANDFILL CELL 6-H
GEOMEMBRANE LINER
CHAMPION INTERNATIONAL CORPORATION
LAW PROJECT-30300-8-0313.02

DATE: 12/10/98
Drawn By: SCI
Checked By: _____

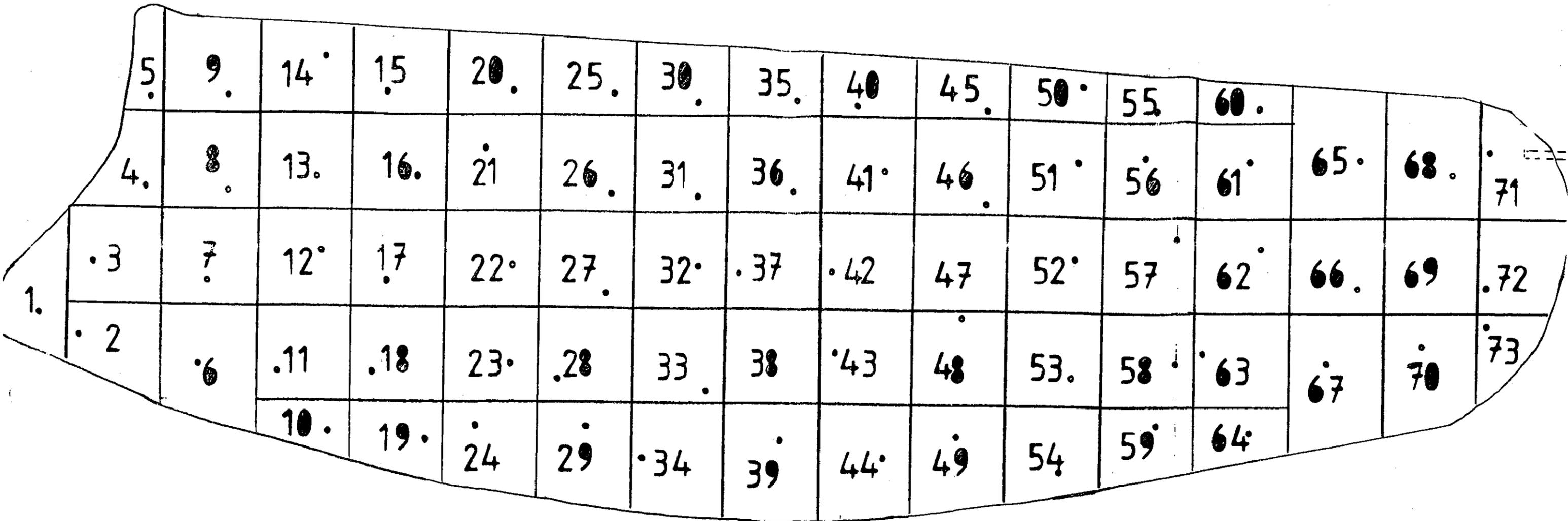
Scale 1" = 60'

60 0 60 120





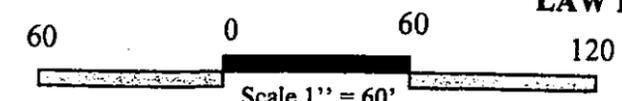
DRAWING NO. 2



DENSITY TEST LOCATION PLAN
for
LANDFILL CELL 6-H
GEOMEMBRANE LINER
CHAMPION INTERNATIONAL CORPORATION
LAW PROJECT-30300-8-0313.02



● DENSITY TEST LOCATION



Scale 1" = 60'

DATE: 12/10/98
Drawn By: SC1
Checked By: _____

DRAWING NO. 3

APPENDIX XI

PHOTOGRAPHS



Subgrade Preparation



Partial Finished Subgrade (Lime)



