

DIRECT SIMPLE SHEAR TEST (ASTM D 6528-07): Specimen Calculations & Summary

Project Number: 0411-08-1686 Test Station No.: 9G File Name: Comp-Ak
 Task Number: NA Specific Gravity: 2.659 ☒ Measured; ☐ Assumed
 Type Test: SDSS Specimen: ☐ "Undisturbed"; ☒ Reconstituted; ☒ Remolded Boring No.: TP2319/TP2334
 Calculations Corr. for Salt (dissolved solids): ☒ No or, ☐ Yes, with concentration = _____ ppm Sample No.: Comp-AK

Consolidation Stress Summary and Loading Summary							
Test Stage:	Max. Stress	Pre-Shear	Post Cyclic	☒	Static Strain Rate = <u>NA</u> (%/hr or)		
Nominal Vertical Stress, σ_v (ksf)	<u>NA</u>	<u>17.28</u>	<u>NA</u>		Cyclic Rate (Hz):	<u>0.1;</u>	<u>1;</u> Other =
Axial/Vertical Force, $P_{v,n}$ (lbf)	<u>NA</u>	<u>NA</u>	<u>NA</u>		During/End of Loading		
Horizontal Force, $P_{h,n}$ (lbf)	<u>NA</u>	<u>0</u>	<u>NA</u>		Change in Height, $\Delta H_{L,n}$ (mm)		
Nominal OCR	<u>NA</u>	<u>NA</u>	<u>NA</u>		Change in Vol., $\Delta V_{L,n}$ (cm ³)		
t_c (ON, days, hrs)	<u>NA</u>	<u>1.57 days</u>	<u>NA</u>		Post Cy. Displ. Reset to Null Position:		
						<u>Yes;</u>	<u>No</u>
Undrained ambient stress applied: with Delta shear force (lbf) = <u>NA</u> & Duration (min) = <u>NA</u> & Delta disp., $\Delta d_{h,ua}$ (mm) = <u>NA</u>							

Trimmed Specimen (TS) - Initial Water Contents over Saturation (%):					
Top, $W_{o,1}$	Bottom, $W_{o,2}$	Sides, $W_{o,3}$	Avg., $W_{o,avg}$	Select., $W_{o,s}$	Back Cal.
W_o 15.65			15.65	15.65	15.74
S_o 104.7			104.7	104.7	105.0
Measured final mass of moist soil, M_{lat} (g)					140.08
Final mass of moist soil corrected for excess dry soil, $M_{lat,c}$ (g)					140.08

Calculated Mass of Dry Soil (g)	
Initial Selected Water Content (%)	15.65
Initial, $M_{d,o}$	122.18
Final, $M_{d,at}$	122.08
Selected, M_d	122.13

Initial Back Cal. Specific Gravity (TS):	
Selected S_o (%)	
Selected W_o (%)	
Specific Gravity, $G_{s,bc}$	

Height/Volume Change Summary			
Variation in Height & Volume During Consol.	During Initial Consol. to $\sigma'_{v,c}$ or $\sigma'_{vc,max}$	During Rebound to $\sigma'_{v,c}$	Specimen Unloaded After Test To
Stress Units (ksf)	<u>17.280</u>	<u>NA</u>	<u>NA</u>
Sign Convention: (+) ΔV out & ΔH down; (-) ΔV in & ΔH up			
Delta Def. Read., $\Delta d_{ar,n}$ (mm)	<u>1.590</u>		
Total Equip. Comp., $\Sigma \Delta d_{af,c}$ (mm)	<u>0.000</u>		
Corr. Total Def. $\Delta H_{c,n}$ (mm)	<u>1.590</u>		
ΔV_n using A_o - spec. (cm ³)	<u>5.51</u>		
ΔV_n using $A_{c,n}$ - app. (cm ³)	<u>5.51</u>		
ΔV_n using burette meas. (cm ³)	<u>3.30</u>		
Selected ΔV_n (cm ³)	<u>5.51</u>	<u>NA</u>	<u>NA</u> = ΔV_{UL}
After Test WC Corr. for ΔV during Shear & Unloading, $W_{at,c}$ (%)			<u>NA</u>

Calculation of ΔV_c by Different Procedures			
By Selected Volumes		By Change in Mass	
ΔV_c (cm ³)	<u>5.51</u>	$\sim M_{t,c} - (M_{lat,c} + \Delta V_L + \Delta V_{UL})$	
By Cal. Height & App. Area		ΔV_c (cm ³)	<u>1.22</u>
ΔV_c (cm ³)	<u>5.51</u>	By Saturation = 100% and Spec. Unloaded to 0 Stress	
By Cal. Ht. & Init. Spec. Area		ΔV_c (cm ³)	<u>NA</u>
ΔV_c (cm ³)	<u>5.51</u>		

Back Cal. Water Content During Consol. - Based on the Consolidation Conclusions Given Below	
Assumed Saturation (%)	100.00
Back Cal. WC before Loading, $W_{c,bc}$ (%)	10.46
Back Cal. WC at Max. Stress, $W_{c,max,bc}$ (%)	NA

Consolidation & Preshear Conclusions	ΔV_c (cm ³) =	<u>5.51</u>	ΔH_c (mm) =	<u>1.590</u>	$\epsilon_{a,c}$ (%) =	<u>8.57</u>	$\Delta V_{c,max}$ (cm ³) =	<u>NA</u>
	V_c (cm ³) =	<u>58.82</u>	H_c (mm) =	<u>16.960</u>	$\epsilon_{v,c}$ (%) =	<u>8.56</u>	$\epsilon_{ac,max}$ (%) =	<u>NA</u>
	A_c (cm ²) =	<u>34.68</u>	$\Delta \gamma_c$ (mm) =	<u>NA</u>	γ_c (%) =	<u>NA</u>	Preshear: γ_{us} (%) =	<u>NA</u>

Summary of Specimen Physical Properties:								
Specific Gravity: $G_s = 2.659$ Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Total Unit Weight (pcf)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio, e
Condition:								
Initial (as trimmed)	<u>18.550</u>	<u>64.32</u>	<u>34.68</u>	<u>15.7</u>	<u>137.1</u>	<u>118.5</u>	<u>104.9</u>	<u>0.400</u>
After to $\sigma'_{v,c}$	<u>16.960</u>	<u>58.82</u>	<u>34.68</u>	<u>10.5</u>	<u>143.2</u>	<u>129.6</u>	<u>100.0</u>	<u>0.280</u>
Consol.: to $\sigma'_{vc,max}$	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

LCA-Method: 1- Initial measured value remains constant. 4 - Based on change in height & volume. Calculated By: LF
 & Note(s) 2 - Initial measured value corrected for applied stress. NA - Not Applicable Reviewed By: HP HP
 3 - Uses measured value at appropriate stress level (NA for rings).
 Remarks: t95 for max stress = 198.1 min

Project Number: 0411-08-1686 Test Type: SDSS Test Sta. No.: 9G File Name: Comp-Ak
 Project Name: Exelon (Victoria) Task No.: NA Test No.: NA Test Series for: NA

☐ Tube	☐ Field Extruded	☐ Liner	☒ Remolded	☒ Tamping	☒ Constant Effort:	Blows/Tamps per Layer = <u>11</u>
Boring No.: <u>TP2319/TP2334</u>	☐ LPC Core			☐ Impact/Rammer	Rammer Wgt.(lb)= <u> </u>	No. Layers = <u>3.00</u>
Sample No.: <u>Comp-A</u>	Composite No.: <u> </u>			☐ Pluviated:	Tamper Force (lb)= <u>4.00</u>	Drop (in.) = <u>12.00</u>
Depth (ft): <u>NA</u>	Specimen No.: <u>K</u>			☐ Kneading	☒ Undercompaction:	U _{ni} (%) = <u> </u> Dia. (in.) = <u>1.40</u>
☐ Spec. Selection by X-ray;	☐ Geomarine Sample				Ref. Effort= MOD	% Comp. = <u>95.0</u> ± Opt.= <u>+4</u>

Type Consolidation:	☒ K _o at:	☒ Incremental CRS	☐ Anisotropic at:	☐ Inclined Stress Path, K _{c,DSS}	☐ Used Automated System
Loading Conditions:	☒ Static	☒ Strain Stress	☐ Creep Post Cyclic	☒ Const. Vol./Ht Drained	☒ Without - Water Bath
	☐ Dynamic				☐ Cyclic (Hz) Rate: <u>0.1</u> ;
					Strain <u>1</u> ; Other: <u> </u>

Summary of Specimen Physical Properties										
Specific Gravity: G _s = <u>2.659</u> Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Total (pcf)	Dry (pcf)	Saturation (%)	LL PL	-200 %	Void Ratio, e
Condition: Initial	18.55	64.32	34.68	15.69	137.1	118.5	104.9	34	46.4	0.400
After to $\sigma'_{v,c}$	16.96	58.82	34.68	10.46	143.2	129.6	100.0	12	NA	0.280
Consol.: to $\sigma'_{v,c,max}$	NA	NA	NA	NA	NA	NA	NA	22	NA	NA

Consolidation Stress Summary and Loading Summary										
Item	Unit	Max. Stress	Pre-Shear	Post Cyclic	X	Static Strain Rate = 4.7 %/hr.				
Vert. Consol. Stress, $\sigma'_{v,c}$	(ksf)	NA	17.425	NA		Cyclic Rate (Hz):	0.1;	1;	Other =	
Induced OCR:	-	NA	NA	NA		During/End of Loading		Static	Cyclic	
Axial Strain during Consol., $\epsilon_{a,c}$	%	NA	8.57	NA		Change in Height, $\Delta H_{L,n}$ (mm):		NA	NA	
Horiz. Consol. Stress, $\tau_{h,c}$	(ksf)	NA	NA	NA		Change in Vol., $\Delta V_{L,n}$ (cm ³):		NA	NA	
Consol. Stress Ratio, $\tau_{h,c} / \sigma'_{v,c}$	-	NA	NA	NA		Post Cy.Displ. Reset to Null Pos.:		Yes;	No	
Shear Strain during Consol., $\epsilon_{h,c}$	%	NA	NA	NA		Number of Loading Cycles, N = NA				
Undr. Ambient Shear Stress, $\tau_{h,un}$	(ksf)	NA	NA	NA		$\pm \tau_h =$ NA (ksf) $\pm \gamma =$ NA %				
Undr. Ambient Shear Strain, ϵ_{un}	%	NA	NA	NA		at end of cyclic loading, $\sigma'_{vcy,f} =$ NA (ksf)				

Weight Top Cap, etc., M _{tc} (lb): <u>1.17</u>	Data Normalization: ☒ Yes ☐ No Value: <u>17.425</u> (ksf)
Data corr. for M _{tc} : ☒ Yes; ☐ No	Plattens with Pins: ☐ Yes; ☒ No
Wire Reinforced Membrane, Model: <u> </u>	Data corr. for Membr. strength: ☒ Yes ☐ No
☒ Regular Membrane with Rings	☒ Pre-Shear Conditions ☐ Post-Cyclic Conditions
	Maximum Stress during Consol. ☐ <u> </u>

Notes: See Fugro South, Inc. Notation Listing for definition of symbols and acronyms.

F or G in the Test Sta. No. indicates Fugro or GEOTAC apparatus.

