TVA CALCULATION COVERSHEET

Title	Plant/ Location:	
Preliminary Slope Stability Analysis	KIF	Page 1 of 1

Unit(s), Spill gate(s), Intake gate(s), or Voltages (TPS)

Calculation Identifier			Key Nouns (For EDMS)
Org Code	Plant	Branch	Preliminary Slope Stability Analysis
FPG	KIF	FES	Each time these calculations are issued, preparer must ensure that the original (R0) RIMS/EDMS accession number is filled in.

Number: CDX00030020050003

Applicable Design Document(s)	Rev	RIMS/EDMS Accession Number (optional)
	R0	
	R	
UNID System(s)	R	
	R	

	R0	R	R	R	
DCN, EDC, PCN, NA	~~KIF051000~~ GARY MCCR				
Prepared	WP Taylor for G. McNulty				
Checked	for Y.S. Shah				These calculations contain unverified assumption(s) that must be verified later? Yes ☐ No ☒
					These calculations contain special requirements and/or limiting conditions? Yes ☐ No ☒
Approved	W. LYTLE				These calculations contain a design output attachment? Yes ☒ No ☐
Approval Date	12/8/05				
					Computer output Microfiche generated? Yes ☐ No ☐
Revision applicability	Entire calc ☒	Entire calc ☐ Selected pgs ☐	Entire calc ☐ Selected pgs ☐	Entire calc ☐ Selected pgs ☐	Number

Purpose of the Calculation:
Evaluate slope stability of final stack under various conditions including both static and seismic loading prior to receipt settlement of the natural subgrade soil below the final stack to facilitate determination of slope of the proposed clay-liner and filter-blanket system at the bottom of the stack.

Abstract:
The maximum settlement of the foundation subgrade under the final stack is likely to be approximately.

☐ Electronically file and return calculation to Calculation Library.
☐ Electronically file and return calculation to Address:

WorleyParsons
resources & energy

CALCULATION COVER SHEET

CLIENT	TVA
PROJECT	Kingston Fossil Plant – Peninsula Site
SUBJECT	Preliminary Slope Stability Analysis
JOB NUMBER	51032301 WBS NUMBER
CALCULATION NO.:	FPGKIFFESCDX00030020050003 PAGE 1 OF 11

DESCRIPTION/PURPOSE

Evaluate slope stability of final stack under various conditions including both static and seismic loading prior to receipt of site specific shear strength properties.

METHOD OF ANALYSIS

Static and pseudo-static analysis using software program UTEXAS3

CODES AND STANDARDS

1. None applicable

INFORMATION SOURCES

1. See pages 2 and 3

ASSUMPTIONS

For preliminary soil properties – see pages 3 thru 7

CONCLUSIONS OR RESULTS

The full height stack will be stable under all loading conditions provided that the planned blanket drain system is in place. However, without the blanket drain system incorporated, the factor of safety for stack stability under seismic loading is much lower than the required 1.01. See page 11 for a summary of analysis results.

REV	DATE	DESCRIPTION	PAGES REVISED	PAGES ADDED	PAGES DELETED	BY/DATE	REV/DATE	LDE/DATE
3								
2								
1								
0		ORIGINAL ISSUE	NA	NA	NA	G.McNulty 12-05-05	Y.S.Shah 12-05-05	W. Lytle 12-05-05

PURPOSE

To evaluate Cross Section A-A for slope stability as shown in the attached marked up of Drawing SK TA00323 04 now shown as drawing SK TA00323 11 (Appendix F) under the following four conditions for a parametric slope stability analysis in advance of the receipt of the detail geotechnical report containing site specific shear strength properties:

1. End of construction stability analysis with the cross sections with the water table at the long term condition without the drainage blanket

2. Long term stability analysis of the cross sections with the water table at the assumed long term condition with the drainage blanket.

3. Psuedo static analysis of the natural clay and residuum deposits, compacted three foot clay liner, a "blanket drainage layer" with two feet of bottom ash (BA) and one foot of a mixture of BA and fly ash (FA), with a low long-term water table at the base of the drainage blanket because of its presence of a throughout the facility.

4. Psuedo static analysis of the natural clay and residuum deposits, compacted three foot clay liner but without the "blanket drainage layer to simulate the water table at the end of construction.

REFERENCES

1. Duncan, J. M., and S. G. Wright, and K.S. Wong, 1990. "Slope Stability During Rapid Drawdown," Proceedings: H. Bolton Seed Memorial Symposium, Volume 2, Editor J. Michael Duncan, BiTech Publishers LTD, Vancouver, B.C., Canada, May.

2. Duncan, J. M., 1992. "State-of-the-Art: Static Stability and Deformation Analysis," Proceedings, Stability and Performance of Slopes and Embankments II, Volume 1, pp. 222-266.

3. Wright, Stephen G., 1991. "UTEXAS3: A Computer Program For Slope Stability Calculations, Shinoak Software, Austin, Texas, September.

4. Tennessee Divisions of Solid Waste Management, 1993. "Technical Guidance Document: Earthquake Evaluation Guidance Policy," 41 pages.

5. Mactec, 2005. "Report of Geotechnical Exploration – Proposed Gypsum Disposal Area Kingston Fossil Plant Kingston", prepared for WorleyParsons E&C on behalf of TVA, October 10.

6. Mactec, 2004. "Laboratory Testing results – Samples from gypsum Pond at Cumberland Fossil Plant", prepared for Parsons E&C on behalf of TVA, May 13.

7. Mactec, 2004. "Report of Geotechnical Exploration – Ash Disposal Area Kingston Fossil Plant, Kingston, Tennessee", prepared for Parsons E&C on behalf of TVA, May 4.

8. Mactec, 2004. "REPORT OF GEOTECHNICAL EXPLORATION, Ash Disposal Area, Bull Run fossil Plant", Prepared for Parsons E&C on behalf of the TVA, July 13,

9. EPRI, 1995. "Manual TR104731: FGD by-Product Disposal Manual, Fourth Edition, ", August.

10. Raulston, John A. (From); To: R. O. Barnett, 1985. TVA Memorandum of TVA document/report titled, "Bull Run Steam Plant – Ash Ponds 1 and 2A – Soil Investigation – OE Soils Schedule 81.4, dated March 26, dealing with the 1985 Singleton Report.

11. Duncan, J. M. and S. G. Wright, 2005. Soil Strength and Slope Stability, John Wiley and Sons, Inc., Hoboken, New Jersey.

12. Parsons, E & C. 2004. "Permit for Lateral Expansion of Dredge Cells Unit 1-9, Phase 2, TAO-0201," Prepared for Tennessee Valley Authority Fossil Engineering Services, Contract 00038553, Kingston Fossil Plant, December, 16.

EVALUATION STEPS

1. Define geometry.

See Drawings SK TA00323 12 and 13 (Appendix F) for the cross sections A-A and B-B.

2. Define surface loadings.

There are no surface pressure loadings.

3. Determine soil properties.

The soil properties for the end of construction with analyses are given in Table 1.

Table 1. End of Construction Soil Properties.

Layer	Unit Weight, pcf	Effective Cohesion, psf	Effective Φ' degrees	Total Cohesion, psf	Total Φ' degrees
1 Gypsum	120.4	50	37	-	-
2 Fly Ash and Bottom Ash – foot top of Drainage Blanket	113.4	100	36.6	-	-
3 Bottom Ash	116.4	110	36	-	-
4 Compacted Clay Liner	126.4	-	-	2000	-
5 Original Ground	130.4	-	-	1950	-
6 Bedrock Limestone	155	10000	29.9	-	-

Layer 1. Mactec 5/13/04 Kingston Report.

Layer 2. Mactec 5/04/04 Kingston Report – B-10 UD @ 5-7 ft..

Layer 3. Mactec 7/13/04 Bull Run B-10A

Layer 4. Undrained strength assumed about equal to original ground.

Layer 5. Undrained Strengths based on average of draft Q-triaxial tests on NB-85 A and B, UD-1, 2, and 3 and 6, 7, and 8 to yield 1950 psf.

Table 2 gives the long-term effective stress properties:

Table 2. Long-Term Effective Stress Analysis Soil Properties.

Layer	Unit Weight, pcf	Effective Cohesion, psf	Effective Φ' degrees	Total Cohesion, psf	Total Φ' degrees
1 Gypsum	120.4	50	37	-	-
2 Fly Ash and Bottom Ash – foot top of Drainage Blanket	113.4	100	36.6	-	-
3 Bottom Ash	116.4	110	36	-	-
4 Compacted Clay Liner*	126.4	326	24		-
5 Original Ground**	130.4	0.0	22.5		-
6 Bedrock Limestone	155	10000	29.9	-	-

Layer 4 effective stress properties for the compacted clay liner have been estimated from averaging the typical peak drained strengths for CL, MH, and CH soils given by Duncan and Wright (2005, Table 5.8).

By contrast, Layer 5 effective stress properties have been estimated from the following correlation among liquid limit, clay size fraction, and fully soften friction angle as by the Figure 1 (Figure 5.18 of Duncan and Wright (2005, from Stark and Eid, 1997)). Present data indicate that the soil beneath the site's original grade has liquid limits that range from about 35 to at least 81 percent. A review of the Atterberg limits data in the Mactec (October, 2005) report suggests a median liquid limit of around 60 percent. With Percent finer passing the Number 200 sieve greater than 50 percent and the expected stresses on the original foundation expected to exceed 8000 psf (400 kPa), Figure 1 suggests an effective angle of internal friction for the foundation soil of about 22.5 degrees:

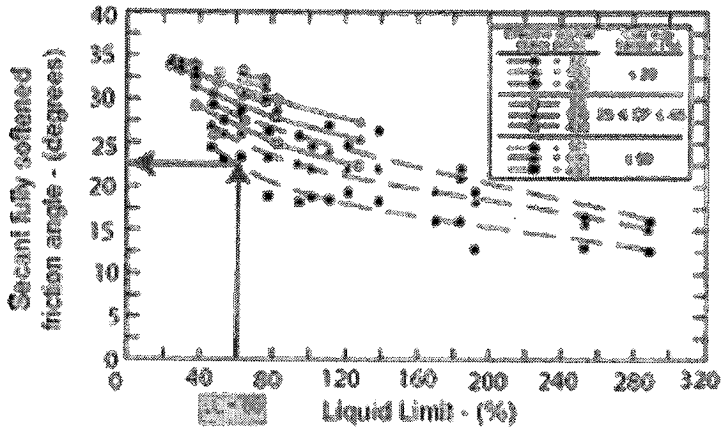


Figure 1. Correlation Among Liquid Limit, Clay Size Fraction, and Fully Softened Friction Angle (From Stark and Eid, 1997)

For the psuedo-static analyses, Table 3 gives the gypsum and soil properties that are used with the program UTEXAS3. UTEXAS3 uses the multistage analysis technique developed by Duncan and Wright (1990) and Shinoak Software (1991) for earthquakes. UTEXAS uses a pseudo static method of analysis where a mass or a part of the slope (of varying size) is assumed to fail along a cylindrical or predetermined surface (for the sliding-block or non-circular failure surface analysis). The resistance to sliding is provided by friction and adhesion along the surface of sliding. The program automatically searches for the most critical cylindrical surface of sliding that gives the least factor of safety against such a failure and uses the same method for both static and seismic conditions.

For the seismic condition, a horizontal destabilizing force is added to the total sliding force that is equal to the weight of the sliding mass times a seismic coefficient, k_s, which is generally a fraction of the peak ground acceleration during the postulated design seismic event.

The UTEXAS3 analyses use the multistage envelopes that start with a drained envelope (at which the consolidation effective stresses at failure (σ'_{3fC}) are calculated) and are followed by a d_R and ψ_R envelope, both of which are derived with the following as discussed in the UTEXAS3 Users' Manual (Stephen J. Wright, Appendix A, 1991, Shinoak Software, Austin, TX):

$$d_R = c_R \{(\cos(\Phi_R)\cos(\Phi')/(1-\sin\Phi_R)\}$$

$$\psi_R = \tan^{-1}\{(\sin(\Phi_R)\cos(\Phi')/(1-\sin\Phi_R)\}$$

Where Φ_R and c_R are the "total"/undrained shear stress parameters of internal friction and cohesion, respectively.

Table 3. Two-Stage Parameters.

Layer	Unit Weight, pcf	Effective Cohesion, psf	Effective Φ' degrees	Total Cohesion d_R, psf	Total ψ_R, degrees
1 Gypsum	120.4	50	37	242.9	39.8
2 Fly Ash and Bottom Ash – foot top of Drainage Blanket	113.4	100	36.6	1079.5	30.4
3 Bottom Ash	116.4	110	36	1460.8	42.7
4 Compacted Clay Liner	126.4	326	24	467.7	13.1
5 Original Ground *	130.4	0.0	22.5	1330.6	9.2
6 Bedrock Limestone	155	10000	29.9		

*R – envelope estimated conservatively based on effective Φ' from Raulston, John A. (From); To: R. O. Barnett, 1985 (Table 3, Boring US-4A, Elev. 787.9-786.1 feet).

The first stage envelope is the conventional effective stress (albeit at σ'_{3fC}) shear strength envelope. This envelope is similar to the envelope used for long-term stability computations and is the first-stage of multi-stage computations. The second envelope is derived from the consolidated-undrained (CU, R) type triaxial shear tests performed on specimens consolidated isotropically. The envelope can be derived directly by computing the principle stress difference at failure times cos (Φ')/2 against the σ'_{3fC}. Then the equations above are used to develop the ψ_R - d_R envelopes used in the multistage calculations. The earthquake for the pseudo static analysis is applied in the second stage where the undrained analysis occurs.

The multistage procedure outlined in UTEXAS3 uses both effective stress/drained and "total"/undrained strength properties to analyze the pseudo-static earthquake loadings. Therefore, the effective stress properties for the multistage analysis will therefore differ somewhat from those given earlier for the static slope stability analyses because they have to maintain consistency through the equations for d_R and ψ_R given earlier. The drained/effective stress envelope is represented by d_S and ψ_S, the effective cohesion and effective friction angle, respectively. These effective parameters for the two-stage envelope are the same as normal static effective parameters used in a drained long-term analysis.

Figure 2 below shows two envelopes, the drained and the undrained strength envelopes for the second stage of the two-stage stability computation. Wright (1991, Pg 126) states that in general, the two-stage stability computation are appropriate for earthquake loading, where the loads produced by the earthquake will not remain for a long enough period of time for the stack to drain. We have estimated the roughly that the first period of an earth quake would be less than one second and that based on ground water modeling of two stack concepts at Kingston. It would take about 5 to 10 years for the stack to drain after the end of construction with the requisite drainage layer in place and assumed configuration of the stack.

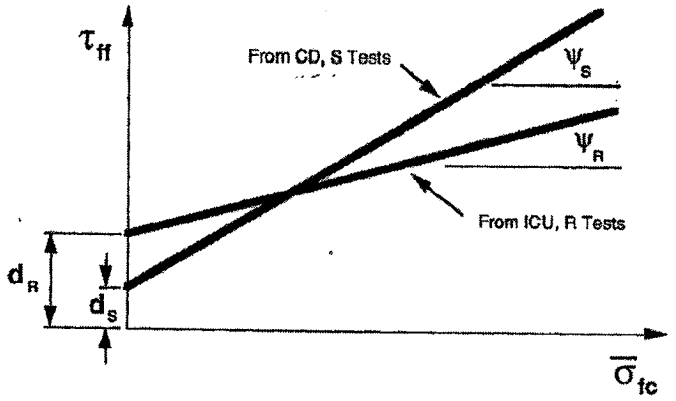


Figure 2. Shear Strength Envelopes Used to Compute Shear Strengths for Second Stage of Two-Stage Slope Stability Computations (After Wright, 1991).

Wright (1991) states that the first stage with the drained/effective stress envelope computes the effective normal stresses and the shear stresses along the shear surface (on the base on each slice) before undrained loading. In addition, Duncan (1992, Pg. 224) states that the effective stress c' and Φ' can be determined from undrained tests with pore pressure measures such as the CU that have been found to give essentially the "same values determined from drained triaxial or direct shear tests." These first stage stresses represent the stresses to which the soil has be consolidated before undrained loading occurs during an earthquake. The consolidation stresses estimated in the first stage then are used to estimate the undrained shear strengths in the second stage of the slope stability calculations. Wright (1991) states that "The first stage stability computations are performed using slope stability analysis procedures that are identical to the ones normally used to compute used to compute the factor of safety for long-term "drained," stability."

The second stage calculates the shear stress t_{ff} for the two envelopes above for each slice. The smallest t_{ff} of the two is put on the bottom of each slice as the shear strength. Then the overall factor of safety is calculated and then a new trial surface is searched

The pseudo static analyses used the properties given in Table 3 for the computer program UTEXAS3.

4. Define water tables.

The water table for the end of construction and seismic analyses simulate two water table conditions: one with and without a drainage blanket. The case without a drainage blanket assumes that the water table lies within the slope of the gypsum stack about 75 feet until it reaches an elevation of 920 feet. At that point the water table is constant. For the case with the drainage layer, that water table follows the ground surface and the midpoint of the drainage blanket.

5. Define seismic force

According to the Tennessee Guidance (1993, Ref. 20) Document, the peak ground acceleration, a_{max}, is the "maximum horizontal acceleration in lithified earth material", corresponding to a "90 percent or greater probability that the acceleration will not be exceeded in 250 years." The document also states, "lithified earth materials means all rock, including all naturally occurring and naturally formed aggregates of masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt or UNCONSOLIDATED earth materials, soil, or regolith lying at or near the earth's surface". Thus, the peak ground acceleration corresponds to the peak acceleration at the natural GS, and not the bedrock surface or the surface of the stack.

The peak acceleration in the bedrock at the site, in accordance with the Tennessee Guidance (1993, Ref. 20) Document, is approximately 0.22g. Thus, it is reasonable to assume that the peak ground acceleration or the "free-field acceleration" (i.e., acceleration at the level natural GS) as required by the Tennessee Guidance (1993, Ref. 20) Document is also likely to be equal to 0.22g.

The peak ground acceleration evaluation for Kingston (Parsons E & C, 2004) has confirmed that the pseudo static analysis should use a k_s of 0.11g.

6. Calculate Factors of Safety for of the Four Slope Conditions

This slope stability analysis evaluates four conditions for a parametric slope stability analysis in advance of the receipt of the detail geotechnical report containing site specific shear strength properties:

1. End of construction stability analysis with the cross sections with the water table at the long term condition without the drainage blanket

2. Long term stability analysis of the cross sections with the water table at the assumed long term condition with the drainage blanket.

3. Psuedo static analysis of the natural clay and residuum deposits, compacted three foot clay liner, a "blanket drainage layer" with two feet of bottom ash (BA) and one foot of a mixture of BA and fly ash (FA), with a low long-term water table at the base of the drainage blanket because of its presence of a throughout the facility.

4. Psuedo static analysis of the natural clay and residuum deposits, compacted three foot clay liner but without the "blanket drainage layer to simulate the water table at the end of construction.

Table 4 gives the results for the most critical surfaces of each of these analyses. The results show that the all the searches passed the required factors of safety, those are, 1.0 for end of construction and pseudo static, and 1.5 for long-term stability. Attachment 2 gives the plotted critical surfaces for each of the fours cases describe in Table 4. Attachment 3 gives the computer printouts of input and output data.

These preliminary analyses suggest that the stack will be stable with the blanket-drain system under the specified end of construction, long-term and psuedo-static conditions.

By contrast, final analyses will wait until site specific test data for the foundation soil has been received from Mactec. However, these preliminary analyses took no credit for the stronger properties of the dry stack above Elevation 920. The final analyses will take these properties into account. Because it may take roughly 18 years to build the wet stack to Elevation 920 feet (per the planning document) in approximately 10 to15 foot lifts, the properties of gypsum at lower elevations in the interior of the stack will increase over time (for example, they will be slightly denser but stronger) than that in the upper elevations. Also, gypsum in the dry stack above Elev. 900' should be lighter but perhaps stronger with greater cohesion and friction due to unsaturated condition and exposure to air. In addition, these analyses have taken no credit for the increased strength found in the cast gypsum forming the perimeter dike areas for wet stacking. These could be modeled as yet another material that would be stronger and denser than gypsum in the interior areas.

TABLE 4

SLOPE STABILITY FACTOR OF SAFETY CALCULATED WITH UTEXAS3

Run File	Stack Type	Condition	F.S.	Psuedo Static/Static	
1. Undrained shear strengths for the natural clay and residuum deposits.					
KFEOCA2.dat	Gypsum	Static+WT 750 to 920 ft	0.83	0.0g	Noncircular
KFEOCA3.dat	Gypsum	Static+WT w/ Drainage*	1.09	0.0g	Noncircular
2. Long term conditions with all materials using effective stress shear strengths and expected long term water table conditions.					
KFLTA1.dat	Gypsum	Static+WT w/ Drainage*	1.52	0.0g	Toe Circle
3. Psuedo static slope stability analysis with drainage blanket.					
KFPGS2.dat	Gypsum	Seismic w/ Drainage*	1.110	0.11g	Noncircular
4. Psuedo static slope stability analysis without drainage blanket.					
KFPGS3.dat	Gypsum	Seismic+WT 750 to 920 ft	0.767	0.11g	Noncircular

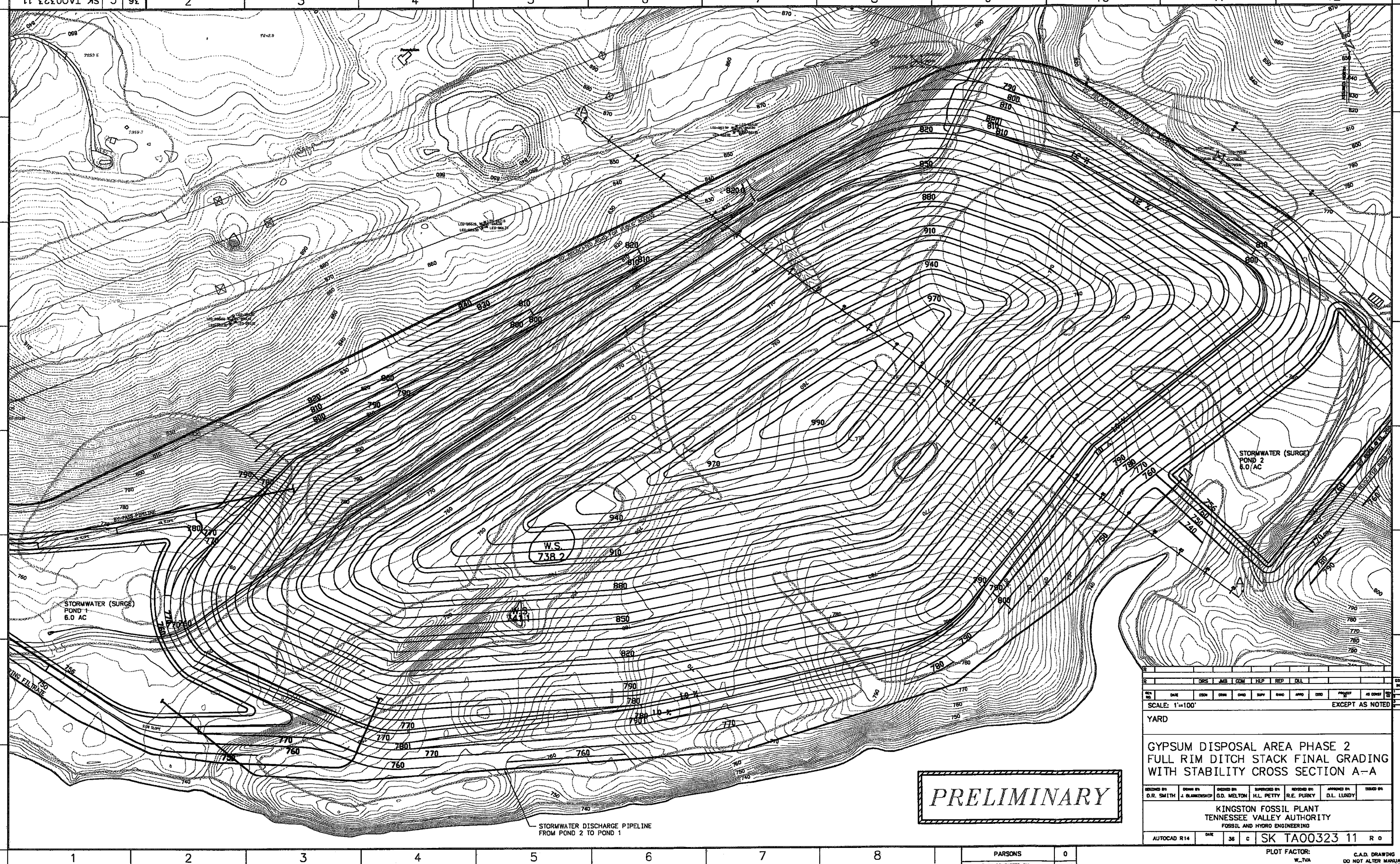
END

*Water Surface at Midpoint of Drainage Blanket.

ATTACHMENT 1

DRAWINGS

SK TA00323 11 | C | 36



PRELIMINARY

DRS	JAB	GDM	HLP	REP	DLL

SCALE: 1"=100' EXCEPT AS NOTED

YARD

GYPSUM DISPOSAL AREA PHASE 2 FULL RIM DITCH STACK FINAL GRADING WITH STABILITY CROSS SECTION A-A

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
D.R. SMITH	J. BLANKENSHIP	G.D. MELTON	H.L. PETTY	R.E. PURKY	D.L. LUNDY	

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

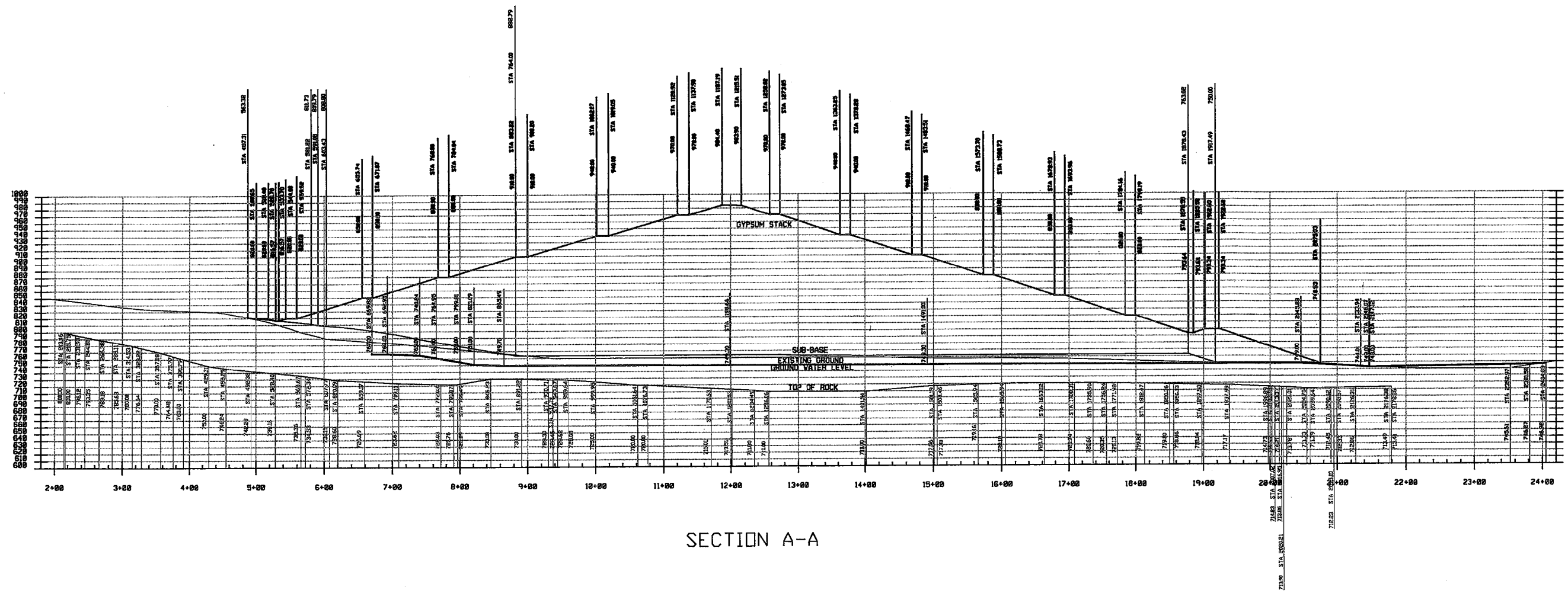
AUTOCAD R14 | DATE | 36 | C | SK TA00323 11 | R 0

PARSONS | 0
TASK COMPLETED BY: | REV NO.

PLOT FACTOR: W_TVA

C.A.D. DRAWING DO NOT ALTER MANUALLY

TVA-00009035



SECTION A-A

PRELIMINARY

R	-	DRS	JMB	GDM	HLP	REP	DLL	

REV NO.	DATE	DSGN	DRWN	CHKD	SUPV	APPD	ISSD	PROJECT ID	AS CONST

SCALE: 1"=60' EXCEPT AS NOTED

YARD

GYPSUM DISPOSAL AREA
PHASE 2 FULL RIM DITCH STACK
CROSS SECTION AA

DESIGNED BY	DRAWN BY	CHECKED BY	SUPERVISED BY	REVIEWED BY	APPROVED BY	ISSUED BY
D.R. SMITH	J. BLANKENSHIP	G.D. MELTON	H.L. PETTY	R.E. PURKY	D.L. LUNDY	

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R14	DATE	36	C	SK TA00323 12	R 0

PARSONS	0
TASK COMPLETED BY:	REV NO.

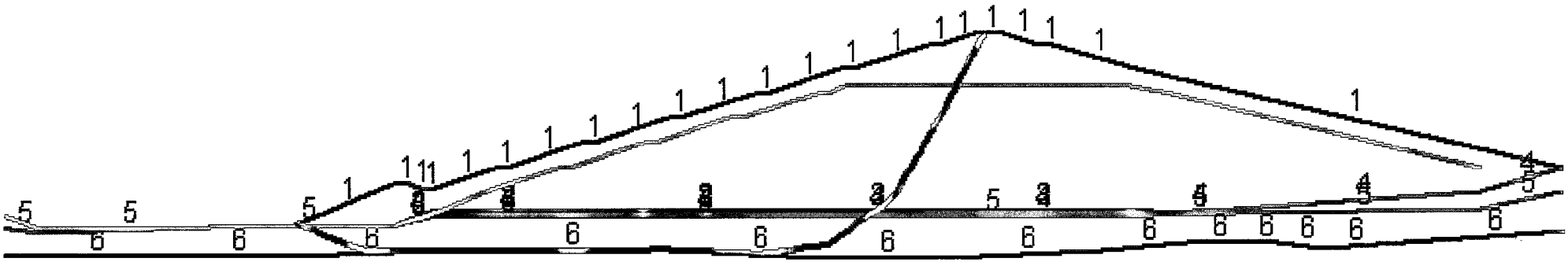
PLOT FACTOR: W_TVA

C.A.D. DRAWING DO NOT ALTER MANUALLY

ATTACHMENT 2

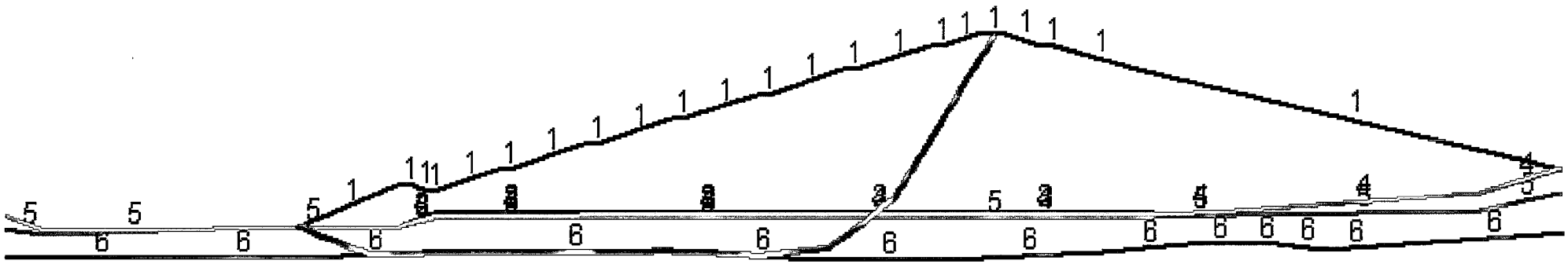
SLOPE STABILITY COMPUTER PLOTS OF CRITICAL SURFACES

C:\UTEXAS3\KFEOCA2.UT3
Kingston 3 Section A-A, End-of-Construction UTEXAS3
GYPSUM STACK Residuum
KIF
F = 0.827



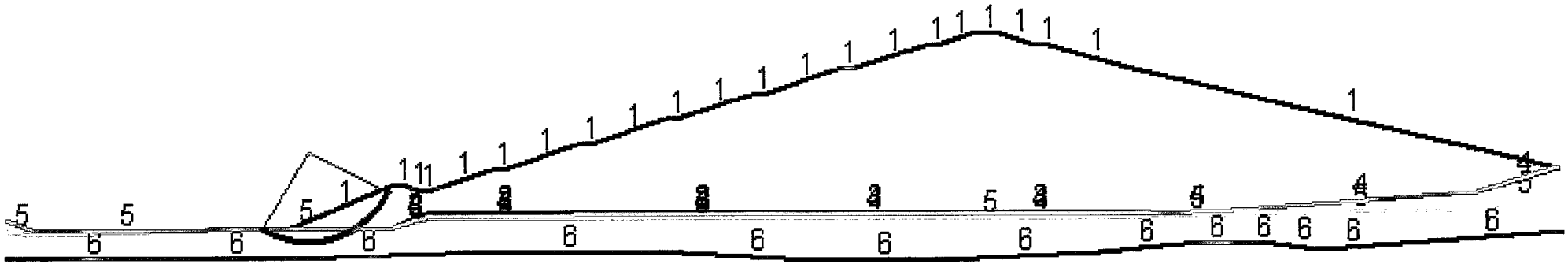
C:\UTEXAS3\KFEOCA2 AA Run 3 FSeq0pt827 no drainage blanket .png 12/5/2005 9:10:39 AM

C:\UTEXAS3\KFEOCA3.UT3
Kingston 3 Section A-A, End-of-Construction UTEXAS3
GYPSUM STACK Residuum
KIF
F = 1.087



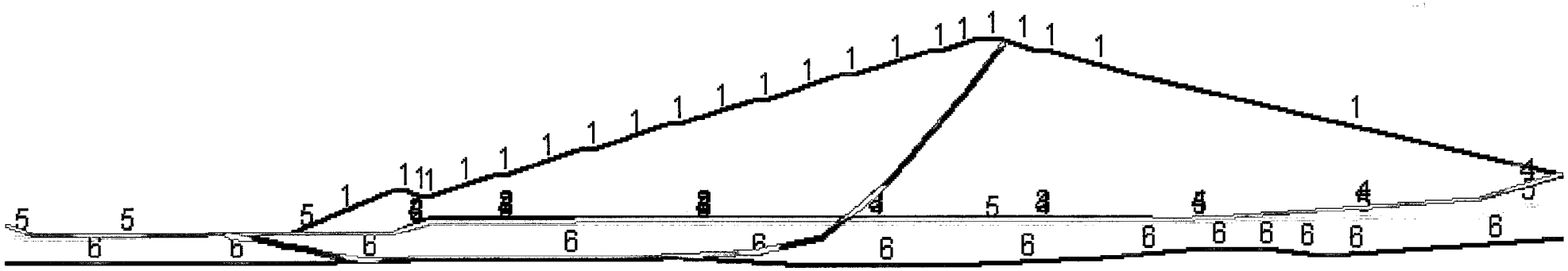
C:\UTEXAS3\KFEOCA3 AA Run 3 FSeq1pt087 WITH drainage blanket .png 12/5/2005 9:10:49 AM

C:\UTEXAS3\KFLTA1.UT3
Kingston 4 Section A-A, Long-Term UTEXAS3
GYPSUM STACK
KIF
F = 1.520, X = 480.0, Y = 840.0, R = 107.0



C:\UTEXAS3\KFLTA1 FSeq1pt520 Circle W Drainage Blanket Sec A Long Term UTEXAS3.png 12/5/2005 9:10:58 AM

C:\UTEXAS3\KFPGPS2.UT3
Kingston 3 Section A-A, Two-Stage UTEXAS3
GYPSUM STACK Residuum KFPGAPS3
KIF Seismic=0.110
F = 1.110



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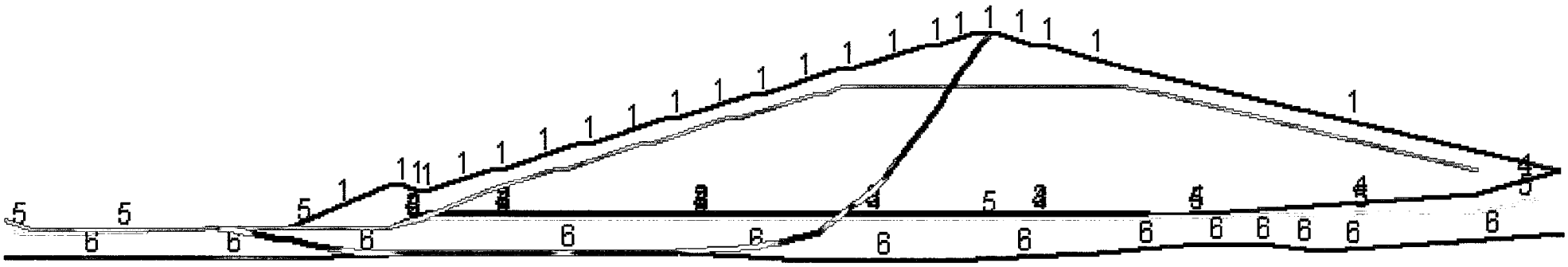
C:\UTEXAS3\KFPGPS3.UT3
Kingston 3 Section A-A, Two-Stage UTEXAS3
GYPSUM STACK Residuum KFPGAPS3
KIF Seismic=0.110
F = 0.767



C:\UTEXAS3\KFPGPS3 Sec A FSeq0pt767 Run 3 No Drainage Blanket seis 0pt11g Two-Stage UTEXAS3.png 12/5/2005 9:11:11 AM

