Pelz, Susan

From: Pelz, Susan
Sent: Thursday, June 03, 2010 8:19 AM
To: 'Fischer, Shane'
Cc: Teresa Carver; Hilton, Ed; Gaskin, Nancy
Subject: RE: Hardee Phase II Section I Height Increase

Shane,

I have just returned from vacation and am catching up on pending items in my in-box.

Although the submittal we received on May 24, 2010 concerning the sequence of filling indicates that the height in Phase II Section I will not increase, I am assuming the email below is discussing the proposed sequence of filling change (info we received May 24, 2010).

The proposed changes require a minor modification of the operation permit.

Please send in 2 hard copies and 1 electronic (CD) copy of the proposed changes and the $250 minor modification fee so that we can process the request.

Thanks,

If you have any questions, please call or email (email is better).

Susan J. Pelz, P.E.
Solid Waste Program Manager
Southwest District

13051 N. Telecom Parkway
Temple Terrace, Fl. 33637
813-632-7600 x 386
susan.pelz@dep.state.fl.us

From: Fischer, Shane [mailto:SFischer@SCSEngineers.com]
Sent: Wednesday, April 21, 2010 2:33 PM
To: Pelz, Susan
Cc: Teresa Carver; Hilton, Ed
Subject: Hardee Phase II Section I Height Increase
Importance: High

Susan,

We are putting together a request for a height increase within the Phase II Section I Landfill footprint active filling area as we previously discussed. The height increase would bring the Phase II Section I area to EL 112.5 ft at the top of the intermediate cover (max elevation as shown on Sheet 17 of 26 of the Operations Drawings). After we have reached the max EL 112.5 ft in this area then the "piggy back" would be performed onto the south sideslope of the Phase I area. This height increase will provide sufficient time to construct the Phase I

Closure project and receive the final certification from the Department before the "piggy back" filling would need to be implemented.

Per our previous discussion, we will supply you with the following information:

1. Revised Operations Drawings for fill sequence number 5 and 6 (Sheets 15 and 16 of 26). Sheet 15 will show the Phase II Section I area going to EL 112.5 ft at the top of the intermediate cover, then Sheet 16 will show the "piggy back." Sheet 17 will not be revised because the final buildout height of the area will not be changed, just the method of filling sequences 5 and 6.

2. Sheets 24 and 25 of 26 (Sections) will show the revised fill sequence elevations.

3. Slope stability calculations for the Phase II Section I area corresponding to the revised height increase before the "piggy back."

Also, if we were to receive approval of the height increase, we would probably not need to submit you partial certifications during the Phase I Closure construction as we also previously discussed (south sideslope first then the remainder of the project). There would be sufficient air space in the height increase to complete the project and submit one final certification report for the entire project.

If there is additional information you would need please let me know, also please let me know if this is acceptable. Thank you for your consideration and assistance with this request.

Shane

Shane R. Fischer, P.E.
SCS Engineers
4041 Park Oaks Blvd., Suite 100
Tampa, FL 33610
(813) 621-0080 (Office)
(813) 623-6757 (Fax)
(813) 503-1044 (Cell)
sfischer@scsengineers.com

Environmental Consultants
and Contractors

4041 Park Oaks Boulevard
Suite 100
Tampa, FL 33610

813 621-0080
FAX 813 623-6757
www.scsengineers.com

SCS ENGINEERS

May 24, 2010
File No. 09199033.20

Ms. Susan Pelz, P.E.
Solid Waste Program Manager
Florida Department of Environmental Protection
Southwest District
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926

Subject: Request For Fill Sequence Revisions
Hardee County Landfill Phase II Section I
Operation Permit No. 38414-011-SO/01

Dear Susan:

Hardee County's Phase II Section I Landfill area is currently permitted to operate through Fill Sequence No. 5 as identified on Sheet No. 15 of the Hardee County Landfill Operations Drawings as per Operations Permit No. 38414-011-SO/01 Part A.3.b. Fill Sequence No. 6 and No. 7 identified on Sheet No. 16 and No. 17 of the Hardee County Landfill Operations Drawings are not approved for waste filling by the County as indicated in Part A.3.c of the Operations Permit until the Phase I Closure construction project has been completed and the County has received approval of the construction from the Department.

The County's capacity through Fill Sequence No. 5 as currently permitted is quickly approaching capacity. Additional airspace is desperately needed by the County within the Phase II Section I area until the Phase I Closure project construction has received approval from the Department. At that time the County could begin placing waste per Fill Sequence No. 6 and No. 7. SCS and the County have examined additional opportunities to maximize the useable airspace within the Phase II Section I disposal area in order to assist the County in meeting its immediate objectives. Immediate additional airspace may be obtained by the County by revising the Fill Sequence Plans currently permitted by the Department.

Therefore, SCS on behalf of the County, requests to revise Fill Sequence No. 5 within the Phase II Section I footprint to continue filling to a peak of roughly Elevation 112.50 as indicated on the attached Revised Fill Sequence No. 5 drawing contained in Attachment A as opposed to stopping at approximately Elevation 97.0 as currently permitted. The extent of the footprint horizontally will not be revised, nor will the overall final height of the Phase II Section I area be changed due to the proposed fill sequence revisions. The immediate additional volume obtained by continuing to fill within the Phase II Section I area as indicated on the attached revised Fill Sequence No. 5 Sheet No. 15 is approximately 56,000 CY. Less the daily and intermediate cover volume lost, this fill sequence revision will gain the County approximately 46,000 CY of immediate air space to utilize. At the current waste filling rate by the County of roughly 40,000

CY per year, this will gain approximately 12 months before the County would need to move into Revised Fill Sequence No. 6 contained in Attachment A.

The County anticipates advertising the Phase I Closure construction project for acceptance of bids within approximately two weeks. Based on this anticipated bidding schedule, advertisement period, bid review and approval by the Hardee County Board of County Commissioners (BOCC), Phase I Closure construction work would begin approximately mid August. Construction of the Phase I closure project is anticipated to take approximately seven months to complete. After construction completion, SCS will complete the Certification of Construction Completion Report as required by the closure permit and forward it to the Department for approval. After receiving Department approval the County would then be permitted to fill within Revised Fill Sequence No. 6 and No. 7 which is provided in Attachment A. Based on the anticipated schedule and the approximate 12 months gained by the proposed fill sequence revisions, sufficient time should be available to obtain approval from the Department prior to the need to begin filling per Revised Fill Sequence No. 6.

Included with this request for Phase II Section I fill sequence revisions, please find in Attachment A Revised Hardee County Landfill Operations Drawings Fill Sequence No. 5, No. 6 and No. 7 on Sheet No. 15, No. 16 and No. 17, respectively. In addition, Sheet No. 24 and No. 25 Phase II Section I Sections have been revised and included which indicate revised Fill Sequence No. 5, No. 6 and No. 7. A note has been included on Fill Sequence No. 7 on Sheet No. 17 that indicates the final elevation within the Phase II Section I area of Elevation 112.50 has not been revised and remains the same as a result of this request.

In addition, SCS has performed a slope stability analysis consisting of both circular and block failure analyses of the north, south, east and west sides of the Phase II Section I area for the revised Fill Sequence No. 5 as indicated on the revised drawings contained in Attachment A. All of the material properties used within the slope stability models have remained the same as previously submitted for slope stability analyses to the Department. Please refer to Attachment B for the slope stability analyses. Attachment B also contains a summary table indicating the Factor of Safety for the slope stability analyses conducted. Based on the requested revision to Fill Sequence No. 5, SCS has determined the Factor of Safety for both the circular and block failure analyses, both with and without equipment loading, is above the required 1.5 Factor of Safety.

Please let us know what would be required to begin implementing these proposed revisions to the fill sequencing or if an email may be issued approving the requested changes so the County may begin working in the area when needed. Please do not hesitate to call should you have any questions or require additional information.

Sincerely,

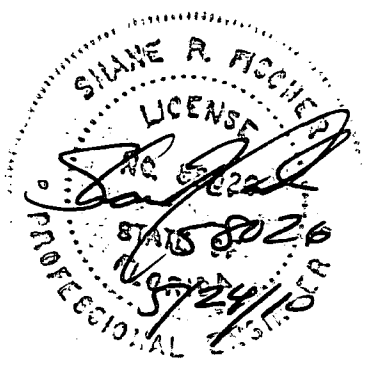
Shane R. Fischer, P.E.
Project Manager

C. Ed Hilton, P.E.
Vice President
SCS ENGINEERS

SRF/CEH:srf

Attachments

cc: Teresa Carver, Hardee County Solid Waste Director



Attachment A

Revised Hardee County Landfill Operations Drawings

Cover Sheet
Fill Sequence No. 5 Sheet 15
Fill Sequence No. 6 Sheet 16
Fill Sequence No. 7 Sheet 17
Phase II Section I Sections Sheet 24
Phase II Section I Sections Sheet 25

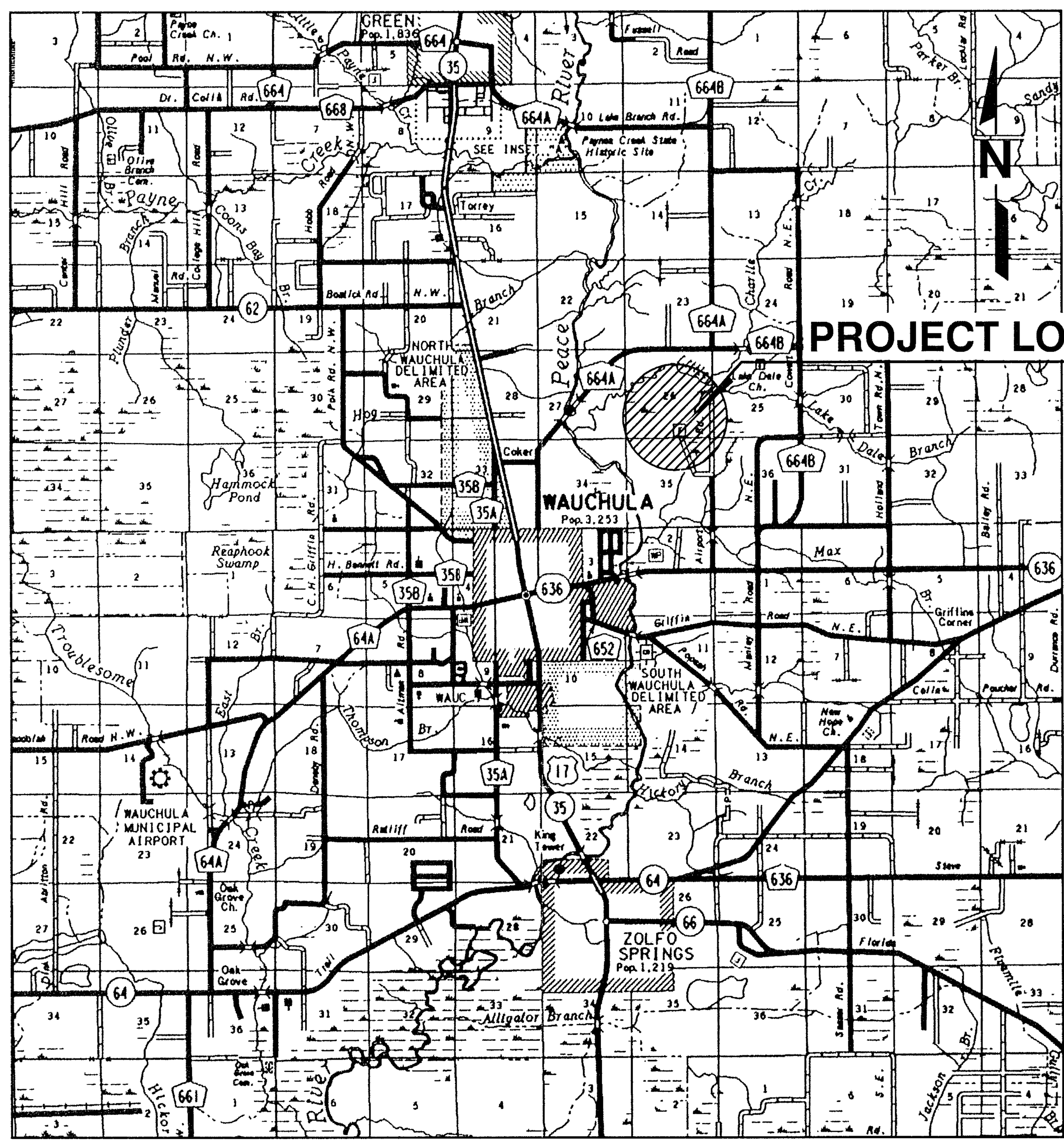
14 30214 (1)

HARDEE COUNTY LANDFILL MODIFIED OPERATIONS DRAWINGS TO INCLUDE PHASE II SECTION I

PREPARED FOR

BOARD OF COUNTY COMMISSIONERS
HARDEE COUNTY, FLORIDA

MAY 2007



LOCATION MAP
NOT TO SCALE

HARDEE COUNTY 1921 FLORIDA

DRAWING INDEX

REV.	DRAWING NO.		DRAWING TITLE
△3 △1	1	-	COVER SHEET
	2	-	AERIAL PHOTOGRAPHY - MAY 2003
△2	3	-	AERIAL PHOTOGRAPHY - JUNE 2006
	4	-	PHASE I EXISTING CONDITIONS - JUNE 2006
	5	-	PHASE I FILL SEQUENCE NO. 1
	6	-	PHASE I FILL SEQUENCE NO. 2
	7	-	PHASE I FILL SEQUENCE NO. 3
	8	-	PHASE I FINAL BUILDOUT (TOP OF INTERMEDIATE COVER)
△2	9	-	PHASE I AND PHASE II SITE PLAN
△2	10	-	PHASE II SECTION I GROUNDWATER CONTROL SYSTEM
△2	11	-	PHASE II SECTION I FILL SEQUENCE NO. 1
△2	12	-	PHASE II SECTION I FILL SEQUENCE NO. 2
△2	13	-	PHASE II SECTION I FILL SEQUENCE NO. 3
△2	14	-	PHASE II SECTION I FILL SEQUENCE NO. 4
△3 △2	15	-	PHASE II SECTION I FILL SEQUENCE NO. 5
△3 △2	16	-	PHASE II SECTION I FILL SEQUENCE NO. 6
△3 △2	17	-	PHASE II SECTION I FILL SEQUENCE NO. 7
	18	-	PHASE I SECTIONS
	19	-	PHASE I DETAILS - 1
	20	-	PHASE I DETAILS - 2
△2	21	-	PHASE I DETAILS - 3
△1	22	-	PHASE II SECTION I SECTIONS
△1	23	-	PHASE II SECTION I SECTIONS
△3 △1	24	-	PHASE II SECTION I SECTIONS
△3	25	-	PHASE II SECTION I SECTIONS
	26	-	PHASE II SECTION I DETAILS

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
MAY 24 2010
SOUTHWEST DISTRICT TAMPA

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
4041 PARK OAKS BLVD., SUITE 100
TAMPA, FLORIDA 33610
PH (813) 621-0080 FAX NO. (813) 623-6757
WWW.SCSENGINEERS.COM
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892
SCS PROJECT NO. 09199033.12

△1 REVISED OCTOBER 1, 2007 PER FDEP RAI NO. 1
△2 REVISED JANUARY 30, 2008 PER FDEP RAI NO. 2
△3 REVISED MAY 14, 2010 REVISED FILL SEQUENCE

SHANE R. FISCHER, P.E.
FL P.E. No. 58026

SITE VOLUME TABLE: UNADJUSTED

SITE	STRATUM SURF1	SURF2	CUT CUBIC YARDS	FILL CUBIC YARDS	NET CUBIC YARDS	METHOD
HCLF-3FTGRD	P2S1TOPOFSANDvsP2S1-FILL5-GRID	P2S1TOPOFSAND	P2S1-FILL5			
		22		70,401	70,379 (FILL)	GRID

PROPERTY LIMIT (TYP)

20-MIL VFPE RAINTARP (PUMP RAINWATER INTO PERIMETER DITCHES)

1/15/26 SOUTH EDGE OF LINER SEE DETAIL

ACTIVE FILL AREA

TOP OF DRAINAGE SAND ELEVATIONS (TYP)

TOP OF INTERMEDIATE COVER ELEVATIONS SHOWN

PROTECT ALL SLOPES WITH 6-IN (MIN) OF MULCH; SEED IF NEEDED. (TYP OF ALL SLOPES)

PHASE II SECTION I TOTAL FILL APPROX. 14.3 AC

3/15/26 EAST EDGE OF LINER SEE DETAIL

TYP. WORKING FACE BERM; 2:1 SIDESLOPE, 2 FT TOP WIDTH; COMPACTED GENERAL FILL

LEACHATE COLLECTION PIPE (TYP.)

4/15/26 PHASE I/II EDGE OF LINER SEE DETAIL

TYP. STORMWATER BERMS 3/15/19 SEE DETAIL

PHASE I FINAL BUILDOUT (TOP OF INTERMEDIATE COVER ELEVATIONS)

P-22 P-18 P-17 P-16A P-20 P-19 P-21

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-10 MW-11 MW-12R MW-10R

GP-1 GP-2 GP-3 GP-4 GP-5 GP-6 GP-7 GP-8 GP-9 GP-10 GP-11

J 15/24

LEGEND

- TWO-WAY TRAFFIC FLOW
- ONE-WAY TRAFFIC FLOW
- FILL PROGRESSION DIRECTION
- SURFACE RUNOFF FLOW DIRECTION

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION SOUTHEAST DISTRICT MAY 24 2007

60 0 60 120 SCALE IN FEET

REV	DATE	DESCRIPTION	BY
1	1/30/08	ADDED MW-10R AND MW-12R	SRF

SHANE R. FISCHER, P.E. LICENSE NO. 58026

DRAWING TITLE: PHASE II - SECTION I FILL SEQUENCE NO. 5

PROJECT TITLE: HARDEE COUNTY LANDFILL OPERATIONS DRAWINGS

CLIENT: HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
4041 PARK OAKS BLVD, SUITE 150, TAMPA, FL 33610
813 621-0080 FAX 813 623-6757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

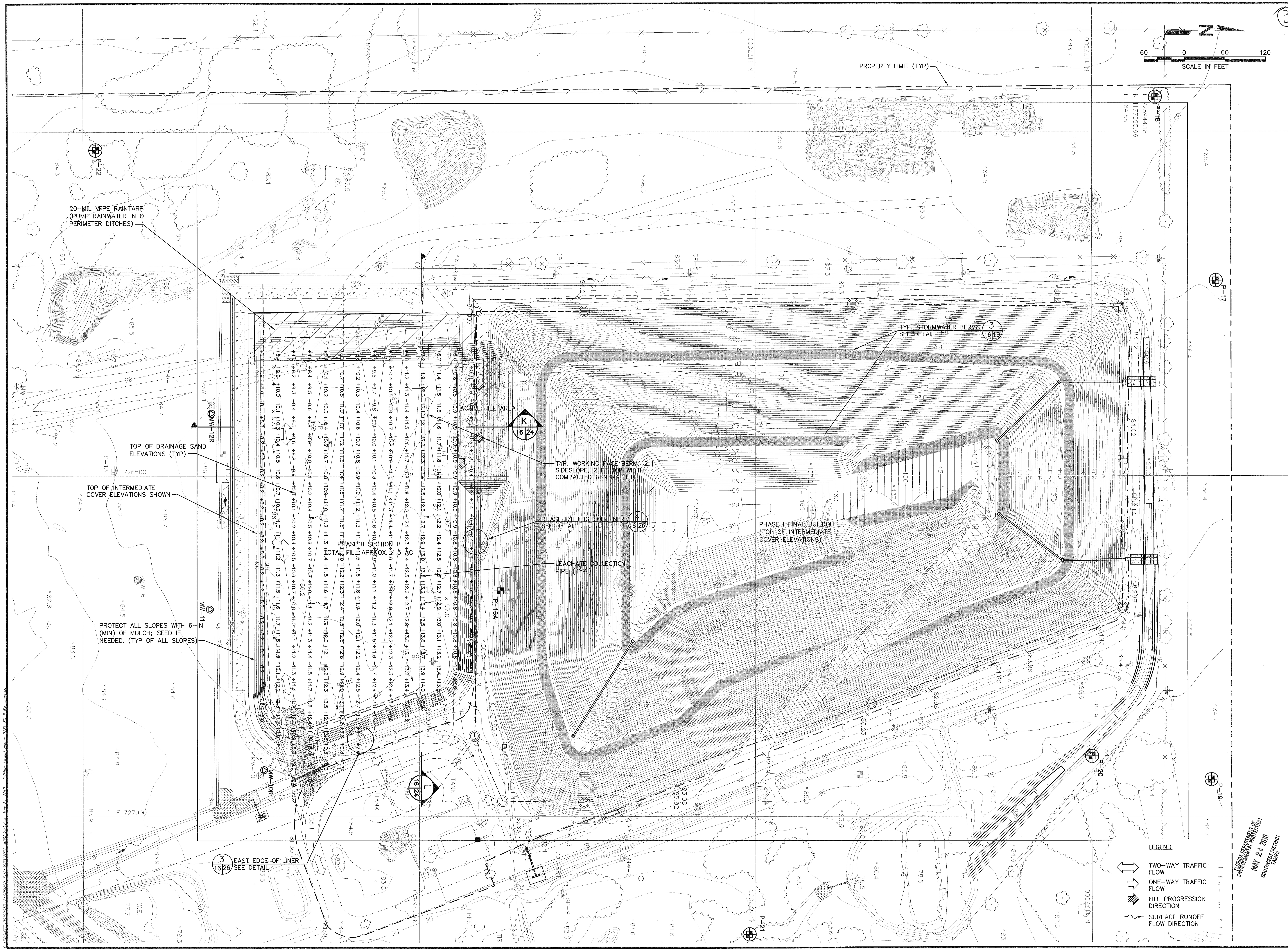
PROJ. NO.	DWN. BY:	D/A RVW BY:
09199033.12	SDA	SRF
DSN. BY:	CHK. BY:	APP. BY:
SRF	CEH	CEH

CADD FILE: 993312OPS-MOD

DATE: MAY 2007

SCALE: AS SHOWN

DRAWING NO. 15 of 26



SCALE IN FEET
60 0 60 120
PROPERTY LIMIT (TYP)
20-MIL VFPE RAINTARP (PUMP RAINWATER INTO PERIMETER DITCHES)
ACTIVE FILL AREA
TYP. STORMWATER BERMS SEE DETAIL
TOP OF DRAINAGE SAND ELEVATIONS (TYP)
TYP. WORKING FACE BERM; 2:1 SIDESLOPE, 2 FT TOP WIDTH; COMPACTED GENERAL FILL
TOP OF INTERMEDIATE COVER ELEVATIONS SHOWN
PHASE I/II EDGE OF LINER SEE DETAIL
PHASE I FINAL BUILDOUT (TOP OF INTERMEDIATE COVER ELEVATIONS)
PHASE II SECTION I TOTAL FILL APPROX. 4.5 AC
LEACHATE COLLECTION PIPE (TYP.)
PROTECT ALL SLOPES WITH 6-IN (MIN) OF MULCH; SEED IF NEEDED. (TYP OF ALL SLOPES)
EAST EDGE OF LINER SEE DETAIL
LEGEND
TWO-WAY TRAFFIC FLOW
ONE-WAY TRAFFIC FLOW
FILL PROGRESSION DIRECTION
SURFACE RUNOFF FLOW DIRECTION
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
MAY 24 2010
SOUTHWEST DISTRICT TAMPA

SHANE R. FISCHER P.E.
LICENSE NO. 58026

REV	DATE	DESCRIPTION	BY
1	1/30/08	ADDED MW-10R AND MW-12R	SRF

DRAWING TITLE
PHASE II - SECTION I FILL SEQUENCE NO. 6

PROJECT TITLE
HARDEE COUNTY LANDFILL OPERATIONS DRAWINGS

CLIENT
HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
813 621-0080 FAX 813 623-6757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJ. NO. 09199033.12 | DWN. BY: SDA | Q/A RVW BY: SRF
DSN. BY: SRF | CHK. BY: CEH | APP. BY: CEH

CADD FILE: 993312OPS-MOD
DATE: MAY 2007
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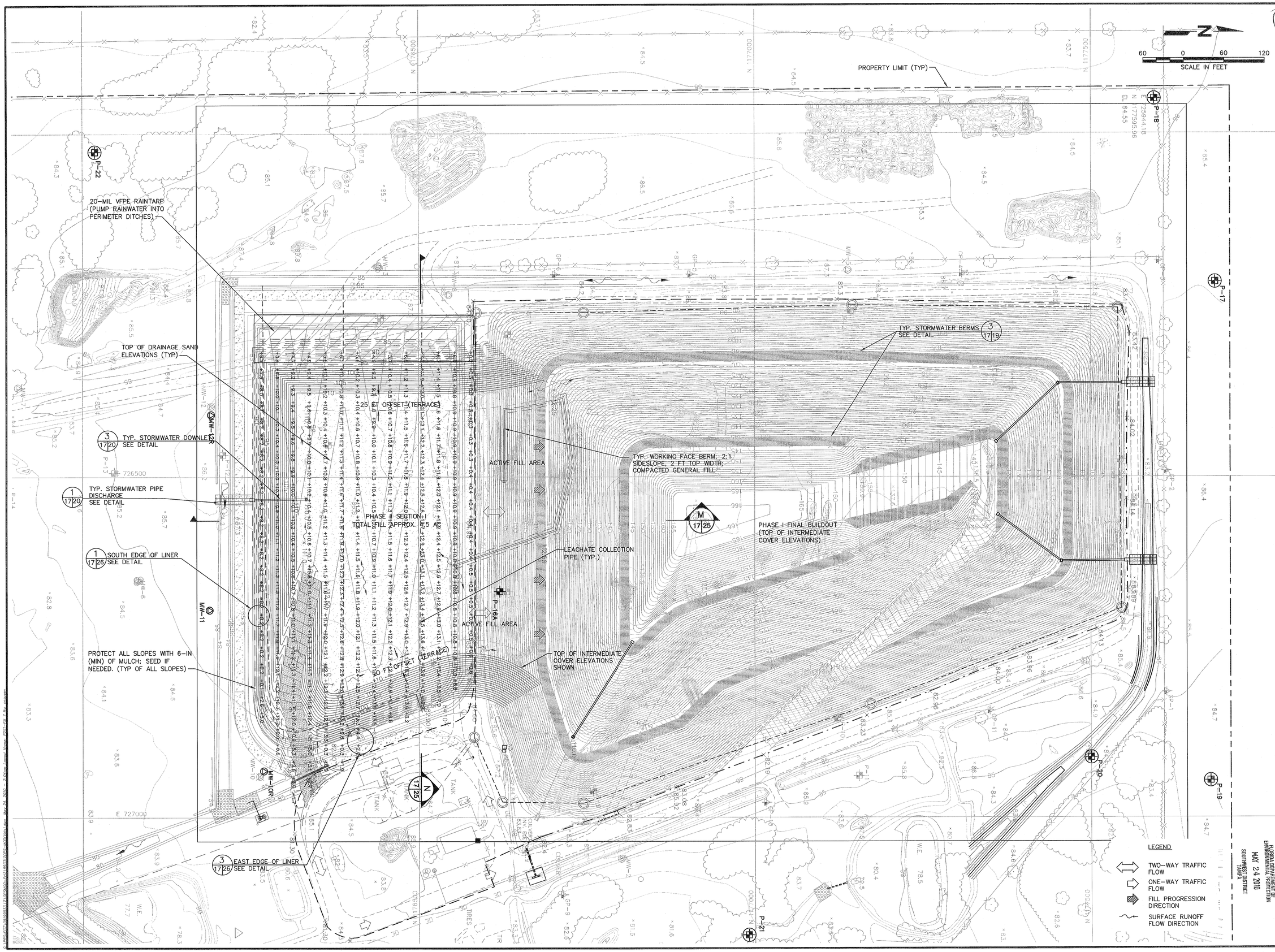
DRAWING NO. **16** of 26



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
MAY 24 2010
SOUTHWEST DISTRICT
TAMPA

REV	DATE	DESCRIPTION	BY
4	1/30/08	ADDED MW-10R AND MW-12R	SRF

DRAWINGS TITLE
PHASE II - SECTION I
FILL SEQUENCE NO. 7

PROJECT TITLE
HARDEE COUNTY
LANDFILL
OPERATIONS DRAWINGS

CLIENT
HARDEE COUNTY
BOARD OF
COUNTY COMMISSIONERS

SCS ENGINEERS
STEARNS CONRAD AND SCHMIDT
CONSULTING ENGINEERS
4041 PARK OAKS BLVD, SUITE 100, TAMPA, FL 33610
813 621-0080 FAX 813 623-6757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJ. NO.	DWN. BY	CHK. BY	D/A REVIEW BY	APP. BY
09199033.12	SDA	CEH	SRF	CEH
DSN. BY: SRF				