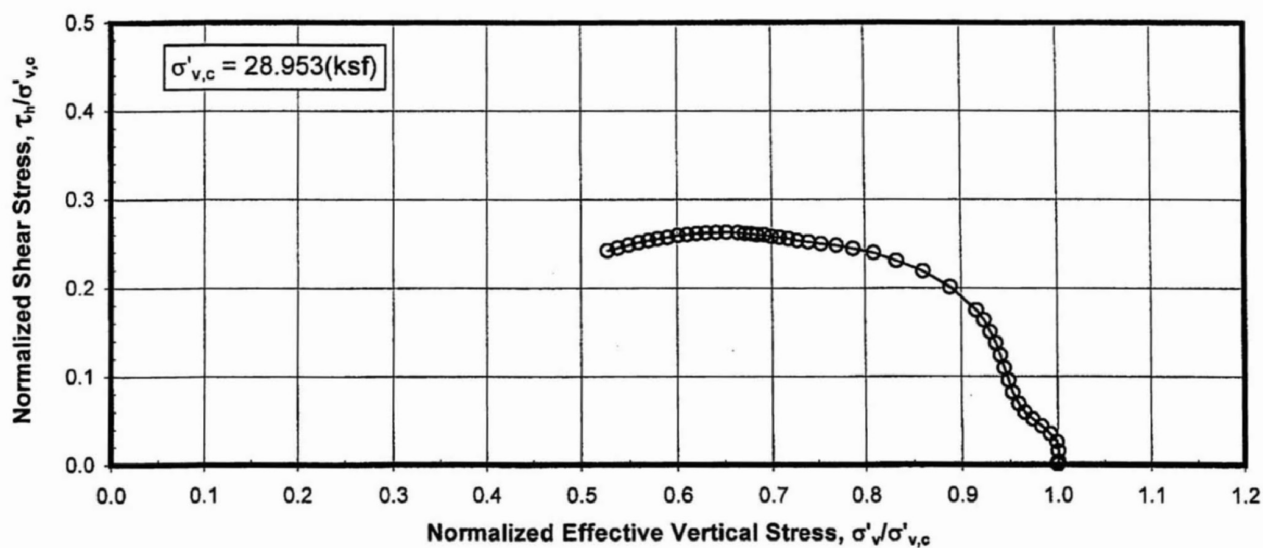
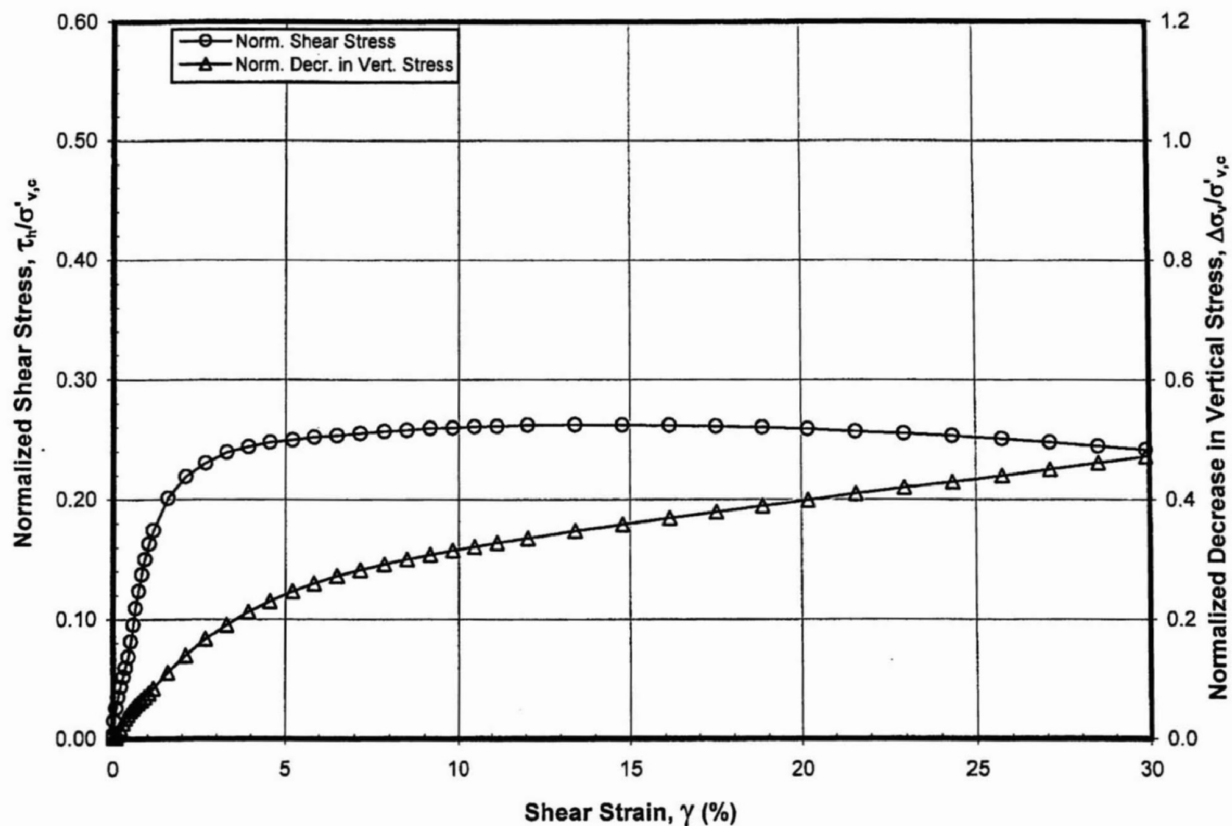
NA - Not Applicable

Final Visual Description and Remarks: Light Brown Clayey SAND (SC)

Loading Summary						
	τ_h (ksf)	γ (%)	σ'_v (ksf)	τ_h / σ'_v -	$\Delta \sigma'_v / \sigma'_{v,c}$ -	$c_u / \sigma'_{v,c}$ -
at Peak Shear Stress	4.341	11.64	10.183	0.426	0.416	0.249
at Maximum Strain	3.886	29.59	8.002	0.486	0.541	-

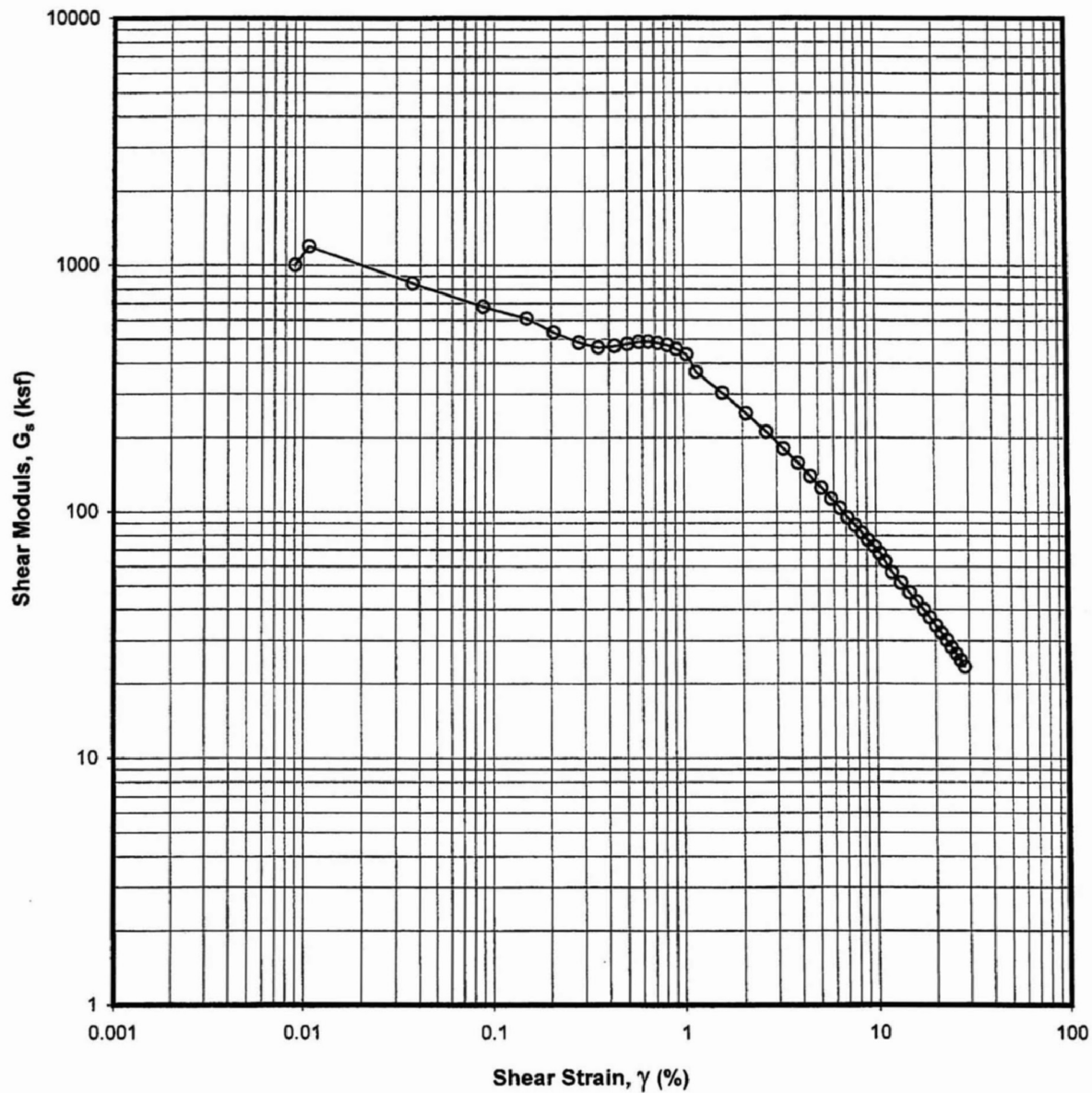
Boring No.: TP2319/TP2334 Sample No.: Comp-AK

Elapsed Time (min)	Shear Strain γ (%)	Shear Stress τ_h (ksf)	Effective Vertical Stress σ'_v (ksf)	Calculated Pore Press. Change $\Delta U = \Delta \sigma'_v$ (ksf)	Secant Shear Modulus G_s (ksf)	Tangent Modulus G_T (ksf)	Norm. Shear Stress $\tau_h/\sigma'_{v,c}$	Norm. Vert. Stress $\sigma'_v/\sigma'_{v,c}$	Norm. Decr. in V. Stress $\Delta \sigma'_v/\sigma'_{v,c}$	Stress Ratio Angle ϕ'_{DSS} (°)
0.0	0.00	-0.022	17.425	0.000	-	-	-0.001	1.000	0.000	-0.07
2.7	0.01	0.279	17.400	0.025	4998.744	2837.346	0.016	0.999	0.001	0.92
5.4	0.05	0.591	17.395	0.031	1174.656	559.978	0.034	0.998	0.002	1.95
8.1	0.11	0.833	17.351	0.075	801.489	384.269	0.048	0.996	0.004	2.75
10.8	0.18	1.078	17.230	0.195	604.254	304.474	0.062	0.989	0.011	3.58
13.5	0.26	1.308	17.129	0.296	505.563	282.127	0.075	0.983	0.017	4.37
16.2	0.35	1.542	16.992	0.433	451.156	253.103	0.089	0.975	0.025	5.19
18.9	0.44	1.756	16.850	0.575	403.065	128.305	0.101	0.967	0.033	5.95
21.6	0.60	1.803	16.576	0.849	305.243	33.072	0.103	0.951	0.049	6.21
24.3	0.80	1.877	16.548	0.877	236.167	134.782	0.108	0.950	0.050	6.47
27.0	0.93	2.173	16.512	0.913	235.827	236.635	0.125	0.948	0.052	7.50
29.7	1.04	2.439	16.366	1.060	236.230	211.206	0.140	0.939	0.061	8.48
32.4	1.17	2.680	16.170	1.255	230.225	178.490	0.154	0.928	0.072	9.41
35.1	1.30	2.903	15.981	1.444	224.701	166.486	0.167	0.917	0.083	10.30
37.8	1.43	3.103	15.758	1.667	218.884	147.778	0.178	0.904	0.096	11.14
40.5	1.56	3.290	15.544	1.881	211.726	125.139	0.189	0.892	0.108	11.95
43.2	1.72	3.472	15.276	2.149	202.593	92.957	0.199	0.877	0.123	12.80
45.9	1.91	3.606	14.987	2.438	189.927	58.636	0.207	0.860	0.140	13.53
54.0	2.46	3.854	14.203	3.222	157.435	36.388	0.221	0.815	0.185	15.18
62.1	3.06	4.019	13.538	3.888	132.274	20.120	0.231	0.777	0.223	16.54
70.2	3.70	4.099	12.954	4.471	111.310	11.960	0.235	0.743	0.257	17.56
78.3	4.33	4.172	12.508	4.917	96.776	7.570	0.239	0.718	0.282	18.45
86.4	5.01	4.197	12.093	5.332	84.155	4.305	0.241	0.694	0.306	19.14
94.4	5.63	4.228	11.778	5.648	75.429	3.468	0.243	0.676	0.324	19.75
102.5	6.33	4.241	11.454	5.971	67.317	2.172	0.243	0.657	0.343	20.32
110.6	6.96	4.257	11.207	6.219	61.492	3.774	0.244	0.643	0.357	20.80
118.7	7.64	4.291	10.996	6.429	56.476	2.313	0.246	0.631	0.369	21.32
126.8	8.29	4.288	10.728	6.697	51.964	1.889	0.246	0.616	0.384	21.79
134.9	8.97	4.317	10.654	6.772	48.383	1.726	0.248	0.611	0.389	22.06
143.0	9.64	4.311	10.503	6.922	44.940	1.670	0.247	0.603	0.397	22.32
151.1	10.31	4.339	10.394	7.032	42.279	1.066	0.249	0.596	0.404	22.66
159.2	11.00	4.325	10.263	7.162	39.528	0.217	0.248	0.589	0.411	22.85
167.3	11.64	4.341	10.183	7.242	37.473	-0.285	0.249	0.584	0.416	23.09
175.3	12.35	4.320	10.062	7.363	35.164	-0.650	0.248	0.577	0.423	23.24
186.1	13.24	4.335	9.963	7.463	32.899	0.152	0.249	0.572	0.428	23.52
202.3	14.58	4.317	9.768	7.657	29.756	-1.939	0.248	0.561	0.439	23.84
218.5	15.94	4.283	9.600	7.825	27.003	-2.858	0.246	0.551	0.449	24.04
234.7	17.33	4.238	9.417	8.009	24.578	-2.704	0.243	0.540	0.460	24.23
250.8	18.70	4.208	9.270	8.156	22.622	-2.269	0.241	0.532	0.468	24.42
267.0	20.06	4.176	9.023	8.402	20.922	-2.213	0.240	0.518	0.482	24.83
283.2	21.46	4.147	8.950	8.476	19.422	-2.325	0.238	0.514	0.486	24.86
299.4	22.84	4.111	8.805	8.620	18.096	-2.386	0.236	0.505	0.495	25.03
315.6	24.20	4.082	8.665	8.760	16.957	-2.373	0.234	0.497	0.503	25.22
331.7	25.57	4.047	8.483	8.942	15.913	-2.883	0.232	0.487	0.513	25.50
347.9	26.90	4.004	8.335	9.090	14.963	-3.503	0.230	0.478	0.522	25.66
364.1	28.24	3.953	8.176	9.249	14.074	-4.372	0.227	0.469	0.531	25.80
380.3	29.59	3.886	8.002	9.424	13.204	-4.945	0.223	0.459	0.541	25.90



STATIC DSS TEST

K_o Consolidation - OCR = NA
 Sample: Comp-AL - Depth: NA ft
 Boring TP2319/TP2334
 Exelon (Victoria)