PVC Liner Southern End



Boot Detail



Anchor Trench



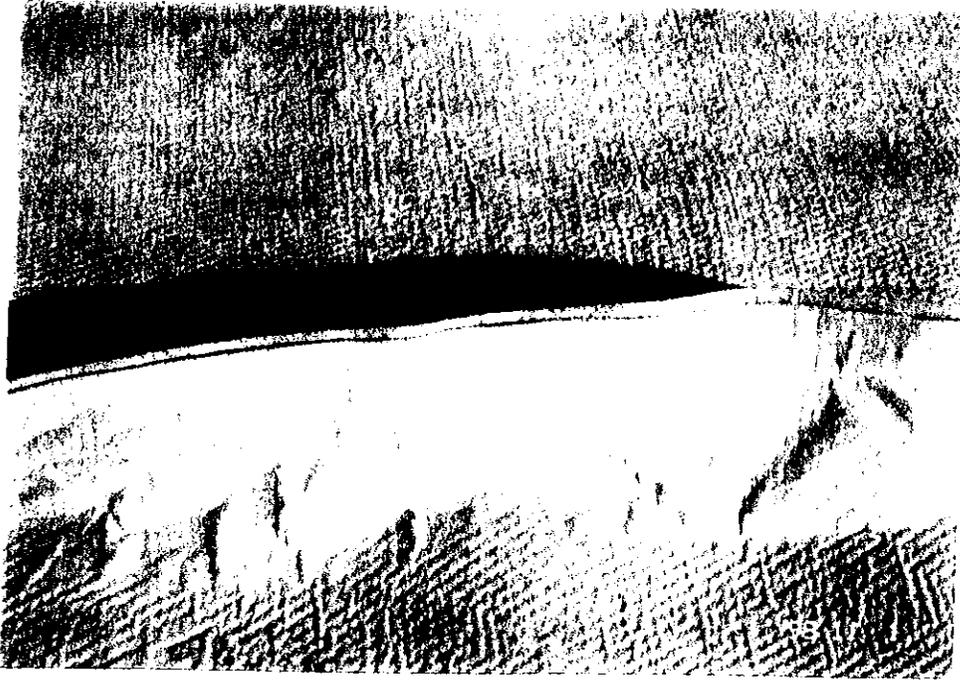
Anchor Trench with Geotextile and Liner



French Drain Trench



French Drain with 6'' Slotted Pipe