CADD FILE: 9933120PS-MOD
DATE: MAY 2007
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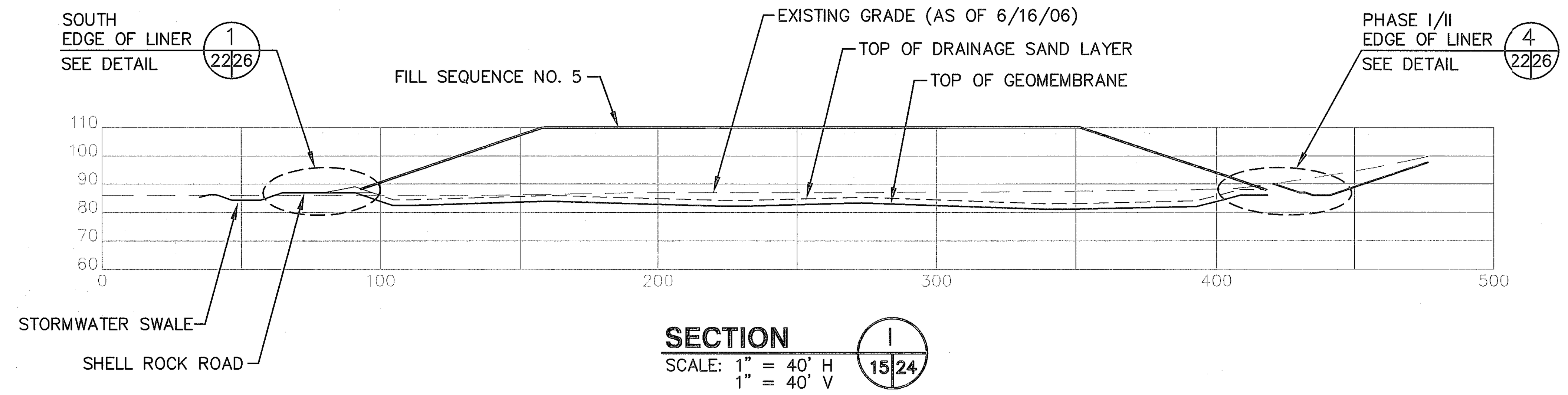
DRAWING NO. 17 of 26



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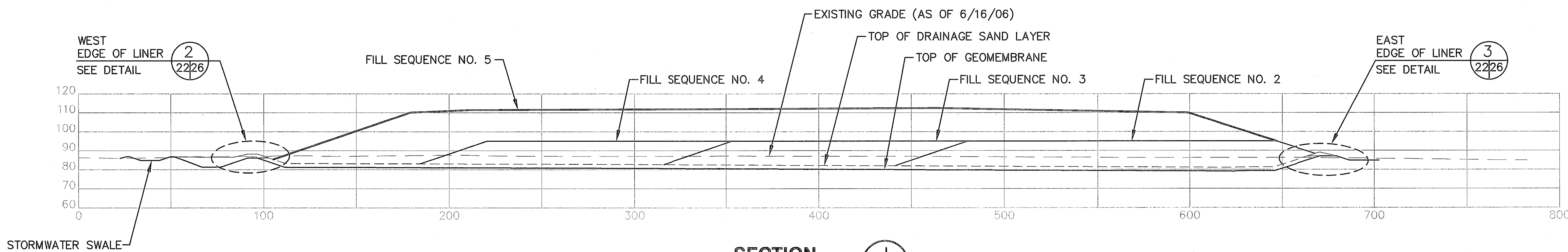
1" = 40' V



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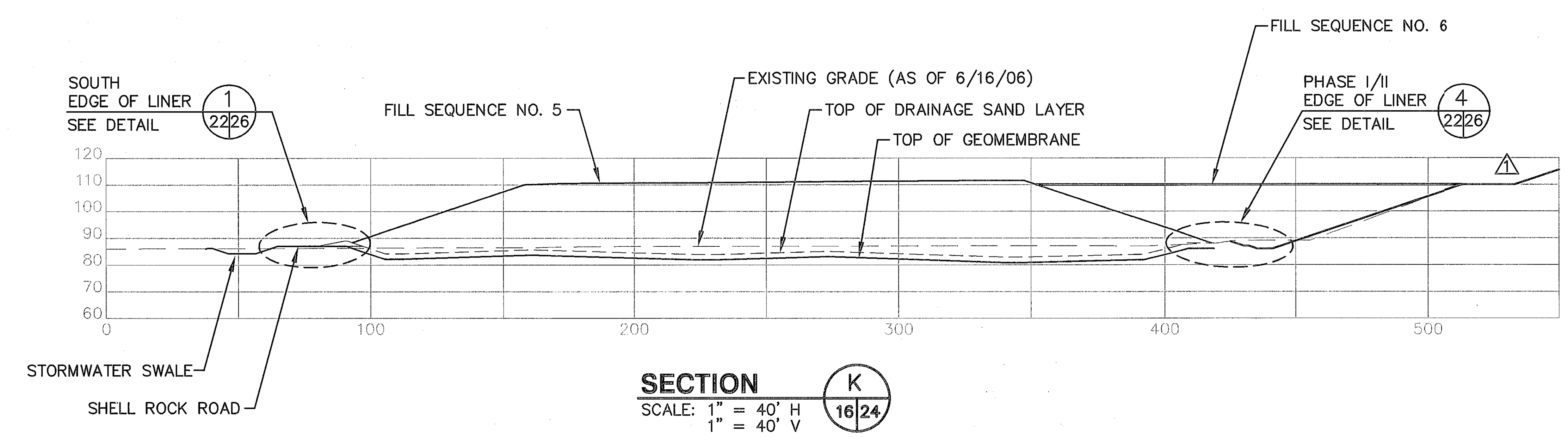

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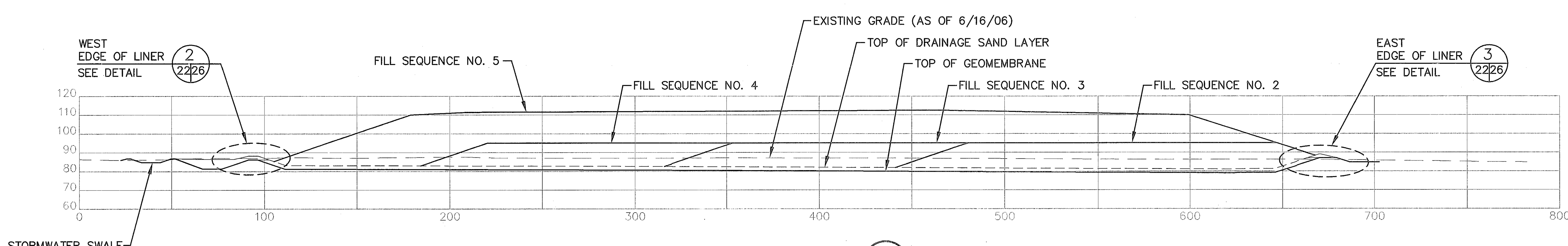


SECTION L 16 24
SCALE: 1" = 40' H
1" = 40' V

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
MAY 24 2010
SOUTHWEST DISTRICT TAMPA

NOTES:

1. SLOPES SHALL NOT EXCEED 3(H):1(V) AT ANY TIME, AFTER APPLICATION OF COVER SOILS. ALL FINAL SLOPES SHALL CONFORM TO THE DESIGN DIMENSIONS, SLOPES, AND ELEVATION.
2. ALL FILL SEQUENCE GRADES SHOWN ARE TOP OF INTERMEDIATE COVER.

REV	DATE	DESCRIPTION	BY
1	10/1/07	REVISION PER FDEP RAI NO. 1	SRF
2	05/14/10	REVISED FILL SEQUENCE	SRF

SHANE R. FISHER LICENSE NO. 58026

DRAWING TITLE: **PHASE II SECTION I SECTIONS**

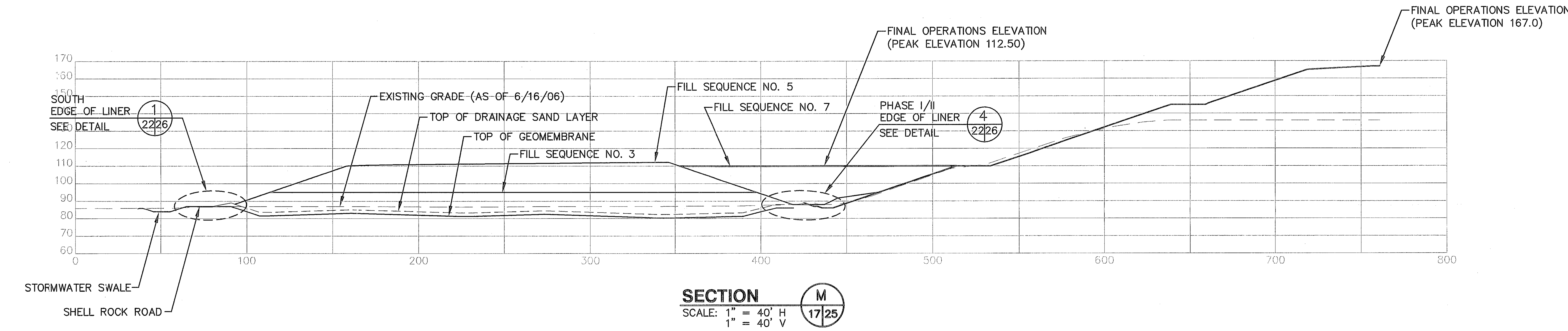
PROJECT TITLE: **HARDEE COUNTY LANDFILL OPERATIONS DRAWINGS**

CLIENT: **HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS**

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
4041 PARK OAKS BLVD, SUITE 100, TAMPA, FL 33610
813 621-0080 FAX 813 623-6757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJ. NO. 09199033.12 | DWN. BY: SDA | Q/A RVW BY: SRF
DSN. BY: SRF | CHK. BY: CEH | APP. BY: CEH

CADD FILE: 993312P2S1SECTIONS
DATE: MAY 2007
SCALE: AS SHOWN
DRAWING NO. **24** of 26



SECTION M 17 25

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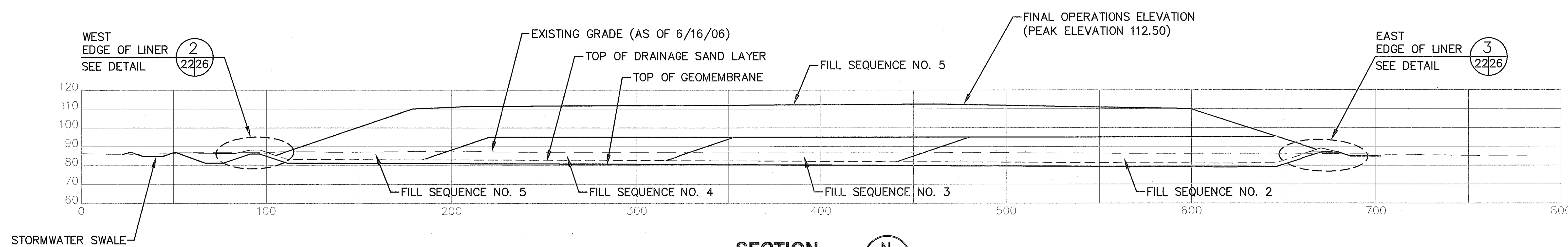
1" = 40' V



SECTION N 17 25

SCALE: 1" = 40' H
1" = 40' V

NOTES:

1. SLOPES SHALL NOT EXCEED 3(H):1(V) AT ANY TIME, AFTER APPLICATION OF COVER SOILS. ALL FINAL SLOPES SHALL CONFORM TO THE DESIGN DIMENSIONS, SLOPES, AND ELEVATION.
2. ALL FILL SEQUENCE GRADES SHOWN ARE TOP OF INTERMEDIATE COVER.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
MAY 24 2010
SOUTHWEST DISTRICT TAMPA

REV	DATE	DESCRIPTION	BY
1	05/14/10	REVISED FILL SEQUENCE	SRF

SHANE R. FISCHER, P.E.
LICENSE NO. 58026

DRAWING TITLE: **PHASE II SECTION I SECTIONS**

PROJECT TITLE: **HARDEE COUNTY LANDFILL OPERATIONS DRAWINGS**

CLIENT: **HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS**

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813 621-0080 FAX 813 623-6757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJ. NO. 09199033.12 | DWN. BY: SDA | Q/A RVW BY: SRF
DSN. BY: SRF | CHK. BY: CEH | APP. BY: CEH

CADD FILE: 993312P2S1SECTIONS

DATE: MAY 2007

SCALE: AS SHOWN

DRAWING NO. **25** of **26**

Attachment B

Circular And Block Slope Stability Analyses
North, South, East And West Sides Of Phase II Section

SCS ENGINEERS

Sheet 1 of 1

Client:	Project:	Job No.
Hardee County	Phase II Section I Slope Stability	09199033.20

Subject:	By:	Date:
Slope Stability Factor of Safety Summary Results	DHB	5/18/2010
	Checked: SRF	Date: 5/24/10

	CIRCULAR MODE FACTOR SAFETY (FS)		BLOCK MODE FACTOR SAFETY (FS)	
	No Equipment	CAT 816F Compactor	No Equipment	CAT 816F Compactor
North Side to Peak	1.7	1.6	2.3	1.6
East Side to Peak	1.7	1.6	2.4	1.6
South Side to Peak	1.7	1.6	2.3	1.5
West Side to Peak	1.7	1.6	2.4	1.6

The slope stability calculations used to derive the Factor of Safety summary results listed in the above table have been reviewed and have been completed in accordance with good engineering practice and industry-accepted values.

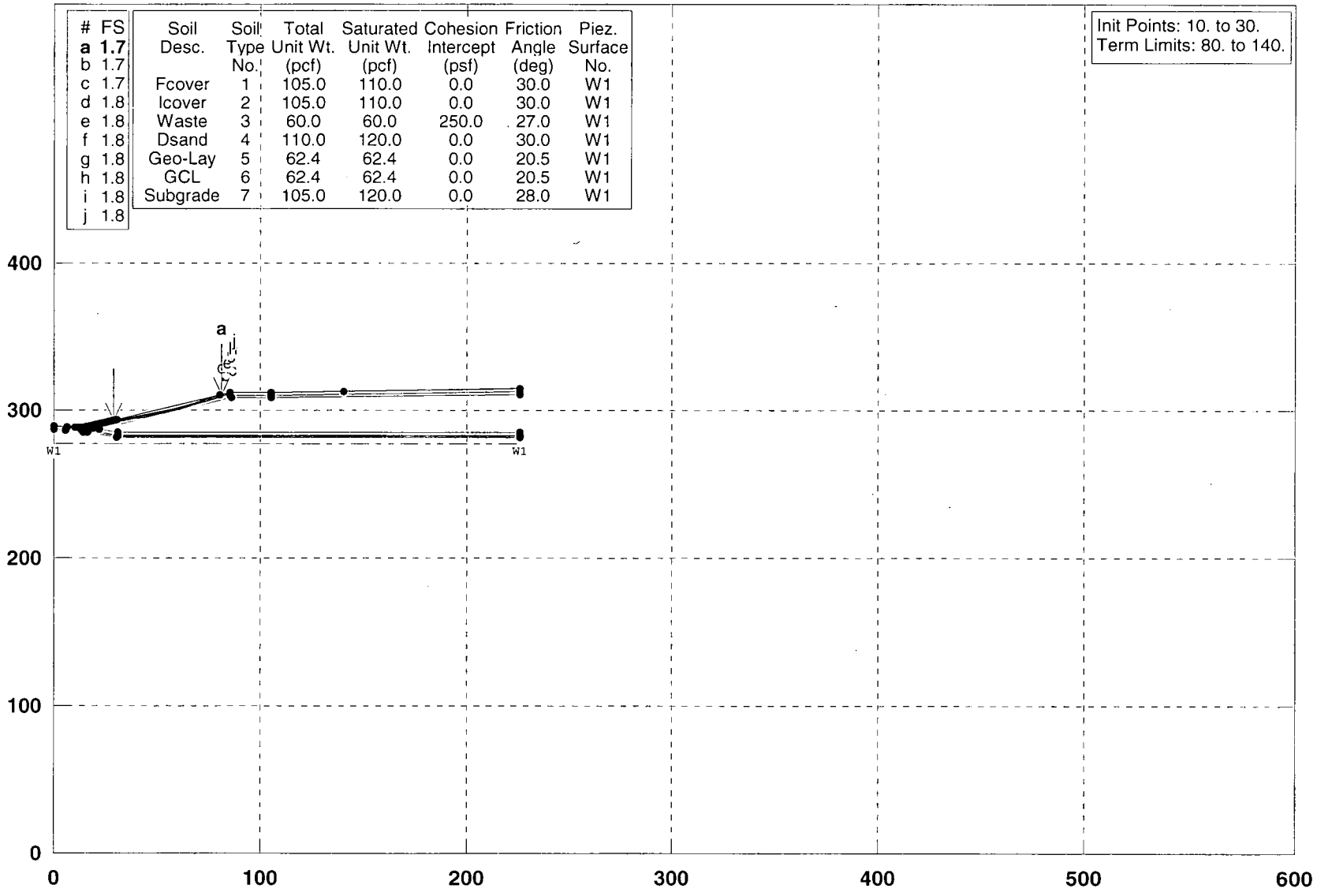
Expansion - North Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\NORTH.PL2 Run By: Dominique H. Bramlett, P.E. 4/1/2010 4:43PM

#	FS
a	**1.7**
b	1.7
c	1.7
d	1.8
e	1.8
f	1.8
g	1.8
h	1.8
i	1.8
j	1.8

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

Init Points: 10. to 30.
Term Limits: 80. to 140.



PCSTABL5M/si FSmin=1.7

Safety Factors Are Calculated By The Modified Bishop Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 4/1/2010
Time of Run: 4:43PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:north.
Output Filename: F:north.OUT
Unit: ENGLISH
Plotted Output Filename: F:north.PLT
PROBLEM DESCRIPTION Expansion - North Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
5 Top Boundaries
30 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	289.40	6.00	288.40	4
2	6.00	288.40	14.26	288.40	4
3	14.26	288.40	85.06	312.00	1
4	85.06	312.00	105.38	312.00	1
5	105.38	312.00	225.38	314.50	1
6	14.26	288.40	16.00	288.40	4
7	16.00	288.40	18.62	287.75	4
8	18.62	287.75	85.38	310.00	2
9	85.38	310.00	105.38	310.00	2
10	105.38	310.00	225.38	312.50	2
11	18.62	287.75	21.33	287.07	4
12	21.33	287.07	85.62	308.50	3
13	85.62	308.50	105.38	308.50	3
14	105.38	308.50	225.38	311.00	3
15	21.33	287.07	30.41	284.80	4
16	30.41	284.80	225.38	284.80	4
17	.00	287.38	5.83	286.40	7
18	5.83	286.40	13.07	286.40	7
19	13.07	286.40	13.67	286.40	6
20	13.67	286.40	15.75	286.40	5
21	15.75	286.40	30.17	282.80	5
22	30.17	282.80	225.38	282.80	5
23	13.67	286.40	14.00	285.90	6
24	14.00	285.90	15.69	285.90	6
25	15.69	285.90	30.10	282.30	6
26	30.10	282.30	225.38	282.30	6
27	13.07	286.40	13.73	285.40	7
28	13.73	285.40	15.63	285.40	7
29	15.63	285.40	30.04	281.80	7
30	30.04	281.80	225.38	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)

```
     1           .00      277.50
     2        225.38      277.50
 A Critical Failure Surface Searching Method, Using A Random
 Technique For Generating Circular Surfaces, Has Been Specified.
5000 Trial Surfaces Have Been Generated.
 50 Surfaces Initiate From Each Of100 Points Equally Spaced
 Along The Ground Surface Between  X =  10.00 ft.
                             and  X =  30.00 ft.
 Each Surface Terminates Between   X =  80.00 ft.
                             and   X = 140.00 ft.
 Unless Further Limitations Were Imposed, The Minimum Elevation
 At Which A Surface Extends Is  Y =   .00 ft.
 10.00 ft. Line Segments Define Each Trial Failure Surface.
 Following Are Displayed The Ten Most Critical Of The Trial
      Failure Surfaces Examined.  They Are Ordered - Most Critical
      First.
      * * Safety Factors Are Calculated By The Modified Bishop Method * *
      Failure Surface Specified By  7 Coordinate Points
        Point      X-Surf      Y-Surf
         No.        (ft)        (ft)
          1         28.38      293.11
          2         38.13      295.35
          3         47.77      297.99
          4         57.30      301.03
          5         66.69      304.47
          6         75.93      308.29
          7         81.07      310.67
      Circle Center At X =  -20.6 ; Y =  528.6  and Radius,  240.5
           ***     1.743   ***
          Individual data on the     6  slices
                     Water  Water     Tie     Tie     Earthquake
                     Force  Force    Force   Force       Force   Surcharge
Slice  Width   Weight   Top    Bot     Norm    Tan     Hor     Ver    Load
 No.    (ft)    (lbs)  (lbs)  (lbs)   (lbs)   (lbs)   (lbs)   (lbs)  (lbs)
  1      9.7    516.1     .0     .0      .0      .0      .0      .0     .0
  2      9.6   1310.9     .0     .0      .0      .0      .0      .0     .0
  3      9.5   1647.7     .0     .0      .0      .0      .0      .0     .0
  4      9.4   1540.2     .0     .0      .0      .0      .0      .0     .0
  5      9.2   1007.7     .0     .0      .0      .0      .0      .0     .0
  6      5.1    180.1     .0     .0      .0      .0      .0      .0     .0
      Failure Surface Specified By  8 Coordinate Points
        Point      X-Surf      Y-Surf
         No.        (ft)        (ft)
          1         25.76      292.23
          2         35.55      294.28
          3         45.23      296.77
          4         54.79      299.70
          5         64.21      303.08
          6         73.45      306.88
          7         82.52      311.10
          8         82.77      311.24
      Circle Center At X =  -13.5 ; Y =  505.1  and Radius,  216.5
           ***     1.747   ***
      Failure Surface Specified By  9 Coordinate Points
        Point      X-Surf      Y-Surf
         No.        (ft)        (ft)
          1         14.65      288.53
          2         24.42      290.63
          3         34.13      293.05
          4         43.75      295.77
          5         53.28      298.80
          6         62.71      302.13
          7         72.03      305.77
          8         81.22      309.69
          9         86.19      312.00
      Circle Center At X =  -46.4 ; Y =  596.0  and Radius,  313.5
           ***     1.748   ***
```

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	26.57	292.50
2	36.38	294.41
3	46.08	296.85
4	55.63	299.81
5	65.01	303.28
6	74.19	307.25
7	81.00	310.65

Circle Center At X = -4.0 ; Y = 475.3 and Radius, 185.4

*** 1.751 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	27.78	292.91
2	37.61	294.75
3	47.32	297.14
4	56.88	300.05
5	66.27	303.49
6	75.46	307.44
7	83.81	311.58

Circle Center At X = -.8 ; Y = 472.3 and Radius, 181.6

*** 1.753 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	27.17	292.70
2	36.99	294.61
3	46.70	296.98
4	56.30	299.81
5	65.75	303.08
6	75.03	306.79
7	84.13	310.94
8	86.18	312.00

Circle Center At X = -7.9 ; Y = 499.9 and Radius, 210.2

*** 1.755 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.14	291.69
2	33.98	293.47
3	43.72	295.74
4	53.34	298.50
5	62.80	301.73
6	72.09	305.43
7	81.18	309.59
8	85.83	312.00

Circle Center At X = -6.0 ; Y = 487.1 and Radius, 197.7

*** 1.756 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.06	289.00
2	25.90	290.78
3	35.66	292.98
4	45.31	295.59
5	54.84	298.62
6	64.23	302.05
7	73.47	305.88
8	82.53	310.11
9	86.18	312.00

Circle Center At X = -20.5 ; Y = 519.4 and Radius, 233.3

*** 1.756 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

1	19.09	290.01
2	28.91	291.92
3	38.64	294.22
4	48.27	296.90
5	57.79	299.96
6	67.18	303.40
7	76.43	307.21
8	85.51	311.39
9	86.72	312.00

Circle Center At X = -23.9 ; Y = 537.6 and Radius, 251.3

*** 1.758 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.27	289.40
2	27.06	291.44
3	36.78	293.81
4	46.41	296.49
5	55.95	299.50
6	65.38	302.82
7	74.70	306.46
8	83.88	310.41
9	87.27	312.00

Circle Center At X = -38.8 ; Y = 583.3 and Radius, 299.2

*** 1.760 ***

Expansion - North Phase II Section I Hardee County Landfill

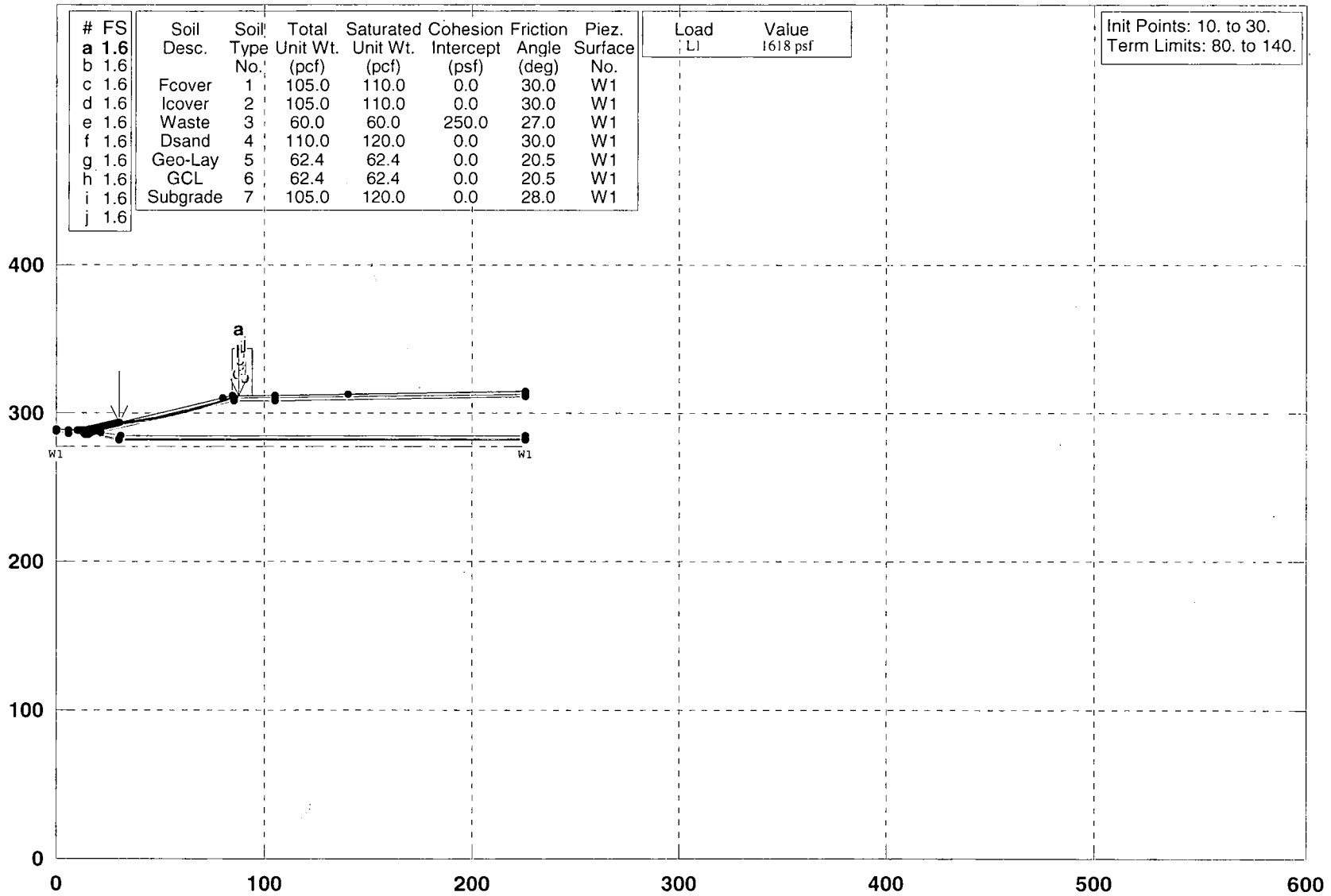
F:\PROJECT\HARDEE\09199033.20\CALCUL~1\NORTH.PL2 Run By: Dominique H. Bramlett, P.E. 5/18/2010 3:09PM

#	FS
a	**1.6**
b	1.6
c	1.6
d	1.6
e	1.6
f	1.6
g	1.6
h	1.6
i	1.6
j	1.6

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

Load	Value
L1	1618 psf

Init Points: 10. to 30.
Term Limits: 80. to 140.



