Test Readings for Specimen No. 1

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
14	0.2500	183.00	183.0	10.0	2.684
15	0.3000	172.00	172.0	12.0	2.523
16	0.3500	172.00	172.0	14.0	2.523

Parameters for Specimen No. 2

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	117.100		158.220
Moisture content: Dry soil+tare, gms.	103.240		135.420
Moisture content: Tare, gms.	15.930		0.000
Moisture, %	15.9	16.8	16.8
Moist specimen weight, gms.	158.2		
Diameter, in.	2.50	2.50	
Area, in.^{2}	4.91	4.91	
Height, in.	1.01	0.94	
Net decrease in height, in.		0.07	
Wet Density, pcf	121.9	132.1	
Dry density, pcf	105.2	113.1	
Void ratio	0.5903	0.4798	
Saturation, %	72.1	94.0	

Test Readings for Specimen No. 2

Normal stress = 7.34 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 5.896 tsf **at reading no.** 14

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	88.00	88.0	0.2	1.291
2	0.0100	121.00	121.0	0.4	1.775
3	0.0200	170.00	170.0	0.8	2.494
4	0.0300	200.00	200.0	1.2	2.934
5	0.0400	230.00	230.0	1.6	3.374
6	0.0500	252.00	252.0	2.0	3.696
7	0.0750	303.00	303.0	3.0	4.444
8	0.1000	335.00	335.0	4.0	4.914
9	0.1250	355.00	355.0	5.0	5.207
10	0.1500	369.00	369.0	6.0	5.412
11	0.1750	375.00	375.0	7.0	5.500
12	0.2000	380.00	380.0	8.0	5.574
13	0.2500	396.00	396.0	10.0	5.808
14	0.2750	402.00	402.0	11.0	5.896
15	0.3000	384.00	384.0	12.0	5.632
16	0.3500	388.00	388.0	14.0	5.691
17	0.4000	392.00	392.0	16.0	5.750

Parameters for Specimen No. 3

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	115.540		168.670
Moisture content: Dry soil+tare, gms.	102.460		148.930
Moisture content: Tare, gms.	14.530		0.000
Moisture, %	14.9	13.3	13.3
Moist specimen weight, gms.	168.7		
Diameter, in.	2.50	2.50	
Area, in.²	4.91	4.91	
Height, in.	1.01	0.93	
Net decrease in height, in.		0.08	
Wet Density, pcf	129.8	139.1	
Dry density, pcf	113.0	122.8	
Void ratio	0.4812	0.3622	
Saturation, %	82.9	98.1	

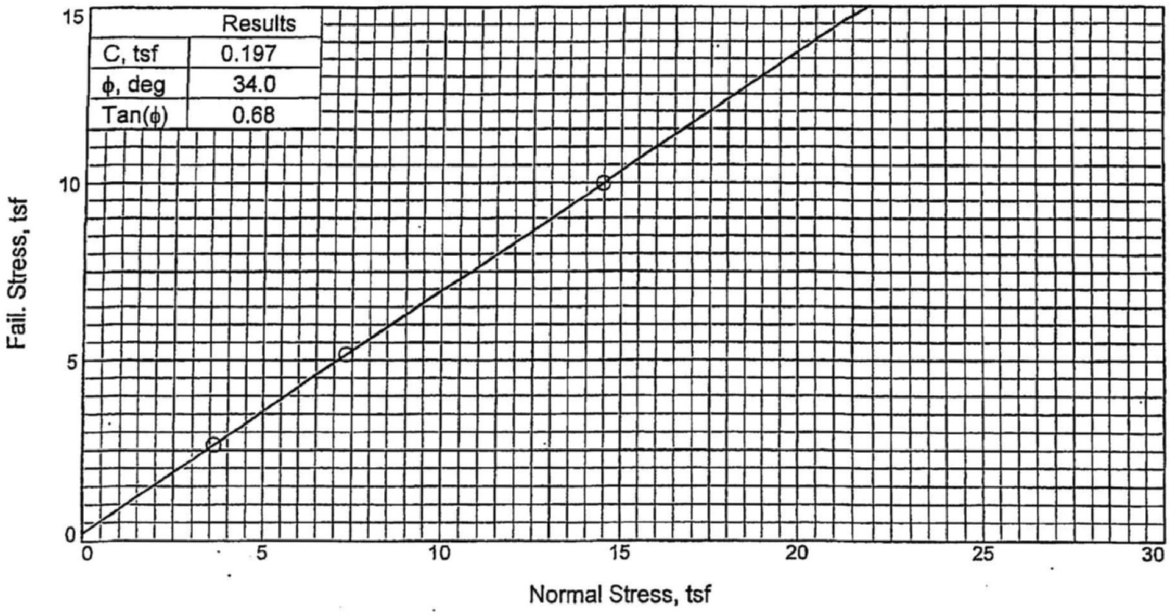
Test Readings for Specimen No. 3

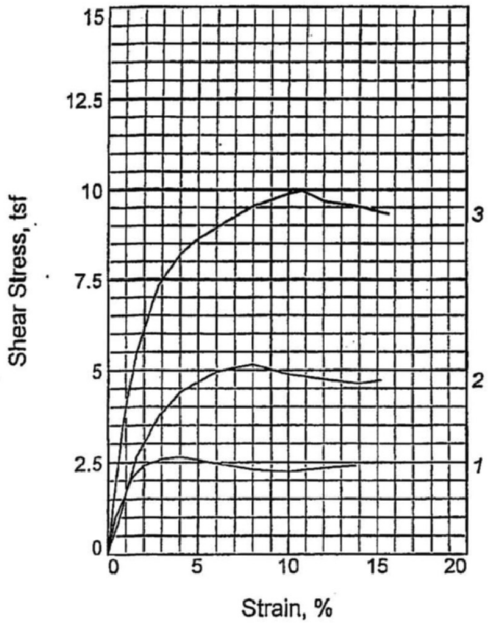
Normal stress = 14.465 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 10.927 tsf at reading no. 13