ATTACHMENT 3

SLOPE STABILITY COMPUTER INPUT DATA FILES AND PRINTOUTS

```
Plot
Ascii
HEAding follows -
KFEOCA2 Penin 1 Sec A, End-of-Construction TEXAS3
GYPSUM STACK Option 1+2, No Drainage Blanket
KIF Wet Undrained Props for Clays
PROfile line data follow -
     1 1 Gypsum
         454.17 749.00
         577.4  799.34
         597.4  799.34
         614.5  793.64
         621.5  793.64
         700.81 820.00
         715.84 820.00
         806.04 850.00
         821.07 850.00
         911.27 880.00
         926.3    880.00
         1016.49  910.00
         1031.53  910.00
         1121.72  940.00
         1136.75  940.00
         1226.95  970.00
         1241.98  970.00
         1284.49  983.90
         1312.81  984.40
         1362.1   970.00
         1379.08  970.00
         1480.95  940.00
         1999.15  820.00

     2 2 Fly Ash and Bottom Ash 1 foot thickness
         582.51 750.00
         621.57 766.02
         800.00 766.02
         1100.00 766.02
         1220.00 768.00
         1500.00 768.00

    3 3 Bottom Ash Drainage Layer 2 feet thick
        582.51  750.00
        621.57  765.02
        800.00  765.02
        1100.00 765.02
        1220.00 767.00
        1500.00 767.00

    4 4 Compacted Liner Material - 3 feet
         582.51 750.00
         621.57 763.02
         800.00 763.02
         1100.00  763.02
         1220.00  765.00
         1500.00  765.00
         1600.00  770.00
         1900.00  790.00
         2000.00  820.00

 5 5 Original Ground Surface
         95.17  748.92
         147.03 740.00
         353.93 749.00
         582.51 750.00
         621.57 760.02
         800.00 760.02
         1100.00  760.02
         1500.00  762.00
         1600.00  765.50
         1900.00  770.50
         2000.00  790.50
```

```
 6 6 Bedrock Limestone
     95.17  713.41
     321.14 713.41
     445.30 711.73
     643.64 719.00
     934.06 719.16
     1098.46  710.00
     1243.94  710.00
     1438.36  720.00
     1540.36  728.00
     1608.78  730.00
     1653.77  730.00
     1709.13  721.16
     1773.31  726.69
     2044.71  746.24


MATerial property data follow
  1   Gypsum
          113.4 = total unit weight
          Conventional shear strengths
               50 37
          Piezometric Line
               1
  2   Rolled Compacted Fly Ash Base
        113.4 = total unit weight
         Conventional shear strengths
          100.0  36.6
          Piezometric Line
               1
  3    Bottom Ash
            116.4 = total unit weight
          Conventional shear strengths
             110 36.0
          Piezometric Line
               1
 4   Compacted Clay Liner
         126.4 = total unit weight
          Conventional shear strengths
             2000.0  0.0
          No Pore Pressure
 5  Original Ground
            130.4 = total unit weight
          Conventional shear strengths
             1950.00  0.0
         No Pore Pressure
 6 Bedrock Limestone
          155 = total unit weight
          Conventional shear strengths
           10000.0  29.9
          Piezometric Line
               1

PIEzometric line (for first stage) follows -
     1 Psuedo Static Water TAble
          95.17 764.92
        147.03  745.81
        353.93  749.00
        424.97  748.53
        582.51  750.00
        621.57  763.02
        696.50  793.64
        775.81  820.00
        790.84  820.00
        881.04  850.00
        896.07  850.00
        986.27  880.00
        1001.30 880.00
        1091.49 910.00
        1106.53 910.00
        1125.00 920.00
        1475.00 920.00
```

```
        1525.00 910.00
        1900.00 820.00


ANAlysis/computation data follow -
     Circle
    800.00   1200.00    477.00
          ITERATION
     1000
    Seismic
     0.0
   PROCEDURE
    Lowe
   CRACK
    5.0

Compute
HEADING
Kingston 2 Section A-A, End-of-Construction  UTEXAS3
GYPSUM STACK Residuum  KFEOCA1
KIF
ANALYSIS/COMPUTATION
 NonCircular  Search
   454.2 749.0
  642.62 750.62
 1100.0 750.0000
 1186.53 780.33
 1259.47 884.57
 1281.00 932.00
 1303.75 980.89

    7 45
    PROCEDURE
     Spencer
   WATER
     0.0

COMPUTE
HEADING
Kingston 3 Section A-A, End-of-Construction  UTEXAS3
GYPSUM STACK Residuum
KIF
ANALYSIS/COMPUTATION
 NonCircular  Search
  453.67 749.00
  546.0  738.5
  642.62 735.0
  869.29 719.0
  902.62 735.0
 1022.44 747.00
 1100.0 750.0000
 1186.53 780.33
 1259.47 884.57
 1281.00 932.00
 1303.75 980.89

    11 45
    PROCEDURE
     Spencer
   WATER
     0.0

COMPUTE
HEADING
Kingston 4 Section A-A, End-of-Construction  UTEXAS3
GYPSUM STACK
KIF
ANAlysis/computation data follow -
     Circle  Search
   500.00   1120.00  10   723.00
    Tangent
    723
```

```
      ITERATION
      1000
   PROCEDURE
    Spencer
    CRACK
    5.0

COMpute
HEAding follows -
Kingston 5 Section A-A, End-of-Construction UTEXAS3
GYPSUM STACK  Residuum
KIF
ANAlysis/computation data follow -
     Circle  Search
     573 1011 10.0 720.
     Tangent
     720.0
    ITERATION
     1000
   PROCEDURE
    Spencer
    CRACK
    5.0

COMpute
```

```
Plot
Ascii
HEAding follows -
KFEOCA3 Penin 1 Sec A, End-of-Construction UTEXAS3
GYPSUM STACK Option 1+2, Drainage Blanket
KIF Wet Undrained Props for Clays
PROfile line data follow -
     1 1 Gypsum
         454.17 749.00
         577.4  799.34
         597.4  799.34
         614.5  793.64
         621.5  793.64
         700.81 820.00
         715.84 820.00
         806.04 850.00
         821.07 850.00
         911.27 880.00
         926.3    880.00
         1016.49  910.00
         1031.53  910.00
         1121.72  940.00
         1136.75  940.00
         1226.95  970.00
         1241.98  970.00
         1284.49  983.90
         1312.81  984.40
         1362.1   970.00
         1379.08  970.00
         1480.95  940.00
         1999.15  820.00

     2 2 Fly Ash and Bottom Ash 1 foot thickness
         582.51 750.00
         621.57 766.02
         800.00 766.02
         1100.00 766.02
         1220.00 768.00
         1500.00 768.00

    3 3 Bottom Ash Drainage Layer 2 feet thick
        582.51  750.00
        621.57  765.02
        800.00  765.02
        1100.00 765.02
        1220.00 767.00
        1500.00 767.00

    4 4 Compacted Liner Material - 3 feet
         582.51 750.00
         621.57 763.02
         800.00 763.02
         1100.00  763.02
         1220.00  765.00
         1500.00  765.00
         1600.00  770.00
         1900.00  790.00
         2000.00  820.00

 5 5 Original Ground Surface
         95.17  748.92
         147.03 740.00
         353.93 749.00
         582.51 750.00
         621.57 760.02
         800.00 760.02
         1100.00  760.02
         1500.00  762.00
         1600.00  765.50
         1900.00  770.50
         2000.00  790.50
```

```
 6 6 Bedrock Limestone
     95.17  713.41
     321.14 713.41
     445.30 711.73
     643.64 719.00
     934.06 719.16
     1098.46  710.00
     1243.94  710.00
     1438.36  720.00
     1540.36  728.00
     1608.78  730.00
     1653.77  730.00
     1709.13  721.16
     1773.31  726.69
     2044.71  746.24


MATerial property data follow
  1   Gypsum
          113.4 = total unit weight
          Conventional shear strengths
               50 37
          Piezometric Line
               1
  2   Rolled Compacted Fly Ash Base
        113.4 = total unit weight
         Conventional shear strengths
           100.0  36.6
          Piezometric Line
               1
  3    Bottom Ash
            116.4 = total unit weight
          Conventional shear strengths
              110 36.0
          Piezometric Line
               1
 4   Compacted Clay Liner
         126.4 = total unit weight
          Conventional shear strengths
             2000.0  0.0
          No Pore Pressure
 5  Original Ground
            130.4 = total unit weight
          Conventional shear strengths
             1950.00  0.0
         No Pore Pressure
 6 Bedrock Limestone
          155 = total unit weight
          Conventional shear strengths
           10000.0  29.9
          Piezometric Line
               1

PIEzometric line (for first stage) follows -
     1 Psuedo Static Water TAble
         95.17 764.92
        147.03  745.81
        353.93  749.00
        424.97  748.53
        582.51  750.00
        621.57 763.02
        800.00  763.52
        1100.00 763.52
        1500.00 765.50
        1600.00 770.50
        1900.00 790.50
        2000.00 820.50


ANAlysis/computation data follow -
     Circle
    800.00   1200.00    477.00
```

```
          ITERATION
     1000
    Seismic
     0.0
   PROCEDURE
    Lowe
   CRACK
    5.0

Compute
HEADING
Kingston 2 Section A-A, End-of-Construction  UTEXAS3
GYPSUM STACK Residuum  KFEOCA1
KIF
ANALYSIS/COMPUTATION
 NonCircular  Search
   454.2 749.0
  642.62 750.62
 1100.0 750.0000
 1186.53 780.33
 1259.47 884.57
 1281.00 932.00
 1303.75 980.89

    7 45
    PROCEDURE
     Spencer
   WATER
     0.0

COMPUTE
HEADING
Kingston 3 Section A-A, End-of-Construction  UTEXAS3
GYPSUM STACK Residuum
KIF
ANALYSIS/COMPUTATION
 NonCircular  Search
  453.67 749.00
  546.0  738.5
  642.62 735.0
  869.29 719.0
  902.62 735.0
 1022.44 747.00
 1100.0 750.0000
 1186.53 780.33
 1259.47 884.57
 1281.00 932.00
 1303.75 980.89

    11 45
    PROCEDURE
     Spencer
   WATER
     0.0

COMPUTE
HEADING
Kingston 4 Section A-A, End-of-Construction  UTEXAS3
GYPSUM STACK
KIF
ANAlysis/computation data follow -
     Circle  Search
   500.00   1120.00  10   723.00
    Tangent
    723
      ITERATION
     1000
   PROCEDURE
    Spencer
    CRACK
    5.0
```

```
COMpute
HEAding follows -
Kingston 5 Section A-A, End-of-Construction UTEXAS3
GYPSUM STACK  Residuum
KIF
ANAlysis/computation data follow -
     Circle  Search
     573 1011 10.0 720.
     Tangent
     720.0
    ITERATION
     1000
   PROCEDURE
    Spencer
    CRACK
    5.0

COMpute
```

```
Plot
Ascii
HEAding follows -
KFLTA1 Penin 1 Sec A, Long-Term Analysis UTEXAS3
GYPSUM STACK Option 1+2,
KIF Wet
PROfile line data follow -
     1 1 Gypsum
         454.17 749.00
         577.4  799.34
         597.4  799.34
         614.5  793.64
         621.5  793.64
         700.81 820.00
         715.84 820.00
         806.04 850.00
         821.07 850.00
         911.27 880.00
         926.3    880.00
         1016.49  910.00
         1031.53  910.00
         1121.72  940.00
         1136.75  940.00
         1226.95  970.00
         1241.98  970.00
         1284.49  983.90
         1312.81  984.40
         1362.1   970.00
         1379.08  970.00
         1480.95  940.00
         1999.15  820.00

     2 2 Fly Ash and Bottom Ash 1 foot thickness
         582.51 750.00
         621.57 766.02
         800.00 766.02
         1100.00 766.02
         1220.00 768.00
         1500.00 768.00

    3 3 Bottom Ash Drainage Layer 2 feet thick
        582.51  750.00
        621.57  765.02
        800.00  765.02
        1100.00 765.02
        1220.00 767.00
        1500.00 767.00

    4 4 Compacted Liner Material - 3 feet
         582.51 750.00
         621.57 763.02
         800.00 763.02
         1100.00  763.02
         1220.00  765.00
         1500.00  765.00
         1600.00  770.00
         1900.00  790.00
         2000.00  820.00

 5 5 Original Ground Surface
         95.17  748.92
         147.03 740.00
         353.93 749.00
         582.51 750.00
         621.57 760.02
         800.00 760.02
         1100.00  760.02
         1500.00  762.00
         1600.00  765.50
         1900.00  770.50
         2000.00  790.50
```

```
 6 6 Bedrock Limestone
     95.17  713.41
     321.14 713.41
     445.30 711.73
     643.64 719.00
     934.06 719.16
     1098.46  710.00
     1243.94  710.00
     1438.36  720.00
     1540.36  728.00
     1608.78  730.00
     1653.77  730.00
     1709.13  721.16
     1773.31  726.69
     2044.71  746.24


MATerial property data follow
  1   Gypsum
          113.4 = total unit weight
          Conventional shear strengths
               50 37
          Piezometric Line
               1
  2   Rolled Compacted Fly Ash Base
        113.4 = total unit weight
         Conventional shear strengths
          100.0  36.6
         Piezometric Line
               1
  3    Bottom Ash
            116.4 = total unit weight
          Conventional shear strengths
              110 36.0
          Piezometric Line
               1
 4   Compacted Clay Liner
         126.4 = total unit weight
          Conventional shear strengths
             326 24
          Piezometric Line
               1
 5  Original Ground
           130.4 = total unit weight
          Conventional shear strengths
             0.0   22.5
        Piezometric Line
               1
6 Bedrock Limestone
          155 = total unit weight
          Conventional shear strengths
           10000.0  29.9
          Piezometric Line
               1

PIEzometric line (for first stage) follows -
     1 Psuedo Static Water TAble
       95.17 764.92
        147.03  745.81
        353.93  749.00
        424.97  748.53
        582.51  750.00
        621.57 763.02
        800.00  763.52
        1100.00 763.52
        1500.00 765.50
        1600.00 770.50
        1900.00 790.50
        2000.00 820.50


ANAlysis/computation data follow -
```

```
     Circle
    800.00   1200.00    477.00
          ITERATION
     1000
    Seismic
     0.0
   PROCEDURE
    Lowe
   CRACK
    5.0

Compute
HEADING
Kingston 2 Section A-A, Long-Term UTEXAS3
GYPSUM STACK Residuum  KFLTA1
KIF  Seismic=0.135
ANALYSIS/COMPUTATION
 NonCircular  Search
   454.2 749.0
  642.62 750.62
 1100.0 750.0000
 1186.53 780.33
 1259.47 884.57
 1281.00 932.00
 1303.75 980.89

    7 45
    PROCEDURE
     Spencer
   WATER
     0.0

COMPUTE
HEADING
Kingston 3 Section A-A, Long-Term UTEXAS3
GYPSUM STACK Residuum  KFLTA1
KIF  Long - Term
ANALYSIS/COMPUTATION
 NonCircular  Search
   413.2 749.0
  546.0  738.5
  642.62 735.0
  869.29 719.0
  902.62 735.0
 1022.44 747.00
 1100.0 750.0000
 1186.53 780.33
 1259.47 884.57
 1281.00 932.00
 1303.75 980.89

    11 45
    PROCEDURE
     Spencer
   WATER
     0.0

COMPUTE
HEADING
Kingston 4 Section A-A, Long-Term UTEXAS3
GYPSUM STACK
KIF
ANAlysis/computation data follow -
     Circle  Search
   500.00   1120.00  10   723.00
    Tangent
    723
      ITERATION
     1000
   PROCEDURE
    Spencer
    CRACK
```

```
    5.0

COMpute
HEAding follows -
Kingston 5 Section A-A, Long-Term UTEXAS3
GYPSUM STACK  Residuum
KIF
ANAlysis/computation data follow -
     Circle  Search
     573 1011 10.0 720.
     Tangent
     720.0
    ITERATION
     1000
   PROCEDURE
    Spencer
    CRACK
    5.0

COMpute
```

```
Plot
Ascii
HEAding follows -
KFPGPS2 Penin 1 Sec A, Two-Stage UTEXAS3
GYPSUM STACK Option 1+2,
KIF Wet
PROfile line data follow -
     1 1 Gypsum
         454.17 749.00
         577.4  799.34
         597.4  799.34
         614.5  793.64
         621.5  793.64
         700.81 820.00
         715.84 820.00
         806.04 850.00
         821.07 850.00
         911.27 880.00
         926.3    880.00
         1016.49  910.00
         1031.53  910.00
         1121.72  940.00
         1136.75  940.00
         1226.95  970.00
         1241.98  970.00
         1284.49  983.90
         1312.81  984.40
         1362.1   970.00
         1379.08  970.00
         1480.95  940.00
         1999.15  820.00

     2 2 Fly Ash and Bottom Ash 1 foot thickness
         582.51 750.00
         621.57 766.02
         800.00 766.02
         1100.00 766.02
         1220.00 768.00
         1500.00 768.00

    3 3 Bottom Ash Drainage Layer 2 feet thick
        582.51  750.00
        621.57  765.02
        800.00  765.02
        1100.00 765.02
        1220.00 767.00
        1500.00 767.00

    4 4 Compacted Liner Material - 3 feet
         582.51 750.00
         621.57 763.02
         800.00 763.02
         1100.00  763.02
         1220.00  765.00
         1500.00  765.00
         1600.00  770.00
         1900.00  790.00
         2000.00  820.00

 5 5 Original Ground Surface
         95.17  748.92
         147.03 740.00
         353.93 749.00
         582.51 750.00
         621.57 760.02
         800.00 760.02
         1100.00  760.02
         1500.00  762.00
         1600.00  765.50
         1900.00  770.50
         2000.00  790.50
```

```
 6 6 Bedrock Limestone
     95.17  713.41
     321.14 713.41
     445.30 711.73
     643.64 719.00
     934.06 719.16
     1098.46  710.00
     1243.94  710.00
     1438.36  720.00
     1540.36  728.00
     1608.78  730.00
     1653.77  730.00
     1709.13  721.16
     1773.31  726.69
     2044.71  746.24


MATerial property data follow
  1   Gypsum
          113.4 = total unit weight
          Conventional shear strengths
               50 37
          Piezometric Line
               1
  2   Rolled Compacted Fly Ash Base
        113.4 = total unit weight
         Conventional shear strengths
           100.0  36.6
          Piezometric Line
               1
  3    Bottom Ash
            116.4 = total unit weight
          Conventional shear strengths
              110 36.0
          Piezometric Line
               1
 4   Compacted Clay Liner
         126.4 = total unit weight
          Conventional shear strengths
             326 24
          Piezometric Line
               1
 5  Original Ground
            130.4 = total unit weight
          Conventional shear strengths
             0.0   22.5
        Piezometric Line
               1
6 Bedrock Limestone
          155 = total unit weight
          Conventional shear strengths
           10000.0  29.9
          Piezometric Line
               1

PIEzometric line (for first stage) follows -
     1 Psuedo Static Water TAble
       95.17 764.92
        147.03  745.81
        353.93  749.00
        424.97  748.53
        582.51  750.00
        621.57 763.02
        800.00  763.52
        1100.00 763.52
        1500.00 765.50
        1600.00 770.50
        1900.00 790.50
        2000.00 820.50


SECond Stage input activated
```

```
MATERIAL PROPERTY data follows (for second stage) -
   1 Gypsum
     113.4 = Unit Weight
      2-stage Linear shear strengths
      50.   37.   242.9  39.8
      No Pore Pressure
   2  Rolled Compacted Fly Ash Base
     113.4 = Unit Weight
     2-stage Linear shear strengths revised 11/24/2004
     100. 36.6 1079.5 30.4
     No Pore Pressure
   3 Bottom Ash
     116.4 = total unit weight
     2-stage Linear shear strengths
      100.  36.  1460.8 42.7
     No Pore Pressure
   4  Compacted Clay Liner
     126.4 = total unit weight
     2-stage Linear shear strengths
      326.  24.  467.7  13.1
    No Pore Pressure
   5 Original Ground
     130.4 = total unit weight
    2-stage Linear shear strengths
     0.0  22.5  1330.6  9.2
     No Pore Pressure
   6 Limestone Bedrock    Assumed
     155 = Unit Weight
      2-stage Linear shear strengths
     10000.0   29.9   9528.0 17.1
     No Pore Pressure

ANAlysis/computation data follow -
     Circle
    800.00   1200.00    477.00
     TWO-Stage computations
     ITERATION
     1000
    Seismic
     0.1100
   PROCEDURE
    Lowe
   CRACK
    5.0

Compute
HEADING
Kingston 2 Section A-A, Two-Stage UTEXAS3
GYPSUM STACK Residuum  KFPGAPS3
KIF  Seismic=0.110
ANALYSIS/COMPUTATION
 NonCircular  Search
   454.2 749.0
  642.62 750.62
 1100.0 750.0000
 1186.53 780.33
 1259.47 884.57
 1281.00 932.00
 1303.75 980.89

    7 45
     Seismic
     0.110
   TWO-Stage computations
    PROCEDURE
     Spencer
   WATER
     0.0

COMPUTE
HEADING
Kingston 3 Section A-A, Two-Stage UTEXAS3
```

```
GYPSUM STACK Residuum  KFPGAPS3
KIF  Seismic=0.110
ANALYSIS/COMPUTATION
 NonCircular  Search
   413.2 749.0
  546.0  738.5
  642.62 735.0
  869.29 719.0
  902.62 735.0
 1022.44 747.00
 1100.0 750.0000
 1186.53 780.33
 1259.47 884.57
 1281.00 932.00
 1303.75 980.89

    11 45
     Seismic
     0.110
   TWO-Stage computations
    PROCEDURE
     Spencer
   WATER
     0.0

COMPUTE
HEADING
Kingston 4 Section A-A, Two-Stage UTEXAS3
GYPSUM STACK Residuum KFPGAPS3
KIF Wet with Pond Surcharge Included
ANAlysis/computation data follow -
     Circle  Search
   500.00   1120.00  10   723.00
    Tangent
    723
      ITERATION
     1000
     Seismic
     0.1100
   TWO-Stage computations
   PROCEDURE
    Spencer
    CRACK
    5.0

COMpute
HEAding follows -
Kingston 5 Section A-A, Two-Stage UTEXAS3
GYPSUM STACK  Residuum
KIF
ANAlysis/computation data follow -
     Circle  Search
     573 1011 10.0 720.
     Tangent
     720.0
    ITERATION
     1000
     Seismic
     0.1100
     TWO-Stage computations
   PROCEDURE
    Spencer
    CRACK
    5.0

COMpute
```

```
Plot
Ascii
HEAding follows -
KFEOCA3 Penin 1 Sec A, End-of-Construction UTEXAS3
GYPSUM STACK Option 1+2, Drainage Blanket
KIF Wet Undrained Props for Clays
PROfile line data follow -
     1 1 Gypsum
         454.17 749.00
         577.4  799.34
         597.4  799.34
         614.5  793.64
         621.5  793.64
         700.81 820.00
         715.84 820.00
         806.04 850.00
         821.07 850.00
         911.27 880.00
         926.3    880.00
         1016.49  910.00
         1031.53  910.00
         1121.72  940.00
         1136.75  940.00
         1226.95  970.00
         1241.98  970.00
         1284.49  983.90
         1312.81  984.40
         1362.1   970.00
         1379.08  970.00
         1480.95  940.00
         1999.15  820.00

     2 2 Fly Ash and Bottom Ash 1 foot thickness
         582.51 750.00
         621.57 766.02
         800.00 766.02
         1100.00 766.02
         1220.00 768.00
         1500.00 768.00

    3 3 Bottom Ash Drainage Layer 2 feet thick
        582.51  750.00
        621.57  765.02
        800.00  765.02
        1100.00 765.02
        1220.00 767.00
        1500.00 767.00

    4 4 Compacted Liner Material - 3 feet
         582.51 750.00
         621.57 763.02
         800.00 763.02
         1100.00  763.02
         1220.00  765.00
         1500.00  765.00
         1600.00  770.00
         1900.00  790.00
         2000.00  820.00

 5 5 Original Ground Surface
         95.17  748.92
         147.03 740.00
         353.93 749.00
         582.51 750.00
         621.57 760.02
         800.00 760.02
         1100.00  760.02
         1500.00  762.00
         1600.00  765.50
         1900.00  770.50
         2000.00  790.50
```

```
 6 6 Bedrock Limestone
     95.17  713.41
     321.14 713.41
     445.30 711.73
     643.64 719.00
     934.06 719.16
     1098.46  710.00
     1243.94  710.00
     1438.36  720.00
     1540.36  728.00
     1608.78  730.00
     1653.77  730.00
     1709.13  721.16
     1773.31  726.69
     2044.71  746.24


MATerial property data follow
  1   Gypsum
          113.4 = total unit weight
          Conventional shear strengths
               50 37
          Piezometric Line
               1
  2   Rolled Compacted Fly Ash Base
        113.4 = total unit weight
         Conventional shear strengths
           100.0  36.6
          Piezometric Line
               1
  3    Bottom Ash
            116.4 = total unit weight
          Conventional shear strengths
              110 36.0
          Piezometric Line
               1
 4   Compacted Clay Liner
         126.4 = total unit weight
          Conventional shear strengths
             2000.0  0.0
          No Pore Pressure
 5  Original Ground
           130.4 = total unit weight
          Conventional shear strengths
             1950.00  0.0
         No Pore Pressure
 6 Bedrock Limestone
          155 = total unit weight
          Conventional shear strengths
           10000.0  29.9
          Piezometric Line
               1

PIEzometric line (for first stage) follows -
     1 Psuedo Static Water TAble
         95.17 764.92
        147.03  745.81
        353.93  749.00
        424.97  748.53
        582.51  750.00
        621.57 763.02
        800.00  763.52
        1100.00 763.52
        1500.00 765.50
        1600.00 770.50
        1900.00 790.50
        2000.00 820.50


ANAlysis/computation data follow -
     Circle
    800.00   1200.00    477.00
```

```
          ITERATION
     1000
    Seismic
     0.0
   PROCEDURE
    Lowe
   CRACK
    5.0

Compute
HEADING
Kingston 2 Section A-A, End-of-Construction  UTEXAS3
GYPSUM STACK Residuum  KFEOCA1
KIF
ANALYSIS/COMPUTATION
 NonCircular  Search
   454.2 749.0
  642.62 750.62
 1100.0 750.0000
 1186.53 780.33
 1259.47 884.57
 1281.00 932.00
 1303.75 980.89

    7 45
    PROCEDURE
     Spencer
   WATER
     0.0

COMPUTE
HEADING
Kingston 3 Section A-A, End-of-Construction  UTEXAS3
GYPSUM STACK Residuum
KIF
ANALYSIS/COMPUTATION
 NonCircular  Search
  453.67 749.00
  546.0  738.5
  642.62 735.0
  869.29 719.0
  902.62 735.0
 1022.44 747.00
 1100.0 750.0000
 1186.53 780.33
 1259.47 884.57
 1281.00 932.00
 1303.75 980.89

    11 45
    PROCEDURE
     Spencer
   WATER
     0.0

COMPUTE
HEADING
Kingston 4 Section A-A, End-of-Construction  UTEXAS3
GYPSUM STACK
KIF
ANAlysis/computation data follow -
     Circle  Search
   500.00   1120.00  10   723.00
    Tangent
    723
      ITERATION
     1000
   PROCEDURE
    Spencer
    CRACK
    5.0
```

```
COMpute
HEAding follows -
Kingston 5 Section A-A, End-of-Construction UTEXAS3
GYPSUM STACK  Residuum
KIF
ANAlysis/computation data follow -
     Circle  Search
     573 1011 10.0 720.
     Tangent
     720.0
    ITERATION
     1000
   PROCEDURE
    Spencer
    CRACK
    5.0

COMpute
```

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TABLE NO. 1

```
****************************************
* COMPUTER PROGRAM DESIGNATION - UTEXAS3 *
* Originally Coded By Stephen G. Wright  *
* Version No. 1.209                      *
* Last Revision Date  2/28/98            *
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* All Rights Reserved                    *
****************************************

************************************************************
*                                                          *
*      RESULTS OF COMPUTATIONS PERFORMED USING THIS COMPUTER *
* PROGRAM SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY *
* HAVE BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL   *
* DATA OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE   *
* ALGORITHMS AND ANALYTICAL PROCEDURES USED IN THE COMPUTER  *
* PROGRAM AND MUST HAVE READ ALL DOCUMENTATION FOR THIS      *
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*                                                          *
************************************************************
```

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KFEOCA2 Penin 1 Sec A, End-of-Construction TEXAS3
GYPSUM STACK Option 1+2, No Drainage Blanket
KIF Wet Undrained Props for Clays

TABLE NO. 2

```
*************************
* NEW PROFILE LINE DATA *
*************************
```

PROFILE LINE 1 - MATERIAL TYPE = 1
Gypsum

Point	X	Y
1	454.170	749.000
2	577.400	799.340
3	597.400	799.340
4	614.500	793.640
5	621.500	793.640
6	700.810	820.000
7	715.840	820.000
8	806.040	850.000
9	821.070	850.000
10	911.270	880.000
11	926.300	880.000
12	1016.490	910.000
13	1031.530	910.000
14	1121.720	940.000
15	1136.750	940.000
16	1226.950	970.000
17	1241.980	970.000
18	1284.490	983.900
19	1312.810	984.400
20	1362.100	970.000
21	1379.080	970.000
22	1480.950	940.000
23	1999.150	820.000

PROFILE LINE 2 - MATERIAL TYPE = 2
Fly Ash and Bottom Ash 1 foot thickness

Point	X	Y
1	582.510	750.000
2	621.570	766.020
3	800.000	766.020
4	1100.000	766.020
5	1220.000	768.000
6	1500.000	768.000

PROFILE LINE 3 - MATERIAL TYPE = 3
Bottom Ash Drainage Layer 2 feet thick

Point	X	Y
1	582.510	750.000
2	621.570	765.020
3	800.000	765.020
4	1100.000	765.020
5	1220.000	767.000
6	1500.000	767.000

PROFILE LINE 4 - MATERIAL TYPE = 4
Compacted Liner Material - 3 feet

Point	X	Y
1	582.510	750.000
2	621.570	763.020
3	800.000	763.020
4	1100.000	763.020
5	1220.000	765.000
6	1500.000	765.000
7	1600.000	770.000
8	1900.000	790.000
9	2000.000	820.000

PROFILE LINE 5 - MATERIAL TYPE = 5
Original Ground Surface

Point	X	Y
1	95.170	748.920
2	147.030	740.000
3	353.930	749.000
4	582.510	750.000
5	621.570	760.020
6	800.000	760.020
7	1100.000	760.020
8	1500.000	762.000
9	1600.000	765.500
10	1900.000	770.500
11	2000.000	790.500

PROFILE LINE 6 - MATERIAL TYPE = 6
Bedrock Limestone

Point	X	Y
1	95.170	713.410
2	321.140	713.410
3	445.300	711.730
4	643.640	719.000
5	934.060	719.160
6	1098.460	710.000
7	1243.940	710.000
8	1438.360	720.000
9	1540.360	728.000
10	1608.780	730.000
11	1653.770	730.000

12	1709.130	721.160
13	1773.310	726.690
14	2044.710	746.240

All new profile lines defined - No old lines retained
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KIF Wet Undrained Props for Clays

TABLE NO. 3
****
* NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
****

DATA FOR MATERIAL TYPE 1
Gypsum

Unit weight of material = 113.400

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 50.000
Friction angle - - - - - 37.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 2
Rolled Compacted Fly Ash Base

Unit weight of material = 113.400

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 100.000
Friction angle - - - - - 36.600 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 3
Bottom Ash

Unit weight of material = 116.400

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 110.000
Friction angle - - - - - 36.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 4
Compacted Clay Liner

Unit weight of material = 126.400

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 2000.000
Friction angle - - - - - .000 degrees

No (or zero) pore water pressures

DATA FOR MATERIAL TYPE 5
Original Ground

Unit weight of material = 130.400

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - - 1950.000
Friction angle - - - - - - .000 degrees

No (or zero) pore water pressures

DATA FOR MATERIAL TYPE 6
Bedrock Limestone

Unit weight of material = 155.000

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - - 10000.000
Friction angle - - - - - - 29.900 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

All new material properties defined - No old data retained
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TABLE NO. 5
****
* NEW PIEZOMETRIC LINE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
****

Line No.	Point	X	Y	
1 - Unit weight of water =		62.40		Psuedo Static Water TAble
1	1	95.170	764.920	Psuedo Static Water TAble
1	2	147.030	745.810	Psuedo Static Water TAble
1	3	353.930	749.000	Psuedo Static Water TAble
1	4	424.970	748.530	Psuedo Static Water TAble
1	5	582.510	750.000	Psuedo Static Water TAble
1	6	621.570	763.020	Psuedo Static Water TAble
1	7	696.500	793.640	Psuedo Static Water TAble
1	8	775.810	820.000	Psuedo Static Water TAble
1	9	790.840	820.000	Psuedo Static Water TAble
1	10	881.040	850.000	Psuedo Static Water TAble
1	11	896.070	850.000	Psuedo Static Water TAble
1	12	986.270	880.000	Psuedo Static Water TAble
1	13	1001.300	880.000	Psuedo Static Water TAble
1	14	1091.490	910.000	Psuedo Static Water TAble
1	15	1106.530	910.000	Psuedo Static Water TAble
1	16	1125.000	920.000	Psuedo Static Water TAble
1	17	1475.000	920.000	Psuedo Static Water TAble
1	18	1525.000	910.000	Psuedo Static Water TAble
1	19	1900.000	820.000	Psuedo Static Water TAble

All new piezometric lines defined - No old lines retained
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GYPSUM STACK Residuum
KIF

TABLE NO. 15
****
* NEW ANALYSIS/COMPUTATION DATA *
****

Noncircular Shear Surface(s)

Automatic Search Performed

Coordinates of points on shear surface which are to be shifted -

Point	X	Y	Shift Angle
1	453.670	749.000	angle to be computed - moveable
2	546.000	738.500	angle to be computed - moveable
3	642.620	735.000	angle to be computed - moveable
4	869.290	719.000	angle to be computed - moveable
5	902.620	735.000	angle to be computed - moveable
6	1022.440	747.000	angle to be computed - moveable
7	1100.000	750.000	angle to be computed - moveable
8	1186.530	780.330	angle to be computed - moveable
9	1259.470	884.570	angle to be computed - moveable
10	1281.000	932.000	angle to be computed - moveable
11	1303.750	980.890	angle to be computed - moveable

Initial distance for shifting points on shear surface = 11.000
Maximum steepness permitted for toe of shear surface = 45.00 degrees

Procedure used to compute the factor of safety: SPENCER

Depth of water in crack = .000

THE FOLLOWING REPRESENT EITHER DEFAULT OR PREVIOUSLY DEFINED VALUES:

Initial trial estimate for the factor of safety = 3.000

Initial trial estimate for side force inclination = 15.000 degrees
(Applicable to Spencer's procedure only)

Maximum number of iterations allowed for
calculating the factor of safety = 1000

Allowed force imbalance for convergence = 100.000

Allowed moment imbalance for convergence = 100.000

Initial trial values for factor of safety (and side force inclination
for Spencer's procedure) will be kept constant during search

Number of increments for slice subdivision = 30

Unit weight of water in crack = 62.400

Seismic coefficient = .000

Conventional (single-stage) computations to be performed
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TABLE NO. 22
****
* INITIAL COMPUTED INFORMATION FOR SEARCH *
* WITH NONCIRCULAR SHEAR SURFACE *
****

Crack depth computed to be - - - 3.35

FOR INITIAL TRIAL NONCIRCULAR SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .994
Side Force Inclination - - - - - - - - - - 9.92
Number of Iterations - - - - - - - - - - - 8

TABLE NO. 23
****

* SEARCH TRIAL NUMBER 1 *

****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	442.67	749.00	1.003	9.80	8
1	463.92	752.98	.982	10.09	8
2	545.18	727.53	.984	10.12	7
2	546.82	749.47	See Message on Next Line(s)		

SHEAR SURFACE SEGMENT BETWEEN POINTS 1 AND 2 CROSSES SLOPE BETWEEN POINTS 4 AND 5 AFTER SHIFT - THIS TRIAL SHEAR SURFACE WAS REJECTED

3	642.03	724.02	1.001	10.11	8
3	643.21	745.98	1.017	9.80	8
4	867.08	729.78	.984	9.86	16
4	871.50	708.22	1.799	12.49	7
5	899.56	745.56	1.036	10.20	8
5	905.68	724.44	.978	9.75	16
6	1021.68	757.97	1.022	10.22	8
6	1023.20	736.03	.981	9.70	10
7	1097.90	760.80	1.087	10.61	8
7	1102.10	739.20	.967	9.67	8
8	1179.22	788.55	.977	9.77	9
8	1193.84	772.11	1.003	9.97	10
9	1249.83	889.88	.997	9.96	9
9	1269.11	879.26	1.012	9.63	8
10	1271.00	936.59	1.007	9.67	8
10	1291.00	927.41	.998	9.80	7
11	1292.75	980.70	.998	9.82	7
11	1314.74	980.49	.995	9.90	7

Maximum distance shifted for new estimate of shear surface is 11.000 at point 7

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	463.92	752.98
2	545.18	727.53
3	642.45	731.87
4	867.08	729.78
5	905.68	724.44
6	1023.20	736.03
7	1102.10	739.20
8	1179.22	788.55
9	1255.81	886.59
10	1283.76	930.73
11	1307.37	980.95

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - .899
Side Force Inclination - - - - - - - - - 9.45
Number of Iterations - - - - - - - - - 12

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KIF

TABLE NO. 23

****
* SEARCH TRIAL NUMBER 2 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	453.67	749.00	.905	9.39	8
1	474.11	757.14	.905	9.36	9
2	543.71	716.63	.903	9.50	8
2	546.64	738.43	.903	9.34	8
3	642.26	742.87	.924	9.32	8
3	642.65	720.87	.881	9.52	8
4	866.27	718.81	.936	9.73	10
4	867.89	740.75	.936	9.61	8
5	905.47	713.44	1.295	12.01	8
5	905.90	735.43	.909	9.59	8
6	1022.44	747.00	.924	9.78	13
6	1023.96	725.05	.888	9.22	12
7	1098.56	749.62	.919	9.63	8
7	1105.64	728.79	.907	9.52	9
8	1171.60	796.48	.902	9.42	8
8	1186.84	780.61	.904	9.48	8
9	1246.79	892.89	.903	9.34	8
9	1264.82	880.28	.912	9.33	8
10	1274.08	935.96	.902	9.38	10
10	1293.44	925.51	.911	9.17	8
11	1296.37	980.76 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

11	1318.26	979.46	.901	9.40	9

Maximum distance shifted for new estimate of shear surface is 11.000 at point 3

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	463.91	752.98
2	545.14	727.24
3	642.65	720.87
4	867.08	729.76
5	905.79	729.68
6	1023.96	725.05
7	1102.92	736.79
8	1178.33	789.47
9	1253.35	888.31
10	1280.81	932.32
11	1307.37	980.95

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .869
Side Force Inclination - - - - - - - - - - 9.37
Number of Iterations - - - - - - - - - - 12
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KIF

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 3 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations

1	453.65	749.00	.875	9.31	9
1	474.09	757.14	.875	9.27	8
2	543.07	716.44	.869	9.43	9
2	547.20	738.05	.876	9.25	13
3	642.51	709.87	1.686	9.80	7
3	642.79	731.87	.888	9.29	8
4	866.88	740.76	.898	9.48	9
4	867.29	718.77	1.109	10.55	8
5	905.56	718.68	.945	9.88	8
5	906.02	740.68	.891	9.58	14
6	1023.36	736.04 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

6	1024.56	714.07	.878	9.38	9
7	1098.63	746.92	.888	9.55	8
7	1107.21	726.66	.875	9.42	8
8	1170.52	797.22	.874	9.36	9
8	1186.14	781.73	.872	9.37	8
9	1244.27	894.52	.873	9.26	9
9	1262.42	882.09	.881	9.25	8
10	1271.30	937.86	.873	9.27	8
10	1290.31	926.79	.878	9.15	10
11	1296.37	980.76	.870	9.35	9
11	1318.26	979.46 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

Maximum distance shifted for new estimate of shear surface is 5.357 at point 2

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	463.74	752.91
2	544.13	721.98
3	642.71	726.13
4	867.00	734.07
5	905.85	732.71
6	1023.96	725.05
7	1104.07	734.07
8	1179.34	788.47
9	1250.85	890.01
10	1278.70	933.55
11	1307.37	980.95

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .887
Side Force Inclination - - - - - - - - - - 9.45
Number of Iterations - - - - - - - - - - - 9

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 4 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 7.70

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	456.78	750.07	.873	9.32	11
1	471.04	755.89	.872	9.32	10
2	543.69	719.68	.868	9.42	8

2	546.58	734.80	.873	9.29	9
3	642.55	713.17	1.494	9.60	8
3	642.75	728.57	.881	9.32	8
4	866.94	737.46	.888	9.44	8
4	867.23	722.06	.858	9.32	11
5	905.63	721.98	.865	9.28	8
5	905.95	737.38	.883	9.51	10
6	1023.54	732.74	.876	9.51	9
6	1024.38	717.36	.869	9.30	8
7	1099.92	743.88	.880	9.47	11
7	1105.93	729.70	.871	9.38	9
8	1172.86	794.90	.871	9.37	9
8	1183.80	784.05	.871	9.38	9
9	1247.00	892.66	.870	9.32	8
9	1259.70	883.96	.876	9.31	8
10	1274.15	936.20	.870	9.34	9
10	1287.46	928.45	See Message on Next Line(s)		

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

11	1299.67	980.82	.869	9.37	12
11	1315.05	980.40	.871	9.33	10

Maximum distance shifted for new estimate of shear surface is 7.700 at point 4

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	464.67	753.29
2	543.69	719.68
3	642.69	724.57
4	867.23	722.06
5	905.63	721.98
6	1024.38	717.36
7	1104.02	734.20
8	1178.87	788.94
9	1250.98	889.93
10	1280.81	932.32
11	1304.36	980.90

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .848
Side Force Inclination - - - - - - - - - - 9.10
Number of Iterations - - - - - - - - - - 12

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 5 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 7.70

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	457.54	750.38	.849	9.10	8
1	471.80	756.20	.855	9.00	8
2	542.27	712.11	1.111	8.63	11
2	545.12	727.25	.848	9.06	8
3	642.55	732.27	.863	9.03	9
3	642.84	716.88	1.518	9.25	14
4	867.18	714.36	1.639	11.28	6
4	867.28	729.76	.865	9.17	8

5	905.47	714.29	1.598	13.00	10
5	905.79	729.68	.861	9.24	8
6	1023.72	725.04	.852	9.21	11
6	1025.05	709.69	1.697	14.52	6
7	1100.74	741.16	.858	9.20	8
7	1107.30	727.23	.849	9.10	8
8	1173.25	794.21	.851	9.11	9
8	1184.48	783.67	.849	9.09	10
9	1244.70	894.38	.851	9.00	8
9	1257.26	885.48	.852	9.09	11
10	1274.13	936.16	.847	9.13	10
10	1287.49	928.49	.855	8.93	8
11	1296.67	980.76	.849	9.08	8
11	1312.06	981.04	.849	9.07	8

Maximum distance shifted for new estimate of shear surface is 7.700 at point 10

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	461.62	752.04
2	545.12	727.25
3	642.62	728.25
4	867.25	725.76
5	905.71	725.70
6	1024.06	721.17
7	1105.33	731.42
8	1180.27	787.62
9	1250.91	889.98
10	1274.13	936.16
11	1304.17	980.90

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .864
Side Force Inclination - - - - - - - - - - 9.17
Number of Iterations - - - - - - - - - - 11

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 6 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 4.40

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	460.60	751.63	.848	9.11	9
1	468.74	754.95	.851	9.06	9
2	542.88	715.35	.850	9.11	10
2	544.51	724.00	.847	9.08	8
3	642.61	728.97	.857	9.07	8
3	642.78	720.18	.841	9.13	10
4	867.20	717.66	1.234	10.69	7
4	867.26	726.46	.857	9.14	8
5	905.54	717.58	1.366	12.08	10
5	905.72	726.38	.855	9.18	8
6	1024.01	721.75	.850	9.16	11
6	1024.76	712.98	1.348	13.18	14
7	1102.14	738.18	.852	9.15	9
7	1105.90	730.22	.847	9.09	8
8	1175.66	791.95	.849	9.11	14

8	1182.07	785.93	.848	9.10	11
9	1247.39	892.47	.849	9.06	9
9	1254.57	887.38	.849	9.11	9
10	1276.99	934.52	.847	9.14	8
10	1284.62	930.13 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

11	1299.97	980.82	.848	9.10	9
11	1308.76	980.98	.848	9.09	11

Maximum distance shifted for new estimate of shear surface is 4.400 at point 10

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	460.60	751.63
2	544.51	724.00
3	642.78	720.18
4	867.24	724.17
5	905.67	724.13
6	1024.20	719.54
7	1105.90	730.22
8	1179.98	787.89
9	1251.00	889.91
10	1276.99	934.52
11	1303.91	980.89

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - .845
Side Force Inclination - - - - - - - - - 9.20
Number of Iterations - - - - - - - - - - 8

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 7 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 4.40

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	456.52	749.96	.848	9.17	9
1	464.67	753.29	.845	9.20	8
2	543.71	719.68	.844	9.24	8
2	545.30	728.33	.847	9.16	8
3	642.73	715.78	1.471	9.29	8
3	642.83	724.58	.852	9.17	8
4	867.20	728.57	.854	9.24	8
4	867.28	719.77	.839	9.17	8
5	905.59	719.73	.841	9.15	9
5	905.76	728.53	.852	9.27	9
6	1023.99	723.94	.848	9.28	9
6	1024.40	715.15	.844	9.15	9
7	1104.07	734.23	.846	9.21	9
7	1107.72	726.21	.848	9.23	8
8	1176.72	790.84	.847	9.22	9
8	1183.25	784.94	.844	9.18	12
9	1247.29	892.27	.845	9.19	8
9	1254.72	887.55	.847	9.18	12
10	1273.19	936.73	.846	9.18	12
10	1280.80	932.30	.847	9.17	9

```
          11      1299.51      980.82    .845       9.21          11
          11      1308.31      980.97 See Message on Next Line(s)
        FATAL ERROR IN CALCULATING FACTOR OF SAFETY
        SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

        Maximum distance shifted for new estimate of shear
        surface is     4.400 at point   2

        Coordinates For New Estimate of Shear Surface

             Point        X           Y

                1       464.67      753.29
                2       543.71      719.68
                3       642.80      722.33
                4       867.28      719.77
                5       905.59      719.73
                6      1024.40      715.15
                7      1105.32      731.49
                8      1183.25      784.94
                9      1249.26      891.02
               10      1276.03      935.07
               11      1299.51      980.82

        FOR NEW ESTIMATE OF SHEAR SURFACE
        1-Stage Factor of Safety - - - - - - - -   1.166
        Side Force Inclination - - - - - - - - -    11.20
        Number of Iterations - - - - - - - - - -   9
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        TABLE NO. 23
        ****************************
        * SEARCH TRIAL NUMBER    8 *
        ****************************

        INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES =    1.10

                                          1-Stage
                                          Factor
                                            of      Side Force
        Point        X           Y       Safety    Inclination   Iterations

           1       459.58      751.21     .846        9.20          10
           1       461.61      752.04     .845        9.21          10
           2       544.31      722.92     .845        9.21          16
           2       544.71      725.08     .845        9.19           9
           3       642.77      719.08     .844        9.21           8
           3       642.79      721.28     .847        9.20           8
           4       867.23      725.27     .847        9.21           9
           4       867.25      723.07     .843        9.20           8
           5       905.65      723.03     .844        9.19           8
           5       905.70      725.23     .846        9.22           8
           6      1024.15      720.64     .846        9.22           8
           6      1024.25      718.44     .845        9.19           8
           7      1105.44      731.22     .845        9.20           9
           7      1106.35      729.22     .845        9.21           9
           8      1179.17      788.63     .846        9.21           8
           8      1180.80      787.15     .845        9.20           8
           9      1250.08      890.50     .845        9.20           8
           9      1251.93      889.32     .845        9.20           9
          10      1276.04      935.07     .845        9.20           8
          10      1277.94      933.96     .845        9.20          14
          11      1302.81      980.87     .845        9.21           8
          11      1305.01      980.91     .845        9.20           9

        Computed shift distances for newly estimated shear surface
        factored by  1.000 to prevent over-shift
```

Maximum distance shifted for new estimate of shear surface is 1.100 at point 2

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	461.61	752.04
2	544.31	722.92
3	642.77	719.08
4	867.25	723.07
5	905.65	723.03
6	1024.25	718.44
7	1105.44	731.22
8	1180.80	787.15
9	1250.08	890.50
10	1276.04	935.07
11	1302.81	980.87

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .838
Side Force Inclination - - - - - - - - - 9.19
Number of Iterations - - - - - - - - - - 8
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 9 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	460.60	751.63	.839	9.18	8
1	462.63	752.46	.838	9.19	8
2	544.10	721.84	.838	9.19	8
2	544.52	724.00	.839	9.18	9
3	642.76	717.98	1.165	9.05	7
3	642.78	720.18	.840	9.18	8
4	867.24	724.17	.840	9.19	8
4	867.26	721.97	See Message on Next Line(s)		
FATAL ERROR IN CALCULATING FACTOR OF SAFETY SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS					
5	905.63	721.93	.837	9.17	8
5	905.67	724.13	.840	9.20	9
6	1024.18	719.54	.839	9.20	8
6	1024.31	717.35	.838	9.17	8
7	1104.99	732.22	.839	9.19	8
7	1105.89	730.22	.838	9.18	9
8	1179.98	787.89	.839	9.19	8
8	1181.62	786.42	.838	9.18	10
9	1249.14	891.08	.838	9.19	8
9	1251.01	889.92	.839	9.18	8
10	1275.09	935.62	.838	9.19	8
10	1276.99	934.51	.839	9.18	9
11	1301.71	980.85	.838	9.19	13
11	1303.91	980.89	.839	9.18	8

Computed shift distances for newly estimated shear surface factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear

surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	462.63	752.46
2	544.10	721.84
3	642.77	719.62
4	867.25	723.07
5	905.63	721.93
6	1024.31	717.35
7	1105.89	730.22
8	1181.62	786.42
9	1249.14	891.08
10	1275.09	935.62
11	1301.71	980.85

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .837
Side Force Inclination - - - - - - - - - 9.16
Number of Iterations - - - - - - - - - - 8
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 10 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	461.61	752.04	.837	9.16	16
1	463.65	752.87	.837	9.16	11
2	543.88	720.76	.837	9.17	9
2	544.31	722.92	.837	9.15	8
3	642.77	718.52	1.013	9.00	12
3	642.78	720.72	.838	9.15	8
4	867.24	721.97	.835	9.15	8
4	867.26	724.17	.839	9.17	9
5	905.59	720.83	.836	9.15	9
5	905.67	723.03	.838	9.18	8
6	1024.25	718.44	.837	9.18	8
6	1024.38	716.25	.836	9.15	11
7	1105.44	731.22	.837	9.16	8
7	1106.34	729.21	.837	9.16	8
8	1180.79	787.14	.837	9.17	12
8	1182.45	785.70	.837	9.15	11
9	1248.20	891.66	.837	9.16	10
9	1250.08	890.51	.837	9.16	8
10	1274.14	936.18	.837	9.16	8
10	1276.04	935.07	.837	9.16	8
11	1300.61	980.83	.837	9.17	9
11	1302.81	980.87	.837	9.16	9

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	462.49	752.40
2	543.88	720.76
3	642.77	720.16
4	867.24	721.97
5	905.59	720.83
6	1024.38	716.25
7	1106.04	729.88
8	1182.45	785.70
9	1248.20	891.66
10	1274.14	936.18
11	1300.61	980.83

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .834
Side Force Inclination - - - - - - - - - - 9.12
Number of Iterations - - - - - - - - - - - 11
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 11 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	461.47	751.98	.834	9.12	9
1	463.51	752.81	.834	9.12	8
2	543.67	719.68	.834	9.13	10
2	544.09	721.84	.834	9.12	8
3	642.77	721.26	.835	9.11	9
3	642.78	719.06	.832	9.13	9
4	867.23	720.87	.832	9.11	9
4	867.25	723.07	.836	9.13	8
5	905.56	719.73	.976	10.12	7
5	905.63	721.93	.835	9.14	9
6	1024.31	717.35	.834	9.14	10
6	1024.45	715.15	.833	9.11	9
7	1105.59	730.89	.834	9.13	8
7	1106.49	728.88	.834	9.12	8
8	1181.61	786.41	.834	9.13	8
8	1183.29	784.98	.834	9.12	8
9	1247.26	892.22	.834	9.12	8
9	1249.15	891.09	.834	9.12	8
10	1273.19	936.74	.834	9.12	8
10	1275.09	935.62	.834	9.12	8
11	1299.51	980.82	.834	9.13	8
11	1301.71	980.85	.834	9.12	8