PCSTABL5M/si FSmin=1.6

Safety Factors Are Calculated By The Modified Bishop Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 5/18/2010
Time of Run: 3:09PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:north.
Output Filename: F:north.OUT
Unit: ENGLISH
Plotted Output Filename: F:north.PLT
PROBLEM DESCRIPTION Expansion - North Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
5 Top Boundaries
30 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	289.40	6.00	288.40	4
2	6.00	288.40	14.26	288.40	4
3	14.26	288.40	85.06	312.00	1
4	85.06	312.00	105.38	312.00	1
5	105.38	312.00	225.38	314.50	1
6	14.26	288.40	16.00	288.40	4
7	16.00	288.40	18.62	287.75	4
8	18.62	287.75	85.38	310.00	2
9	85.38	310.00	105.38	310.00	2
10	105.38	310.00	225.38	312.50	2
11	18.62	287.75	21.33	287.07	4
12	21.33	287.07	85.62	308.50	3
13	85.62	308.50	105.38	308.50	3
14	105.38	308.50	225.38	311.00	3
15	21.33	287.07	30.41	284.80	4
16	30.41	284.80	225.38	284.80	4
17	.00	287.38	5.83	286.40	7
18	5.83	286.40	13.07	286.40	7
19	13.07	286.40	13.67	286.40	6
20	13.67	286.40	15.75	286.40	5
21	15.75	286.40	30.17	282.80	5
22	30.17	282.80	225.38	282.80	5
23	13.67	286.40	14.00	285.90	6
24	14.00	285.90	15.69	285.90	6
25	15.69	285.90	30.10	282.30	6
26	30.10	282.30	225.38	282.30	6
27	13.07	286.40	13.73	285.40	7
28	13.73	285.40	15.63	285.40	7
29	15.63	285.40	30.04	281.80	7
30	30.04	281.80	225.38	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)

```
     1           .00      277.50
     2        225.38      277.50
BOUNDARY LOAD(S)
     1 Load(s) Specified
 Load        X-Left      X-Right     Intensity     Deflection
  No.         (ft)         (ft)       (psf)        (deg)
   1         85.06        94.56       1618.0           .0
 NOTE - Intensity Is Specified As A Uniformly Distributed
        Force Acting On A Horizontally Projected Surface.
 A Critical Failure Surface Searching Method, Using A Random
 Technique For Generating Circular Surfaces, Has Been Specified.
5000 Trial Surfaces Have Been Generated.
  50 Surfaces Initiate From Each Of100 Points Equally Spaced
 Along The Ground Surface Between  X =  10.00 ft.
                                and  X =  30.00 ft.
 Each Surface Terminates Between   X =  80.00 ft.
                                and   X = 140.00 ft.
 Unless Further Limitations Were Imposed, The Minimum Elevation
 At Which A Surface Extends Is  Y =   .00 ft.
 10.00 ft. Line Segments Define Each Trial Failure Surface.
 Following Are Displayed The Ten Most Critical Of The Trial
       Failure Surfaces Examined.  They Are Ordered - Most Critical
       First.
       * * Safety Factors Are Calculated By The Modified Bishop Method * *
       Failure Surface Specified By  8 Coordinate Points
         Point      X-Surf      Y-Surf
          No.        (ft)        (ft)
           1         30.00      293.65
           2         39.86      295.29
           3         49.62      297.48
           4         59.24      300.21
           5         68.70      303.46
           6         77.96      307.23
           7         87.00      311.51
           8         87.90      312.00
       Circle Center At X =    5.4 ; Y =  471.8  and Radius,  179.8
            ***     1.589   ***
          Individual data on the    10  slices
                      Water  Water     Tie     Tie     Earthquake
                      Force  Force    Force   Force       Force   Surcharge
Slice  Width   Weight   Top    Bot     Norm    Tan     Hor     Ver    Load
 No.    (ft)    (lbs)  (lbs)  (lbs)   (lbs)   (lbs)   (lbs)   (lbs)  (lbs)
  1      9.9    850.2     .0     .0      .0      .0      .0      .0     .0
  2      4.2    835.2     .0     .0      .0      .0      .0      .0     .0
  3      5.5   1391.6     .0     .0      .0      .0      .0      .0     .0
  4      9.6   2976.2     .0     .0      .0      .0      .0      .0     .0
  5      9.5   3113.7     .0     .0      .0      .0      .0      .0     .0
  6      9.3   2667.5     .0     .0      .0      .0      .0      .0     .0
  7      2.1    497.7     .0     .0      .0      .0      .0      .0     .0
  8      5.0    921.6     .0     .0      .0      .0      .0      .0     .0
  9      1.9    193.0     .0     .0      .0      .0      .0      .0  3137.5
 10       .9     23.1     .0     .0      .0      .0      .0      .0  1458.0
       Failure Surface Specified By  8 Coordinate Points
         Point      X-Surf      Y-Surf
          No.        (ft)        (ft)
           1         27.78      292.91
           2         37.61      294.74
           3         47.36      296.97
           4         57.01      299.59
           5         66.55      302.59
           6         75.96      305.97
           7         85.23      309.72
           8         90.27      312.00
       Circle Center At X =  -12.6 ; Y =  536.9  and Radius,  247.4
            ***     1.595   ***
       Failure Surface Specified By  8 Coordinate Points
         Point      X-Surf      Y-Surf
```

No.	(ft)	(ft)
1	30.00	293.65
2	39.88	295.17
3	49.65	297.30
4	59.27	300.04
5	68.70	303.37
6	77.90	307.29
7	86.84	311.77
8	87.23	312.00

Circle Center At X = 10.7 ; Y = 452.1 and Radius, 159.6

*** 1.607 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.54	291.49
2	33.38	293.27
3	43.14	295.45
4	52.79	298.05
5	62.33	301.05
6	71.74	304.45
7	80.99	308.24
8	89.17	312.00

Circle Center At X = -13.5 ; Y = 525.3 and Radius, 236.7

*** 1.608 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.72	290.89
2	31.58	292.53
3	41.36	294.63
4	51.03	297.19
5	60.57	300.19
6	69.95	303.63
7	79.17	307.50
8	88.20	311.80
9	88.57	312.00

Circle Center At X = -8.8 ; Y = 503.9 and Radius, 215.2

*** 1.610 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.74	291.56
2	33.57	293.40
3	43.31	295.66
4	52.94	298.35
5	62.45	301.44
6	71.82	304.95
7	81.02	308.85
8	87.64	312.00

Circle Center At X = -13.6 ; Y = 518.3 and Radius, 229.8

*** 1.614 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	26.77	292.57
2	36.52	294.80
3	46.19	297.32
4	55.79	300.12
5	65.31	303.20
6	74.72	306.57
7	84.04	310.21
8	88.25	312.00

Circle Center At X = -42.9 ; Y = 620.1 and Radius, 334.9

*** 1.617 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

1	15.46	288.80
2	25.28	290.64
3	35.04	292.84
4	44.71	295.40
5	54.27	298.31
6	63.73	301.57
7	73.06	305.17
8	82.25	309.11
9	88.35	312.00

Circle Center At X = -29.8 ; Y = 557.6 and Radius, 272.6

*** 1.622 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.00	293.65
2	39.76	295.81
3	49.45	298.28
4	59.06	301.06
5	68.57	304.15
6	77.98	307.53
7	87.28	311.22
8	89.08	312.00

Circle Center At X = -32.4 ; Y = 598.7 and Radius, 311.4

*** 1.628 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.49	289.81
2	28.28	291.84
3	38.00	294.16
4	47.66	296.76
5	57.24	299.64
6	66.73	302.79
7	76.12	306.22
8	85.41	309.92
9	90.21	312.00

Circle Center At X = -46.5 ; Y = 627.4 and Radius, 343.8

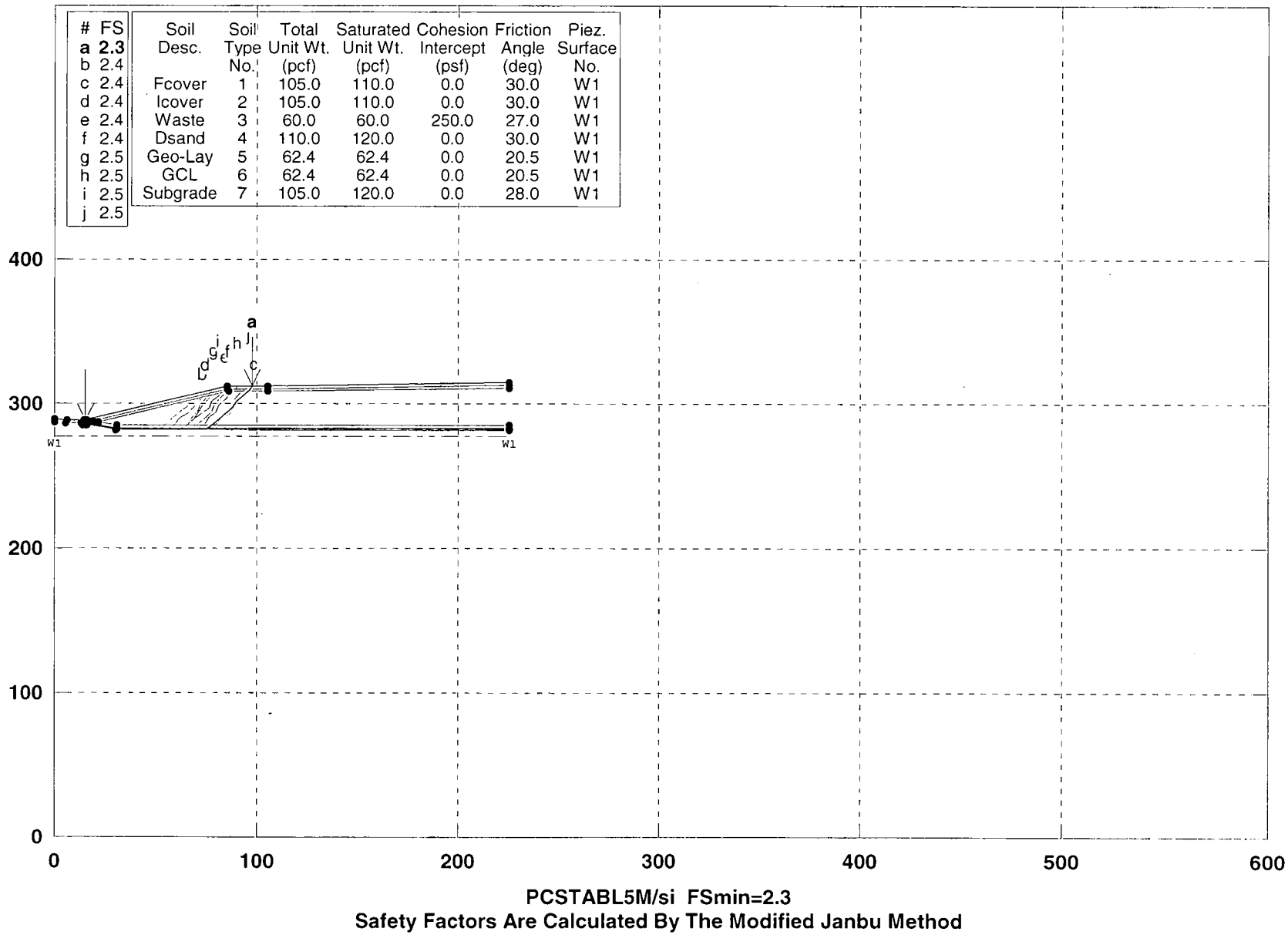
*** 1.628 ***

Expansion - North Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\BNORTH.PL2 Run By: Dominique H. Bramlett, P.E. 4/2/2010 10:23AM

#	FS
a	**2.3**
b	2.4
c	2.4
d	2.4
e	2.4
f	2.4
g	2.5
h	2.5
i	2.5
j	2.5

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1



PCSTABL5M/si FSmin=2.3

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 4/2/2010
Time of Run: 10:23AM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:BNORTH.
Output Filename: F:BNORTH.OUT
Unit: ENGLISH
Plotted Output Filename: F:BNORTH.PLT
PROBLEM DESCRIPTION Expansion - North Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
5 Top Boundaries
30 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	289.40	6.00	288.40	4
2	6.00	288.40	14.26	288.40	4
3	14.26	288.40	85.06	312.00	1
4	85.06	312.00	105.38	312.00	1
5	105.38	312.00	225.38	314.50	1
6	14.26	288.40	16.00	288.40	4
7	16.00	288.40	18.62	287.75	4
8	18.62	287.75	85.38	310.00	2
9	85.38	310.00	105.38	310.00	2
10	105.38	310.00	225.38	312.50	2
11	18.62	287.75	21.33	287.07	4
12	21.33	287.07	85.62	308.50	3
13	85.62	308.50	105.38	308.50	3
14	105.38	308.50	225.38	311.00	3
15	21.33	287.07	30.41	284.80	4
16	30.41	284.80	225.38	284.80	4
17	.00	287.38	5.83	286.40	7
18	5.83	286.40	13.07	286.40	7
19	13.07	286.40	13.67	286.40	6
20	13.67	286.40	15.75	286.40	5
21	15.75	286.40	30.17	282.80	5
22	30.17	282.80	225.38	282.80	5
23	13.67	286.40	14.00	285.90	6
24	14.00	285.90	15.69	285.90	6
25	15.69	285.90	30.10	282.30	6
26	30.10	282.30	225.38	282.30	6
27	13.07	286.40	13.73	285.40	7
28	13.73	285.40	15.63	285.40	7
29	15.63	285.40	30.04	281.80	7
30	30.04	281.80	225.38	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)

1	.00	277.50
2	225.38	277.50

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
3 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 5.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	16.66	285.66	29.13	282.54	.50
2	30.10	282.30	35.10	282.30	.50
3	40.10	282.30	95.06	282.30	.50

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Janbu Method * *
Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.37	288.77
2	17.42	287.08
3	21.59	284.32
4	31.97	282.38
5	74.66	282.32
6	78.17	285.88
7	81.39	289.71
8	84.75	293.41
9	87.67	297.46
10	90.28	301.73
11	93.27	305.74
12	96.46	309.59
13	97.39	312.00
***	2.339	***

Individual data on the 28 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	.4	12.2	.0	.0	.0	.0	.0	.0	.0
2	.2	11.9	.0	.0	.0	.0	.0	.0	.0
3	1.4	236.0	.0	.0	.0	.0	.0	.0	.0
4	1.2	381.3	.0	.0	.0	.0	.0	.0	.0
5	1.5	668.4	.0	.0	.0	.0	.0	.0	.0
6	1.3	739.9	.0	.0	.0	.0	.0	.0	.0
7	.0	3.3	.0	.0	.0	.0	.0	.0	.0
8	.3	170.9	.0	.0	.0	.0	.0	.0	.0
9	1.7	1190.8	.0	.0	.0	.0	.0	.0	.0
10	6.9	5631.3	.0	.0	.0	.0	.0	.0	.0
11	.2	223.3	.0	.0	.0	.0	.0	.0	.0
12	1.6	1491.1	.0	.0	.0	.0	.0	.0	.0
13	42.7	60245.3	.0	.0	.0	.0	.0	.0	.0
14	.5	872.4	.0	.0	.0	.0	.0	.0	.0
15	2.0	3408.0	.0	.0	.0	.0	.0	.0	.0
16	1.1	1717.2	.0	.0	.0	.0	.0	.0	.0
17	3.2	4865.4	.0	.0	.0	.0	.0	.0	.0
18	3.4	4548.9	.0	.0	.0	.0	.0	.0	.0
19	.3	392.5	.0	.0	.0	.0	.0	.0	.0
20	.3	396.8	.0	.0	.0	.0	.0	.0	.0
21	.2	291.0	.0	.0	.0	.0	.0	.0	.0
22	2.1	2289.2	.0	.0	.0	.0	.0	.0	.0
23	2.6	2352.4	.0	.0	.0	.0	.0	.0	.0
24	3.0	1954.0	.0	.0	.0	.0	.0	.0	.0
25	2.3	1029.1	.0	.0	.0	.0	.0	.0	.0
26	.9	279.5	.0	.0	.0	.0	.0	.0	.0
27	.2	36.6	.0	.0	.0	.0	.0	.0	.0

28 .8 80.9 .0 .0 .0 .0 .0 .0 .0

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	12.62	288.40
2	14.85	286.17
3	19.64	284.72
4	33.74	282.31
5	51.88	282.43
6	55.16	286.20
7	58.38	290.02
8	61.59	293.85
9	64.78	297.71
10	68.14	301.41
11	70.67	305.72
12	72.82	307.92
***	2.375	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.87	288.40
2	15.70	286.61
3	20.42	284.96
4	32.15	282.43
5	76.15	282.39
6	79.59	286.02
7	83.08	289.60
8	86.56	293.20
9	89.07	297.52
10	91.35	301.97
11	94.88	305.51
12	98.08	309.35
13	98.51	312.00
***	2.383	***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	14.67	288.54
2	18.22	285.02
3	31.77	282.43
4	55.96	282.10
5	59.36	285.76
6	61.92	290.05
7	65.43	293.62
8	68.68	297.42
9	71.55	301.51
10	73.53	306.10
11	74.24	308.39
***	2.406	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	14.85	288.60
2	16.59	287.11
3	21.39	285.70
4	25.83	283.40
5	32.89	282.51
6	62.42	282.31
7	65.96	285.84
8	69.23	289.63
9	72.74	293.18
10	76.16	296.83
11	77.65	301.60
12	80.84	305.45
13	83.44	309.73
14	83.92	311.62
***	2.408	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	9.02	288.40
2	11.74	286.30
3	16.72	285.87
4	21.52	284.45
5	32.64	282.17
6	69.19	282.32
7	71.46	286.78
8	74.89	290.42
9	77.38	294.75
10	79.00	299.48
11	81.75	303.66
12	84.68	307.71
13	85.40	312.00
***	2.446	***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	14.39	288.44
2	18.12	285.30
3	31.47	282.54
4	61.94	282.48
5	65.42	286.08
6	67.55	290.60
7	70.24	294.81
8	71.97	299.50
9	74.80	303.63
10	76.94	308.14
11	78.47	309.80
***	2.497	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.16	289.03
2	17.63	287.78
3	21.63	284.78
4	26.30	283.02
5	31.01	282.43
6	70.53	282.50
7	74.05	286.04
8	76.26	290.53
9	79.59	294.26
10	80.88	299.09
11	84.22	302.81
12	86.31	307.35
13	89.85	310.89
14	90.17	312.00
***	2.499	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	14.38	288.44
2	15.54	287.35
3	20.34	285.96
4	24.75	283.59
5	30.38	282.12
6	63.66	282.19
7	66.64	286.20
8	69.34	290.41
9	71.58	294.88
10	73.57	299.47
11	75.81	303.94
12	78.43	308.20
13	80.10	310.35
***	2.514	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.39	288.78
2	16.24	287.93
3	20.61	285.50
4	25.20	283.53
5	30.52	282.20
6	77.49	282.07
7	80.09	286.34
8	82.48	290.74
9	85.82	294.45
10	87.84	299.02
11	89.23	303.83
12	91.79	308.12
13	95.32	311.66
14	95.64	312.00
***	2.549	***

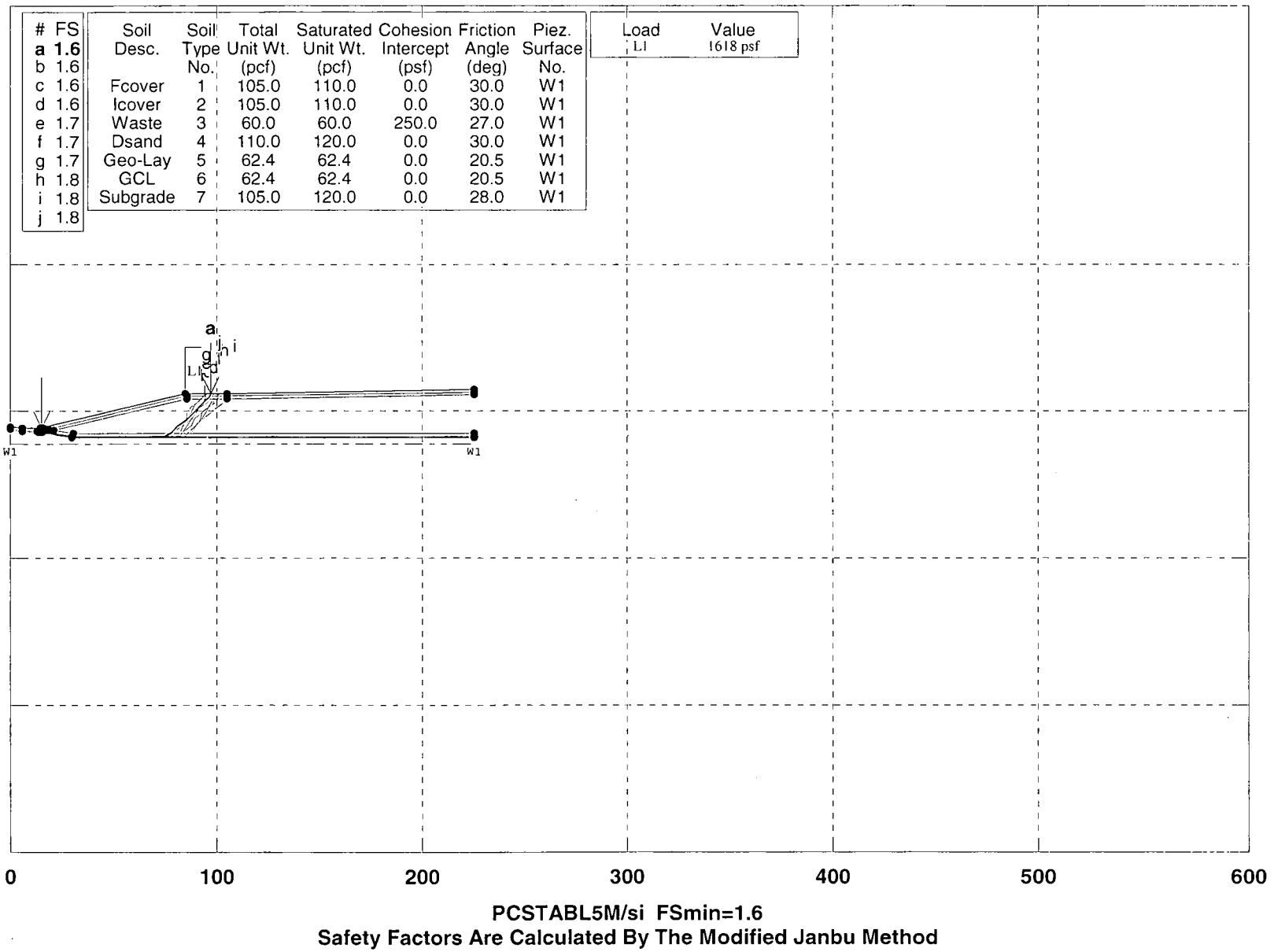
Expansion - North Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\BNORTH.PL2 Run By: Dominique H. Bramlett, P.E. 5/18/2010 3:12PM

#	FS
a	**1.6**
b	1.6
c	1.6
d	1.6
e	1.7
f	1.7
g	1.7
h	1.8
i	1.8
j	1.8

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

Load	Value
LI	1618 psf



PCSTABL5M/si FSmin=1.6

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 5/18/2010
Time of Run: 3:12PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:bnorth.
Output Filename: F:bnorth.OUT
Unit: ENGLISH
Plotted Output Filename: F:bnorth.PLT
PROBLEM DESCRIPTION Expansion - North Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
5 Top Boundaries
30 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	289.40	6.00	288.40	4
2	6.00	288.40	14.26	288.40	4
3	14.26	288.40	85.06	312.00	1
4	85.06	312.00	105.38	312.00	1
5	105.38	312.00	225.38	314.50	1
6	14.26	288.40	16.00	288.40	4
7	16.00	288.40	18.62	287.75	4
8	18.62	287.75	85.38	310.00	2
9	85.38	310.00	105.38	310.00	2
10	105.38	310.00	225.38	312.50	2
11	18.62	287.75	21.33	287.07	4
12	21.33	287.07	85.62	308.50	3
13	85.62	308.50	105.38	308.50	3
14	105.38	308.50	225.38	311.00	3
15	21.33	287.07	30.41	284.80	4
16	30.41	284.80	225.38	284.80	4
17	.00	287.38	5.83	286.40	7
18	5.83	286.40	13.07	286.40	7
19	13.07	286.40	13.67	286.40	6
20	13.67	286.40	15.75	286.40	5
21	15.75	286.40	30.17	282.80	5
22	30.17	282.80	225.38	282.80	5
23	13.67	286.40	14.00	285.90	6
24	14.00	285.90	15.69	285.90	6
25	15.69	285.90	30.10	282.30	6
26	30.10	282.30	225.38	282.30	6
27	13.07	286.40	13.73	285.40	7
28	13.73	285.40	15.63	285.40	7
29	15.63	285.40	30.04	281.80	7
30	30.04	281.80	225.38	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)

1	.00	277.50
2	225.38	277.50

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	85.06	94.56	1618.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 5.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	16.66	285.66	29.13	282.54	.50
2	30.10	282.30	35.10	282.30	.50
3	40.10	282.30	95.06	282.30	.50

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.37	288.77
2	17.42	287.08
3	21.59	284.32
4	31.97	282.38
5	74.66	282.32
6	78.17	285.88
7	81.39	289.71
8	84.75	293.41
9	87.67	297.46
10	90.28	301.73
11	93.27	305.74
12	96.46	309.59
13	97.39	312.00
***	1.556	***

Individual data on the 29 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	.4	12.2	.0	.0	.0	.0	.0	.0	.0
2	.2	11.9	.0	.0	.0	.0	.0	.0	.0
3	1.4	236.0	.0	.0	.0	.0	.0	.0	.0
4	1.2	381.3	.0	.0	.0	.0	.0	.0	.0
5	1.5	668.4	.0	.0	.0	.0	.0	.0	.0
6	1.3	739.9	.0	.0	.0	.0	.0	.0	.0
7	.0	3.3	.0	.0	.0	.0	.0	.0	.0
8	.3	170.9	.0	.0	.0	.0	.0	.0	.0
9	1.7	1190.8	.0	.0	.0	.0	.0	.0	.0
10	6.9	5631.3	.0	.0	.0	.0	.0	.0	.0
11	.2	223.3	.0	.0	.0	.0	.0	.0	.0
12	1.6	1491.1	.0	.0	.0	.0	.0	.0	.0
13	42.7	60245.3	.0	.0	.0	.0	.0	.0	.0
14	.5	872.4	.0	.0	.0	.0	.0	.0	.0
15	2.0	3408.0	.0	.0	.0	.0	.0	.0	.0
16	1.1	1717.2	.0	.0	.0	.0	.0	.0	.0
17	3.2	4865.4	.0	.0	.0	.0	.0	.0	.0
18	3.4	4548.9	.0	.0	.0	.0	.0	.0	.0
19	.3	392.5	.0	.0	.0	.0	.0	.0	.0
20	.3	396.8	.0	.0	.0	.0	.0	.0	517.8

21	.2	291.0	.0	.0	.0	.0	.0	.0	388.3
22	2.1	2289.2	.0	.0	.0	.0	.0	.0	3321.3
23	2.6	2352.4	.0	.0	.0	.0	.0	.0	4220.8
24	3.0	1954.0	.0	.0	.0	.0	.0	.0	4837.3
25	1.3	627.1	.0	.0	.0	.0	.0	.0	2085.5
26	1.0	401.9	.0	.0	.0	.0	.0	.0	.0
27	.9	279.5	.0	.0	.0	.0	.0	.0	.0
28	.2	36.6	.0	.0	.0	.0	.0	.0	.0
29	.8	80.9	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	11.42	288.40
2	11.53	288.31
3	16.40	287.15
4	19.99	283.68
5	24.99	283.47
6	33.13	282.51
7	81.91	282.16
8	83.86	286.76
9	86.47	291.03
10	88.66	295.52
11	90.59	300.13
12	93.25	304.37
13	94.18	309.28
14	94.41	312.00
***	1.556	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.39	288.78
2	16.24	287.93
3	20.61	285.50
4	25.20	283.53
5	30.52	282.20
6	77.49	282.07
7	80.09	286.34
8	82.48	290.74
9	85.82	294.45
10	87.84	299.02
11	89.23	303.83
12	91.79	308.12
13	95.32	311.66
14	95.64	312.00
***	1.570	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.87	288.40
2	15.70	286.61
3	20.42	284.96
4	32.15	282.43
5	76.15	282.39
6	79.59	286.02
7	83.08	289.60
8	86.56	293.20
9	89.07	297.52
10	91.35	301.97
11	94.88	305.51
12	98.08	309.35
13	98.51	312.00
***	1.592	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	4.02	288.73
2	7.42	287.17