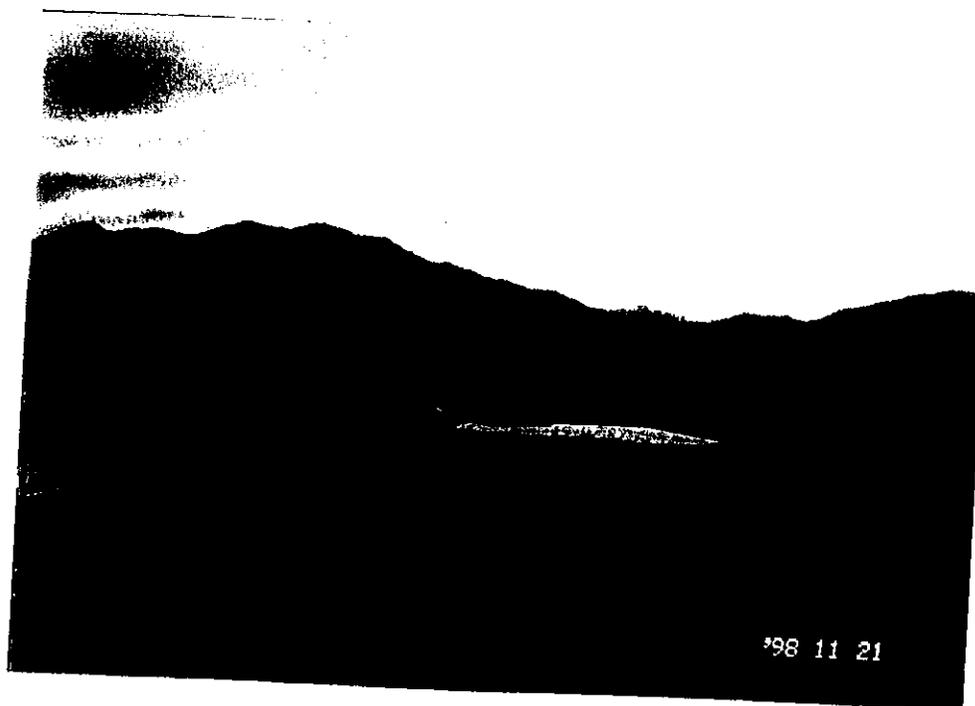
Sewn Top Layer of Non-Woven Fabric



Top Sheet Opened Showing Geonet



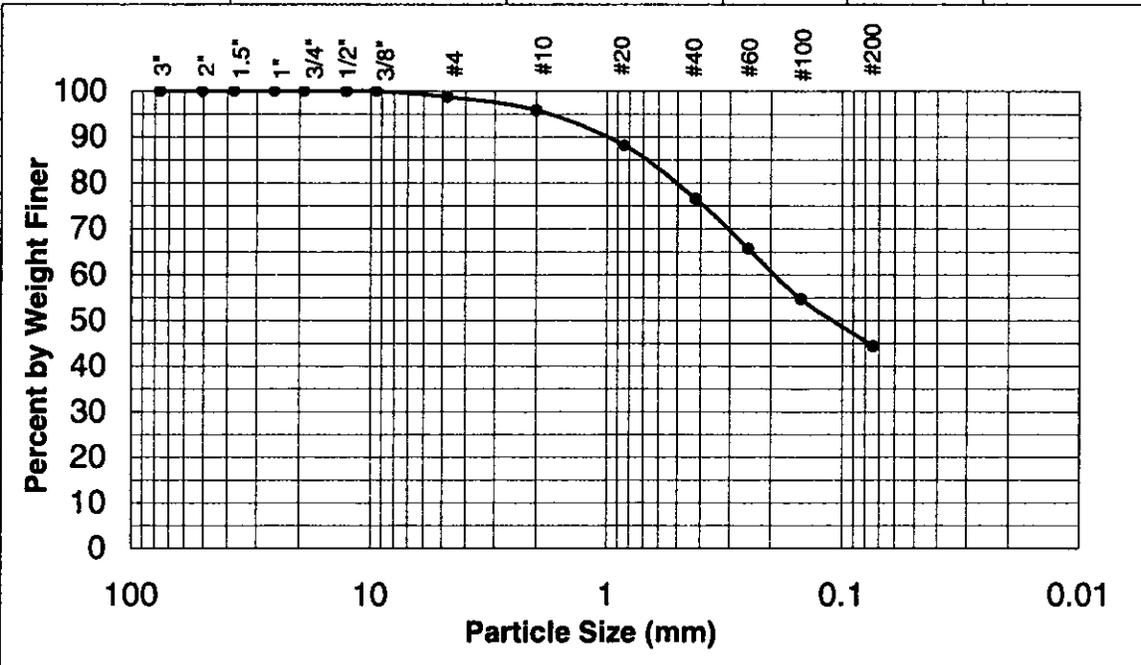
Soil Cover Being Placed
Approximately 25% Complete