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	462.07	752.23
2	543.92	720.95

3	642.78	719.06
4	867.23	720.87
5	905.61	721.37
6	1024.45	715.15
7	1106.49	728.88
8	1183.29	784.98
9	1248.55	891.45
10	1273.19	936.74
11	1299.51	980.82

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .830
Side Force Inclination - - - - - - - - - - 9.11
Number of Iterations - - - - - - - - - - 9
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 12 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	461.05	751.81	.830	9.11	10
1	463.09	752.64	.830	9.11	10
2	543.70	719.87	.830	9.12	9
2	544.13	722.03	.830	9.10	9
3	642.77	717.96	1.377	9.03	8
3	642.78	720.16	.832	9.10	8
4	867.22	721.97	.832	9.12	8
4	867.24	719.77	.828	9.10	8
5	905.59	720.27	.920	9.76	9
5	905.63	722.47	.831	9.13	10
6	1024.39	716.25	.830	9.12	9
6	1024.51	714.05	.934	10.20	9
7	1106.04	729.88	.830	9.11	8
7	1106.94	727.87	.830	9.11	10
8	1182.45	785.69	.830	9.12	17
8	1184.13	784.27	.830	9.10	8
9	1247.59	892.00	.830	9.11	9
9	1249.50	890.90	.830	9.11	11
10	1272.24	937.28	.830	9.11	14
10	1274.15	936.19	.830	9.11	9
11	1298.41	980.80	.830	9.12	9
11	1300.61	980.83	.830	9.11	10

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	462.14	752.26
2	543.70	719.87
3	642.78	719.61
4	867.24	719.77
5	905.62	721.90
6	1024.42	715.70

7	1106.94	727.87
8	1184.13	784.27
9	1248.32	891.58
10	1273.36	936.64
11	1298.41	980.80

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .830
Side Force Inclination - - - - - - - - - - 9.12
Number of Iterations - - - - - - - - - - 9
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 13 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	461.12	751.84	.830	9.12	8
1	463.16	752.67	.830	9.11	8
2	543.49	718.79	.830	9.12	9
2	543.92	720.95	.830	9.11	9
3	642.78	718.51	1.418	9.09	8
3	642.78	720.71	.831	9.11	9
4	867.21	720.87	.831	9.12	10
4	867.27	718.67	1.463	10.58	6
5	905.62	723.00	.831	9.13	10
5	905.62	720.80	.828	9.10	9
6	1024.36	716.79	.830	9.13	10
6	1024.47	714.60	.829	9.10	13
7	1106.50	728.88	.830	9.12	8
7	1107.39	726.87	.830	9.12	8
8	1183.28	784.98	.830	9.12	11
8	1184.97	783.57	.830	9.11	12
9	1247.37	892.13	.830	9.12	9
9	1249.27	891.03	.830	9.11	10
10	1272.40	937.18	.830	9.12	8
10	1274.31	936.10	.830	9.11	10
11	1297.31	980.78	.830	9.12	12
11	1299.51	980.82	.830	9.11	8

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	461.70	752.08
2	543.92	720.95
3	642.78	720.15
4	867.23	720.32
5	905.62	720.80
6	1024.47	714.60
7	1106.88	728.01
8	1184.97	783.57
9	1248.79	891.31
10	1273.02	936.83

11 1297.31 980.78

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .829
Side Force Inclination - - - - - - - - - - 9.08
Number of Iterations - - - - - - - - - - - 8
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 14 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	460.68	751.66	.829	9.08	10
1	462.72	752.49	.829	9.08	8
2	543.71	719.87	.829	9.08	9
2	544.13	722.03	.829	9.07	8
3	642.78	719.05	.828	9.08	8
3	642.78	721.25	.831	9.07	8
4	867.22	721.42	.831	9.08	8
4	867.23	719.22	.828	9.07	9
5	905.60	719.70	1.348	12.05	10
5	905.65	721.90	.831	9.09	8
6	1024.41	715.70	.830	9.09	10
6	1024.53	713.50	1.575	13.46	7
7	1106.44	729.02	.830	9.08	9
7	1107.32	727.00	.829	9.07	10
8	1184.13	784.27	.829	9.08	9
8	1185.82	782.86	.829	9.07	8
9	1247.83	891.85	.829	9.08	8
9	1249.75	890.77	See Message on Next Line(s)		
FATAL ERROR IN CALCULATING FACTOR OF SAFETY					
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS					
10	1272.06	937.35	.829	9.07	10
10	1273.99	936.30	.829	9.08	10
11	1296.21	980.76	.829	9.08	8
11	1298.41	980.80	.829	9.07	8

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	462.16	752.26
2	543.71	719.87
3	642.78	719.05
4	867.23	719.22
5	905.63	721.35
6	1024.44	715.15
7	1107.32	727.00
8	1185.82	782.86
9	1248.79	891.31
10	1273.09	936.79
11	1296.21	980.76

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .827
Side Force Inclination - - - - - - - - - - 9.09
Number of Iterations - - - - - - - - - - - 11
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 15 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	461.14	751.85	.827	9.09	8
1	463.18	752.68	.827	9.09	9
2	543.49	718.79	.827	9.10	9
2	543.93	720.95	.827	9.09	9
3	642.77	717.95	See Message on Next Line(s)		
FATAL ERROR IN CALCULATING FACTOR OF SAFETY SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS					
3	642.78	720.15	.828	9.08	9
4	867.20	720.32	.828	9.10	8
4	867.27	718.12	2.098	10.23	6
5	905.63	722.45	.828	9.11	8
5	905.64	720.25	.928	9.78	8
6	1024.39	716.24	.827	9.11	8
6	1024.49	714.05	See Message on Next Line(s)		
FATAL ERROR IN CALCULATING FACTOR OF SAFETY SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS					
7	1106.89	728.02	.827	9.09	10
7	1107.76	725.99	.827	9.09	10
8	1184.97	783.56	.827	9.10	8
8	1186.67	782.17	.826	9.08	9
9	1247.83	891.85	.827	9.09	10
9	1249.75	890.78	.827	9.09	8
10	1272.12	937.31	.827	9.09	9
10	1274.06	936.28	.827	9.09	13
11	1295.11	980.74	.827	9.09	10
11	1297.31	980.78	.827	9.09	11

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	461.71	752.08
2	543.80	720.31
3	642.78	719.05
4	867.22	719.77
5	905.63	721.88
6	1024.44	715.15
7	1107.33	726.98
8	1186.67	782.17
9	1249.75	890.78
10	1272.84	936.93
11	1295.11	980.74

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - .828
Side Force Inclination - - - - - - - - - - 9.09
Number of Iterations - - - - - - - - - - 8
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TABLE NO. 25
****
* FINAL CRITICAL SHEAR SURFACE (FOUND AFTER 15 TRIAL POSITIONS) *
****

X	Y
462.16	752.26
543.71	719.87
642.78	719.05
867.23	719.22
905.63	721.35
1024.44	715.15
1107.32	727.00
1185.82	782.86
1248.79	891.31
1273.09	936.79
1296.21	980.76

CAUTION - FACTOR OF SAFETY WAS NOT COMPUTED FOR SOME SHEAR SURFACES NEAR CRITICAL SURFACE - CHECK PREVIOUS OUTPUT

1-Stage Factor of Safety = .827

Side Force Inclination = 9.09
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TABLE NO. 26
****
* Coordinate, Weight, Strength and Pore Water Pressure *
* Information for Individual Slices for Conventional *
* Computations or First Stage of Multi-Stage Computations. *
* (Information is for the Critical Shear Surface in the *
* Case of an Automatic Search.) *
****

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	462.2	752.3					
1	465.6	750.9	2205.5	1	50.00	37.00	.0
	469.1	749.5					
2	481.5	744.6	46148.6	5	1950.00	.00	.0
	494.0	739.6					
3	506.4	734.7	106871.6	5	1950.00	.00	.0
	518.8	729.7					
4	531.3	724.8	167595.2	5	1950.00	.00	.0
	543.7	719.9					
5	552.1	719.8	140841.2	5	1950.00	.00	.0
	560.6	719.7					
6	569.0	719.7	154313.6	5	1950.00	.00	.0
	577.4	719.6					
7	580.0	719.6	48867.1	5	1950.00	.00	.0
	582.5	719.5					
8	590.0	719.5	143167.9	5	1950.00	.00	.0

	597.4	719.4					
9	606.0	719.4	160691.5	5	1950.00	.00	.0
	614.5	719.3					
10	618.0	719.3	64073.5	5	1950.00	.00	.0
	621.5	719.2					
11	621.5	719.2	642.5	5	1950.00	.00	.0
	621.6	719.2					
12	632.2	719.1	203369.7	5	1950.00	.00	.0
	642.8	719.1					
13	643.2	719.1	8662.2	5	1950.00	.00	.0
	643.6	719.1					
14	656.9	719.1	278329.3	5	1950.00	.00	.0
	670.1	719.1					
15	683.3	719.1	304591.3	5	1950.00	.00	.0
	696.5	719.1					
16	698.7	719.1	52160.9	5	1950.00	.00	.0
	700.8	719.1					
17	708.3	719.1	183104.8	5	1950.00	.00	.0
	715.8	719.1					
18	725.8	719.1	251032.5	5	1950.00	.00	.0
	735.8	719.1					
19	745.8	719.1	266065.7	5	1950.00	.00	.0
	755.8	719.1					
20	765.8	719.1	281099.2	5	1950.00	.00	.0
	775.8	719.2					

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TABLE NO. 26

```
**************************************************************
*  Coordinate, Weight, Strength and Pore Water Pressure      *
*  Information for Individual Slices for Conventional        *
*  Computations or First Stage of Multi-Stage Computations.  *
*  (Information is for the Critical Shear Surface in the     *
*  Case of an Automatic Search.)                             *
**************************************************************
```

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	775.8	719.2					
21	783.3	719.2	221253.1	5	1950.00	.00	.0
	790.8	719.2					
22	795.4	719.2	139009.6	5	1950.00	.00	.0
	800.0	719.2					
23	803.0	719.2	93388.2	5	1950.00	.00	.0
	806.0	719.2					
24	813.6	719.2	234086.4	5	1950.00	.00	.0
	821.1	719.2					
25	832.6	719.2	369499.3	5	1950.00	.00	.0
	844.2	719.2					
26	855.7	719.2	389542.1	5	1950.00	.00	.0
	867.2	719.2					
27	874.1	719.6	241891.8	5	1950.00	.00	.0
	881.0	720.0					
28	888.6	720.4	269944.6	5	1950.00	.00	.0
	896.1	720.8					
29	900.9	721.1	175364.1	5	1950.00	.00	.0
	905.6	721.3					
30	908.5	721.2	104858.0	5	1950.00	.00	.0
	911.3	721.1					
31	918.8	720.7	282306.9	5	1950.00	.00	.0
	926.3	720.3					
32	930.2	720.1	147493.5	5	1950.00	.00	.0
	934.1	719.9					
33	947.1	719.2	515858.6	5	1950.00	.00	.0
	960.2	718.5					
34	973.2	717.8	546203.3	5	1950.00	.00	.0

	986.3	717.1					
35	993.8	716.7	328242.4	5	1950.00	.00	.0
	1001.3	716.4					
36	1008.9	716.0	341957.9	5	1950.00	.00	.0
	1016.5	715.6					
37	1020.5	715.4	181853.9	5	1950.00	.00	.0
	1024.4	715.1					
38	1028.0	715.7	161944.5	5	1950.00	.00	.0
	1031.5	716.2					
39	1041.5	717.6	458946.0	5	1950.00	.00	.0
	1051.5	719.0					
40	1061.5	720.4	466561.2	5	1950.00	.00	.0
	1071.5	721.9					

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TABLE NO. 26

```
**************************************************************
*  Coordinate, Weight, Strength and Pore Water Pressure      *
*  Information for Individual Slices for Conventional        *
*  Computations or First Stage of Multi-Stage Computations.  *
*  (Information is for the Critical Shear Surface in the     *
*  Case of an Automatic Search.)                             *
**************************************************************
```

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	1071.5	721.9					
41	1081.5	723.3	474173.4	5	1950.00	.00	.0
	1091.5	724.7					
42	1095.0	725.2	167150.6	5	1950.00	.00	.0
	1098.5	725.7					
43	1099.2	725.8	37057.4	5	1950.00	.00	.0
	1100.0	726.0					
44	1103.3	726.4	157637.1	5	1950.00	.00	.0
	1106.5	726.9					
45	1106.9	726.9	19204.5	5	1950.00	.00	.0
	1107.3	727.0					
46	1114.5	732.1	342985.5	5	1950.00	.00	.0
	1121.7	737.2					
47	1123.4	738.4	76350.0	5	1950.00	.00	.0
	1125.0	739.6					
48	1130.9	743.8	265333.8	5	1950.00	.00	.0
	1136.8	747.9					
49	1145.4	754.1	373934.8	5	1950.00	.00	.0
	1154.1	760.3					
50	1156.7	762.1	109245.6	4	2000.00	.00	.0
	1159.3	764.0					
51	1160.7	765.0	59698.1	3	110.00	36.00	9670.6
	1162.2	766.0					
52	1162.9	766.6	29713.9	2	100.00	36.60	9574.8
	1163.6	767.1					
53	1174.7	775.0	447129.9	1	50.00	37.00	9050.1
	1185.8	782.9					
54	1191.5	792.7	213903.1	1	50.00	37.00	7945.0
	1197.2	802.5					
55	1202.9	812.3	193443.7	1	50.00	37.00	6720.5
	1208.6	822.1					
56	1214.3	831.9	172984.2	1	50.00	37.00	5496.1
	1220.0	841.7					
57	1223.5	847.7	95462.3	1	50.00	37.00	4510.4
	1226.9	853.7					
58	1230.7	860.2	93594.4	1	50.00	37.00	3733.2
	1234.5	866.6					
59	1238.2	873.1	82565.3	1	50.00	37.00	2925.6
	1242.0	879.6					
60	1243.0	881.3	19791.4	1	50.00	37.00	2416.5

1243.9 883.0

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TABLE NO. 26

Coordinate, Weight, Strength and Pore Water Pressure Information for Individual Slices for Conventional Computations or First Stage of Multi-Stage Computations. (Information is for the Critical Shear Surface in the Case of an Automatic Search.)

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	1243.9	883.0					
61	1246.4	887.1	46348.3	1	50.00	37.00	2050.7
	1248.8	891.3					
62	1254.9	902.7	98553.3	1	50.00	37.00	1080.6
	1260.9	914.1					
63	1267.0	925.4	72694.7	1	50.00	37.00	.0
	1273.1	936.8					
64	1278.8	947.6	44481.4	1	50.00	37.00	.0
	1284.5	958.5					
65	1290.4	969.6	19125.6	1	50.00	37.00	.0
	1296.2	980.8					

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TABLE NO. 27

Seismic Forces and Forces Due to Surface Pressures for Individual Slices for Conventional Computations or the First Stage of Multi-Stage Computations. (Information is for the Critical Shear Surface in the Case of an Automatic Search.)

				FORCES DUE TO SURFACE PRESSURES			
Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
1	465.6	0.	752.3	0.	0.	.0	.0
2	481.5	0.	752.1	0.	0.	.0	.0
3	506.4	0.	751.9	0.	0.	.0	.0
4	531.3	0.	751.7	0.	0.	.0	.0
5	552.1	0.	753.2	0.	0.	.0	.0
6	569.0	0.	756.5	0.	0.	.0	.0
7	580.0	0.	758.1	0.	0.	.0	.0
8	590.0	0.	758.0	0.	0.	.0	.0
9	606.0	0.	756.6	0.	0.	.0	.0
10	618.0	0.	755.2	0.	0.	.0	.0
11	621.5	0.	755.2	0.	0.	.0	.0
12	632.2	0.	756.8	0.	0.	.0	.0
13	643.2	0.	758.5	0.	0.	.0	.0
14	656.9	0.	760.7	0.	0.	.0	.0
15	683.3	0.	765.0	0.	0.	.0	.0
16	698.7	0.	767.5	0.	0.	.0	.0
17	708.3	0.	767.8	0.	0.	.0	.0
18	725.8	0.	769.4	0.	0.	.0	.0
19	745.8	0.	772.7	0.	0.	.0	.0
20	765.8	0.	775.9	0.	0.	.0	.0

21	783.3	0.	778.8	0.	0.	.0	.0
22	795.4	0.	780.8	0.	0.	.0	.0
23	803.0	0.	782.0	0.	0.	.0	.0
24	813.6	0.	782.5	0.	0.	.0	.0
25	832.6	0.	784.4	0.	0.	.0	.0
26	855.7	0.	788.2	0.	0.	.0	.0
27	874.1	0.	791.4	0.	0.	.0	.0
28	888.6	0.	794.2	0.	0.	.0	.0
29	900.9	0.	796.6	0.	0.	.0	.0
30	908.5	0.	797.9	0.	0.	.0	.0
31	918.8	0.	798.1	0.	0.	.0	.0
32	930.2	0.	798.4	0.	0.	.0	.0
33	947.1	0.	800.7	0.	0.	.0	.0
34	973.2	0.	804.3	0.	0.	.0	.0
35	993.8	0.	807.1	0.	0.	.0	.0
36	1008.9	0.	809.2	0.	0.	.0	.0
37	1020.5	0.	810.1	0.	0.	.0	.0
38	1028.0	0.	810.2	0.	0.	.0	.0
39	1041.5	0.	812.9	0.	0.	.0	.0

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KIF

TABLE NO. 27

****
* Seismic Forces and Forces Due to Surface Pressures for *
* Individual Slices for Conventional Computations or the *
* First Stage of Multi-Stage Computations. *
* (Information is for the Critical Shear Surface in the *
* Case of an Automatic Search.) *
****

				FORCES DUE TO SURFACE PRESSURES			
Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
40	1061.5	0.	817.8	0.	0.	.0	.0
41	1081.5	0.	822.7	0.	0.	.0	.0
42	1095.0	0.	825.9	0.	0.	.0	.0
43	1099.2	0.	827.0	0.	0.	.0	.0
44	1103.3	0.	828.0	0.	0.	.0	.0
45	1106.9	0.	828.8	0.	0.	.0	.0
46	1114.5	0.	833.0	0.	0.	.0	.0
47	1123.4	0.	837.6	0.	0.	.0	.0
48	1130.9	0.	840.6	0.	0.	.0	.0
49	1145.4	0.	847.9	0.	0.	.0	.0
50	1156.7	0.	854.3	0.	0.	.0	.0
51	1160.7	0.	856.5	0.	0.	.0	.0
52	1162.9	0.	857.6	0.	0.	.0	.0
53	1174.7	0.	863.8	0.	0.	.0	.0
54	1191.5	0.	875.4	0.	0.	.0	.0
55	1202.9	0.	887.2	0.	0.	.0	.0
56	1214.3	0.	898.9	0.	0.	.0	.0
57	1223.5	0.	908.3	0.	0.	.0	.0
58	1230.7	0.	915.1	0.	0.	.0	.0
59	1238.2	0.	921.6	0.	0.	.0	.0
60	1243.0	0.	925.8	0.	0.	.0	.0
61	1246.4	0.	929.3	0.	0.	.0	.0
62	1254.9	0.	938.4	0.	0.	.0	.0
63	1267.0	0.	951.8	0.	0.	.0	.0
64	1278.8	0.	964.8	0.	0.	.0	.0
65	1290.4	0.	976.8	0.	0.	.0	.0

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KIF

TABLE NO. 29

```
**********************************************************************
*  Information Generated During Iterative Solution for the Factor    *
*  of Safety and Side Force Inclination by Spencer's Procedure       *
**********************************************************************
```

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	15.0000	.1690E+07	-.7566E+09		
First-order corrections to F and THETA					-.684E+01	-.175E+01
Values factored by .731E-01 - Deltas too large					-.500E+00	-.128E+00
2	2.50000	14.8724	.1543E+07	-.6893E+09		
First-order corrections to F and THETA					-.444E+01	-.181E+01
Values factored by .113E+00 - Deltas too large					-.500E+00	-.204E+00
3	2.00000	14.6684	.1328E+07	-.5906E+09		
First-order corrections to F and THETA					-.253E+01	-.193E+01
Values factored by .197E+00 - Deltas too large					-.500E+00	-.381E+00
4	1.50000	14.2878	.9837E+06	-.4306E+09		
First-order corrections to F and THETA					-.111E+01	-.216E+01
Values factored by .449E+00 - Deltas too large					-.500E+00	-.968E+00
5	1.00000	13.3195	.3356E+06	-.1215E+09		
First-order corrections to F and THETA					-.196E+00	-.285E+01
Second-order correction - Iteration 1					-.170E+00	-.285E+01
Second-order correction - Iteration 2					-.170E+00	-.285E+01
Second-order correction - Iteration 3					-.170E+00	-.285E+01
6	.83045	10.4722	-.9617E+04	.2300E+08		
First-order corrections to F and THETA					-.400E-02	-.140E+01
Second-order correction - Iteration 1					-.395E-02	-.140E+01
Second-order correction - Iteration 2					-.395E-02	-.140E+01
7	.82650	9.0752	.1261E+02	-.2157E+06		
First-order corrections to F and THETA					.828E-04	.165E-01
Second-order correction - Iteration 1					.828E-04	.165E-01
8	.82659	9.0916	-.5742E+00	-.2493E+03		
First-order corrections to F and THETA					.458E-06	.468E-04
Second-order correction - Iteration 1					.459E-06	.468E-04
9	.82659	9.0917	.1650E+00	.3311E+03		
First-order corrections to F and THETA					-.241E-06	-.340E-04
Second-order correction - Iteration 1					-.241E-06	-.340E-04
10	.82659	9.0917	.6006E-01	-.1307E+03		
First-order corrections to F and THETA					.179E-07	.749E-05
Second-order correction - Iteration 1					.179E-07	.750E-05
11	.82659	9.0917	.5420E-01	-.5007E+00		
First-order corrections to F and THETA					-.332E-07	-.252E-05

Factor of Safety - - - - - - - - .827
Side Force Inclination - - - - - 9.09
Number of Iterations - - - - - - 11
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TABLE NO. 38

```
************************************************************
*  Final Results for Stresses Along the Shear Surface      *
*  (Results for Critical Shear Surface in Case of a Search.) *
```

****

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = .827 Side Force Inclination = 9.09 Degrees

-------- VALUES AT CENTER OF BASE OF SLICE---------

Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	465.6	750.9	819.7	819.7	807.7
2	481.5	744.6	3385.8	3385.8	2359.1
3	506.4	734.7	5993.5	5993.5	2359.1
4	531.3	724.8	8601.2	8601.2	2359.1
5	552.1	719.8	8769.0	8769.0	2359.1
6	569.0	719.7	9569.8	9569.8	2359.1
7	580.0	719.6	9973.1	9973.1	2359.1
8	590.0	719.5	10025.2	10025.2	2359.1
9	606.0	719.4	9807.0	9807.0	2359.1
10	618.0	719.3	9562.9	9562.9	2359.1
11	621.5	719.2	9586.0	9586.0	2359.1
12	632.2	719.1	10000.6	10000.6	2359.1
13	643.2	719.1	10392.4	10392.4	2359.1
14	656.9	719.1	10905.3	10905.3	2359.1
15	683.3	719.1	11898.9	11898.9	2359.1
16	698.7	719.1	12476.7	12476.7	2359.1
17	708.3	719.1	12556.9	12556.9	2359.1
18	725.8	719.1	12932.2	12932.2	2359.1
19	745.8	719.1	13684.1	13684.1	2359.1
20	765.8	719.1	14436.1	14436.1	2359.1
21	783.3	719.2	15094.8	15094.8	2359.1
22	795.4	719.2	15549.7	15549.7	2359.1
23	803.0	719.2	15835.6	15835.6	2359.1
24	813.6	719.2	15948.5	15948.5	2359.1
25	832.6	719.2	16381.9	16381.9	2359.1
26	855.7	719.2	17250.2	17250.2	2359.1
27	874.1	719.6	17611.0	17611.0	2359.1
28	888.6	720.4	18046.5	18046.5	2359.1
29	900.9	721.1	18417.9	18417.9	2359.1
30	908.5	721.2	19268.0	19268.0	2359.1
31	918.8	720.7	19446.1	19446.1	2359.1
32	930.2	720.1	19672.0	19672.0	2359.1
33	947.1	719.2	20432.3	20432.3	2359.1
34	973.2	717.8	21604.6	21604.6	2359.1
35	993.8	716.7	22528.1	22528.1	2359.1
36	1008.9	716.0	23206.7	23206.7	2359.1
37	1020.5	715.4	23575.0	23575.0	2359.1
38	1028.0	715.7	22366.1	22366.1	2359.1
39	1041.5	717.6	22487.7	22487.7	2359.1

1

-------- VALUES AT CENTER OF BASE OF SLICE---------

Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress
40	1061.5	720.4	22860.2	22860.2	2359.1
41	1081.5	723.3	23232.6	23232.6	2359.1
42	1095.0	725.2	23483.8	23483.8	2359.1
43	1099.2	725.8	23563.2	23563.2	2359.1
44	1103.3	726.4	23639.0	23639.0	2359.1
45	1106.9	726.9	23708.3	23708.3	2359.1
46	1114.5	732.1	20219.8	20219.8	2359.1
47	1123.4	738.4	19729.1	19729.1	2359.1
48	1130.9	743.8	19104.6	19104.6	2359.1
49	1145.4	754.1	18189.4	18189.4	2359.1
50	1156.7	762.1	17610.7	17610.7	2419.6
51	1160.7	765.0	15866.1	6195.5	5578.7
52	1162.9	766.6	15740.1	6165.3	5660.3
53	1174.7	775.0	15255.4	6205.4	5717.6

54	1191.5	792.7	11109.5	3164.5	2945.3
55	1202.9	812.3	9798.5	3077.9	2866.5
56	1214.3	831.9	8487.5	2991.4	2787.6
57	1223.5	847.7	7432.1	2921.8	2724.1
58	1230.7	860.2	6547.5	2814.4	2626.2
59	1238.2	873.1	5577.9	2652.3	2478.5
60	1243.0	881.3	4980.1	2563.6	2397.6
61	1246.4	887.1	4587.6	2537.0	2373.3
62	1254.9	902.7	3389.6	2309.0	2165.4
63	1267.0	925.4	2055.8	2055.8	1934.6
64	1278.8	947.6	1312.7	1312.7	1257.2
65	1290.4	969.6	527.9	527.9	541.7

CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION = .34 (= .340E+00)
SHOULD NOT EXCEED .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION = 1.26 (= .126E+01)
SHOULD NOT EXCEED .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN = -181.70 (= -.182E+03)
SHOULD NOT EXCEED .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .10 (= .101E+00)
SHOULD NOT EXCEED .100E+03

***** WARNING ***** ONE OF CHECK SUMS IS TOO LARGE
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TABLE NO. 39
****
* Final Results for Side Forces and Stresses Between Slices. *
* (Results for Critical Shear Surface in Case of a Search.) *
****

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = .827 Side Force Inclination = 9.09 Degrees

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	469.1	7975.	751.4	.346	105.3	2707.9
2	494.0	101256.	747.3	.298	-838.0	8638.6
3	518.8	220626.	743.4	.298	-1011.7	10551.7
4	543.7	366085.	739.2	.294	-1304.2	12306.8
5	560.6	407563.	739.8	.275	-1922.3	12989.2
6	577.4	449153.	740.5	.262	-2386.1	13508.7
7	582.5	461786.	740.7	.265	-2337.7	13767.2
8	597.4	498604.	741.4	.275	-2141.8	14463.6
9	614.5	540855.	742.3	.310	-1003.7	15369.0
10	621.5	558137.	742.7	.316	-779.4	15592.2
11	621.6	558309.	742.7	.316	-781.2	15593.8
12	642.8	610739.	744.0	.305	-1258.4	16028.9
13	643.6	612798.	744.0	.305	-1276.4	16044.8
14	670.1	675728.	745.7	.294	-1747.8	16459.3
15	696.5	738640.	747.5	.286	-2101.8	16765.9
16	700.8	748898.	747.8	.284	-2151.1	16808.3
17	715.8	784667.	748.8	.295	-1781.6	17140.5
18	735.8	832234.	750.2	.289	-2012.2	17297.1
19	755.8	879790.	751.7	.285	-2205.3	17424.7
20	775.8	927335.	753.1	.281	-2368.7	17529.6
21	790.8	963076.	754.2	.279	-2475.7	17596.5
22	800.0	984854.	754.9	.277	-2535.1	17633.0
23	806.0	999214.	755.3	.276	-2572.2	17655.5
24	821.1	1034945.	756.5	.285	-2267.7	17891.7
25	844.2	1089811.	758.2	.282	-2415.8	17958.0

26	867.2	1144662.	759.9	.279	-2542.8	18011.6
27	881.0	1163973.	761.4	.276	-2614.8	17943.3
28	896.1	1184626.	763.1	.274	-2683.1	17862.1
29	905.6	1197569.	764.2	.273	-2721.5	17807.0
30	911.3	1216777.	764.4	.273	-2750.8	17869.1
31	926.3	1268140.	765.0	.280	-2512.4	18191.5
32	934.1	1294752.	765.3	.279	-2554.3	18268.6
33	960.2	1385327.	766.3	.277	-2688.1	18523.9
34	986.3	1477521.	767.3	.275	-2813.1	18774.7
35	1001.3	1531335.	767.9	.273	-2881.9	18917.4
36	1016.5	1586267.	768.5	.272	-2949.2	19060.5
37	1024.4	1615169.	768.8	.275	-2842.4	19212.3
38	1031.5	1609130.	770.2	.279	-2694.0	19088.1
39	1051.5	1591756.	773.9	.278	-2644.1	18550.3
40	1071.5	1573304.	777.8	.278	-2579.9	18006.0

1

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
41	1091.5	1553771.	781.7	.278	-2502.6	17455.9
42	1098.5	1546705.	783.1	.278	-2472.8	17262.8
43	1100.0	1545127.	783.4	.278	-2466.0	17220.1
44	1106.5	1538360.	784.7	.278	-2436.4	17038.5
45	1107.3	1537531.	784.8	.278	-2432.7	17016.4
46	1121.7	1362128.	794.1	.280	-2113.3	15381.0
47	1125.0	1323326.	796.2	.283	-1982.5	15022.4
48	1136.8	1189613.	804.1	.292	-1499.6	13732.3
49	1154.1	1003702.	816.4	.303	-986.1	11672.9
50	1159.3	950298.	820.3	.307	-810.8	11038.0
51	1162.2	933654.	821.8	.305	-845.0	10953.1
52	1163.6	925581.	822.5	.305	-864.2	10914.9
53	1185.8	810076.	833.1	.289	-1216.0	10439.1
54	1197.2	623286.	847.3	.284	-1154.8	8964.1
55	1208.6	461640.	861.6	.279	-1051.7	7481.6
56	1220.0	325136.	876.3	.275	-897.6	5995.5
57	1226.9	254224.	885.6	.274	-767.9	5084.9
58	1234.5	188396.	895.9	.283	-547.0	4146.8
59	1242.0	134152.	906.5	.298	-313.1	3243.3
60	1243.9	121887.	909.4	.301	-264.5	3009.9
61	1248.8	94747.	916.6	.313	-141.9	2454.4
62	1260.9	43327.	936.3	.358	100.3	1276.5
63	1273.1	19784.	952.3	.357	64.8	836.0
64	1284.5	5483.	968.7	.400	85.6	340.2
65	1296.2	0.	-432.3	BELOW	-71.8	71.9

CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION = .34 (= .340E+00)
SHOULD NOT EXCEED .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION = 1.26 (= .126E+01)
SHOULD NOT EXCEED .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN = -181.70 (= -.182E+03)
SHOULD NOT EXCEED .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .10 (= .101E+00)
SHOULD NOT EXCEED .100E+03

***** WARNING ***** ONE OF CHECK SUMS IS TOO LARGE

Job WBS Numbers

TSSC III So. Region Job No.: 741342

Cincinnati-No. KY International - CVG			
WR 0148	**WBS**	**DGN No.**	**JCN**
Site Survey	**31300**		
~~ALSF-2 Rwy 35 Design~~	~~30810~~	103418	113950
~~ALSF-2 Rwy 35 Cont. Procurement~~	~~30840~~		
ALSF-2 Rwy 35 Const. Support	**30850**		
ALSF-2 Rwy 35 ILS Support	**30950**		
~~ALSF-2 Rwy 17 Design~~	~~31320~~	103419	318091
~~ALSF-2 Rwy 17 Cont. Procurement~~	~~31350~~		
ALSF-2 Rwy 17 Const. Support	**31360**		
ALSF-2 Rwy 17 ILS Support	**31450**		

Winston-Salem, NC RWY 33 - MALSR			
WR 0151	**WBS**	**DGN No.**	**JCN**
~~Site Survey~~	~~33160~~		
~~Environmental Assess.~~	~~33170~~		
Plants Engineering	**33180**		9908663
	33200		

Atlanta 5th Runway			
WR 0174	**WBS**	**DGN No.**	**JCN**
~~Initial Start~~	~~36950~~		
~~Rwy 10 ALSF - Engr~~	~~37770~~	~~103610~~	
~~Rwy 28 ALSF - Engr~~	~~36950~~	~~103611~~	
~~Rwy 10 ILS/DME - Engr~~	~~37650~~		
~~Rwy 10 RVR - Engr~~	~~37540~~		
~~Rwy 28 ILS/DME - Engr~~	~~37860~~		

Kinston ALSF / ILS			
WO# 0076	**WBS**	**DGN No.**	**JCN**
A/E Design - ~~ILS - Site Survey~~	05750		214768
~~- ILS - Design~~	~~05770~~		214768
~~- ALSF Site Survey~~	~~40260~~		317528
- ALSF Design	**40280**		317528
~~- RVR Design~~	~~05850~~		9603080
~~- RVR Electronics~~	~~05860~~		9603080

Edenton,NC ILS			
WO# 0077	**WBS**	**DGN No.**	**JCN**
A/E Design	**05940**		
	05960		

St. Petersburg			
WO# 0103	**WBS**	**DGN No.**	**JCN**
Construction Support	**27290**	CC 250	

Nashville ASLF			
WO# 0184	**WBS**	**DGN No.**	**JCN**
CE Design	**39970**	**103673** Spec # 364	
~~Site Survey~~	~~40050~~		

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          TABLE NO. 1
          ****************************************
          * COMPUTER PROGRAM DESIGNATION - UTEXAS3 *
          * Originally Coded By Stephen G. Wright  *
          * Version No. 1.209                      *
          * Last Revision Date  2/28/98            *
          * (C) Copyright 1985-1998 S. G. Wright   *
          * All Rights Reserved                    *
          ****************************************

          ************************************************************
          *                                                          *
          *      RESULTS OF COMPUTATIONS PERFORMED USING THIS COMPUTER *
          * PROGRAM SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY *
          * HAVE BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL   *
          * DATA OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE   *
          * ALGORITHMS AND ANALYTICAL PROCEDURES USED IN THE COMPUTER  *
          * PROGRAM AND MUST HAVE READ ALL DOCUMENTATION FOR THIS      *
          * PROGRAM BEFORE ATTEMPTING ITS USE.                         *
          *                                                          *
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          KIF Wet Undrained Props for Clays

          TABLE NO.  2
          *************************
          * NEW PROFILE LINE DATA *
          *************************

          PROFILE LINE  1 - MATERIAL TYPE =  1
          Gypsum
```

Point	X	Y
1	454.170	749.000
2	577.400	799.340
3	597.400	799.340
4	614.500	793.640
5	621.500	793.640
6	700.810	820.000
7	715.840	820.000
8	806.040	850.000
9	821.070	850.000
10	911.270	880.000
11	926.300	880.000
12	1016.490	910.000
13	1031.530	910.000
14	1121.720	940.000
15	1136.750	940.000
16	1226.950	970.000
17	1241.980	970.000
18	1284.490	983.900
19	1312.810	984.400
20	1362.100	970.000
21	1379.080	970.000
22	1480.950	940.000
23	1999.150	820.000

PROFILE LINE 2 - MATERIAL TYPE = 2
Fly Ash and Bottom Ash 1 foot thickness

Point	X	Y
1	582.510	750.000
2	621.570	766.020
3	800.000	766.020
4	1100.000	766.020
5	1220.000	768.000
6	1500.000	768.000

PROFILE LINE 3 - MATERIAL TYPE = 3
Bottom Ash Drainage Layer 2 feet thick

Point	X	Y
1	582.510	750.000
2	621.570	765.020
3	800.000	765.020
4	1100.000	765.020
5	1220.000	767.000
6	1500.000	767.000

PROFILE LINE 4 - MATERIAL TYPE = 4
Compacted Liner Material - 3 feet

Point	X	Y
1	582.510	750.000
2	621.570	763.020
3	800.000	763.020
4	1100.000	763.020
5	1220.000	765.000
6	1500.000	765.000
7	1600.000	770.000
8	1900.000	790.000
9	2000.000	820.000

PROFILE LINE 5 - MATERIAL TYPE = 5
Original Ground Surface

Point	X	Y
1	95.170	748.920
2	147.030	740.000
3	353.930	749.000
4	582.510	750.000
5	621.570	760.020
6	800.000	760.020
7	1100.000	760.020
8	1500.000	762.000
9	1600.000	765.500
10	1900.000	770.500
11	2000.000	790.500

PROFILE LINE 6 - MATERIAL TYPE = 6
Bedrock Limestone

Point	X	Y
1	95.170	713.410
2	321.140	713.410
3	445.300	711.730
4	643.640	719.000
5	934.060	719.160
6	1098.460	710.000
7	1243.940	710.000
8	1438.360	720.000
9	1540.360	728.000
10	1608.780	730.000
11	1653.770	730.000

```
               12      1709.130       721.160
               13      1773.310       726.690
               14      2044.710       746.240

         All new profile lines defined - No old lines retained
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         TABLE NO.  3
         ************************************************************************
         * NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
         ************************************************************************

         DATA FOR MATERIAL TYPE  1
         Gypsum

              Unit weight of material =  113.400

              CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
              Cohesion - - - - - - - -      50.000
              Friction angle - - - - -  37.000 degrees

              Pore water pressures defined by piezometric line
              Number of the piezometric line used =  1
              Negative pore pressures set to zero

         DATA FOR MATERIAL TYPE  2
         Rolled Compacted Fly Ash Base

              Unit weight of material =  113.400

              CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
              Cohesion - - - - - - - -     100.000
              Friction angle - - - - -  36.600 degrees

              Pore water pressures defined by piezometric line
              Number of the piezometric line used =  1
              Negative pore pressures set to zero

         DATA FOR MATERIAL TYPE  3
         Bottom Ash

              Unit weight of material =  116.400

              CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
              Cohesion - - - - - - - -     110.000
              Friction angle - - - - -  36.000 degrees

              Pore water pressures defined by piezometric line
              Number of the piezometric line used =  1
              Negative pore pressures set to zero

         DATA FOR MATERIAL TYPE  4
         Compacted Clay Liner

              Unit weight of material =  126.400

              CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
              Cohesion - - - - - - - -    2000.000
              Friction angle - - - - -    .000 degrees

              No (or zero) pore water pressures

         DATA FOR MATERIAL TYPE  5
         Original Ground

              Unit weight of material =  130.400
```

```
          CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
          Cohesion - - - - - - - - -    1950.000
          Friction angle - - - - -      .000 degrees

          No (or zero) pore water pressures

     DATA FOR MATERIAL TYPE  6
     Bedrock Limestone

          Unit weight of material =  155.000

          CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
          Cohesion - - - - - - - - -   10000.000
          Friction angle - - - - -  29.900 degrees

          Pore water pressures defined by piezometric line
          Number of the piezometric line used =  1
          Negative pore pressures set to zero

     All new material properties defined - No old data retained
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     TABLE NO.  5
     ************************************************************************
     * NEW PIEZOMETRIC LINE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
     ************************************************************************

     Line
      No.    Point       X           Y

       1 - Unit weight of water =   62.40   Psuedo Static Water TAble
       1        1      95.170     764.920   Psuedo Static Water TAble
       1        2     147.030     745.810   Psuedo Static Water TAble
       1        3     353.930     749.000   Psuedo Static Water TAble
       1        4     424.970     748.530   Psuedo Static Water TAble
       1        5     582.510     750.000   Psuedo Static Water TAble
       1        6     621.570     763.020   Psuedo Static Water TAble
       1        7     800.000     763.520   Psuedo Static Water TAble
       1        8    1100.000     763.520   Psuedo Static Water TAble
       1        9    1500.000     765.500   Psuedo Static Water TAble
       1       10    1600.000     770.500   Psuedo Static Water TAble
       1       11    1900.000     790.500   Psuedo Static Water TAble
       1       12    2000.000     820.500   Psuedo Static Water TAble

     All new piezometric lines defined - No old lines retained

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     TABLE NO. 15
     *********************************
     * NEW ANALYSIS/COMPUTATION DATA *
     *********************************

     Noncircular Shear Surface(s)