STATIC DSS TEST
 K_o Consolidation - OCR = NA
 Sample: Comp-AL - Depth: NA ft
 Boring TP2319/TP2334

KAW 7/16/08

DIRECT SIMPLE SHEAR TEST (ASTM D 6528-07): Specimen Setup / Take Down

Project Number: 0411-08-1686 Test Type: SDSS Sta. No.: 7G File Name: Comp-AI
 Task No.: NA Assign, $\sigma'_{v,c}$ = 28.80 ksf $K_{c,DSS} (\tau_{h,c} / \sigma'_{v,c})$ = NA
 Project Name: Exelon (Victoria) Induced OCR = NA $K_{ub,DSS} (\tau_{hu,b} / \sigma'_{v,c})$ = NA
 Test No.: NA Test Series for/on: NA Type Stage: NA = NA, NA, NA & NA
 Assig. Remarks: Specific Gravity: 2.659 ☒ Meas.; ☐ Assumed

☐ Tube	☐ Field Extruded	☐ Liner	☒ Remolded	☒ Tamping	Constant Effort:	Blows/Tamps per Layer = 11
Boring No.: TP2319/TP2334	☐ LPC Core			Impact/Rammer	Rammer Wgt. (lb) =	No. Layers = 3.00
Sample No.: Comp-A	Compostite No.:			Pluviated:	Tamper Force (lb) = 4.00	Drop (in.) = 12.00
Depth (ft): NA	Specimen No.: L			Kneading	☒ Undercompaction: U_{ri} (%) =	Dia. (in.) = 1.40
☐ Spec. Selection by X-ray;	☐ Geomarine Sample				Ref. Effort = MOD	% Comp. = $\pm$ Opt. = +4

Type	☒ K_o at:	☒ Incremental	☐ Anisotropic at:	Inclined Stress Path, $K_{c,DSS}$	☐ Used Automated System
Consolidation:		CRS		90° Stress Path	Remarks:
Loading	☒ Static	☒ Strain	☐ Creep	☒ Const. Vol./Ht	☒ Without - Water
Conditions:	Rapid	Stress	Post Cyclic	Drained	With - Bath
					Cyclic (Hz) Rate: 0.1; Strain 1; Other:

Water Content (WC);	Initial - Trimming Location			Final, W_{at} (see below)	Soil and Ring Masses	
	Top ($W_{o,1}$)	Bottom ($W_{o,2}$)	Sides ($W_{o,3}$)		Initial	Final
Container No.	766			592	Mass Moist Soil + Tare (g)	324.25
Mass Moist Soil + Cont. (g)	122.05			66.10	Mass Tare (g)	4.53
Mass Dry Soil + Container (g)	110.95			62.10	Mass Moist Soil, $M_{t,o}$ $M_{t,at}$ (g)	140.95
Mass Container (g)	31.95			31.77	Excess Dry Soil (soil not included in final mass above)	
WATER CONTENT (%)	14.05			13.19	Container No.	
Avg. Initial WC, $W_{o,avg}$ (%)	14.05				Mass Dry Soil + Container (g)	
					Mass Container (g)	
See attached data sheet(s) for additional water contents					Mass Excess Dry Soil (g)	0.00

Specimen Trimming:			
☐ Trimming Ring for Fugro Apparatus	NL6	Large-ring ID #	
☒ Trimming Ring for NGI Apparatus		Small-ring ID #	
$H_{s,t}$ (mm):	18.55	$A_{s,t}$ (cm ²):	34.68
$D_{s,t}$ (mm):	66.45	$V_{s,t}$ (cm ³):	64.32
Remarks:			
Free Standing by Wire Saw Lathe or Reconstituted Spec. (mm)			
Height (H_{tr})	Diameter (D_o)	Remarks:	
1 18.570	1-T NA		
2 18.530	2-M NA		
3 18.540	3-B NA		
4 18.510	1'-T NA	For Free Standing	
5 18.550	2'-M NA	or Reconstituted Spec.:	
Avg.	3'-B NA	A_{tr} (cm ²):	NA
= 18.550	Avg NA	V_{tr} (cm ³):	NA

Note: NA indicates not applicable.

F or G in the Sta. No. indicates Fugro or GEOTAC apparatus.

Final Visual Description: Light Brown Clayey SAND (SC)

Estimated Initial Unit Weight	
Total, $\gamma_{t,o}$ (lb/ft ³) = 136.80	Dry, $\gamma_{d,o}$ (lb/ft ³) = 119.94

Specimen Lateral Confinement by:				
Wire Reinforced, Model:		Thickness (mm) =		
Stress	Dia. by PiTape (mm)	Area, $A_{c,n}$		
Level	Meas. Corr.	(cm ²)	(in ²)	
0				
$\sigma'_{v,c}$				
$\sigma'_{v,max}$				
☒ Regular Membrane with Ring Set No. 7	ID, Rings (mm)			
Thickness (mm):	Top: 0.57	=	67.03	
☐ Single	Bottom: 0.59		Corr. for mem.	
☒ Double	Membr. Thick. = 0.29	=	66.450	
Area Ring with mem., A_o (cm ²) = 34.68		; (in ²) = 5.375		
Mass Top Cap, etc., M_{tc} = 527.2 g, 1.16 lbf				
Data corr. for M_{tc} :	☒ Yes;	☐ No	Plattens with Pins:	☐ Yes; ☒ No

Other Remarks :

Trim./ Recon. By: DBN

Setup By: HC

Take Down By: PL

Date: 5/13/2008

Date: 5/13/2008

Date: 5/16/2008

Prelim. Calc. By: HC

Final Calc. By: LF

Reviewed By: HP **HP**

Specimen Take Down: ☒ Spec. removed right after shearing
☐ Spec. unloaded to zero stress with access to water

Remarks:

KAW 6/13/08

DIRECT SIMPLE SHEAR TEST (ASTM D 6528-07): Specimen Calculations & Summary

Project Number: 0411-08-1686 Test Station No.: 7G File Name: Comp-AL
 Task Number: NA Specific Gravity: 2.659 ☒ Measured; ☐ Assumed
 Type Test: SDSS Specimen: ☐ "Undisturbed"; ☒ Reconstituted; ☒ Remolded Boring No.: TP2319/TP2334
 Calculations Corr. for Salt (dissolved solids): ☒ No or, ☐ Yes, with concentration = ppm Sample No.: Comp-AL

Consolidation Stress Summary and Loading Summary									
Test Stage:	Max. Stress	Pre-Shear	Post Cyclic	X	Static Strain Rate = <u>NA</u> (%/hr or)				
Nominal Vertical Stress, σ'_v (ksf)	<u>NA</u>	<u>28.8</u>	<u>NA</u>		Cyclic Rate (Hz):	<u>0.1;</u>	<u>1;</u>	Other =	
Axial/Vertical Force, $P_{v,n}$ (lbf)	<u>NA</u>	<u>NA</u>	<u>NA</u>		During/End of Loading		Static	Cyclic	
Horizontal Force, $P_{h,n}$ (lbf)	<u>NA</u>	<u>0</u>	<u>NA</u>		Change in Height, $\Delta H_{L,n}$ (mm)		<u>NA</u>	<u>NA</u>	
Nominal OCR	<u>NA</u>	<u>NA</u>	<u>NA</u>		Change in Vol., $\Delta V_{L,n}$ (cm ³)		<u>NA</u>	<u>NA</u>	
t_c (ON, days, hrs)	<u>NA</u>	<u>2.0 days</u>	<u>NA</u>		Post Cy. Displ. Reset to Null Position:		<u>Yes;</u>	<u>No</u>	

Undrained ambient stress applied: with Delta shear force (lbf) = NA & Duration (min) = NA & Delta disp., $\Delta d_{h,ua}$ (mm) = NA

Trimmed Specimen (TS) - Initial Water Contents over Saturation (%):					
	Top, $W_{o,1}$	Bottom, $W_{o,2}$	Sides, $W_{o,3}$	Avg., $W_{o,avg}$	Select., $W_{o,s}$
W_o	<u>14.05</u>			<u>14.05</u>	<u>14.05</u>
S_o	<u>97.9</u>			<u>97.9</u>	<u>97.9</u>
Measured final mass of moist soil, M_{lat} (g)					<u>139.82</u>
Final mass of moist soil corrected for excess dry soil, $M_{lat,c}$ (g)					<u>139.82</u>

Calculated Mass of Dry Soil (g)	
Initial Selected Water Content (%)	<u>14.05</u>
Initial, $M_{d,o}$	<u>123.59</u>
Final, $M_{d,at}$	<u>123.53</u>
Selected, M_d	<u>123.56</u>

Initial Back Cal. Specific Gravity (TS):

Selected S_o (%)	
Selected W_o (%)	
Specific Gravity, $G_{s,bc}$	

Height/Volume Change Summary			
Variation in Height & Volume During Consol.	During Initial Consol. to $\sigma'_{v,c}$ or $\sigma'_{v,max}$	During Rebound to $\sigma'_{v,c}$	Specimen Unloaded After Test To
Stress Units (ksf)	<u>28.800</u>	<u>NA</u>	<u>NA</u>
Sign Convention: (+) ΔV out & ΔH down; (-) ΔV in & ΔH up			
Delta Def. Read., $\Delta d_{ar,n}$ (mm)	<u>1.743</u>		
Total Equip. Comp., $\Sigma \Delta d_{afc}$ (mm)	<u>0.000</u>		
Corr. Total Def. $\Delta H_{c,n}$ (mm)	<u>1.743</u>		
ΔV_n using A_o - spec. (cm ³)	<u>6.04</u>		
ΔV_n using $A_{c,n}$ - app. (cm ³)	<u>6.04</u>		
ΔV_n using burette meas. (cm ³)	<u>1.90</u>		
Selected ΔV_n (cm ³)	<u>6.04</u>	<u>NA</u>	<u>NA</u> = ΔV_{UL}
After Test WC Corr. for ΔV during Shear & Unloading, $W_{at,c}$ (%)			<u>NA</u>

Lateral Confinement Area Cal. Approach (LCA); Method 1, 2, 3 or 4: 1

Calculation of ΔV_c by Different Procedures			
By Selected Volumes		By Change in Mass	
ΔV_c (cm ³)	<u>6.04</u>	$\sim M_{L,o} - (M_{lat,c} + \Delta V_L + \Delta V_{UL})$	
By Cal. Height & App. Area		ΔV_c (cm ³)	<u>1.13</u>
ΔV_c (cm ³)	<u>6.04</u>	By Saturation = 100% and Spec. Unloaded to 0 Stress	
By Cal. Ht. & Init. Spec. Area		ΔV_c (cm ³)	<u>NA</u>
ΔV_c (cm ³)	<u>6.04</u>		

Back Cal. Water Content During Consol. -

Based on the Consolidation Conclusions Given Below

Assumed Saturation (%)	<u>100.00</u>
Back Cal. WC before Loading, $W_{c,bc}$ (%)	<u>9.48</u>
Back Cal. WC at Max. Stress, $W_{cmax,bc}$ (%)	<u>NA</u>

Consolidation & Preshear Conclusions	ΔV_c (cm ³) =	<u>6.04</u>	ΔH_c (mm) =	<u>1.743</u>	$\epsilon_{a,c}$ (%) =	<u>9.39</u>	$\Delta V_{c,max}$ (cm ³) =	<u>NA</u>
	V_c (cm ³) =	<u>58.29</u>	H_c (mm) =	<u>16.807</u>	$\epsilon_{v,c}$ (%) =	<u>9.38</u>	$\epsilon_{ac,max}$ (%) =	<u>NA</u>
	A_c (cm ²) =	<u>34.68</u>	$\Delta \gamma_c$ (mm) =	<u>NA</u>	γ_c (%) =	<u>NA</u>	Preshear: γ_{ua} (%) =	<u>NA</u>

Summary of Specimen Physical Properties:								
Specific Gravity: $G_s = 2.659$ Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Total Unit Weight (pcf)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio, e
Condition: Initial (as trimmed)	<u>18.550</u>	<u>64.32</u>	<u>34.68</u>	<u>14.1</u>	<u>136.8</u>	<u>119.9</u>	<u>98.0</u>	<u>0.384</u>
After to $\sigma'_{v,c}$	<u>16.807</u>	<u>58.29</u>	<u>34.68</u>	<u>9.5</u>	<u>144.9</u>	<u>132.3</u>	<u>100.0</u>	<u>0.254</u>
Consol.: to $\sigma'_{v,max}$	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

LCA-Method: 1- Initial measured value remains constant. 4 - Based on change in height & volume.
 & Note(s) 2 - Initial measured value corrected for applied stress. NA - Not Applicable
 3 - Uses measured value at appropriate stress level (NA for rings).