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	40.00	40.0	0.2	0.587
2	0.0100	128.00	128.0	0.4	1.877
3	0.0200	248.00	248.0	0.8	3.638
4	0.0300	310.00	310.0	1.2	4.547
5	0.0400	355.00	355.0	1.6	5.207
6	0.0500	392.00	392.0	2.0	5.750
7	0.0750	474.00	474.0	3.0	6.952
8	0.1000	543.00	543.0	4.0	7.965
9	0.1500	635.00	635.0	6.0	9.314
10	0.2000	685.00	685.0	8.0	10.047
11	0.2500	720.00	720.0	10.0	10.561
12	0.3000	740.00	740.0	12.0	10.854
13	0.3150	745.00	745.0	12.6	10.927
14	0.3500	687.00	687.0	14.0	10.077
15	0.4000	670.00	670.0	16.0	9.827





Sample No.		1	2	3
Initial	Water Content, %	18.9	17.8	19.0
	Dry Density, pcf	107.6	108.4	106.5
	Saturation, %	90.7	87.2	88.4
	Void Ratio	0.5610	0.5491	0.5770
	Diameter, in.	2.50	2.50	2.50
	Height, in.	1.01	1.00	1.00
At Test	Water Content, %	17.9	14.8	13.5
	Dry Density, pcf	113.7	120.4	123.7
	Saturation, %	100.8	100.8	101.5
	Void Ratio	0.4773	0.3949	0.3570
	Diameter, in.	2.50	2.50	2.50
	Height, in.	0.95	0.90	0.86
Normal Stress, tsf		3.610	7.340	14.470
Fail. Stress, tsf		2.640	5.148	9.974
Strain, %		4.0	8.0	10.8
Ult. Stress, tsf				
Strain, %				
Strain rate, in./min.		0.01	0.01	0.01

Sample Type: Undisturbed
Description: Light Gray Clayey SAND (SC)

LL= 26 **PL=** 17 **PI=** 9
Specific Gravity= 2.69
Remarks: ASTM D 3080-04
Lever arm mechanical shear device was used to perform the test. Samples sheared to the limitation of the machine.
Lab No. 8176

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Location: B-2269UD
Sample Number: UD-16 **Depth:** 280-281.2 Ft.
Proj. No.: 6468-07-1777 **Date:** 12/15/07

DIRECT SHEAR TEST REPORT

MACTEC ENGINEERING AND CONSULTING, INC.

Tested By: BM/HJ **Checked By:** JW JW/HJ 4/2/08

DSC 5-1-08

DIRECT SHEAR TEST

4/2/2008

Date:	12/15/07
Client:	Bechtel
Project:	Exelon Texas COL (Victoria)
Project No.:	6468-07-1777
Location:	B-2269UD
Depth:	280-281.2 Ft. **Sample Number:** UD-16
Description:	Light Gray Clayey SAND (SC)
Remarks:	ASTM D 3080-04
	Lever arm mechanical shear device was used to perform the test. Samples sheared to the limitation of the machine.
Type of Sample:	Undisturbed

Specific Gravity=2.69 LL=26 PL=17 PI=9

Parameters for Specimen No. 1

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	112.750		186.250
Moisture content: Dry soil+tare, gms.	97.430		160.300
Moisture content: Tare, gms.	16.420		15.240
Moisture, %	18.9	17.9	17.9
Moist specimen weight, gms.	166.0		
Diameter, in.	2.50	2.50	
Area, in.^{2}	4.91	4.91	
Height, in.	1.01	0.95	
Net decrease in height, in.		0.05	
Wet Density, pcf	127.9	134.0	
Dry density, pcf	107.6	113.7	
Void ratio	0.5610	0.4773	
Saturation, %	90.7	100.8	

Test Readings for Specimen No. 1

Normal stress = 3.61 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 2.640 tsf at reading no. 6

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0100	68.00	68.0	0.4	0.997
2	0.0200	97.00	97.0	0.8	1.423
3	0.0350	143.00	143.0	1.4	2.097
4	0.0500	164.00	164.0	2.0	2.406
5	0.0750	176.00	176.0	3.0	2.582
6	0.1000	180.00	180.0	4.0	2.640
7	0.1250	175.00	175.0	5.0	2.567
8	0.1500	168.00	168.0	6.0	2.464
9	0.2000	157.00	157.0	8.0	2.303
10	0.2500	153.00	153.0	10.0	2.244
11	0.3000	159.00	159.0	12.0	2.332
12	0.3450	164.00	164.0	13.8	2.406

MACTEC Engineering and Consulting, Inc.