Soil Cover Being Placed
Approximately 80% Complete

GRAIN SIZE ANALYSIS - ASTM D422

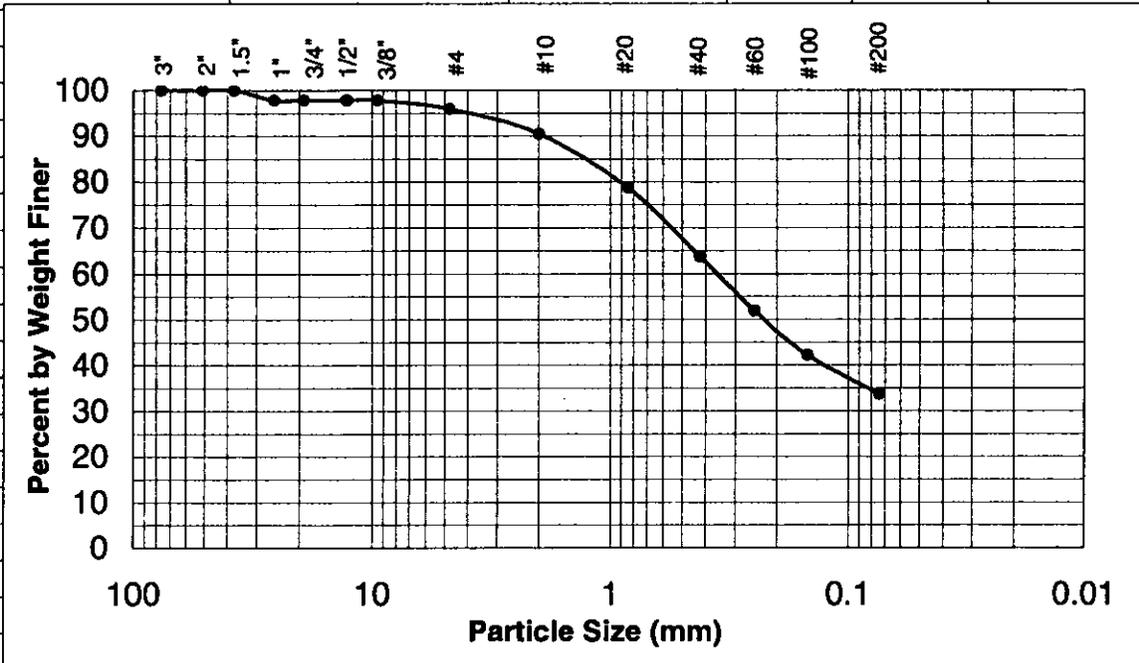
PROJECT NAME:	Blue Ridge Paper	PROJECT No:	07136
	Canton, N. Carolina	DATE:	23-Jul-07
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	H-1
SAMPLE DESCRIP:	Reddish brown silty m-f SAND		
DATA			
			SPECIFICATION
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u> <u>Max</u> <u>P / F</u>
3	76.2	100.0	
2	50.8	100.0	
1.5	37.5	100.0	
1	25.4	100.0	100 100 P
3/4	19.1	100.0	
1/2	12.7	100.0	
3/8	9.5	100.0	
#4	4.76	98.8	
#10	2.0	95.8	
#20	0.84	88.1	
#40	0.42	76.6	
#60	0.25	65.7	
#100	0.149	54.7	
#200	0.074	44.4	20 100 P



Water Content (%) = 10.7

GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME: Blue Ridge Paper		PROJECT No: 07136			
Canton, N. Carolina		DATE: 23-Jul-07			
SAMPLE SOURCE: Closure Testing		SAMPLE No: H-2			
SAMPLE DESCRIP: Reddish brown silty m-f SAND					
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P/F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	97.8	100	100	F
3/4	19.1	97.8			
1/2	12.7	97.8			
3/8	9.5	97.8			
#4	4.76	96.0			
#10	2.0	90.4			
#20	0.84	78.7			
#40	0.42	63.7			
#60	0.25	51.9			
#100	0.149	42.2			
#200	0.074	33.7	20	100	P



Water Content (%) =	6.1
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GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME: Blue Ridge Paper				PROJECT No: 07136	
Canton, N. Carolina				DATE: 23-Jul-07	
SAMPLE SOURCE: Closure Testing				SAMPLE No: H-3	
SAMPLE DESCRIP: Reddish brown silty m-f SAND					
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P / F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	97.8			
3/8	9.5	96.8			
#4	4.76	92.4			
#10	2.0	86.8			
#20	0.84	77.1			
#40	0.42	64.8			
#60	0.25	55.1			
#100	0.149	45.0			
#200	0.074	35.4	20	100	P

The graph plots the grain size distribution. The vertical axis represents the 'Percent by Weight Finer' from 0 to 100. The horizontal axis represents 'Particle Size (mm)' on a logarithmic scale from 100 to 0.01. The data points from the table are plotted and connected by a smooth curve. Key points include 100% finer at 100 mm, 97.8% at 12.7 mm, 86.8% at 2.0 mm, and 35.4% at 0.074 mm.