3	11.77	284.70
4	16.77	284.64
5	21.75	284.22
6	33.60	282.16
7	79.88	282.11
8	82.24	286.52
9	83.89	291.24
10	85.60	295.94
11	88.07	300.29
12	90.99	304.34
13	94.34	308.05
14	94.64	312.00
***	1.685	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.40	289.78
2	21.36	287.17
3	25.01	283.76
4	32.91	282.25
5	83.73	282.15
6	86.79	286.11
7	90.00	289.95
8	91.86	294.59
9	93.01	299.45
10	96.37	303.15
11	99.91	306.69
12	101.10	311.54
13	101.22	312.00
***	1.735	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	8.38	288.40
2	10.28	287.44
3	15.05	285.96
4	19.95	284.96
5	30.82	282.42
6	75.60	282.39
7	79.13	285.93
8	81.68	290.23
9	85.17	293.81
10	85.27	298.81
11	87.84	303.09
12	91.38	306.63
13	94.07	310.84
14	94.91	312.00
***	1.742	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.95	289.96
2	19.74	289.56
3	23.49	286.25
4	27.18	282.88
5	32.92	282.54
6	81.26	282.39
7	84.13	286.49
8	87.44	290.24
9	89.17	294.93
10	92.51	298.65
11	95.78	302.43
12	98.78	306.44
13	102.27	310.02
14	103.86	312.00
***	1.759	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.41	288.78
2	19.59	286.88
3	23.73	284.07
4	31.01	282.50
5	83.65	282.43
6	87.14	286.01
7	89.59	290.38
8	92.88	294.14
9	96.25	297.83
10	99.49	301.64
11	103.01	305.19
12	106.25	309.00
13	108.77	312.07
***	1.772	***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	17.33	289.42
2	19.63	287.32
3	23.20	283.81
4	32.14	282.17
5	85.18	282.12
6	88.36	285.98
7	90.00	290.71
8	93.05	294.67
9	95.19	299.19
10	96.17	304.09
11	98.28	308.62
12	101.64	312.00
***	1.783	***

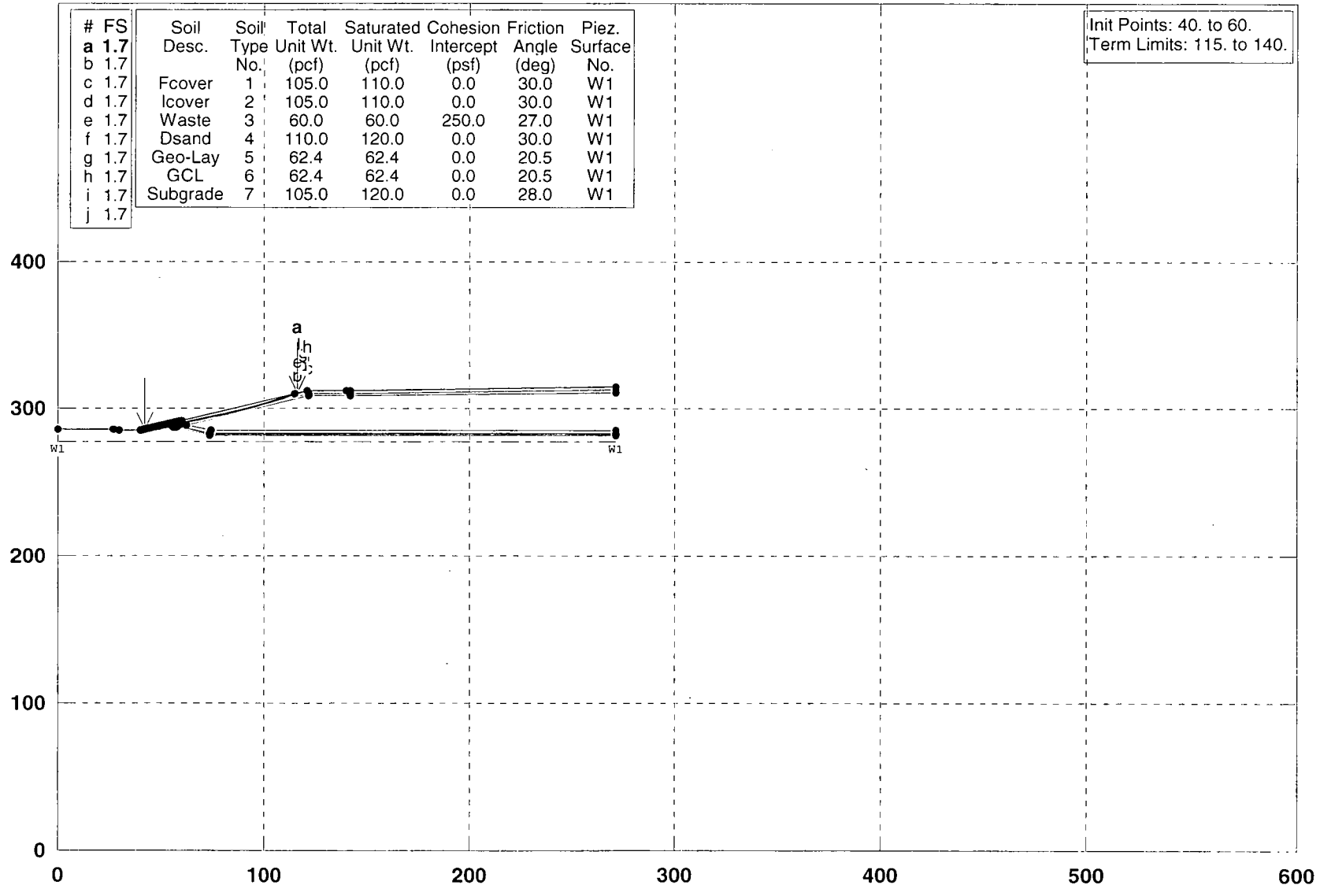
Expansion - East Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\EAST.PL2 Run By: Dominique H. Bramlett, P.E. 4/1/2010 4:03PM

#	FS
a	1.7
b	1.7
c	1.7
d	1.7
e	1.7
f	1.7
g	1.7
h	1.7
i	1.7
j	1.7

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

Init Points: 40. to 60.
Term Limits: 115. to 140.



PCSTABL5M/si FSmin=1.7

Safety Factors Are Calculated By The Modified Bishop Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 4/1/2010
Time of Run: 4:03PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:east.
Output Filename: F:east.OUT
Unit: ENGLISH
Plotted Output Filename: F:east.PLT
PROBLEM DESCRIPTION Expansion - East Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
9 Top Boundaries
33 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	286.00	27.00	286.00	7
2	27.00	286.00	30.00	285.00	7
3	30.00	285.00	40.00	285.00	7
4	40.00	285.00	49.00	288.00	7
5	49.00	288.00	49.18	288.00	7
6	49.18	288.00	56.42	290.41	4
7	56.42	290.41	121.18	312.00	1
8	121.18	312.00	141.50	312.00	1
9	141.50	312.00	271.50	314.50	1
10	56.42	290.41	57.10	290.41	4
11	57.10	290.41	59.92	289.47	4
12	59.92	289.47	121.50	310.00	2
13	121.50	310.00	141.50	310.00	2
14	141.50	310.00	271.50	312.50	2
15	59.92	289.47	62.29	288.68	4
16	62.29	288.68	121.74	308.50	3
17	121.74	308.50	141.51	308.50	3
18	141.51	308.50	271.50	311.00	3
19	62.29	288.68	73.94	284.80	4
20	73.94	284.80	271.50	284.80	4
21	49.18	288.00	55.50	288.00	7
22	55.50	288.00	56.01	288.00	6
23	56.01	288.00	58.01	288.00	5
24	58.01	288.00	73.61	282.80	5
25	73.61	282.80	271.50	282.80	5
26	56.01	288.00	56.12	287.53	6
27	56.12	287.53	57.85	287.53	6
28	57.85	287.53	73.60	282.30	6
29	73.60	282.30	271.50	282.30	6
30	55.50	288.00	55.73	287.03	7
31	55.73	287.03	57.77	287.03	7
32	57.77	287.03	73.52	281.80	7
33	73.52	281.80	271.50	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	277.50
2	271.50	277.50

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

5000 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of100 Points Equally Spaced Along The Ground Surface Between X = 40.00 ft.
and X = 60.00 ft.

Each Surface Terminates Between X = 115.00 ft.
and X = 140.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.02	285.67
2	51.77	287.91
3	61.45	290.42
4	71.05	293.20
5	80.58	296.24
6	90.02	299.54
7	99.36	303.10
8	108.61	306.92
9	116.51	310.44

Circle Center At X = -34.1 ; Y = 639.3 and Radius, 361.7

*** 1.738 ***

Individual data on the 16 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	7.0	264.7	.0	.0	.0	.0	.0	.0	.0
2	.2	13.3	.0	.0	.0	.0	.0	.0	.0
3	2.6	226.7	.0	.0	.0	.0	.0	.0	.0
4	.3	35.2	.0	.0	.0	.0	.0	.0	.0
5	4.3	537.6	.0	.0	.0	.0	.0	.0	.0
6	.7	98.0	.0	.0	.0	.0	.0	.0	.0
7	1.9	283.9	.0	.0	.0	.0	.0	.0	.0
8	2.5	407.1	.0	.0	.0	.0	.0	.0	.0
9	9.6	1894.1	.0	.0	.0	.0	.0	.0	.0
10	1.1	235.3	.0	.0	.0	.0	.0	.0	.0
11	8.5	1925.0	.0	.0	.0	.0	.0	.0	.0
12	7.4	1677.3	.0	.0	.0	.0	.0	.0	.0
13	2.1	453.9	.0	.0	.0	.0	.0	.0	.0
14	9.3	1814.7	.0	.0	.0	.0	.0	.0	.0
15	9.2	1220.5	.0	.0	.0	.0	.0	.0	.0
16	7.9	368.6	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	40.20	285.07
2	50.02	286.98
3	59.76	289.25
4	69.41	291.88
5	78.95	294.85
6	88.38	298.17
7	97.69	301.84
8	106.85	305.84
9	115.86	310.18