Parameters for Specimen No. 2

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	119.190		183.190
Moisture content: Dry soil+tare, gms.	103.540		161.680
Moisture content: Tare, gms.	15.650		16.350
Moisture, %	17.8	14.8	14.8
Moist specimen weight, gms.	165.4		
Diameter, in.	2.50	2.50	
Area, in.^{2}	4.91	4.91	
Height, in.	1.00	0.90	
Net decrease in height, in.		0.10	
Wet Density, pcf	127.7	138.2	
Dry density, pcf	108.4	120.4	
Void ratio	0.5491	0.3949	
Saturation, %	87.2	100.8	

Test Readings for Specimen No. 2

Normal stress = 7.34 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 5.148 tsf at reading no. 7

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0100	42.00	42.0	0.4	0.616
2	0.0200	85.00	85.0	0.8	1.247
3	0.0400	180.00	180.0	1.6	2.640
4	0.0700	253.00	253.0	2.8	3.711
5	0.1000	299.00	299.0	4.0	4.386
6	0.1500	338.00	338.0	6.0	4.958
7	0.2000	351.00	351.0	8.0	5.148
8	0.2500	333.00	333.0	10.0	4.884
9	0.3000	324.00	324.0	12.0	4.752
10	0.3500	316.00	316.0	14.0	4.635
11	0.3800	322.00	322.0	15.2	4.723

Parameters for Specimen No. 3

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	121.040		177.230
Moisture content: Dry soil+tare, gms.	104.270		157.930
Moisture content: Tare, gms.	15.840		14.640
Moisture, %	19.0	13.5	13.5
Moist specimen weight, gms.	163.8		
Diameter, in.	2.50	2.50	
Area, in.²	4.91	4.91	
Height, in.	1.00	0.86	
Net decrease in height, in.		0.14	
Wet Density, pcf	126.7	140.4	
Dry density, pcf	106.5	123.7	
Void ratio	0.5770	0.3570	
Saturation, %	88.4	101.5	

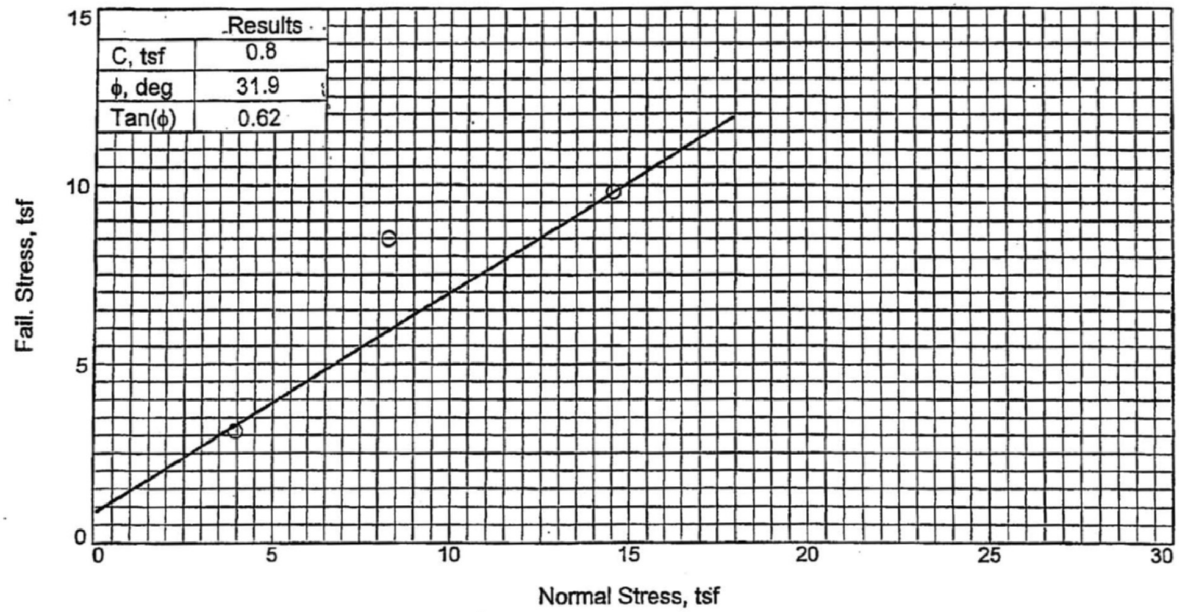
Test Readings for Specimen No. 3

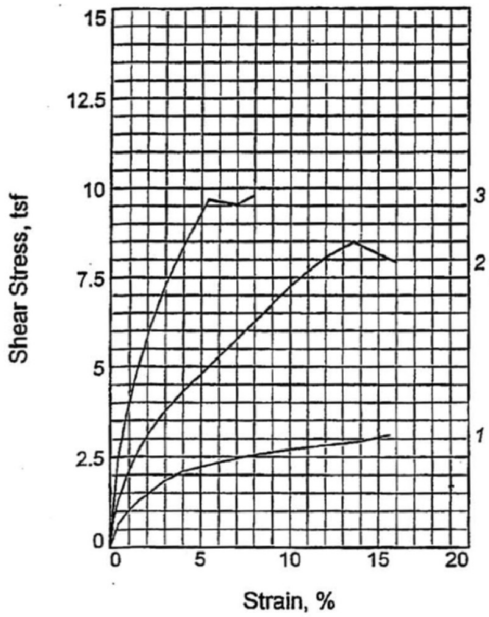
Normal stress = 14.47 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 9.974 tsf at reading no. 10

No.	Horizontal Def. Dial In.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0100	126.00	126.0	0.4	1.848
2	0.0200	235.00	235.0	0.8	3.447
3	0.0400	372.00	372.0	1.6	5.456
4	0.0700	499.00	499.0	2.8	7.319
5	0.1000	558.00	558.0	4.0	8.185
6	0.1200	583.00	583.0	4.8	8.551
7	0.1500	610.00	610.0	6.0	8.947
8	0.2000	650.00	650.0	8.0	9.534
9	0.2500	674.00	674.0	10.0	9.886
10	0.2700	680.00	680.0	10.8	9.974
11	0.3000	660.00	660.0	12.0	9.681
12	0.3500	650.00	650.0	14.0	9.534
13	0.3900	635.00	635.0	15.6	9.314