Calculated By: LF
 Reviewed By: HP

Remarks: t95 for max stress = 240.7 min

Project Number: 0411-08-1686 Test Type: SDSS Test Sta. No.: 7G File Name: Comp-AI
 Project Name: Exelon (Victoria) Task No.: NA Test No.: NA Test Series for: NA

☐ Tube	☐ Field Extruded	☐ Liner	☒ Remolded	☒ Tamping	Constant Effort:	Blows/Tamps per Layer = 11
Boring No.: TP2319/TP2334	☐ LPC Core			☐ Impact/Rammer	Rammer Wgt. (lb) =	No. Layers = 3.00
Sample No.: Comp-A	Composite No.:			☐ Pluviated:	Tamper Force (lb) = 4.00	Drop (in.) = 12.00
Depth (ft): NA	Specimen No.: L			☐ Kneading	☒ Undercompaction:	U _{ni} (%) =
☐ Spec. Selection by X-ray;	☐ Geomarine Sample				Ref. Effort = MOD	% Comp. = ± Opt. = +4

Type Consolidation:	☒ K ₀ at:	☒ Incremental CRS	☐ Anisotropic at:	☐ Inclined Stress Path, K _{c,DSS}	☐ Used Automated System
Loading Conditions:	☒ Static	☒ Strain Stress	☐ Creep Post Cyclic	☒ Const. Vol./Ht Drained	☒ Without - Water Bath
	☐ Dynamic				☐ Cyclic (Hz) Rate: 0.1; 1; Other:

Summary of Specimen Physical Properties									
Specific Gravity: G _s = 2.659 Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Unit Weight Total (pcf)	Dry (pcf)	Saturation (%)	LL PL	-200 %
Condition: Initial	18.55	64.32	34.68	14.08	136.8	119.9	98.0	34	46.4
After to σ' _{v,c}	16.81	58.29	34.68	9.48	144.9	132.3	100.0	12	NA
Consol.: to σ' _{vc,max}	NA	NA	NA	NA	NA	NA	NA	22	NA

Consolidation Stress Summary and Loading Summary									
Item	Unit	Max. Stress	Pre-Shear	Post Cyclic	☒ Static Strain Rate = 4.5 %/hr.				
Vert. Consol. Stress, σ' _{v,c}	(ksf)	NA	28.953	NA	Cyclic Rate (Hz):	0.1;	1;	Other =	
Induced OCR:	-	NA	NA	NA	During/End of Loading		Static	Cyclic	
Axial Strain during Consol., ε _{ax,c}	%	NA	9.39	NA	Change in Height, ΔH _{L,n} (mm):		NA	NA	
Horiz. Consol. Stress, τ _{hc,c}	(ksf)	NA	NA	NA	Change in Vol., ΔV _{L,n} (cm ³):		NA	NA	
Consol. Stress Ratio, τ _{hc,c} / σ' _{v,c}	-	NA	NA	NA	Post Cy. Displ. Reset to Null Pos.:		Yes;	No	
Shear Strain during Consol., ε _{hc,c}	%	NA	NA	NA	Number of Loading Cycles, N =		NA		
Undr. Ambient Shear Stress, τ _{h,amb}	(ksf)	NA	NA	NA	±τ _h =		NA (ksf)	±γ =	NA %
Undr. Ambient Shear Strain, ε _{h,amb}	%	NA	NA	NA	at end of cyclic loading, σ' _{vcy,r} =		NA (ksf)		

Weight Top Cap, etc., M _{tc} (lb): 1.16	Data Normalization: ☒ Yes ☐ No Value: 28.953 (ksf)
Data corr. for M _{tc} : ☒ Yes; ☐ No	Plattens with Pins: ☐ Yes; ☒ No
Wire Reinforced Membrane, Model:	Data corr. for Membr. strength: ☒ Yes ☐ No
☒ Regular Membrane with Rings	☒ Pre-Shear Conditions ☐ Post-Cyclic Conditions
	Maximum Stress during Consol.:

Notes: See Fugro South, Inc. Notation Listing for definition of symbols and acronyms.

F or G in the Test Sta. No. indicates Fugro or GEOTAC apparatus.

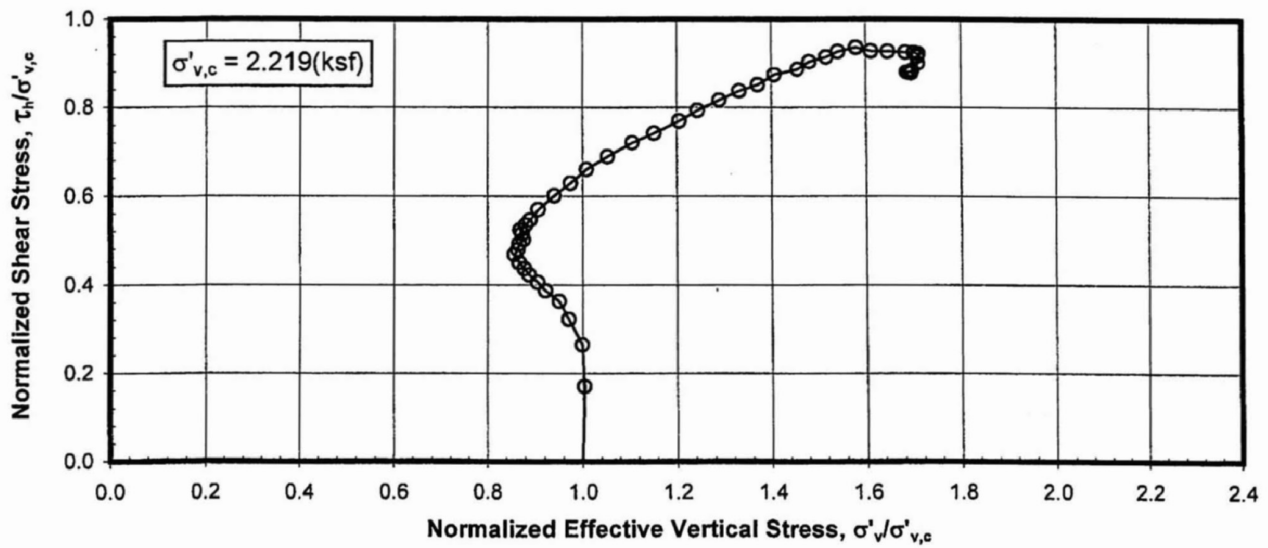
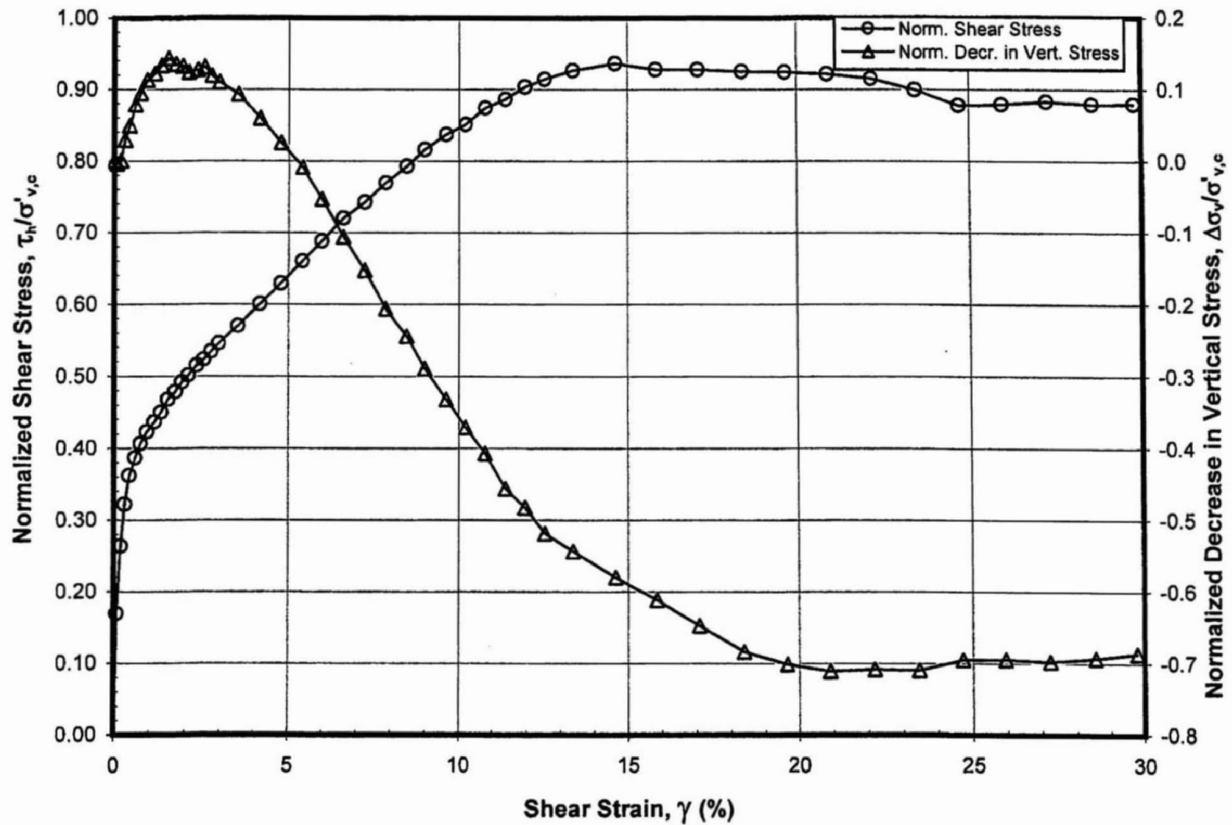
NA - Not Applicable

Final Visual Description and Remarks: Light Brown Clayey SAND (SC)

Loading Summary						
	τ _h (ksf)	γ (%)	σ' _v (ksf)	τ _h /σ' _v	Δσ' _v /σ' _{v,c}	C _u /σ' _{v,c}
at Peak Shear Stress	7.597	13.42	18.892	0.402	0.347	0.262
at Maximum Strain	7.000	29.90	15.276	0.458	0.472	-

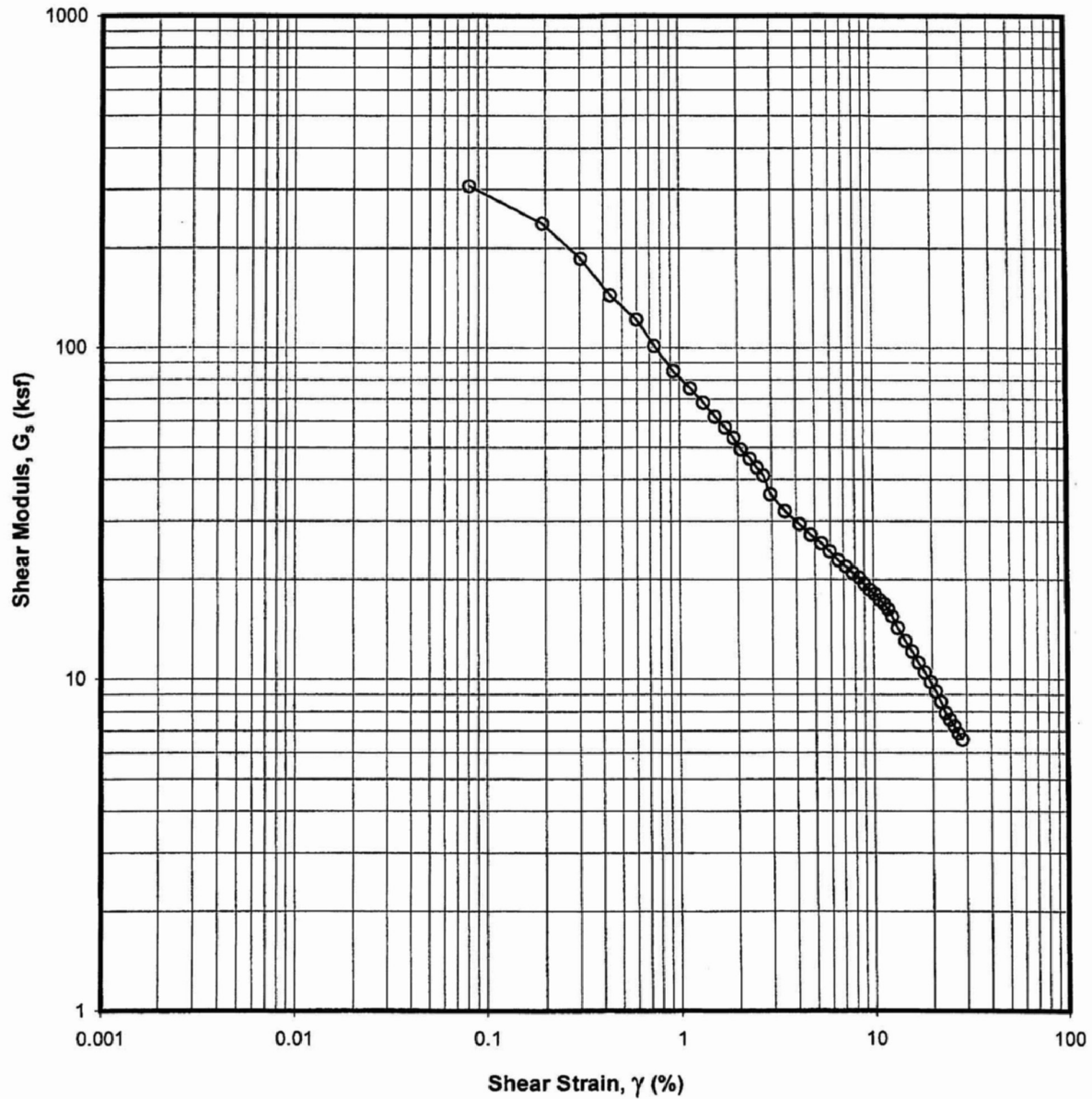
Boring No.: TP2319/TP2334 Sample No.: Comp-AL