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   10        116.12      310.31
Circle Center At X =   -7.1 ; Y =  554.2  and Radius,  273.3
      ***     1.740   ***
Failure Surface Specified By 10 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1         43.03      286.01
    2         52.78      288.25
    3         62.47      290.73
    4         72.09      293.45
    5         81.64      296.42
    6         91.11      299.63
    7        100.49      303.08
    8        109.79      306.76
    9        118.99      310.68
   10        121.88      312.00
Circle Center At X =  -39.7 ; Y =  669.6  and Radius,  392.4
      ***     1.741   ***
Failure Surface Specified By  9 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1         44.04      286.35
    2         53.80      288.52
    3         63.50      290.98
    4         73.11      293.72
    5         82.64      296.74
    6         92.08      300.05
    7        101.42      303.63
    8        110.65      307.48
    9        119.12      311.31
Circle Center At X =  -24.9 ; Y =  619.2  and Radius,  339.9
      ***     1.742   ***
Failure Surface Specified By  8 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1         58.18      291.00
    2         67.93      293.24
    3         77.58      295.84
    4         87.14      298.80
    5         96.57      302.11
    6        105.88      305.77
    7        115.04      309.78
    8        116.23      310.35
Circle Center At X =    3.3 ; Y =  552.4  and Radius,  267.1
      ***     1.742   ***
Failure Surface Specified By  9 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1         51.11      288.64
    2         60.86      290.87
    3         70.54      293.39
    4         80.14      296.18
    5         89.66      299.26
    6         99.08      302.61
    7        108.40      306.23
    8        117.61      310.13
    9        121.70      312.00
Circle Center At X =  -20.5 ; Y =  624.0  and Radius,  342.9
      ***     1.743   ***
Failure Surface Specified By  9 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1         52.32      289.05
    2         62.09      291.21
    3         71.77      293.72
    4         81.36      296.55
    5         90.85      299.70
```

6	100.22	303.18
7	109.47	306.98
8	118.59	311.10
9	118.84	311.22

Circle Center At X = -6.2 ; Y = 575.4 and Radius, 292.3

*** 1.743 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	44.65	286.55
2	54.42	288.65
3	64.13	291.06
4	73.76	293.75
5	83.30	296.74
6	92.75	300.03
7	102.09	303.59
8	111.32	307.44
9	120.43	311.58
10	121.29	312.00

Circle Center At X = -19.2 ; Y = 606.8 and Radius, 326.5

*** 1.744 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	55.56	290.12
2	65.35	292.16
3	75.04	294.61
4	84.62	297.47
5	94.08	300.72
6	103.39	304.38
7	112.53	308.42
8	116.89	310.57

Circle Center At X = 12.8 ; Y = 520.7 and Radius, 234.5

*** 1.747 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	47.48	287.49
2	57.26	289.53
3	66.97	291.93
4	76.59	294.67
5	86.10	297.76
6	95.50	301.19
7	104.76	304.95
8	113.88	309.05
9	117.15	310.66

Circle Center At X = -4.3 ; Y = 560.0 and Radius, 277.4

*** 1.747 ***

Expansion - East Phase II Section I Hardee County Landfill

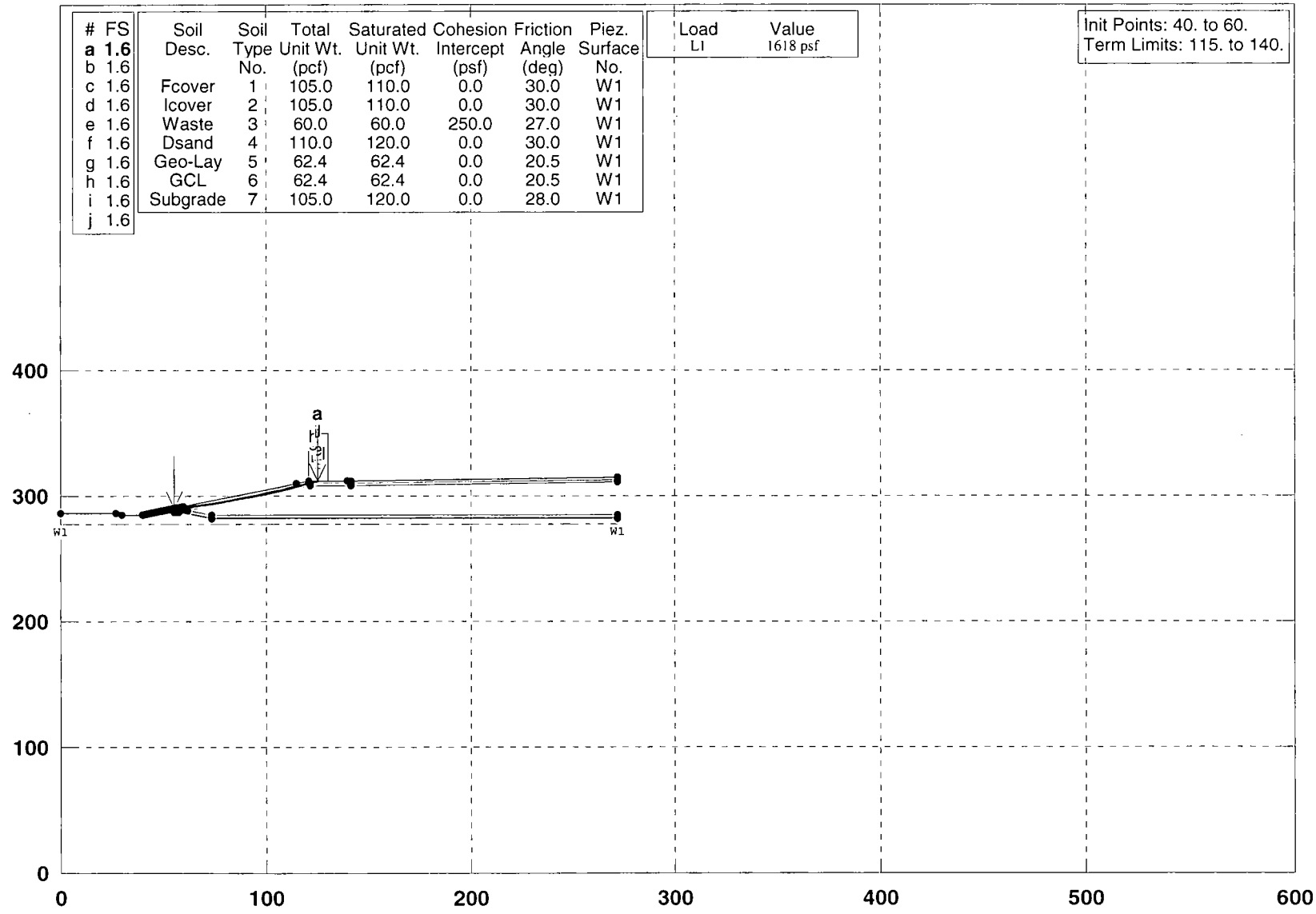
F:\PROJECT\HARDEE\09199033.20\CALCUL~1\EAST.PL2 Run By: Dominique H. Bramlett, P.E. 5/18/2010 3:03PM

#	FS
a	**1.6**
b	1.6
c	1.6
d	1.6
e	1.6
f	1.6
g	1.6
h	1.6
i	1.6
j	1.6

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

Load	Value
L1	1618 psf

Init Points: 40. to 60.
Term Limits: 115. to 140.



PCSTABL5M/si FSmin=1.6
Safety Factors Are Calculated By The Modified Bishop Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 5/18/2010
Time of Run: 3:03PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:east.
Output Filename: F:east.OUT
Unit: ENGLISH
Plotted Output Filename: F:east.PLT
PROBLEM DESCRIPTION Expansion - East Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
9 Top Boundaries
33 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	286.00	27.00	286.00	7
2	27.00	286.00	30.00	285.00	7
3	30.00	285.00	40.00	285.00	7
4	40.00	285.00	49.00	288.00	7
5	49.00	288.00	49.18	288.00	7
6	49.18	288.00	56.42	290.41	4
7	56.42	290.41	121.18	312.00	1
8	121.18	312.00	141.50	312.00	1
9	141.50	312.00	271.50	314.50	1
10	56.42	290.41	57.10	290.41	4
11	57.10	290.41	59.92	289.47	4
12	59.92	289.47	121.50	310.00	2
13	121.50	310.00	141.50	310.00	2
14	141.50	310.00	271.50	312.50	2
15	59.92	289.47	62.29	288.68	4
16	62.29	288.68	121.74	308.50	3
17	121.74	308.50	141.51	308.50	3
18	141.51	308.50	271.50	311.00	3
19	62.29	288.68	73.94	284.80	4
20	73.94	284.80	271.50	284.80	4
21	49.18	288.00	55.50	288.00	7
22	55.50	288.00	56.01	288.00	6
23	56.01	288.00	58.01	288.00	5
24	58.01	288.00	73.61	282.80	5
25	73.61	282.80	271.50	282.80	5
26	56.01	288.00	56.12	287.53	6
27	56.12	287.53	57.85	287.53	6
28	57.85	287.53	73.60	282.30	6
29	73.60	282.30	271.50	282.30	6
30	55.50	288.00	55.73	287.03	7
31	55.73	287.03	57.77	287.03	7
32	57.77	287.03	73.52	281.80	7
33	73.52	281.80	271.50	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	277.50
2	271.50	277.50

BOUNDARY LOAD(S)
1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	121.18	130.68	1618.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
5000 Trial Surfaces Have Been Generated.
50 Surfaces Initiate From Each Of100 Points Equally Spaced Along The Ground Surface Between X = 40.00 ft.
and X = 60.00 ft.
Each Surface Terminates Between X = 115.00 ft.
and X = 140.00 ft.
Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.
10.00 ft. Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	55.56	290.12
2	65.37	292.02
3	75.12	294.26
4	84.78	296.85
5	94.34	299.79
6	103.79	303.06
7	113.11	306.67
8	122.30	310.62
9	125.24	312.00

Circle Center At X = 7.5 ; Y = 565.6 and Radius, 279.7
*** 1.610 ***
Individual data on the 13 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	.9	5.7	.0	.0	.0	.0	.0	.0	.0
2	.6	11.0	.0	.0	.0	.0	.0	.0	.0
3	8.3	694.0	.0	.0	.0	.0	.0	.0	.0
4	7.1	1293.2	.0	.0	.0	.0	.0	.0	.0
5	2.7	631.0	.0	.0	.0	.0	.0	.0	.0
6	9.7	2735.1	.0	.0	.0	.0	.0	.0	.0
7	9.6	3149.1	.0	.0	.0	.0	.0	.0	.0
8	9.4	3175.4	.0	.0	.0	.0	.0	.0	.0
9	9.3	2827.3	.0	.0	.0	.0	.0	.0	.0
10	5.5	1381.7	.0	.0	.0	.0	.0	.0	.0
11	2.5	525.6	.0	.0	.0	.0	.0	.0	.0
12	1.1	191.5	.0	.0	.0	.0	.0	.0	1815.4
13	2.9	213.3	.0	.0	.0	.0	.0	.0	4747.8

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	56.57	290.46
2	66.40	292.29
3	76.15	294.48
4	85.82	297.04
5	95.39	299.95

6	104.84	303.21
7	114.17	306.81
8	123.36	310.76
9	125.96	312.00

Circle Center At X = 11.9 ; Y = 557.3 and Radius, 270.6

*** 1.612 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	59.39	291.40
2	69.24	293.17
3	79.00	295.32
4	88.68	297.85
5	98.24	300.77
6	107.69	304.06
7	116.99	307.72
8	126.15	311.74
9	126.67	312.00

Circle Center At X = 19.6 ; Y = 541.8 and Radius, 253.5

*** 1.617 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	53.94	289.58
2	63.76	291.47
3	73.51	293.67
4	83.20	296.18
5	92.79	298.99
6	102.30	302.10
7	111.70	305.51
8	120.98	309.22
9	127.36	312.00

Circle Center At X = -1.0 ; Y = 601.4 and Radius, 316.6

*** 1.628 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	47.48	287.49
2	57.29	289.39
3	67.05	291.60
4	76.73	294.10
5	86.32	296.92
6	95.83	300.03
7	105.23	303.43
8	114.52	307.13
9	123.69	311.12
10	125.55	312.00

Circle Center At X = -7.9 ; Y = 600.4 and Radius, 317.8

*** 1.631 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	52.12	288.98
2	61.94	290.88
3	71.68	293.14
4	81.33	295.77
5	90.87	298.75
6	100.30	302.09
7	109.60	305.77
8	118.75	309.80
9	123.28	312.00

Circle Center At X = 6.1 ; Y = 553.3 and Radius, 268.3

*** 1.636 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	44.04	286.35

2	53.86	288.25
3	63.61	290.47
4	73.28	293.01
5	82.86	295.86
6	92.35	299.03
7	101.73	302.50
8	110.99	306.28
9	120.12	310.35
10	123.51	312.00

Circle Center At X = -8.9 ; Y = 586.4 and Radius, 304.7

*** 1.642 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	56.57	290.46
2	66.31	292.69
3	75.99	295.20
4	85.60	297.97
5	95.12	301.02
6	104.56	304.34
7	113.89	307.93
8	123.12	311.77
9	123.62	312.00

Circle Center At X = -17.3 ; Y = 635.7 and Radius, 353.1

*** 1.642 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	43.64	286.21
2	53.40	288.38
3	63.11	290.77
4	72.76	293.40
5	82.34	296.25
6	91.85	299.34
7	101.29	302.65
8	110.64	306.18
9	119.91	309.94
10	124.67	312.00

Circle Center At X = -41.4 ; Y = 693.5 and Radius, 416.0

*** 1.643 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	55.35	290.06
2	65.12	292.21
3	74.83	294.61
4	84.47	297.26
5	94.04	300.16
6	103.53	303.30
7	112.94	306.68
8	122.27	310.30
9	126.32	312.00

Circle Center At X = -23.9 ; Y = 672.7 and Radius, 390.8

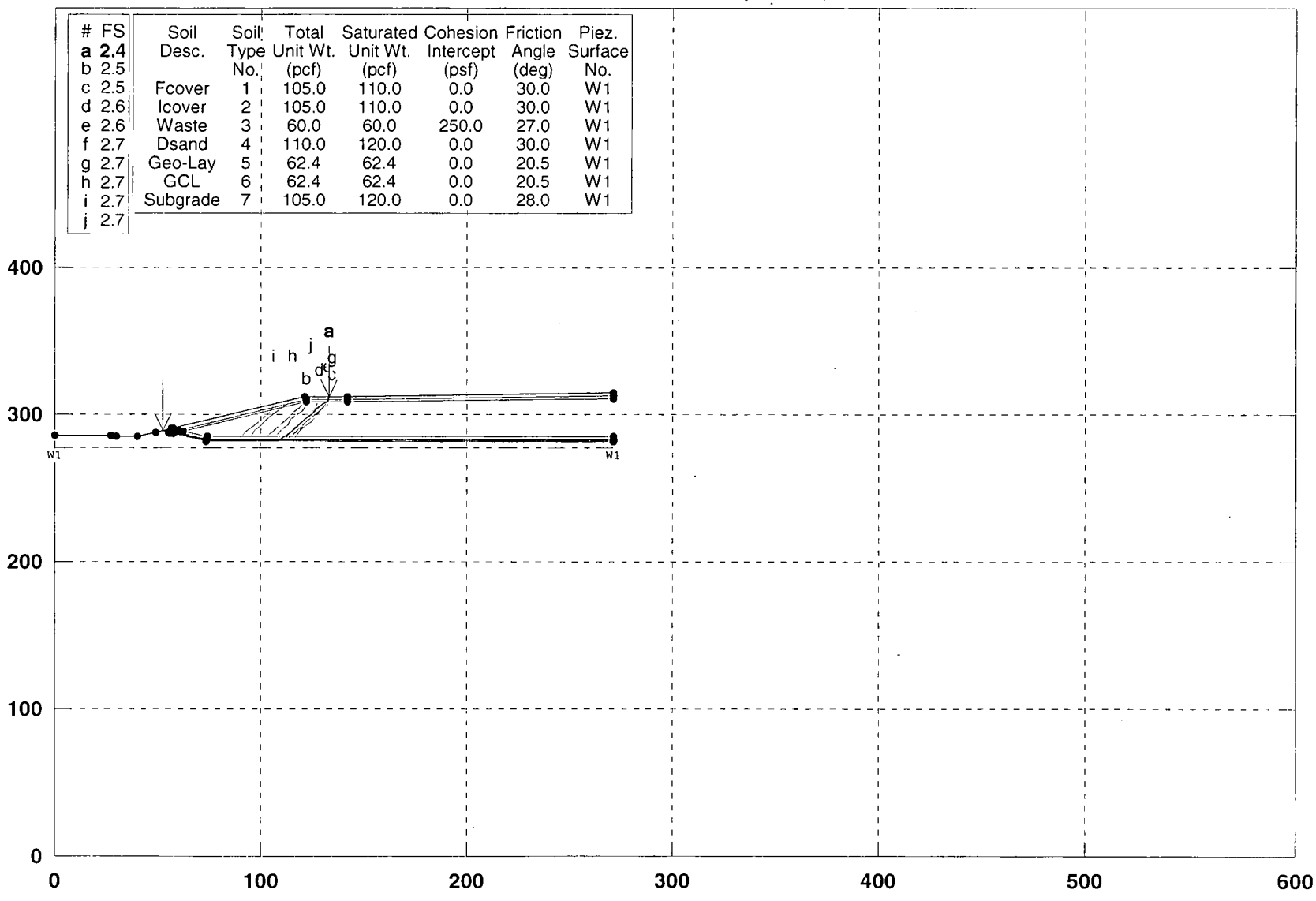
*** 1.645 ***

Expansion - East Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\BEAST.PL2 Run By: Dominique H. Bramlett, P.E. 4/2/2010 10:39AM

#	FS
a	**2.4**
b	2.5
c	2.5
d	2.6
e	2.6
f	2.7
g	2.7
h	2.7
i	2.7
j	2.7

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1



PCSTABL5M/si FSmin=2.4

Safety Factors Are Calculated By The Modified Janbu Method for the case of Specified.

SGS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 4/2/2010
Time of Run: 10:39AM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:BEAST.
Output Filename: F:BEAST.OUT
Unit: ENGLISH
Plotted Output Filename: F:BEAST.PLT
PROBLEM DESCRIPTION Expansion - East Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
9 Top Boundaries
33 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	286.00	27.00	286.00	7
2	27.00	286.00	30.00	285.00	7
3	30.00	285.00	40.00	285.00	7
4	40.00	285.00	49.00	288.00	7
5	49.00	288.00	49.18	288.00	7
6	49.18	288.00	56.42	290.41	4
7	56.42	290.41	121.18	312.00	1
8	121.18	312.00	141.50	312.00	1
9	141.50	312.00	271.50	314.50	1
10	56.42	290.41	57.10	290.41	4
11	57.10	290.41	59.92	289.47	4
12	59.92	289.47	121.50	310.00	2
13	121.50	310.00	141.50	310.00	2
14	141.50	310.00	271.50	312.50	2
15	59.92	289.47	62.29	288.68	4
16	62.29	288.68	121.74	308.50	3
17	121.74	308.50	141.51	308.50	3
18	141.51	308.50	271.50	311.00	3
19	62.29	288.68	73.94	284.80	4
20	73.94	284.80	271.50	284.80	4
21	49.18	288.00	55.50	288.00	7
22	55.50	288.00	56.01	288.00	6
23	56.01	288.00	58.01	288.00	5
24	58.01	288.00	73.61	282.80	5
25	73.61	282.80	271.50	282.80	5
26	56.01	288.00	56.12	287.53	6
27	56.12	287.53	57.85	287.53	6
28	57.85	287.53	73.60	282.30	6
29	73.60	282.30	271.50	282.30	6
30	55.50	288.00	55.73	287.03	7
31	55.73	287.03	57.77	287.03	7
32	57.77	287.03	73.52	281.80	7
33	73.52	281.80	271.50	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	277.50
2	271.50	277.50

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 4.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	58.57	287.29	72.89	282.54	.50
2	74.68	282.30	79.68	282.30	.50
3	84.68	282.30	131.18	282.30	.50

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	52.61	289.14
2	55.42	288.29
3	59.19	286.95
4	75.19	282.41
5	108.62	282.16
6	111.45	284.99
7	114.07	288.01
8	116.65	291.06
9	119.22	294.13
10	121.76	297.22
11	124.46	300.17
12	126.48	303.63
13	129.28	306.48
14	132.00	309.41
15	132.77	312.00

*** 2.377 ***

Individual data on the 35 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	2.8	275.4	.0	.0	.0	.0	.0	.0	.0
2	.8	186.3	.0	.0	.0	.0	.0	.0	.0
3	.2	48.3	.0	.0	.0	.0	.0	.0	.0
4	.7	196.2	.0	.0	.0	.0	.0	.0	.0
5	.5	148.7	.0	.0	.0	.0	.0	.0	.0
6	.3	97.9	.0	.0	.0	.0	.0	.0	.0
7	.2	56.6	.0	.0	.0	.0	.0	.0	.0
8	1.2	471.7	.0	.0	.0	.0	.0	.0	.0
9	.7	341.8	.0	.0	.0	.0	.0	.0	.0
10	2.0	1109.0	.0	.0	.0	.0	.0	.0	.0
11	.4	243.7	.0	.0	.0	.0	.0	.0	.0
12	10.1	8425.1	.0	.0	.0	.0	.0	.0	.0
13	1.5	1529.1	.0	.0	.0	.0	.0	.0	.0
14	.1	121.4	.0	.0	.0	.0	.0	.0	.0
15	1.2	1369.0	.0	.0	.0	.0	.0	.0	.0
16	14.9	18926.1	.0	.0	.0	.0	.0	.0	.0
17	18.6	30032.9	.0	.0	.0	.0	.0	.0	.0
18	.1	257.2	.0	.0	.0	.0	.0	.0	.0
19	.5	893.5	.0	.0	.0	.0	.0	.0	.0
20	2.0	3373.0	.0	.0	.0	.0	.0	.0	.0
21	.2	299.5	.0	.0	.0	.0	.0	.0	.0
22	2.6	4006.2	.0	.0	.0	.0	.0	.0	.0

23	2.6	3609.3	.0	.0	.0	.0	.0	.0	.0
24	2.6	3247.9	.0	.0	.0	.0	.0	.0	.0
25	2.0	2250.3	.0	.0	.0	.0	.0	.0	.0
26	.3	346.0	.0	.0	.0	.0	.0	.0	.0
27	.2	253.6	.0	.0	.0	.0	.0	.0	.0
28	.0	25.1	.0	.0	.0	.0	.0	.0	.0
29	2.7	2574.7	.0	.0	.0	.0	.0	.0	.0
30	2.0	1542.3	.0	.0	.0	.0	.0	.0	.0
31	2.8	1606.9	.0	.0	.0	.0	.0	.0	.0
32	1.9	804.7	.0	.0	.0	.0	.0	.0	.0
33	.8	271.0	.0	.0	.0	.0	.0	.0	.0
34	.2	41.9	.0	.0	.0	.0	.0	.0	.0
35	.6	61.8	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	52.38	289.06
2	56.10	288.49
3	59.82	287.03
4	63.82	286.81
5	67.16	284.62
6	76.77	282.07
7	101.27	282.38
8	103.24	285.87
9	105.99	288.77
10	108.34	292.01
11	110.96	295.03
12	113.41	298.19
13	115.75	301.44
14	118.39	304.44
15	120.24	307.99
16	121.82	311.66
17	122.04	312.00

*** 2.488 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	53.10	289.30
2	56.17	288.51
3	59.76	286.75
4	63.20	284.71
5	67.18	284.33
6	75.35	282.37
7	114.06	282.26
8	116.86	285.11
9	118.60	288.71
10	121.06	291.87
11	123.71	294.86
12	126.21	297.98
13	127.90	301.61
14	129.73	305.16
15	131.87	308.55
16	134.08	311.88
17	134.17	312.00

*** 2.534 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	53.63	289.48
2	56.48	287.85
3	60.29	286.63
4	77.62	282.18
5	111.09	282.17
6	112.70	285.83
7	115.17	288.97
8	117.35	292.33
9	119.55	295.67

10	122.26	298.61
11	124.41	301.99
12	126.49	305.40
13	127.62	309.24
14	127.86	312.00

*** 2.595 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	55.63	290.15
2	55.94	289.87
3	59.01	287.30
4	62.98	286.77
5	66.93	286.19
6	69.85	283.45
7	75.21	282.54
8	109.99	282.10
9	112.79	284.97
10	114.59	288.54
11	115.99	292.28
12	118.81	295.13
13	121.27	298.28
14	123.57	301.55
15	126.39	304.39
16	128.87	307.52
17	131.20	310.78
18	132.37	312.00

*** 2.616 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	56.68	290.50
2	58.06	290.36
3	60.88	287.53
4	64.17	285.25
5	67.99	284.09
6	78.84	282.31
7	112.33	282.17
8	114.22	285.70
9	117.03	288.55
10	118.71	292.18
11	121.47	295.07
12	124.29	297.90
13	127.08	300.77
14	129.69	303.81
15	131.22	307.50
16	132.20	311.38
17	132.71	312.00

*** 2.656 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	55.99	290.27
2	56.41	289.96
3	59.84	287.90
4	63.14	285.63
5	79.11	282.12
6	111.45	282.31
7	114.14	285.26
8	116.96	288.10
9	119.61	291.09
10	121.30	294.72
11	124.08	297.59
12	126.59	300.71
13	129.42	303.54
14	132.25	306.37
15	132.45	310.36

16	134.02	312.00
***	2.678	***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	53.55	289.46
2	54.82	289.03
3	58.65	287.88
4	62.61	287.32
5	65.51	284.56
6	69.44	283.79
7	75.37	282.35
8	93.23	282.33
9	95.47	285.65
10	97.13	289.29
11	99.92	292.15
12	101.88	295.64
13	104.51	298.65
14	107.21	301.60
15	109.80	304.65
16	112.61	307.49
17	114.57	309.80
***	2.703	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	51.69	288.84
2	51.71	288.83
3	55.71	288.78
4	59.23	286.88
5	77.35	282.52
6	87.69	282.40
7	90.46	285.28
8	93.00	288.37
9	95.66	291.36
10	98.36	294.32
11	101.09	297.23
12	103.26	300.59
13	105.38	303.99
14	105.81	306.88
***	2.734	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	56.09	290.30
2	58.56	287.87
3	62.21	286.23
4	76.53	282.22
5	107.00	282.40
6	108.04	286.26
7	110.18	289.64
8	112.47	292.93
9	114.12	296.57
10	116.94	299.40
11	119.77	302.23
12	121.98	305.57
13	123.14	309.39
14	123.86	312.00
***	2.740	***

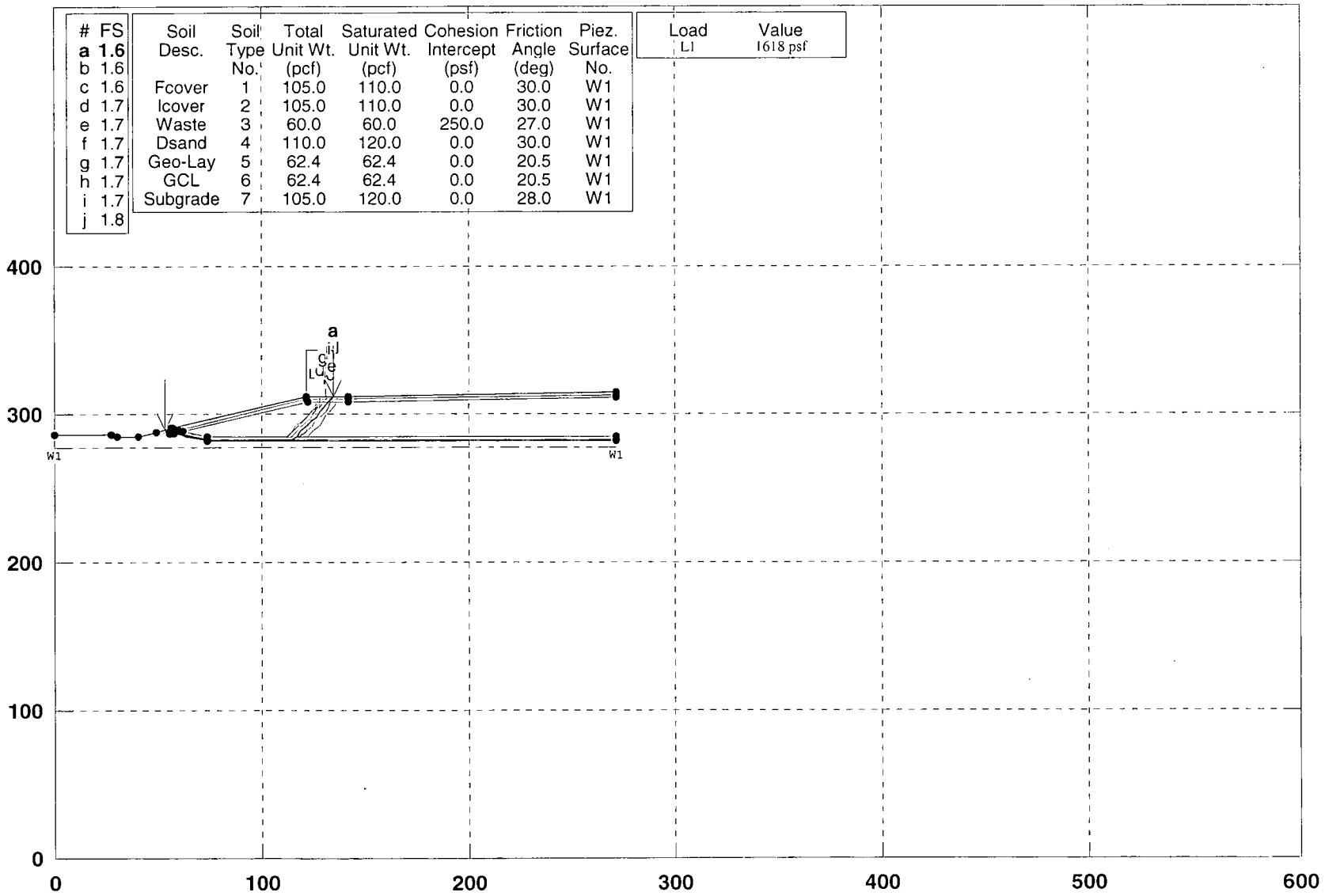
Expansion - East Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\BEAST.PL2 Run By: Dominique H. Bramlett, P.E. 5/18/2010 3:08PM

#	FS
a	1.6
b	1.6
c	1.6
d	1.7
e	1.7
f	1.7
g	1.7
h	1.7
i	1.7
j	1.8

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

Load	Value
L1	1618 psf



PCSTABL5M/si FSmin=1.6

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 5/18/2010
Time of Run: 3:08PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:beast.
Output Filename: F:beast.OUT
Unit: ENGLISH
Plotted Output Filename: F:beast.PLT
PROBLEM DESCRIPTION Expansion - East Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
9 Top Boundaries
33 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	286.00	27.00	286.00	7
2	27.00	286.00	30.00	285.00	7
3	30.00	285.00	40.00	285.00	7
4	40.00	285.00	49.00	288.00	7
5	49.00	288.00	49.18	288.00	7
6	49.18	288.00	56.42	290.41	4
7	56.42	290.41	121.18	312.00	1
8	121.18	312.00	141.50	312.00	1
9	141.50	312.00	271.50	314.50	1
10	56.42	290.41	57.10	290.41	4
11	57.10	290.41	59.92	289.47	4
12	59.92	289.47	121.50	310.00	2
13	121.50	310.00	141.50	310.00	2
14	141.50	310.00	271.50	312.50	2
15	59.92	289.47	62.29	288.68	4
16	62.29	288.68	121.74	308.50	3
17	121.74	308.50	141.51	308.50	3
18	141.51	308.50	271.50	311.00	3
19	62.29	288.68	73.94	284.80	4
20	73.94	284.80	271.50	284.80	4
21	49.18	288.00	55.50	288.00	7
22	55.50	288.00	56.01	288.00	6
23	56.01	288.00	58.01	288.00	5
24	58.01	288.00	73.61	282.80	5
25	73.61	282.80	271.50	282.80	5
26	56.01	288.00	56.12	287.53	6
27	56.12	287.53	57.85	287.53	6
28	57.85	287.53	73.60	282.30	6
29	73.60	282.30	271.50	282.30	6
30	55.50	288.00	55.73	287.03	7
31	55.73	287.03	57.77	287.03	7
32	57.77	287.03	73.52	281.80	7
33	73.52	281.80	271.50	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	277.50
2	271.50	277.50

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	121.18	130.68	1618.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 4.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	58.57	287.29	72.89	282.54	.50
2	74.68	282.30	79.68	282.30	.50
3	84.68	282.30	131.18	282.30	.50

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	53.10	289.30
2	56.17	288.51
3	59.76	286.75
4	63.20	284.71
5	67.18	284.33
6	75.35	282.37
7	114.06	282.26
8	116.86	285.11
9	118.60	288.71
10	121.06	291.87
11	123.71	294.86
12	126.21	297.98
13	127.90	301.61
14	129.73	305.16
15	131.87	308.55
16	134.08	311.88
17	134.17	312.00

*** 1.609 ***

Individual data on the 38 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	3.1	306.2	.0	.0	.0	.0	.0	.0	.0
2	.3	53.1	.0	.0	.0	.0	.0	.0	.0
3	.7	171.8	.0	.0	.0	.0	.0	.0	.0
4	.1	31.3	.0	.0	.0	.0	.0	.0	.0
5	.8	254.9	.0	.0	.0	.0	.0	.0	.0
6	.8	303.4	.0	.0	.0	.0	.0	.0	.0
7	.9	419.5	.0	.0	.0	.0	.0	.0	.0
8	.2	79.6	.0	.0	.0	.0	.0	.0	.0
9	1.3	713.8	.0	.0	.0	.0	.0	.0	.0
10	1.1	713.3	.0	.0	.0	.0	.0	.0	.0
11	.9	678.0	.0	.0	.0	.0	.0	.0	.0
12	2.2	1717.1	.0	.0	.0	.0	.0	.0	.0
13	1.8	1502.9	.0	.0	.0	.0	.0	.0	.0

14	1.1	914.4	.0	.0	.0	.0	.0	.0	.0
15	5.4	5271.1	.0	.0	.0	.0	.0	.0	.0
16	.3	354.9	.0	.0	.0	.0	.0	.0	.0
17	1.4	1556.5	.0	.0	.0	.0	.0	.0	.0
18	24.6	33809.2	.0	.0	.0	.0	.0	.0	.0
19	14.1	24967.5	.0	.0	.0	.0	.0	.0	.0
20	.0	80.5	.0	.0	.0	.0	.0	.0	.0
21	.5	933.3	.0	.0	.0	.0	.0	.0	.0
22	2.0	3534.5	.0	.0	.0	.0	.0	.0	.0
23	.3	515.3	.0	.0	.0	.0	.0	.0	.0
24	1.7	2778.9	.0	.0	.0	.0	.0	.0	.0
25	2.5	3547.0	.0	.0	.0	.0	.0	.0	.0
26	.1	166.7	.0	.0	.0	.0	.0	.0	.0
27	.3	432.8	.0	.0	.0	.0	.0	.0	517.8
28	.2	319.0	.0	.0	.0	.0	.0	.0	388.3
29	2.0	2464.8	.0	.0	.0	.0	.0	.0	3184.1
30	2.5	2732.7	.0	.0	.0	.0	.0	.0	4048.6
31	1.7	1507.4	.0	.0	.0	.0	.0	.0	2741.1
32	1.8	1233.2	.0	.0	.0	.0	.0	.0	2958.8
33	.9	494.9	.0	.0	.0	.0	.0	.0	1532.4
34	1.2	488.9	.0	.0	.0	.0	.0	.0	.0
35	.0	10.9	.0	.0	.0	.0	.0	.0	.0
36	1.0	275.3	.0	.0	.0	.0	.0	.0	.0
37	1.2	138.6	.0	.0	.0	.0	.0	.0	.0
38	.1	.6	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	55.46	290.09
2	55.96	290.07
3	58.89	287.34
4	62.67	286.04
5	66.64	285.56
6	70.16	283.65
7	78.93	282.11
8	115.74	282.20
9	118.52	285.07
10	119.44	288.96
11	121.82	292.18
12	123.38	295.86
13	125.47	299.28
14	127.22	302.87
15	128.76	306.56
16	130.89	309.95
17	131.28	312.00
***	1.616	***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	52.61	289.14
2	55.42	288.29
3	59.19	286.95
4	75.19	282.41
5	108.62	282.16
6	111.45	284.99
7	114.07	288.01
8	116.65	291.06
9	119.22	294.13
10	121.76	297.22
11	124.46	300.17
12	126.48	303.63
13	129.28	306.48
14	132.00	309.41
15	132.77	312.00
***	1.625	***

Failure Surface Specified By 18 Coordinate Points

Point	X-Surf	Y-Surf

No.	(ft)	(ft)
1	51.63	288.81
2	52.36	288.41
3	56.14	287.08
4	59.95	285.88
5	63.89	285.17
6	67.86	284.67
7	71.41	282.82
8	76.44	282.50
9	114.69	282.31
10	117.24	285.40
11	119.23	288.87
12	121.46	292.19
13	123.01	295.88
14	124.13	299.72
15	125.77	303.36
16	127.71	306.86
17	127.84	310.86
18	127.86	312.00
***	1.660	***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	56.70	290.50
2	59.25	288.75
3	62.44	286.34
4	65.53	283.80
5	69.53	283.67
6	75.29	282.54
7	115.49	282.39
8	118.30	285.23
9	120.96	288.22
10	122.14	292.04
11	123.66	295.74
12	126.44	298.62
13	128.66	301.95
14	130.85	305.29
15	133.65	308.15
16	133.88	312.00
***	1.686	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	53.63	289.48
2	56.48	287.85
3	60.29	286.63
4	77.62	282.18
5	111.09	282.17
6	112.70	285.83
7	115.17	288.97
8	117.35	292.33
9	119.55	295.67
10	122.26	298.61
11	124.41	301.99
12	126.49	305.40
13	127.62	309.24
14	127.86	312.00
***	1.700	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	53.84	289.55
2	56.51	289.01
3	59.98	287.03
4	75.69	282.52
5	111.74	282.26
6	114.36	285.28

7	116.65	288.56
8	118.66	292.02
9	121.38	294.95
10	124.21	297.78
11	125.23	301.65
12	125.68	305.62
13	127.05	309.38
14	128.98	312.00

*** 1.722 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	55.37	290.06
2	56.53	288.91
3	59.96	286.85
4	77.70	282.18
5	116.59	282.45
6	119.33	285.36
7	121.46	288.75
8	124.06	291.79
9	125.77	295.41
10	128.26	298.54
11	130.47	301.87
12	132.36	305.40
13	132.93	309.35
14	133.00	312.00

*** 1.733 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	55.63	290.15
2	55.94	289.87
3	59.01	287.30
4	62.98	286.77
5	66.93	286.19
6	69.85	283.45
7	75.21	282.54
8	109.99	282.10
9	112.79	284.97
10	114.59	288.54
11	115.99	292.28
12	118.81	295.13
13	121.27	298.28
14	123.57	301.55
15	126.39	304.39
16	128.87	307.52
17	131.20	310.78
18	132.37	312.00

*** 1.734 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	54.33	289.71
2	56.99	287.42
3	60.74	286.01
4	64.68	285.32
5	77.36	282.24
6	120.99	282.21
7	122.34	285.97
8	124.99	288.97
9	127.73	291.88
10	129.06	295.66
11	130.73	299.29
12	133.03	302.56
13	135.21	305.91
14	135.94	309.85
15	136.48	312.00

*** 1.757 ***

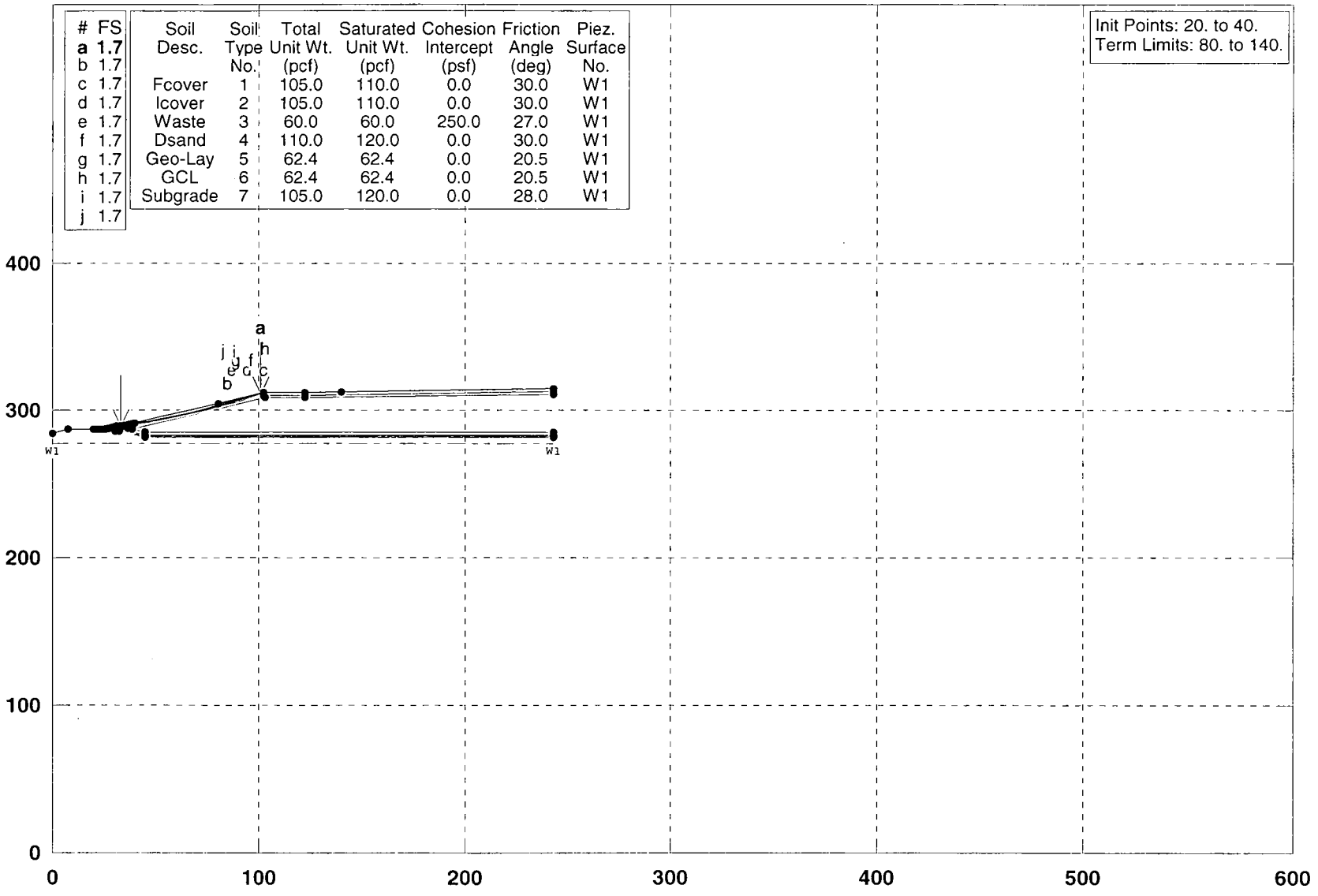
Expansion - South Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\SOUTH.PL2 Run By: Dominique H. Bramlett, P.E. 4/1/2010 5:00PM

#	FS
a	**1.7**
b	1.7
c	1.7
d	1.7
e	1.7
f	1.7
g	1.7
h	1.7
i	1.7
j	1.7

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

Init Points: 20. to 40.
Term Limits: 80. to 140.



PCSTABL5M/si FSmin=1.7

Safety Factors Are Calculated By The Modified Bishop Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 4/1/2010
Time of Run: 5:00PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:south.
Output Filename: F:south.OUT
Unit: ENGLISH
Plotted Output Filename: F:south.PLT
PROBLEM DESCRIPTION Expansion - South Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
7 Top Boundaries
30 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	284.53	7.48	287.03	7
2	7.48	287.03	25.50	287.03	7
3	25.50	287.03	31.20	288.93	4
4	31.20	288.93	33.20	288.93	4
5	33.20	288.93	102.41	312.00	1
6	102.41	312.00	122.73	312.00	1
7	122.73	312.00	242.73	314.50	1
8	33.20	288.93	36.33	287.87	4
9	36.33	287.87	102.73	310.00	2
10	102.73	310.00	122.73	310.00	2
11	122.73	310.00	242.73	312.50	2
12	36.33	287.87	38.69	287.07	4
13	38.69	287.07	102.98	308.50	3
14	102.98	308.50	122.73	308.50	3
15	122.73	308.50	242.73	311.00	3
16	38.69	287.07	45.27	284.84	4
17	45.27	284.84	242.73	284.84	4
18	25.50	287.03	29.65	287.03	7
19	29.65	287.03	30.24	287.03	6
20	30.24	287.03	32.57	287.03	5
21	32.57	287.03	45.26	282.80	5
22	45.26	282.80	242.73	282.80	5
23	30.24	287.03	30.57	286.53	6
24	30.57	286.53	32.57	286.53	6
25	32.57	286.53	45.27	282.30	6
26	45.27	282.30	242.73	282.30	6
27	29.65	287.03	30.31	286.03	7
28	30.31	286.03	32.49	286.03	7
29	32.49	286.03	45.19	281.80	7
30	45.19	281.80	242.73	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)