Sample No.		1	2	3
Initial	Water Content, %	10.1	9.9	11.8
	Dry Density, pcf	111.9	119.4	112.9
	Saturation, %	55.3	67.2	67.0
	Void Ratio	0.4839	0.3910	0.4705
	Diameter, in.	2.50	2.50	2.50
	Height, in.	1.01	1.01	1.01
At Test	Water Content, %	10.5	10.9	9.8
	Dry Density, pcf	119.1	128.4	131.8
	Saturation, %	70.7	98.7	100.1
	Void Ratio	0.3940	0.2931	0.2604
	Diameter, in.	2.50	2.50	2.50
	Height, in.	0.95	0.94	0.86
Normal Stress, tsf		3.960	8.280	14.565
Fail. Stress, tsf		3.110	8.493	9.798
Strain, %		15.6	13.6	8.0
Ult. Stress, tsf				
Strain, %				
Strain rate, in./min.		0.01	0.01	0.01

Sample Type: Undisturbed
Description: Light Gray Clayey SAND with Gravel (SC) (Visual)
LL= NV **PL=** NP **PI=** NP
Specific Gravity= 2.66
Remarks: ASTM D-3080-04. ND=Not determined. Lever arm mechanical shear device was used to perform the test. Samples sheared to the limitation of the machine.
Lab No. 8447

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Location: B-2274UD
Sample Number: UD-12 **Depth:** 221.1-223.6 Ft
Proj. No.: 6468-07-1777 **Date:** 1/10/08

DIRECT SHEAR TEST REPORT

MACTEC ENGINEERING AND CONSULTING, INC.

Remarks: Some of the data points measured are not shown to allow for plotting of failure plane.

Tested By: BM **Checked By:** JW/HJ JCW 7/11/08

KAW 7/11/08

DIRECT SHEAR TEST

7/10/2008

Date: 1/10/08
Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468-07-1777
Location: B-2274UD
Depth: 221.1-223.6 Ft **Sample Number:** UD-12
Description: Light Gray Clayey SAND with Gravel (SC) (Visual)
Remarks: ASTM D-3080-04. ND=Not determined. Lever arm mechanical shear device was used to perform the test. Samples sheared to the limitation of the machine.
Type of Sample: Undisturbed
Specific Gravity=2.66 **LL**=NV **PL**= ND **PI**=NP

Parameters for Specimen No. 1

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	123.730		159.640
Moisture content: Dry soil+tare, gms.	113.180		144.510
Moisture content: Tare, gms.	8.250		0.000
Moisture, %	10.1	10.5	10.5
Moist specimen weight, gms.	159.6		
Diameter, in.	2.50	2.50	
Area, in.²	4.91	4.91	
Height, in.	1.01	0.95	
Net decrease in height, in.		0.06	
Wet Density, pcf	123.2	131.6	
Dry density, pcf	111.9	119.1	
Void ratio	0.4839	0.3940	
Saturation, %	55.3	70.7	

Test Readings for Specimen No. 1

Normal stress = 3.96 tsf
Strain rate, in./min. = 0.01
Fail. Stress = 3.110 tsf **at reading no.** 14

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	20.00	20.0	0.2	0.293
2	0.0100	41.00	41.0	0.4	0.601
3	0.0200	62.00	62.0	0.8	0.909
4	0.0300	76.00	76.0	1.2	1.115
5	0.0400	89.00	89.0	1.6	1.305
6	0.0500	99.00	99.0	2.0	1.452
7	0.0750	125.00	125.0	3.0	1.833
8	0.1000	143.00	143.0	4.0	2.097
9	0.1500	160.00	160.0	6.0	2.347
10	0.2000	174.00	174.0	8.0	2.552
11	0.2500	184.00	184.0	10.0	2.699
12	0.3000	192.00	192.0	12.0	2.816
13	0.3500	199.00	199.0	14.0	2.919

MACTEC Engineering and Consulting, Inc.

Test Readings for Specimen No. 1

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
14	0.3900	212.00	212.0	15.6	3.110

Parameters for Specimen No. 2

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	130.580		170.600
Moisture content: Dry soil+tare, gms.	119.570		153.870
Moisture content: Tare, gms.	8.140		0.000
Moisture, %	9.9	10.9	10.9
Moist specimen weight, gms.	170.6		
Diameter, in.	2.50	2.50	
Area, in.^{2}	4.91	4.91	
Height, in.	1.01	0.94	
Net decrease in height, in.		0.07	
Wet Density, pcf	131.2	142.4	
Dry density, pcf	119.4	128.4	
Void ratio	0.3910	0.2931	
Saturation, %	67.2	98.7	

Test Readings for Specimen No. 2

Normal stress = 8.28 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 8.493 tsf **at reading no.** 13

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	56.00	56.0	0.2	0.821
2	0.0100	84.00	84.0	0.4	1.232
3	0.0200	126.00	126.0	0.8	1.848
4	0.0300	160.00	160.0	1.2	2.347
5	0.0400	187.00	187.0	1.6	2.743
6	0.0500	210.00	210.0	2.0	3.080
7	0.0750	257.00	257.0	3.0	3.770
8	0.1000	294.00	294.0	4.0	4.312
9	0.1500	360.00	360.0	6.0	5.280
10	0.2000	426.00	426.0	8.0	6.248
11	0.2500	495.00	495.0	10.0	7.261
12	0.3000	550.00	550.0	12.0	8.067
13	0.3400	579.00	579.0	13.6	8.493
14	0.4000	540.00	540.0	16.0	7.921