     Automatic Search Performed


     Coordinates of points on shear surface which are to be shifted -

     Point         X             Y      Shift Angle
```

1	453.670	749.000	angle to be computed - moveable
2	546.000	738.500	angle to be computed - moveable
3	642.620	735.000	angle to be computed - moveable
4	869.290	719.000	angle to be computed - moveable
5	902.620	735.000	angle to be computed - moveable
6	1022.440	747.000	angle to be computed - moveable
7	1100.000	750.000	angle to be computed - moveable
8	1186.530	780.330	angle to be computed - moveable
9	1259.470	884.570	angle to be computed - moveable
10	1281.000	932.000	angle to be computed - moveable
11	1303.750	980.890	angle to be computed - moveable

Initial distance for shifting points on shear surface = 11.000
Maximum steepness permitted for toe of shear surface = 45.00 degrees

Procedure used to compute the factor of safety: SPENCER

Depth of water in crack = .000

THE FOLLOWING REPRESENT EITHER DEFAULT OR PREVIOUSLY DEFINED VALUES:

Initial trial estimate for the factor of safety = 3.000

Initial trial estimate for side force inclination = 15.000 degrees
(Applicable to Spencer's procedure only)

Maximum number of iterations allowed for
calculating the factor of safety = 1000

Allowed force imbalance for convergence = 100.000

Allowed moment imbalance for convergence = 100.000

Initial trial values for factor of safety (and side force inclination
for Spencer's procedure) will be kept constant during search

Number of increments for slice subdivision = 30

Unit weight of water in crack = 62.400

Seismic coefficient = .000

Conventional (single-stage) computations to be performed
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TABLE NO. 22
****
* INITIAL COMPUTED INFORMATION FOR SEARCH *
* WITH NONCIRCULAR SHEAR SURFACE *
****

Crack depth computed to be - - - 3.35

FOR INITIAL TRIAL NONCIRCULAR SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.377
Side Force Inclination - - - - - - - - - - 10.49
Number of Iterations - - - - - - - - - - 7

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 1 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

1-Stage

Point	X	Y	Factor of Safety	Side Force Inclination	Iterations
1	442.67	749.00	1.385	10.37	7
1	463.92	752.98	1.367	10.65	7
2	545.18	727.53	1.362	10.71	7
2	546.82	749.47	See Message on Next Line(s)		

SHEAR SURFACE SEGMENT BETWEEN POINTS 1 AND 2 CROSSES SLOPE BETWEEN POINTS 4 AND 5 AFTER SHIFT - THIS TRIAL SHEAR SURFACE WAS REJECTED

3	642.03	724.02	1.380	10.58	8
3	643.21	745.98	1.410	10.45	7
4	867.08	729.78	1.369	10.57	7
4	871.50	708.22	2.328	12.91	7
5	899.56	745.56	1.434	10.91	7
5	905.68	724.44	1.353	10.17	8
6	1021.68	757.97	1.417	11.00	9
6	1023.20	736.03	1.356	10.08	7
7	1097.90	760.80	1.580	11.90	7
7	1102.10	739.20	1.305	9.85	7
8	1179.22	788.55	1.347	10.14	7
8	1193.84	772.11	1.378	10.55	7
9	1249.83	889.88	1.382	10.58	7
9	1269.11	879.26	1.407	10.00	7
10	1271.00	936.59	1.401	10.05	7
10	1291.00	927.41	1.380	10.33	7
11	1292.75	980.70	1.384	10.28	7
11	1314.74	980.49	1.376	10.53	7

Maximum distance shifted for new estimate of shear surface is 11.000 at point 7

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	463.92	752.98
2	545.18	727.53
3	642.36	730.19
4	867.08	729.78
5	905.68	724.44
6	1023.20	736.03
7	1102.10	739.20
8	1179.22	788.55
9	1255.89	886.54
10	1284.90	930.21
11	1314.74	980.49

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.209
Side Force Inclination - - - - - - - - - - 9.39
Number of Iterations - - - - - - - - - - 8

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 2 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	453.67	749.00	1.213	9.34	9

1	474.11	757.14	1.214	9.32	7
2	543.62	716.64	1.208	9.43	8
2	546.73	738.42	1.218	9.28	7
3	642.22	741.19	1.241	9.36	8
3	642.50	719.19	1.184	9.34	8
4	866.31	718.80	1.256	9.67	9
4	867.85	740.75	1.258	9.71	7
5	905.47	713.44	1.680	12.25	8
5	905.90	735.43	1.223	9.64	7
6	1022.44	747.00	1.243	9.91	8
6	1023.96	725.05	1.192	9.01	7
7	1098.56	749.62	1.266	9.87	7
7	1105.64	728.79	1.199	9.30	9
8	1171.60	796.49	1.210	9.22	7
8	1186.83	780.61	1.216	9.52	7
9	1246.95	892.96	1.212	9.25	7
9	1264.82	880.12	1.231	9.21	7
10	1275.58	936.05	1.217	9.20	7
10	1294.22	924.36	1.221	9.10	8
11	1303.75	980.89	1.212	9.32	8
11	1325.30	977.40	1.212	9.29	7

Maximum distance shifted for new estimate of shear surface is 11.000 at point 2

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	463.32	752.74
2	543.62	716.64
3	642.50	719.19
4	867.07	729.64
5	905.79	729.62
6	1023.96	725.05
7	1105.64	728.79
8	1175.85	792.06
9	1252.60	888.90
10	1284.00	930.77
11	1314.44	980.57

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.151
Side Force Inclination - - - - - - - - - - 8.96
Number of Iterations - - - - - - - - - - 9

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 3 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	452.97	749.00	1.150	8.96	8
1	473.50	756.90	1.161	8.85	7
2	541.34	705.88	1.844	8.95	7
2	545.90	727.40	1.156	8.90	7
3	642.11	730.18	1.179	8.99	11
3	642.90	708.20	2.305	9.71	5
4	866.82	740.64	1.190	9.19	7
4	867.33	718.65	2.250	11.11	7

5	905.57	718.63	1.253	9.63	7
5	906.00	740.62	1.180	9.27	7
6	1023.92	736.05	1.175	9.41	7
6	1024.00	714.05	1.162	8.92	7
7	1100.94	738.73	1.164	9.07	7
7	1110.35	718.85	1.172	9.18	8
8	1167.77	799.53	1.172	8.96	8
8	1183.92	784.59	1.143	8.95	7
9	1243.89	895.62	1.154	8.75	7
9	1261.32	882.19	1.168	8.86	7
10	1274.88	936.92	1.154	8.86	7
10	1293.12	924.63	1.164	8.61	8
11	1303.45	980.88	1.152	8.91	7
11	1325.00	977.49	1.154	8.84	8

Maximum distance shifted for new estimate of shear surface is 11.000 at point 8

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	452.97	749.00
2	544.74	721.94
3	642.31	724.42
4	866.96	734.76
5	905.85	732.68
6	1023.97	722.96
7	1105.07	729.99
8	1183.92	784.59
9	1249.68	891.16
10	1281.19	932.67
11	1312.69	981.05

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.177
Side Force Inclination - - - - - - - - - - 9.03
Number of Iterations - - - - - - - - - - 7

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 4 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 7.70

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	456.19	749.83	1.150	8.95	10
1	470.45	755.65	1.157	8.90	7
2	542.03	709.11	1.782	8.88	7
2	545.22	724.17	1.154	8.92	7
3	642.23	726.89	1.170	8.98	7
3	642.78	711.50	2.158	9.50	6
4	866.90	737.34	1.176	9.12	7
4	867.25	721.94	1.135	8.82	7
5	905.64	721.93	1.143	8.80	9
5	905.94	737.32	1.169	9.17	7
6	1023.94	732.75	1.166	9.25	7
6	1023.99	717.35	1.143	8.74	7
7	1102.35	735.75	1.156	9.00	7
7	1108.94	721.83	1.162	9.08	8
8	1170.19	797.29	1.164	8.96	8

8	1181.50	786.83	1.144	8.95	7
9	1246.50	893.60	1.151	8.84	7
9	1258.70	884.20	1.161	8.92	7
10	1277.61	935.07	1.151	8.93	8
10	1290.39	926.47	1.158	8.76	7
11	1306.75	980.94	1.151	8.94	8
11	1321.84	978.41	1.152	8.89	7

Maximum distance shifted for new estimate of shear surface is 7.700 at point 8

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	456.19	749.83
2	544.41	720.37
3	642.37	722.89
4	867.25	721.94
5	905.64	721.93
6	1023.99	717.35
7	1105.06	730.01
8	1181.50	786.83
9	1249.82	891.05
10	1281.30	932.59
11	1312.74	981.05

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.115
Side Force Inclination - - - - - - - - - - 8.42
Number of Iterations - - - - - - - - - - 8

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 5 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 7.70

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	448.54	749.00	1.117	8.40	7
1	463.32	752.74	1.114	8.43	7
2	543.24	712.76	1.375	8.26	9
2	545.58	727.99	1.122	8.34	7
3	642.29	730.59	1.135	8.42	7
3	642.45	715.20	2.095	9.29	6
4	867.23	714.24	2.185	11.13	5
4	867.27	729.64	1.138	8.57	7
5	905.49	714.23	2.050	13.04	6
5	905.79	729.62	1.133	8.63	7
6	1023.54	725.04	1.125	8.63	7
6	1024.44	709.67	2.203	14.78	5
7	1101.90	737.04	1.137	8.60	10
7	1108.22	722.99	1.111	8.38	8
8	1175.72	791.93	1.118	8.40	8
8	1187.28	781.74	1.117	8.41	7
9	1243.52	895.48	1.122	8.26	7
9	1256.12	886.62	1.119	8.43	8
10	1274.99	937.00	1.116	8.39	8
10	1287.61	928.18	1.123	8.24	8
11	1305.04	980.91	1.115	8.42	8
11	1320.14	978.91	1.117	8.35	8

Maximum distance shifted for new estimate of shear surface is 7.700 at point 7

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	463.32	752.74
2	544.97	723.99
3	642.33	726.59
4	867.26	725.64
5	905.71	725.64
6	1023.77	721.13
7	1108.22	722.99
8	1182.33	786.10
9	1251.01	890.21
10	1278.65	934.44
11	1308.93	980.98

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.138
Side Force Inclination - - - - - - - - - - 8.67
Number of Iterations - - - - - - - - - - - 7
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 6 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 4.40

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	451.87	749.00	1.116	8.42	7
1	460.26	751.49	1.114	8.43	7
2	543.74	716.03	1.114	8.45	7
2	545.08	724.72	1.119	8.38	8
3	642.32	727.29	1.126	8.42	7
3	642.42	718.49	1.357	8.56	7
4	867.24	717.54	1.715	10.66	6
4	867.26	726.34	1.127	8.50	7
5	905.55	717.53	1.768	12.04	6
5	905.72	726.32	1.124	8.53	7
6	1023.73	721.75	1.120	8.53	9
6	1024.25	712.96	1.779	13.38	8
7	1103.26	734.03	1.125	8.50	7
7	1106.87	726.00	1.111	8.38	8
8	1178.20	789.74	1.116	8.41	7
8	1184.80	783.92	1.116	8.42	7
9	1246.22	893.58	1.118	8.34	10
9	1253.42	888.52	1.116	8.44	7
10	1277.70	935.11	1.115	8.42	7
10	1284.91	930.07	1.119	8.34	7
11	1308.34	980.97	1.115	8.43	7
11	1316.97	979.83	1.116	8.39	8

Maximum distance shifted for new estimate of shear surface is 4.400 at point 7

Coordinates For New Estimate of Shear Surface

Point X Y

1	460.26	751.49
2	543.74	716.03
3	642.35	724.91
4	867.26	724.06
5	905.68	724.07
6	1023.86	719.52
7	1106.87	726.00
8	1181.86	786.52
9	1251.10	890.15
10	1277.70	935.11
11	1308.34	980.97

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.123
Side Force Inclination - - - - - - - - - 8.60
Number of Iterations - - - - - - - - - - 8
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 7 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	455.17	749.41	1.116	8.41	7
1	457.21	750.24	1.115	8.43	7
2	544.24	719.29	1.115	8.43	8
2	544.58	721.46	1.116	8.41	7
3	642.36	723.99	1.118	8.42	9
3	642.38	721.79	1.113	8.42	7
4	867.25	720.84	1.113	8.40	7
4	867.25	723.04	1.118	8.44	8
5	905.62	720.83	1.114	8.39	8
5	905.66	723.02	1.117	8.45	10
6	1023.93	718.45	1.116	8.44	8
6	1024.06	716.25	1.115	8.39	8
7	1104.61	731.02	1.117	8.44	7
7	1105.51	729.01	1.114	8.40	8
8	1180.68	787.56	1.116	8.42	8
8	1182.33	786.11	1.116	8.42	7
9	1248.92	891.68	1.116	8.40	9
9	1250.72	890.42	1.115	8.43	10
10	1280.40	933.22	1.115	8.43	8
10	1282.21	931.96	1.116	8.41	8
11	1311.64	981.03	1.115	8.42	7
11	1313.80	980.76	1.116	8.41	7

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	457.21	750.24
2	544.24	719.29
3	642.38	721.79

4	867.25	720.84
5	905.62	720.83
6	1024.06	716.25
7	1105.51	729.01
8	1181.62	786.73
9	1250.72	890.42
10	1280.40	933.22
11	1311.64	981.03

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.104
Side Force Inclination - - - - - - - - - - 8.37
Number of Iterations - - - - - - - - - - - 7
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 8 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	456.19	749.83	1.105	8.36	7
1	458.23	750.66	1.104	8.38	7
2	544.07	718.20	1.104	8.38	7
2	544.42	720.37	1.105	8.36	7
3	642.37	722.89	1.107	8.37	7
3	642.39	720.69	1.102	8.37	8
4	867.25	719.74	1.102	8.35	9
4	867.25	721.94	1.107	8.39	7
5	905.59	719.73	1.281	9.71	7
5	905.64	721.93	1.106	8.40	9
6	1023.99	717.35	1.105	8.40	8
6	1024.12	715.16	1.104	8.35	7
7	1105.06	730.01	1.106	8.38	7
7	1105.97	728.01	1.103	8.36	7
8	1180.80	787.46	1.105	8.37	9
8	1182.45	786.00	1.104	8.37	9
9	1249.81	891.04	1.105	8.36	11
9	1251.63	889.80	1.105	8.38	8
10	1279.49	933.83	1.104	8.37	8
10	1281.31	932.60	1.105	8.36	8
11	1310.54	981.01	1.104	8.37	10
11	1312.74	981.05	1.105	8.37	7

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	458.23	750.66
2	544.07	718.20
3	642.39	720.69
4	867.25	719.74
5	905.63	721.36
6	1024.12	715.16
7	1105.97	728.01

8	1182.45	786.00
9	1250.59	890.50
10	1279.49	933.83
11	1310.54	981.01

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.097
Side Force Inclination - - - - - - - - - - 8.34
Number of Iterations - - - - - - - - - - 8
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 9 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	457.21	750.24	1.097	8.34	8
1	459.25	751.07	1.097	8.35	8
2	543.87	717.12	1.096	8.35	7
2	544.26	719.29	1.097	8.34	7
3	642.38	721.79	1.099	8.35	10
3	642.40	719.60	1.094	8.34	8
4	867.23	720.84	1.099	8.36	8
4	867.27	718.64	1.535	10.14	8
5	905.62	720.26	1.213	9.26	7
5	905.63	722.46	1.099	8.37	9
6	1024.06	716.26	1.098	8.37	7
6	1024.18	714.06	1.250	9.95	7
7	1105.51	729.01	1.098	8.36	7
7	1106.43	727.01	1.095	8.33	7
8	1181.62	786.72	1.097	8.34	7
8	1183.27	785.28	1.096	8.34	7
9	1249.68	891.11	1.097	8.34	7
9	1251.51	889.90	1.097	8.35	8
10	1278.57	934.44	1.097	8.34	7
10	1280.41	933.22	1.097	8.34	7
11	1309.44	980.99	1.097	8.35	8
11	1311.64	981.03	1.097	8.34	8

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	459.25	751.07
2	543.87	717.12
3	642.40	719.60
4	867.24	720.29
5	905.63	721.89
6	1024.09	715.70
7	1106.43	727.01
8	1183.27	785.28
9	1250.46	890.59
10	1278.57	934.44
11	1309.44	980.99

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.094
Side Force Inclination - - - - - - - - - - 8.38
Number of Iterations - - - - - - - - - - 7
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 10 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	458.23	750.66	1.094	8.37	9
1	460.26	751.49	1.094	8.38	8
2	543.67	716.04	1.094	8.38	10
2	544.08	718.20	1.095	8.37	10
3	642.39	720.69	1.097	8.38	8
3	642.42	718.50	1.608	8.66	6
4	867.21	721.39	1.097	8.40	7
4	867.26	719.19	1.092	8.36	8
5	905.62	720.79	1.092	8.35	8
5	905.63	722.99	1.096	8.40	8
6	1024.05	716.80	See Message on Next Line(s)		

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

6	1024.14	714.60	1.094	8.35	8
7	1105.98	728.01	1.096	8.39	9
7	1106.88	726.01	1.093	8.37	8
8	1182.44	785.99	1.095	8.38	7
8	1184.11	784.56	1.094	8.37	8
9	1249.53	891.18	1.094	8.37	7
9	1251.39	890.00	1.094	8.38	7
10	1277.65	935.04	1.094	8.37	7
10	1279.49	933.84	1.094	8.38	7
11	1308.34	980.97	1.094	8.38	9
11	1310.54	981.01	1.094	8.37	8

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	460.26	751.49
2	543.67	716.04
3	642.40	720.14
4	867.26	719.19
5	905.62	720.79
6	1024.14	714.60
7	1106.88	726.01
8	1184.11	784.56
9	1250.38	890.64
10	1278.53	934.47
11	1308.34	980.97

FOR NEW ESTIMATE OF SHEAR SURFACE

1-Stage Factor of Safety - - - - - - - - - 1.089
Side Force Inclination - - - - - - - - - - 8.31
Number of Iterations - - - - - - - - - - - 9
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 11 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	459.25	751.07	1.088	8.31	10
1	461.28	751.91	1.089	8.30	10
2	543.46	714.96	1.227	8.10	7
2	543.88	717.12	1.089	8.30	8
3	642.38	721.24	1.091	8.31	10
3	642.42	719.04	1.086	8.31	8
4	867.24	720.29	1.091	8.32	9
4	867.28	718.09	1.974	10.57	5
5	905.62	719.69	1.743	12.09	6
5	905.63	721.89	1.091	8.33	8
6	1024.09	715.70	1.089	8.33	8
6	1024.19	713.50	2.027	13.67	5
7	1106.43	727.01	1.090	8.32	10
7	1107.33	725.00	1.087	8.30	10
8	1183.27	785.27	1.089	8.31	9
8	1184.95	783.85	1.088	8.30	9
9	1249.45	891.23	1.089	8.30	8
9	1251.31	890.05	1.089	8.31	8
10	1277.60	935.06	1.089	8.31	13
10	1279.45	933.88	1.089	8.30	8
11	1307.24	980.95	1.088	8.31	8
11	1309.44	980.99	1.089	8.30	8

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	459.25	751.07
2	543.77	716.58
3	642.42	719.04
4	867.25	719.74
5	905.63	721.34
6	1024.12	715.15
7	1107.33	725.00
8	1184.95	783.85
9	1250.67	890.46
10	1278.25	934.65
11	1307.24	980.95

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.087
Side Force Inclination - - - - - - - - - - 8.33
Number of Iterations - - - - - - - - - - - 8
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 12 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	1-Stage Factor of Safety	Side Force Inclination	Iterations
1	458.23	750.66	1.087	8.32	9
1	460.26	751.49	1.087	8.33	9
2	543.57	715.50	1.087	8.33	8
2	543.98	717.66	1.087	8.32	8
3	642.40	720.14	1.090	8.33	9
3	642.43	717.94	2.173	9.08	5
4	867.23	720.84	1.089	8.34	8
4	867.28	718.64	2.474	10.19	5
5	905.62	720.24	1.222	9.31	7
5	905.63	722.44	1.089	8.35	8
6	1024.08	716.25	1.088	8.35	8
6	1024.15	714.05	1.263	10.05	7
7	1106.89	726.01	1.088	8.34	8
7	1107.77	724.00	1.086	8.32	8
8	1184.10	784.55	1.088	8.33	8
8	1185.79	783.14	1.087	8.32	9
9	1249.74	891.04	1.087	8.32	9
9	1251.61	889.88	1.087	8.33	8
10	1277.32	935.23	1.087	8.32	10
10	1279.18	934.06	1.087	8.32	10
11	1306.14	980.93	1.087	8.33	8
11	1308.34	980.97	1.087	8.32	9

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 2

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	460.26	751.49
2	543.57	715.50
3	642.41	719.59
4	867.24	720.28
5	905.63	721.87
6	1024.10	715.69
7	1107.77	724.00
8	1185.79	783.14
9	1250.96	890.28
10	1278.26	934.64
11	1306.14	980.93

FOR NEW ESTIMATE OF SHEAR SURFACE
1-Stage Factor of Safety - - - - - - - - - 1.089
Side Force Inclination - - - - - - - - - - 8.36
Number of Iterations - - - - - - - - - - - 9
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TABLE NO. 25
****
* FINAL CRITICAL SHEAR SURFACE (FOUND AFTER 12 TRIAL POSITIONS) *
****

X	Y
459.25	751.07
543.77	716.58
642.42	719.04
867.25	719.74
905.63	721.34
1024.12	715.15
1107.33	725.00
1184.95	783.85
1250.67	890.46
1278.25	934.65
1307.24	980.95

1-Stage Factor of Safety = 1.087

Side Force Inclination = 8.33
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TABLE NO. 26
****
* Coordinate, Weight, Strength and Pore Water Pressure *
* Information for Individual Slices for Conventional *
* Computations or First Stage of Multi-Stage Computations. *
* (Information is for the Critical Shear Surface in the *
* Case of an Automatic Search.) *
****

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	459.2	751.1					
1	461.2	750.3	707.9	1	50.00	37.00	.0
	463.2	749.5					
2	473.2	745.4	27529.9	5	1950.00	.00	.0
	483.3	741.3					
3	493.4	737.1	67994.7	5	1950.00	.00	.0
	503.5	733.0					
4	513.5	728.9	108459.5	5	1950.00	.00	.0
	523.6	724.8					
5	533.7	720.7	148923.7	5	1950.00	.00	.0
	543.8	716.6					
6	552.2	716.8	147207.3	5	1950.00	.00	.0
	560.6	717.0					
7	569.0	717.2	159402.7	5	1950.00	.00	.0
	577.4	717.4					
8	580.0	717.5	50259.5	5	1950.00	.00	.0
	582.5	717.5					
9	590.0	717.7	146580.5	5	1950.00	.00	.0
	597.4	717.9					
10	606.0	718.1	163426.8	5	1950.00	.00	.0
	614.5	718.3					
11	618.0	718.4	64828.0	5	1950.00	.00	.0
	621.5	718.5					
12	621.5	718.5	649.0	5	1950.00	.00	.0
	621.6	718.5					
13	632.0	718.8	200778.6	5	1950.00	.00	.0
	642.4	719.0					
14	643.0	719.0	12239.4	5	1950.00	.00	.0

	643.6	719.0					
15	653.2	719.1	198009.5	5	1950.00	.00	.0
	662.7	719.1					
16	672.2	719.1	211550.3	5	1950.00	.00	.0
	681.8	719.2					
17	691.3	719.2	225091.9	5	1950.00	.00	.0
	700.8	719.2					
18	708.3	719.2	182824.4	5	1950.00	.00	.0
	715.8	719.3					
19	729.9	719.3	355836.5	5	1950.00	.00	.0
	743.9	719.4					
20	757.9	719.4	385201.3	5	1950.00	.00	.0
	771.9	719.4					

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TABLE NO. 26

```
**************************************************************
*  Coordinate, Weight, Strength and Pore Water Pressure      *
*  Information for Individual Slices for Conventional        *
*  Computations or First Stage of Multi-Stage Computations.  *
*  (Information is for the Critical Shear Surface in the     *
*  Case of an Automatic Search.)                             *
**************************************************************
```

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	771.9	719.4					
21	786.0	719.5	414565.0	5	1950.00	.00	.0
	800.0	719.5					
22	803.0	719.5	93099.1	5	1950.00	.00	.0
	806.0	719.5					
23	813.6	719.6	233318.2	5	1950.00	.00	.0
	821.1	719.6					
24	832.6	719.6	368316.0	5	1950.00	.00	.0
	844.2	719.7					
25	855.7	719.7	388210.1	5	1950.00	.00	.0
	867.3	719.7					
26	876.8	720.1	336803.5	5	1950.00	.00	.0
	886.4	720.5					
27	896.0	720.9	348681.0	5	1950.00	.00	.0
	905.6	721.3					
28	908.4	721.2	105022.3	5	1950.00	.00	.0
	911.3	721.0					
29	918.8	720.7	282324.6	5	1950.00	.00	.0
	926.3	720.3					
30	930.2	720.1	147503.1	5	1950.00	.00	.0
	934.1	719.9					
31	947.8	719.1	543838.4	5	1950.00	.00	.0
	961.5	718.4					
32	975.3	717.7	577460.6	5	1950.00	.00	.0
	989.0	717.0					
33	1002.8	716.3	611080.9	5	1950.00	.00	.0
	1016.5	715.5					
34	1020.3	715.3	174446.2	5	1950.00	.00	.0
	1024.1	715.1					
35	1027.8	715.6	169405.3	5	1950.00	.00	.0
	1031.5	716.0					
36	1042.7	717.3	513973.2	5	1950.00	.00	.0
	1053.8	718.7					
37	1065.0	720.0	525062.8	5	1950.00	.00	.0
	1076.1	721.3					
38	1087.3	722.6	536155.5	5	1950.00	.00	.0
	1098.5	724.0					
39	1099.2	724.0	37419.4	5	1950.00	.00	.0
	1100.0	724.1					
40	1103.7	724.6	178786.8	5	1950.00	.00	.0

1107.3 725.0

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TABLE NO. 26

* Coordinate, Weight, Strength and Pore Water Pressure *
* Information for Individual Slices for Conventional *
* Computations or First Stage of Multi-Stage Computations. *
* (Information is for the Critical Shear Surface in the *
* Case of an Automatic Search.) *

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	1107.3	725.0					
41	1114.5	730.5	346002.8	5	1950.00	.00	.0
	1121.7	735.9					
42	1129.2	741.6	343618.8	5	1950.00	.00	.0
	1136.8	747.3					
43	1145.3	753.8	369772.3	5	1950.00	.00	.0
	1153.9	760.3					
44	1156.3	762.1	102256.4	4	2000.00	.00	.0
	1158.8	764.0					
45	1160.1	765.0	55897.3	3	110.00	36.00	.0
	1161.5	766.0					
46	1162.1	766.5	27815.5	2	100.00	36.60	.0
	1162.8	767.1					
47	1173.9	775.5	444288.3	1	50.00	37.00	.0
	1184.9	783.8					
48	1190.8	793.3	218163.3	1	50.00	37.00	.0
	1196.6	802.8					
49	1202.5	812.3	198200.0	1	50.00	37.00	.0
	1208.3	821.8					
50	1214.2	831.2	178234.8	1	50.00	37.00	.0
	1220.0	840.7					
51	1223.5	846.3	96547.2	1	50.00	37.00	.0
	1226.9	852.0					
52	1230.7	858.1	95384.3	1	50.00	37.00	.0
	1234.5	864.2					
53	1238.2	870.3	84996.2	1	50.00	37.00	.0
	1242.0	876.4					
54	1243.0	877.9	20530.8	1	50.00	37.00	.0
	1243.9	879.5					
55	1247.3	885.0	66217.7	1	50.00	37.00	.0
	1250.7	890.5					
56	1257.6	901.5	115085.4	1	50.00	37.00	.0
	1264.5	912.6					
57	1271.4	923.6	87584.3	1	50.00	37.00	.0
	1278.3	934.6					
58	1281.4	939.6	30596.7	1	50.00	37.00	.0
	1284.5	944.6					
59	1290.2	953.7	39091.4	1	50.00	37.00	.0
	1295.9	962.8					
60	1301.6	971.9	15911.5	1	50.00	37.00	.0
	1307.2	981.0					

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TABLE NO. 27

* Seismic Forces and Forces Due to Surface Pressures for *
* Individual Slices for Conventional Computations or the *

```
*  First Stage of Multi-Stage Computations.                    *
*  (Information is for the Critical Shear Surface in the       *
*  Case of an Automatic Search.)                               *
****************************************************************
```

FORCES DUE TO SURFACE PRESSURES

Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
1	461.2	0.	751.1	0.	0.	.0	.0
2	473.2	0.	750.9	0.	0.	.0	.0
3	493.4	0.	750.6	0.	0.	.0	.0
4	513.5	0.	750.3	0.	0.	.0	.0
5	533.7	0.	750.0	0.	0.	.0	.0
6	552.2	0.	751.7	0.	0.	.0	.0
7	569.0	0.	755.2	0.	0.	.0	.0
8	580.0	0.	757.0	0.	0.	.0	.0
9	590.0	0.	757.1	0.	0.	.0	.0
10	606.0	0.	755.9	0.	0.	.0	.0
11	618.0	0.	754.8	0.	0.	.0	.0
12	621.5	0.	754.8	0.	0.	.0	.0
13	632.0	0.	756.6	0.	0.	.0	.0
14	643.0	0.	758.5	0.	0.	.0	.0
15	653.2	0.	760.1	0.	0.	.0	.0
16	672.2	0.	763.2	0.	0.	.0	.0
17	691.3	0.	766.3	0.	0.	.0	.0
18	708.3	0.	767.9	0.	0.	.0	.0
19	729.9	0.	770.2	0.	0.	.0	.0
20	757.9	0.	774.8	0.	0.	.0	.0
21	786.0	0.	779.4	0.	0.	.0	.0
22	803.0	0.	782.2	0.	0.	.0	.0
23	813.6	0.	782.7	0.	0.	.0	.0
24	832.6	0.	784.6	0.	0.	.0	.0
25	855.7	0.	788.5	0.	0.	.0	.0
26	876.8	0.	792.2	0.	0.	.0	.0
27	896.0	0.	795.7	0.	0.	.0	.0
28	908.4	0.	797.9	0.	0.	.0	.0
29	918.8	0.	798.1	0.	0.	.0	.0
30	930.2	0.	798.4	0.	0.	.0	.0
31	947.8	0.	800.8	0.	0.	.0	.0
32	975.3	0.	804.6	0.	0.	.0	.0
33	1002.8	0.	808.3	0.	0.	.0	.0
34	1020.3	0.	810.1	0.	0.	.0	.0
35	1027.8	0.	810.2	0.	0.	.0	.0
36	1042.7	0.	813.0	0.	0.	.0	.0
37	1065.0	0.	818.1	0.	0.	.0	.0
38	1087.3	0.	823.2	0.	0.	.0	.0
39	1099.2	0.	826.0	0.	0.	.0	.0

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TABLE NO. 27

```
****************************************************************
*  Seismic Forces and Forces Due to Surface Pressures for      *
*  Individual Slices for Conventional Computations or the      *
*  First Stage of Multi-Stage Computations.                    *
*  (Information is for the Critical Shear Surface in the       *
*  Case of an Automatic Search.)                               *
****************************************************************
```

FORCES DUE TO SURFACE PRESSURES

Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
40	1103.7	0.	827.0	0.	0.	.0	.0
41	1114.5	0.	832.0	0.	0.	.0	.0

42	1129.2	0.	839.4	0.	0.	.0	.0
43	1145.3	0.	847.7	0.	0.	.0	.0
44	1156.3	0.	854.2	0.	0.	.0	.0
45	1160.1	0.	856.4	0.	0.	.0	.0
46	1162.1	0.	857.5	0.	0.	.0	.0
47	1173.9	0.	863.9	0.	0.	.0	.0
48	1190.8	0.	875.6	0.	0.	.0	.0
49	1202.5	0.	887.1	0.	0.	.0	.0
50	1214.2	0.	898.5	0.	0.	.0	.0
51	1223.5	0.	907.6	0.	0.	.0	.0
52	1230.7	0.	914.0	0.	0.	.0	.0
53	1238.2	0.	920.1	0.	0.	.0	.0
54	1243.0	0.	924.1	0.	0.	.0	.0
55	1247.3	0.	928.4	0.	0.	.0	.0
56	1257.6	0.	938.3	0.	0.	.0	.0
57	1271.4	0.	951.6	0.	0.	.0	.0
58	1281.4	0.	961.3	0.	0.	.0	.0
59	1290.2	0.	968.8	0.	0.	.0	.0
60	1301.6	0.	978.0	0.	0.	.0	.0

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GYPSUM STACK Residuum
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TABLE NO. 29

```
**********************************************************************
*  Information Generated During Iterative Solution for the Factor    *
*  of Safety and Side Force Inclination by Spencer's Procedure       *
**********************************************************************
```

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	15.0000	.1456E+07	-.6472E+09		
First-order corrections to F and THETA					-.449E+01	-.170E+01
Values factored by .111E+00 - Deltas too large					-.500E+00	-.189E+00
2	2.50000	14.8112	.1263E+07	-.5596E+09		
First-order corrections to F and THETA					-.280E+01	-.183E+01
Values factored by .179E+00 - Deltas too large					-.500E+00	-.326E+00
3	2.00000	14.4850	.9859E+06	-.4323E+09		
First-order corrections to F and THETA					-.147E+01	-.206E+01
Values factored by .339E+00 - Deltas too large					-.500E+00	-.699E+00
4	1.50000	13.7856	.5499E+06	-.2288E+09		
First-order corrections to F and THETA					-.511E+00	-.259E+01
Values factored by .979E+00 - Deltas too large					-.500E+00	-.253E+01
5	1.00000	11.2526	-.2330E+06	.1593E+09		
First-order corrections to F and THETA					.658E-01	-.535E+01
Second-order correction - Iteration 1					.707E-01	-.535E+01
Second-order correction - Iteration 2					.707E-01	-.535E+01
6	1.07073	5.8976	.2506E+04	-.2511E+08		
First-order corrections to F and THETA					.161E-01	.242E+01
Second-order correction - Iteration 1					.163E-01	.242E+01
Second-order correction - Iteration 2					.163E-01	.242E+01
7	1.08701	8.3175	-.2853E+02	-.6376E+05		
First-order corrections to F and THETA					.756E-04	.841E-02
Second-order correction - Iteration 1					.756E-04	.841E-02
8	1.08708	8.3259	-.4990E+00	-.9087E+02		
First-order corrections to F and THETA					.547E-06	.412E-04

Factor of Safety - - - - - - - - 1.087
Side Force Inclination - - - - - 8.33

Number of Iterations - - - - - - 8

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GYPSUM STACK Residuum

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TABLE NO. 38

****

* Final Results for Stresses Along the Shear Surface *

* (Results for Critical Shear Surface in Case of a Search.) *

****

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY

Factor of Safety = 1.087 Side Force Inclination = 8.33 Degrees

-------- VALUES AT CENTER OF BASE OF SLICE---------

Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	461.2	750.3	371.5	371.5	303.5
2	473.2	745.4	2510.4	2510.4	1793.8
3	493.4	737.1	4645.7	4645.7	1793.8
4	513.5	728.9	6780.9	6780.9	1793.8
5	533.7	720.7	8916.2	8916.2	1793.8
6	552.2	716.8	8940.7	8940.7	1793.8
7	569.0	717.2	9663.4	9663.4	1793.8
8	580.0	717.5	10016.6	10016.6	1793.8
9	590.0	717.7	10025.3	10025.3	1793.8
10	606.0	718.1	9739.3	9739.3	1793.8
11	618.0	718.4	9444.4	9444.4	1793.8
12	621.5	718.5	9452.6	9452.6	1793.8
13	632.0	718.8	9812.7	9812.7	1793.8
14	643.0	719.0	10264.8	10264.8	1793.8
15	653.2	719.1	10642.7	10642.7	1793.8
16	672.2	719.1	11352.9	11352.9	1793.8
17	691.3	719.2	12063.2	12063.2	1793.8
18	708.3	719.2	12415.3	12415.3	1793.8
19	729.9	719.3	12935.4	12935.4	1793.8
20	757.9	719.4	13981.7	13981.7	1793.8
21	786.0	719.5	15027.9	15027.9	1793.8
22	803.0	719.5	15663.7	15663.7	1793.8
23	813.6	719.6	15773.3	15773.3	1793.8
24	832.6	719.6	16200.8	16200.8	1793.8
25	855.7	719.7	17062.0	17062.0	1793.8
26	876.8	720.1	17632.6	17632.6	1793.8
27	896.0	720.9	18247.8	18247.8	1793.8
28	908.4	721.2	19109.6	19109.6	1793.8
29	918.8	720.7	19287.8	19287.8	1793.8
30	930.2	720.1	19513.6	19513.6	1793.8
31	947.8	719.1	20304.2	20304.2	1793.8
32	975.3	717.7	21537.3	21537.3	1793.8
33	1002.8	716.3	22770.4	22770.4	1793.8
34	1020.3	715.3	23413.1	23413.1	1793.8
35	1027.8	715.6	22506.7	22506.7	1793.8
36	1042.7	717.3	22694.7	22694.7	1793.8
37	1065.0	720.0	23183.3	23183.3	1793.8
38	1087.3	722.6	23671.9	23671.9	1793.8
39	1099.2	724.0	23933.0	23933.0	1793.8

1

-------- VALUES AT CENTER OF BASE OF SLICE---------

Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress
40	1103.7	724.6	24031.1	24031.1	1793.8
41	1114.5	730.5	20652.8	20652.8	1793.8

42	1129.2	741.6	19591.2	19591.2	1793.8
43	1145.3	753.8	18454.7	18454.7	1793.8
44	1156.3	762.1	17832.8	17832.8	1839.8
45	1160.1	765.0	13597.3	13597.3	9188.8
46	1162.1	766.5	13454.5	13454.5	9283.7
47	1173.9	775.5	13049.8	13049.8	9092.0
48	1190.8	793.3	8230.4	8230.4	5751.2
49	1202.5	812.3	7474.6	7474.6	5227.3
50	1214.2	831.2	6718.6	6718.6	4703.3
51	1223.5	846.3	6115.9	6115.9	4285.5
52	1230.7	858.1	5585.3	5585.3	3917.7
53	1238.2	870.3	4973.8	4973.8	3493.8
54	1243.0	877.9	4604.3	4604.3	3237.7
55	1247.3	885.0	4322.0	4322.0	3041.9
56	1257.6	901.5	3689.7	3689.7	2603.6
57	1271.4	923.6	2800.9	2800.9	1987.5
58	1281.4	939.6	2160.2	2160.2	1543.4
59	1290.2	953.7	1504.6	1504.6	1089.0
60	1301.6	971.9	594.8	594.8	458.3

CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION = .24 (= .242E+00)
SHOULD NOT EXCEED .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION = .82 (= .820E+00)
SHOULD NOT EXCEED .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN = 155.75 (= .156E+03)
SHOULD NOT EXCEED .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .09 (= .948E-01)
SHOULD NOT EXCEED .100E+03

***** WARNING ***** ONE OF CHECK SUMS IS TOO LARGE
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TABLE NO. 39
****
* Final Results for Side Forces and Stresses Between Slices. *
* (Results for Critical Shear Surface in Case of a Search.) *
****

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = 1.087 Side Force Inclination = 8.33 Degrees

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	463.2	1799.	750.6	.339	20.6	1094.1
2	483.3	59206.	747.0	.295	-692.1	6654.2
3	503.5	134363.	743.6	.294	-878.4	8241.9
4	523.6	227270.	740.0	.288	-1154.7	9710.2
5	543.8	337927.	736.1	.283	-1460.9	11148.8
6	560.6	364614.	737.1	.266	-1931.5	11491.5
7	577.4	390995.	738.1	.253	-2287.9	11732.7
8	582.5	398966.	738.4	.255	-2255.8	11908.1
9	597.4	422194.	739.4	.264	-2132.2	12393.1
10	614.5	448992.	740.6	.295	-1348.1	13148.2
11	621.5	460014.	741.1	.300	-1210.9	13328.9
12	621.6	460124.	741.1	.300	-1212.5	13329.9
13	642.4	492757.	742.5	.288	-1622.5	13579.5
14	643.6	494934.	742.6	.288	-1641.1	13592.0
15	662.7	528847.	743.8	.280	-1900.4	13762.0
16	681.8	562717.	745.0	.274	-2110.6	13893.8
17	700.8	596546.	746.3	.268	-2283.3	13997.1
18	715.8	623210.	747.3	.278	-2035.5	14278.6

19	743.9	672933.	749.2	.271	-2266.6	14375.4
20	771.9	722563.	751.1	.265	-2447.4	14441.2
21	800.0	772103.	753.0	.261	-2591.5	14485.4
22	806.0	782756.	753.4	.260	-2618.7	14492.7
23	821.1	809263.	754.5	.268	-2420.3	14700.8
24	844.2	849952.	756.1	.264	-2528.6	14715.6
25	867.3	890580.	757.8	.261	-2621.0	14723.3
26	886.4	911062.	759.7	.259	-2660.2	14584.0
27	905.6	931043.	761.6	.257	-2689.5	14441.3
28	911.3	946971.	761.8	.256	-2725.9	14515.4
29	926.3	989528.	762.2	.262	-2611.6	14870.4
30	934.1	1011593.	762.4	.261	-2660.1	14962.2
31	961.5	1090867.	763.1	.258	-2821.6	15278.2
32	989.0	1171931.	763.8	.255	-2969.9	15582.5
33	1016.5	1254782.	764.6	.252	-3107.9	15877.8
34	1024.1	1278034.	764.8	.255	-3057.6	16037.4
35	1031.5	1271507.	766.1	.258	-2918.0	15890.0
36	1053.8	1251363.	770.2	.259	-2765.1	15224.6
37	1076.1	1229915.	774.4	.261	-2603.1	14561.5
38	1098.5	1207163.	778.7	.263	-2433.0	13900.9
39	1100.0	1205544.	779.0	.263	-2421.0	13855.4
40	1107.3	1197756.	780.4	.263	-2363.3	13639.0

1

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
41	1121.7	996107.	792.8	.279	-1580.1	11238.9
42	1136.8	797744.	808.0	.315	-449.1	8641.8
43	1153.9	586712.	830.5	.379	849.8	5412.4
44	1158.8	529060.	838.7	.407	1268.9	4442.0
45	1161.5	526009.	839.5	.403	1198.6	4515.1
46	1162.8	524760.	839.9	.401	1159.9	4558.3
47	1184.9	506821.	845.4	.358	427.1	5397.9
48	1196.6	417086.	858.6	.355	339.7	4913.6
49	1208.3	335643.	871.7	.352	257.1	4418.8
50	1220.0	262491.	884.9	.348	183.8	3906.9
51	1226.9	222912.	892.9	.347	149.7	3588.0
52	1234.5	183858.	901.5	.353	201.0	3236.9
53	1242.0	149119.	910.0	.359	246.6	2904.7
54	1243.9	140739.	912.2	.359	233.0	2824.1
55	1250.7	113740.	919.8	.356	185.6	2546.5
56	1264.5	67634.	935.0	.346	76.4	1989.1
57	1278.3	32790.	950.1	.327	-24.5	1398.9
58	1284.5	20766.	957.3	.324	-28.8	1074.8
59	1295.9	5654.	971.0	.385	81.5	443.3
60	1307.2	0.	245.6	BELOW	-128.8	129.0

CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION = .24 (= .242E+00)
SHOULD NOT EXCEED .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION = .82 (= .820E+00)
SHOULD NOT EXCEED .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN = 155.75 (= .156E+03)
SHOULD NOT EXCEED .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .09 (= .948E-01)
SHOULD NOT EXCEED .100E+03

***** WARNING ***** ONE OF CHECK SUMS IS TOO LARGE

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TABLE NO. 1

```
****************************************
* COMPUTER PROGRAM DESIGNATION - UTEXAS3 *
* Originally Coded By Stephen G. Wright  *
* Version No. 1.209                      *
* Last Revision Date  2/28/98            *
* (C) Copyright 1985-1998 S. G. Wright   *
* All Rights Reserved                    *
****************************************
```

```
************************************************************
*                                                          *
*      RESULTS OF COMPUTATIONS PERFORMED USING THIS COMPUTER *
* PROGRAM SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY *
* HAVE BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL   *
* DATA OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE   *
* ALGORITHMS AND ANALYTICAL PROCEDURES USED IN THE COMPUTER  *
* PROGRAM AND MUST HAVE READ ALL DOCUMENTATION FOR THIS      *
* PROGRAM BEFORE ATTEMPTING ITS USE.                         *
*                                                          *
*      NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT        *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR  *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS  *
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*                                                          *
************************************************************
```

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GYPSUM STACK Option 1+2,
KIF Wet

TABLE NO. 2

```
*************************
* NEW PROFILE LINE DATA *
*************************
```

PROFILE LINE 1 - MATERIAL TYPE = 1
Gypsum

Point	X	Y
1	454.170	749.000
2	577.400	799.340
3	597.400	799.340
4	614.500	793.640
5	621.500	793.640
6	700.810	820.000
7	715.840	820.000
8	806.040	850.000
9	821.070	850.000
10	911.270	880.000
11	926.300	880.000
12	1016.490	910.000
13	1031.530	910.000
14	1121.720	940.000
15	1136.750	940.000
16	1226.950	970.000
17	1241.980	970.000
18	1284.490	983.900
19	1312.810	984.400
20	1362.100	970.000
21	1379.080	970.000
22	1480.950	940.000
23	1999.150	820.000

PROFILE LINE 2 - MATERIAL TYPE = 2
Fly Ash and Bottom Ash 1 foot thickness

Point	X	Y
1	582.510	750.000
2	621.570	766.020
3	800.000	766.020
4	1100.000	766.020
5	1220.000	768.000
6	1500.000	768.000

PROFILE LINE 3 - MATERIAL TYPE = 3
Bottom Ash Drainage Layer 2 feet thick

Point	X	Y
1	582.510	750.000
2	621.570	765.020
3	800.000	765.020
4	1100.000	765.020
5	1220.000	767.000
6	1500.000	767.000

PROFILE LINE 4 - MATERIAL TYPE = 4
Compacted Liner Material - 3 feet

Point	X	Y
1	582.510	750.000
2	621.570	763.020
3	800.000	763.020
4	1100.000	763.020
5	1220.000	765.000
6	1500.000	765.000
7	1600.000	770.000
8	1900.000	790.000
9	2000.000	820.000

PROFILE LINE 5 - MATERIAL TYPE = 5
Original Ground Surface

Point	X	Y
1	95.170	748.920
2	147.030	740.000
3	353.930	749.000
4	582.510	750.000
5	621.570	760.020
6	800.000	760.020
7	1100.000	760.020
8	1500.000	762.000
9	1600.000	765.500
10	1900.000	770.500
11	2000.000	790.500

PROFILE LINE 6 - MATERIAL TYPE = 6
Bedrock Limestone

Point	X	Y
1	95.170	713.410
2	321.140	713.410
3	445.300	711.730
4	643.640	719.000
5	934.060	719.160
6	1098.460	710.000
7	1243.940	710.000
8	1438.360	720.000
9	1540.360	728.000
10	1608.780	730.000
11	1653.770	730.000

```
                12      1709.130        721.160
                13      1773.310        726.690
                14      2044.710        746.240

          All new profile lines defined - No old lines retained
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          GYPSUM STACK Option 1+2,
          KIF Wet

          TABLE NO.  3
          ************************************************************************
          * NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
          ************************************************************************

          DATA FOR MATERIAL TYPE  1
          Gypsum

               Unit weight of material =  113.400

               CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
               Cohesion - - - - - - - -      50.000
               Friction angle - - - - -  37.000 degrees

               Pore water pressures defined by piezometric line
               Number of the piezometric line used =  1
               Negative pore pressures set to zero

          DATA FOR MATERIAL TYPE  2
          Rolled Compacted Fly Ash Base

               Unit weight of material =  113.400

               CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
               Cohesion - - - - - - - -     100.000
               Friction angle - - - - -  36.600 degrees

               Pore water pressures defined by piezometric line
               Number of the piezometric line used =  1
               Negative pore pressures set to zero

          DATA FOR MATERIAL TYPE  3
          Bottom Ash

               Unit weight of material =  116.400

               CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
               Cohesion - - - - - - - -     110.000
               Friction angle - - - - -  36.000 degrees

               Pore water pressures defined by piezometric line
               Number of the piezometric line used =  1
               Negative pore pressures set to zero

          DATA FOR MATERIAL TYPE  4
          Compacted Clay Liner

               Unit weight of material =  126.400

               CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
               Cohesion - - - - - - - -     326.000
               Friction angle - - - - -  24.000 degrees

               Pore water pressures defined by piezometric line
               Number of the piezometric line used =  1
               Negative pore pressures set to zero

          DATA FOR MATERIAL TYPE  5
          Original Ground
```

```
          Unit weight of material =  130.400

          CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
          Cohesion - - - - - - - -        .000
          Friction angle - - - - -  22.500 degrees

          Pore water pressures defined by piezometric line
          Number of the piezometric line used =  1
          Negative pore pressures set to zero

     DATA FOR MATERIAL TYPE  6
     Bedrock Limestone

          Unit weight of material =  155.000

          CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
          Cohesion - - - - - - - -   10000.000
          Friction angle - - - - -  29.900 degrees

          Pore water pressures defined by piezometric line
          Number of the piezometric line used =  1
          Negative pore pressures set to zero

     All new material properties defined - No old data retained
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     KIF Wet

     TABLE NO.  5
     ************************************************************************
     * NEW PIEZOMETRIC LINE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
     ************************************************************************