Water Content (%) =	6.4
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GRAIN SIZE ANALYSIS - ASTM D422

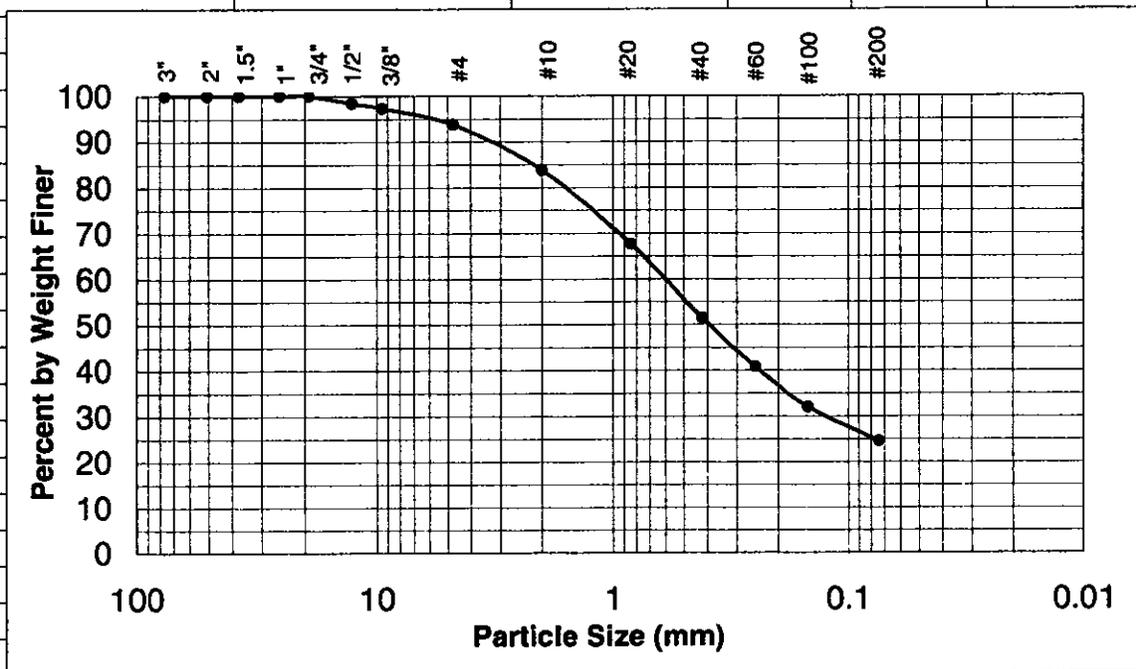
PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136		
		DATE:	23-Jul-07		
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	H-4		
SAMPLE DESCRIP:	Reddish brown silty m-f SAND				
DATA					
		SPECIFICATION			
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P/F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	100.0			
3/8	9.5	99.3			
#4	4.76	95.8			
#10	2.0	89.8			
#20	0.84	79.2			
#40	0.42	66.1			
#60	0.25	56.5			
#100	0.149	46.7			
#200	0.074	36.8	20	100	P

The graph plots Percent by Weight Finer (Y-axis, 0 to 100) against Particle Size in millimeters (X-axis, logarithmic scale from 100 to 0.01). The data points from the table are plotted and connected by a smooth curve. Key points include 100% finer at 100mm, 100% finer at 2.0mm, 89.8% finer at 0.84mm, 66.1% finer at 0.425mm, 46.7% finer at 0.149mm, and 36.8% finer at 0.074mm.

Water Content (%) =	5.4
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GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136		
		DATE:	23-Jul-07		
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	H-5		
SAMPLE DESCRIP:	Reddish brown silty m-f SAND				
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P / F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	98.4			
3/8	9.5	97.3			
#4	4.76	93.8			
#10	2.0	83.8			
#20	0.84	67.6			
#40	0.42	51.4			
#60	0.25	40.8			
#100	0.149	32.1			
#200	0.074	24.5	20	100	P



	Water Content (%) =	4.8	
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GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME: Blue Ridge Paper				PROJECT No: 07136	
Canton, N. Carolina				DATE: 23-Jul-07	
SAMPLE SOURCE: Closure Testing				SAMPLE No: H-6	
SAMPLE DESCRIP: Reddish brown silty m-f SAND					
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P / F</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	98.9			
3/8	9.5	98.2			
#4	4.76	95.0			
#10	2.0	88.9			
#20	0.84	77.7			
#40	0.42	63.2			
#60	0.25	52.6			
#100	0.149	41.9			
#200	0.074	32.1	20	100	P

The graph plots Percent by Weight Finer (Y-axis, 0 to 100) against Particle Size in mm (X-axis, logarithmic scale from 100 to 0.01). The data points from the table are plotted and connected by a smooth curve. Key points include 100% finer at 100mm, 95% finer at 4.76mm (#4 sieve), and 32.1% finer at 0.075mm (#200 sieve).