Elapsed Time (min)	Shear Strain γ (%)	Shear Stress τ_h (ksf)	Effective Vertical Stress σ'_v (ksf)	Calculated Pore Press. Change $\Delta U = \Delta \sigma'_v$ (ksf)	Secant Shear Modulus G_s (ksf)	Tangent Modulus G_T (ksf)	Norm. Shear Stress $\tau_h/\sigma'_{v,c}$	Norm. Vert. Stress $\sigma'_v/\sigma'_{v,c}$	Norm. Decr. in V. Stress $\Delta \sigma'_v/\sigma'_{v,c}$	Stress Ratio Angle ϕ'_{bss} (°)
0.0	0.00	-0.003	28.953	0.000	-	-	0.000	1.000	0.000	-0.01
2.7	0.01	0.023	28.937	0.016	290.042	2564.765	0.001	0.999	0.001	0.05
5.5	0.01	0.104	28.974	-0.021	999.840	3056.620	0.004	1.001	-0.001	0.21
8.2	0.04	0.434	28.978	-0.025	1193.858	934.030	0.015	1.001	-0.001	0.86
10.9	0.09	0.738	28.939	0.014	844.207	519.151	0.025	1.000	0.000	1.46
13.6	0.15	1.012	28.730	0.223	679.108	435.508	0.035	0.992	0.008	2.02
16.4	0.21	1.259	28.481	0.472	608.714	374.082	0.043	0.984	0.016	2.53
19.1	0.28	1.494	28.204	0.749	533.535	310.923	0.052	0.974	0.026	3.03
21.8	0.35	1.715	27.961	0.991	485.345	330.544	0.059	0.966	0.034	3.51
24.5	0.43	1.986	27.777	1.176	463.443	435.014	0.069	0.959	0.041	4.09
27.2	0.50	2.356	27.591	1.362	470.135	523.802	0.081	0.953	0.047	4.88
30.0	0.58	2.759	27.474	1.478	478.949	551.307	0.095	0.949	0.051	5.73
32.7	0.65	3.163	27.346	1.606	488.406	530.435	0.109	0.945	0.055	6.60
35.4	0.73	3.577	27.228	1.725	489.296	462.312	0.124	0.940	0.060	7.48
38.2	0.82	3.975	27.092	1.861	482.436	410.495	0.137	0.936	0.064	8.35
40.9	0.92	4.347	26.924	2.028	473.173	358.844	0.150	0.930	0.070	9.17
43.6	1.04	4.726	26.738	2.215	456.499	292.208	0.163	0.924	0.076	10.02
46.3	1.16	5.051	26.517	2.436	435.220	221.483	0.174	0.916	0.084	10.78
54.5	1.58	5.819	25.745	3.208	368.626	142.543	0.201	0.889	0.111	12.74
62.7	2.09	6.341	24.927	4.026	302.954	79.420	0.219	0.861	0.139	14.27
70.8	2.67	6.671	24.124	4.829	250.023	49.594	0.230	0.833	0.167	15.46
79.0	3.29	6.930	23.445	5.508	210.807	31.290	0.239	0.810	0.190	16.47
87.2	3.93	7.063	22.815	6.138	179.868	19.088	0.244	0.788	0.212	17.20
95.3	4.56	7.172	22.306	6.646	157.466	12.809	0.248	0.770	0.230	17.82
103.5	5.22	7.226	21.824	7.129	138.608	9.073	0.250	0.754	0.246	18.32
111.7	5.85	7.289	21.436	7.516	124.602	7.908	0.252	0.740	0.260	18.78
119.8	6.51	7.328	21.084	7.869	112.678	7.483	0.253	0.728	0.272	19.16
128.0	7.15	7.386	20.789	8.164	103.321	7.716	0.255	0.718	0.282	19.56
136.2	7.85	7.431	20.513	8.440	94.705	5.798	0.257	0.708	0.292	19.91
144.4	8.49	7.464	20.265	8.688	87.908	6.180	0.258	0.700	0.300	20.22
152.5	9.16	7.512	20.054	8.899	82.013	3.673	0.259	0.693	0.307	20.54
160.7	9.82	7.514	19.830	9.123	76.502	2.934	0.260	0.685	0.315	20.75
168.9	10.48	7.551	19.661	9.292	72.070	3.201	0.261	0.679	0.321	21.01
177.1	11.16	7.556	19.459	9.494	67.735	2.037	0.261	0.672	0.328	21.22
187.9	12.07	7.586	19.250	9.703	62.874	2.071	0.262	0.665	0.335	21.51
204.3	13.42	7.597	18.892	10.061	56.616	0.074	0.262	0.653	0.347	21.91
220.6	14.78	7.588	18.580	10.373	51.360	-0.684	0.262	0.642	0.358	22.22
237.0	16.14	7.578	18.271	10.682	46.974	-1.314	0.262	0.631	0.369	22.53
253.3	17.50	7.552	17.984	10.969	43.168	-1.800	0.261	0.621	0.379	22.78
269.6	18.84	7.530	17.693	11.260	39.975	-2.162	0.260	0.611	0.389	23.05
285.9	20.20	7.494	17.405	11.548	37.107	-3.600	0.259	0.601	0.399	23.29
302.3	21.60	7.430	17.101	11.852	34.403	-3.793	0.257	0.591	0.409	23.48
318.6	22.99	7.388	16.802	12.151	32.149	-3.669	0.255	0.580	0.420	23.74
335.0	24.35	7.329	16.523	12.430	30.112	-4.641	0.253	0.571	0.429	23.92
351.3	25.75	7.260	16.219	12.734	28.199	-5.391	0.251	0.560	0.440	24.11
367.6	27.12	7.180	15.907	13.045	26.479	-6.201	0.248	0.549	0.451	24.29
384.0	28.51	7.088	15.585	13.368	24.868	-6.465	0.245	0.538	0.462	24.46
400.3	29.90	7.000	15.276	13.676	23.420	-6.338	0.242	0.528	0.472	24.62



STATIC DSS TEST
 K_o Consolidation - OCR = NA
 Sample: Comp-BA - Depth: NA ft
 Boring TP2317/TP2334
 Exelon (Victoria)

KAW 7/16/08



STATIC DSS TEST

K_0 Consolidation - OCR = NA
Sample: Comp-BA - Depth: NA ft
Boring TP2317/TP2334

KAW 7/16/08

DIRECT SIMPLE SHEAR TEST (ASTM D 6528-07): Specimen Setup / Take Down

Project Number: 0411-08-1686 Test Type: SDSS Sta. No.: 6G File Name: Comp-Ba
 Task No.: NA Assign, $\sigma'_{v,c}$ = 2.16 ksf $K_{c,DSS} (\tau_{h,c} / \sigma'_{v,c})$ = NA
 Project Name: Exelon (Victoria) Induced OCR = NA $K_{ub,DSS} (\tau_{hu,b} / \sigma'_{v,c})$ = NA
 Test No.: NA Test Series for/on: NA Type Stage: NA = NA, NA, NA & NA
 Assig. Remarks: _____ Specific Gravity: 2.693 ☒ Meas.; ☐ Assumed

☐ Tube	☐ Field Extruded	☐ Liner	☒ Remolded	☒ Tamping	☐ Constant Effort:	Blows/Tamps per Layer = <u>11</u>
Boring No.: <u>TP2317/TP2334</u>		☐ LPC Core		☐ Impact/Rammer	Rammer Wgt.(lb) = _____	No. Layers = <u>3.00</u>
Sample No.: <u>Comp-B</u>		Composite No.: _____		☐ Pluviated:	Tamper Force (lb) = <u>4.00</u>	Drop (in.) = <u>12.00</u>
Depth (ft): <u>NA</u>		Specimen No.: <u>A</u>		☐ Kneading	☒ Undercompaction: U_{ni} (%) = _____	Dia. (in.) = <u>1.40</u>
☐ Spec. Selection by X-ray;		☐ Geomarine Sample			Ref. Effort= MOD	% Comp. = <u>95.0</u> $\pm$ Opt.= <u>+4</u>

Type	☒ K_o at:	☒ Incremental	; ☐ Anisotropic at:	☐ Inclined Stress Path, $K_{c,DSS}$	☐ Used Automated System
Consolidation:		<u>CRS</u>		<u>90° Stress Path</u>	Remarks: _____
Loading	☒ Static	☒ Strain	☐ Creep	☒ Const. Vol./Ht	☒ Without - Water
Conditions:	☐ Rapid	☐ Stress	☐ Post Cyclic	☐ Drained	☐ With - Bath
					Cyclic (Hz) Rate: <u>0.1</u> ; Strain <u>1</u> ; Stress <u>Other:</u>

Water Content (WC);	Initial - Trimming Location			Final, W_{at} (see below)	Soil and Ring Masses	Initial	Final
	Top ($W_{o,1}$)	Bottom ($W_{o,2}$)	Sides ($W_{o,3}$)		Mass Moist Soil + Tare (g)		
Container No.	<u>848</u>			<u>917</u>	Mass Tare (g)	<u>186.80</u>	<u>4.25</u>
Mass Moist Soil + Cont. (g)	<u>114.63</u>			<u>66.79</u>	Mass Moist Soil, $M_{t,o}$ $M_{t,at}$ (g)	<u>138.95</u>	<u>140.31</u>
Mass Dry Soil + Container (g)	<u>103.68</u>			<u>61.50</u>	Excess Dry Soil (soil not included in final mass above)		
Mass Container (g)	<u>32.12</u>			<u>31.94</u>	Container No.		
WATER CONTENT (%)	<u>15.30</u>			<u>17.90</u>	Mass Dry Soil + Container (g)		
Avg. Initial WC, $W_{o,avg}$ (%)	<u>15.30</u>				Mass Container (g)		
		Final W_{at} : ☒ Slice ;		Whole Spec.	Mass Excess Dry Soil (g)		<u>0.00</u>

☐ See attached data sheet(s) for additional water contents

Specimen Trimming:			
Trimming Ring for Fugro Apparatus	NL3	Large-ring ID #	
☒ Trimming Ring for NGI Apparatus		Small-ring ID #	
$H_{s,t}$ (mm): <u>18.65</u>	$A_{s,t}$ (cm ²):	<u>34.87</u>	
$D_{s,t}$ (mm): <u>66.63</u>	$V_{s,t}$ (cm ³):	<u>65.03</u>	
Remarks: _____			
☐ Free Standing by Wire Saw Lathe or Reconstituted Spec. (mm)			
Height (H_t)	Diameter (D_o)	Remarks:	
1 18.660	1-T NA		
2 18.610	2-M NA		
3 18.650	3-B NA		
4 18.710	1-T NA	For Free Standing	
5 18.660	2-M NA	or Reconstituted Spec.:	
Avg.	3-B NA	A_{tr} (cm ²):	NA
= 18.650	Avg NA	V_{tr} (cm ³):	NA

Note: NA indicates not applicable.

F or G in the Sta. No. indicates Fugro or GEOTAC apparatus.

Estimated Initial Unit Weight	
Total, $\gamma_{t,o}$ (lb/ft ³) = <u>133.38</u>	Dry, $\gamma_{d,o}$ (lb/ft ³) = <u>115.68</u>

Specimen Lateral Confinement by:				
Wire Reinforced, Model:			Thickness (mm) =	
Stress Level	Dia. by PiTape (mm) Meas.	Corr.	Area, $A_{c,n}$ (cm ²)	(in ²)
0				
$\sigma'_{v,c}$				
$\sigma'_{v,max}$				
☒ Regular Membrane with Ring Set No. <u>6</u>			ID, Rings (mm)	
Thickness (mm):	Top: <u>0.52</u>		=	<u>66.86</u>
☐ Single	Bottom: <u>0.56</u>		Corr. for mem.	
☒ Double	Membr. Thick. = <u>0.27</u>		=	<u>66.320</u>
Area Ring with mem., A_o (cm ²) = <u>34.54</u>		; (in ²) = <u>5.354</u>		
Mass Top Cap, etc., M_{tc} = <u>526.0</u> g		1.16 lbf		
Data corr. for M_{tc} : ☒ Yes;	☐ No	Plattens with Pins: ☐ Yes;	☒ No	

Final Visual Description: Gray Lean CLAY with sand (CL)

Other Remarks: _____

Trim./ Recon. By: DBN
 Date: 4/18/2008
 Prelim. Calc. By: LF

Setup By: HC
 Date: 4/18/2008
 Final Calc. By: LF

Take Down By: HC
 Date: 4/21/2008
 Reviewed By: HP

Specimen Take Down: ☒ Spec. removed right after shearing
☐ Spec. unloaded to zero stress with access to water

Remarks: _____

KAW 6/13/08

DIRECT SIMPLE SHEAR TEST (ASTM D 6528-07): Specimen Calculations & Summary

Project Number: 0411-08-1686

Test Station No.: 6G

File Name: _Comp-Ba

Task Number: NA

Specific Gravity: 2.693

☒ Measured; ☐ Assumed

Type Test: SDSS

 Specimen: ☐ "Undisturbed"; ☒ Reconstituted; ☒ Remolded

Boring No.: TP2317/TP2334

 Calculations Corr. for Salt (dissolved solids): ☒ No or, ☐ Yes, with concentration = _____ ppm

Sample No.: Comp-BA

Consolidation Stress Summary and Loading Summary

Test Stage:	Max. Stress	Pre-Shear	Post Cyclic	X	Static Strain Rate =	NA	(%/hr or)
Nominal Vertical Stress, σ'_v (ksf)	NA	2.16	NA		Cyclic Rate (Hz):	0.1;	1; Other =
Axial/Vertical Force, $P_{v,n}$ (lbf)	NA	NA	NA		During/End of Loading	Static	Cyclic
Horizontal Force, $P_{h,n}$ (lbf)	NA	0	NA		Change in Height, $\Delta H_{L,n}$ (mm)	NA	NA
Nominal OCR	NA	NA	NA		Change in Vol., $\Delta V_{L,n}$ (cm ³)	NA	NA
t_c (ON, days, hrs)	NA	0.88 days	NA		Post Cy. Displ. Reset to Null Position:	Yes;	No