     Line
      No.    Point       X           Y

       1 - Unit weight of water =   62.40   Psuedo Static Water TAble
       1        1      95.170     764.920   Psuedo Static Water TAble
       1        2     147.030     745.810   Psuedo Static Water TAble
       1        3     353.930     749.000   Psuedo Static Water TAble
       1        4     424.970     748.530   Psuedo Static Water TAble
       1        5     582.510     750.000   Psuedo Static Water TAble
       1        6     621.570     763.020   Psuedo Static Water TAble
       1        7     800.000     763.520   Psuedo Static Water TAble
       1        8    1100.000     763.520   Psuedo Static Water TAble
       1        9    1500.000     765.500   Psuedo Static Water TAble
       1       10    1600.000     770.500   Psuedo Static Water TAble
       1       11    1900.000     790.500   Psuedo Static Water TAble
       1       12    2000.000     820.500   Psuedo Static Water TAble

     All new piezometric lines defined - No old lines retained

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     KIF

     TABLE NO. 15
     ********************************
     * NEW ANALYSIS/COMPUTATION DATA *
     ********************************

     Circular Shear Surface(s)

     Automatic Search Performed

     Starting Center Coordinate for Search at -
```

X = 500.000
Y = 1120.000

Required accuracy for critical center (= minimum spacing between grid points) = 10.000

Critical shear surface not allowed to pass below Y = 723.000

For the initial mode of search
all circles are tangent to horizontal line at -
Y = 723.000

Maximum number of iterations allowed for calculating the factor of safety = 1000

Procedure used to compute the factor of safety: SPENCER

Depth of crack = 5.000

THE FOLLOWING REPRESENT EITHER DEFAULT OR PREVIOUSLY DEFINED VALUES:

Initial trial estimate for the factor of safety = 3.000

Initial trial estimate for side force inclination = 15.000 degrees
(Applicable to Spencer's procedure only)

Allowed force imbalance for convergence = 100.000

Allowed moment imbalance for convergence = 100.000

Initial trial values for factor of safety (and side force inclination for Spencer's procedure) will be kept constant during search

Maximum subtended angle to be used for subdivision of the circle into slices = 3.00 degrees

Search will be continued to locate a more critical shear surface (if one exists) after the initial mode is complete

Depth of water in crack = .000

Unit weight of water in crack = 62.400

Seismic coefficient = .000

Conventional (single-stage) computations to be performed
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TABLE NO. 18
INFORMATION FOR CURRENT MODE OF SEARCH - All Circles Are Tangent to a Horizontal Line at Y = 723.000

Center Coordinates			1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations
X	Y	Radius			
200.00	820.00	97.00	See Message on Next Line(s)		
Last Trial Values =			426.000	58.36	1001
(Last Trial Values Shown Above Are Not Correct Final Values)					
FATAL ERROR IN CALCULATING FACTOR OF SAFETY					
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS					
500.00	820.00	97.00	1.638	12.12	6
800.00	820.00	97.00	See Message on Next Line(s)		
Last Trial Values =			2.801	14.98	1001

```
        (Last Trial Values Shown Above Are Not Correct Final Values)
        FATAL ERROR IN CALCULATING FACTOR OF SAFETY
        SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS
            200.00   1120.00    397.00 See Message on Next Line(s)
        CIRCLE DOES NOT INTERSECT SLOPE
            500.00   1120.00    397.00   1.895      10.55         6
            800.00   1120.00    397.00   2.374      10.95         5
            200.00   1420.00    697.00 See Message on Next Line(s)
        CIRCLE DOES NOT INTERSECT SLOPE
            500.00   1420.00    697.00   2.021      11.60         6
            800.00   1420.00    697.00   2.289      11.86         5

            200.00    520.00   -203.00 Center of circle is below lowest
                                       point of slope - CIRCLE REJECTED
            500.00    520.00   -203.00 Center of circle is below lowest
                                       point of slope - CIRCLE REJECTED
            800.00    520.00   -203.00 Center of circle is below lowest
                                       point of slope - CIRCLE REJECTED

            450.00    770.00     47.00 See Message on Next Line(s)
        Last Trial Values =              301.000      46.32      1001
        (Last Trial Values Shown Above Are Not Correct Final Values)
        FATAL ERROR IN CALCULATING FACTOR OF SAFETY
        SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS
            500.00    770.00     47.00 See Message on Next Line(s)
        Last Trial Values =               41.000      73.11      1001
        (Last Trial Values Shown Above Are Not Correct Final Values)
        FATAL ERROR IN CALCULATING FACTOR OF SAFETY
        SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS
            550.00    770.00     47.00 See Message on Next Line(s)
        Last Trial Values =               17.000      58.00      1001
        (Last Trial Values Shown Above Are Not Correct Final Values)
        FATAL ERROR IN CALCULATING FACTOR OF SAFETY
        SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS
            450.00    820.00     97.00   1.953       7.96         6
            550.00    820.00     97.00   2.725       8.08         5
            450.00    870.00    147.00   1.760       9.33         6
            500.00    870.00    147.00   1.736       9.93         6
            550.00    870.00    147.00   2.203      10.60         4

            470.00    790.00     67.00   1.809       8.76         5
            500.00    790.00     67.00   1.848      11.11         6
            530.00    790.00     67.00 See Message on Next Line(s)
        Last Trial Values =               11.000      65.34      1001
        (Last Trial Values Shown Above Are Not Correct Final Values)
        FATAL ERROR IN CALCULATING FACTOR OF SAFETY
        SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS
            470.00    820.00     97.00   1.651      10.05         6
            530.00    820.00     97.00   2.129       9.29         5
            470.00    850.00    127.00   1.604      10.61         6
            500.00    850.00    127.00   1.680      10.78         6
            530.00    850.00    127.00   1.993      10.33         6

            440.00    820.00     97.00   2.288       6.96         4
            440.00    850.00    127.00   2.029       7.88         5
            440.00    880.00    157.00   1.898       8.63         6
            470.00    880.00    157.00   1.649       9.93         6
            500.00    880.00    157.00   1.745       9.78         6

            460.00    840.00    117.00   1.698       9.57         6
            470.00    840.00    117.00   1.608      10.62         6
            480.00    840.00    117.00   1.575      11.21         6
            460.00    850.00    127.00   1.677       9.83         6
            480.00    850.00    127.00   1.585      10.98         6
            460.00    860.00    137.00   1.664      10.00         6
            470.00    860.00    137.00   1.611      10.45         6
            480.00    860.00    137.00   1.604      10.67         6

            470.00    830.00    107.00   1.626      10.35         6
            480.00    830.00    107.00   1.577      11.33         6
            490.00    830.00    107.00   1.583      11.76         6
            490.00    840.00    117.00   1.590      11.48         6
```

490.00 850.00 127.00 1.610 11.05 6

At the end of the current mode of search the most critical circle which was found has the following values -
X-center = 480.00 Y-center = 840.00 Radius = 117.00
Factor of Safety = 1.575 Side Force Inclination = 11.21

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TABLE NO. 19
INFORMATION FOR CURRENT MODE OF SEARCH - All Circles Have the Same Radius - Radius = 117.000

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations	
180.00	540.00	117.00	Center of circle is below lowest point of slope - CIRCLE REJECTED			
480.00	540.00	117.00	Center of circle is below lowest point of slope - CIRCLE REJECTED			
780.00	540.00	117.00	Center of circle is below lowest point of slope - CIRCLE REJECTED			
180.00	840.00	117.00	Opposite slope face - CIRCLE REJECTED			
780.00	840.00	117.00	3.867	18.76	25	
Message on the following line(s) applies to the above circle						
DENOMINATOR IN EQUATIONS FOR F WAS SMALL FOR 9 SLICES						
FIRST AND LAST SLICES WHERE DENOMINATOR WAS LOW - 2 10						
180.00	1140.00	117.00	See Message on Next Line(s)			
CIRCLE DOES NOT INTERSECT SLOPE						
480.00	1140.00	117.00	See Message on Next Line(s)			
CIRCLE DOES NOT INTERSECT SLOPE						
780.00	1140.00	117.00	See Message on Next Line(s)			
CIRCLE DOES NOT INTERSECT SLOPE						
430.00	790.00	117.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
480.00	790.00	117.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
530.00	790.00	117.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
430.00	840.00	117.00	2.517	6.61	4	
530.00	840.00	117.00	2.033	9.97	5	
430.00	890.00	117.00	See Message on Next Line(s)			
CIRCLE DOES NOT INTERSECT SLOPE						
480.00	890.00	117.00	See Message on Next Line(s)			
CIRCLE DOES NOT INTERSECT SLOPE						
530.00	890.00	117.00	2.876	14.80	3	
450.00	810.00	117.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
480.00	810.00	117.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
510.00	810.00	117.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
450.00	840.00	117.00	1.848	8.57	6	
510.00	840.00	117.00	1.755	10.79	6	
450.00	870.00	117.00	See Message on Next Line(s)			
DEPTH OF CRACK IS GREATER THAN DEPTH OF CIRCLE						
480.00	870.00	117.00	2.243	19.85	5	
510.00	870.00	117.00	2.647	16.45	4	
470.00	830.00	117.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
480.00	830.00	117.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			

```
      490.00    830.00    117.00 Bottom of circle exceeds allowable
                                 depth - CIRCLE REJECTED
      470.00    840.00    117.00   1.608      10.62         6
      490.00    840.00    117.00   1.590      11.48         6
      470.00    850.00    117.00   1.548      12.90         7
      480.00    850.00    117.00   1.529      14.05         7
      490.00    850.00    117.00   1.566      14.28         7

      470.00    860.00    117.00   1.658      18.44         7
      480.00    860.00    117.00   1.655      19.38         7
      490.00    860.00    117.00   1.717      18.44         6

 At the end of the current mode of search the most critical
 circle which was found has the following values -
 X-center =    480.00     Y-center =    850.00     Radius =    117.00
 Factor of Safety =   1.529     Side Force Inclination =  14.05
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 TABLE NO. 18
 INFORMATION FOR CURRENT MODE OF SEARCH - All Circles Are Tangent
 to a Horizontal Line at   Y =   733.000
 ------------------------------------------------------------------

                                    1-Stage
 Center Coordinates                 Factor  Side Force
                                      of    Inclination
      X         Y       Radius     Safety   (degrees)   Iterations


     180.00    550.00   -183.00 Center of circle is below lowest
                                point of slope - CIRCLE REJECTED
     480.00    550.00   -183.00 Center of circle is below lowest
                                point of slope - CIRCLE REJECTED
     780.00    550.00   -183.00 Center of circle is below lowest
                                point of slope - CIRCLE REJECTED
     180.00    850.00    117.00 See Message on Next Line(s)
 Last Trial Values =             445.944      77.99      1001
 (Last Trial Values Shown Above Are Not Correct Final Values)
 FATAL ERROR IN CALCULATING FACTOR OF SAFETY
 SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS
     780.00    850.00    117.00   4.128      14.65        11
 Message on the following line(s) applies to the above circle
 DENOMINATOR IN EQUATIONS FOR F WAS SMALL FOR   5 SLICES
 FIRST AND LAST SLICES WHERE DENOMINATOR WAS LOW -     1     5
     180.00   1150.00    417.00 See Message on Next Line(s)
 CIRCLE DOES NOT INTERSECT SLOPE
     480.00   1150.00    417.00   2.002      10.85         6
     780.00   1150.00    417.00   2.406      11.44         5

     430.00    800.00     67.00 See Message on Next Line(s)
 Last Trial Values =              18.000      69.65      1001
 (Last Trial Values Shown Above Are Not Correct Final Values)
 FATAL ERROR IN CALCULATING FACTOR OF SAFETY
 SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS
     480.00    800.00     67.00   1.573      12.83         6
     530.00    800.00     67.00   2.431       9.73         5
     430.00    850.00    117.00   2.521       6.80         4
     530.00    850.00    117.00   2.163       9.96         5
     430.00    900.00    167.00   2.087       8.61         5
     480.00    900.00    167.00   1.690      12.06         6
     530.00    900.00    167.00   2.018      11.45         6

     450.00    820.00     87.00   1.846       8.64         6
     480.00    820.00     87.00   1.530      13.54         7
     510.00    820.00     87.00   1.767      13.58         6
     450.00    850.00    117.00   1.754       9.75         6
     510.00    850.00    117.00   1.796      12.57         6
     450.00    880.00    147.00   1.716      10.75         6
```

480.00	880.00	147.00	1.609	13.05	6
510.00	880.00	147.00	1.911	11.42	6
470.00	840.00	107.00	1.547	12.60	7
480.00	840.00	107.00	1.520	14.10	6
490.00	840.00	107.00	1.547	14.64	6
470.00	850.00	117.00	1.548	12.90	7
490.00	850.00	117.00	1.566	14.28	7
470.00	860.00	127.00	1.552	13.13	7
480.00	860.00	127.00	1.550	13.77	7
490.00	860.00	127.00	1.593	13.86	6
470.00	830.00	97.00	1.549	12.30	7
480.00	830.00	97.00	1.523	13.83	7
490.00	830.00	97.00	1.540	14.87	6

At the end of the current mode of search the most critical
circle which was found has the following values -
X-center = 480.00 Y-center = 840.00 Radius = 107.00
Factor of Safety = 1.520 Side Force Inclination = 14.10
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TABLE NO. 19
INFORMATION FOR CURRENT MODE OF SEARCH - All Circles Have the
Same Radius - Radius = 107.000

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations
180.00	540.00	107.00	Center of circle is below lowest point of slope - CIRCLE REJECTED		
480.00	540.00	107.00	Center of circle is below lowest point of slope - CIRCLE REJECTED		
780.00	540.00	107.00	Center of circle is below lowest point of slope - CIRCLE REJECTED		
180.00	840.00	107.00	See Message on Next Line(s)		
Last Trial Values =			503.000	68.40	1001
(Last Trial Values Shown Above Are Not Correct Final Values)					
FATAL ERROR IN CALCULATING FACTOR OF SAFETY					
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS					
780.00	840.00	107.00	See Message on Next Line(s)		
Last Trial Values =			3.594	17.87	1001
(Last Trial Values Shown Above Are Not Correct Final Values)					
FATAL ERROR IN CALCULATING FACTOR OF SAFETY					
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS					
180.00	1140.00	107.00	See Message on Next Line(s)		
CIRCLE DOES NOT INTERSECT SLOPE					
480.00	1140.00	107.00	See Message on Next Line(s)		
CIRCLE DOES NOT INTERSECT SLOPE					
780.00	1140.00	107.00	See Message on Next Line(s)		
CIRCLE DOES NOT INTERSECT SLOPE					
430.00	790.00	107.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED		
480.00	790.00	107.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED		
530.00	790.00	107.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED		
430.00	840.00	107.00	2.701	6.36	4
530.00	840.00	107.00	2.197	9.76	5
430.00	890.00	107.00	See Message on Next Line(s)		
CIRCLE DOES NOT INTERSECT SLOPE					
480.00	890.00	107.00	See Message on Next Line(s)		
CIRCLE DOES NOT INTERSECT SLOPE					

530.00	890.00	107.00	2.770	16.37	4
450.00	810.00	107.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED		
480.00	810.00	107.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED		
510.00	810.00	107.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED		
450.00	840.00	107.00	1.776	9.40	6
510.00	840.00	107.00	1.767	13.06	6
450.00	870.00	107.00	See Message on Next Line(s)		
CIRCLE DOES NOT INTERSECT SLOPE					
480.00	870.00	107.00	2.899	15.84	3
510.00	870.00	107.00	2.391	18.29	5
470.00	830.00	107.00	1.626	10.35	6
480.00	830.00	107.00	1.577	11.33	6
490.00	830.00	107.00	1.583	11.76	6
470.00	840.00	107.00	1.547	12.60	7
490.00	840.00	107.00	1.547	14.64	6
470.00	850.00	107.00	1.645	18.07	7
480.00	850.00	107.00	1.647	19.06	7
490.00	850.00	107.00	1.694	18.69	6

At the end of the current mode of search the most critical circle which was found has the following values -
X-center = 480.00 Y-center = 840.00 Radius = 107.00
Factor of Safety = 1.520 Side Force Inclination = 14.10

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TABLE NO. 21
***** 1-STAGE FINAL CRITICAL CIRCLE INFORMATION *****

X Coordinate of Center - - - - - - -	480.000
Y Coordinate of Center - - - - - - -	840.000
Radius - - - - - - - - - - - - - - -	107.000
Factor of Safety - - - - - - - - - -	1.520
Side Force Inclination - - - - - - -	14.10

Number of circles tried - - - - - - 148
No. of circles F calc. for - - - - - 95

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TABLE NO. 26
****
* Coordinate, Weight, Strength and Pore Water Pressure *
* Information for Individual Slices for Conventional *
* Computations or First Stage of Multi-Stage Computations. *
* (Information is for the Critical Shear Surface in the *
* Case of an Automatic Search.) *
****

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	423.7	749.0					
1	424.1	748.8	23.2	5	.00	22.50	.0
	424.5	748.5					
2	424.7	748.4	39.6	5	.00	22.50	9.2
	425.0	748.2					
3	427.4	746.9	1362.2	5	.00	22.50	105.7
	429.8	745.5					
4	432.4	744.2	3117.2	5	.00	22.50	272.4

	434.9	743.0					
5	437.4	741.9	4777.2	5	.00	22.50	422.8
	440.0	740.8					
6	442.6	739.8	6311.8	5	.00	22.50	556.4
	445.3	738.8					
7	445.3	738.8	64.7	5	.00	22.50	619.5
	445.3	738.8					
8	448.0	737.9	7705.5	5	.00	22.50	673.9
	450.6	737.1					
9	452.4	736.6	5684.0	5	.00	22.50	758.2
	454.2	736.2					
10	454.7	736.0	1622.9	1	50.00	37.00	797.2
	455.3	735.9					
11	458.0	735.3	10790.3	5	.00	22.50	843.3
	460.7	734.7					
12	463.5	734.3	13036.4	5	.00	22.50	909.4
	466.3	733.9					
13	469.1	733.6	15083.0	5	.00	22.50	957.4
	471.8	733.3					
14	474.6	733.2	16904.5	5	.00	22.50	987.3
	477.4	733.0					
15	478.7	733.0	8273.3	5	.00	22.50	999.4
	480.0	733.0					
16	482.8	733.1	19110.9	5	.00	22.50	998.2
	485.6	733.1					
17	488.4	733.4	20294.1	5	.00	22.50	983.1
	491.2	733.6					
18	494.0	734.0	21194.0	5	.00	22.50	949.9
	496.7	734.3					
19	499.5	734.8	21803.2	5	.00	22.50	898.4
	502.2	735.3					
20	505.0	736.0	22119.3	5	.00	22.50	828.9
	507.7	736.6					

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TABLE NO. 26

```
**************************************************************
*  Coordinate, Weight, Strength and Pore Water Pressure      *
*  Information for Individual Slices for Conventional        *
*  Computations or First Stage of Multi-Stage Computations.  *
*  (Information is for the Critical Shear Surface in the     *
*  Case of an Automatic Search.)                             *
**************************************************************
```

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	507.7	736.6					
21	510.4	737.4	22144.0	5	.00	22.50	741.7
	513.1	738.2					
22	515.7	739.2	21883.7	5	.00	22.50	636.8
	518.3	740.1					
23	520.9	741.2	21349.2	5	.00	22.50	514.6
	523.5	742.3					
24	526.0	743.5	20555.4	5	.00	22.50	375.4
	528.6	744.7					
25	531.0	746.0	19521.9	5	.00	22.50	219.7
	533.5	747.3					
26	535.4	748.5	14256.8	5	.00	22.50	68.9
	537.2	749.6					
27	537.4	749.7	1344.5	5	.00	22.50	.0
	537.6	749.8					
28	539.9	751.4	17182.3	1	50.00	37.00	.0
	542.2	752.9					
29	544.4	754.6	15844.0	1	50.00	37.00	.0
	546.7	756.3					
30	548.8	758.1	14369.6	1	50.00	37.00	.0

	551.0	759.9					
31	553.0	761.8	12788.4	1	50.00	37.00	.0
	555.1	763.7					
32	557.0	765.8	11132.5	1	50.00	37.00	.0
	558.9	767.8					
33	560.8	769.9	9435.5	1	50.00	37.00	.0
	562.6	772.0					
34	564.3	774.2	7732.2	1	50.00	37.00	.0
	566.1	776.4					
35	567.7	778.7	6058.2	1	50.00	37.00	.0
	569.3	781.0					
36	570.8	783.4	4449.5	1	50.00	37.00	.0
	572.2	785.8					
37	573.6	788.2	2942.1	1	50.00	37.00	.0
	574.9	790.7					
38	575.8	792.3	1197.7	1	50.00	37.00	.0
	576.6	794.0					

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TABLE NO. 27

```
**************************************************************
*  Seismic Forces and Forces Due to Surface Pressures for    *
*  Individual Slices for Conventional  Computations or the   *
*  First Stage of Multi-Stage Computations.                  *
*  (Information is for the Critical Shear Surface in the     *
*  Case of an Automatic Search.)                             *
**************************************************************
```

Slice No.	X	Seismic Force	Y for Seismic Force	FORCES DUE TO SURFACE PRESSURES Normal Force	Shear Force	X	Y
1	424.1	0.	748.9	0.	0.	.0	.0
2	424.7	0.	748.7	0.	0.	.0	.0
3	427.4	0.	747.9	0.	0.	.0	.0
4	432.4	0.	746.6	0.	0.	.0	.0
5	437.4	0.	745.4	0.	0.	.0	.0
6	442.6	0.	744.4	0.	0.	.0	.0
7	445.3	0.	743.9	0.	0.	.0	.0
8	448.0	0.	743.5	0.	0.	.0	.0
9	452.4	0.	742.8	0.	0.	.0	.0
10	454.7	0.	742.6	0.	0.	.0	.0
11	458.0	0.	742.9	0.	0.	.0	.0
12	463.5	0.	743.4	0.	0.	.0	.0
13	469.1	0.	744.1	0.	0.	.0	.0
14	474.6	0.	744.9	0.	0.	.0	.0
15	478.7	0.	745.6	0.	0.	.0	.0
16	482.8	0.	746.4	0.	0.	.0	.0
17	488.4	0.	747.7	0.	0.	.0	.0
18	494.0	0.	749.1	0.	0.	.0	.0
19	499.5	0.	750.6	0.	0.	.0	.0
20	505.0	0.	752.3	0.	0.	.0	.0
21	510.4	0.	754.1	0.	0.	.0	.0
22	515.7	0.	756.1	0.	0.	.0	.0
23	520.9	0.	758.3	0.	0.	.0	.0
24	526.0	0.	760.5	0.	0.	.0	.0
25	531.0	0.	763.0	0.	0.	.0	.0
26	535.4	0.	765.2	0.	0.	.0	.0
27	537.4	0.	766.3	0.	0.	.0	.0
28	539.9	0.	767.7	0.	0.	.0	.0
29	544.4	0.	770.3	0.	0.	.0	.0
30	548.8	0.	772.9	0.	0.	.0	.0
31	553.0	0.	775.6	0.	0.	.0	.0
32	557.0	0.	778.4	0.	0.	.0	.0
33	560.8	0.	781.2	0.	0.	.0	.0
34	564.3	0.	784.1	0.	0.	.0	.0

35	567.7	0.	787.0	0.	0.	.0	.0
36	570.8	0.	790.0	0.	0.	.0	.0
37	573.6	0.	793.0	0.	0.	.0	.0
38	575.8	0.	795.5	0.	0.	.0	.0

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TABLE NO. 29
****
* Information Generated During Iterative Solution for the Factor *
* of Safety and Side Force Inclination by Spencer's Procedure *
****

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	15.0000	.5917E+05	-.3478E+08		
First-order corrections to F and THETA					-.280E+01	-.114E+00
Values factored by .179E+00 - Deltas too large					-.500E+00	-.204E-01
2	2.50000	14.9796	.4657E+05	-.2737E+08		
First-order corrections to F and THETA					-.155E+01	-.128E+00
Values factored by .322E+00 - Deltas too large					-.500E+00	-.413E-01
3	2.00000	14.9383	.2801E+05	-.1645E+08		
First-order corrections to F and THETA					-.611E+00	-.174E+00
Values factored by .819E+00 - Deltas too large					-.500E+00	-.142E+00
4	1.50000	14.7959	-.2192E+04	.1355E+07		
First-order corrections to F and THETA					.164E-01	-.100E+01
Second-order correction - Iteration 1					.169E-01	-.100E+01
Second-order correction - Iteration 2					.169E-01	-.100E+01
5	1.51693	13.7935	.1454E+01	-.2628E+05		
First-order corrections to F and THETA					.329E-02	.306E+00
Second-order correction - Iteration 1					.331E-02	.306E+00
Second-order correction - Iteration 2					.331E-02	.306E+00
6	1.52024	14.0999	-.8850E-02	.8653E+02		
First-order corrections to F and THETA					-.105E-04	-.974E-03

Factor of Safety - - - - - - - - - 1.520
Side Force Inclination - - - - - - 14.10
Number of Iterations - - - - - - - 6

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TABLE NO. 38
****
* Final Results for Stresses Along the Shear Surface *
* (Results for Critical Shear Surface in Case of a Search.) *
****

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = 1.520 Side Force Inclination = 14.10 Degrees

-------- VALUES AT CENTER OF BASE OF SLICE---------

Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress

1	424.1	748.8	49.8	49.8	13.6
2	424.7	748.4	126.9	117.7	32.1
3	427.4	746.9	402.2	296.5	80.8
4	432.4	744.2	843.4	571.0	155.6
5	437.4	741.9	1207.6	784.9	213.9
6	442.6	739.8	1504.7	948.3	258.4
7	445.3	738.8	1638.1	1018.6	277.5
8	448.0	737.9	1743.8	1069.9	291.5
9	452.4	736.6	1901.2	1143.0	311.4
10	454.7	736.0	1897.5	1100.3	578.3
11	458.0	735.3	2267.0	1423.7	387.9
12	463.5	734.3	2652.8	1743.4	475.0
13	469.1	733.6	2978.6	2021.1	550.7
14	474.6	733.2	3248.0	2260.6	615.9
15	478.7	733.0	3414.3	2414.9	658.0
16	482.8	733.1	3545.5	2547.4	694.1
17	488.4	733.4	3688.2	2705.0	737.0
18	494.0	734.0	3783.2	2833.4	772.0
19	499.5	734.8	3832.6	2934.2	799.5
20	505.0	736.0	3838.4	3009.4	820.0
21	510.4	737.4	3802.3	3060.6	833.9
22	515.7	739.2	3726.1	3089.3	841.7
23	520.9	741.2	3611.7	3097.1	843.9
24	526.0	743.5	3460.9	3085.5	840.7
25	531.0	746.0	3275.7	3056.0	832.7
26	535.4	748.5	3085.9	3017.0	822.0
27	537.4	749.7	2988.8	2988.8	814.3
28	539.9	751.4	2672.0	2672.0	1357.4
29	544.4	754.6	2450.6	2450.6	1247.6
30	548.8	758.1	2216.2	2216.2	1131.4
31	553.0	761.8	1971.5	1971.5	1010.1
32	557.0	765.8	1719.5	1719.5	885.2
33	560.8	769.9	1463.2	1463.2	758.2
34	564.3	774.2	1205.9	1205.9	630.6
35	567.7	778.7	951.1	951.1	504.3
36	570.8	783.4	702.6	702.6	381.1
37	573.6	788.2	464.5	464.5	263.1
38	575.8	792.3	277.9	277.9	170.7

CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION = .01 (= .981E-02)
SHOULD NOT EXCEED .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION = .02 (= .166E-01)
SHOULD NOT EXCEED .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN = -87.95 (= -.880E+02)
SHOULD NOT EXCEED .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .01 (= .522E-02)
SHOULD NOT EXCEED .100E+03

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TABLE NO. 39
****
* Final Results for Side Forces and Stresses Between Slices. *
* (Results for Critical Shear Surface in Case of a Search.) *
****

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = 1.520 Side Force Inclination = 14.10 Degrees

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	424.5	35.	748.9	.705	160.5	-16.5

2	425.0	90.	748.7	.548	146.8	81.3
3	429.8	1638.	747.6	.603	730.9	172.3
4	434.9	4613.	746.3	.548	960.0	527.8
5	440.0	8522.	745.3	.546	1277.3	727.9
6	445.3	12957.	744.5	.556	1647.3	816.6
7	445.3	12999.	744.5	.556	1650.8	817.0
8	450.6	17621.	743.9	.573	2067.0	806.6
9	454.2	20598.	743.7	.586	2362.8	750.0
10	455.3	21761.	743.5	.565	2162.3	954.6
11	460.7	26647.	743.3	.504	1566.2	1486.1
12	466.3	31721.	743.1	.461	1175.6	1891.8
13	471.8	36645.	743.2	.430	898.1	2204.7
14	477.4	41138.	743.4	.407	691.0	2441.3
15	480.0	42983.	743.6	.398	613.4	2526.7
16	485.6	46454.	744.1	.383	472.0	2668.5
17	491.2	49027.	744.9	.372	362.4	2752.1
18	496.7	50596.	746.0	.364	278.5	2781.5
19	502.2	51102.	747.2	.358	216.8	2759.8
20	507.7	50531.	748.8	.354	175.3	2689.1
21	513.1	48912.	750.5	.352	153.0	2571.6
22	518.3	46311.	752.5	.353	149.9	2408.7
23	523.5	42831.	754.8	.357	166.9	2201.4
24	528.6	38608.	757.3	.365	205.7	1950.4
25	533.5	33806.	760.3	.380	269.1	1655.5
26	537.2	29816.	762.9	.398	337.9	1396.6
27	537.6	29418.	763.1	.400	345.6	1369.9
28	542.2	27273.	765.3	.385	254.9	1397.2
29	546.7	24497.	767.7	.372	181.1	1378.2
30	551.0	21264.	770.3	.361	121.1	1320.0
31	555.1	17755.	773.1	.352	72.5	1228.6
32	558.9	14154.	776.0	.343	33.0	1109.7
33	562.6	10642.	779.1	.334	.9	968.5
34	566.1	7390.	782.3	.323	-25.4	809.3
35	569.3	4557.	785.6	.307	-46.9	635.9
36	572.2	2279.	789.0	.279	-63.3	448.8
37	574.9	667.	792.3	.208	-63.5	232.2
38	576.6	0.	22545.1	ABOVE	19.8	-19.8

CHECK SUMS - (ALL SHOULD BE SMALL)

SUM OF FORCES IN VERTICAL DIRECTION = .01 (= .981E-02)
SHOULD NOT EXCEED .100E+03

SUM OF FORCES IN HORIZONTAL DIRECTION = .02 (= .166E-01)
SHOULD NOT EXCEED .100E+03

SUM OF MOMENTS ABOUT COORDINATE ORIGIN = -87.95 (= -.880E+02)
SHOULD NOT EXCEED .100E+03

SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .01 (= .522E-02)
SHOULD NOT EXCEED .100E+03

C:\UTEXAS3\KFPGPS2_Report.OUT
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TABLE NO. 1
```
****************************************
* COMPUTER PROGRAM DESIGNATION - UTEXAS3 *
* Originally Coded By Stephen G. Wright  *
* Version No. 1.209                      *
* Last Revision Date  2/28/98            *
* (C) Copyright 1985-1998 S. G. Wright   *
* All Rights Reserved                    *
****************************************
```

```
************************************************************
*                                                          *
*      RESULTS OF COMPUTATIONS PERFORMED USING THIS COMPUTER *
* PROGRAM SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY *
* HAVE BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL   *
* DATA OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE   *
* ALGORITHMS AND ANALYTICAL PROCEDURES USED IN THE COMPUTER  *
* PROGRAM AND MUST HAVE READ ALL DOCUMENTATION FOR THIS      *
* PROGRAM BEFORE ATTEMPTING ITS USE.                         *
*                                                          *
*      NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT        *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR  *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS  *
* OR ADAPTABILITY OF THIS COMPUTER PROGRAM.                  *
*                                                          *
************************************************************
```

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GYPSUM STACK Option 1+2,
KIF Wet

TABLE NO. 2
```
*************************
* NEW PROFILE LINE DATA *
*************************
```

PROFILE LINE 1 - MATERIAL TYPE = 1
Gypsum

Point	X	Y
1	454.170	749.000
2	577.400	799.340
3	597.400	799.340
4	614.500	793.640
5	621.500	793.640
6	700.810	820.000
7	715.840	820.000
8	806.040	850.000
9	821.070	850.000
10	911.270	880.000
11	926.300	880.000
12	1016.490	910.000
13	1031.530	910.000
14	1121.720	940.000
15	1136.750	940.000
16	1226.950	970.000
17	1241.980	970.000
18	1284.490	983.900
19	1312.810	984.400
20	1362.100	970.000
21	1379.080	970.000
22	1480.950	940.000
23	1999.150	820.000

PROFILE LINE 2 - MATERIAL TYPE = 2
Fly Ash and Bottom Ash 1 foot thickness

Point	X	Y
1	582.510	750.000
2	621.570	766.020
3	800.000	766.020
4	1100.000	766.020
5	1220.000	768.000
6	1500.000	768.000

PROFILE LINE 3 - MATERIAL TYPE = 3
Bottom Ash Drainage Layer 2 feet thick

Point	X	Y
1	582.510	750.000
2	621.570	765.020
3	800.000	765.020
4	1100.000	765.020
5	1220.000	767.000
6	1500.000	767.000

PROFILE LINE 4 - MATERIAL TYPE = 4
Compacted Liner Material - 3 feet

Point	X	Y
1	582.510	750.000
2	621.570	763.020
3	800.000	763.020
4	1100.000	763.020
5	1220.000	765.000
6	1500.000	765.000
7	1600.000	770.000
8	1900.000	790.000
9	2000.000	820.000

PROFILE LINE 5 - MATERIAL TYPE = 5
Original Ground Surface

Point	X	Y
1	95.170	748.920
2	147.030	740.000
3	353.930	749.000
4	582.510	750.000
5	621.570	760.020
6	800.000	760.020
7	1100.000	760.020
8	1500.000	762.000
9	1600.000	765.500
10	1900.000	770.500
11	2000.000	790.500

PROFILE LINE 6 - MATERIAL TYPE = 6
Bedrock Limestone

Point	X	Y
1	95.170	713.410
2	321.140	713.410
3	445.300	711.730
4	643.640	719.000
5	934.060	719.160
6	1098.460	710.000
7	1243.940	710.000
8	1438.360	720.000
9	1540.360	728.000
10	1608.780	730.000
11	1653.770	730.000

12	1709.130	721.160
13	1773.310	726.690
14	2044.710	746.240

All new profile lines defined - No old lines retained
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GYPSUM STACK Option 1+2,
KIF Wet

TABLE NO. 3

****

* NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *

****

DATA FOR MATERIAL TYPE 1
Gypsum

Unit weight of material = 113.400

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - - 50.000
Friction angle - - - - - 37.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 2
Rolled Compacted Fly Ash Base

Unit weight of material = 113.400

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - - 100.000
Friction angle - - - - - 36.600 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 3
Bottom Ash

Unit weight of material = 116.400

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - - 110.000
Friction angle - - - - - 36.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 4
Compacted Clay Liner

Unit weight of material = 126.400

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - - 326.000
Friction angle - - - - - 24.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 5
Original Ground

```
          Unit weight of material =  130.400

          CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
          Cohesion - - - - - - - - -        .000
          Friction angle - - - - -  22.500 degrees

          Pore water pressures defined by piezometric line
          Number of the piezometric line used =  1
          Negative pore pressures set to zero

     DATA FOR MATERIAL TYPE  6
     Bedrock Limestone

          Unit weight of material =  155.000

          CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
          Cohesion - - - - - - - -   10000.000
          Friction angle - - - - -  29.900 degrees

          Pore water pressures defined by piezometric line
          Number of the piezometric line used =  1
          Negative pore pressures set to zero

     All new material properties defined - No old data retained
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     GYPSUM STACK Option 1+2,
     KIF Wet

     TABLE NO.  5
     ************************************************************************
     * NEW PIEZOMETRIC LINE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
     ************************************************************************

     Line
      No.    Point       X           Y

       1 - Unit weight of water =   62.40   Psuedo Static Water TAble
       1        1      95.170     764.920   Psuedo Static Water TAble
       1        2     147.030     745.810   Psuedo Static Water TAble
       1        3     353.930     749.000   Psuedo Static Water TAble
       1        4     424.970     748.530   Psuedo Static Water TAble
       1        5     582.510     750.000   Psuedo Static Water TAble
       1        6     621.570     763.020   Psuedo Static Water TAble
       1        7     800.000     763.520   Psuedo Static Water TAble
       1        8    1100.000     763.520   Psuedo Static Water TAble
       1        9    1500.000     765.500   Psuedo Static Water TAble
       1       10    1600.000     770.500   Psuedo Static Water TAble
       1       11    1900.000     790.500   Psuedo Static Water TAble
       1       12    2000.000     820.500   Psuedo Static Water TAble

     All new piezometric lines defined - No old lines retained

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     GYPSUM STACK Residuum  KFPGAPS3
     KIF  Seismic=0.110

     TABLE NO. 15
     ********************************
     * NEW ANALYSIS/COMPUTATION DATA *
     ********************************

     Noncircular Shear Surface(s)