Water Content (%) = 6.0

GRAIN SIZE ANALYSIS - ASTM D422

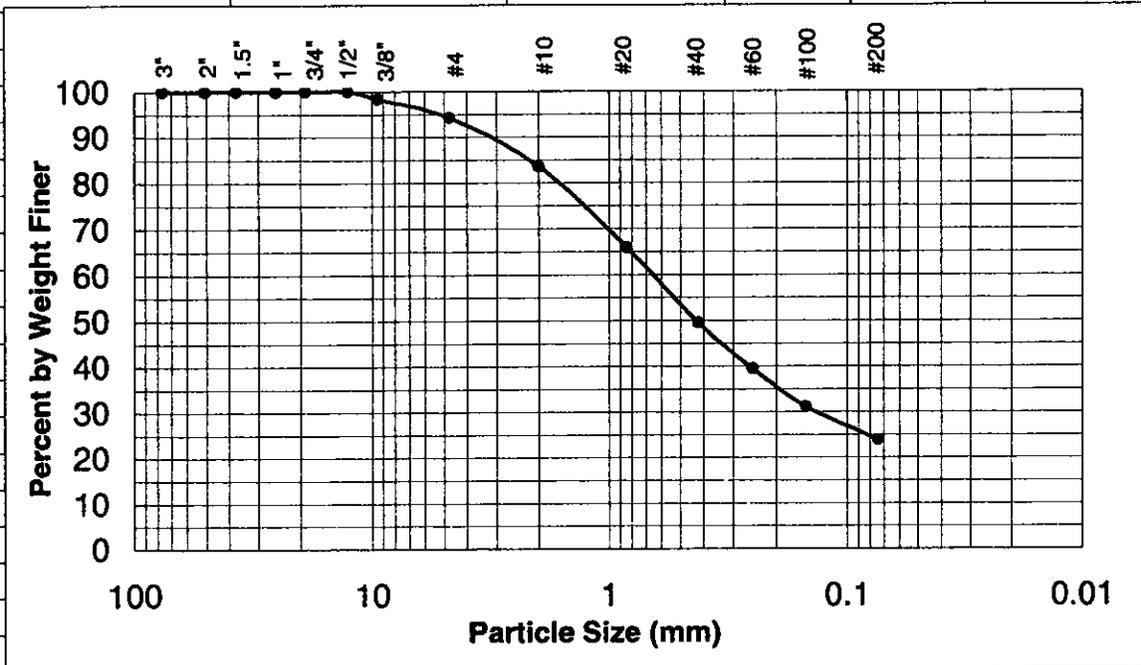
PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136		
		DATE:	23-Jul-07		
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	H-7		
SAMPLE DESCRIP:	Reddish brown silty m-f SAND				
DATA					
			SPECIFICATION		
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u>	<u>Max</u>	<u>P/E</u>
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	98.4			
3/8	9.5	96.3			
#4	4.76	92.1			
#10	2.0	85.5			
#20	0.84	72.6			
#40	0.42	56.8			
#60	0.25	45.8			
#100	0.149	36.4			
#200	0.074	27.5	20	100	P

The graph plots the grain size distribution. The vertical axis represents the 'Percent by Weight Finer' from 0 to 100. The horizontal axis represents 'Particle Size (mm)' on a logarithmic scale from 100 to 0.01. The data points from the table are plotted and connected by a smooth curve. Key points include 100% finer at 76.2 mm, 98.4% at 12.7 mm, 72.6% at 0.84 mm, and 27.5% at 0.074 mm.