```
     1           .00      277.50
     2        242.73      277.50
 A Critical Failure Surface Searching Method, Using A Random
 Technique For Generating Circular Surfaces, Has Been Specified.
5000 Trial Surfaces Have Been Generated.
  50 Surfaces Initiate From Each Of100 Points Equally Spaced
 Along The Ground Surface Between  X =  20.00 ft.
                             and  X =  40.00 ft.
 Each Surface Terminates Between   X =  80.00 ft.
                             and   X = 140.00 ft.
 Unless Further Limitations Were Imposed, The Minimum Elevation
 At Which A Surface Extends Is  Y =   .00 ft.
 10.00 ft. Line Segments Define Each Trial Failure Surface.
 Following Are Displayed The Ten Most Critical Of The Trial
       Failure Surfaces Examined.  They Are Ordered - Most Critical
       First.
       * * Safety Factors Are Calculated By The Modified Bishop Method * *
       Failure Surface Specified By  9 Coordinate Points
         Point      X-Surf      Y-Surf
          No.        (ft)        (ft)
           1         33.33      288.97
           2         43.07      291.27
           3         52.73      293.84
           4         62.31      296.70
           5         71.81      299.83
           6         81.21      303.24
           7         90.51      306.93
           8         99.69      310.88
           9        101.35      311.65
       Circle Center At X =  -40.5 ; Y =  624.2  and Radius,  343.2
            ***     1.740   ***
        Individual data on the     8  slices
                     Water  Water     Tie     Tie     Earthquake
                     Force  Force    Force   Force       Force   Surcharge
Slice  Width  Weight  Top    Bot     Norm     Tan     Hor     Ver    Load
 No.    (ft)   (lbs)  (lbs)  (lbs)   (lbs)   (lbs)   (lbs)   (lbs)  (lbs)
  1      9.7   486.2     .0     .0      .0      .0      .0      .0     .0
  2      9.7  1292.5     .0     .0      .0      .0      .0      .0     .0
  3      9.6  1776.7     .0     .0      .0      .0      .0      .0     .0
  4      9.5  1944.8     .0     .0      .0      .0      .0      .0     .0
  5      9.4  1804.5     .0     .0      .0      .0      .0      .0     .0
  6      9.3  1365.6     .0     .0      .0      .0      .0      .0     .0
  7      9.2   639.5     .0     .0      .0      .0      .0      .0     .0
  8      1.7    19.0     .0     .0      .0      .0      .0      .0     .0
       Failure Surface Specified By  7 Coordinate Points
         Point      X-Surf      Y-Surf
          No.        (ft)        (ft)
           1         36.77      290.12
           2         46.50      292.42
           3         56.12      295.15
           4         65.61      298.31
           5         74.95      301.87
           6         84.13      305.85
           7         84.47      306.02
       Circle Center At X =  -10.5 ; Y =  511.4  and Radius,  226.3
            ***     1.742   ***
       Failure Surface Specified By  8 Coordinate Points
         Point      X-Surf      Y-Surf
          No.        (ft)        (ft)
           1         38.59      290.73
           2         48.34      292.95
           3         58.00      295.51
           4         67.58      298.39
           5         77.05      301.59
           6         86.41      305.11
           7         95.65      308.95
           8        102.14      311.91
```

Circle Center At X = -21.6 ; Y = 577.2 and Radius, 292.7
*** 1.742 ***
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	36.36	289.98
2	46.11	292.21
3	55.77	294.81
4	65.32	297.77
5	74.76	301.09
6	84.06	304.76
7	93.21	308.78
8	94.26	309.28

Circle Center At X = -17.5 ; Y = 548.0 and Radius, 263.6
*** 1.742 ***
Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	39.19	290.93
2	48.94	293.16
3	58.57	295.86
4	68.05	299.03
5	77.38	302.65
6	86.46	306.68

Circle Center At X = -2.3 ; Y = 494.0 and Radius, 207.3
*** 1.743 ***
Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	39.80	291.13
2	49.56	293.29
3	59.23	295.86
4	68.77	298.83
5	78.19	302.20
6	87.46	305.96
7	96.06	309.88

Circle Center At X = -6.9 ; Y = 525.2 and Radius, 238.7
*** 1.744 ***
Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	38.18	290.59
2	47.94	292.76
3	57.59	295.38
4	67.11	298.46
5	76.47	301.97
6	85.66	305.93
7	88.83	307.47

Circle Center At X = -3.1 ; Y = 499.4 and Radius, 212.8
*** 1.745 ***
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	38.79	290.79
2	48.58	292.82
3	58.28	295.24
4	67.88	298.04
5	77.37	301.22
6	86.71	304.77
7	95.91	308.69
8	102.88	312.00

Circle Center At X = -6.9 ; Y = 536.2 and Radius, 249.6
*** 1.748 ***
Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.15	289.58

2	44.94	291.62
3	54.62	294.15
4	64.15	297.16
5	73.53	300.64
6	82.71	304.60
7	87.99	307.19

Circle Center At X = -.4 ; Y = 485.1 and Radius, 198.7

*** 1.748 ***

Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.35	289.65
2	45.14	291.69
3	54.80	294.30
4	64.28	297.48
5	73.56	301.20
6	82.09	305.23

Circle Center At X = 5.6 ; Y = 456.8 and Radius, 169.7

*** 1.749 ***

Expansion - South Phase II Section I Hardee County Landfill

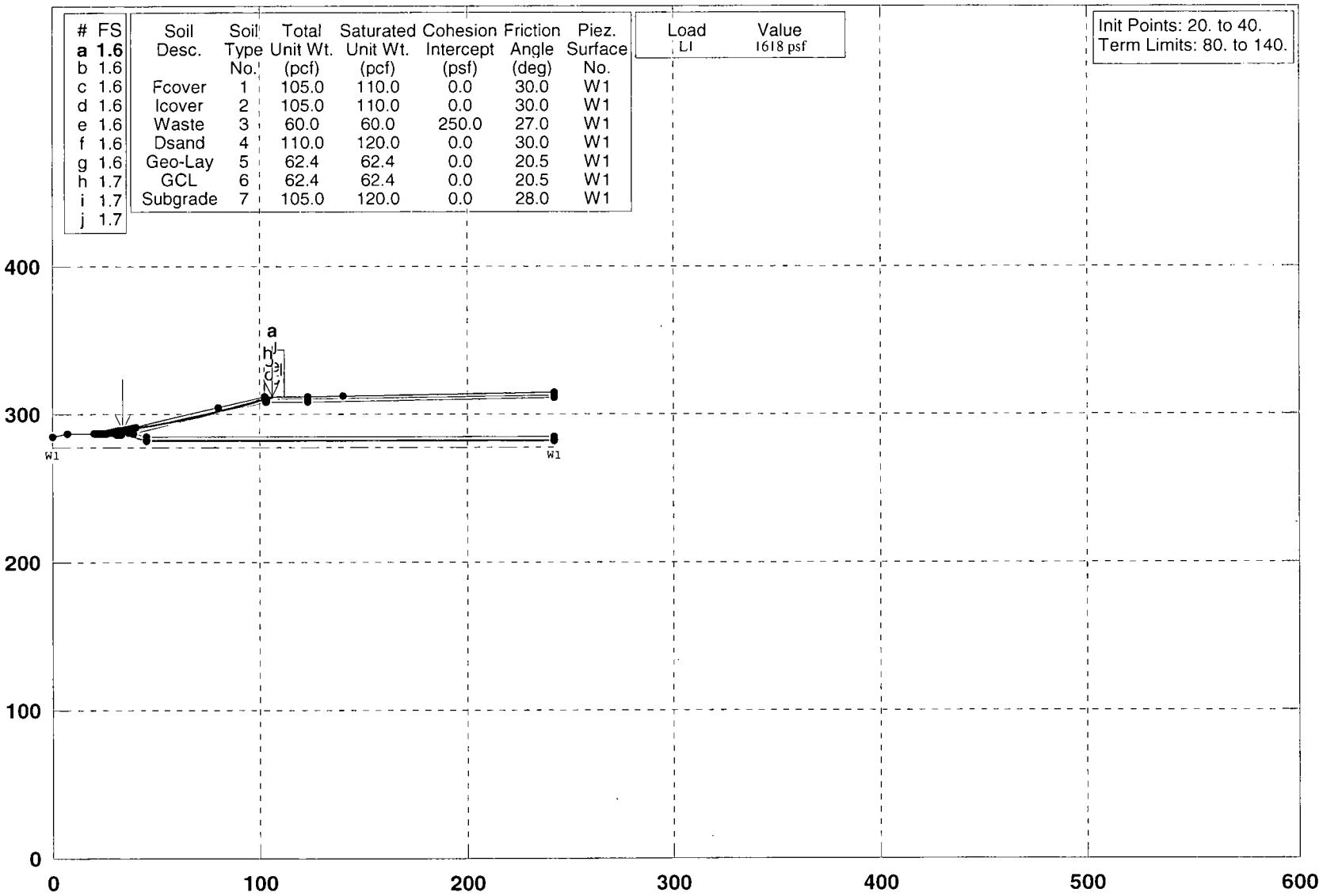
F:\PROJECT\HARDEE\09199033.20\CALCUL~1\SOUTH.PL2 Run By: Dominique H. Bramlett, P.E. 5/18/2010 3:14PM

#	FS
a	**1.6**
b	1.6
c	1.6
d	1.6
e	1.6
f	1.6
g	1.6
h	1.7
i	1.7
j	1.7

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

Load	Value
LI	1618 psf

Init Points: 20. to 40.
Term Limits: 80. to 140.



PCSTABL5M/si FSmin=1.6

Safety Factors Are Calculated By The Modified Bishop Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 5/18/2010
Time of Run: 3:14PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:south.
Output Filename: F:south.OUT
Unit: ENGLISH
Plotted Output Filename: F:south.PLT
PROBLEM DESCRIPTION Expansion - South Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
7 Top Boundaries
30 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	284.53	7.48	287.03	7
2	7.48	287.03	25.50	287.03	7
3	25.50	287.03	31.20	288.93	4
4	31.20	288.93	33.20	288.93	4
5	33.20	288.93	102.41	312.00	1
6	102.41	312.00	122.73	312.00	1
7	122.73	312.00	242.73	314.50	1
8	33.20	288.93	36.33	287.87	4
9	36.33	287.87	102.73	310.00	2
10	102.73	310.00	122.73	310.00	2
11	122.73	310.00	242.73	312.50	2
12	36.33	287.87	38.69	287.07	4
13	38.69	287.07	102.98	308.50	3
14	102.98	308.50	122.73	308.50	3
15	122.73	308.50	242.73	311.00	3
16	38.69	287.07	45.27	284.84	4
17	45.27	284.84	242.73	284.84	4
18	25.50	287.03	29.65	287.03	7
19	29.65	287.03	30.24	287.03	6
20	30.24	287.03	32.57	287.03	5
21	32.57	287.03	45.26	282.80	5
22	45.26	282.80	242.73	282.80	5
23	30.24	287.03	30.57	286.53	6
24	30.57	286.53	32.57	286.53	6
25	32.57	286.53	45.27	282.30	6
26	45.27	282.30	242.73	282.30	6
27	29.65	287.03	30.31	286.03	7
28	30.31	286.03	32.49	286.03	7
29	32.49	286.03	45.19	281.80	7
30	45.19	281.80	242.73	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)