     Automatic Search Performed
```

Coordinates of points on shear surface which are to be shifted -

Point	X	Y	Shift Angle
1	413.200	749.000	angle to be computed - moveable
2	546.000	738.500	angle to be computed - moveable
3	642.620	735.000	angle to be computed - moveable
4	869.290	719.000	angle to be computed - moveable
5	902.620	735.000	angle to be computed - moveable
6	1022.440	747.000	angle to be computed - moveable
7	1100.000	750.000	angle to be computed - moveable
8	1186.530	780.330	angle to be computed - moveable
9	1259.470	884.570	angle to be computed - moveable
10	1281.000	932.000	angle to be computed - moveable
11	1303.750	980.890	angle to be computed - moveable

Initial distance for shifting points on shear surface = 11.000
Maximum steepness permitted for toe of shear surface = 45.00 degrees

Seismic coefficient = .110

TWO-STAGE COMPUTATIONS ARE PERFORMED

Procedure used to compute the factor of safety: SPENCER

Depth of water in crack = .000

THE FOLLOWING REPRESENT EITHER DEFAULT OR PREVIOUSLY DEFINED VALUES:

Initial trial estimate for the factor of safety = 3.000

Initial trial estimate for side force inclination = 15.000 degrees
(Applicable to Spencer's procedure only)

Maximum number of iterations allowed for
calculating the factor of safety = 1000

Allowed force imbalance for convergence = 100.000

Allowed moment imbalance for convergence = 100.000

Initial trial values for factor of safety (and side force inclination
for Spencer's procedure) will be kept constant during search

Number of increments for slice subdivision = 30

Unit weight of water in crack = 62.400
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TABLE NO. 22
****
* INITIAL COMPUTED INFORMATION FOR SEARCH *
* WITH NONCIRCULAR SHEAR SURFACE *
****

Crack depth computed to be - - - 3.35

FOR INITIAL TRIAL NONCIRCULAR SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - 1.294
Side Force Inclination - - - - - - - - - 25.11
Number of Iterations - - - - - - - - - - . 6

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 1 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	402.20	749.00	1.294	25.15	6
1	424.20	749.00	1.295	25.06	6
2	545.37	727.52	1.283	25.93	6
2	546.63	749.48	See Message on Next Line(s)		

SHEAR SURFACE SEGMENT BETWEEN POINTS 1 AND 2 CROSSES SLOPE BETWEEN POINTS 4 AND 5 AFTER SHIFT - THIS TRIAL SHEAR SURFACE WAS REJECTED

3	642.03	724.02	1.283	24.85	6
3	643.21	745.98	1.325	24.61	6
4	867.08	729.78	1.282	26.10	6
4	871.50	708.22	1.708	22.51	7
5	899.56	745.56	1.353	25.52	7
5	905.68	724.44	1.269	24.47	6
6	1021.68	757.97	1.340	26.66	8
6	1023.20	736.03	1.280	24.02	6
7	1097.90	760.80	1.409	28.52	7
7	1102.10	739.20	1.278	24.06	7
8	1179.22	788.55	1.262	24.09	6
8	1193.84	772.11	1.319	25.93	7
9	1249.83	889.88	1.302	25.33	7
9	1269.11	879.26	1.307	25.05	6
10	1271.00	936.59	1.311	25.09	7
10	1291.00	927.41	1.292	25.06	6
11	1292.75	980.70	1.301	25.03	6
11	1314.74	980.49	1.291	25.15	6

Maximum distance shifted for new estimate of shear surface is 11.000 at point 10

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	402.20	749.00
2	545.37	727.52
3	642.03	724.02
4	867.08	729.78
5	905.68	724.44
6	1023.20	736.03
7	1102.10	739.20
8	1179.22	788.55
9	1258.27	885.23
10	1291.00	927.41
11	1314.74	980.49

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - 1.175
Side Force Inclination - - - - - - - - - 23.29
Number of Iterations - - - - - - - - - - 6

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KIF Seismic=0.110

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 2 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

2-Stage
Factor

Point	X	Y	of Safety	Side Force Inclination	Iterations
1	391.20	749.00	1.174	23.34	6
1	413.20	749.00	1.176	23.26	6
2	544.35	716.57	1.166	23.65	6
2	546.39	738.47	1.190	22.35	6
3	641.97	713.02	1.462	17.20	6
3	642.09	735.02	1.197	23.14	6
4	866.46	718.79	1.205	22.61	7
4	867.70	740.76	1.236	23.55	6
5	905.47	713.44	1.384	23.70	7
5	905.90	735.43	1.183	24.01	6
6	1022.44	747.00	1.213	24.84	6
6	1023.96	725.05	1.164	22.33	6
7	1098.56	749.62	1.188	24.01	7
7	1105.64	728.79	1.205	23.81	6
8	1171.72	796.60	1.175	23.13	6
8	1186.72	780.50	1.185	23.67	6
9	1249.66	892.08	1.183	23.23	6
9	1266.88	878.38	1.184	23.43	6
10	1281.43	932.84	1.178	23.28	6
10	1300.56	921.98	1.186	23.23	6
11	1303.75	980.89	1.180	23.23	6
11	1325.30	977.40	1.173	23.33	6

Maximum distance shifted for new estimate of shear surface is 11.000 at point 8

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	391.20	749.00
2	544.35	716.57
3	642.06	728.74
4	866.98	727.87
5	905.79	729.51
6	1023.96	725.05
7	1101.42	741.22
8	1171.72	796.60
9	1258.08	885.38
10	1288.17	929.01
11	1325.30	977.40

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - 1.161
Side Force Inclination - - - - - - - - - 22.79
Number of Iterations - - - - - - - - - - 6

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 3 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	380.20	749.00	1.160	22.85	7
1	402.20	749.00	1.162	22.71	7
2	543.87	705.58	1.368	16.38	6
2	544.83	727.56	1.168	22.52	6

3	641.40	739.72	1.189	22.25	6
3	642.72	717.76	1.332	17.61	6
4	866.77	738.87	1.194	23.21	6
4	867.19	716.87	1.312	22.01	6
5	905.76	740.51	1.199	23.64	6
5	905.81	718.51	1.207	22.46	6
6	1023.03	736.01	1.164	23.65	7
6	1024.90	714.09	1.182	22.57	6
7	1096.51	751.07 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

7	1106.32	731.37	1.180	23.11	6
8	1164.33	804.74	1.171	22.82	6
8	1179.11	788.45	1.164	23.07	6
9	1249.52	892.29	1.159	22.64	6
9	1266.64	878.47	1.179	23.04	6
10	1279.27	935.48	1.170	22.70	6
10	1297.07	922.55	1.164	22.79	7
11	1314.74	980.49	1.162	22.77	6
11	1335.86	974.32	1.162	22.77	7

Maximum distance shifted for new estimate of shear surface is 11.000 at point 1

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	380.20	749.00
2	544.57	721.68
3	641.82	732.69
4	866.91	731.37
5	905.78	730.08
6	1023.63	728.93
7	1101.42	741.22
8	1173.48	794.66
9	1249.52	892.29
10	1289.95	927.72
11	1324.36	977.68

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - 1.179
Side Force Inclination - - - - - - - - - 23.03
Number of Iterations - - - - - - - - - - 7

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KIF Seismic=0.110

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 4 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 7.70

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	383.50	749.00	1.160	22.84	7
1	398.90	749.00	1.161	22.73	6
2	544.01	708.87	1.316	17.19	6
2	544.68	724.26	1.165	22.67	6
3	641.59	736.43	1.180	22.45	6
3	642.52	721.05	1.145	22.91	7
4	866.83	735.57	1.181	23.11	6
4	867.12	720.17	1.154	22.40	7
5	905.77	737.21	1.184	23.39	6

5	905.80	721.81	1.155	22.26	7
6	1023.31	732.72	1.161	23.33	7
6	1024.62	717.38	1.173	22.56	6
7	1097.98	748.11	1.169	23.18	7
7	1104.85	734.33	1.170	22.90	6
8	1166.54	802.30	1.166	22.78	6
8	1176.90	790.90	1.162	22.95	6
9	1252.09	890.22	1.158	22.68	6
9	1264.07	880.55	1.172	22.95	6
10	1281.94	933.54	1.166	22.74	6
10	1294.40	924.49	1.162	22.80	7
11	1317.91	979.56	1.161	22.78	7
11	1332.69	975.24	1.162	22.78	8

Maximum distance shifted for new estimate of shear surface is 7.700 at point 9

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	383.50	749.00
2	544.51	720.20
3	642.52	721.05
4	867.12	720.17
5	905.80	721.81
6	1023.31	732.72
7	1101.28	741.48
8	1173.35	794.80
9	1252.09	890.22
10	1290.10	927.61
11	1324.21	977.72

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - 1.125
Side Force Inclination - - - - - - - - - - 22.44
Number of Iterations - - - - - - - - - - 7

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 5 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 7.70

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	375.80	749.00	1.125	22.46	7
1	391.20	749.00	1.126	22.40	7
2	543.85	712.52	1.289	16.89	6
2	545.16	727.87	1.134	22.04	7
3	642.50	728.75	1.141	22.37	7
3	642.54	713.35	1.758	16.46	7
4	866.98	727.87	1.145	22.86	7
4	867.27	712.47	1.701	19.46	6
5	905.28	729.49	1.138	22.92	7
5	906.32	714.13	1.345	23.45	6
6	1022.52	740.38	1.140	23.25	7
6	1024.09	725.07	1.122	21.90	7
7	1098.26	748.57	1.130	22.72	7
7	1104.30	734.40	1.139	22.68	6
8	1167.97	800.31	1.125	22.29	7
8	1178.73	789.29	1.132	22.73	7

9	1246.39	895.40	1.132	22.32	7
9	1257.78	885.03	1.126	22.56	7
10	1284.13	932.48	1.124	22.43	7
10	1296.06	922.74	1.134	22.40	7
11	1316.82	979.88 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

11	1331.61	975.56	1.126	22.43	7

Maximum distance shifted for new estimate of shear surface is 7.700 at point 8

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	375.80	749.00
2	544.80	723.66
3	642.51	724.72
4	867.05	723.77
5	905.57	725.23
6	1024.09	725.07
7	1100.61	743.07
8	1167.97	800.31
9	1254.41	888.11
10	1284.13	932.48
11	1324.21	977.72

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - 1.141
Side Force Inclination - - - - - - - - - 22.11
Number of Iterations - - - - - - - - - - 7

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 6 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 4.40

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	379.10	749.00	1.125	22.45	7
1	387.90	749.00	1.126	22.42	7
2	544.13	715.81	1.122	22.53	7
2	544.88	724.58	1.130	22.25	7
3	642.51	725.45	1.134	22.42	7
3	642.53	716.65	1.615	16.65	10
4	867.04	724.57	1.134	22.68	7
4	867.21	715.77	1.595	20.12	6
5	905.51	726.20	1.131	22.70	7
5	906.10	717.42	1.250	22.98	8
6	1022.86	737.10	1.133	22.87	7
6	1023.76	728.35	1.122	22.10	7
7	1099.56	745.53	1.126	22.53	7
7	1103.01	737.44	1.131	22.51	6
8	1170.28	797.95	1.124	22.33	7
8	1176.42	791.65	1.129	22.59	7
9	1248.83	893.18	1.128	22.37	7
9	1255.34	887.26	1.125	22.50	7
10	1286.69	930.39	1.124	22.44	7
10	1293.51	924.83	1.129	22.42	7
11	1319.99	978.95	1.126	22.43	7

11	1328.44	976.48	1.126	22.44	7

Maximum distance shifted for new estimate of shear surface is 4.400 at point 6

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	379.10	749.00
2	544.13	715.81
3	642.52	723.18
4	867.08	722.29
5	905.67	723.82
6	1023.76	728.35
7	1100.59	743.12
8	1170.28	797.95
9	1255.34	887.26
10	1286.69	930.39
11	1325.83	977.25

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - 1.127
Side Force Inclination - - - - - - - - - 22.41
Number of Iterations - - - - - - - - - - 7

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 7 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	382.40	749.00	1.125	22.44	7
1	384.60	749.00	1.126	22.43	8
2	544.41	719.10	1.125	22.47	7
2	544.60	721.29	1.126	22.40	7
3	642.52	722.15	1.128	22.44	7
3	642.53	719.95 See Message on Next Line(s)			
FATAL ERROR IN CALCULATING FACTOR OF SAFETY					
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS					
4	867.10	721.27	1.127	22.50	7
4	867.14	719.07	1.144	22.39	7
5	905.73	722.91	1.126	22.50	8
5	905.88	720.71 See Message on Next Line(s)			
FATAL ERROR IN CALCULATING FACTOR OF SAFETY					
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS					
6	1023.20	733.82	1.127	22.54	7
6	1023.42	731.63	1.124	22.34	7
7	1100.85	742.50	1.125	22.44	7
7	1101.71	740.47	1.126	22.44	7
8	1172.58	795.59	1.125	22.41	7
8	1174.12	794.02	1.126	22.47	7
9	1251.27	890.96	1.126	22.42	7
9	1252.90	889.48	1.125	22.45	7
10	1289.24	928.31	1.125	22.44	7
10	1290.95	926.92	1.126	22.43	7
11	1323.16	978.03	1.126	22.43	7
11	1325.27	977.41	1.125	22.44	7

Computed shift distances for newly estimated shear surface

factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	382.40	749.00
2	544.41	719.10
3	642.52	721.05
4	867.11	720.62
5	905.80	721.81
6	1023.42	731.63
7	1100.85	742.50
8	1172.58	795.59
9	1252.90	889.48
10	1289.24	928.31
11	1325.27	977.41

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - 1.122
Side Force Inclination - - - - - - - - - - 22.40
Number of Iterations - - - - - - - - - - 7

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 8 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	381.30	749.00	1.122	22.40	7
1	383.50	749.00	1.122	22.40	7
2	544.32	718.00	1.121	22.43	7
2	544.50	720.20	1.123	22.37	7
3	642.51	722.15	1.124	22.40	7
3	642.53	719.95	1.120	22.39	7
4	867.10	721.72	1.124	22.46	7
4	867.13	719.52	1.121	22.34	8
5	905.74	722.91	1.123	22.47	7
5	905.87	720.71	1.122	22.34	7
6	1023.30	732.72	1.123	22.49	7
6	1023.54	730.54	1.121	22.32	7
7	1100.41	743.50	1.122	22.42	7
7	1101.30	741.49	1.123	22.39	7
8	1171.82	796.39	1.122	22.37	7
8	1173.34	794.79	1.123	22.43	7
9	1252.08	890.21	1.122	22.38	8
9	1253.72	888.75	1.122	22.42	7
10	1288.39	929.00	1.122	22.40	7
10	1290.09	927.61	1.123	22.40	7
11	1324.21	977.72	1.122	22.40	7
11	1326.33	977.10	1.122	22.40	7

Computed shift distances for newly estimated shear surface factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	381.30	749.00
2	544.32	718.00
3	642.53	719.95
4	867.13	719.52
5	905.87	720.71
6	1023.54	730.54
7	1100.41	743.50
8	1171.82	796.39
9	1253.72	888.75
10	1288.39	929.00
11	1324.21	977.72

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - 1.115
Side Force Inclination - - - - - - - - - 22.22
Number of Iterations - - - - - - - - - - 8
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KIF Seismic=0.110

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 9 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	380.20	749.00	1.115	22.22	7
1	382.40	749.00	1.115	22.21	7
2	544.23	716.91	1.114	22.24	7
2	544.41	719.10	1.116	22.19	7
3	642.52	721.05	1.117	22.22	7
3	642.54	718.85	1.280	18.26	6
4	867.11	720.62	1.117	22.28	7
4	867.15	718.42	1.433	20.97	10
5	905.80	721.81	1.116	22.28	8
5	905.93	719.61	1.115	22.16	7
6	1023.40	731.63	1.116	22.30	7
6	1023.68	729.45	1.115	22.14	7
7	1099.95	744.50	1.116	22.24	7
7	1100.86	742.50	1.115	22.20	7
8	1171.07	797.19	1.115	22.19	8
8	1172.57	795.58	1.116	22.25	8
9	1252.89	889.47	1.115	22.20	7
9	1254.55	888.02	1.115	22.24	7
10	1287.53	929.69	1.115	22.22	7
10	1289.26	928.32	1.116	22.22	7
11	1323.16	978.03	1.115	22.22	7
11	1325.27	977.41	1.115	22.22	7

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point X Y

1	380.20	749.00
2	544.23	716.91
3	642.53	720.49
4	867.12	720.07
5	905.93	719.61
6	1023.68	729.45
7	1100.55	743.19
8	1171.07	797.19
9	1252.89	889.47
10	1287.53	929.69
11	1323.16	978.03

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - 1.114
Side Force Inclination - - - - - - - - - - 22.08
Number of Iterations - - - - - - - - - - - 7
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KIF Seismic=0.110

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 10 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	379.10	749.00	1.114	22.09	7
1	381.30	749.00	1.114	22.08	7
2	544.14	715.81	1.114	22.10	8
2	544.32	718.00	1.115	22.06	7
3	642.51	721.59	1.116	22.08	7
3	642.55	719.39	1.112	22.08	9
4	867.12	718.97	1.210	22.07	6
4	867.13	721.17	1.117	22.14	7
5	905.89	720.71	1.115	22.14	7
5	905.97	718.51	1.188	22.55	6
6	1023.54	730.54	1.115	22.16	7
6	1023.82	728.36	1.114	22.01	7
7	1100.08	744.18	1.114	22.10	7
7	1101.02	742.19	1.114	22.07	7
8	1170.31	797.99	1.114	22.05	7
8	1171.83	796.39	1.115	22.11	7
9	1252.06	890.19	1.114	22.06	7
9	1253.72	888.75	1.115	22.10	7
10	1286.67	930.37	1.114	22.08	7
10	1288.39	929.00	1.115	22.08	7
11	1322.10	978.34	1.114	22.08	7
11	1324.21	977.72	1.114	22.08	7

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	379.10	749.00
2	544.14	715.81
3	642.55	719.39

4	867.13	720.59
5	905.91	720.15
6	1023.82	728.36
7	1100.53	743.23
8	1170.31	797.99
9	1252.06	890.19
10	1286.67	930.37
11	1322.10	978.34

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - 1.111
Side Force Inclination - - - - - - - - - - 22.04
Number of Iterations - - - - - - - - - - 8
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KIF Seismic=0.110

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 11 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	378.00	749.00	1.111	22.04	7
1	380.20	749.00	1.112	22.04	8
2	544.05	714.71	1.262	16.97	6
2	544.23	716.91	1.112	22.02	7
3	642.52	720.49	1.113	22.04	7
3	642.57	718.29	1.445	16.06	6
4	867.12	719.49	1.109	21.98	8
4	867.13	721.69	1.114	22.10	7
5	905.88	721.25	1.112	22.10	7
5	905.94	719.05	1.122	22.08	7
6	1023.68	729.45	1.112	22.11	7
6	1023.97	727.27	1.111	21.97	7
7	1100.05	744.21	1.112	22.06	7
7	1101.02	742.24	1.112	22.03	7
8	1169.55	798.78	1.111	22.01	7
8	1171.07	797.19	1.112	22.07	7
9	1251.23	890.92	1.111	22.02	7
9	1252.89	889.47	1.112	22.06	7
10	1285.81	931.06	1.111	22.04	7
10	1287.53	929.69	1.112	22.04	7
11	1321.05	978.64	1.111	22.04	7
11	1323.16	978.03	1.111	22.04	7

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 10

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	378.00	749.00
2	544.19	716.35
3	642.54	719.93
4	867.12	719.49
5	905.89	720.64
6	1023.97	727.27
7	1100.51	743.28

8	1169.55	798.78
9	1251.23	890.92
10	1285.81	931.06
11	1321.05	978.64

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - 1.110
Side Force Inclination - - - - - - - - - - 21.90
Number of Iterations - - - - - - - - - - 7
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 12 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	376.90	749.00	1.110	21.90	7
1	379.10	749.00	1.110	21.89	7
2	544.10	715.26	1.131	20.68	7
2	544.27	717.45	1.111	21.87	7
3	642.52	721.03	1.112	21.90	7
3	642.55	718.83	1.319	17.57	6
4	867.11	720.59	1.112	21.96	7
4	867.14	718.39	1.441	20.76	7
5	905.85	721.74	1.111	21.96	8
5	905.94	719.54	1.109	21.83	7
6	1023.82	728.36	1.110	21.96	7
6	1024.11	726.17	1.110	21.84	8
7	1100.01	744.26	1.110	21.91	7
7	1101.00	742.30	1.110	21.89	7
8	1168.79	799.57	1.110	21.87	7
8	1170.32	797.99	1.111	21.92	7
9	1250.41	891.64	1.110	21.88	7
9	1252.06	890.19	1.110	21.91	7
10	1284.95	931.74	1.110	21.89	7
10	1286.67	930.37	1.110	21.90	7
11	1319.99	978.95	1.110	21.89	7
11	1322.10	978.34	See Message on Next Line(s)		

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	376.90	749.00
2	544.23	716.86
3	642.53	720.47
4	867.12	720.04
5	905.94	719.54
6	1024.03	726.81
7	1100.48	743.33
8	1168.79	799.57
9	1250.41	891.64

```
                10      1284.95       931.74
                11      1319.99       978.95

        FOR NEW ESTIMATE OF SHEAR SURFACE
        2-Stage Factor of Safety - - - - - - - -   1.111
        Side Force Inclination - - - - - - - - -  21.79
        Number of Iterations - - - - - - - - - -  7
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        KIF  Seismic=0.110

        TABLE NO. 25
        **********************************************************************
        * FINAL CRITICAL SHEAR SURFACE (FOUND AFTER  12 TRIAL POSITIONS) *
        **********************************************************************

             X          Y

           378.00     749.00
           544.19     716.35
           642.54     719.93
           867.12     719.49
           905.89     720.64
          1023.97     727.27
          1100.51     743.28
          1169.55     798.78
          1251.23     890.92
          1285.81     931.06
          1321.05     978.64

        CAUTION - FACTOR OF SAFETY WAS NOT COMPUTED FOR SOME SHEAR
        SURFACES NEAR CRITICAL SURFACE - CHECK PREVIOUS OUTPUT

        2-Stage Factor of Safety =   1.110

        Side Force Inclination =  21.90
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        Kingston 3 Section A-A, Two-Stage UTEXAS3
        GYPSUM STACK Residuum  KFPGAPS3
        KIF  Seismic=0.110

        TABLE NO. 26
        **********************************************************
        *  Coordinate, Weight, Strength and Pore Water Pressure  *
        *  Information for Individual Slices for Conventional    *
        *  Computations or First Stage of Multi-Stage Computations.  *
        *  (Information is for the Critical Shear Surface in the *
        *  Case of an Automatic Search.)                         *
        **********************************************************

        Slice                        Slice   Matl.              Friction    Pore
          No.      X         Y      Weight  Type   Cohesion     Angle   Pressure

               378.0     749.0
            1  389.7     746.7     7064.3     5        .00     22.50      129.2
               401.5     744.4
            2  413.2     742.1    21192.5     5        .00     22.50      407.3
               425.0     739.8
            3  435.1     737.8    29754.5     5        .00     22.50      677.0
               445.3     735.8
            4  449.7     734.9    16299.4     5        .00     22.50      864.4
               454.2     734.0
            5  454.7     733.9     1881.6     1      50.00     37.00      928.3
               455.3     733.8
            6  470.1     730.9    92018.5     5        .00     22.50     1125.6
               484.9     728.0
```

8	1169.55	798.78
9	1251.23	890.92
10	1285.81	931.06
11	1321.05	978.64

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - 1.110
Side Force Inclination - - - - - - - - - - 21.90
Number of Iterations - - - - - - - - - - - 7
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 12 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	376.90	749.00	1.110	21.90	7
1	379.10	749.00	1.110	21.89	7
2	544.10	715.26	1.131	20.68	7
2	544.27	717.45	1.111	21.87	7
3	642.52	721.03	1.112	21.90	7
3	642.55	718.83	1.319	17.57	6
4	867.11	720.59	1.112	21.96	7
4	867.14	718.39	1.441	20.76	7
5	905.85	721.74	1.111	21.96	8
5	905.94	719.54	1.109	21.83	7
6	1023.82	728.36	1.110	21.96	7
6	1024.11	726.17	1.110	21.84	8
7	1100.01	744.26	1.110	21.91	7
7	1101.00	742.30	1.110	21.89	7
8	1168.79	799.57	1.110	21.87	7
8	1170.32	797.99	1.111	21.92	7
9	1250.41	891.64	1.110	21.88	7
9	1252.06	890.19	1.110	21.91	7
10	1284.95	931.74	1.110	21.89	7
10	1286.67	930.37	1.110	21.90	7
11	1319.99	978.95	1.110	21.89	7
11	1322.10	978.34	See Message on Next Line(s)		

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	376.90	749.00
2	544.23	716.86
3	642.53	720.47
4	867.12	720.04
5	905.94	719.54
6	1024.03	726.81
7	1100.48	743.33
8	1168.79	799.57
9	1250.41	891.64

```
                10     1284.95      931.74
                11     1319.99      978.95

        FOR NEW ESTIMATE OF SHEAR SURFACE
        2-Stage Factor of Safety - - - - - - - -   1.111
        Side Force Inclination - - - - - - - - -    21.79
        Number of Iterations - - - - - - - - - -   7
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        KIF  Seismic=0.110


        TABLE NO. 25
        ************************************************************************
        * FINAL CRITICAL SHEAR SURFACE (FOUND AFTER  12 TRIAL POSITIONS) *
        ************************************************************************

              X         Y

            378.00    749.00
            544.19    716.35
            642.54    719.93
            867.12    719.49
            905.89    720.64
           1023.97    727.27
           1100.51    743.28
           1169.55    798.78
           1251.23    890.92
           1285.81    931.06
           1321.05    978.64

        CAUTION - FACTOR OF SAFETY WAS NOT COMPUTED FOR SOME SHEAR
        SURFACES NEAR CRITICAL SURFACE - CHECK PREVIOUS OUTPUT

        2-Stage Factor of Safety =   1.110

        Side Force Inclination =  21.90
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        GYPSUM STACK Residuum  KFPGAPS3
        KIF  Seismic=0.110

        TABLE NO. 26
        ************************************************************
        *  Coordinate, Weight, Strength and Pore Water Pressure    *
        *  Information for Individual Slices for Conventional      *
        *  Computations or First Stage of Multi-Stage Computations.*
        *  (Information is for the Critical Shear Surface in the   *
        *  Case of an Automatic Search.)                           *
        ************************************************************

        Slice                    Slice   Matl.          Friction    Pore
          No.     X        Y     Weight  Type  Cohesion   Angle   Pressure

                378.0    749.0
           1    389.7    746.7   7064.3    5       .00    22.50      129.2
                401.5    744.4
           2    413.2    742.1  21192.5    5       .00    22.50      407.3
                425.0    739.8
           3    435.1    737.8  29754.5    5       .00    22.50      677.0
                445.3    735.8
           4    449.7    734.9  16299.4    5       .00    22.50      864.4
                454.2    734.0
           5    454.7    733.9   1881.6    1     50.00    37.00      928.3
                455.3    733.8
           6    470.1    730.9  92018.5    5       .00    22.50     1125.6
                484.9    728.0
```

7	499.7	725.1	155301.4	5	.00	22.50	1506.3
	514.5	722.2					
8	529.4	719.3	218583.4	5	.00	22.50	1886.9
	544.2	716.4					
9	552.5	716.7	145927.5	5	.00	22.50	2063.2
	560.8	717.0					
10	569.1	717.3	157414.4	5	.00	22.50	2035.1
	577.4	717.6					
11	580.0	717.7	50142.3	5	.00	22.50	2016.8
	582.5	717.7					
12	590.0	718.0	146017.1	5	.00	22.50	2150.4
	597.4	718.3					
13	606.0	718.6	162371.6	5	.00	22.50	2446.8
	614.5	718.9					
14	618.0	719.0	64270.3	5	.00	22.50	2670.0
	621.5	719.2					
15	621.5	719.2	643.1	5	.00	22.50	2735.5
	621.6	719.2					
16	632.1	719.6	199844.0	5	.00	22.50	2714.2
	642.5	719.9					
17	643.1	719.9	10935.8	5	.00	22.50	2692.4
	643.6	719.9					
18	657.9	719.9	299049.9	5	.00	22.50	2696.8
	672.2	719.9					
19	686.5	719.8	330057.6	5	.00	22.50	2705.3
	700.8	719.8					
20	708.3	719.8	181725.5	5	.00	22.50	2711.8
	715.8	719.8					

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KIF Seismic=0.110

TABLE NO. 26

```
**************************************************************
*  Coordinate, Weight, Strength and Pore Water Pressure      *
*  Information for Individual Slices for Conventional        *
*  Computations or First Stage of Multi-Stage Computations.  *
*  (Information is for the Critical Shear Surface in the     *
*  Case of an Automatic Search.)                             *
**************************************************************
```

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	715.8	719.8					
21	729.9	719.8	354184.7	5	.00	22.50	2718.2
	743.9	719.7					
22	757.9	719.7	384069.7	5	.00	22.50	2726.6
	771.9	719.7					
23	786.0	719.7	413953.4	5	.00	22.50	2735.0
	800.0	719.6					
24	803.0	719.6	93035.5	5	.00	22.50	2739.5
	806.0	719.6					
25	813.6	719.6	233264.4	5	.00	22.50	2740.8
	821.1	719.6					
26	832.6	719.6	367483.3	5	.00	22.50	2743.1
	844.1	719.5					
27	855.6	719.5	387616.8	5	.00	22.50	2746.0
	867.1	719.5					
28	876.8	719.8	341159.4	5	.00	22.50	2729.4
	886.5	720.1					
29	896.2	720.4	353876.3	5	.00	22.50	2693.5
	905.9	720.6					
30	908.6	720.8	100332.3	5	.00	22.50	2666.1
	911.3	720.9					
31	918.8	721.4	280927.0	5	.00	22.50	2630.4
	926.3	721.8					
32	930.2	722.0	145532.3	5	.00	22.50	2590.5
	934.1	722.2					

33	947.8	723.0	530021.8	5	.00	22.50	2528.8
	961.5	723.8					
34	975.3	724.5	552979.1	5	.00	22.50	2432.7
	989.0	725.3					
35	1002.8	726.1	575934.6	5	.00	22.50	2336.5
	1016.5	726.8					
36	1020.2	727.1	159634.3	5	.00	22.50	2275.4
	1024.0	727.3					
37	1027.7	728.1	160502.8	5	.00	22.50	2212.9
	1031.5	728.8					
38	1042.7	731.2	473729.1	5	.00	22.50	2017.9
	1053.8	733.5					
39	1065.0	735.9	478922.9	5	.00	22.50	1726.6
	1076.1	738.2					
40	1087.3	740.5	484119.4	5	.00	22.50	1435.3
	1098.5	742.9					

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KIF Seismic=0.110

TABLE NO. 26

```
**************************************************************
*  Coordinate, Weight, Strength and Pore Water Pressure      *
*  Information for Individual Slices for Conventional        *
*  Computations or First Stage of Multi-Stage Computations.  *
*  (Information is for the Critical Shear Surface in the     *
*  Case of an Automatic Search.)                             *
**************************************************************
```

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	1098.5	742.9					
41	1099.2	743.0	33609.9	5	.00	22.50	1279.6
	1100.0	743.2					
42	1100.3	743.2	11080.0	5	.00	22.50	1266.3
	1100.5	743.3					
43	1111.0	751.7	442942.5	5	.00	22.50	740.7
	1121.5	760.1					
44	1121.6	760.2	5241.7	4	326.00	24.00	212.0
	1121.7	760.3					
45	1123.7	761.9	78236.3	4	326.00	24.00	109.2
	1125.6	763.4					
46	1126.9	764.5	50571.8	3	110.00	36.00	.0
	1128.1	765.5					
47	1128.8	766.0	25062.7	2	100.00	36.60	.0
	1129.4	766.5					
48	1133.1	769.5	142166.8	1	50.00	37.00	.0
	1136.8	772.4					
49	1145.0	779.0	304516.3	1	50.00	37.00	.0
	1153.2	785.6					
50	1161.4	792.2	290137.6	1	50.00	37.00	.0
	1169.6	798.8					
51	1178.0	808.3	277334.3	1	50.00	37.00	.0
	1186.4	817.8					
52	1194.8	827.2	251830.5	1	50.00	37.00	.0
	1203.2	836.7					
53	1211.6	846.2	226328.5	1	50.00	37.00	.0
	1220.0	855.7					
54	1223.5	859.6	86093.9	1	50.00	37.00	.0
	1226.9	863.5					
55	1234.5	872.0	167028.8	1	50.00	37.00	.0
	1242.0	880.5					
56	1243.0	881.6	19722.6	1	50.00	37.00	.0
	1243.9	882.7					
57	1247.6	886.8	70334.9	1	50.00	37.00	.0
	1251.2	890.9					
58	1259.5	900.6	141750.8	1	50.00	37.00	.0
	1267.9	910.2					

59	1276.2	919.9	115605.3	1	50.00	37.00	.0
	1284.5	929.5					
60	1285.2	930.3	8029.1	1	50.00	37.00	.0
	1285.8	931.1					

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TABLE NO. 26

```
**************************************************************
*  Coordinate, Weight, Strength and Pore Water Pressure      *
*  Information for Individual Slices for Conventional        *
*  Computations or First Stage of Multi-Stage Computations.  *
*  (Information is for the Critical Shear Surface in the     *
*  Case of an Automatic Search.)                             *
**************************************************************
```

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	1285.8	931.1					
61	1292.6	940.2	67159.8	1	50.00	37.00	.0
	1299.3	949.3					
62	1306.1	958.4	39613.7	1	50.00	37.00	.0
	1312.8	967.5					
63	1316.9	973.1	9447.7	1	50.00	37.00	.0
	1321.0	978.6					

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KIF Seismic=0.110

TABLE NO. 27

```
**************************************************************
*  Seismic Forces and Forces Due to Surface Pressures for    *
*  Individual Slices for Conventional Computations or the    *
*  First Stage of Multi-Stage Computations.                  *
*  (Information is for the Critical Shear Surface in the     *
*  Case of an Automatic Search.)                             *
**************************************************************
```

				FORCES DUE TO SURFACE PRESSURES			
Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
1	389.7	0.	747.8	0.	0.	.0	.0
2	413.2	0.	745.5	0.	0.	.0	.0
3	435.1	0.	743.4	0.	0.	.0	.0
4	449.7	0.	742.0	0.	0.	.0	.0
5	454.7	0.	741.6	0.	0.	.0	.0
6	470.1	0.	742.9	0.	0.	.0	.0
7	499.7	0.	745.6	0.	0.	.0	.0
8	529.4	0.	748.4	0.	0.	.0	.0
9	552.5	0.	751.6	0.	0.	.0	.0
10	569.1	0.	755.3	0.	0.	.0	.0
11	580.0	0.	757.1	0.	0.	.0	.0
12	590.0	0.	757.3	0.	0.	.0	.0
13	606.0	0.	756.2	0.	0.	.0	.0
14	618.0	0.	755.1	0.	0.	.0	.0
15	621.5	0.	755.2	0.	0.	.0	.0
16	632.1	0.	757.0	0.	0.	.0	.0
17	643.1	0.	759.0	0.	0.	.0	.0
18	657.9	0.	761.3	0.	0.	.0	.0
19	686.5	0.	765.9	0.	0.	.0	.0
20	708.3	0.	768.2	0.	0.	.0	.0
21	729.9	0.	770.4	0.	0.	.0	.0

22	757.9	0.	775.0	0.	0.	.0	.0
23	786.0	0.	779.5	0.	0.	.0	.0
24	803.0	0.	782.3	0.	0.	.0	.0
25	813.6	0.	782.7	0.	0.	.0	.0
26	832.6	0.	784.6	0.	0.	.0	.0
27	855.6	0.	788.3	0.	0.	.0	.0
28	876.8	0.	792.0	0.	0.	.0	.0
29	896.2	0.	795.5	0.	0.	.0	.0
30	908.6	0.	797.7	0.	0.	.0	.0
31	918.8	0.	798.5	0.	0.	.0	.0
32	930.2	0.	799.5	0.	0.	.0	.0
33	947.8	0.	802.9	0.	0.	.0	.0
34	975.3	0.	808.3	0.	0.	.0	.0
35	1002.8	0.	813.6	0.	0.	.0	.0
36	1020.2	0.	816.4	0.	0.	.0	.0
37	1027.7	0.	817.0	0.	0.	.0	.0
38	1042.7	0.	820.5	0.	0.	.0	.0
39	1065.0	0.	826.8	0.	0.	.0	.0

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TABLE NO. 27
****
* Seismic Forces and Forces Due to Surface Pressures for *
* Individual Slices for Conventional Computations or the *
* First Stage of Multi-Stage Computations. *
* (Information is for the Critical Shear Surface in the *
* Case of an Automatic Search.) *
****

				FORCES DUE TO SURFACE PRESSURES			
Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
40	1087.3	0.	833.1	0.	0.	.0	.0
41	1099.2	0.	836.5	0.	0.	.0	.0
42	1100.3	0.	836.8	0.	0.	.0	.0
43	1111.0	0.	843.3	0.	0.	.0	.0
44	1121.6	0.	849.9	0.	0.	.0	.0
45	1123.7	0.	850.8	0.	0.	.0	.0
46	1126.9	0.	852.2	0.	0.	.0	.0
47	1128.8	0.	853.0	0.	0.	.0	.0
48	1133.1	0.	854.7	0.	0.	.0	.0
49	1145.0	0.	860.9	0.	0.	.0	.0
50	1161.4	0.	870.2	0.	0.	.0	.0
51	1178.0	0.	881.0	0.	0.	.0	.0
52	1194.8	0.	893.3	0.	0.	.0	.0
53	1211.6	0.	905.5	0.	0.	.0	.0
54	1223.5	0.	914.2	0.	0.	.0	.0
55	1234.5	0.	921.0	0.	0.	.0	.0
56	1243.0	0.	926.0	0.	0.	.0	.0
57	1247.6	0.	929.3	0.	0.	.0	.0
58	1259.5	0.	938.2	0.	0.	.0	.0
59	1276.2	0.	950.5	0.	0.	.0	.0
60	1285.2	0.	957.1	0.	0.	.0	.0
61	1292.6	0.	962.1	0.	0.	.0	.0
62	1306.1	0.	971.3	0.	0.	.0	.0
63	1316.9	0.	978.1	0.	0.	.0	.0

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KIF Seismic=0.110

TABLE NO. 29
****

```
        *  Information Generated During Iterative Solution for the Factor  *
        *  of Safety and Side Force Inclination by Spencer's Procedure     *
        ********************************************************************

                Trial      Trial
               Factor    Side Force     Force       Moment                  Delta
Iter-            of     Inclination  Imbalance   Imbalance    Delta-F      Theta
ation         Safety     (degrees)     (lbs.)    (ft.-lbs.)              (degrees)

   1          3.00000     15.0000    .8136E+06  -.3763E+09
First-order corrections to F and THETA .........  -.137E+01 -.652E+00
Values factored by  .364E+00 - Deltas too large   -.500E+00 -.238E+00

   2          2.50000     14.7624    .4588E+06  -.2093E+09
First-order corrections to F and THETA .........  -.549E+00 -.763E+00
Values factored by  .911E+00 - Deltas too large   -.500E+00 -.695E+00

   3          2.00000     14.0675   -.6194E+05   .3856E+08
First-order corrections to F and THETA .........   .366E-01 -.858E+00
Second-order correction - Iteration   1 ........   .374E-01 -.858E+00
Second-order correction - Iteration   2 ........   .374E-01 -.858E+00

   4          2.03740     13.2100    .3549E+02  -.1035E+07
First-order corrections to F and THETA .........   .124E-02  .102E+00
Second-order correction - Iteration   1 ........   .124E-02  .102E+00

   5          2.03864     13.3123    .1553E+00   .1136E+03
First-order corrections to F and THETA .........  -.364E-06 -.195E-04
Second-order correction - Iteration   1 ........  -.363E-06 -.195E-04

   6          2.03864     13.3123   -.1162E+00  -.7838E+02
First-order corrections to F and THETA .........   .264E-06  .139E-04
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        GYPSUM STACK Residuum  KFPGAPS3
        KIF  Seismic=0.110

        TABLE NO. 30
        22222222222222222222222222222222222222222222222222222222222222
        2  Detailed Information from Evaluation of Shear Strengths  2
        2  for Stage 2 - Information is Only Given for Slices with  2
        2  "Two-Stage" Shear Strengths (Strength Options 6 and 7).  2
        2  (Information is for the Critical Shear Surface in the    2
        2  Case of an Automatic Search.)                            2
        22222222222222222222222222222222222222222222222222222222222222

              Effective
               Normal       Shear
Slice        Stress at    Stress at    Strength    Strength       Kc       Kf
 No.          Consol.      Consol.     (R-Env.)    (S-Env.)