 Undrained ambient stress applied: with Delta shear force (lbf) = NA & Duration (min) = NA & Delta disp., $\Delta d_{h,ua}$ (mm) = NA

Trimmed Specimen (TS) - Initial Water Contents over Saturation (%):

	Top, $W_{o,1}$	Bottom, $W_{o,2}$	Sides, $W_{o,3}$	Avg., $W_{o,avg}$	Select, $W_{o,s}$	Back Cal.
W_o	15.30			15.30	15.30	16.75
S_o	91.4			91.4	91.4	96.2

 Measured final mass of moist soil, M_{lat} (g)

140.31

 Final mass of moist soil corrected for excess dry soil, $M_{lat,c}$ (g)

140.31

Calculated Mass of Dry Soil (g)

Initial Selected Water Content (%)	15.30
Initial, $M_{d,o}$	120.51
Final, $M_{d,at}$	119.01
Selected, M_d	119.76

Initial Back Cal. Specific Gravity (TS):

Selected S_o (%)	
Selected W_o (%)	
Specific Gravity, $G_{s,bc}$	

Height/Volume Change Summary

Variation in Height & Volume During Consol.	During Initial Consol. to $\sigma'_{v,c}$ or $\sigma'_{v,max}$	During Rebound to $\sigma'_{v,c}$	Specimen Unloaded After Test To
Stress Units (ksf)	2.160	NA	NA
Sign Convention: (+) ΔV out & ΔH down; (-) ΔV in & ΔH up			
Delta Def. Read., $\Delta d_{ar,n}$ (mm)	0.360		
Total Equip. Comp., $\Sigma \Delta d_{af,c}$ (mm)	0.000		
Corr. Total Def. $\Delta H_{c,n}$ (mm)	0.360		
ΔV_n using A_o - spec. (cm ³)	1.26		
ΔV_n using $A_{c,n}$ - app. (cm ³)	1.24		
ΔV_n using burette meas. (cm ³)	-3.20		
Selected ΔV_n (cm ³)	1.26	NA	NA = ΔV_{UL}
After Test WC Corr. for ΔV during Shear & Unloading, $W_{a,c}$ (%)			NA

Lateral Confinement Area Cal. Approach (LCA); Method 1, 2, 3 or 4: 1

Calculation of ΔV_c by Different Procedures

By Selected Volumes	By Change in Mass
ΔV_c (cm ³)	1.26
By Cal. Height & App. Area	ΔV_c (cm ³)
ΔV_c (cm ³)	1.24
By Cal. Ht. & Init. Spec. Area	ΔV_c (cm ³)
ΔV_c (cm ³)	1.26

Back Cal. Water Content During Consol. -

Based on the Consolidation Conclusions Given Below

Assumed Saturation (%)	100.00
Back Cal. WC before Loading, $W_{c,bc}$ (%)	15.53
Back Cal. WC at Max. Stress, $W_{cmax,bc}$ (%)	NA

Consolidation & Preshear	ΔV_c (cm ³) = 1.85	ΔH_c (mm) = 0.360	$\epsilon_{a,c}$ (%) = 1.93	$\Delta V_{c,max}$ (cm ³) = NA
Conclusions	V_c (cm ³) = 63.18	H_c (mm) = 18.290	$\epsilon_{v,c}$ (%) = 2.85	$\epsilon_{ac,max}$ (%) = NA
	A_c (cm ²) = 34.54	$\Delta \gamma_c$ (mm) = NA	γ_c (%) = NA	Preshear: γ_{ub} (%) = NA

Summary of Specimen Physical Properties:

Specific Gravity: $G_s = 2.693$ Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Total Unit Weight (pcf)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio, e
Condition:								
Initial (as trimmed)	18.650	65.03	34.87	16.0	133.4	115.0	93.8	0.462
After to $\sigma'_{v,c}$	18.290	63.18	34.54	15.5	136.7	118.3	100.0	0.434
Consol.: to $\sigma'_{v,max}$	NA	NA	NA	NA	NA	NA	NA	NA

LCA-Method: 1- Initial measured value remains constant.

4 - Based on change in height & volume.

Calculated By: LF

& Note(s) 2 - Initial measured value corrected for applied stress.

NA - Not Applicable

Reviewed By: HP

3 - Uses measured value at appropriate stress level (NA for rings).

Remarks: t95 for max stress = 0.9 min

Project Number: 0411-08-1686 Test Type: SDSS Test Sta. No.: 6G File Name: _Comp-Ba
 Project Name: Exelon (Victoria) Task No.: NA Test No.: NA Test Series for: NA

☐ Tube	☐ Field Extruded	☐ Liner	☒ Remolded	☒ Tamping	Constant Effort:	Blows/Tamps per Layer = 11
Boring No.: TP2317/TP2334	☐ LPC Core			Impact/Rammer	Rammer Wgt. (lbf) =	No. Layers = 3.00
Sample No.: Comp-B	Composite No.:			Pluviated:	Tamper Force (lbf) = 4.00	Drop (in.) = 12.00
Depth (ft): NA	Specimen No.: A			Kneading	☒ Undercompaction: U_{ni} (%) =	Dia. (in.) = 1.40
☐ Spec. Selection by X-ray;	☐ Geomarine Sample				Ref. Effort= MOD	% Comp. = 95.0 ± Opt. = +4

Type Consolidation:	☒ K_0 at:	☒ Incremental CRS	☐ Anisotropic at:	☐ Inclined Stress Path, $K_{c,DSS}$	☐ Used Automated System	Remarks:
Loading Conditions:	☒ Static	☒ Strain Stress	☐ Creep Post Cyclic	☒ Const. Vol./Ht Drained	☒ Without - Water Bath	☐ Cyclic (Hz) Rate: 0.1; ☐ Strain 1; Other:

Summary of Specimen Physical Properties										
Specific Gravity: $G_s = 2.693$ Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Unit Weight (pcf)		Saturation (%)	LL PL	-200 %	Void Ratio, e
Condition:					Total	Dry		PI		
Initial	18.65	65.03	34.87	16.02	133.4	115.0	93.8	44	73.6	0.462
After to σ'_{vc}	18.29	63.18	34.54	15.53	136.7	118.3	100.0	15	NA	0.434
Consol.: to $\sigma'_{vc,max}$	NA	NA	NA	NA	NA	NA	NA	29	NA	NA

Consolidation Stress Summary and Loading Summary										
Item	Unit	Max. Stress	Pre-Shear	Post Cyclic	X	Static Strain Rate = 4.9 %/hr.				
Vert. Consol. Stress, σ'_{vc}	(ksf)	NA	2.219	NA		Cyclic Rate (Hz):		0.1;	1;	Other =
Induced OCR:	-	NA	NA	NA		During/End of Loading			Static	Cyclic
Axial Strain during Consol., $\epsilon_{h,c}$	%	NA	1.93	NA		Change in Height, $\Delta H_{L,n}$ (mm):			NA	NA
Horiz. Consol. Stress, $\tau_{h,c}$	(ksf)	NA	NA	NA		Change in Vol., $\Delta V_{L,n}$ (cm ³):			NA	NA
Consol. Stress Ratio, $\tau_{h,c} / \sigma'_{vc}$	-	NA	NA	NA		Post Cy.Displ. Reset to Null Pos.:		Yes;		No
Shear Strain during Consol., $\epsilon_{h,c}$	%	NA	NA	NA		Number of Loading Cycles, N = NA				
Undr. Ambient Shear Stress, $\tau_{h,ua}$	(ksf)	NA	NA	NA		$\pm \tau_h =$ NA (ksf)		$\pm \gamma =$ NA %		
Undr. Ambient Shear Strain, $\epsilon_{h,ua}$	%	NA	NA	NA		at end of cyclic loading, $\sigma'_{vc,yf} =$ NA (ksf)				

Weight Top Cap, etc., M_{tc} (lbf): 1.16	Data Normalization: ☒ Yes ☐ No Value: 2.219 (ksf)
Data corr. for M_{tc} : ☒ Yes; ☐ No	Plattens with Pins: ☐ Yes; ☒ No
Wire Reinforced Membrane, Model:	Data corr. for Membr. strength: ☒ Yes ☐ No
☒ Regular Membrane with Rings	☒ Pre-Shear Conditions ☐ Post-Cyclic Conditions
	Maximum Stress during Consol.

Notes: See Fugro South, Inc. Notation Listing for definition of symbols and acronyms.

F or G in the Test Sta. No. indicates Fugro or GEOTAC apparatus.

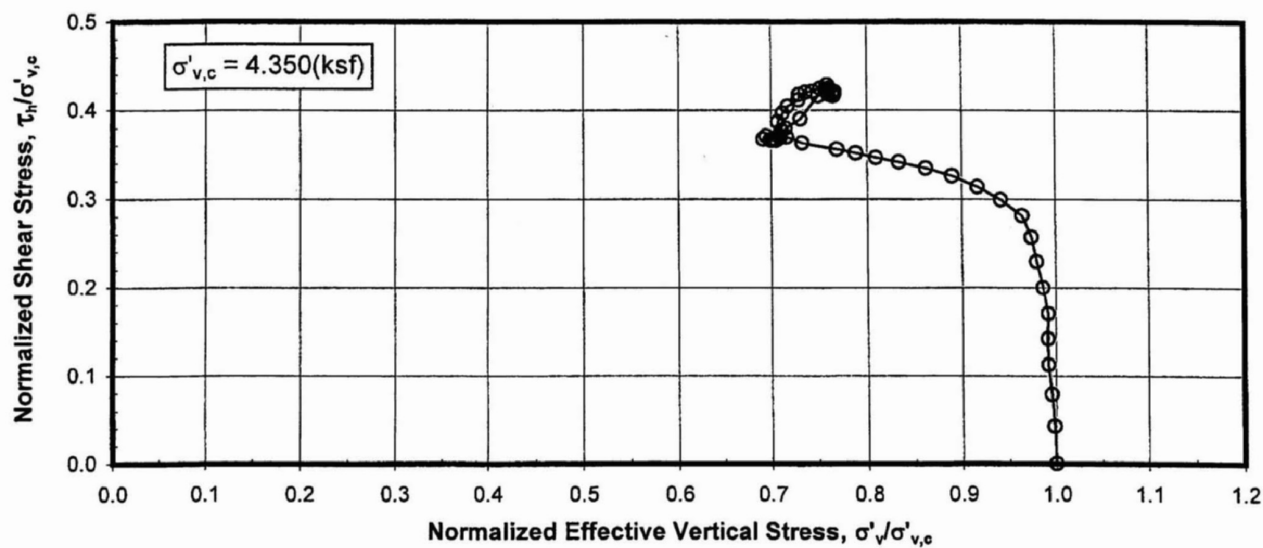
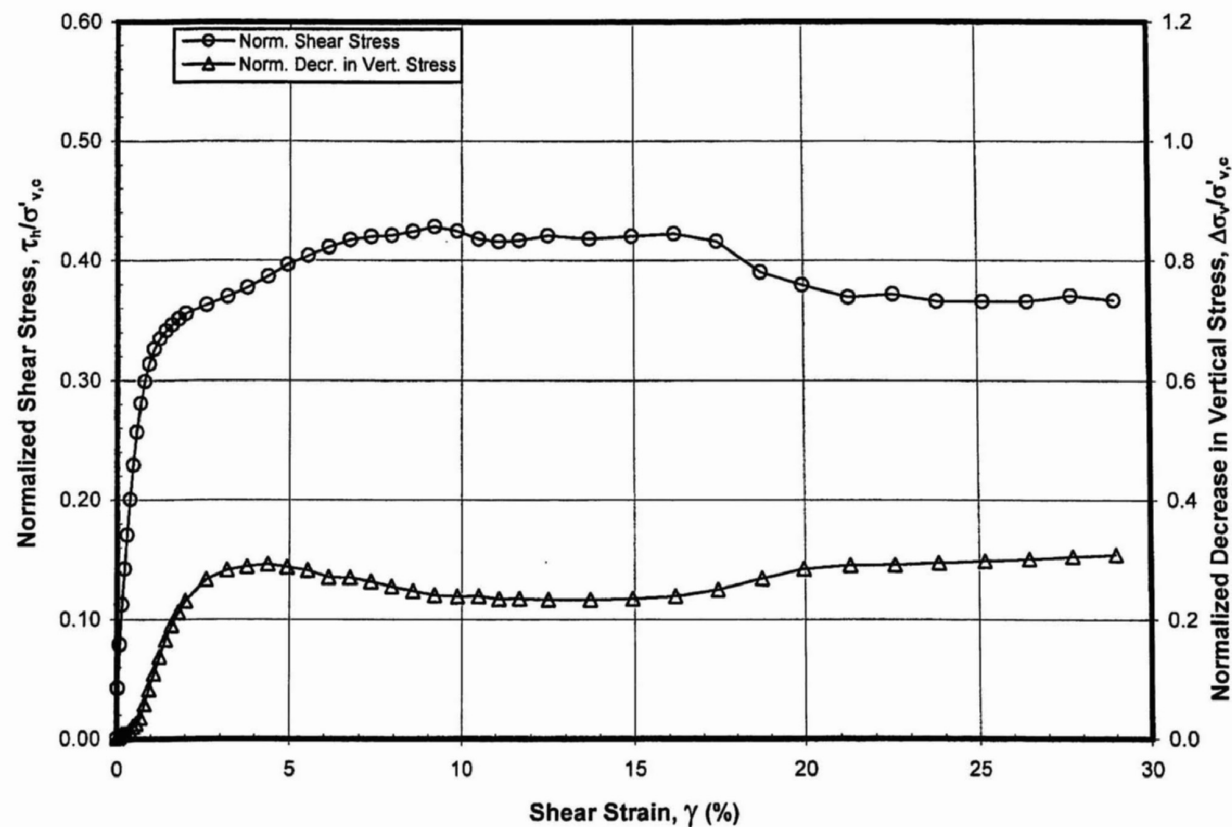
NA - Not Applicable