```
     1           .00      277.50
     2        242.73      277.50
 BOUNDARY LOAD(S)
     1 Load(s) Specified
  Load        X-Left      X-Right     Intensity     Deflection
   No.         (ft)         (ft)       (psf)        (deg)
    1         102.41       111.91       1618.0          .0
  NOTE - Intensity Is Specified As A Uniformly Distributed
         Force Acting On A Horizontally Projected Surface.
  A Critical Failure Surface Searching Method, Using A Random
  Technique For Generating Circular Surfaces, Has Been Specified.
 5000 Trial Surfaces Have Been Generated.
   50 Surfaces Initiate From Each Of100 Points Equally Spaced
  Along The Ground Surface Between  X =  20.00 ft.
                                and  X =  40.00 ft.
  Each Surface Terminates Between   X =  80.00 ft.
                                and   X = 140.00 ft.
  Unless Further Limitations Were Imposed, The Minimum Elevation
  At Which A Surface Extends Is  Y =   .00 ft.
  10.00 ft. Line Segments Define Each Trial Failure Surface.
  Following Are Displayed The Ten Most Critical Of The Trial
        Failure Surfaces Examined.  They Are Ordered - Most Critical
        First.
        * * Safety Factors Are Calculated By The Modified Bishop Method * *
        Failure Surface Specified By  9 Coordinate Points
          Point      X-Surf      Y-Surf
           No.         (ft)        (ft)
            1         33.74      289.11
            2         43.56      291.00
            3         53.30      293.24
            4         62.97      295.81
            5         72.54      298.72
            6         82.00      301.96
            7         91.34      305.52
            8        100.55      309.41
            9        106.14      312.00
        Circle Center At X =  -15.7 ; Y =  572.1  and Radius,  287.3
             ***     1.617   ***
           Individual data on the    11  slices
                      Water  Water     Tie     Tie     Earthquake
                      Force  Force     Force   Force      Force   Surcharge
Slice  Width   Weight   Top    Bot     Norm    Tan      Hor     Ver     Load
 No.    (ft)    (lbs)  (lbs)  (lbs)   (lbs)   (lbs)    (lbs)   (lbs)   (lbs)
  1      9.8    711.0     .0     .0      .0      .0       .0      .0      .0
  2      7.0   1273.2     .0     .0      .0      .0       .0      .0      .0
  3      2.8    657.7     .0     .0      .0      .0       .0      .0      .0
  4      9.7   2758.3     .0     .0      .0      .0       .0      .0      .0
  5      9.6   3198.9     .0     .0      .0      .0       .0      .0      .0
  6      9.5   3261.3     .0     .0      .0      .0       .0      .0      .0
  7      9.3   2957.6     .0     .0      .0      .0       .0      .0      .0
  8      7.7   1976.9     .0     .0      .0      .0       .0      .0      .0
  9      1.5    325.7     .0     .0      .0      .0       .0      .0      .0
 10      1.9    360.9     .0     .0      .0      .0       .0      .0      .0
 11      3.7    338.5     .0     .0      .0      .0       .0      .0   6033.3
        Failure Surface Specified By  9 Coordinate Points
          Point      X-Surf      Y-Surf
           No.         (ft)        (ft)
            1         38.99      290.86
            2         48.80      292.82
            3         58.53      295.09
            4         68.19      297.69
            5         77.76      300.60
            6         87.22      303.83
            7         96.58      307.36
            8        105.81      311.20
            9        107.57      312.00
        Circle Center At X =  -15.6 ; Y =  590.2  and Radius,  304.3
```

*** 1.630 ***
Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.15	289.58
2	44.92	291.74
3	54.61	294.19
4	64.23	296.94
5	73.75	299.98
6	83.18	303.31
7	92.51	306.92
8	101.72	310.81
9	104.30	312.00

Circle Center At X = -30.9 ; Y = 611.6 and Radius, 328.8

*** 1.635 ***
Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	39.60	291.06
2	49.42	292.95
3	59.17	295.16
4	68.84	297.70
5	78.42	300.56
6	87.91	303.73
7	97.28	307.22
8	106.53	311.01
9	108.73	312.00

Circle Center At X = -12.4 ; Y = 587.7 and Radius, 301.2

*** 1.639 ***
Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.76	289.78
2	45.52	291.94
3	55.23	294.34
4	64.88	296.98
5	74.45	299.87
6	83.95	303.00
7	93.36	306.37
8	102.69	309.98
9	107.54	312.00

Circle Center At X = -44.3 ; Y = 676.0 and Radius, 394.4

*** 1.642 ***
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.49	288.03
2	38.33	289.77
3	48.11	291.87
4	57.80	294.32
5	67.40	297.13
6	76.89	300.29
7	86.26	303.78
8	95.49	307.62
9	104.58	311.80
10	104.98	312.00

Circle Center At X = -14.3 ; Y = 558.5 and Radius, 273.8

*** 1.644 ***
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	39.60	291.06
2	49.37	293.17
3	59.07	295.62
4	68.67	298.40
5	78.18	301.52
6	87.56	304.96

7	96.83	308.72
8	104.16	312.00

Circle Center At X = -15.9 ; Y = 572.2 and Radius, 286.5

*** 1.644 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	39.39	290.99
2	49.24	292.76
3	58.99	294.99
4	68.62	297.67
5	78.12	300.80
6	87.45	304.38
7	96.61	308.40
8	103.89	312.00

Circle Center At X = 7.1 ; Y = 499.5 and Radius, 211.0

*** 1.652 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	27.07	287.55
2	36.84	289.70
3	46.56	292.06
4	56.22	294.63
5	65.82	297.42
6	75.36	300.42
7	84.83	303.63
8	94.23	307.06
9	103.54	310.69
10	106.70	312.00

Circle Center At X = -63.7 ; Y = 725.0 and Radius, 446.8

*** 1.655 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	36.97	290.19
2	46.71	292.47
3	56.39	294.97
4	66.02	297.68
5	75.58	300.59
6	85.08	303.72
7	94.51	307.06
8	103.86	310.60
9	107.32	312.00

Circle Center At X = -62.2 ; Y = 735.0 and Radius, 455.7

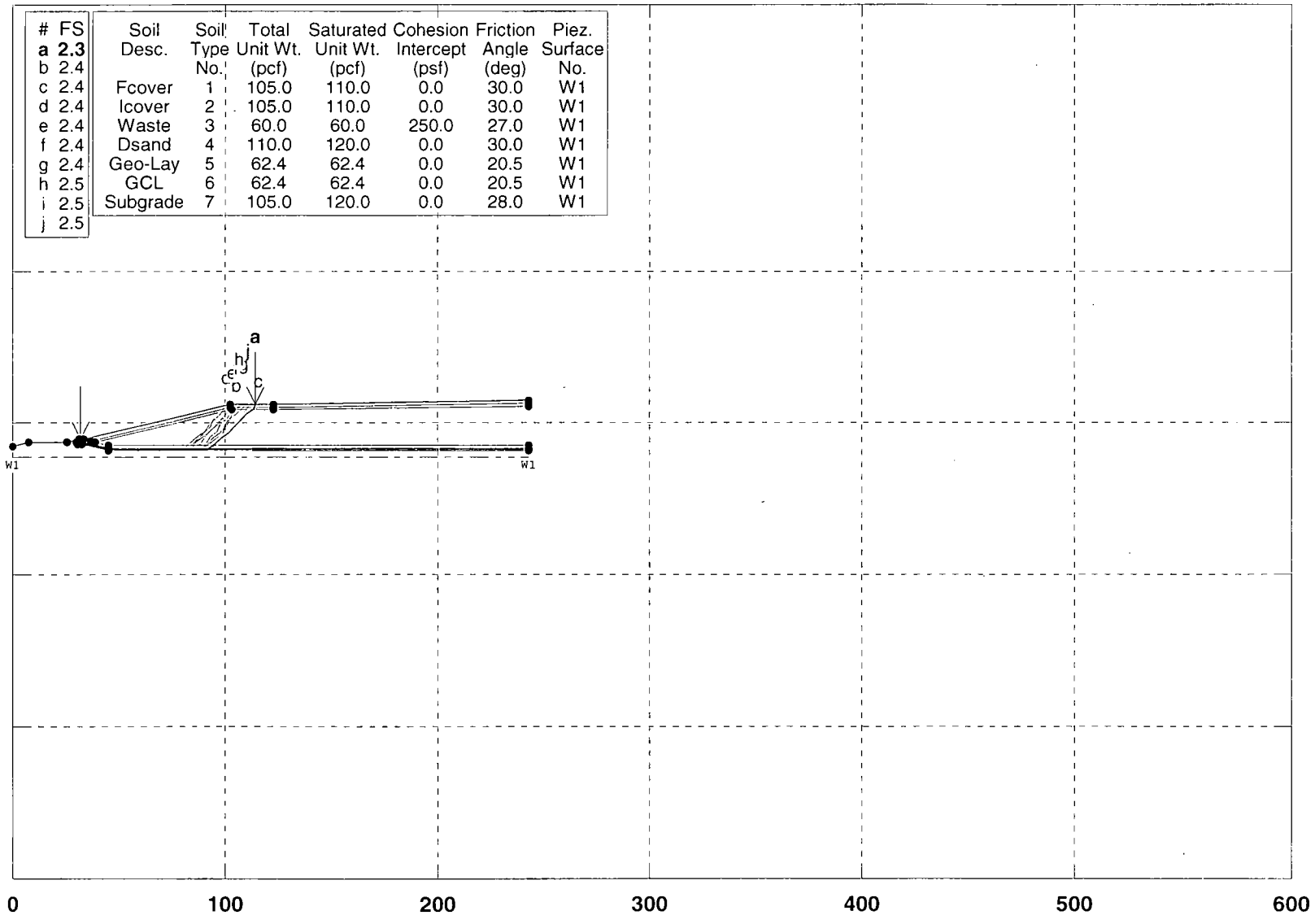
*** 1.661 ***

Expansion - South Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\BSOUTH.PL2 Run By: Dominique H. Bramlett, P.E. 4/2/2010 9:38AM

#	FS
a	**2.3**
b	2.4
c	2.4
d	2.4
e	2.4
f	2.4
g	2.4
h	2.5
i	2.5
j	2.5

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1



PCSTABL5M/si FSmin=2.3

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 4/2/2010
Time of Run: 9:38AM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:BSOUTH.
Output Filename: F:BSOUTH.OUT
Unit: ENGLISH
Plotted Output Filename: F:BSOUTH.PLT
PROBLEM DESCRIPTION Expansion - South Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
7 Top Boundaries
30 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	284.53	7.48	287.03	7
2	7.48	287.03	25.50	287.03	7
3	25.50	287.03	31.20	288.93	4
4	31.20	288.93	33.20	288.93	4
5	33.20	288.93	102.41	312.00	1
6	102.41	312.00	122.73	312.00	1
7	122.73	312.00	242.73	314.50	1
8	33.20	288.93	36.33	287.87	4
9	36.33	287.87	102.73	310.00	2
10	102.73	310.00	122.73	310.00	2
11	122.73	310.00	242.73	312.50	2
12	36.33	287.87	38.69	287.07	4
13	38.69	287.07	102.98	308.50	3
14	102.98	308.50	122.73	308.50	3
15	122.73	308.50	242.73	311.00	3
16	38.69	287.07	45.27	284.84	4
17	45.27	284.84	242.73	284.84	4
18	25.50	287.03	29.65	287.03	7
19	29.65	287.03	30.24	287.03	6
20	30.24	287.03	32.57	287.03	5
21	32.57	287.03	45.26	282.80	5
22	45.26	282.80	242.73	282.80	5
23	30.24	287.03	30.57	286.53	6
24	30.57	286.53	32.57	286.53	6
25	32.57	286.53	45.27	282.30	6
26	45.27	282.30	242.73	282.30	6
27	29.65	287.03	30.31	286.03	7
28	30.31	286.03	32.49	286.03	7
29	32.49	286.03	45.19	281.80	7
30	45.19	281.80	242.73	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)

1	.00	277.50
2	242.73	277.50

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 5.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	33.29	286.29	44.56	282.54	.50
2	45.85	282.30	50.85	282.30	.50
3	55.85	282.30	112.41	282.30	.50

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	31.79	288.93
2	33.58	287.46
3	37.75	284.70
4	47.72	282.38
5	91.42	282.32
6	94.93	285.88
7	98.14	289.71
8	101.51	293.41
9	104.43	297.46
10	107.04	301.73
11	110.03	305.74
12	113.21	309.59
13	114.14	312.00

*** 2.334 ***

Individual data on the 28 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	1.4	89.8	.0	.0	.0	.0	.0	.0	.0
2	.4	57.1	.0	.0	.0	.0	.0	.0	.0
3	2.3	691.1	.0	.0	.0	.0	.0	.0	.0
4	.4	189.9	.0	.0	.0	.0	.0	.0	.0
5	1.1	552.6	.0	.0	.0	.0	.0	.0	.0
6	.3	189.8	.0	.0	.0	.0	.0	.0	.0
7	.9	583.1	.0	.0	.0	.0	.0	.0	.0
8	.1	88.1	.0	.0	.0	.0	.0	.0	.0
9	4.9	3617.2	.0	.0	.0	.0	.0	.0	.0
10	1.5	1277.4	.0	.0	.0	.0	.0	.0	.0
11	.6	569.0	.0	.0	.0	.0	.0	.0	.0
12	1.8	1655.8	.0	.0	.0	.0	.0	.0	.0
13	43.7	60800.3	.0	.0	.0	.0	.0	.0	.0
14	.5	867.7	.0	.0	.0	.0	.0	.0	.0
15	2.0	3453.0	.0	.0	.0	.0	.0	.0	.0
16	1.0	1640.7	.0	.0	.0	.0	.0	.0	.0
17	3.2	4827.6	.0	.0	.0	.0	.0	.0	.0
18	3.4	4509.5	.0	.0	.0	.0	.0	.0	.0
19	.9	1116.5	.0	.0	.0	.0	.0	.0	.0
20	.3	381.0	.0	.0	.0	.0	.0	.0	.0
21	.3	290.7	.0	.0	.0	.0	.0	.0	.0
22	1.4	1579.4	.0	.0	.0	.0	.0	.0	.0
23	2.6	2352.4	.0	.0	.0	.0	.0	.0	.0
24	3.0	1954.0	.0	.0	.0	.0	.0	.0	.0
25	2.3	1029.1	.0	.0	.0	.0	.0	.0	.0
26	.9	279.5	.0	.0	.0	.0	.0	.0	.0
27	.2	36.6	.0	.0	.0	.0	.0	.0	.0

28 .8 80.9 .0 .0 .0 .0 .0 .0 .0

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.30	288.96
2	34.48	287.80
3	38.40	284.69
4	49.19	282.16
5	83.42	282.54
6	85.96	286.85
7	89.07	290.77
8	92.60	294.30
9	95.53	298.35
10	98.48	302.40
11	100.72	306.86
12	103.95	310.68
13	105.27	312.00

*** 2.381 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.34	288.64
2	31.97	287.05
3	36.69	285.40
4	47.90	282.43
5	92.95	282.39
6	96.39	286.02
7	99.88	289.60
8	103.36	293.20
9	105.87	297.52
10	108.15	301.97
11	111.68	305.51
12	114.88	309.35
13	115.31	312.00

*** 2.404 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.63	288.74
2	32.34	287.28
3	37.14	285.87
4	41.58	283.57
5	48.64	282.51
6	78.82	282.31
7	82.36	285.84
8	85.63	289.63
9	89.14	293.18
10	92.56	296.83
11	94.05	301.60
12	97.24	305.45
13	99.84	309.73
14	100.23	311.27

*** 2.420 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.47	288.69
2	33.31	286.44
3	50.48	282.42
4	80.65	282.16
5	84.08	285.79
6	87.24	289.67
7	90.29	293.63
8	92.22	298.24
9	95.47	302.04
10	98.20	306.23
11	101.68	309.82

12	102.79	312.00

*** 2.424 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	31.12	288.90
2	31.92	288.55
3	35.68	285.25
4	48.83	282.39
5	84.57	282.09
6	88.10	285.63
7	90.07	290.23
8	92.50	294.59
9	96.01	298.16
10	98.61	302.43
11	101.00	306.82
12	104.34	310.54
13	104.99	312.00

*** 2.428 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.36	287.98
2	28.77	287.60
3	33.56	286.17
4	49.20	282.49
5	87.63	282.25
6	91.05	285.90
7	94.35	289.65
8	97.41	293.61
9	100.62	297.45
10	102.48	302.08
11	103.63	306.95
12	106.99	310.65
13	108.34	312.00

*** 2.442 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	32.15	288.93
2	33.33	287.92
3	37.33	284.93
4	42.01	283.16
5	46.76	282.43
6	87.16	282.50
7	90.69	286.04
8	92.89	290.53
9	96.23	294.26
10	97.52	299.09
11	100.85	302.81
12	102.95	307.35
13	106.48	310.89
14	106.80	312.00

*** 2.462 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.29	288.63
2	33.08	286.71
3	37.77	284.98
4	47.49	282.12
5	93.30	282.31
6	95.43	286.83
7	98.82	290.51
8	102.15	294.24
9	103.87	298.93
10	107.35	302.53

11	109.11	307.21
12	111.32	311.69
13	111.46	312.00
***	2.463	***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.82	288.80
2	34.48	285.67
3	49.17	282.07
4	88.50	282.06
5	92.01	285.63
6	95.52	289.19
7	99.02	292.76
8	99.84	297.69
9	102.04	302.18
10	105.08	306.15
11	108.61	309.70
12	110.84	312.00
***	2.515	***

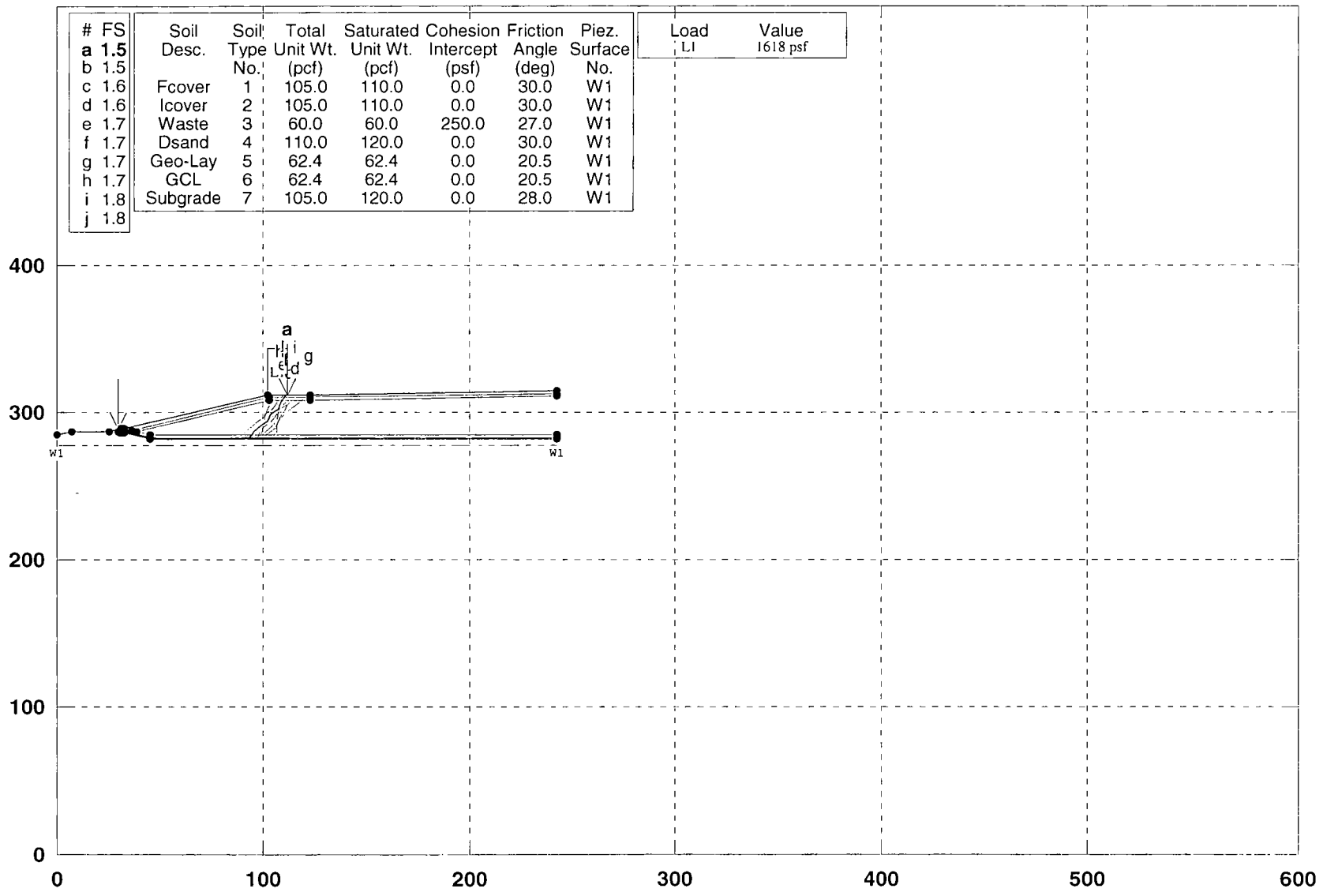
Expansion - South Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\BSOUTH.PL2 Run By: Dominique H. Bramlett, P.E. 5/18/2010 3:16PM

#	FS
a	**1.5**
b	1.5
c	1.6
d	1.6
e	1.7
f	1.7
g	1.7
h	1.7
i	1.8
j	1.8

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

Load	Value
LI	1618 psf



PCSTABL5M/si FSmin=1.5

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 5/18/2010
Time of Run: 3:16PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:bsouth.
Output Filename: F:bsouth.OUT
Unit: ENGLISH
Plotted Output Filename: F:bsouth.PLT
PROBLEM DESCRIPTION Expansion - South Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
7 Top Boundaries
30 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	284.53	7.48	287.03	7
2	7.48	287.03	25.50	287.03	7
3	25.50	287.03	31.20	288.93	4
4	31.20	288.93	33.20	288.93	4
5	33.20	288.93	102.41	312.00	1
6	102.41	312.00	122.73	312.00	1
7	122.73	312.00	242.73	314.50	1
8	33.20	288.93	36.33	287.87	4
9	36.33	287.87	102.73	310.00	2
10	102.73	310.00	122.73	310.00	2
11	122.73	310.00	242.73	312.50	2
12	36.33	287.87	38.69	287.07	4
13	38.69	287.07	102.98	308.50	3
14	102.98	308.50	122.73	308.50	3
15	122.73	308.50	242.73	311.00	3
16	38.69	287.07	45.27	284.84	4
17	45.27	284.84	242.73	284.84	4
18	25.50	287.03	29.65	287.03	7
19	29.65	287.03	30.24	287.03	6
20	30.24	287.03	32.57	287.03	5
21	32.57	287.03	45.26	282.80	5
22	45.26	282.80	242.73	282.80	5
23	30.24	287.03	30.57	286.53	6
24	30.57	286.53	32.57	286.53	6
25	32.57	286.53	45.27	282.30	6
26	45.27	282.30	242.73	282.30	6
27	29.65	287.03	30.31	286.03	7
28	30.31	286.03	32.49	286.03	7
29	32.49	286.03	45.19	281.80	7
30	45.19	281.80	242.73	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)

1	.00	277.50
2	242.73	277.50

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	102.00	111.91	1618.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 5.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	33.29	286.29	44.56	282.54	.50
2	45.85	282.30	50.85	282.30	.50
3	55.85	282.30	112.41	282.30	.50

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.29	288.63
2	33.08	286.71
3	37.77	284.98
4	47.49	282.12
5	93.30	282.31
6	95.43	286.83
7	98.82	290.51
8	102.15	294.24
9	103.87	298.93
10	107.35	302.53
11	109.11	307.21
12	111.32	311.69
13	111.46	312.00

*** 1.504 ***

Individual data on the 29 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	.9	46.2	.0	.0	.0	.0	.0	.0	.0
2	1.5	229.8	.0	.0	.0	.0	.0	.0	.0
3	.4	93.2	.0	.0	.0	.0	.0	.0	.0
4	.1	29.2	.0	.0	.0	.0	.0	.0	.0
5	3.1	1109.6	.0	.0	.0	.0	.0	.0	.0
6	1.4	747.3	.0	.0	.0	.0	.0	.0	.0
7	.9	555.1	.0	.0	.0	.0	.0	.0	.0
8	6.6	4967.2	.0	.0	.0	.0	.0	.0	.0
9	.0	8.8	.0	.0	.0	.0	.0	.0	.0
10	1.6	1472.2	.0	.0	.0	.0	.0	.0	.0
11	.6	575.8	.0	.0	.0	.0	.0	.0	.0
12	42.6	59015.7	.0	.0	.0	.0	.0	.0	.0
13	3.2	5844.0	.0	.0	.0	.0	.0	.0	.0
14	.2	427.5	.0	.0	.0	.0	.0	.0	.0
15	1.0	1680.3	.0	.0	.0	.0	.0	.0	.0
16	.9	1496.9	.0	.0	.0	.0	.0	.0	.0
17	3.4	4937.8	.0	.0	.0	.0	.0	.0	.0
18	3.2	4165.0	.0	.0	.0	.0	.0	.0	.0
19	.2	189.1	.0	.0	.0	.0	.0	.0	248.8
20	.3	309.6	.0	.0	.0	.0	.0	.0	414.6

21	.3	371.5	.0	.0	.0	.0	.0	.0	517.7
22	.3	277.5	.0	.0	.0	.0	.0	.0	404.5
23	.9	905.2	.0	.0	.0	.0	.0	.0	1443.6
24	3.5	2898.7	.0	.0	.0	.0	.0	.0	5626.0
25	1.8	1032.6	.0	.0	.0	.0	.0	.0	2853.6
26	.6	259.0	.0	.0	.0	.0	.0	.0	1031.5
27	.7	213.4	.0	.0	.0	.0	.0	.0	1195.5
28	.8	101.0	.0	.0	.0	.0	.0	.0	1347.9
29	.1	2.3	.0	.0	.0	.0	.0	.0	226.8

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	31.79	288.93
2	33.58	287.46
3	37.75	284.70
4	47.72	282.38
5	91.42	282.32
6	94.93	285.88
7	98.14	289.71
8	101.51	293.41
9	104.43	297.46
10	107.04	301.73
11	110.03	305.74
12	113.21	309.59
13	114.14	312.00
***	1.537	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.46	287.03
2	27.91	285.08
3	32.91	285.01
4	37.89	284.60
5	49.35	282.16
6	96.79	282.11
7	98.88	286.65
8	101.23	291.06
9	102.88	295.78
10	104.59	300.48
11	107.06	304.83
12	109.99	308.88
13	112.80	312.00
***	1.574	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.34	288.64
2	31.97	287.05
3	36.69	285.40
4	47.90	282.43
5	92.95	282.39
6	96.39	286.02
7	99.88	289.60
8	103.36	293.20
9	105.87	297.52
10	108.15	301.97
11	111.68	305.51
12	114.88	309.35
13	115.31	312.00
***	1.588	***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	29.79	288.46
2	33.51	286.02
3	48.45	282.08
4	97.55	282.13

5	100.60	286.09
6	103.56	290.12
7	106.31	294.29
8	107.31	299.19
9	107.82	304.17
10	108.73	309.08
11	109.17	312.00
***	1.679	***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.66	288.75
2	33.49	286.24
3	48.68	282.34
4	95.67	282.13
5	99.00	285.87
6	99.91	290.78
7	102.29	295.18
8	103.41	300.05
9	105.64	304.53
10	108.95	308.28
11	111.02	312.00
***	1.684	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.47	288.69
2	31.07	288.11
3	35.35	285.53
4	48.39	282.24
5	99.29	282.26
6	102.70	285.92
7	106.16	289.53
8	107.33	294.39
9	109.92	298.67
10	113.25	302.39
11	116.47	306.22
12	119.98	309.78
13	122.04	312.00
***	1.686	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.36	287.98
2	28.77	287.60
3	33.56	286.17
4	49.20	282.49
5	87.63	282.25
6	91.05	285.90
7	94.35	289.65
8	97.41	293.61
9	100.62	297.45
10	102.48	302.08
11	103.63	306.95
12	106.99	310.65
13	108.34	312.00
***	1.734	***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.08	287.89
2	29.20	287.00
3	34.08	285.90
4	46.42	282.36
5	103.49	282.43
6	106.35	286.53
7	106.79	291.51

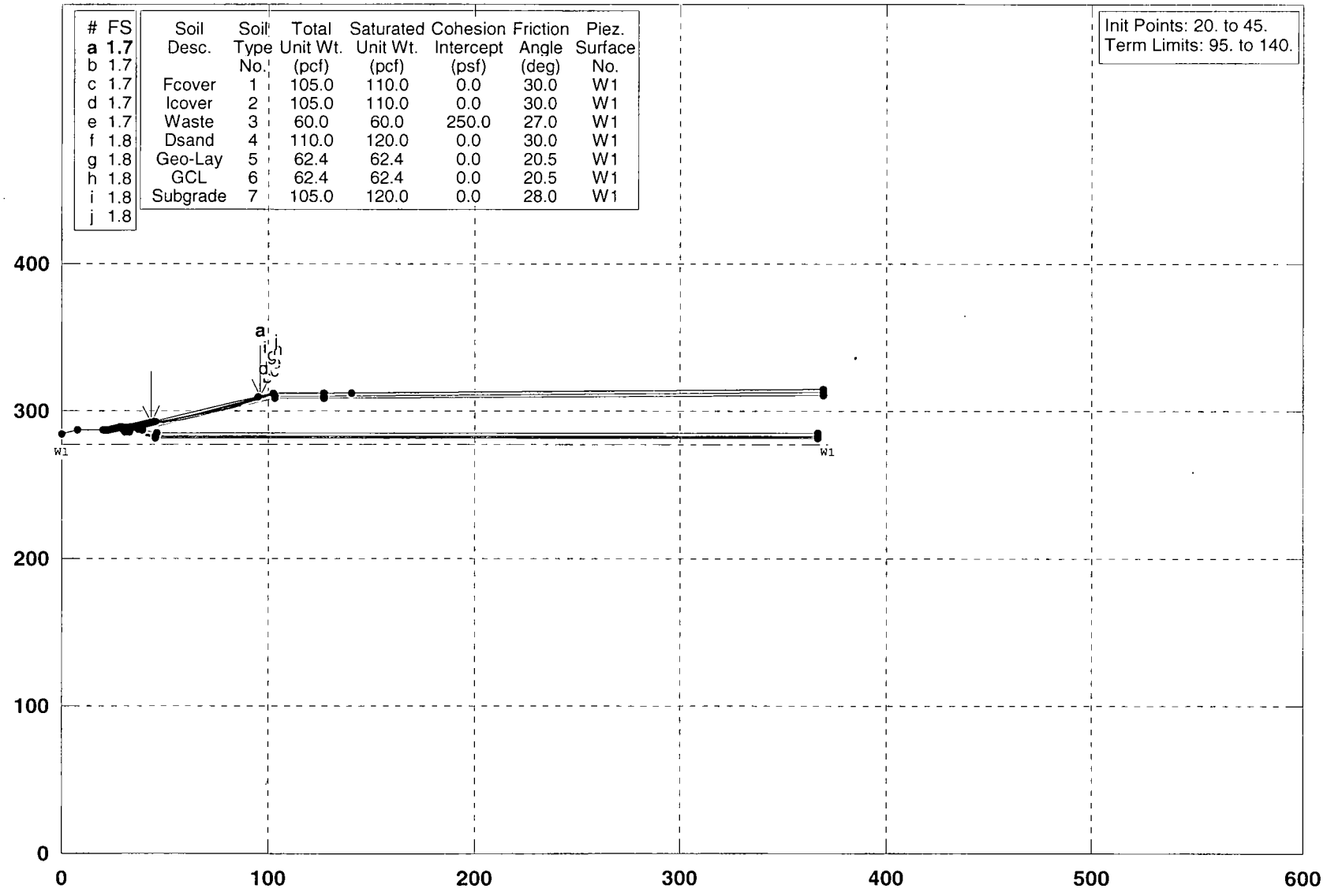
8	108.09	296.34
9	110.16	300.89
10	112.03	305.53
11	114.64	309.79
12	115.38	312.00
***	1.752	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	29.51	288.37
2	30.21	287.77
3	34.84	285.90
4	47.96	282.27
5	91.21	282.27
6	94.25	286.23
7	97.13	290.32
8	100.57	293.95
9	100.96	298.93
10	104.33	302.62
11	106.67	307.04
12	109.22	311.34
13	109.88	312.00
***	1.760	***

Expansion - West Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\WEST.PL2 Run By: Dominique H. Bramlett, P.E. 4/1/2010 4:20PM



#	FS	Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
a	**1.7**							
b	1.7							
c	1.7	Fcover	1	105.0	110.0	0.0	30.0	W1
d	1.7	Icover	2	105.0	110.0	0.0	30.0	W1
e	1.7	Waste	3	60.0	60.0	250.0	27.0	W1
f	1.8	Dsand	4	110.0	120.0	0.0	30.0	W1
g	1.8	Geo-Lay	5	62.4	62.4	0.0	20.5	W1
h	1.8	GCL	6	62.4	62.4	0.0	20.5	W1
i	1.8	Subgrade	7	105.0	120.0	0.0	28.0	W1
j	1.8							

PCSTABL5M/si FSmin=1.7

Safety Factors Are Calculated By The Modified Bishop Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 4/1/2010
Time of Run: 4:20PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:WEST.
Output Filename: F:WEST.OUT
Unit: ENGLISH
Plotted Output Filename: F:WEST.PLT
PROBLEM DESCRIPTION Expansion - West Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
8 Top Boundaries
31 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	284.53	7.50	287.03	7
2	7.50	287.03	22.50	287.03	7
3	22.50	287.03	28.20	288.93	4
4	28.20	288.93	33.20	288.93	4
5	33.20	288.93	33.31	288.89	4
6	33.31	288.89	102.64	312.00	1
7	102.64	312.00	126.45	312.00	1
8	126.45	312.00	369.71	314.50	1
9	33.31	288.89	36.45	287.83	4
10	36.45	287.83	102.96	310.00	2
11	102.96	310.00	126.46	310.00	2
12	126.46	310.00	369.71	312.50	2
13	36.45	287.83	38.80	287.03	4
14	38.80	287.03	103.21	308.50	3
15	103.21	308.50	126.47	308.50	3
16	126.47	308.50	369.71	311.00	3
17	38.80	287.03	45.38	284.80	4
18	45.38	284.80	366.78	284.80	4
19	22.50	287.03	29.63	287.03	7
20	29.63	287.03	30.22	287.03	6
21	30.22	287.03	32.55	287.03	5
22	32.55	287.03	45.24	282.80	5
23	45.24	282.80	366.78	282.80	5
24	30.22	287.03	30.55	286.53	6
25	30.55	286.53	32.55	286.53	6
26	32.55	286.53	45.25	282.30	6
27	45.25	282.30	366.78	282.30	6
28	29.63	287.03	30.29	286.03	7
29	30.29	286.03	32.47	286.03	7
30	32.47	286.03	45.17	281.80	7
31	45.17	281.80	366.78	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point	X-Water	Y-Water

No.	(ft)	(ft)
1	.00	277.50
2	371.21	277.50

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
5000 Trial Surfaces Have Been Generated.
50 Surfaces Initiate From Each Of100 Points Equally Spaced Along The Ground Surface Between X = 20.00 ft.
and X = 45.00 ft.
Each Surface Terminates Between X = 95.00 ft.
and X = 140.00 ft.
Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.
10.00 ft. Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.98	292.11
2	52.73	294.35
3	62.37	296.99
4	71.90	300.03
5	81.30	303.45
6	90.54	307.26
7	96.10	309.82

Circle Center At X = -6.5 ; Y = 529.9 and Radius, 242.8
*** 1.743 ***
Individual data on the 6 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	9.7	516.1	.0	.0	.0	.0	.0	.0	.0
2	9.6	1313.2	.0	.0	.0	.0	.0	.0	.0
3	9.5	1656.4	.0	.0	.0	.0	.0	.0	.0
4	9.4	1559.3	.0	.0	.0	.0	.0	.0	.0
5	9.2	1040.6	.0	.0	.0	.0	.0	.0	.0
6	5.6	207.0	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.40	289.59
2	45.17	291.76
3	54.84	294.28
4	64.43	297.13
5	73.90	300.33
6	83.26	303.85
7	92.49	307.71
8	99.63	311.00

Circle Center At X = -20.7 ; Y = 564.8 and Radius, 280.9
*** 1.743 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.89	289.08
2	43.64	291.32
3	53.31	293.84
4	62.91	296.64
5	72.43	299.73
6	81.84	303.09
7	91.16	306.72
8	100.36	310.63
9	103.34	312.00

Circle Center At X = -37.4 ; Y = 622.3 and Radius, 340.7

*** 1.743 ***
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	39.44	290.93
2	49.23	292.98
3	58.92	295.46
4	68.49	298.37
5	77.92	301.70
6	87.19	305.45
7	96.28	309.62
8	97.72	310.36

Circle Center At X = -.9 ; Y = 509.0 and Radius, 221.8

*** 1.747 ***
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.98	292.11
2	52.74	294.28
3	62.42	296.80
4	72.00	299.66
5	81.48	302.86
6	90.83	306.40
7	100.05	310.27
8	103.80	312.00

Circle Center At X = -11.9 ; Y = 563.0 and Radius, 276.3

*** 1.749 ***
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	41.47	291.61
2	51.28	293.52
3	61.00	295.88
4	70.59	298.70
5	80.05	301.96
6	89.34	305.66
7	98.44	309.79
8	102.77	312.00

Circle Center At X = 6.1 ; Y = 500.2 and Radius, 211.6

*** 1.750 ***
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	37.68	290.35
2	47.52	292.12
3	57.26	294.39
4	66.88	297.13
5	76.35	300.34
6	85.64	304.02
7	94.75	308.15
8	101.48	311.61

Circle Center At X = 6.9 ; Y = 488.9 and Radius, 201.0

*** 1.754 ***
Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.91	289.76
2	45.64	292.05
3	55.31	294.60
4	64.91	297.40
5	74.44	300.45
6	83.88	303.74
7	93.23	307.27
8	102.49	311.05
9	104.67	312.00

Circle Center At X = -48.0 ; Y = 667.1 and Radius, 386.5

*** 1.755 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.38	288.91
2	43.27	290.44
3	53.05	292.52
4	62.69	295.16
5	72.17	298.35
6	81.45	302.07
7	90.51	306.32
8	98.41	310.59

Circle Center At X = 11.8 ; Y = 462.1 and Radius, 174.5

*** 1.763 ***

Failure Surface Specified By 8 Coordinate Points

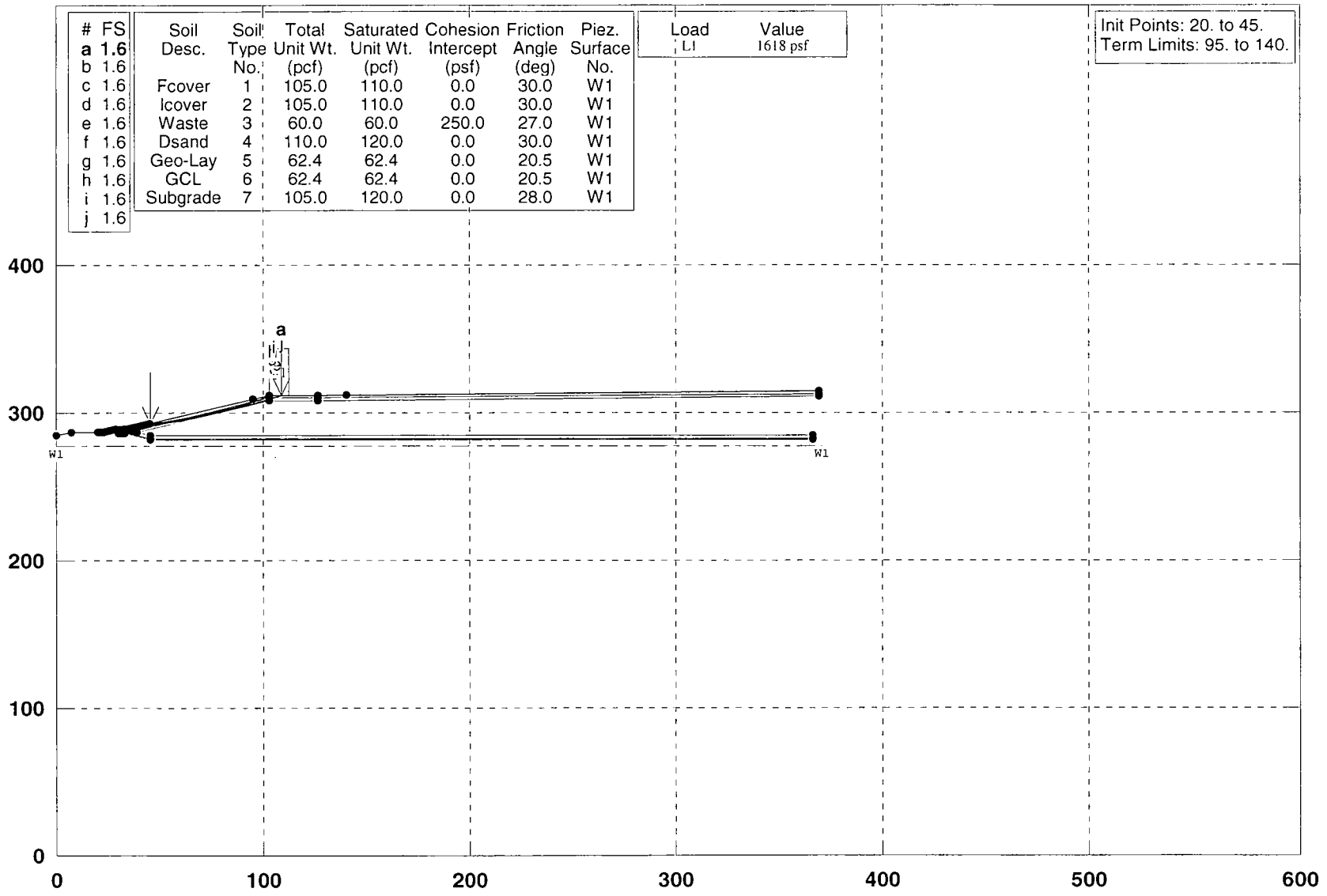
Point No.	X-Surf (ft)	Y-Surf (ft)
1	44.75	292.70
2	54.61	294.35
3	64.37	296.55
4	73.98	299.30
5	83.42	302.59
6	92.66	306.42
7	101.67	310.76
8	103.92	312.00

Circle Center At X = 21.0 ; Y = 465.8 and Radius, 174.7

*** 1.765 ***

Expansion - West Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\WEST.PL2 Run By: Dominique H. Bramlett, P.E. 5/18/2010 3:17PM



#	FS
a	1.6
b	1.6
c	1.6
d	1.6
e	1.6
f	1.6
g	1.6
h	1.6
i	1.6
j	1.6

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

PCSTABL5M/si FSmin=1.6

Safety Factors Are Calculated By The Modified Bishop Method

SCS ENGINEERS

** PCSTABL5M **
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 5/18/2010
Time of Run: 3:17PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:west.
Output Filename: F:west.OUT
Unit: ENGLISH
Plotted Output Filename: F:west.PLT
PROBLEM DESCRIPTION Expansion - West Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
8 Top Boundaries
31 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	284.53	7.50	287.03	7
2	7.50	287.03	22.50	287.03	7
3	22.50	287.03	28.20	288.93	4
4	28.20	288.93	33.20	288.93	4
5	33.20	288.93	33.31	288.89	4
6	33.31	288.89	102.64	312.00	1
7	102.64	312.00	126.45	312.00	1
8	126.45	312.00	369.71	314.50	1
9	33.31	288.89	36.45	287.83	4
10	36.45	287.83	102.96	310.00	2
11	102.96	310.00	126.46	310.00	2
12	126.46	310.00	369.71	312.50	2
13	36.45	287.83	38.80	287.03	4
14	38.80	287.03	103.21	308.50	3
15	103.21	308.50	126.47	308.50	3
16	126.47	308.50	369.71	311.00	3
17	38.80	287.03	45.38	284.80	4
18	45.38	284.80	366.78	284.80	4
19	22.50	287.03	29.63	287.03	7
20	29.63	287.03	30.22	287.03	6
21	30.22	287.03	32.55	287.03	5
22	32.55	287.03	45.24	282.80	5
23	45.24	282.80	366.78	282.80	5
24	30.22	287.03	30.55	286.53	6
25	30.55	286.53	32.55	286.53	6
26	32.55	286.53	45.25	282.30	6
27	45.25	282.30	366.78	282.30	6
28	29.63	287.03	30.29	286.03	7
29	30.29	286.03	32.47	286.03	7
30	32.47	286.03	45.17	281.80	7
31	45.17	281.80	366.78	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point	X-Water	Y-Water

No.	(ft)	(ft)
1	.00	277.50
2	371.21	277.50

BOUNDARY LOAD(S)
1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	102.64	112.14	1618.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
5000 Trial Surfaces Have Been Generated.
50 Surfaces Initiate From Each Of100 Points Equally Spaced
Along The Ground Surface Between X = 20.00 ft.
and X = 45.00 ft.
Each Surface Terminates Between X = 95.00 ft.
and X = 140.00 ft.
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = .00 ft.
10.00 ft. Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	45.00	292.79
2	54.85	294.49
3	64.63	296.61
4	74.30	299.15
5	83.86	302.09
6	93.28	305.44
7	102.55	309.19
8	108.74	312.00

Circle Center At X = 10.4 ; Y = 523.0 and Radius, 232.8
*** 1.596 ***
Individual data on the 11 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	9.9	818.2	.0	.0	.0	.0	.0	.0	.0
2	4.5	874.2	.0	.0	.0	.0	.0	.0	.0
3	5.3	1331.8	.0	.0	.0	.0	.0	.0	.0
4	9.7	3110.9	.0	.0	.0	.0	.0	.0	.0
5	9.6	3540.0	.0	.0	.0	.0	.0	.0	.0
6	9.4	3506.6	.0	.0	.0	.0	.0	.0	.0
7	9.3	3029.5	.0	.0	.0	.0	.0	.0	.0
8	.1	26.0	.0	.0	.0	.0	.0	.0	.0
9	.3	90.7	.0	.0	.0	.0	.0	.0	517.8
10	1.4	335.3	.0	.0	.0	.0	.0	.0	2233.0
11	4.4	462.0	.0	.0	.0	.0	.0	.0	7118.4

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	45.00	292.79
2	54.76	294.95
3	64.45	297.42
4	74.06	300.20
5	83.57	303.29
6	92.98	306.67
7	102.28	310.36
8	106.07	312.00

Circle Center At X = -17.1 ; Y = 596.9 and Radius, 310.4
*** 1.608 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.15	289.50
2	44.97	291.41
3	54.71	293.66
4	64.37	296.26
5	73.93	299.20
6	83.37	302.47
7	92.70	306.09
8	101.89	310.03
9	106.07	312.00

Circle Center At X = -13.4 ; Y = 566.0 and Radius, 280.8

*** 1.610 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	36.67	290.01
2	46.51	291.78
3	56.27	293.97
4	65.92	296.57
5	75.46	299.57
6	84.86	302.98
7	94.11	306.78
8	103.20	310.96
9	105.22	312.00

Circle Center At X = -.4 ; Y = 523.8 and Radius, 236.7

*** 1.613 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	40.71	291.36
2	50.50	293.39
3	60.22	295.75
4	69.85	298.43
5	79.39	301.44
6	88.82	304.76
7	98.13	308.40
8	106.52	312.00

Circle Center At X = -14.8 ; Y = 583.7 and Radius, 297.5

*** 1.627 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	44.75	292.70
2	54.61	294.35
3	64.37	296.55
4	73.98	299.30
5	83.42	302.59
6	92.66	306.42
7	101.67	310.76
8	103.92	312.00

Circle Center At X = 21.0 ; Y = 465.8 and Radius, 174.7

*** 1.631 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.91	289.76
2	45.64	292.05
3	55.31	294.60
4	64.91	297.40
5	74.44	300.45
6	83.88	303.74
7	93.23	307.27
8	102.49	311.05
9	104.67	312.00

Circle Center At X = -48.0 ; Y = 667.1 and Radius, 386.5

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     ***     1.636   ***
Failure Surface Specified By  9 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1         34.65      289.34
    2         44.51      290.98
    3         54.29      293.08
    4         63.96      295.63
    5         73.50      298.63
    6         82.89      302.06
    7         92.11      305.92
    8        101.15      310.21
    9        104.52      312.00
Circle Center At X =    4.0 ; Y =  503.4  and Radius,  216.3
     ***     1.636   ***
Failure Surface Specified By  8 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1         40.71      291.36
    2         50.46      293.59
    3         60.14      296.10
    4         69.74      298.89
    5         79.26      301.95
    6         88.68      305.29
    7         98.01      308.90
    8        105.40      312.00
Circle Center At X =  -31.2 ; Y =  628.4  and Radius,  344.6
     ***     1.636   ***
Failure Surface Specified By  9 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1         39.44      290.93
    2         49.26      292.83
    3         59.01      295.05
    4         68.69      297.59
    5         78.27      300.45
    6         87.75      303.62
    7         97.13      307.09
    8        106.39      310.88
    9        108.89      312.00
Circle Center At X =  -13.4 ; Y =  590.7  and Radius,  304.4
     ***     1.638   ***
```
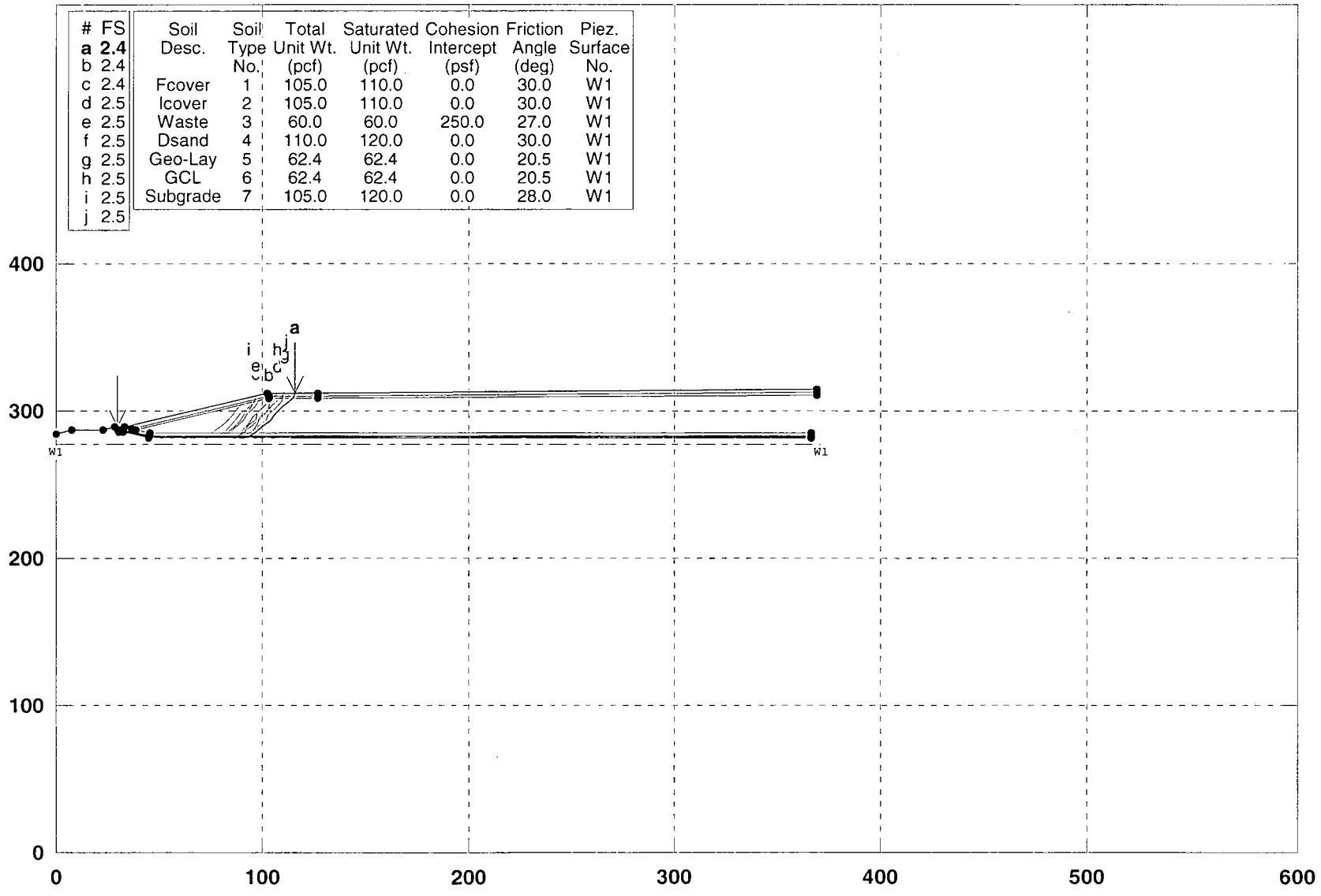