   1            205.2         41.7         85.0      1363.8 Negative Sigma-3f
   2            593.8        120.7        246.0      1426.8 Negative Sigma-3f
   3            945.2        192.0        391.5      1483.7 Negative Sigma-3f
   4           1170.8        237.9        484.9      1520.2 Negative Sigma-3f
   5           1083.3        424.9        866.3      1145.4     2.251   6.454
   6           2346.4        476.7        971.9      1710.6     1.498   4.892
   7           4393.5        892.7       1819.9      2042.2     1.498   2.558
   8           6440.6       1308.6       2667.8      2373.8 Used S strength
   9           6928.2       1407.7       2869.7      2452.7 Used S strength
  10           7672.1       1558.8       3177.9      2573.2 Used S strength
  11           8036.1       1632.8       3328.7      2632.2 Used S strength
  12           7890.5       1603.2       3268.3      2608.6 Used S strength
  13           7260.4       1475.2       3007.4      2506.5 Used S strength
  14           6703.4       1362.0       2776.6      2416.3 Used S strength
  15           6638.5       1348.8       2749.8      2405.8 Used S strength
  16           7019.7       1426.3       2907.6      2467.5 Used S strength
  17           7578.3       1539.8       3139.0      2558.0 Used S strength
  18           8165.9       1659.2       3382.4      2653.2 Used S strength
  19           9297.5       1889.1       3851.2      2836.5 Used S strength
```

20	9863.0	2004.0	4085.4	2928.1	Used S strength
21	10418.4	2116.8	4315.4	3018.0	Used S strength
22	11529.7	2342.6	4775.7	3198.0	Used S strength
23	12641.0	2568.4	5236.1	3378.0	Used S strength
24	13316.8	2705.7	5516.0	3487.5	Used S strength
25	13438.1	2730.4	5566.2	3507.1	Used S strength
26	13897.4	2823.7	5756.5	3581.5	Used S strength
27	14813.8	3009.9	6136.1	3729.9	Used S strength
28	15388.7	3126.7	6374.2	3823.0	Used S strength
29	16106.0	3272.4	6671.3	3939.2	Used S strength
30	16345.6	3321.1	6770.6	3978.0	Used S strength
31	16410.1	3334.2	6797.3	3988.5	Used S strength
32	16516.0	3355.7	6841.1	4005.6	Used S strength
33	17128.5	3480.2	7094.9	4104.8	Used S strength
34	18083.8	3674.3	7490.6	4259.5	Used S strength
35	19039.1	3868.4	7886.3	4414.3	Used S strength
36	19502.4	3962.5	8078.1	4489.3	Used S strength
37	18102.7	3678.1	7498.4	4262.6	Used S strength
38	18311.4	3720.5	7584.8	4296.4	Used S strength
39	18827.3	3825.4	7798.5	4380.0	Used S strength
40	19343.1	3930.2	8012.2	4463.5	Used S strength
41	19619.1	3986.2	8126.5	4508.2	Used S strength

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TABLE NO. 30
2222222222222222222222222222222222222222222222222222222222222222
2 Detailed Information from Evaluation of Shear Strengths 2
2 for Stage 2 - Information is Only Given for Slices with 2
2 "Two-Stage" Shear Strengths (Strength Options 6 and 7). 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222222222

Slice No.	Effective Normal Stress at Consol.	Shear Stress at Consol.	Strength (R-Env.)	Strength (S-Env.)	Kc	Kf
42	19642.1	3990.9	8136.0	4511.9	Used S strength	
43	15515.8	3152.5	6426.9	3843.6	Used S strength	
44	15283.6	3497.8	7130.7	4024.3	Used S strength	
45	15222.1	3484.4	7103.3	4010.0	Used S strength	
46	14276.6	5142.0	10472.6	14634.9	2.164	6.062
47	14106.4	5187.9	10576.3	9355.7	Used S strength	
48	13805.1	5127.4	10452.9	11744.9	2.171	4.682
49	13252.7	4923.2	10036.6	11284.6	2.171	4.687
50	12626.5	4691.7	9564.8	10762.9	2.171	4.694
51	10317.7	3838.3	7825.0	8839.3	2.173	4.725
52	9367.6	3487.1	7109.0	8047.7	2.174	4.743
53	8417.6	3136.0	6393.1	7256.2	2.175	4.764
54	7746.2	2887.8	5887.2	6696.8	2.176	4.782
55	6947.7	2592.6	5285.5	6031.5	2.177	4.809
56	6289.8	2349.4	4789.7	5483.3	2.179	4.836
57	6026.5	2252.1	4591.3	5264.0	2.179	4.849
58	5260.2	1968.9	4013.8	4625.5	2.182	4.892
59	4287.4	1609.3	3280.8	3815.0	2.186	4.972
60	3748.0	1409.9	2874.3	3365.6	2.189	5.035
61	2857.7	1080.8	2203.4	2623.9	2.197	5.194
62	1679.1	645.2	1315.3	1641.9	2.220	5.697
63	646.8	263.6	537.4	781.8	2.311	8.254

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TABLE NO. 31
2222222222222222222222222222222222222222222222222222222222
2 Coordinate, Weight, Strength and Pore Water Pressure 2
2 Information for Individual Slices for Stage 2. 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	378.0	749.0					
1	389.7	746.7	7064.3	5	85.02	.00	.0
	401.5	744.4					
2	413.2	742.1	21192.5	5	245.98	.00	.0
	425.0	739.8					
3	435.1	737.8	29754.5	5	391.51	.00	.0
	445.3	735.8					
4	449.7	734.9	16299.4	5	484.95	.00	.0
	454.2	734.0					
5	454.7	733.9	1881.6	1	930.32	.00	.0
	455.3	733.8					
6	470.1	730.9	92018.5	5	1066.38	.00	.0
	484.9	728.0					
7	499.7	725.1	155301.4	5	1890.88	.00	.0
	514.5	722.2					
8	529.4	719.3	218583.4	5	2373.76	.00	.0
	544.2	716.4					
9	552.5	716.7	145927.5	5	2452.72	.00	.0
	560.8	717.0					
10	569.1	717.3	157414.4	5	2573.20	.00	.0
	577.4	717.6					
11	580.0	717.7	50142.3	5	2632.17	.00	.0
	582.5	717.7					
12	590.0	718.0	146017.1	5	2608.58	.00	.0
	597.4	718.3					
13	606.0	718.6	162371.6	5	2506.53	.00	.0
	614.5	718.9					
14	618.0	719.0	64270.3	5	2416.31	.00	.0
	621.5	719.2					
15	621.5	719.2	643.1	5	2405.81	.00	.0
	621.6	719.2					
16	632.1	719.6	199844.0	5	2467.54	.00	.0
	642.5	719.9					
17	643.1	719.9	10935.8	5	2558.02	.00	.0
	643.6	719.9					
18	657.9	719.9	299049.9	5	2653.19	.00	.0
	672.2	719.9					
19	686.5	719.8	330057.6	5	2836.47	.00	.0
	700.8	719.8					
20	708.3	719.8	181725.5	5	2928.06	.00	.0
	715.8	719.8					
21	729.9	719.8	354184.7	5	3018.00	.00	.0
	743.9	719.7					

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KIF Seismic=0.110

TABLE NO. 31
2222222222222222222222222222222222222222222222222222222222
2 Coordinate, Weight, Strength and Pore Water Pressure 2
2 Information for Individual Slices for Stage 2. 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure

	743.9	719.7					
22	757.9	719.7	384069.7	5	3198.00	.00	.0
	771.9	719.7					
23	786.0	719.7	413953.4	5	3377.99	.00	.0
	800.0	719.6					
24	803.0	719.6	93035.5	5	3487.45	.00	.0
	806.0	719.6					
25	813.6	719.6	233264.4	5	3507.10	.00	.0
	821.1	719.6					
26	832.6	719.6	367483.3	5	3581.48	.00	.0
	844.1	719.5					
27	855.6	719.5	387616.8	5	3729.91	.00	.0
	867.1	719.5					
28	876.8	719.8	341159.4	5	3823.02	.00	.0
	886.5	720.1					
29	896.2	720.4	353876.3	5	3939.20	.00	.0
	905.9	720.6					
30	908.6	720.8	100332.3	5	3978.01	.00	.0
	911.3	720.9					
31	918.8	721.4	280927.0	5	3988.45	.00	.0
	926.3	721.8					
32	930.2	722.0	145532.3	5	4005.60	.00	.0
	934.1	722.2					
33	947.8	723.0	530021.8	5	4104.81	.00	.0
	961.5	723.8					
34	975.3	724.5	552979.1	5	4259.54	.00	.0
	989.0	725.3					
35	1002.8	726.1	575934.6	5	4414.26	.00	.0
	1016.5	726.8					
36	1020.2	727.1	159634.3	5	4489.29	.00	.0
	1024.0	727.3					
37	1027.7	728.1	160502.8	5	4262.59	.00	.0
	1031.5	728.8					
38	1042.7	731.2	473729.1	5	4296.40	.00	.0
	1053.8	733.5					
39	1065.0	735.9	478922.9	5	4379.95	.00	.0
	1076.1	738.2					
40	1087.3	740.5	484119.4	5	4463.50	.00	.0
	1098.5	742.9					
41	1099.2	743.0	33609.9	5	4508.20	.00	.0
	1100.0	743.2					
42	1100.3	743.2	11080.0	5	4511.93	.00	.0
	1100.5	743.3					

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TABLE NO. 31
2222222222222222222222222222222222222222222222222222222222
2 Coordinate, Weight, Strength and Pore Water Pressure 2
2 Information for Individual Slices for Stage 2. 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	1100.5	743.3					
43	1111.0	751.7	442942.5	5	3843.62	.00	.0
	1121.5	760.1					
44	1121.6	760.2	5241.7	4	4024.31	.00	.0
	1121.7	760.3					
45	1123.7	761.9	78236.3	4	4010.00	.00	.0
	1125.6	763.4					
46	1126.9	764.5	50571.8	3	11429.42	.00	.0
	1128.1	765.5					
47	1128.8	766.0	25062.7	2	9355.67	.00	.0
	1129.4	766.5					

48	1133.1	769.5	142166.8	1	10863.62	.00	.0
	1136.8	772.4					
49	1145.0	779.0	304516.3	1	10432.86	.00	.0
	1153.2	785.6					
50	1161.4	792.2	290137.6	1	9944.63	.00	.0
	1169.6	798.8					
51	1178.0	808.3	277334.3	1	8144.32	.00	.0
	1186.4	817.8					
52	1194.8	827.2	251830.5	1	7403.42	.00	.0
	1203.2	836.7					
53	1211.6	846.2	226328.5	1	6662.51	.00	.0
	1220.0	855.7					
54	1223.5	859.6	86093.9	1	6138.87	.00	.0
	1226.9	863.5					
55	1234.5	872.0	167028.8	1	5516.05	.00	.0
	1242.0	880.5					
56	1243.0	881.6	19722.6	1	5002.80	.00	.0
	1243.9	882.7					
57	1247.6	886.8	70334.9	1	4797.44	.00	.0
	1251.2	890.9					
58	1259.5	900.6	141750.8	1	4199.50	.00	.0
	1267.9	910.2					
59	1276.2	919.9	115605.3	1	3440.21	.00	.0
	1284.5	929.5					
60	1285.2	930.3	8029.1	1	3019.05	.00	.0
	1285.8	931.1					
61	1292.6	940.2	67159.8	1	2323.39	.00	.0
	1299.3	949.3					
62	1306.1	958.4	39613.7	1	1400.14	.00	.0
	1312.8	967.5					
63	1316.9	973.1	9447.7	1	581.54	.00	.0
	1321.0	978.6					

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TABLE NO. 32
2222222222222222222222222222222222222222222222222222222222222222
2 Seismic Forces and Forces Due to Surface Pressures for 2
2 Stage 2 (and Stage 3 If Appropriate). 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222222222

				FORCES DUE TO SURFACE PRESSURES			
Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
1	389.7	777.	747.8	0.	0.	.0	.0
2	413.2	2331.	745.5	0.	0.	.0	.0
3	435.1	3273.	743.4	0.	0.	.0	.0
4	449.7	1793.	742.0	0.	0.	.0	.0
5	454.7	207.	741.6	0.	0.	.0	.0
6	470.1	10122.	742.9	0.	0.	.0	.0
7	499.7	17083.	745.6	0.	0.	.0	.0
8	529.4	24044.	748.4	0.	0.	.0	.0
9	552.5	16052.	751.6	0.	0.	.0	.0
10	569.1	17316.	755.3	0.	0.	.0	.0
11	580.0	5516.	757.1	0.	0.	.0	.0
12	590.0	16062.	757.3	0.	0.	.0	.0
13	606.0	17861.	756.2	0.	0.	.0	.0
14	618.0	7070.	755.1	0.	0.	.0	.0
15	621.5	71.	755.2	0.	0.	.0	.0
16	632.1	21983.	757.0	0.	0.	.0	.0
17	643.1	1203.	759.0	0.	0.	.0	.0
18	657.9	32895.	761.3	0.	0.	.0	.0
19	686.5	36306.	765.9	0.	0.	.0	.0
20	708.3	19990.	768.2	0.	0.	.0	.0

21	729.9	38960.	770.4	0.	0.	.0	.0
22	757.9	42248.	775.0	0.	0.	.0	.0
23	786.0	45535.	779.5	0.	0.	.0	.0
24	803.0	10234.	782.3	0.	0.	.0	.0
25	813.6	25659.	782.7	0.	0.	.0	.0
26	832.6	40423.	784.6	0.	0.	.0	.0
27	855.6	42638.	788.3	0.	0.	.0	.0
28	876.8	37528.	792.0	0.	0.	.0	.0
29	896.2	38926.	795.5	0.	0.	.0	.0
30	908.6	11037.	797.7	0.	0.	.0	.0
31	918.8	30902.	798.5	0.	0.	.0	.0
32	930.2	16009.	799.5	0.	0.	.0	.0
33	947.8	58302.	802.9	0.	0.	.0	.0
34	975.3	60828.	808.3	0.	0.	.0	.0
35	1002.8	63353.	813.6	0.	0.	.0	.0
36	1020.2	17560.	816.4	0.	0.	.0	.0
37	1027.7	17655.	817.0	0.	0.	.0	.0
38	1042.7	52110.	820.5	0.	0.	.0	.0
39	1065.0	52682.	826.8	0.	0.	.0	.0

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TABLE NO. 32
2222222222222222222222222222222222222222222222222222222222
2 Seismic Forces and Forces Due to Surface Pressures for 2
2 Stage 2 (and Stage 3 If Appropriate). 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222

FORCES DUE TO SURFACE PRESSURES

Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
40	1087.3	53253.	833.1	0.	0.	.0	.0
41	1099.2	3697.	836.5	0.	0.	.0	.0
42	1100.3	1219.	836.8	0.	0.	.0	.0
43	1111.0	48724.	843.3	0.	0.	.0	.0
44	1121.6	577.	849.9	0.	0.	.0	.0
45	1123.7	8606.	850.8	0.	0.	.0	.0
46	1126.9	5563.	852.2	0.	0.	.0	.0
47	1128.8	2757.	853.0	0.	0.	.0	.0
48	1133.1	15638.	854.7	0.	0.	.0	.0
49	1145.0	33497.	860.9	0.	0.	.0	.0
50	1161.4	31915.	870.2	0.	0.	.0	.0
51	1178.0	30507.	881.0	0.	0.	.0	.0
52	1194.8	27701.	893.3	0.	0.	.0	.0
53	1211.6	24896.	905.5	0.	0.	.0	.0
54	1223.5	9470.	914.2	0.	0.	.0	.0
55	1234.5	18373.	921.0	0.	0.	.0	.0
56	1243.0	2169.	926.0	0.	0.	.0	.0
57	1247.6	7737.	929.3	0.	0.	.0	.0
58	1259.5	15593.	938.2	0.	0.	.0	.0
59	1276.2	12717.	950.5	0.	0.	.0	.0
60	1285.2	883.	957.1	0.	0.	.0	.0
61	1292.6	7388.	962.1	0.	0.	.0	.0
62	1306.1	4358.	971.3	0.	0.	.0	.0
63	1316.9	1039.	978.1	0.	0.	.0	.0

TABLE NO. 34
2222222222222222222222222222222222222222222222222222222222222222222222
2 Information Generated During Iterative Solution for the Factor 2
2 of Safety and Side Force Inclination by Spencer's Procedure 2
2222222222222222222222222222222222222222222222222222222222222222222222

Trial Factor	Trial Side Force	Force	Moment	Delta

Iteration	Factor of Safety	Inclination (degrees)	Imbalance (lbs.)	Imbalance (ft.-lbs.)	Delta-F	Theta (degrees)
1	2.03864	13.3123	.1867E+07	-.1034E+10		
First-order corrections to F and THETA					-.177E+01	.125E+01
Values factored by .283E+00 - Deltas too large					-.500E+00	.353E+00
2	1.53864	13.6655	.1169E+07	-.6573E+09		
First-order corrections to F and THETA					-.624E+00	.176E+01
Values factored by .801E+00 - Deltas too large					-.500E+00	.141E+01
3	1.03864	15.0739	-.2017E+06	.5450E+08		
First-order corrections to F and THETA					.959E-01	.201E+02
Values factored by .428E+00 - Deltas too large					.411E-01	.859E+01
4	1.07971	23.6682	-.1263E+06	.5095E+08		
First-order corrections to F and THETA					.265E-01	-.290E+01
Second-order correction - Iteration 1					.274E-01	-.290E+01
Second-order correction - Iteration 2					.274E-01	-.290E+01
5	1.10714	20.7660	.3191E+03	-.7549E+07		
First-order corrections to F and THETA					.307E-02	.113E+01
Second-order correction - Iteration 1					.308E-02	.113E+01
Second-order correction - Iteration 2					.308E-02	.113E+01
6	1.11023	21.8994	-.1630E+01	.2942E+05		
First-order corrections to F and THETA					-.118E-04	-.436E-02
Second-order correction - Iteration 1					-.118E-04	-.436E-02
7	1.11021	21.8950	.1576E+00	-.1274E+02		
First-order corrections to F and THETA					-.633E-07	-.634E-05

Factor of Safety - - - - - - - - 1.110
Side Force Inclination - - - - - 21.90
Number of Iterations - - - - - - 7

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KIF Seismic=0.110

TABLE NO. 38
2222222222222222222222222222222222222222222222222222222222222222
2 Final Results for Stresses Along the Shear Surface 2
2 (Results for Critical Shear Surface in Case of a Search.) 2
2222222222222222222222222222222222222222222222222222222222222222

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = 1.110 Side Force Inclination = 21.90 Degrees

-------- VALUES AT CENTER OF BASE OF SLICE---------

Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	389.7	746.7	361.9	361.9	76.6
2	413.2	742.1	1080.4	1080.4	221.6
3	435.1	737.8	1747.9	1747.9	352.6
4	449.7	734.9	2190.6	2190.6	436.8
5	454.7	733.9	2343.9	2343.9	838.0
6	470.1	730.9	3845.2	3845.2	960.5
7	499.7	725.1	6543.0	6543.0	1703.2
8	529.4	719.3	9040.8	9040.8	2138.1
9	552.5	716.7	9073.2	9073.2	2209.2
10	569.1	717.3	9763.9	9763.9	2317.8
11	580.0	717.7	10097.6	10097.6	2370.9
12	590.0	718.0	10084.1	10084.1	2349.6
13	606.0	718.6	9758.0	9758.0	2257.7
14	618.0	719.0	9433.0	9433.0	2176.4
15	621.5	719.2	9432.2	9432.2	2167.0

16	632.1	719.6	9780.0	9780.0	2222.6
17	643.1	719.9	10399.8	10399.8	2304.1
18	657.9	719.9	10973.2	10973.2	2389.8
19	686.5	719.8	12077.5	12077.5	2554.9
20	708.3	719.8	12631.5	12631.5	2637.4
21	729.9	719.8	13175.6	13175.6	2718.4
22	757.9	719.7	14260.1	14260.1	2880.5
23	786.0	719.7	15344.6	15344.6	3042.7
24	803.0	719.6	16003.6	16003.6	3141.2
25	813.6	719.6	16122.4	16122.4	3158.9
26	832.6	719.6	16569.5	16569.5	3225.9
27	855.6	719.5	17460.0	17460.0	3359.6
28	876.8	719.8	17888.5	17888.5	3443.5
29	896.2	720.4	18546.5	18546.5	3548.1
30	908.6	720.8	18657.8	18657.8	3583.1
31	918.8	721.4	18686.0	18686.0	3592.5
32	930.2	722.0	18750.1	18750.1	3608.0
33	947.8	723.0	19281.2	19281.2	3697.3
34	975.3	724.5	20109.3	20109.3	3836.7
35	1002.8	726.1	20937.3	20937.3	3976.0
36	1020.2	727.1	21325.2	21325.2	4043.6
37	1027.7	728.1	19391.5	19391.5	3839.4
38	1042.7	731.2	19408.7	19408.7	3869.9
39	1065.0	735.9	19627.3	19627.3	3945.1

1

-------- VALUES AT CENTER OF BASE OF SLICE---------

Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress
40	1087.3	740.5	19845.9	19845.9	4020.4
41	1099.2	743.0	19963.1	19963.1	4060.7
42	1100.3	743.2	19972.4	19972.4	4064.0
43	1111.0	751.7	14217.7	14217.7	3462.1
44	1121.6	760.2	13655.1	13655.1	3624.8
45	1123.7	761.9	13512.6	13512.6	3611.9
46	1126.9	764.5	11254.6	11254.6	10294.8
47	1128.8	766.0	11694.6	11694.6	8426.9
48	1133.1	769.5	10998.2	10998.2	9785.2
49	1145.0	779.0	10557.3	10557.3	9397.2
50	1161.4	792.2	10057.7	10057.7	8957.4
51	1178.0	808.3	7181.7	7181.7	7335.8
52	1194.8	827.2	6517.6	6517.6	6668.5
53	1211.6	846.2	5853.6	5853.6	6001.1
54	1223.5	859.6	5384.4	5384.4	5529.4
55	1234.5	872.0	4826.3	4826.3	4968.5
56	1243.0	881.6	4366.5	4366.5	4506.2
57	1247.6	886.8	4182.6	4182.6	4321.2
58	1259.5	900.6	3598.2	3598.2	3782.6
59	1276.2	919.9	2927.4	2927.4	3098.7
60	1285.2	930.3	2555.5	2555.5	2719.3
61	1292.6	940.2	1795.3	1795.3	2092.7
62	1306.1	958.4	1042.5	1042.5	1261.1
63	1316.9	973.1	388.5	388.5	523.8

CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION = .33 (= .332E+00)
SHOULD NOT EXCEED .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION = .58 (= .582E+00)
SHOULD NOT EXCEED .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN = 39.72 (= .397E+02)
SHOULD NOT EXCEED .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .11 (= .105E+00)
SHOULD NOT EXCEED .100E+03

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GYPSUM STACK Residuum KFPGAPS3

KIF Seismic=0.110

TABLE NO. 39

2 Final Results for Side Forces and Stresses Between Slices. 2
2 (Results for Critical Shear Surface in Case of a Search.) 2

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = 1.110 Side Force Inclination = 21.90 Degrees

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	401.5	2900.	751.1	ABOVE	3910.5	-2743.9
2	425.0	11367.	749.5	ABOVE	4969.6	-2683.4
3	445.3	23089.	748.8	.985	6337.8	-3096.8
4	454.2	29447.	748.5	.968	6953.8	-3301.8
5	455.3	30742.	748.3	.925	6487.6	-2835.2
6	484.9	74652.	744.7	.498	2044.2	2084.8
7	514.5	151718.	741.1	.368	575.2	4893.4
8	544.2	250852.	739.0	.327	-130.3	6836.3
9	560.8	267182.	741.9	.330	-72.2	6630.9
10	577.4	283641.	744.4	.329	-92.0	6528.6
11	582.5	288729.	745.2	.336	57.4	6509.6
12	597.4	303233.	747.5	.360	559.4	6383.5
13	614.5	319044.	750.5	.423	2120.0	5803.1
14	621.5	325254.	751.8	.439	2558.7	5546.2
15	621.6	325315.	751.8	.439	2559.1	5545.1
16	642.5	343798.	755.7	.444	2613.1	5293.0
17	643.6	345269.	755.9	.443	2607.1	5296.7
18	672.2	384107.	759.3	.435	2403.7	5461.8
19	700.8	424421.	762.3	.424	2130.9	5731.1
20	715.8	446002.	763.8	.439	2614.5	5644.8
21	743.9	486988.	766.5	.427	2308.8	5937.1
22	771.9	529397.	768.8	.413	1973.4	6283.5
23	800.0	573229.	770.8	.399	1620.4	6666.5
24	806.0	582853.	771.2	.395	1542.6	6752.8
25	821.1	606884.	772.2	.403	1808.5	6827.0
26	844.1	644187.	773.7	.392	1527.1	7127.9
27	867.1	682465.	775.0	.381	1236.7	7448.2
28	886.5	702853.	776.9	.375	1072.9	7525.2
29	905.9	723511.	778.7	.368	889.9	7631.1
30	911.3	726314.	779.3	.367	857.0	7617.1
31	926.3	734229.	781.2	.376	1091.7	7520.4
32	934.1	738356.	782.2	.374	1039.6	7505.0
33	961.5	752990.	785.3	.366	824.4	7495.4
34	989.0	767654.	787.9	.357	568.5	7546.1
35	1016.5	782348.	790.1	.345	280.7	7646.1
36	1024.0	786370.	790.6	.347	315.5	7670.4
37	1031.5	765563.	793.2	.355	509.3	7333.2
38	1053.8	704804.	800.7	.365	685.6	6426.3
39	1076.1	644138.	808.2	.375	803.4	5600.6
40	1098.5	583565.	815.6	.384	866.8	4850.6

1

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
41	1100.0	579388.	816.1	.384	869.3	4801.5
42	1100.5	578011.	816.2	.385	870.1	4785.4
43	1121.5	345570.	857.0	.539	2196.9	1370.0
44	1121.7	342915.	857.7	.542	2213.9	1327.9
45	1125.6	303413.	869.1	.598	2534.2	654.9
46	1128.1	300833.	869.2	.595	2506.5	692.5
47	1129.4	296529.	870.4	.599	2525.0	646.7

48	1136.8	287157.	871.7	.592	2470.0	709.8
49	1153.2	267155.	874.4	.555	2066.1	1035.3
50	1169.6	248182.	876.7	.512	1624.4	1403.1
51	1186.4	201441.	888.3	.508	1412.6	1281.6
52	1203.2	159204.	899.7	.502	1195.4	1161.0
53	1220.0	121470.	911.0	.494	971.0	1041.6
54	1226.9	107189.	915.7	.490	876.2	992.0
55	1242.0	79685.	925.6	.504	848.1	803.7
56	1243.9	76462.	926.9	.503	822.1	791.2
57	1251.2	65005.	931.8	.497	723.0	746.2
58	1267.9	41129.	943.1	.482	499.4	619.0
59	1284.5	22053.	953.8	.446	253.8	498.8
60	1285.8	20749.	954.6	.444	242.8	485.5
61	1299.3	7960.	965.5	.465	167.3	256.2
62	1312.8	1128.	976.5	.532	73.8	50.2
63	1321.0	0.	460.6	BELOW	26.6	-26.6

CHECK SUMS - (ALL SHOULD BE SMALL)

SUM OF FORCES IN VERTICAL DIRECTION = .33 (= .332E+00)
SHOULD NOT EXCEED .100E+03

SUM OF FORCES IN HORIZONTAL DIRECTION = .58 (= .582E+00)
SHOULD NOT EXCEED .100E+03

SUM OF MOMENTS ABOUT COORDINATE ORIGIN = 39.72 (= .397E+02)
SHOULD NOT EXCEED .100E+03

SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .11 (= .105E+00)
SHOULD NOT EXCEED .100E+03

***** CAUTION ***** SOME OF THE FORCES BETWEEN SLICES ACT AT POINTS ABOVE THE SURFACE OF THE SLOPE OR BELOW THE SHEAR SURFACE - EITHER A TENSION CRACK MAY BE NEEDED OR THE SOLUTION MAY NOT BE A VALID SOLUTION.

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TABLE NO. 1

```
*****************************************
* COMPUTER PROGRAM DESIGNATION - UTEXAS3 *
* Originally Coded By Stephen G. Wright  *
* Version No. 1.209                      *
* Last Revision Date  2/28/98            *
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*****************************************

*************************************************************
*                                                           *
*      RESULTS OF COMPUTATIONS PERFORMED USING THIS COMPUTER *
* PROGRAM SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY *
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* DATA OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE   *
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KFPGPS3 Penin 1 Sec A, Two-Stage UTEXAS3
GYPSUM STACK Option 1+2,
KIF Wet With High Initial Water Table

TABLE NO. 2

```
*************************
* NEW PROFILE LINE DATA *
*************************
```

PROFILE LINE 1 - MATERIAL TYPE = 1
Gypsum

Point	X	Y
1	454.170	749.000
2	577.400	799.340
3	597.400	799.340
4	614.500	793.640
5	621.500	793.640
6	700.810	820.000
7	715.840	820.000
8	806.040	850.000
9	821.070	850.000
10	911.270	880.000
11	926.300	880.000
12	1016.490	910.000
13	1031.530	910.000
14	1121.720	940.000
15	1136.750	940.000
16	1226.950	970.000
17	1241.980	970.000
18	1284.490	983.900
19	1312.810	984.400
20	1362.100	970.000
21	1379.080	970.000
22	1480.950	940.000
23	1999.150	820.000

PROFILE LINE 2 - MATERIAL TYPE = 2
Fly Ash and Bottom Ash 1 foot thickness

Point	X	Y
1	582.510	750.000
2	621.570	766.020
3	800.000	766.020
4	1100.000	766.020
5	1220.000	768.000
6	1500.000	768.000

PROFILE LINE 3 - MATERIAL TYPE = 3
Bottom Ash Drainage Layer 2 feet thick

Point	X	Y
1	582.510	750.000
2	621.570	765.020
3	800.000	765.020
4	1100.000	765.020
5	1220.000	767.000
6	1500.000	767.000

PROFILE LINE 4 - MATERIAL TYPE = 4
Compacted Liner Material - 3 feet

Point	X	Y
1	582.510	750.000
2	621.570	763.020
3	800.000	763.020
4	1100.000	763.020
5	1220.000	765.000
6	1500.000	765.000
7	1600.000	770.000
8	1900.000	790.000
9	2000.000	820.000

PROFILE LINE 5 - MATERIAL TYPE = 5
Original Ground Surface

Point	X	Y
1	95.170	748.920
2	147.030	740.000
3	353.930	749.000
4	582.510	750.000
5	621.570	760.020
6	800.000	760.020
7	1100.000	760.020
8	1500.000	762.000
9	1600.000	765.500
10	1900.000	770.500
11	2000.000	790.500

PROFILE LINE 6 - MATERIAL TYPE = 6
Bedrock Limestone

Point	X	Y
1	95.170	713.410
2	321.140	713.410
3	445.300	711.730
4	643.640	719.000
5	934.060	719.160
6	1098.460	710.000
7	1243.940	710.000
8	1438.360	720.000
9	1540.360	728.000
10	1608.780	730.000
11	1653.770	730.000

```
                12      1709.130        721.160
                13      1773.310        726.690
                14      2044.710        746.240

          All new profile lines defined - No old lines retained
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          GYPSUM STACK Option 1+2,
          KIF Wet With High Initial Water Table

          TABLE NO.  3
          ************************************************************************
          * NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
          ************************************************************************

          DATA FOR MATERIAL TYPE  1
          Gypsum

               Unit weight of material =  113.400

               CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
               Cohesion - - - - - - - -      50.000
               Friction angle - - - - -  37.000 degrees

               Pore water pressures defined by piezometric line
               Number of the piezometric line used =  1
               Negative pore pressures set to zero

          DATA FOR MATERIAL TYPE  2
          Rolled Compacted Fly Ash Base

               Unit weight of material =  113.400

               CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
               Cohesion - - - - - - - -     100.000
               Friction angle - - - - -  36.600 degrees

               Pore water pressures defined by piezometric line
               Number of the piezometric line used =  1
               Negative pore pressures set to zero

          DATA FOR MATERIAL TYPE  3
          Bottom Ash

               Unit weight of material =  116.400

               CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
               Cohesion - - - - - - - -     110.000
               Friction angle - - - - -  36.000 degrees

               Pore water pressures defined by piezometric line
               Number of the piezometric line used =  1
               Negative pore pressures set to zero

          DATA FOR MATERIAL TYPE  4
          Compacted Clay Liner

               Unit weight of material =  126.400

               CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
               Cohesion - - - - - - - -     326.000
               Friction angle - - - - -  24.000 degrees

               Pore water pressures defined by piezometric line
               Number of the piezometric line used =  1
               Negative pore pressures set to zero

          DATA FOR MATERIAL TYPE  5
          Original Ground
```

```
            Unit weight of material =  130.400

            CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
            Cohesion - - - - - - - - -        .000
            Friction angle - - - - -  22.500 degrees

            Pore water pressures defined by piezometric line
            Number of the piezometric line used =  1
            Negative pore pressures set to zero

      DATA FOR MATERIAL TYPE  6
      Bedrock Limestone

            Unit weight of material =  155.000

            CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
            Cohesion - - - - - - - -   10000.000
            Friction angle - - - - -  29.900 degrees

            Pore water pressures defined by piezometric line
            Number of the piezometric line used =  1
            Negative pore pressures set to zero

      All new material properties defined - No old data retained
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      GYPSUM STACK Option 1+2,
      KIF Wet With High Initial Water Table

      TABLE NO.  5
      ************************************************************************
      * NEW PIEZOMETRIC LINE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
      ************************************************************************

      Line
       No.    Point       X           Y

        1 - Unit weight of water =   62.40   Psuedo Static Water TAble
        1        1      95.170     764.920   Psuedo Static Water TAble
        1        2     147.030     745.810   Psuedo Static Water TAble
        1        3     353.930     749.000   Psuedo Static Water TAble
        1        4     424.970     748.530   Psuedo Static Water TAble
        1        5     582.510     750.000   Psuedo Static Water TAble
        1        6     621.570     763.020   Psuedo Static Water TAble
        1        7     696.500     793.640   Psuedo Static Water TAble
        1        8     775.810     820.000   Psuedo Static Water TAble
        1        9     790.840     820.000   Psuedo Static Water TAble
        1       10     881.040     850.000   Psuedo Static Water TAble
        1       11     896.070     850.000   Psuedo Static Water TAble
        1       12     986.270     880.000   Psuedo Static Water TAble
        1       13    1001.300     880.000   Psuedo Static Water TAble
        1       14    1091.490     910.000   Psuedo Static Water TAble
        1       15    1106.530     910.000   Psuedo Static Water TAble
        1       16    1125.000     920.000   Psuedo Static Water TAble
        1       17    1475.000     920.000   Psuedo Static Water TAble
        1       18    1525.000     910.000   Psuedo Static Water TAble
        1       19    1900.000     820.000   Psuedo Static Water TAble

      All new piezometric lines defined - No old lines retained

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      KIF  Seismic=0.110

      TABLE NO. 15
      **********************************
      * NEW ANALYSIS/COMPUTATION DATA *
```

****

Noncircular Shear Surface(s)

Automatic Search Performed

Coordinates of points on shear surface which are to be shifted -

Point	X	Y	Shift Angle
1	413.200	749.000	angle to be computed - moveable
2	546.000	738.500	angle to be computed - moveable
3	642.620	735.000	angle to be computed - moveable
4	869.290	719.000	angle to be computed - moveable
5	902.620	735.000	angle to be computed - moveable
6	1022.440	747.000	angle to be computed - moveable
7	1100.000	750.000	angle to be computed - moveable
8	1186.530	780.330	angle to be computed - moveable
9	1259.470	884.570	angle to be computed - moveable
10	1281.000	932.000	angle to be computed - moveable
11	1303.750	980.890	angle to be computed - moveable

Initial distance for shifting points on shear surface = 11.000
Maximum steepness permitted for toe of shear surface = 45.00 degrees

Seismic coefficient = .110

TWO-STAGE COMPUTATIONS ARE PERFORMED

Procedure used to compute the factor of safety: SPENCER

Depth of water in crack = .000

THE FOLLOWING REPRESENT EITHER DEFAULT OR PREVIOUSLY DEFINED VALUES:

Initial trial estimate for the factor of safety = 3.000

Initial trial estimate for side force inclination = 15.000 degrees
(Applicable to Spencer's procedure only)

Maximum number of iterations allowed for
calculating the factor of safety = 1000

Allowed force imbalance for convergence = 100.000

Allowed moment imbalance for convergence = 100.000

Initial trial values for factor of safety (and side force inclination
for Spencer's procedure) will be kept constant during search

Number of increments for slice subdivision = 30

Unit weight of water in crack = 62.400
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TABLE NO. 22
****
* INITIAL COMPUTED INFORMATION FOR SEARCH *
* WITH NONCIRCULAR SHEAR SURFACE *
****

Crack depth computed to be - - - 3.35

FOR INITIAL TRIAL NONCIRCULAR SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - .863

Side Force Inclination - - - - - - - - - - 18.37
Number of Iterations - - - - - - - - - - - 5

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 1 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	402.20	749.00	.863	18.38	5
1	424.20	749.00	.863	18.36	5
2	545.37	727.52	.857	18.72	5
2	546.63	749.48 See Message on Next Line(s)			

SHEAR SURFACE SEGMENT BETWEEN POINTS 1 AND 2 CROSSES SLOPE BETWEEN POINTS 4 AND 5 AFTER SHIFT - THIS TRIAL SHEAR SURFACE WAS REJECTED

3	642.03	724.02	.863	18.40	5
3	643.21	745.98	.878	18.13	6
4	867.08	729.78	.852	18.52	5
4	871.50	708.22	1.243	19.17	6
5	899.56	745.56	.896	18.78	5
5	905.68	724.44	.849	18.03	6
6	1021.68	757.97	.886	19.12	6
6	1023.20	736.03	.855	17.91	5
7	1097.90	760.80	.916	19.93	5
7	1102.10	739.20	.857	18.01	6
8	1179.22	788.55	.847	17.93	5
8	1193.84	772.11	.875	18.71	5
9	1249.83	889.88	.866	18.40	5
9	1269.11	879.26	.870	18.32	5
10	1271.00	936.59	.869	18.25	5
10	1291.00	927.41	.864	18.38	5
11	1292.75	980.70	.865	18.32	6
11	1314.74	980.49	.863	18.38	5

Maximum distance shifted for new estimate of shear surface is 11.000 at point 7

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	402.20	749.00
2	545.37	727.52
3	642.33	729.51
4	867.08	729.78
5	905.68	724.44
6	1023.20	736.03
7	1102.10	739.20
8	1179.22	788.55
9	1257.21	885.81
10	1284.92	930.20
11	1314.74	980.49

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - .808
Side Force Inclination - - - - - - - - - - 17.47
Number of Iterations - - - - - - - - - - - 7
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TABLE NO. 23
****

* SEARCH TRIAL NUMBER 2 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	391.20	749.00	.808	17.47	6
1	413.20	749.00	.808	17.48	6
2	544.66	716.54	.806	17.58	5
2	546.08	738.50	.815	17.12	5
3	642.21	740.51	.822	17.23	5
3	642.45	718.52	.834	16.74	5
4	866.33	718.80	.823	17.46	5
4	867.84	740.75	.842	17.80	6
5	905.47	713.44	.991	19.51	5
5	905.90	735.43	.812	17.76	6
6	1022.44	747.00	.828	18.26	7
6	1023.96	725.05	.802	17.04	5
7	1098.56	749.62	.812	17.70	5
7	1105.64	728.79	.827	17.94	5
8	1171.67	796.55	.809	17.46	5
8	1186.77	780.55	.812	17.59	5
9	1248.21	892.13	.811	17.34	5
9	1266.22	879.49	.815	17.54	5
10	1275.52	935.91	.811	17.35	5
10	1294.32	924.48	.812	17.43	5
11	1303.75	980.89	.808	17.46	6
11	1325.30	977.40	.809	17.42	5

Maximum distance shifted for new estimate of shear surface is 11.000 at point 2

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	391.20	749.00
2	544.66	716.54
3	642.31	731.19
4	866.94	727.72
5	905.79	729.68
6	1023.96	725.05
7	1100.99	742.46
8	1177.09	790.80
9	1255.37	887.10
10	1284.27	930.60
11	1311.81	981.03

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - .802
Side Force Inclination - - - - - - - - - 17.25
Number of Iterations - - - - - - - - - - 5
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 3 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

2-Stage
Factor

Point	X	Y	of Safety	Side Force Inclination	Iterations
1	380.20	749.00	.801	17.25	5
1	402.20	749.00	.802	17.25	6
2	544.32	705.55	1.011	13.78	5
2	544.99	727.54	.803	17.15	5
3	641.57	742.16	.819	16.91	5
3	643.05	720.21	.789	17.41	5
4	866.75	738.72	.820	17.47	5
4	867.14	716.72	See Message on Next Line(s)		

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

5	905.73	740.68	.824	17.75	6
5	905.85	718.68	.834	17.48	5
6	1022.94	736.01	.802	17.54	7
6	1024.99	714.10	.815	17.35	6
7	1096.64	752.56	.819	17.83	6
7	1105.34	732.35	.806	17.29	5
8	1169.59	798.84	.802	17.18	5
8	1184.60	782.75	.808	17.45	5
9	1246.49	893.60	.805	17.11	6
9	1264.25	880.61	.808	17.33	6
10	1274.83	936.25	.804	17.17	8
10	1293.70	924.94	See Message on Next Line(s)		

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

11	1300.81	980.84	.802	17.24	5
11	1322.44	978.24	.803	17.22	6

Maximum distance shifted for new estimate of shear surface is 11.000 at point 3

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	380.20	749.00
2	544.82	721.95
3	643.05	720.21
4	866.94	727.72
5	905.78	730.73
6	1023.48	730.18
7	1102.23	739.59
8	1169.59	798.84
9	1253.77	888.28
10	1284.27	930.60
11	1310.97	981.02

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - .791
Side Force Inclination - - - - - - - - - 17.42
Number of Iterations - - - - - - - - - - 5

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 4 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 11.00

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations

1	369.20	749.00	.791	17.41	5
1	391.20	749.00	.792	17.42	6
2	543.83	710.99	1.032	13.79	5
2	545.82	732.90	.799	17.08	6
3	642.96	731.21	.803	17.33	6
3	643.13	709.21	1.258	14.56	13
4	866.33	738.70	.810	17.66	5
4	867.55	716.73 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

5	905.38	741.73	.812	17.90	5
5	906.18	719.74	.791	17.16	7
6	1022.85	741.17	.800	17.97	5
6	1024.11	719.20	.797	17.28	5
7	1097.31	749.43	.789	17.43	5
7	1107.15	729.75	.814	18.07	5
8	1161.93	806.73	.801	17.57	5
8	1177.25	790.95	.790	17.42	6
9	1245.25	895.23 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

9	1262.29	881.32	.800	17.55	5
10	1274.88	936.33	.792	17.36	6
10	1293.65	924.86	.799	17.34	5
11	1299.97	980.82	.792	17.39	5
11	1321.67	978.46	.793	17.39	5

Maximum distance shifted for new estimate of shear surface is 11.000 at point 7

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	369.20	749.00
2	545.29	727.07
3	643.01	725.44
4	866.94	727.72
5	906.18	719.74
6	1023.56	728.89
7	1097.31	749.43
8	1177.25	790.95
9	1253.77	888.28
10	1280.21	933.07
11	1310.80	981.01

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - .803
Side Force Inclination - - - - - - - - - - 17.28
Number of Iterations - - - - - - - - - - - 5

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 5 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 7.70

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	372.50	749.00	.791	17.41	5
1	387.90	749.00	.792	17.42	5
2	544.12	714.28	.919	14.68	5

2	545.52	729.61	.797	17.21	7
3	642.99	727.91	.799	17.38	5
3	643.11	712.51	1.171	14.56	8
4	866.52	735.41	.802	17.59	6
4	867.37	720.03	.789	17.29	6
5	905.50	738.43	.804	17.74	5
5	906.06	723.04	.789	17.21	5
6	1023.04	737.87	.796	17.76	5
6	1023.93	722.50	.794	17.28	6
7	1098.79	746.48	.788	17.36	5
7	1105.67	732.70	.805	17.80	5
8	1164.23	804.37	.797	17.51	6
8	1174.96	793.32	.790	17.41	7
9	1247.80	893.15	.791	17.30	5
9	1259.73	883.41	.797	17.51	8
10	1277.69	934.61	.791	17.40	5
10	1290.84	926.58 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

11	1303.27	980.88	.792	17.40	5
11	1318.50	979.39	.792	17.41	5

Maximum distance shifted for new estimate of shear surface is 7.700 at point 9

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	372.50	749.00
2	545.15	725.49
3	643.02	723.91
4	867.37	720.03
5	906.06	723.04
6	1023.56	728.90
7	1098.79	746.48
8	1174.96	793.32
9	1247.80	893.15
10	1277.69	934.61
11	1311.12	981.02

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - .781
Side Force Inclination - - - - - - - - - - 16.90
Number of Iterations - - - - - - - - - - 6

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 6 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 7.70

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	364.80	749.00	.781	16.89	5
1	380.20	749.00	.781	16.90	5
2	544.56	717.81	.778	17.01	5
2	545.73	733.17	.786	16.67	5
3	642.89	716.21	1.282	14.94	7
3	643.15	731.61	.790	16.82	5
4	867.14	727.73	.790	17.08	5
4	867.60	712.33	1.228	17.85	7

5	905.57	730.72	.791	17.18	5
5	906.55	715.35	.977	19.25	5
6	1022.48	736.52	.783	17.11	5
6	1024.64	721.28	.785	16.85	5
7	1095.78	753.56	.794	17.27	6
7	1101.80	739.39	.780	16.82	5
8	1169.53	798.78	.777	16.76	5
8	1180.38	787.85 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

9	1241.57	897.67	.784	16.79	5
9	1254.04	888.63	.783	16.95	6
10	1271.45	939.11	.782	16.84	6
10	1283.94	930.11	.785	16.86	5
11	1303.42	980.88	.781	16.92	5
11	1318.63	979.35	.783	16.84	5

Maximum distance shifted for new estimate of shear surface is 7.700 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	380.20	749.00
2	544.56	717.81
3	643.08	727.63
4	867.26	723.72
5	905.84	726.50
6	1023.38	730.14
7	1101.80	739.39
8	1169.53	798.78
9	1248.77	892.45
10	1275.49	936.20
11	1303.42	980.88

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - .787
Side Force Inclination - - - - - - - - - - 17.14
Number of Iterations - - - - - - - - - - 6

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 7 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 4.40

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	368.10	749.00	.781	16.89	5
1	376.90	749.00	.781	16.90	5
2	544.81	721.10	.779	16.98	5
2	545.48	729.88	.784	16.78	6
3	642.94	719.51	.777	16.89	6
3	643.09	728.31	.786	16.87	6
4	867.24	724.43	.785	16.99	5
4	867.50	715.63	1.105	18.05	6
5	905.78	727.43	.786	17.05	5
5	906.34	718.65	.840	17.66	5
6	1022.94	733.26	.782	17.00	5
6	1024.18	724.54	.783	16.85	7
7	1097.07	750.53	.787	17.07	5

7	1100.51	742.43	.779	16.82	6
8	1171.86	796.44	.778	16.81	5
8	1178.06	790.20	.785	17.01	7
9	1244.24	895.73	.782	16.84	5
9	1251.37	890.56	.782	16.93	8
10	1274.12	937.18	.781	16.87	5
10	1281.26	932.04	.783	16.89	6
11	1306.72	980.94	.781	16.91	5
11	1315.46	980.28	.782	16.87	5

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 4.400 at point 8

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	376.90	749.00
2	544.81	721.10
3	642.94	719.51
4	867.31	722.17
5	905.94	724.91
6	1023.38	730.13
7	1100.51	742.43
8	1171.86	796.44
9	1248.83	892.40
10	1274.12	937.18
11	1306.72	980.94

ERROR FOR NEW ESTIMATE OF SHEAR SURFACE
ERROR IN COMPUTING FACTOR OF SAFETY
FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

Incremental shift distance used to compute derivatives
was reduced to 1.100 as a result of the above
error and search was continued

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 8 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	371.40	749.00	.781	16.89	5
1	373.60	749.00	.781	16.90	5
2	545.06	724.39	.781	16.92	5
2	545.23	726.59	.782	16.87	5
3	643.00	722.81	.780	16.90	6
3	643.04	725.01	.782	16.89	5
4	867.34	721.13	.782	16.92	5
4	867.40	718.93	.812	17.19	5
5	905.99	724.14	.782	16.93	5
5	906.13	721.94	.781	16.86	5
6	1023.40	729.99	.781	16.92	13
6	1023.71	727.81	.781	16.88	5
7	1098.36	747.49	.782	16.93	6

7	1099.22	745.46	.780	16.87	5
8	1174.18	794.10	.780	16.87	5
8	1175.73	792.54	.782	16.92	6
9	1246.91	893.79	.781	16.88	5
9	1248.70	892.50	.781	16.91	5
10	1276.80	935.25	.781	16.89	5
10	1278.59	933.97	.781	16.90	6
11	1310.02	981.00	.781	16.90	5
11	1312.22	981.04 See Message on Next Line(s)			

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 9

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	373.60	749.00
2	545.06	724.39
3	643.00	722.81
4	867.35	720.55
5	906.13	721.94
6	1023.40	729.99
7	1099.22	745.46
8	1174.18	794.10
9	1248.70	892.50
10	1276.80	935.25
11	1310.02	981.00

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - .778
Side Force Inclination - - - - - - - - - - 16.89
Number of Iterations - - - - - - - - - - 7

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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 9 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	372.50	749.00	.778	16.89	5
1	374.70	749.00	.778	16.89	5
2	544.97	723.29	.777	16.91	6
2	545.15	725.49	.778	16.87	6
3	642.99	721.71	.777	16.89	6
3	643.01	723.91	.779	16.89	5
4	867.34	721.65	.779	16.92	5
4	867.37	719.45	.777	16.87	5
5	906.08	723.04	.778	16.92	6
5	906.19	720.84	.777	16.86	5
6	1023.26	731.08	.778	16.92	5
6	1023.55	728.90	.778	16.87	5
7	1098.79	746.48	.778	16.91	6
7	1099.65	744.45	.777	16.87	5
8	1173.41	794.88	.777	16.87	5

8	1174.95	793.31	.778	16.91	5
9	1247.80	893.13	.778	16.88	5
9	1249.59	891.87	.778	16.90	5
10	1275.90	935.88	.778	16.89	5
10	1277.71	934.63	.778	16.89	5
11	1308.92	980.98	.777	16.90	6
11	1311.12	981.02	.778	16.89	6

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 10

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	374.70	749.00
2	544.97	723.30
3	642.99	721.71
4	867.37	719.45
5	906.19	720.84
6	1023.55	728.90
7	1099.65	744.45
8	1173.41	794.88
9	1247.80	893.13
10	1275.90	935.88
11	1308.92	980.98

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - .773
Side Force Inclination - - - - - - - - - - 16.80
Number of Iterations - - - - - - - - - - - 5
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KIF Seismic=0.110

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 10 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	373.60	749.00	.773	16.80	5
1	375.80	749.00	.773	16.80	5
2	544.88	722.20	.773	16.82	7
2	545.07	724.39	.774	16.77	6
3	642.97	720.61	.772	16.80	6
3	643.00	722.81	.774	16.79	5
4	867.35	720.55	.774	16.82	5
4	867.38	718.35	.953	17.93	5
5	906.13	721.94	.774	16.83	7
5	906.25	719.74	.773	16.77	5
6	1023.40	729.99	.773	16.82	7
6	1023.70	727.81	.773	16.77	5
7	1099.20	745.46	.774	16.81	6
7	1100.10	743.45	.773	16.79	6
8	1172.63	795.66	.773	16.78	6
8	1174.19	794.11	.774	16.81	5
9	1246.90	893.77	.773	16.79	5
9	1248.70	892.50	.773	16.81	5
10	1274.99	936.50	See Message on Next Line(s)		

FATAL ERROR IN CALCULATING FACTOR OF SAFETY
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS

10	1276.80	935.25	.773	16.80	5
11	1307.82	980.96	.773	16.80	5
11	1310.02	981.00	.773	16.79	6

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	375.80	749.00
2	544.88	722.20
3	642.97	720.61
4	867.36	720.00
5	906.25	719.74
6	1023.70	727.81
7	1100.10	743.45
8	1172.63	795.66
9	1246.90	893.77
10	1275.90	935.88
11	1307.82	980.96

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - .771
Side Force Inclination - - - - - - - - - - 16.75
Number of Iterations - - - - - - - - - - 5
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TABLE NO. 23
****
* SEARCH TRIAL NUMBER 11 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	374.70	749.00	.771	16.75	6
1	376.90	749.00	.771	16.75	5
2	544.79	721.10	.770	16.77	5
2	544.98	723.29	.771	16.73	5
3	642.96	719.51	.770	16.75	5
3	642.98	721.71	.772	16.75	5
4	867.36	718.90	.883	17.66	6
4	867.37	721.10	.772	16.78	5
5	906.21	720.84	.771	16.78	5
5	906.28	718.65	.834	17.65	5
6	1023.55	728.90	.771	16.78	5
6	1023.85	726.72	.771	16.73	5
7	1099.64	744.45	.771	16.76	6
7	1100.56	742.45	.771	16.75	5
8	1171.84	796.43	.771	16.74	6
8	1173.42	794.89	.771	16.77	5
9	1246.00	894.41	.771	16.74	5
9	1247.79	893.12	.771	16.76	6
10	1274.99	936.51	.771	16.75	5
10	1276.80	935.25	.771	16.75	5
11	1306.72	980.94	.771	16.76	5

11	1308.92	980.98	.771	16.75	6

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 3

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	374.70	749.00
2	544.79	721.10
3	642.96	719.51
4	867.36	720.53
5	906.23	720.29
6	1023.85	726.72
7	1100.56	742.45
8	1171.84	796.43
9	1246.56	894.01
10	1274.99	936.51
11	1306.72	980.94

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - .770
Side Force Inclination - - - - - - - - - - 16.76
Number of Iterations - - - - - - - - - - - 7
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KIF Seismic=0.110

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 12 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	373.60	749.00	.770	16.76	5
1	375.80	749.00	.770	16.76	6
2	544.69	720.01	.769	16.78	5
2	544.89	722.20	.770	16.74	5
3	642.95	718.41	.967	14.79	5
3	642.97	720.61	.770	16.76	6
4	867.36	719.43	.768	16.73	6
4	867.36	721.63	.771	16.78	5
5	906.21	721.39	.770	16.78	5
5	906.26	719.19	.769	16.73	6
6	1023.71	727.81	.770	16.78	5
6	1023.99	725.63	.770	16.74	5
7	1100.08	743.44	.770	16.76	6
7	1101.04	741.46	.770	16.76	6
8	1171.05	797.19	.769	16.75	5
8	1172.63	795.66	.770	16.77	6
9	1245.67	894.65	.769	16.75	6
9	1247.46	893.37	.770	16.77	5
10	1274.09	937.13	.769	16.75	5
10	1275.90	935.88	.770	16.76	5
11	1305.62	980.92	.769	16.76	5
11	1307.82	980.96	.770	16.75	8

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear
surface is 1.100 at point 11

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	373.60	749.00
2	544.69	720.01
3	642.96	720.06
4	867.36	719.43
5	906.26	719.19
6	1023.87	726.59
7	1100.08	743.44
8	1171.05	797.19
9	1245.67	894.65
10	1274.09	937.13
11	1305.62	980.92

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - .767
Side Force Inclination - - - - - - - - - 16.71
Number of Iterations - - - - - - - - - - 6
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KIF Seismic=0.110

TABLE NO. 23
****
* SEARCH TRIAL NUMBER 13 *
****

INCREMENTAL SHIFT DISTANCE USED TO COMPUTE DERIVATIVES = 1.10

Point	X	Y	2-Stage Factor of Safety	Side Force Inclination	Iterations
1	372.50	749.00	.767	16.70	7
1	374.70	749.00	.767	16.71	5
2	544.60	718.91	.767	16.72	6
2	544.78	721.10	.768	16.69	6
3	642.96	718.96	.840	15.61	5
3	642.96	721.16	.769	16.70	5
4	867.36	718.33	1.148	18.24	6
4	867.37	720.53	.769	16.73	6
5	906.23	720.29	See Message on Next Line(s)		
FATAL ERROR IN CALCULATING FACTOR OF SAFETY					
SOLUTION DID NOT CONVERGE WITHIN1000 ITERATIONS					
5	906.29	718.09	.903	18.43	5
6	1023.71	727.68	.767	16.73	6
6	1024.02	725.50	.768	16.69	5
7	1099.60	744.43	.768	16.71	5
7	1100.56	742.45	.768	16.70	5
8	1170.27	797.96	.767	16.70	5
8	1171.84	796.43	.768	16.72	5
9	1244.77	895.29	.767	16.70	5
9	1246.56	894.01	.768	16.72	5
10	1273.19	937.76	.767	16.70	5
10	1274.99	936.50	.768	16.71	5
11	1304.52	980.90	.767	16.71	6
11	1306.72	980.94	.768	16.70	5

Computed shift distances for newly estimated shear surface
factored by 1.000 to prevent over-shift

Maximum distance shifted for new estimate of shear

surface is 1.100 at point 10

Coordinates For New Estimate of Shear Surface

Point	X	Y
1	372.50	749.00
2	544.60	718.91
3	642.96	720.59
4	867.37	719.98
5	906.26	719.19
6	1023.84	726.77
7	1100.15	743.31
8	1170.27	797.96
9	1244.77	895.29
10	1273.19	937.76
11	1304.52	980.90

FOR NEW ESTIMATE OF SHEAR SURFACE
2-Stage Factor of Safety - - - - - - - - - .768
Side Force Inclination - - - - - - - - - - 16.72
Number of Iterations - - - - - - - - - - 5

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TABLE NO. 25
****
* FINAL CRITICAL SHEAR SURFACE (FOUND AFTER 13 TRIAL POSITIONS) *
****

X	Y
373.60	749.00
544.69	720.01
642.96	720.06
867.36	719.43
906.26	719.19
1023.87	726.59
1100.08	743.44
1171.05	797.19
1245.67	894.65
1274.09	937.13
1305.62	980.92

CAUTION - FACTOR OF SAFETY WAS NOT COMPUTED FOR SOME SHEAR
SURFACES NEAR CRITICAL SURFACE - CHECK PREVIOUS OUTPUT

2-Stage Factor of Safety = .767

Side Force Inclination = 16.71

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TABLE NO. 26
****
* Coordinate, Weight, Strength and Pore Water Pressure *
* Information for Individual Slices for Conventional *
* Computations or First Stage of Multi-Stage Computations. *
* (Information is for the Critical Shear Surface in the *
* Case of an Automatic Search.) *
****