Final Visual Description and Remarks: Gray Lean CLAY with sand (CL)

Loading Summary						
	τ_h (ksf)	γ (%)	σ'_v (ksf)	τ_h / σ'_v -	$\Delta \sigma'_v / \sigma'_{vc}$ -	c_u / σ'_{vc} -
at Peak Shear Stress	2.078	14.63	3.508	0.592	-0.581	0.936
at Maximum Strain	1.953	29.78	3.743	0.522	-0.687	-

Boring No.: TP2317/TP2334 Sample No.: Comp-BA

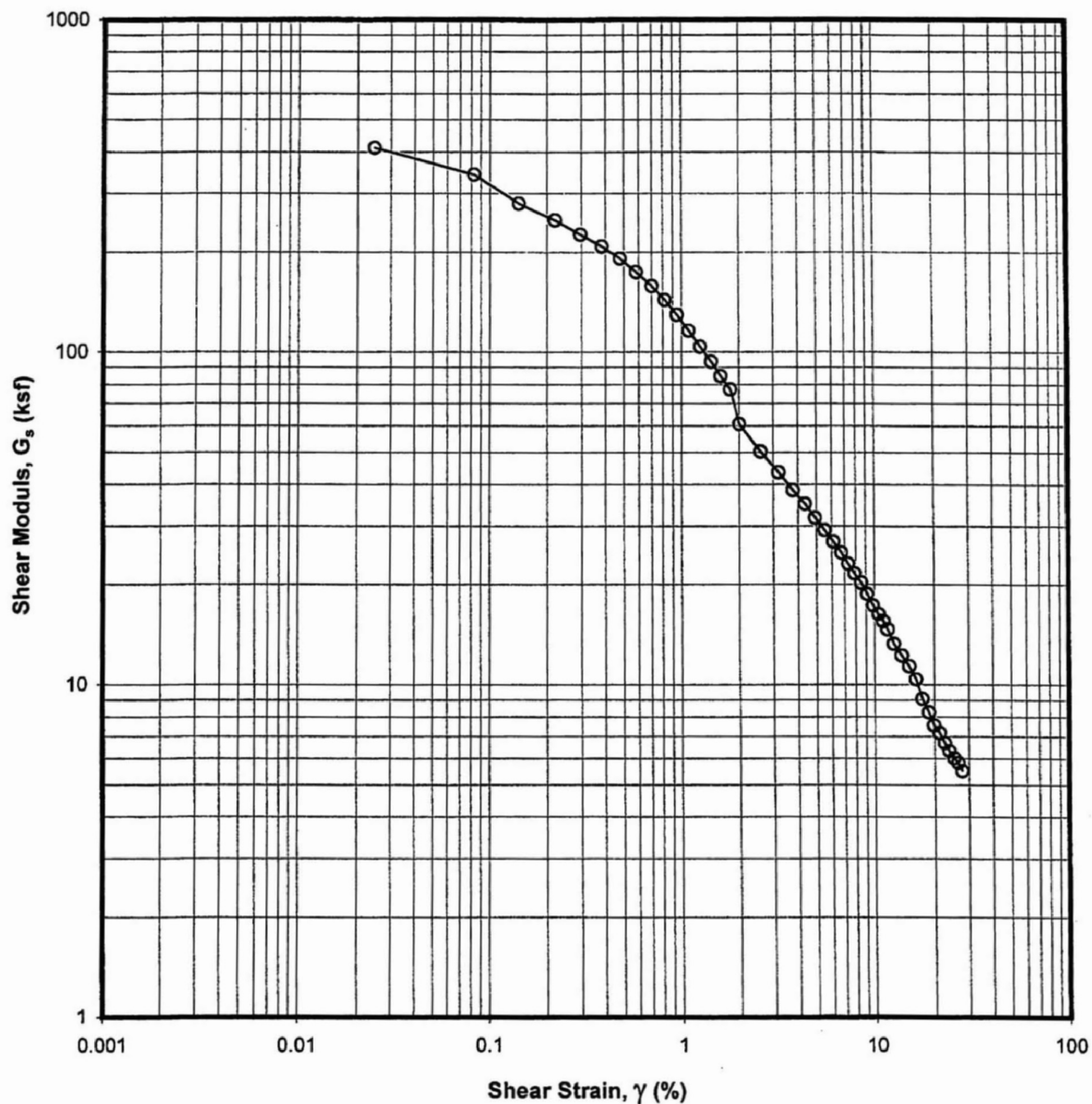
Elapsed Time (min)	Shear Strain γ (%)	Shear Stress τ_h (ksf)	Effective Vertical Stress σ'_v (ksf)	Calculated Pore Press. Change $\Delta U = \Delta \sigma'_v$ (ksf)	Secant Shear Modulus G_s (ksf)	Tangent Modulus G_T (ksf)	Norm. Shear Stress $\tau_h/\sigma'_{v,c}$	Norm. Vert. Stress $\sigma'_v/\sigma'_{v,c}$	Norm. Decr. in V. Stress $\Delta \sigma'_v/\sigma'_{v,c}$	Stress Ratio Angle ϕ_{bss} (°)
0.0	0.00	-0.005	2.219	0.000	-	-	-0.002	1.000	0.000	-0.13
2.5	0.08	0.376	2.228	-0.009	469.343	328.298	0.169	1.004	-0.004	9.58
5.0	0.19	0.586	2.218	0.002	305.983	151.567	0.264	0.999	0.001	14.79
7.5	0.30	0.714	2.155	0.065	236.693	91.842	0.322	0.971	0.029	18.33
10.0	0.44	0.804	2.109	0.110	185.408	50.327	0.362	0.950	0.050	20.86
12.5	0.60	0.857	2.044	0.175	143.753	31.279	0.386	0.921	0.079	22.76
15.0	0.75	0.901	2.009	0.210	121.396	24.608	0.406	0.905	0.095	24.15
17.5	0.94	0.938	1.969	0.250	100.782	17.011	0.423	0.887	0.113	25.47
20.0	1.15	0.968	1.948	0.271	84.980	15.108	0.436	0.878	0.122	26.43
22.5	1.33	0.998	1.924	0.296	75.201	18.063	0.450	0.867	0.133	27.42
25.1	1.53	1.038	1.901	0.318	68.114	16.238	0.468	0.857	0.143	28.64
27.6	1.73	1.062	1.919	0.301	61.757	13.849	0.479	0.865	0.135	28.96
30.1	1.92	1.091	1.925	0.294	57.236	13.613	0.492	0.867	0.133	29.55
32.6	2.09	1.112	1.944	0.275	53.390	12.259	0.501	0.876	0.124	29.76
35.1	2.33	1.142	1.937	0.282	49.277	10.979	0.515	0.873	0.127	30.53
37.6	2.53	1.160	1.929	0.291	46.125	10.424	0.523	0.869	0.131	31.03
40.1	2.74	1.186	1.955	0.265	43.452	11.549	0.534	0.881	0.119	31.24
42.6	2.97	1.211	1.974	0.245	40.991	10.446	0.546	0.890	0.110	31.52
50.1	3.52	1.265	2.012	0.208	36.034	10.074	0.570	0.906	0.094	32.16
57.6	4.18	1.333	2.087	0.133	32.056	10.422	0.601	0.940	0.060	32.57
65.1	4.78	1.396	2.163	0.056	29.295	10.613	0.629	0.975	0.025	32.83
72.6	5.41	1.465	2.239	-0.020	27.154	10.903	0.660	1.009	-0.009	33.19
80.1	5.99	1.527	2.337	-0.118	25.591	11.095	0.688	1.053	-0.053	33.17
87.6	6.62	1.598	2.454	-0.235	24.231	9.473	0.720	1.106	-0.106	33.08
95.2	7.25	1.647	2.558	-0.339	22.780	8.793	0.742	1.153	-0.153	32.77
102.7	7.86	1.708	2.676	-0.457	21.783	9.273	0.769	1.206	-0.206	32.54
110.2	8.47	1.760	2.761	-0.542	20.834	9.171	0.793	1.244	-0.244	32.51
117.7	9.00	1.811	2.862	-0.642	20.189	8.520	0.816	1.289	-0.289	32.33
125.2	9.63	1.857	2.957	-0.737	19.343	6.262	0.837	1.332	-0.332	32.14
132.7	10.21	1.888	3.044	-0.824	18.540	6.944	0.851	1.371	-0.371	31.81
140.2	10.80	1.939	3.123	-0.903	17.996	6.704	0.874	1.407	-0.407	31.84
147.7	11.40	1.967	3.233	-1.014	17.309	5.730	0.886	1.457	-0.457	31.32
155.2	11.97	2.006	3.291	-1.072	16.803	5.396	0.904	1.483	-0.483	31.36
162.7	12.54	2.029	3.371	-1.151	16.220	3.629	0.914	1.519	-0.519	31.05
172.7	13.37	2.055	3.426	-1.207	15.411	2.476	0.926	1.544	-0.544	30.96
187.7	14.63	2.078	3.508	-1.289	14.238	0.102	0.936	1.581	-0.581	30.64
202.7	15.85	2.059	3.577	-1.357	13.017	-0.784	0.928	1.612	-0.612	29.92
217.7	17.07	2.058	3.657	-1.437	12.089	-0.242	0.927	1.648	-0.648	29.38
232.7	18.37	2.052	3.737	-1.518	11.200	-0.295	0.925	1.684	-0.684	28.77
247.8	19.64	2.051	3.776	-1.556	10.470	-0.289	0.924	1.701	-0.701	28.51
262.8	20.90	2.045	3.798	-1.579	9.808	-0.764	0.921	1.711	-0.711	28.30
277.8	22.18	2.031	3.792	-1.573	9.181	-1.903	0.915	1.709	-0.709	28.18
292.8	23.45	1.996	3.794	-1.575	8.534	-3.290	0.900	1.710	-0.710	27.75
307.8	24.72	1.948	3.762	-1.543	7.902	-1.788	0.878	1.695	-0.695	27.37
322.8	25.94	1.951	3.761	-1.542	7.541	0.471	0.879	1.695	-0.695	27.42
337.8	27.23	1.960	3.768	-1.549	7.218	0.003	0.883	1.698	-0.698	27.48
352.8	28.53	1.951	3.757	-1.538	6.856	-0.278	0.879	1.693	-0.693	27.44
367.8	29.78	1.953	3.743	-1.524	6.573	0.112	0.880	1.687	-0.687	27.55



STATIC DSS TEST

K_o Consolidation - OCR = NA
 Sample: Comp-BB - Depth: NA ft
 Boring TP2317/TP2334
 Exelon (Victoria)

KAW 7/16/08



STATIC DSS TEST
 K_0 Consolidation - OCR = NA
 Sample: Comp-BB - Depth: NA ft
 Boring TP2317/TP2334

KAW 7/16/08

DIRECT SIMPLE SHEAR TEST (ASTM D 6528-07): Specimen Setup / Take Down

Project Number: 0411-08-1686 Test Type: SDSS Sta. No.: 5G File Name: Comp-Bb
 Task No.: NA Assign, $\sigma'_{v,c}$ = 4.32 ksf $K_{c,DSS} (\tau_{h,c} / \sigma'_{v,c})$ = NA
 Project Name: Exelon (Victoria) Induced OCR = NA $K_{ub,DSS} (\tau_{hu,b} / \sigma'_{v,c})$ = NA
 Test No.: NA Test Series for/on: NA Type Stage: NA = NA NA NA & NA
 Assig. Remarks: Specific Gravity: 2.693 ☒ Meas.; ☐ Assumed

☐ Tube	☐ Field Extruded	☐ Liner	☒ Remolded	☒ Tamping	Constant Effort:	Blows/Tamps per Layer = 11
Boring No.: TP2317/TP2334	☐ LPC Core			Impact/Rammer	Rammer Wgt. (lb) =	No. Layers = 3.00
Sample No.: Comp-B	Composite No.:			Pluviated:	Tamper Force (lb) = 4.00	Drop (in.) = 12.00
Depth (ft): NA	Specimen No.: B			Kneading	Undercompaction: $U_{nl} (%)$ =	Dia. (in.) = 1.40
☐ Spec. Selection by X-ray;	☐ Geomarine Sample				Ref. Effort = MOD	% Comp. = 95.0 ± Opt. = +4

Type	☒ K_o at:	☒ Incremental	☐ Anisotropic at:	Inclined Stress Path, $K_{c,DSS}$	☐ Used Automated System
Consolidation:		CRS		90° Stress Path	Remarks:
Loading	☒ Static	☒ Strain	☐ Creep	☒ Const. Vol./Ht	☒ Without - Water
Conditions:	☐ Rapid	☐ Stress	☐ Post Cyclic	☐ Drained	☐ With - Bath
					Cyclic (Hz) Rate: 0.1; Strain 1; Other:

Water Content (WC);	Initial - Trimming Location			Final, W_{at} (see below)	Soil and Ring Masses		Initial	Final
	Top ($W_{0,1}$)	Bottom ($W_{0,2}$)	Sides ($W_{0,3}$)		Mass Moist Soil + Tare (g)	Mass Tare (g)		
Container No.	4194			4018	Mass Moist Soil, $M_{t,0}$ Mt. _{at} (g)	183.31	144.01	
Mass Moist Soil + Cont. (g)	118.49			68.08	Mass Moist Soil, $M_{t,0}$ Mt. _{at} (g)	138.10	139.70	
Mass Dry Soil + Container (g)	106.28			62.27	Excess Dry Soil (soil not included in final mass above)			
Mass Container (g)	29.57			30.11	Container No.			
WATER CONTENT (%)	15.92			18.07	Mass Dry Soil + Container (g)			
Avg. Initial WC, $W_{0,avg} (%)$	15.92			Whole Spec.	Mass Container (g)			
See attached data sheet(s) for additional water contents					Mass Excess Dry Soil (g)			
					0.00			

Specimen Trimming:				
☐ Trimming Ring for Fugro Apparatus	NL6	Large-ring ID #		
☒ Trimming Ring for NGI Apparatus		Small-ring ID #		
$H_{s,t}$ (mm):	18.60	$A_{s,t}$ (cm ²):	34.68	
$D_{s,t}$ (mm):	66.45	$V_{s,t}$ (cm ³):	64.50	
Remarks:				
☐ Free Standing by Wire Saw Lathe or Reconstituted Spec. (mm)				
Height (H_t)	Diameter (D_0)	Remarks:		
1 18.650	1-T NA			
2 18.590	2-M NA			
3 18.610	3-B NA			
4 18.570	1'-T NA	For Free Standing		
5 18.550	2'-M NA	or Reconstituted Spec.:		
Avg.	3'-B NA	A_{tr} (cm ²):	NA	
= 18.600	Avg NA	V_{tr} (cm ³):	NA	

Note: NA indicates not applicable.