Parameters for Specimen No. 3

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	114.460		163.980
Moisture content: Dry soil+tare, gms.	103.200		149.350
Moisture content: Tare, gms.	8.160		0.000
Moisture, %	11.8	9.8	9.8
Moist specimen weight, gms.	164.0		
Diameter, in.	2.50	2.50	
Area, in.^{2}	4.91	4.91	
Height, in.	1.01	0.86	
Net decrease in height, in.		0.14	
Wet Density, pcf	126.3	144.7	
Dry density, pcf	112.9	131.8	
Void ratio	0.4705	0.2604	
Saturation, %	67.0	100.1	

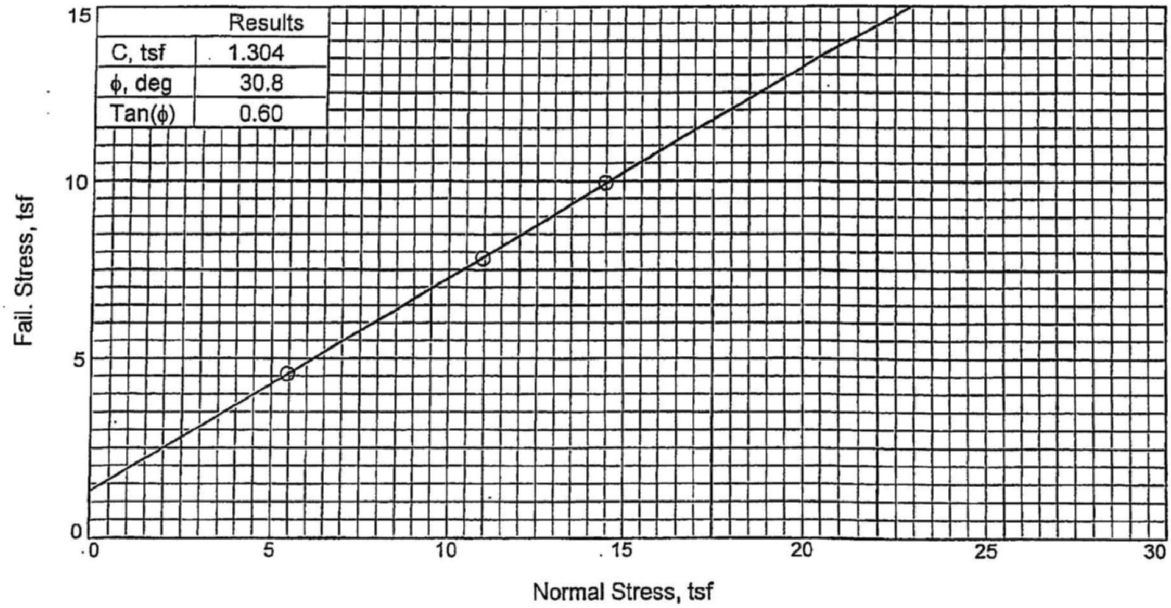
Test Readings for Specimen No. 3

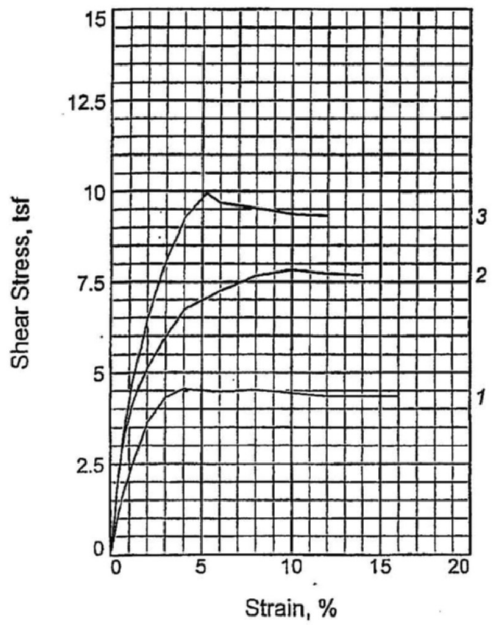
Normal stress = 14.565 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 9.798 tsf **at reading no.** 11

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	88.00	88.0	0.2	1.291
2	0.0100	164.00	164.0	0.4	2.406
3	0.0200	240.00	240.0	0.8	3.520
4	0.0300	301.00	301.0	1.2	4.415
5	0.0400	352.00	352.0	1.6	5.163
6	0.0500	399.00	399.0	2.0	5.852
7	0.0750	498.00	498.0	3.0	7.305
8	0.1000	570.00	570.0	4.0	8.361
9	0.1350	660.00	660.0	5.4	9.681
10	0.1750	650.00	650.0	7.0	9.534
11	0.2000	668.00	668.0	8.0	9.798





	Sample No.	1	2	3
Initial	Water Content, %	13.4	14.4	14.1
	Dry Density, pcf	116.3	111.6	104.0
	Saturation, %	79.8	75.8	60.9
	Void Ratio	0.4547	0.5154	0.6264
	Diameter, in.	2.50	2.50	2.50
	Height, in.	1.00	1.01	1.10
At Test	Water Content, %	13.3	12.3	16.1
	Dry Density, pcf	124.1	125.7	112.5
	Saturation, %	98.9	96.4	86.8
	Void Ratio	0.3635	0.3455	0.5035
	Diameter, in.	2.50	2.50	2.50
	Height, in.	0.94	0.89	1.02
	Normal Stress, tsf	5.450	10.960	14.470
	Fail. Stress, tsf	4.562	7.818	9.945
	Strain, %	4.0	10.0	5.2
	Ult. Stress, tsf			
	Strain, %			
	Strain rate, in./min.	0.01	0.01	0.01