Slice Slice Matl. Friction Pore

No.	X	Y	Weight	Type	Cohesion	Angle	Pressure
	373.6	749.0					
1	386.4	746.8	7289.0	5	.00	22.50	122.4
	399.3	744.6					
2	412.1	742.5	21867.1	5	.00	22.50	383.4
	425.0	740.3					
3	435.1	738.6	27644.2	5	.00	22.50	627.3
	445.3	736.8					
4	449.7	736.1	14922.9	5	.00	22.50	790.2
	454.2	735.3					
5	454.7	735.3	1718.6	1	50.00	37.00	845.7
	455.3	735.2					
6	470.2	732.6	85949.6	5	.00	22.50	1018.0
	485.1	730.1					
7	500.0	727.6	146821.8	5	.00	22.50	1350.6
	514.9	725.1					
8	529.8	722.5	207694.2	5	.00	22.50	1683.2
	544.7	720.0					
9	552.9	720.0	136849.4	5	.00	22.50	1854.0
	561.0	720.0					
10	569.2	720.0	149244.6	5	.00	22.50	1863.0
	577.4	720.0					
11	580.0	720.0	48563.7	5	.00	22.50	1868.9
	582.5	720.0					
12	590.0	720.0	142114.1	5	.00	22.50	2025.0
	597.4	720.0					
13	606.0	720.0	159169.9	5	.00	22.50	2357.2
	614.5	720.0					
14	618.0	720.0	63354.5	5	.00	22.50	2607.4
	621.5	720.0					
15	621.5	720.0	635.1	5	.00	22.50	2680.8
	621.6	720.0					
16	632.3	720.1	202706.5	5	.00	22.50	2954.0
	643.0	720.1					
17	643.3	720.1	6692.3	5	.00	22.50	3235.1
	643.6	720.1					
18	656.9	720.0	275037.4	5	.00	22.50	3583.1
	670.1	720.0					
19	683.3	719.9	301619.0	5	.00	22.50	4261.6
	696.5	719.9					
20	698.7	719.9	51706.4	5	.00	22.50	4645.9
	700.8	719.9					

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TABLE NO. 26

****
* Coordinate, Weight, Strength and Pore Water Pressure *
* Information for Individual Slices for Conventional *
* Computations or First Stage of Multi-Stage Computations. *
* (Information is for the Critical Shear Surface in the *
* Case of an Automatic Search.) *
****

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	700.8	719.9					
21	708.3	719.9	181586.6	5	.00	22.50	4848.2
	715.8	719.9					
22	730.8	719.8	379465.7	5	.00	22.50	5318.9
	745.8	719.8					
23	760.8	719.7	413701.9	5	.00	22.50	5945.9
	775.8	719.7					
24	783.3	719.7	220250.3	5	.00	22.50	6260.8
	790.8	719.6					
25	795.4	719.6	138449.2	5	.00	22.50	6357.9

	800.0	719.6					
26	803.0	719.6	93039.7	5	.00	22.50	6517.0
	806.0	719.6					
27	813.6	719.6	233291.5	5	.00	22.50	6737.4
	821.1	719.6					
28	832.6	719.5	369534.1	5	.00	22.50	7136.9
	844.2	719.5					
29	855.8	719.5	389934.6	5	.00	22.50	7621.3
	867.4	719.4					
30	874.2	719.4	240045.4	5	.00	22.50	8008.1
	881.0	719.3					
31	888.6	719.3	272101.7	5	.00	22.50	8155.7
	896.1	719.3					
32	901.2	719.2	189398.3	5	.00	22.50	8266.3
	906.3	719.2					
33	908.8	719.3	94521.3	5	.00	22.50	8416.2
	911.3	719.5					
34	918.8	720.0	283650.3	5	.00	22.50	8584.8
	926.3	720.5					
35	930.2	720.7	146859.2	5	.00	22.50	8776.6
	934.1	720.9					
36	947.1	721.8	507086.8	5	.00	22.50	9061.5
	960.2	722.6					
37	973.2	723.4	527197.4	5	.00	22.50	9500.7
	986.3	724.2					
38	993.8	724.7	312657.5	5	.00	22.50	9690.8
	1001.3	725.2					
39	1008.9	725.6	322760.3	5	.00	22.50	9789.1
	1016.5	726.1					
40	1020.2	726.4	158175.9	5	.00	22.50	9979.0
	1023.9	726.6					

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TABLE NO. 26

```
**************************************************************
*  Coordinate, Weight, Strength and Pore Water Pressure      *
*  Information for Individual Slices for Conventional        *
*  Computations or First Stage of Multi-Stage Computations.  *
*  (Information is for the Critical Shear Surface in the     *
*  Case of an Automatic Search.)                             *
**************************************************************
```

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	1023.9	726.6					
41	1027.7	727.4	163235.4	5	.00	22.50	10067.8
	1031.5	728.3					
42	1046.5	731.6	639300.2	5	.00	22.50	10198.8
	1061.5	734.9					
43	1076.5	738.2	647294.5	5	.00	22.50	10407.5
	1091.5	741.5					
44	1095.0	742.3	151633.2	5	.00	22.50	10463.8
	1098.5	743.1					
45	1099.2	743.3	33562.2	5	.00	22.50	10405.1
	1100.0	743.4					
46	1100.0	743.4	1772.3	5	.00	22.50	10393.9
	1100.1	743.4					
47	1103.3	745.9	139322.1	5	.00	22.50	10241.0
	1106.5	748.3					
48	1114.1	754.1	318178.4	5	.00	22.50	9986.2
	1121.7	759.8					
49	1121.9	760.0	8136.6	5	.00	22.50	9881.2
	1122.1	760.1					
50	1123.6	761.2	58536.6	4	326.00	24.00	9859.1
	1125.0	762.3					
51	1125.8	762.9	30377.8	4	326.00	24.00	9804.0

	1126.5	763.5					
52	1127.9	764.5	53735.8	3	110.00	36.00	9704.5
	1129.2	765.5					
53	1129.9	766.0	26630.4	2	100.00	36.60	9608.8
	1130.6	766.5					
54	1133.7	768.9	120114.7	1	50.00	37.00	9430.6
	1136.8	771.2					
55	1145.3	777.7	321221.2	1	50.00	37.00	8879.0
	1153.9	784.2					
56	1162.5	790.7	307048.5	1	50.00	37.00	8068.4
	1171.1	797.2					
57	1179.2	807.8	270624.6	1	50.00	37.00	6998.2
	1187.4	818.5					
58	1195.5	829.2	241238.8	1	50.00	37.00	5668.5
	1203.7	839.8					
59	1211.8	850.5	211851.4	1	50.00	37.00	4338.8
	1220.0	861.1					
60	1223.5	865.7	81320.8	1	50.00	37.00	3390.7
	1226.9	870.2					

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GYPSUM STACK Residuum KFPGAPS3
KIF Seismic=0.110

TABLE NO. 26

```
*************************************************************
*  Coordinate, Weight, Strength and Pore Water Pressure     *
*  Information for Individual Slices for Conventional       *
*  Computations or First Stage of Multi-Stage Computations. *
*  (Information is for the Critical Shear Surface in the    *
*  Case of an Automatic Search.)                            *
*************************************************************
```

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	1226.9	870.2					
61	1234.5	880.0	153369.3	1	50.00	37.00	2495.0
	1242.0	889.8					
62	1243.0	891.1	17605.0	1	50.00	37.00	1802.6
	1243.9	892.4					
63	1244.8	893.5	15156.2	1	50.00	37.00	1652.4
	1245.7	894.6					
64	1252.8	905.3	110006.7	1	50.00	37.00	919.3
	1259.9	915.9					
65	1267.0	926.5	83261.9	1	50.00	37.00	.0
	1274.1	937.1					
66	1279.3	944.4	44636.2	1	50.00	37.00	.0
	1284.5	951.6					
67	1289.8	958.9	30045.6	1	50.00	37.00	.0
	1295.1	966.3					
68	1300.3	973.6	12690.8	1	50.00	37.00	.0
	1305.6	980.9					

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TABLE NO. 27

```
*************************************************************
*  Seismic Forces and Forces Due to Surface Pressures for   *
*  Individual Slices for Conventional Computations or the   *
*  First Stage of Multi-Stage Computations.                 *
*  (Information is for the Critical Shear Surface in the    *
*  Case of an Automatic Search.)                            *
*************************************************************
```

FORCES DUE TO SURFACE PRESSURES

Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
1	386.4	0.	747.9	0.	0.	.0	.0
2	412.1	0.	745.7	0.	0.	.0	.0
3	435.1	0.	743.8	0.	0.	.0	.0
4	449.7	0.	742.5	0.	0.	.0	.0
5	454.7	0.	742.2	0.	0.	.0	.0
6	470.2	0.	743.8	0.	0.	.0	.0
7	500.0	0.	747.0	0.	0.	.0	.0
8	529.8	0.	750.2	0.	0.	.0	.0
9	552.9	0.	753.5	0.	0.	.0	.0
10	569.2	0.	756.7	0.	0.	.0	.0
11	580.0	0.	758.4	0.	0.	.0	.0
12	590.0	0.	758.3	0.	0.	.0	.0
13	606.0	0.	756.9	0.	0.	.0	.0
14	618.0	0.	755.6	0.	0.	.0	.0
15	621.5	0.	755.6	0.	0.	.0	.0
16	632.3	0.	757.3	0.	0.	.0	.0
17	643.3	0.	759.1	0.	0.	.0	.0
18	656.9	0.	761.2	0.	0.	.0	.0
19	683.3	0.	765.4	0.	0.	.0	.0
20	698.7	0.	767.9	0.	0.	.0	.0
21	708.3	0.	768.2	0.	0.	.0	.0
22	730.8	0.	770.6	0.	0.	.0	.0
23	760.8	0.	775.4	0.	0.	.0	.0
24	783.3	0.	779.1	0.	0.	.0	.0
25	795.4	0.	781.0	0.	0.	.0	.0
26	803.0	0.	782.3	0.	0.	.0	.0
27	813.6	0.	782.7	0.	0.	.0	.0
28	832.6	0.	784.6	0.	0.	.0	.0
29	855.8	0.	788.4	0.	0.	.0	.0
30	874.2	0.	791.3	0.	0.	.0	.0
31	888.6	0.	793.6	0.	0.	.0	.0
32	901.2	0.	795.7	0.	0.	.0	.0
33	908.8	0.	797.0	0.	0.	.0	.0
34	918.8	0.	797.7	0.	0.	.0	.0
35	930.2	0.	798.8	0.	0.	.0	.0
36	947.1	0.	802.1	0.	0.	.0	.0
37	973.2	0.	807.3	0.	0.	.0	.0
38	993.8	0.	811.4	0.	0.	.0	.0
39	1008.9	0.	814.4	0.	0.	.0	.0

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TABLE NO. 27

```
************************************************************
*  Seismic Forces and Forces Due to Surface Pressures for  *
*  Individual Slices for Conventional Computations or the  *
*  First Stage of Multi-Stage Computations.                *
*  (Information is for the Critical Shear Surface in the   *
*  Case of an Automatic Search.)                           *
************************************************************
```

FORCES DUE TO SURFACE PRESSURES

Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
40	1020.2	0.	816.1	0.	0.	.0	.0
41	1027.7	0.	816.6	0.	0.	.0	.0
42	1046.5	0.	821.4	0.	0.	.0	.0
43	1076.5	0.	830.0	0.	0.	.0	.0
44	1095.0	0.	835.4	0.	0.	.0	.0
45	1099.2	0.	836.6	0.	0.	.0	.0
46	1100.0	0.	836.8	0.	0.	.0	.0
47	1103.3	0.	838.7	0.	0.	.0	.0

48	1114.1	0.	845.2	0.	0.	.0	.0
49	1121.9	0.	849.8	0.	0.	.0	.0
50	1123.6	0.	850.5	0.	0.	.0	.0
51	1125.8	0.	851.4	0.	0.	.0	.0
52	1127.9	0.	852.2	0.	0.	.0	.0
53	1129.9	0.	853.0	0.	0.	.0	.0
54	1133.7	0.	854.4	0.	0.	.0	.0
55	1145.3	0.	860.3	0.	0.	.0	.0
56	1162.5	0.	869.6	0.	0.	.0	.0
57	1179.2	0.	881.0	0.	0.	.0	.0
58	1195.5	0.	894.4	0.	0.	.0	.0
59	1211.8	0.	907.7	0.	0.	.0	.0
60	1223.5	0.	917.3	0.	0.	.0	.0
61	1234.5	0.	925.0	0.	0.	.0	.0
62	1243.0	0.	930.7	0.	0.	.0	.0
63	1244.8	0.	932.2	0.	0.	.0	.0
64	1252.8	0.	939.4	0.	0.	.0	.0
65	1267.0	0.	952.3	0.	0.	.0	.0
66	1279.3	0.	963.3	0.	0.	.0	.0
67	1289.8	0.	971.5	0.	0.	.0	.0
68	1300.3	0.	978.9	0.	0.	.0	.0

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TABLE NO. 29

****
* Information Generated During Iterative Solution for the Factor *
* of Safety and Side Force Inclination by Spencer's Procedure *
****

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	15.0000	.1430E+07	-.6618E+09		
First-order corrections to F and THETA					-.381E+01	-.105E+01
Values factored by .131E+00 - Deltas too large					-.500E+00	-.138E+00
2	2.50000	14.8618	.1205E+07	-.5561E+09		
First-order corrections to F and THETA					-.225E+01	-.113E+01
Values factored by .222E+00 - Deltas too large					-.500E+00	-.251E+00
3	2.00000	14.6108	.8707E+06	-.3980E+09		
First-order corrections to F and THETA					-.105E+01	-.127E+01
Values factored by .474E+00 - Deltas too large					-.500E+00	-.600E+00
4	1.50000	14.0110	.3204E+06	-.1348E+09		
First-order corrections to F and THETA					-.233E+00	-.157E+01
Second-order correction - Iteration 1					-.207E+00	-.157E+01
Second-order correction - Iteration 2					-.206E+00	-.157E+01
Second-order correction - Iteration 3					-.206E+00	-.157E+01
5	1.29351	12.4399	-.5941E+04	.1249E+08		
First-order corrections to F and THETA					-.426E-02	-.780E+00
Second-order correction - Iteration 1					-.422E-02	-.780E+00
Second-order correction - Iteration 2					-.422E-02	-.780E+00
6	1.28930	11.6597	.1942E+01	-.6038E+05		
First-order corrections to F and THETA					.447E-04	.496E-02
Second-order correction - Iteration 1					.447E-04	.496E-02
7	1.28934	11.6647	-.2402E+00	.7759E+02		
First-order corrections to F and THETA					.164E-06	.459E-05

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GYPSUM STACK Residuum KFPGAPS3
KIF Seismic=0.110

TABLE NO. 30
2222222222222222222222222222222222222222222222222222222222
2 Detailed Information from Evaluation of Shear Strengths 2
2 for Stage 2 - Information is Only Given for Slices with 2
2 "Two-Stage" Shear Strengths (Strength Options 6 and 7). 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222

Slice No.	Effective Normal Stress at Consol.	Shear Stress at Consol.	Strength (R-Env.)	Strength (S-Env.)	Kc	Kf
1	196.3	63.0	81.3	1362.4	Negative Sigma-3f	
2	570.2	183.2	236.2	1423.0	Negative Sigma-3f	
3	893.6	287.1	370.1	1475.3	Negative Sigma-3f	
4	1089.6	350.0	451.3	1507.1	Negative Sigma-3f	
5	1049.7	652.3	841.0	1117.5	3.282	6.528
6	2251.4	723.3	932.5	1695.2	1.896	5.248
7	4289.9	1378.2	1776.9	2025.4	1.896	2.599
8	6328.3	2033.0	2621.3	2355.6	Used S strength	
9	6973.3	2240.3	2888.5	2460.0	Used S strength	
10	7775.1	2497.8	3220.6	2589.9	Used S strength	
11	8174.6	2626.2	3386.0	2654.6	Used S strength	
12	8050.9	2586.4	3334.8	2634.6	Used S strength	
13	7442.4	2391.0	3082.8	2536.0	Used S strength	
14	6898.7	2216.3	2857.5	2447.9	Used S strength	
15	6844.3	2198.8	2835.0	2439.1	Used S strength	
16	6982.1	2243.1	2892.1	2461.5	Used S strength	
17	7141.5	2294.3	2958.1	2487.3	Used S strength	
18	7321.6	2352.1	3032.7	2516.4	Used S strength	
19	7673.0	2465.0	3178.3	2573.4	Used S strength	
20	7888.3	2534.2	3267.5	2608.2	Used S strength	
21	7762.4	2493.8	3215.3	2587.8	Used S strength	
22	7873.1	2529.3	3261.1	2605.8	Used S strength	
23	8425.6	2706.8	3490.0	2695.3	Used S strength	
24	9007.4	2893.7	3731.0	2789.5	Used S strength	
25	9397.4	3019.0	3892.5	2852.6	Used S strength	
26	9537.3	3063.9	3950.5	2875.3	Used S strength	
27	9427.2	3028.6	3904.9	2857.5	Used S strength	
28	9474.6	3043.8	3924.5	2865.1	Used S strength	
29	9900.7	3180.7	4101.0	2934.2	Used S strength	
30	10268.2	3298.8	4253.2	2993.7	Used S strength	
31	10704.4	3438.9	4433.9	3064.3	Used S strength	
32	11107.9	3568.5	4601.0	3129.7	Used S strength	
33	10688.3	3433.7	4427.2	3061.7	Used S strength	
34	10524.3	3381.1	4359.3	3035.2	Used S strength	
35	10378.1	3334.1	4298.7	3011.5	Used S strength	
36	10596.4	3404.2	4389.2	3046.8	Used S strength	
37	10933.0	3512.3	4528.6	3101.4	Used S strength	
38	11361.7	3650.0	4706.2	3170.8	Used S strength	
39	11719.9	3765.1	4854.5	3228.8	Used S strength	
40	11721.4	3765.6	4855.2	3229.1	Used S strength	
41	10257.9	3295.4	4248.9	2992.0	Used S strength	

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KIF Seismic=0.110

TABLE NO. 30
2222222222222222222222222222222222222222222222222222222222
2 Detailed Information from Evaluation of Shear Strengths 2
2 for Stage 2 - Information is Only Given for Slices with 2
2 "Two-Stage" Shear Strengths (Strength Options 6 and 7). 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2

2222222222222222222222222222222222222222222222222222222222222222

Slice No.	Effective Normal Stress at Consol.	Shear Stress at Consol.	Strength (R-Env.)	Strength (S-Env.)	Kc	Kf
42	10149.2	3260.5	4203.9	2974.4	Used S strength	
43	10195.3	3275.3	4223.0	2981.9	Used S strength	
44	10295.7	3307.6	4264.6	2998.1	Used S strength	
45	10390.1	3337.9	4303.7	3013.4	Used S strength	
46	10410.6	3344.5	4312.2	3016.7	Used S strength	
47	7321.5	2352.1	3032.7	2516.4	Used S strength	
48	7049.0	2264.6	2919.8	2472.3	Used S strength	
49	6779.5	2178.0	2808.2	2428.6	Used S strength	
50	6511.1	2501.2	3224.9	1982.9	Used S strength	
51	6402.7	2463.8	3176.6	1957.6	Used S strength	
52	5889.0	3403.7	4378.6	6895.0	3.106	7.539
53	5819.4	3429.6	4421.9	4493.7	3.063	4.210
54	5735.9	3391.1	4372.3	5021.9	3.129	4.864
55	5708.1	3374.9	4351.4	4998.7	3.129	4.865
56	5783.3	3418.8	4408.0	5061.3	3.128	4.861
57	4005.3	2379.7	3068.2	3580.0	3.143	5.003
58	3946.3	2345.2	3023.7	3530.8	3.144	5.010
59	3887.2	2310.7	2979.2	3481.6	3.145	5.017
60	3845.1	2286.1	2947.5	3446.5	3.145	5.022
61	3657.2	2176.2	2805.9	3289.9	3.148	5.047
62	3477.9	2071.4	2670.8	3140.6	3.150	5.074
63	3470.6	2067.2	2665.3	3134.5	3.151	5.075
64	3147.1	1878.1	2421.5	2865.0	3.156	5.132
65	2817.7	1685.6	2173.3	2590.5	3.164	5.204
66	2146.7	1293.4	1667.7	2031.5	3.185	5.425
67	1414.8	865.6	1116.1	1421.6	3.233	5.942
68	584.2	380.2	490.2	729.6	3.437	8.836

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KIF Seismic=0.110

TABLE NO. 31
2222222222222222222222222222222222222222222222222222222222222222
2 Coordinate, Weight, Strength and Pore Water Pressure 2
2 Information for Individual Slices for Stage 2. 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222222222

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	373.6	749.0					
1	386.4	746.8	7289.0	5	81.29	.00	.0
	399.3	744.6					
2	412.1	742.5	21867.1	5	236.19	.00	.0
	425.0	740.3					
3	435.1	738.6	27644.2	5	370.15	.00	.0
	445.3	736.8					
4	449.7	736.1	14922.9	5	451.32	.00	.0
	454.2	735.3					
5	454.7	735.3	1718.6	1	955.10	.00	.0
	455.3	735.2					
6	470.2	732.6	85949.6	5	1093.40	.00	.0
	485.1	730.1					
7	500.0	727.6	146821.8	5	1916.11	.00	.0
	514.9	725.1					
8	529.8	722.5	207694.2	5	2355.57	.00	.0
	544.7	720.0					
9	552.9	720.0	136849.4	5	2460.04	.00	.0
	561.0	720.0					
10	569.2	720.0	149244.6	5	2589.90	.00	.0

	577.4	720.0					
11	580.0	720.0	48563.7	5	2654.59	.00	.0
	582.5	720.0					
12	590.0	720.0	142114.1	5	2634.56	.00	.0
	597.4	720.0					
13	606.0	720.0	159169.9	5	2536.01	.00	.0
	614.5	720.0					
14	618.0	720.0	63354.5	5	2447.94	.00	.0
	621.5	720.0					
15	621.5	720.0	635.1	5	2439.14	.00	.0
	621.6	720.0					
16	632.3	720.1	202706.5	5	2461.46	.00	.0
	643.0	720.1					
17	643.3	720.1	6692.3	5	2487.27	.00	.0
	643.6	720.1					
18	656.9	720.0	275037.4	5	2516.44	.00	.0
	670.1	720.0					
19	683.3	719.9	301619.0	5	2573.35	.00	.0
	696.5	719.9					
20	698.7	719.9	51706.4	5	2608.23	.00	.0
	700.8	719.9					
21	708.3	719.9	181586.6	5	2587.84	.00	.0
	715.8	719.9					

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KIF Seismic=0.110

TABLE NO. 31
2222222222222222222222222222222222222222222222222222222222
2 Coordinate, Weight, Strength and Pore Water Pressure 2
2 Information for Individual Slices for Stage 2. 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	715.8	719.9					
22	730.8	719.8	379465.7	5	2605.76	.00	.0
	745.8	719.8					
23	760.8	719.7	413701.9	5	2695.25	.00	.0
	775.8	719.7					
24	783.3	719.7	220250.3	5	2789.49	.00	.0
	790.8	719.6					
25	795.4	719.6	138449.2	5	2852.64	.00	.0
	800.0	719.6					
26	803.0	719.6	93039.7	5	2875.30	.00	.0
	806.0	719.6					
27	813.6	719.6	233291.5	5	2857.47	.00	.0
	821.1	719.6					
28	832.6	719.5	369534.1	5	2865.15	.00	.0
	844.2	719.5					
29	855.8	719.5	389934.6	5	2934.17	.00	.0
	867.4	719.4					
30	874.2	719.4	240045.4	5	2993.68	.00	.0
	881.0	719.3					
31	888.6	719.3	272101.7	5	3064.33	.00	.0
	896.1	719.3					
32	901.2	719.2	189398.3	5	3129.68	.00	.0
	906.3	719.2					
33	908.8	719.3	94521.3	5	3061.72	.00	.0
	911.3	719.5					
34	918.8	720.0	283650.3	5	3035.17	.00	.0
	926.3	720.5					
35	930.2	720.7	146859.2	5	3011.48	.00	.0
	934.1	720.9					
36	947.1	721.8	507086.8	5	3046.85	.00	.0
	960.2	722.6					

37	973.2	723.4	527197.4	5	3101.37	.00	.0
	986.3	724.2					
38	993.8	724.7	312657.5	5	3170.79	.00	.0
	1001.3	725.2					
39	1008.9	725.6	322760.3	5	3228.81	.00	.0
	1016.5	726.1					
40	1020.2	726.4	158175.9	5	3229.06	.00	.0
	1023.9	726.6					
41	1027.7	727.4	163235.4	5	2992.01	.00	.0
	1031.5	728.3					
42	1046.5	731.6	639300.2	5	2974.41	.00	.0
	1061.5	734.9					

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KIF Seismic=0.110

TABLE NO. 31
2222222222222222222222222222222222222222222222222222222222
2 Coordinate, Weight, Strength and Pore Water Pressure 2
2 Information for Individual Slices for Stage 2. 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	1061.5	734.9					
43	1076.5	738.2	647294.5	5	2981.87	.00	.0
	1091.5	741.5					
44	1095.0	742.3	151633.2	5	2998.13	.00	.0
	1098.5	743.1					
45	1099.2	743.3	33562.2	5	3013.42	.00	.0
	1100.0	743.4					
46	1100.0	743.4	1772.3	5	3016.75	.00	.0
	1100.1	743.4					
47	1103.3	745.9	139322.1	5	2516.43	.00	.0
	1106.5	748.3					
48	1114.1	754.1	318178.4	5	2472.30	.00	.0
	1121.7	759.8					
49	1121.9	760.0	8136.6	5	2428.64	.00	.0
	1122.1	760.1					
50	1123.6	761.2	58536.6	4	1982.88	.00	.0
	1125.0	762.3					
51	1125.8	762.9	30377.8	4	1957.64	.00	.0
	1126.5	763.5					
52	1127.9	764.5	53735.8	3	5189.00	.00	.0
	1129.2	765.5					
53	1129.9	766.0	26630.4	2	4468.06	.00	.0
	1130.6	766.5					
54	1133.7	768.9	120114.7	1	4730.16	.00	.0
	1136.8	771.2					
55	1145.3	777.7	321221.2	1	4707.85	.00	.0
	1153.9	784.2					
56	1162.5	790.7	307048.5	1	4768.12	.00	.0
	1171.1	797.2					
57	1179.2	807.8	270624.6	1	3342.22	.00	.0
	1187.4	818.5					
58	1195.5	829.2	241238.8	1	3294.84	.00	.0
	1203.7	839.8					
59	1211.8	850.5	211851.4	1	3247.45	.00	.0
	1220.0	861.1					
60	1223.5	865.7	81320.8	1	3213.66	.00	.0
	1226.9	870.2					
61	1234.5	880.0	153369.3	1	3062.73	.00	.0
	1242.0	889.8					
62	1243.0	891.1	17605.0	1	2918.76	.00	.0
	1243.9	892.4					
63	1244.8	893.5	15156.2	1	2912.91	.00	.0

1245.7 894.6

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KIF Seismic=0.110

TABLE NO. 31
2222222222222222222222222222222222222222222222222222222222
2 Coordinate, Weight, Strength and Pore Water Pressure 2
2 Information for Individual Slices for Stage 2. 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	1245.7	894.6					
64	1252.8	905.3	110006.7	1	2652.94	.00	.0
	1259.9	915.9					
65	1267.0	926.5	83261.9	1	2388.05	.00	.0
	1274.1	937.1					
66	1279.3	944.4	44636.2	1	1847.32	.00	.0
	1284.5	951.6					
67	1289.8	958.9	30045.6	1	1254.14	.00	.0
	1295.1	966.3					
68	1300.3	973.6	12690.8	1	564.69	.00	.0
	1305.6	980.9					

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KIF Seismic=0.110

TABLE NO. 32
2222222222222222222222222222222222222222222222222222222222
2 Seismic Forces and Forces Due to Surface Pressures for 2
2 Stage 2 (and Stage 3 If Appropriate). 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222

				FORCES DUE TO SURFACE PRESSURES			
Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
1	386.4	802.	747.9	0.	0.	.0	.0
2	412.1	2405.	745.7	0.	0.	.0	.0
3	435.1	3041.	743.8	0.	0.	.0	.0
4	449.7	1642.	742.5	0.	0.	.0	.0
5	454.7	189.	742.2	0.	0.	.0	.0
6	470.2	9454.	743.8	0.	0.	.0	.0
7	500.0	16150.	747.0	0.	0.	.0	.0
8	529.8	22846.	750.2	0.	0.	.0	.0
9	552.9	15053.	753.5	0.	0.	.0	.0
10	569.2	16417.	756.7	0.	0.	.0	.0
11	580.0	5342.	758.4	0.	0.	.0	.0
12	590.0	15633.	758.3	0.	0.	.0	.0
13	606.0	17509.	756.9	0.	0.	.0	.0
14	618.0	6969.	755.6	0.	0.	.0	.0
15	621.5	70.	755.6	0.	0.	.0	.0
16	632.3	22298.	757.3	0.	0.	.0	.0
17	643.3	736.	759.1	0.	0.	.0	.0
18	656.9	30254.	761.2	0.	0.	.0	.0
19	683.3	33178.	765.4	0.	0.	.0	.0
20	698.7	5688.	767.9	0.	0.	.0	.0
21	708.3	19975.	768.2	0.	0.	.0	.0
22	730.8	41741.	770.6	0.	0.	.0	.0

23	760.8	45507.	775.4	0.	0.	.0	.0
24	783.3	24228.	779.1	0.	0.	.0	.0
25	795.4	15229.	781.0	0.	0.	.0	.0
26	803.0	10234.	782.3	0.	0.	.0	.0
27	813.6	25662.	782.7	0.	0.	.0	.0
28	832.6	40649.	784.6	0.	0.	.0	.0
29	855.8	42893.	788.4	0.	0.	.0	.0
30	874.2	26405.	791.3	0.	0.	.0	.0
31	888.6	29931.	793.6	0.	0.	.0	.0
32	901.2	20834.	795.7	0.	0.	.0	.0
33	908.8	10397.	797.0	0.	0.	.0	.0
34	918.8	31202.	797.7	0.	0.	.0	.0
35	930.2	16155.	798.8	0.	0.	.0	.0
36	947.1	55780.	802.1	0.	0.	.0	.0
37	973.2	57992.	807.3	0.	0.	.0	.0
38	993.8	34392.	811.4	0.	0.	.0	.0
39	1008.9	35504.	814.4	0.	0.	.0	.0

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TABLE NO. 32
2222222222222222222222222222222222222222222222222222222222
2 Seismic Forces and Forces Due to Surface Pressures for 2
2 Stage 2 (and Stage 3 If Appropriate). 2
2 (Information is for the Critical Shear Surface in the 2
2 Case of an Automatic Search.) 2
2222222222222222222222222222222222222222222222222222222222

				FORCES DUE TO SURFACE PRESSURES			
Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
40	1020.2	17399.	816.1	0.	0.	.0	.0
41	1027.7	17956.	816.6	0.	0.	.0	.0
42	1046.5	70323.	821.4	0.	0.	.0	.0
43	1076.5	71202.	830.0	0.	0.	.0	.0
44	1095.0	16680.	835.4	0.	0.	.0	.0
45	1099.2	3692.	836.6	0.	0.	.0	.0
46	1100.0	195.	836.8	0.	0.	.0	.0
47	1103.3	15325.	838.7	0.	0.	.0	.0
48	1114.1	35000.	845.2	0.	0.	.0	.0
49	1121.9	895.	849.8	0.	0.	.0	.0
50	1123.6	6439.	850.5	0.	0.	.0	.0
51	1125.8	3342.	851.4	0.	0.	.0	.0
52	1127.9	5911.	852.2	0.	0.	.0	.0
53	1129.9	2929.	853.0	0.	0.	.0	.0
54	1133.7	13213.	854.4	0.	0.	.0	.0
55	1145.3	35334.	860.3	0.	0.	.0	.0
56	1162.5	33775.	869.6	0.	0.	.0	.0
57	1179.2	29769.	881.0	0.	0.	.0	.0
58	1195.5	26536.	894.4	0.	0.	.0	.0
59	1211.8	23304.	907.7	0.	0.	.0	.0
60	1223.5	8945.	917.3	0.	0.	.0	.0
61	1234.5	16871.	925.0	0.	0.	.0	.0
62	1243.0	1937.	930.7	0.	0.	.0	.0
63	1244.8	1667.	932.2	0.	0.	.0	.0
64	1252.8	12101.	939.4	0.	0.	.0	.0
65	1267.0	9159.	952.3	0.	0.	.0	.0
66	1279.3	4910.	963.3	0.	0.	.0	.0
67	1289.8	3305.	971.5	0.	0.	.0	.0
68	1300.3	1396.	978.9	0.	0.	.0	.0

TABLE NO. 34
2222222222222222222222222222222222222222222222222222222222
2 Information Generated During Iterative Solution for the Factor 2
2 of Safety and Side Force Inclination by Spencer's Procedure 2
2222222222222222222222222222222222222222222222222222222222

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	1.28934	11.6647	.1647E+07	-.9714E+09		
First-order corrections to F and THETA					-.908E+00	.116E+01
Values factored by .551E+00 - Deltas too large					-.500E+00	.641E+00
2	.78934	12.3055	.1769E+06	-.1388E+09		
First-order corrections to F and THETA					-.259E-01	.324E+01
Second-order correction - Iteration 1					-.256E-01	.324E+01
Second-order correction - Iteration 2					-.256E-01	.324E+01
3	.76372	15.5416	-.5955E+03	-.1078E+08		
First-order corrections to F and THETA					.373E-02	.117E+01
Second-order correction - Iteration 1					.374E-02	.117E+01
Second-order correction - Iteration 2					.374E-02	.117E+01
4	.76746	16.7082	-.2084E+01	.2130E+05		
First-order corrections to F and THETA					-.624E-05	-.214E-02
Second-order correction - Iteration 1					-.624E-05	-.214E-02
5	.76745	16.7060	.3616E+00	.1960E+03		
First-order corrections to F and THETA					-.191E-06	-.382E-04
Second-order correction - Iteration 1					-.191E-06	-.382E-04
6	.76745	16.7060	-.2686E-02	-.3991E+02		
First-order corrections to F and THETA					.140E-07	.432E-05

Factor of Safety - - - - - - - - .767
Side Force Inclination - - - - - 16.71
Number of Iterations - - - - - - 6

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TABLE NO. 38
2222222222222222222222222222222222222222222222222222222222222222
2 Final Results for Stresses Along the Shear Surface 2
2 (Results for Critical Shear Surface in Case of a Search.) 2
2222222222222222222222222222222222222222222222222222222222222222

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = .767 Side Force Inclination = 16.71 Degrees

-------- VALUES AT CENTER OF BASE OF SLICE---------

Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	386.4	746.8	341.5	341.5	105.9
2	412.1	742.5	1019.6	1019.6	307.8
3	435.1	738.6	1624.0	1624.0	482.3
4	449.7	736.1	2005.0	2005.0	588.1
5	454.7	735.3	2229.4	2229.4	1244.5
6	470.2	732.6	3642.2	3642.2	1424.7
7	500.0	727.6	6253.0	6253.0	2496.7
8	529.8	722.5	8616.6	8616.6	3069.3
9	552.9	720.0	9049.8	9049.8	3205.5
10	569.2	720.0	9833.2	9833.2	3374.7
11	580.0	720.0	10224.8	10224.8	3459.0
12	590.0	720.0	10256.2	10256.2	3432.9
13	606.0	720.0	9989.5	9989.5	3304.4
14	618.0	720.0	9706.1	9706.1	3189.7
15	621.5	720.0	9725.6	9725.6	3178.2
16	632.3	720.1	10121.8	10121.8	3207.3

17	643.3	720.1	10554.6	10554.6	3240.9
18	656.9	720.0	11065.1	11065.1	3278.9
19	683.3	719.9	12061.0	12061.0	3353.1
20	698.7	719.9	12640.8	12640.8	3398.6
21	708.3	719.9	12714.7	12714.7	3372.0
22	730.8	719.8	13276.9	13276.9	3395.3
23	760.8	719.7	14417.3	14417.3	3511.9
24	783.3	719.7	15284.0	15284.0	3634.7
25	795.4	719.6	15754.6	15754.6	3717.0
26	803.0	719.6	16043.7	16043.7	3746.6
27	813.6	719.6	16150.5	16150.5	3723.3
28	832.6	719.5	16582.7	16582.7	3733.3
29	855.8	719.5	17462.9	17462.9	3823.2
30	874.2	719.4	18201.0	18201.0	3900.8
31	888.6	719.3	18765.2	18765.2	3992.9
32	901.2	719.2	19262.1	19262.1	4078.0
33	908.8	719.3	18827.9	18827.9	3989.5
34	918.8	720.0	18831.5	18831.5	3954.9
35	930.2	720.7	18874.5	18874.5	3924.0
36	947.1	721.8	19359.5	19359.5	3970.1
37	973.2	723.4	20107.2	20107.2	4041.1
38	993.8	724.7	20704.3	20704.3	4131.6
39	1008.9	725.6	21145.1	21145.1	4207.2

1

-------- VALUES AT CENTER OF BASE OF SLICE---------

Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress
40	1020.2	726.4	21329.2	21329.2	4207.5
41	1027.7	727.4	19605.7	19605.7	3898.6
42	1046.5	731.6	19624.7	19624.7	3875.7
43	1076.5	738.2	19867.2	19867.2	3885.4
44	1095.0	742.3	20017.8	20017.8	3906.6
45	1099.2	743.3	20053.5	20053.5	3926.5
46	1100.0	743.4	20063.6	20063.6	3930.9
47	1103.3	745.9	15800.3	15800.3	3278.9
48	1114.1	754.1	15303.4	15303.4	3221.4
49	1121.9	760.0	14945.9	14945.9	3164.5
50	1123.6	761.2	15037.7	15037.7	2583.7
51	1125.8	762.9	14884.7	14884.7	2550.8
52	1127.9	764.5	13165.3	13165.3	6761.3
53	1129.9	766.0	13376.0	13376.0	5821.9
54	1133.7	768.9	12993.7	12993.7	6163.4
55	1145.3	777.7	12469.5	12469.5	6134.4
56	1162.5	790.7	11789.3	11789.3	6212.9
57	1179.2	807.8	8375.5	8375.5	4355.0
58	1195.5	829.2	7168.9	7168.9	4293.2
59	1211.8	850.5	5962.3	5962.3	4231.5
60	1223.5	865.7	5102.0	5102.0	4187.4
61	1234.5	880.0	4204.4	4204.4	3990.8
62	1243.0	891.1	3491.2	3491.2	3803.2
63	1244.8	893.5	3354.6	3354.6	3795.5
64	1252.8	905.3	2316.4	2316.4	3456.8
65	1267.0	926.5	1344.8	1344.8	3111.7
66	1279.3	944.4	1079.3	1079.3	2407.1
67	1289.8	958.9	685.3	685.3	1634.2
68	1300.3	973.6	254.4	254.4	735.8

CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION = .33 (= .326E+00)
SHOULD NOT EXCEED .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION = .89 (= .892E+00)
SHOULD NOT EXCEED .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN = 22.33 (= .223E+02)
SHOULD NOT EXCEED .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .13 (= .133E+00)
SHOULD NOT EXCEED .100E+03
1 UTEXAS3 - VER. 1.209 - 2/28/98 - (C) 1985-1998 S. G. WRIGHT

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Kingston 3 Section A-A, Two-Stage UTEXAS3
GYPSUM STACK Residuum KFPGAPS3
KIF Seismic=0.110

TABLE NO. 39
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2 Final Results for Side Forces and Stresses Between Slices. 2
2 (Results for Critical Shear Surface in Case of a Search.) 2
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SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = .767 Side Force Inclination = 16.71 Degrees

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	399.3	3555.	750.4	ABOVE	4663.1	-3098.4
2	425.0	13931.	748.8	.971	5866.9	-2801.4
3	445.3	26835.	747.9	.907	7284.7	-3054.0
4	454.2	33713.	747.5	.893	7935.9	-3205.9
5	455.3	35354.	747.2	.846	7292.6	-2550.3
6	485.1	89037.	743.5	.423	1461.5	3951.3
7	514.9	182865.	740.2	.310	-500.2	7687.2
8	544.7	299991.	738.3	.277	-1469.8	10180.7
9	561.0	338935.	739.3	.265	-1833.5	10771.2
10	577.4	379338.	740.2	.254	-2169.4	11330.9
11	582.5	392188.	740.5	.258	-2135.4	11607.5
12	597.4	429154.	741.6	.271	-1924.9	12290.8
13	614.5	469780.	743.2	.314	-698.3	12925.7
14	621.5	485779.	743.9	.325	-325.5	12969.9
15	621.6	485939.	744.0	.325	-325.4	12969.9
16	643.0	534183.	746.3	.325	-311.3	12988.6
17	643.6	535725.	746.4	.325	-311.6	12989.9
18	670.1	595467.	749.1	.324	-355.4	13057.5
19	696.5	654279.	751.6	.322	-450.9	13154.5
20	700.8	663792.	752.0	.321	-470.7	13173.0
21	715.8	696406.	753.5	.336	97.1	13223.7
22	745.8	760275.	756.4	.332	-51.8	13267.3
23	775.8	823961.	759.0	.327	-263.4	13388.3
24	790.8	856370.	760.2	.323	-394.8	13487.1
25	800.0	876436.	760.8	.321	-483.5	13561.9
26	806.0	889658.	761.3	.319	-543.0	13612.5
27	821.1	921997.	762.4	.328	-200.3	13740.6
28	844.2	970890.	764.2	.323	-408.3	13865.7
29	867.4	1019673.	765.8	.318	-633.7	14015.7
30	881.0	1049445.	766.6	.314	-777.1	14125.9
31	896.1	1082708.	767.5	.310	-945.5	14266.8
32	906.3	1105627.	768.0	.307	-1065.7	14373.9
33	911.3	1109444.	768.6	.306	-1098.8	14340.5
34	926.3	1120328.	770.3	.313	-838.2	14289.0
35	934.1	1125628.	771.2	.311	-886.3	14225.8
36	960.2	1142383.	774.2	.306	-1064.7	14037.8
37	986.3	1157482.	776.9	.300	-1265.1	13883.0
38	1001.3	1165958.	778.4	.296	-1394.3	13818.0
39	1016.5	1174505.	779.7	.292	-1535.1	13771.1
40	1023.9	1178404.	780.4	.293	-1479.3	13787.0

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---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
41	1031.5	1156174.	782.3	.297	-1324.9	13512.9
42	1061.5	1068275.	789.6	.296	-1247.9	12305.8
43	1091.5	978084.	796.8	.293	-1192.1	11136.6

44	1098.5	956896.	798.4	.293	-1183.1	10872.2
45	1100.0	952227.	798.8	.292	-1181.5	10814.6
46	1100.1	951981.	798.8	.292	-1181.4	10811.6
47	1106.5	877483.	803.6	.296	-998.5	10005.4
48	1121.7	708210.	815.9	.311	-501.6	8031.3
49	1122.1	703891.	816.2	.312	-482.4	7978.7
50	1125.0	670667.	818.9	.319	-317.0	7547.2
51	1126.5	653413.	820.4	.323	-228.0	7317.9
52	1129.2	638195.	821.7	.322	-234.9	7240.8
53	1130.6	629064.	822.5	.323	-220.8	7167.2
54	1136.8	591502.	825.8	.324	-195.2	6908.2
55	1153.9	495333.	834.7	.313	-366.2	6241.4
56	1171.1	411426.	842.6	.294	-600.5	5711.1
57	1187.4	268186.	858.8	.291	-466.2	4180.0
58	1203.7	154113.	875.8	.294	-286.8	2697.7
59	1220.0	69208.	894.6	.314	-71.9	1315.9
60	1226.9	41899.	904.7	.346	30.2	774.1
61	1242.0	734.	1341.0	ABOVE	278.7	-261.2
62	1243.9	-2836.	803.1	BELOW	307.2	-376.6
63	1245.7	-5633.	860.3	BELOW	330.5	-471.4
64	1259.9	-18352.	917.8	.031	531.4	-1117.7
65	1274.1	-11571.	939.5	.054	427.6	-938.7
66	1284.5	-6837.	954.5	.091	294.6	-699.7
67	1295.1	-2760.	969.2	.166	148.6	-445.1
68	1305.6	0.	169.6	BELOW	-14.1	14.1

CHECK SUMS - (ALL SHOULD BE SMALL)

SUM OF FORCES IN VERTICAL DIRECTION = .33 (= .326E+00)
SHOULD NOT EXCEED .100E+03

SUM OF FORCES IN HORIZONTAL DIRECTION = .89 (= .892E+00)
SHOULD NOT EXCEED .100E+03

SUM OF MOMENTS ABOUT COORDINATE ORIGIN = 22.33 (= .223E+02)
SHOULD NOT EXCEED .100E+03

SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .13 (= .133E+00)
SHOULD NOT EXCEED .100E+03

***** CAUTION ***** FORCES BETWEEN SLICES ARE NEGATIVE AT POINTS ALONG THE UPPER ONE-HALF OF THE SHEAR SURFACE - A TENSION CRACK MAY BE NEEDED.

***** CAUTION ***** SOME OF THE FORCES BETWEEN SLICES ACT AT POINTS ABOVE THE SURFACE OF THE SLOPE OR BELOW THE SHEAR SURFACE - EITHER A TENSION CRACK MAY BE NEEDED OR THE SOLUTION MAY NOT BE A VALID SOLUTION.