Water Content (%) =	4.4
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GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136
		DATE:	23-Jul-07
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	H-8
SAMPLE DESCRIP:	Reddish brown silty m-f SAND		
DATA			
		SPECIFICATION	
<u>U.S Std SIEVE (in.)</u>	<u>PARTICLE SIZE (mm)</u>	<u>% by WT. FINER</u>	<u>Min</u> <u>Max</u>
3	76.2	100.0	
2	50.8	100.0	
1.5	37.5	100.0	
1	25.4	100.0	100 100
3/4	19.1	100.0	
1/2	12.7	100.0	
3/8	9.5	98.4	
#4	4.76	94.3	
#10	2.0	83.6	
#20	0.84	65.8	
#40	0.42	49.5	
#60	0.25	39.5	
#100	0.149	31.1	
#200	0.074	23.8	20 100
			P



Water Content (%) = 5.3

GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME: Blue Ridge Paper		PROJECT No: 07136	
Canton, N. Carolina		DATE: 23-Jul-07	
SAMPLE SOURCE: Closure Testing		SAMPLE No: H-9	
SAMPLE DESCRIP: Reddish brown silty m-f SAND			
DATA			
		SPECIFICATION	
U.S Std SIEVE (in.)	PARTICLE SIZE (mm)	% by WT. FINER	P / F
3	76.2	100.0	
2	50.8	100.0	
1.5	37.5	100.0	
1	25.4	100.0	100
3/4	19.1	100.0	100
1/2	12.7	97.7	
3/8	9.5	96.4	
#4	4.76	90.3	
#10	2.0	82.7	
#20	0.84	70.3	
#40	0.42	55.8	
#60	0.25	45.3	
#100	0.149	36.4	
#200	0.074	27.7	20

The graph plots the grain size distribution. The x-axis represents Particle Size in millimeters on a logarithmic scale, with major ticks at 100, 10, 1, 0.1, and 0.01. The y-axis represents Percent by Weight Finer on a linear scale from 0 to 100. The data points from the table are plotted and connected by a smooth curve. The curve shows that 100% of the sample is finer than 76.2 mm, and the percentage of finer material decreases as the particle size decreases, reaching approximately 27.7% finer at 0.075 mm.

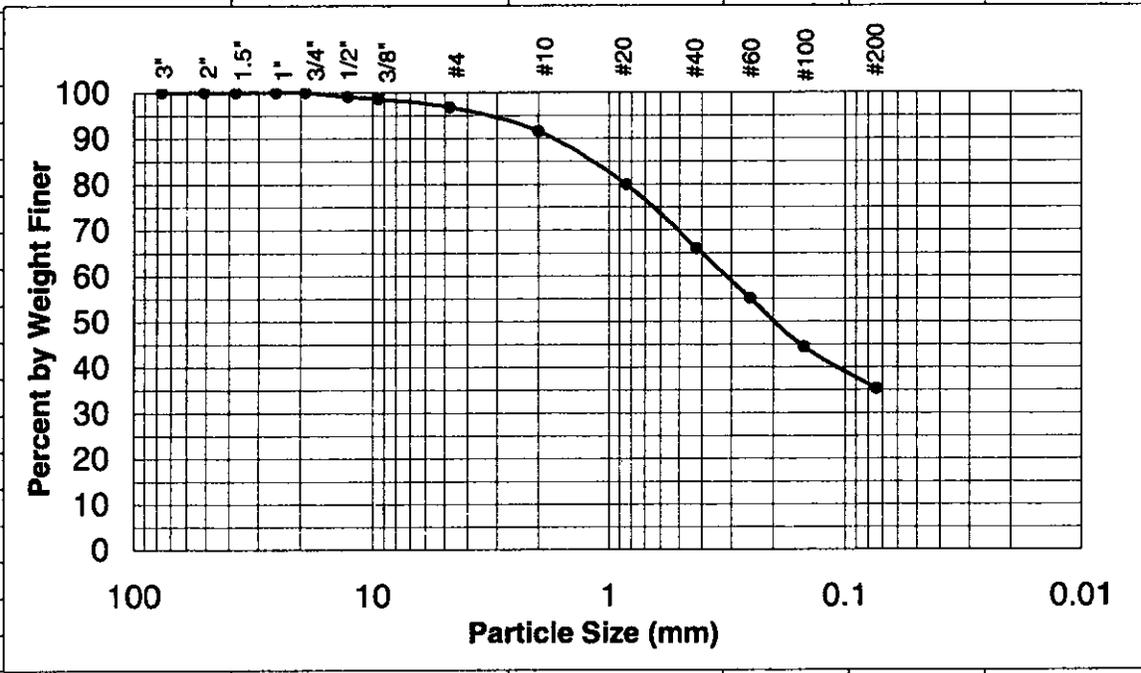
Water Content (%) =	5.0
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GRAIN SIZE ANALYSIS - ASTM D422