Sample Type: Undisturbed
Description: Light Yellowish Brown Silty SAND (SM) (Visual)
LL= ND **PL=** ND **PI=** ND
Specific Gravity= 2.71
Remarks: ASTM D 3080-04. ND=Not Determined. Lever arm mechanical shear device was used to perform the test. Samples sheared to the limitation of the machine.
Lab No. 8448

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Location: B-2274UD
Sample Number: UD-18 **Depth:** 330.1-332.6 Ft.
Proj. No.: 6468-07-1777 **Date:** 1/17/08

DIRECT SHEAR TEST REPORT

MACTEC ENGINEERING AND CONSULTING, INC.

Tested By: BM **Checked By:** JW/HJ Jcl/ HJ 4/2/08

DSC 5-1-08

DIRECT SHEAR TEST

4/2/2008

Date:	1/17/08
Client:	Bechtel
Project:	Exelon Texas COL (Victoria)
Project No.:	6468-07-1777
Location:	B-2274UD
Depth:	330.1-332.6 Ft. **Sample Number:** UD-18
Description:	Light Yellowish Brown Silty SAND (SM) (Visual)
Remarks:	ASTM D 3080-04. ND=Not Determined. Lever arm mechanical shear device was used to perform the test. Samples sheared to the limitation of the machine.
Type of Sample:	Undisturbed

Specific Gravity=2.71 **LL=ND** **PL=** ND **PI=ND**

Parameters for Specimen No. 1

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	108.510		184.820
Moisture content: Dry soil+tare, gms.	97.660		164.940
Moisture content: Tare, gms.	16.570		15.130
Moisture, %	13.4	13.3	13.3
Moist specimen weight, gms.	170.7		
Diameter, in.	2.50	2.50	
Area, in.^{2}	4.91	4.91	
Height, in.	1.00	0.94	
Net decrease in height, in.		0.06	
Wet Density, pcf	131.9	140.5	
Dry density, pcf	116.3	124.1	
Void ratio	0.4547	0.3635	
Saturation, %	79.8	98.9	

Test Readings for Specimen No. 1

Normal stress = 5.45 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 4.562 tsf **at reading no.** 8

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	32.00	32.0	0.2	0.469
2	0.0100	72.00	72.0	0.4	1.056
3	0.0200	126.00	126.0	0.8	1.848
4	0.0300	168.00	168.0	1.2	2.464
5	0.0400	206.00	206.0	1.6	3.022
6	0.0500	246.00	246.0	2.0	3.608
7	0.0750	293.00	293.0	3.0	4.298
8	0.1000	311.00	311.0	4.0	4.562
9	0.1500	305.00	305.0	6.0	4.474
10	0.2000	308.00	308.0	8.0	4.518
11	0.3000	296.00	296.0	12.0	4.342
12	0.4000	296.00	296.0	16.0	4.342

MACTEC Engineering and Consulting, Inc.

Parameters for Specimen No. 2

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	123.940		178.420
Moisture content: Dry soil+tare, gms.	110.290		160.700
Moisture content: Tare, gms.	15.640		16.480
Moisture, %	14.4	12.3	12.3
Moist specimen weight, gms.	165.8		
Diameter, in.	2.50	2.50	
Area, in.²	4.91	4.91	
Height, in.	1.01	0.89	
Net decrease in height, in.		0.11	
Wet Density, pcf	127.7	141.2	
Dry density, pcf	111.6	125.7	
Void ratio	0.5154	0.3455	
Saturation, %	75.8	96.4	

Test Readings for Specimen No. 2

Normal stress = 10.96 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 7.818 tsf at reading no. 11

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	62.00	62.0	0.2	0.909
2	0.0100	132.00	132.0	0.4	1.936
3	0.0200	228.00	228.0	0.8	3.344
4	0.0300	281.00	281.0	1.2	4.122
5	0.0400	318.00	318.0	1.6	4.664
6	0.0500	348.00	348.0	2.0	5.104
7	0.0750	407.00	407.0	3.0	5.970
8	0.1000	458.00	458.0	4.0	6.718
9	0.1500	494.00	494.0	6.0	7.246
10	0.2000	522.00	522.0	8.0	7.657
11	0.2500	533.00	533.0	10.0	7.818
12	0.3000	526.00	526.0	12.0	7.715
13	0.3500	524.00	524.0	14.0	7.686

MACTEC Engineering and Consulting, Inc.

Parameters for Specimen No. 3

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	109.790		183.840
Moisture content: Dry soil+tare, gms.	98.290		160.630
Moisture content: Tare, gms.	16.590		16.790
Moisture, %	14.1	16.1	16.1
Moist specimen weight, gms.	168.0		
Diameter, in.	2.50	2.50	
Area, in.²	4.91	4.91	
Height, in.	1.10	1.02	
Net decrease in height, in.		0.08	
Wet Density, pcf	118.7	130.7	
Dry density, pcf	104.0	112.5	
Void ratio	0.6264	0.5035	
Saturation, %	60.9	86.8	