Expansion - West Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\BWEST.PL2 Run By: Dominique H. Bramlett, P.E. 4/2/2010 10:34AM

#	FS
a	**2.4**
b	2.4
c	2.4
d	2.5
e	2.5
f	2.5
g	2.5
h	2.5
i	2.5
j	2.5

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1



PCSTABL5M/si FSmin=2.4

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 4/2/2010
Time of Run: 10:34AM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:BWEST.
Output Filename: F:BWEST.OUT
Unit: ENGLISH
Plotted Output Filename: F:BWEST.PLT
PROBLEM DESCRIPTION Expansion - West Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
8 Top Boundaries
31 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	284.53	7.50	287.03	7
2	7.50	287.03	22.50	287.03	7
3	22.50	287.03	28.20	288.93	4
4	28.20	288.93	33.20	288.93	4
5	33.20	288.93	33.31	288.89	4
6	33.31	288.89	102.64	312.00	1
7	102.64	312.00	126.45	312.00	1
8	126.45	312.00	369.71	314.50	1
9	33.31	288.89	36.45	287.83	4
10	36.45	287.83	102.96	310.00	2
11	102.96	310.00	126.46	310.00	2
12	126.46	310.00	369.71	312.50	2
13	36.45	287.83	38.80	287.03	4
14	38.80	287.03	103.21	308.50	3
15	103.21	308.50	126.47	308.50	3
16	126.47	308.50	369.71	311.00	3
17	38.80	287.03	45.38	284.80	4
18	45.38	284.80	366.78	284.80	4
19	22.50	287.03	29.63	287.03	7
20	29.63	287.03	30.22	287.03	6
21	30.22	287.03	32.55	287.03	5
22	32.55	287.03	45.24	282.80	5
23	45.24	282.80	366.78	282.80	5
24	30.22	287.03	30.55	286.53	6
25	30.55	286.53	32.55	286.53	6
26	32.55	286.53	45.25	282.30	6
27	45.25	282.30	366.78	282.30	6
28	29.63	287.03	30.29	286.03	7
29	30.29	286.03	32.47	286.03	7
30	32.47	286.03	45.17	281.80	7
31	45.17	281.80	366.78	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point	X-Water	Y-Water

No.	(ft)	(ft)
1	.00	277.50
2	371.21	277.50

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.
100 Trial Surfaces Have Been Generated.
3 Boxes Specified For Generation Of Central Block Base
Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 5.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	33.27	286.29	44.54	282.54	.50
2	46.33	282.30	51.33	282.30	.50
3	56.33	282.30	112.64	282.30	.50

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Janbu Method * *
Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.03	288.93
2	31.95	287.05
3	36.67	285.40
4	48.38	282.43
5	93.27	282.39
6	96.71	286.02
7	100.20	289.60
8	103.67	293.20
9	106.19	297.52
10	108.47	301.97
11	112.00	305.51
12	115.20	309.35
13	115.62	312.00
***	2.413	***

Individual data on the 28 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	1.9	198.6	.0	.0	.0	.0	.0	.0	.0
2	.1	11.0	.0	.0	.0	.0	.0	.0	.0
3	.6	118.5	.0	.0	.0	.0	.0	.0	.0
4	.7	151.6	.0	.0	.0	.0	.0	.0	.0
5	.1	27.0	.0	.0	.0	.0	.0	.0	.0
6	3.1	1119.5	.0	.0	.0	.0	.0	.0	.0
7	.2	103.4	.0	.0	.0	.0	.0	.0	.0
8	2.1	1178.5	.0	.0	.0	.0	.0	.0	.0
9	1.1	680.0	.0	.0	.0	.0	.0	.0	.0
10	5.5	4106.7	.0	.0	.0	.0	.0	.0	.0
11	1.5	1341.4	.0	.0	.0	.0	.0	.0	.0
12	1.5	1352.0	.0	.0	.0	.0	.0	.0	.0
13	44.9	63102.5	.0	.0	.0	.0	.0	.0	.0
14	.4	710.5	.0	.0	.0	.0	.0	.0	.0
15	1.9	3316.7	.0	.0	.0	.0	.0	.0	.0
16	1.2	1890.8	.0	.0	.0	.0	.0	.0	.0
17	3.5	5354.4	.0	.0	.0	.0	.0	.0	.0
18	2.4	3440.4	.0	.0	.0	.0	.0	.0	.0
19	.3	430.7	.0	.0	.0	.0	.0	.0	.0
20	.3	331.0	.0	.0	.0	.0	.0	.0	.0
21	.5	600.0	.0	.0	.0	.0	.0	.0	.0
22	2.5	2911.0	.0	.0	.0	.0	.0	.0	.0
23	2.3	2034.3	.0	.0	.0	.0	.0	.0	.0
24	3.5	2305.2	.0	.0	.0	.0	.0	.0	.0
25	2.5	1137.4	.0	.0	.0	.0	.0	.0	.0
26	.7	229.3	.0	.0	.0	.0	.0	.0	.0

27	.1	25.5	.0	.0	.0	.0	.0	.0	.0
28	.3	34.0	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.14	288.93
2	33.29	286.44
3	50.96	282.42
4	81.02	282.16
5	84.45	285.79
6	87.61	289.67
7	90.66	293.63
8	92.59	298.24
9	95.84	302.04
10	98.57	306.23
11	102.05	309.82
12	103.16	312.00
***	2.428	***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	31.48	288.93
2	34.90	285.62
3	39.74	284.35
4	48.95	282.09
5	79.34	282.17
6	82.85	285.74
7	86.21	289.43
8	89.39	293.29
9	91.03	298.02
10	94.08	301.98
11	96.23	306.50
12	96.95	310.10
***	2.438	***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	32.13	288.93
2	33.31	287.92
3	37.31	284.93
4	41.99	283.16
5	47.24	282.43
6	87.51	282.50
7	91.03	286.04
8	93.23	290.53
9	96.57	294.26
10	97.86	299.09
11	101.20	302.81
12	103.29	307.35
13	106.82	310.89
14	107.15	312.00
***	2.458	***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.02	288.93
2	36.48	286.18
3	40.79	283.64
4	48.77	282.54
5	77.81	282.10
6	81.35	285.63
7	84.28	289.68
8	87.22	293.72
9	89.47	298.19
10	92.70	302.01
11	96.23	305.55
12	97.11	310.16

*** 2.467 ***
Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	27.55	288.71
2	28.75	287.60
3	33.54	286.17
4	49.68	282.49
5	87.97	282.25
6	91.39	285.90
7	94.69	289.65
8	97.75	293.61
9	100.96	297.45
10	102.82	302.08
11	103.97	306.95
12	107.33	310.65
13	108.68	312.00

*** 2.467 ***
Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	34.23	289.20
2	35.75	287.67
3	39.55	284.41
4	48.36	282.31
5	91.60	282.45
6	94.87	286.23
7	98.38	289.79
8	101.81	293.44
9	103.29	298.21
10	106.49	302.06
11	109.08	306.33
12	110.32	311.18
13	110.76	312.00

*** 2.504 ***
Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.41	288.93
2	31.15	288.25
3	35.46	285.71
4	46.93	282.21
5	89.44	282.18
6	90.97	286.94
7	93.46	291.28
8	95.47	295.86
9	98.56	299.79
10	101.28	303.98
11	104.03	308.15
12	107.42	311.83
13	107.52	312.00

*** 2.517 ***
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.36	289.57
2	38.16	286.83
3	41.73	283.33
4	46.72	282.46
5	72.81	282.22
6	76.35	285.76
7	79.75	289.42
8	83.18	293.06
9	85.94	297.23
10	88.16	301.71
11	90.67	306.03
12	93.61	308.99

*** 2.524 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	29.57	288.93
2	31.03	288.79
3	35.01	285.76
4	47.84	282.12
5	92.88	282.37
6	95.42	286.67
7	97.63	291.16
8	98.88	296.00
9	102.39	299.56
10	104.56	304.07
11	107.63	308.01
12	110.95	311.75
13	111.14	312.00

*** 2.546 ***

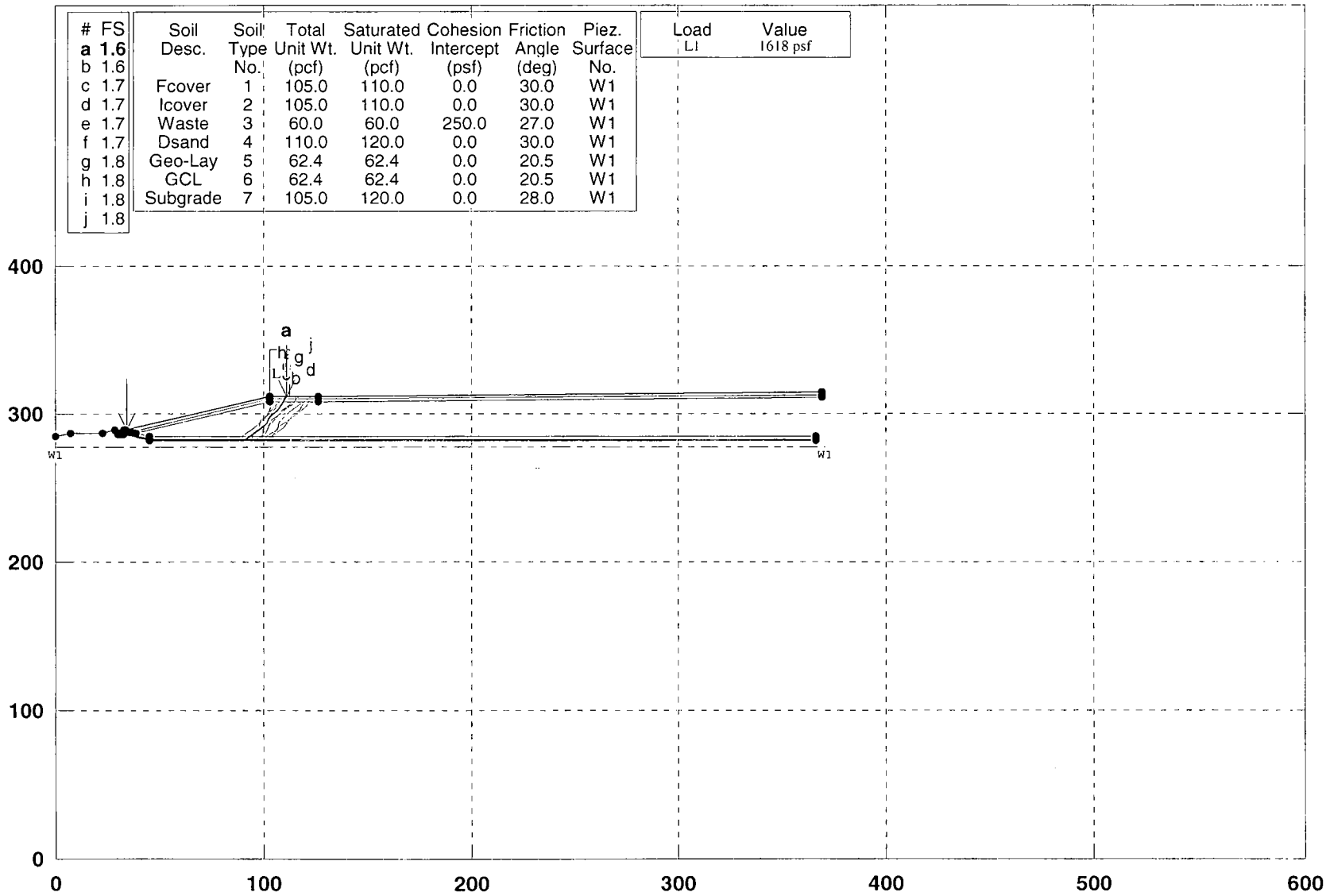
Expansion - West Phase II Section I Hardee County Landfill

F:\PROJECT\HARDEE\09199033.20\CALCUL~1\BWEST.PL2 Run By: Dominique H. Bramlett, P.E. 5/18/2010 3:18PM

#	FS
a	**1.6**
b	1.6
c	1.7
d	1.7
e	1.7
f	1.7
g	1.8
h	1.8
i	1.8
j	1.8

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fcover	1	105.0	110.0	0.0	30.0	W1
Icover	2	105.0	110.0	0.0	30.0	W1
Waste	3	60.0	60.0	250.0	27.0	W1
Dsand	4	110.0	120.0	0.0	30.0	W1
Geo-Lay	5	62.4	62.4	0.0	20.5	W1
GCL	6	62.4	62.4	0.0	20.5	W1
Subgrade	7	105.0	120.0	0.0	28.0	W1

Load	Value
L1	1618 psf



PCSTABL5M/si FSmin=1.6

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

**** PCSTABL5M ****
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 5/18/2010
Time of Run: 3:18PM
Run By: Dominique H. Bramlett, P.E.
Input Data Filename: F:bwest.
Output Filename: F:bwest.OUT
Unit: ENGLISH
Plotted Output Filename: F:bwest.PLT
PROBLEM DESCRIPTION Expansion - West Phase II Section I
Hardee County Landfill

BOUNDARY COORDINATES
8 Top Boundaries
31 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	284.53	7.50	287.03	7
2	7.50	287.03	22.50	287.03	7
3	22.50	287.03	28.20	288.93	4
4	28.20	288.93	33.20	288.93	4
5	33.20	288.93	33.31	288.89	4
6	33.31	288.89	102.64	312.00	1
7	102.64	312.00	126.45	312.00	1
8	126.45	312.00	369.71	314.50	1
9	33.31	288.89	36.45	287.83	4
10	36.45	287.83	102.96	310.00	2
11	102.96	310.00	126.46	310.00	2
12	126.46	310.00	369.71	312.50	2
13	36.45	287.83	38.80	287.03	4
14	38.80	287.03	103.21	308.50	3
15	103.21	308.50	126.47	308.50	3
16	126.47	308.50	369.71	311.00	3
17	38.80	287.03	45.38	284.80	4
18	45.38	284.80	366.78	284.80	4
19	22.50	287.03	29.63	287.03	7
20	29.63	287.03	30.22	287.03	6
21	30.22	287.03	32.55	287.03	5
22	32.55	287.03	45.24	282.80	5
23	45.24	282.80	366.78	282.80	5
24	30.22	287.03	30.55	286.53	6
25	30.55	286.53	32.55	286.53	6
26	32.55	286.53	45.25	282.30	6
27	45.25	282.30	366.78	282.30	6
28	29.63	287.03	30.29	286.03	7
29	30.29	286.03	32.47	286.03	7
30	32.47	286.03	45.17	281.80	7
31	45.17	281.80	366.78	281.80	7

ISOTROPIC SOIL PARAMETERS
7 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	110.0	.0	30.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	60.0	60.0	250.0	27.0	.00	.0	1
4	110.0	120.0	.0	30.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	62.4	62.4	.0	20.5	.00	.0	1
7	105.0	120.0	.0	28.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point	X-Water	Y-Water

No.	(ft)	(ft)
1	.00	277.50
2	371.21	277.50

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	102.64	112.14	1618.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 5.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	33.27	286.29	44.54	282.54	.50
2	46.33	282.30	51.33	282.30	.50
3	56.33	282.30	112.64	282.30	.50

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	34.23	289.20
2	35.75	287.67
3	39.55	284.41
4	48.36	282.31
5	91.60	282.45
6	94.87	286.23
7	98.38	289.79
8	101.81	293.44
9	103.29	298.21
10	106.49	302.06
11	109.08	306.33
12	110.32	311.18
13	110.76	312.00
***	1.599	***

Individual data on the 26 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	.9	60.6	.0	.0	.0	.0	.0	.0	.0
2	.6	102.9	.0	.0	.0	.0	.0	.0	.0
3	.7	181.0	.0	.0	.0	.0	.0	.0	.0
4	2.3	1068.0	.0	.0	.0	.0	.0	.0	.0
5	.2	129.0	.0	.0	.0	.0	.0	.0	.0
6	.5	347.0	.0	.0	.0	.0	.0	.0	.0
7	3.0	2146.2	.0	.0	.0	.0	.0	.0	.0
8	2.8	2283.6	.0	.0	.0	.0	.0	.0	.0
9	.9	798.5	.0	.0	.0	.0	.0	.0	.0
10	2.1	1913.0	.0	.0	.0	.0	.0	.0	.0
11	43.2	60160.0	.0	.0	.0	.0	.0	.0	.0
12	.3	549.3	.0	.0	.0	.0	.0	.0	.0
13	1.7	2954.3	.0	.0	.0	.0	.0	.0	.0
14	1.2	1964.3	.0	.0	.0	.0	.0	.0	.0
15	3.5	5217.4	.0	.0	.0	.0	.0	.0	.0
16	3.4	4579.0	.0	.0	.0	.0	.0	.0	.0
17	.8	994.3	.0	.0	.0	.0	.0	.0	.0
18	.3	347.5	.0	.0	.0	.0	.0	.0	517.8
19	.3	256.7	.0	.0	.0	.0	.0	.0	404.5

20	.1	82.8	.0	.0	.0	.0	.0	.0	134.9
21	3.2	2776.9	.0	.0	.0	.0	.0	.0	5167.6
22	2.6	1621.7	.0	.0	.0	.0	.0	.0	4193.1
23	.6	239.9	.0	.0	.0	.0	.0	.0	897.6
24	.4	110.9	.0	.0	.0	.0	.0	.0	621.4
25	.3	44.7	.0	.0	.0	.0	.0	.0	487.6
26	.4	18.9	.0	.0	.0	.0	.0	.0	706.7

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.03	288.93
2	31.95	287.05
3	36.67	285.40
4	48.38	282.43
5	93.27	282.39
6	96.71	286.02
7	100.20	289.60
8	103.67	293.20
9	106.19	297.52
10	108.47	301.97
11	112.00	305.51
12	115.20	309.35
13	115.62	312.00
***	1.608	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	29.57	288.93
2	31.03	288.79
3	35.01	285.76
4	47.84	282.12
5	92.88	282.37
6	95.42	286.67
7	97.63	291.16
8	98.88	296.00
9	102.39	299.56
10	104.56	304.07
11	107.63	308.01
12	110.95	311.75
13	111.14	312.00
***	1.703	***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.19	288.93
2	31.05	288.11
3	35.33	285.53
4	48.87	282.24
5	99.58	282.26
6	102.98	285.92
7	106.44	289.53
8	107.62	294.39
9	110.21	298.67
10	113.54	302.39
11	116.76	306.22
12	120.27	309.78
13	122.33	312.00
***	1.707	***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.43	288.93
2	33.47	286.24
3	49.16	282.34
4	95.97	282.13
5	99.30	285.87
6	100.22	290.78

7	102.60	295.18
8	103.71	300.05
9	105.94	304.53
10	109.25	308.28
11	111.33	312.00

*** 1.714 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	31.21	288.93
2	31.67	288.55
3	35.77	285.69
4	48.19	282.09
5	94.27	282.08
6	95.28	286.97
7	98.71	290.62
8	100.75	295.18
9	103.34	299.45
10	106.01	303.68
11	109.50	307.27
12	111.17	311.98
13	111.19	312.00

*** 1.717 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.76	289.04
2	35.92	288.91
3	39.46	285.38
4	43.68	282.69
5	49.34	282.38
6	97.50	282.21
7	100.56	286.16
8	102.25	290.87
9	103.87	295.60
10	107.03	299.48
11	110.44	303.14
12	113.97	306.67
13	116.40	311.05
14	116.82	312.00

*** 1.771 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	27.55	288.71
2	28.75	287.60
3	33.54	286.17
4	49.68	282.49
5	87.97	282.25
6	91.39	285.90
7	94.69	289.65
8	97.75	293.61
9	100.96	297.45
10	102.82	302.08
11	103.97	306.95
12	107.33	310.65
13	108.68	312.00

*** 1.782 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.93	288.93
2	34.13	287.21
3	39.10	286.72
4	42.64	283.18
5	49.30	282.17
6	100.90	282.29

7	104.41	285.85
8	106.50	290.39
9	109.95	294.00
10	113.48	297.54
11	116.97	301.13
12	120.23	304.92
13	122.14	309.54
14	122.76	312.00

*** 1.823 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	31.44	288.93
2	31.53	288.85
3	35.30	285.56
4	51.11	282.16
5	103.58	282.45
6	106.20	286.71
7	109.43	290.53
8	112.01	294.81
9	113.92	299.43
10	117.45	302.97
11	119.36	307.59
12	122.17	311.73
13	122.37	312.00

*** 1.828 ***

N

60 0 60 120
SCALE IN FEET

PROPERTY LIMIT (TYP)

NOTE:
FILL SEQUENCE NO. 7 FINAL ELEVATIONS DO NOT CHANGE AS A RESULT OF THE FILL SEQUENCE REVISIONS.

TOP OF DRAINAGE SAND ELEVATIONS (TYP)

25 FT OFFSET (TERRACE)

3/17|20 TYP. STORMWATER DOWNLET SEE DETAIL

1/17|20 TYP. STORMWATER PIPE DISCHARGE SEE DETAIL

1/17|26 SOUTH EDGE OF LINER SEE DETAIL

PROTECT ALL SLOPES WITH 6-IN (MIN) OF MULCH; SEED IF NEEDED. (TYP OF ALL SLOPES)

3/17|26 EAST EDGE OF LINER SEE DETAIL

PHASE II SECTION I TOTAL FILL APPROX. 4.5 AC

TYP. WORKING FACE BERM; 2:1 SIDESLOPE, 2 FT TOP WIDTH; COMPACTED GENERAL FILL

LEACHATE COLLECTION PIPE (TYP.)

ACTIVE FILL AREA

20 FT OFFSET (TERRACE)

TOP OF INTERMEDIATE COVER ELEVATIONS SHOWN

TYP. STORMWATER BERMS 3/17|19 SEE DETAIL

M 17|25

PHASE I FINAL BUILDOUT (TOP OF INTERMEDIATE COVER ELEVATIONS)

N 17|25

MW-11 MW-10R MW-12R P-16 P-17 P-18 P-19 P-20 P-21 P-22

LEGEND

- TWO-WAY TRAFFIC FLOW
- ONE-WAY TRAFFIC FLOW
- FILL PROGRESSION DIRECTION
- SURFACE RUNOFF FLOW DIRECTION

REV	DATE	DESCRIPTION	BY
1	1/30/08	ADDED MW-10R AND MW-12R	SRF
2	05/14/10	REVISED FILL SEQUENCE	SRF

SHANE R FISCHER, P.E.
LICENSE NO. 58026

DRAWING TITLE: **PHASE II - SECTION I FILL SEQUENCE NO. 7**

PROJECT TITLE: **HARDEE COUNTY LANDFILL OPERATIONS DRAWINGS**

CLIENT: **HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS**

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
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813 87-0080 FAX 813 932-8757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJECT NO: 09199033.12
DSN. BY: SDA
DWN. BY: CEH
CHK. BY: SRF
QA/QC BY: SRF
APP. BY: CEH

CADD FILE: 9933120PS-MOD

DATE: MAY 2007

SCALE: AS SHOWN

DRAWING NO: **17** of **26**