PROJECT NAME:	Blue Ridge Paper Canton, N. Carolina	PROJECT No:	07136
		DATE:	23-Jul-07
SAMPLE SOURCE:	Closure Testing	SAMPLE No:	H-10
SAMPLE DESCRIP:	Reddish brown silty m-f SAND		

DATA

U.S Std SIEVE (in.)	PARTICLE SIZE (mm)	% by WT. FINER	SPECIFICATION		P / F
			Min	Max	
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0	100	100	P
3/4	19.1	100.0			
1/2	12.7	99.1			
3/8	9.5	98.6			
#4	4.76	96.8			
#10	2.0	91.5			
#20	0.84	79.9			
#40	0.42	65.9			
#60	0.25	55.0			
#100	0.149	44.5			
#200	0.074	35.3	20	100	P



Water Content (%) = 7.6



Product Quality Summary Report

Plant	107-Enka
Product	NC #87 067
Specification	NC #87
1" (25mm)	100.0
3/4" (19mm)	94.0
1/2" (12.5mm)	48.7
3/8" (9.5mm)	24.4
#4 (4.75mm)	7.8
#8 (2.38mm)	3.0

Product Notes

Product Note 3.106

Re: Standard Pipe Perforations

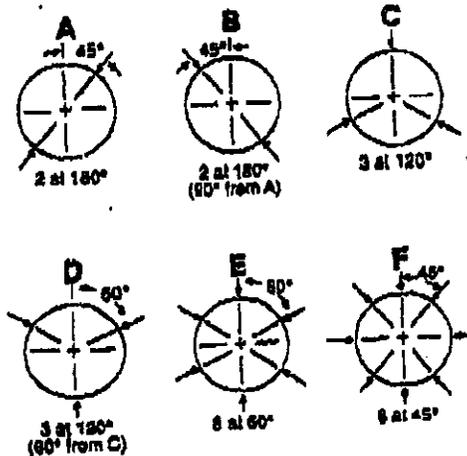
4-36" I.D. N-12" Pipe

Date: September 1, 1995

Nominal I.D. In. (mm)	Perforation Type	Slot Length or Diameter, Max. In. (mm)	Slot Width, Max. In. (mm)	Perforation Configuration
4 (100)	Slot	0.875 (22.2)	0.125 (3.18)	CD
6 (150)	Slot	0.875 (22.2)	0.125 (3.18)	CD
8 (200)	Slot	1.250 (31.8)	0.125 (3.18)	CD
10 (250)	Slot	1.250 (31.8)	0.125 (3.18)	CD
12 (300)	Circular	0.375 (9.52)	—	E
15 (375)	Circular	0.375 (9.52)	—	E
18 (450)	Circular	0.375 (9.52)	—	E
24 (600)	Circular	0.375 (9.52)	—	F
*30 (750)	Circular	0.375 (9.52)	—	4.5' (115 mm) Centers
*36 (900)	Circular	0.375 (9.52)	—	4.5' (115 mm) Centers

* Spiral Corrugation

Perforation Configurations



NOTE 1
ADS pipe is perforated for water entry with slots or circular perforations. The perforations are uniformly spaced along the length and circumference of the pipe.

NOTE 2
Unless otherwise specified, ADS pipe is manufactured to comply with the perforation requirements specified in the following industry standards: ASTM F405, ASTM F667, AASHTO M252, AASHTO M294, and SCS Code 608.