Test Readings for Specimen No. 3

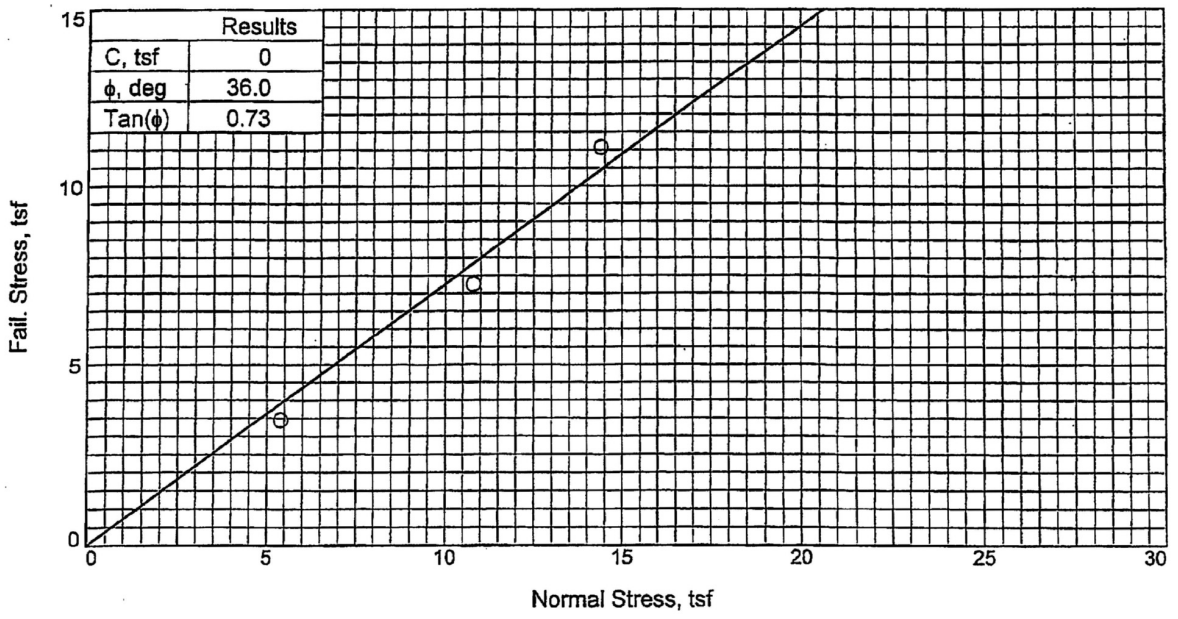
Normal stress = 14.47 tsf

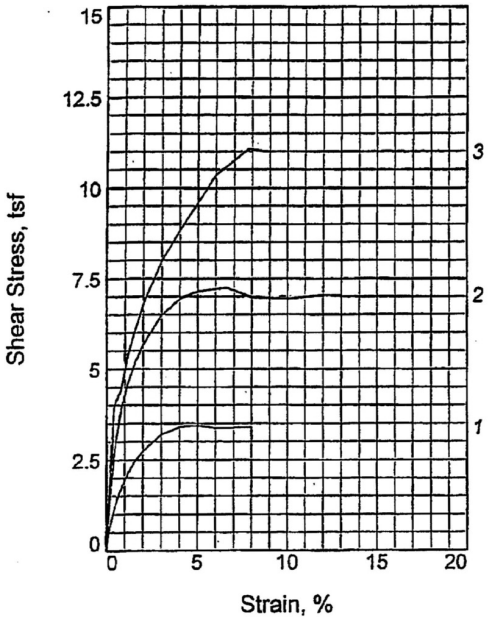
Strain rate, in./min. = 0.01

Fail. Stress = 9.945 tsf at reading no. 9

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	60.00	60.0	0.2	0.880
2	0.0100	144.00	144.0	0.4	2.112
3	0.0200	244.00	244.0	0.8	3.579
4	0.0300	325.00	325.0	1.2	4.767
5	0.0400	380.00	380.0	1.6	5.574
6	0.0500	440.00	440.0	2.0	6.454
7	0.0750	550.00	550.0	3.0	8.067
8	0.1000	630.00	630.0	4.0	9.241
9	0.1300	678.00	678.0	5.2	9.945
10	0.1500	660.00	660.0	6.0	9.681
11	0.2000	650.00	650.0	8.0	9.534
12	0.2500	638.00	638.0	10.0	9.358
13	0.3000	635.00	635.0	12.0	9.314

MACTEC Engineering and Consulting, Inc.





Sample No.		1	2	3
Initial	Water Content, %	18.9	20.7	22.0
	Dry Density, pcf	106.5	104.1	103.4
	Saturation, %	88.1	90.9	94.7
	Void Ratio	0.5768	0.6127	0.6242
	Diameter, in.	2.50	2.50	2.50
	Height, in.	1.00	1.01	1.01
At Test	Water Content, %	17.7	16.8	18.9
	Dry Density, pcf	113.0	115.4	110.6
	Saturation, %	98.1	99.3	98.4
	Void Ratio	0.4858	0.4555	0.5178
	Diameter, in.	2.50	2.50	2.50
	Height, in.	0.95	0.91	0.94
Normal Stress, tsf		5.400	10.800	14.400
Fail. Stress, tsf		3.447	7.246	11.074
Strain, %		5.0	6.6	7.8
Ult. Stress, tsf				
Strain, %				
Strain rate, in./min.		0.01	0.01	0.01

Sample Type: Undisturbed
Description: Light Yellowish Brown Silty SAND (SM) (Visual)
LL= NV **PL=** NP **PI=** NP
Specific Gravity= 2.69
Remarks: ASTM D 3080-04. ND=Not Determined. Lever arm mechanical shear device was used to perform the test. Samples sheared to the limitation of the machine.
Lab No. 8449

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Location: B-2274UD
Sample Number: UD-19 **Depth:** 350.1-352.6 Ft
Proj. No.: 6468-07-1777 **Date:** 2/15/08

DIRECT SHEAR TEST REPORT

MACTEC ENGINEERING AND CONSULTING, INC.

Remarks: Some of the data points measured are not shown to allow for plotting of failure plane.

Tested By: BM **Checked By:** JW/HJ JW 7/11/08

KAW 7/11/08

DIRECT SHEAR TEST

7/10/2008

Date: 2/15/08
Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468-07-1777
Location: B-2274UD
Depth: 350.1-352.6 Ft **Sample Number:** UD-19
Description: Light Yellowish Brown Silty SAND (SM) (Visual)
Remarks: ASTM D 3080-04. ND=Not Determined. Lever arm mechanical shear device was used to perform the test. Samples sheared to the limitation of the machine.
Type of Sample: Undisturbed
Specific Gravity=2.69 **LL**=NV **PL**= NP **PI**=NP

Parameters for Specimen No. 1

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	121.350		163.900
Moisture content: Dry soil+tare, gms.	103.380		139.240
Moisture content: Tare, gms.	8.240		0.000
Moisture, %	18.9	17.7	17.7
Moist specimen weight, gms.	163.9		
Diameter, in.	2.50	2.50	
Area, in.^{2}	4.91	4.91	
Height, in.	1.00	0.95	
Net decrease in height, in.		0.06	
Wet Density, pcf	126.6	133.0	
Dry density, pcf	106.5	113.0	
Void ratio	0.5768	0.4858	
Saturation, %	88.1	98.1	

Test Readings for Specimen No. 1

Normal stress = 5.4 tsf
Strain rate, in./min. = 0.01
Fail. Stress = 3.447 tsf **at reading no.** 9

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	48.00	48.0	0.2	0.704
2	0.0100	78.00	78.0	0.4	1.144
3	0.0200	116.00	116.0	0.8	1.701
4	0.0300	145.00	145.0	1.2	2.127
5	0.0400	170.00	170.0	1.6	2.494
6	0.0500	186.00	186.0	2.0	2.728
7	0.0750	218.00	218.0	3.0	3.198
8	0.1000	232.00	232.0	4.0	3.403
9	0.1250	235.00	235.0	5.0	3.447
10	0.1500	230.00	230.0	6.0	3.374
11	0.2000	232.00	232.0	8.0	3.403

MACTEC Engineering and Consulting, Inc.

Parameters for Specimen No. 2

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	116.220		162.810
Moisture content: Dry soil+tare, gms.	99.130		139.370
Moisture content: Tare, gms.	16.580		0.000
Moisture, %	20.7	16.8	16.8
Moist specimen weight, gms.	162.8		
Diameter, in.	2.50	2.50	
Area, in.^{2}	4.91	4.91	
Height, in.	1.01	0.91	
Net decrease in height, in.		0.10	
Wet Density, pcf	125.7	134.8	
Dry density, pcf	104.1	115.4	
Void ratio	0.6127	0.4555	
Saturation, %	90.9	99.3	

Test Readings for Specimen No. 2

Normal stress = 10.80 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 7.246 tsf at reading no. 10

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	108.00	108.0	0.2	1.584
2	0.0100	180.00	180.0	0.4	2.640
3	0.0200	265.00	265.0	0.8	3.887
4	0.0300	316.00	316.0	1.2	4.635
5	0.0400	356.00	356.0	1.6	5.222
6	0.0500	386.00	386.0	2.0	5.662
7	0.0750	442.00	442.0	3.0	6.483
8	0.1000	473.00	473.0	4.0	6.938
9	0.1250	487.00	487.0	5.0	7.143
10	0.1650	494.00	494.0	6.6	7.246
11	0.2000	476.00	476.0	8.0	6.982
12	0.2500	473.00	473.0	10.0	6.938
13	0.3000	480.00	480.0	12.0	7.041
14	0.3250	480.00	480.0	13.0	7.041

Parameters for Specimen No. 3

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	123.040		163.780
Moisture content: Dry soil+tare, gms.	103.690		137.690
Moisture content: Tare, gms.	15.660		0.000
Moisture, %	22.0	18.9	18.9
Moist specimen weight, gms.	163.8		
Diameter, in.	2.50	2.50	
Area, in.²	4.91	4.91	
Height, in.	1.01	0.94	
Net decrease in height, in.		0.07	
Wet Density, pcf	126.1	131.6	
Dry density, pcf	103.4	110.6	
Void ratio	0.6242	0.5178	
Saturation, %	94.7	98.4	

Test Readings for Specimen No. 3

Normal stress = 14.4 tsf

Strain rate, in./min. = 0.01

Fail. Stress = 11.074 tsf **at reading no.** 10

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress tsf
0	0.0000	0.00	0.0	0.0	0.000
1	0.0050	144.00	144.0	0.2	2.112
2	0.0100	270.00	270.0	0.4	3.960
3	0.0200	302.00	302.0	0.8	4.430
4	0.0300	370.00	370.0	1.2	5.427
5	0.0400	418.00	418.0	1.6	6.131
6	0.0500	462.00	462.0	2.0	6.776
7	0.0750	544.00	544.0	3.0	7.979
8	0.1000	602.00	602.0	4.0	8.830
9	0.1500	706.00	706.0	6.0	10.355
10	0.1950	755.00	755.0	7.8	11.074
11	0.2250	750.00	750.0	9.0	11.001

Consolidation Tests (Load Controlled)