F or G in the Sta. No. indicates Fugro or GEOTAC apparatus.

Estimated Initial Unit Weight	
Total, $\gamma_{t,0}$ (lb/ft ³) = 133.67	Dry, $\gamma_{d,0}$ (lb/ft ³) = 115.32

Specimen Lateral Confinement by:				
Wire Reinforced, Model:		Thickness (mm) =		
Stress	Dia. by PiTape (mm)	Area, $A_{c,n}$		
Level	Meas.	Corr.	(cm ²)	(in ²)
0				
$\sigma'_{v,c}$				
$\sigma'_{v,max}$				
☒ Regular Membrane with Ring Set No. 5	ID, Rings (mm)			
Thickness (mm):	Top: 0.59	= 67.06		
☐ Single	Bottom: 0.62	Corr. for mem.		
☒ Double	Membr. Thick. = 0.30	= 66.450		
Area Ring with mem., A_0 (cm ²) = 34.68		; (in ²) = 5.375		
Mass Top Cap, etc., M_{tc} = 528.0 g		1.16 lbf		
Data corr. for M_{tc} :	☒ Yes;	☐ No	Plattens with Pins:	☐ Yes; ☒ No

Final Visual Description: Gray Lean CLAY with sand (CL)

Other Remarks:

Trim./ Recon. By: DBN

Setup By: HC

Take Down By: HC

Date: 4/18/2008

Date: 4/18/2008

Date: 4/21/2008

Prelim. Calc. By: LF

Final Calc. By: LF

Reviewed By: HP

Specimen Take Down: ☒ Spec. removed right after shearing

☐ Spec. unloaded to zero stress with access to water

Remarks:

KAW 6/13/08

DIRECT SIMPLE SHEAR TEST (ASTM D 6528-07): Specimen Calculations & Summary

Project Number: 0411-08-1686 Test Station No.: 5G File Name: Comp-Bb
 Task Number: NA Specific Gravity: 2.693 ☒ Measured; ☐ Assumed
 Type Test: SDSS Specimen: ☐ "Undisturbed"; ☒ Reconstituted; ☒ Remolded Boring No.: TP2317/TP2334
 Calculations Corr. for Salt (dissolved solids): ☒ No or, ☐ Yes, with concentration = _____ ppm Sample No.: Comp-BB

Consolidation Stress Summary and Loading Summary									
Test Stage:	Max. Stress	Pre-Shear	Post Cyclic	X	Static Strain Rate =	NA	(%/hr or)		
Nominal Vertical Stress, σ'_v (ksf)	NA	4.32	NA		Cyclic Rate (Hz):	0.1;	1;	Other =	
Axial/Vertical Force, $P_{v,n}$ (lbf)	NA	NA	NA		During/End of Loading		Static	Cyclic	
Horizontal Force, $P_{h,n}$ (lbf)	NA	0	NA		Change in Height, $\Delta H_{L,n}$ (mm)		NA	NA	
Nominal OCR	NA	NA	NA		Change in Vol., $\Delta V_{L,n}$ (cm ³)		NA	NA	
t_c (ON, days, hrs)	NA	0.75 days	NA		Post Cy. Displ. Reset to Null Position:		Yes;	No	

☐ Undrained ambient stress applied: with Delta shear force (lbf) = NA & Duration (min) = NA & Delta disp., $\Delta d_{h,ua}$ (mm) = NA

Trimmed Specimen (TS) - Initial Water Contents over Saturation (%):					
	Top, $W_{o,1}$	Bottom, $W_{o,2}$	Sides, $W_{o,3}$	Avg., $W_{o,avg}$	Select., $W_{o,s}$
W_o	15.92			15.92	15.92
S_o	94.2			94.2	94.2
Measured final mass of moist soil, M_{lat} (g)					139.70
Final mass of moist soil corrected for excess dry soil, $M_{lat,c}$ (g)					139.70

Calculated Mass of Dry Soil (g)	
Initial Selected Water Content (%)	15.92
Initial, $M_{d,o}$	119.13
Final, $M_{d,at}$	118.32
Selected, M_d	118.73

Initial Back Cal. Specific Gravity (TS):	
Selected S_o (%)	
Selected W_o (%)	
Specific Gravity, $G_{s,bc}$	

Height/Volume Change Summary			
Variation in Height & Volume During Consol.	During Initial Consol. to $\sigma'_{v,c}$ or $\sigma'_{vc,max}$	During Rebound to $\sigma'_{v,c}$	Specimen Unloaded After Test To
Stress Units (ksf)	4.320	NA	NA
Sign Convention: (+) ΔV out & ΔH down; (-) ΔV in & ΔH up			
Delta Def. Read., $\Delta d_{ar,n}$ (mm)	0.320		
Total Equip. Comp., $\Sigma \Delta d_{af,c}$ (mm)	0.000		
Corr. Total Def. $\Delta H_{c,n}$ (mm)	0.320		
ΔV_n using A_o - spec. (cm ³)	1.11		
ΔV_n using $A_{c,n}$ - app. (cm ³)	1.11		
ΔV_n using burette meas. (cm ³)	-1.30		
Selected ΔV_n (cm ³)	1.11	NA	NA = ΔV_{UL}
After Test WC Corr. for ΔV during Shear & Unloading, W_{alc} (%)			NA

Calculation of ΔV_o by Different Procedures			
By Selected Volumes		By Change in Mass	
ΔV_c (cm ³)	1.11	$\sim M_{L,o} - (M_{lat,c} + \Delta V_L + \Delta V_{UL})$	
By Cal. Height & App. Area		ΔV_c (cm ³)	-1.60
ΔV_c (cm ³)	1.11	By Saturation = 100% and Spec. Unloaded to 0 Stress	
By Cal. Ht. & Init. Spec. Area		ΔV_c (cm ³)	NA
ΔV_c (cm ³)	1.11		

Back Cal. Water Content During Consol. - Based on the Consolidation Conclusions Given Below	
Assumed Saturation (%)	100.00
Back Cal. WC before Loading, $W_{c,bc}$ (%)	16.17
Back Cal. WC at Max. Stress, $W_{cmax,bc}$ (%)	NA

Consolidation & Preshear Conclusions	ΔV_c (cm ³) =	1.10	ΔH_c (mm) =	0.320	$\epsilon_{a,c}$ (%) =	1.72	$\Delta V_{c,max}$ (cm ³) =	NA
	V_c (cm ³) =	63.40	H_c (mm) =	18.280	$\epsilon_{v,c}$ (%) =	1.71	$\epsilon_{ac,max}$ (%) =	NA
	A_c (cm ²) =	34.68	$\Delta \gamma_c$ (mm) =	NA	γ_c (%) =	NA	Preshear: γ_{ua} (%) =	NA

Summary of Specimen Physical Properties:								
Specific Gravity: $G_s = 2.693$ Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Total Unit Weight (pcf)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio, e
Condition:								
Initial (as trimmed)	18.600	64.50	34.68	16.3	133.7	114.9	95.4	0.463
After to $\sigma'_{v,c}$	18.280	63.40	34.68	16.2	135.8	116.9	100.0	0.438
Consol.: to $\sigma'_{vc,max}$	NA	NA	NA	NA	NA	NA	NA	NA

LCA-Method: 1 - Initial measured value remains constant. 4 - Based on change in height & volume. Calculated By: LF
 & Note(s) 2 - Initial measured value corrected for applied stress. NA - Not Applicable Reviewed By: HP
 3 - Uses measured value at appropriate stress level (NA for rings).
 Remarks: t95 for max stress = 1.8 min

Project Number: 0411-08-1686 Test Type: SDSS Test Sta. No.: 5G File Name: Comp-Bb
 Project Name: Exelon (Victoria) Task No.: NA Test No.: NA Test Series for: NA

☐ Tube	☐ Field Extruded	☐ Liner	☒ Remolded	☒ Tamping	Constant Effort: Blows/Tamps per Layer = 11 Rammer Wgt. (lbf) = _____ No. Layers = 3.00 Tamper Force (lbf) = 4.00 Drop (in.) = 12.00 Undercompaction: U_{ni} (%) = _____ Dia. (in.) = 1.40 Ref. Effort = MOD % Comp. = 95.0 $\pm$ Opt. = +4
Boring No.: TP2317/TP2334	☐ LPC Core	☐ Impact/Rammer	☐ Pluviated:		
Sample No.: Comp-B	Compostite No.: _____	☐ Kneading			
Depth (ft): NA	Specimen No.: B				
☐ Spec. Selection by X-ray;	☐ Geomarine Sample				

Type Consolidation:	☒ K_o at:	☒ Incremental CRS	☐ Anisotropic at:	☐ Inclined Stress Path, $K_{c,DSS}$	☐ Used Automated System
Loading Conditions:	☒ Static	☒ Strain Stress	☐ Creep Post Cyclic	☒ Const. Vol./Ht Drained	☒ Without - Water With - Bath
	☐ Dynamic				☐ Cyclic (Hz) Rate: 0.1; ☐ Strain 1; Other: _____

Summary of Specimen Physical Properties										
Specific Gravity: $G_s = 2.693$ Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Total Unit Weight (pcf)	Dry Unit Weight (pcf)	Saturation (%)	LL PL	-200 %	Void Ratio, e
Condition: Initial	18.60	64.50	34.68	16.32	133.7	114.9	95.4	44	73.6	0.463
After to $\sigma'_{v,c}$	18.28	63.40	34.68	16.17	135.8	116.9	100.0	15	NA	0.438
Consol.: to $\sigma'_{v,c,max}$	NA	NA	NA	NA	NA	NA	NA	29	NA	NA

Consolidation Stress Summary and Loading Summary										
Item	Unit	Max. Stress	Pre-Shear	Post Cyclic	☒ Static Strain Rate = 4.7 %/hr.					
Vert. Consol. Stress, $\sigma'_{v,c}$	(ksf)	NA	4.350	NA	Cyclic Rate (Hz):	0.1;	1;	Other =		
Induced OCR:	-	NA	NA	NA	During/End of Loading		Static	Cyclic		
Axial Strain during Consol., $\epsilon_{a,c}$	%	NA	1.72	NA	Change in Height, $\Delta H_{L,n}$ (mm):		NA	NA		
Horiz. Consol. Stress, $\tau_{h,c}$	(ksf)	NA	NA	NA	Change in Vol., $\Delta V_{L,n}$ (cm ³):		NA	NA		
Consol. Stress Ratio, $\tau_{h,c} / \sigma'_{v,c}$	-	NA	NA	NA	Post Cy. Displ. Reset to Null Pos.:		Yes;	No		
Shear Strain during Consol., $\epsilon_{h,c}$	%	NA	NA	NA	Number of Loading Cycles, N =		NA			
Undr. Ambient Shear Stress, $\tau_{h,amb}$	(ksf)	NA	NA	NA	$\pm \tau_h =$ NA (ksf)		$\pm \gamma =$ NA %			
Undr. Ambient Shear Strain, $\epsilon_{h,amb}$	%	NA	NA	NA	at end of cyclic loading, $\sigma'_{v,c,y,r} =$		NA (ksf)			

Weight Top Cap, etc., M_{tc} (lbf): 1.16	Data Normalization: ☒ Yes ☐ No Value: 4.350 (ksf)
Data corr. for M_{tc} : ☒ Yes; ☐ No	Plattens with Pins: ☐ Yes; ☒ No
Wire Reinforced Membrane, Model: _____	Data corr. for Membr. strength: ☐ Yes ☒ No
☒ Regular Membrane with Rings	☒ Pre-Shear Conditions ☐ Post-Cyclic Conditions
	Maximum Stress during Consol. _____

Notes: See Fugro South, Inc. Notation Listing for definition of symbols and acronyms.

F or G in the Test Sta. No. indicates Fugro or GEOTAC apparatus.

NA - Not Applicable

Final Visual Description and Remarks: Gray Lean CLAY with sand (CL)

Loading Summary						
	τ_h (ksf)	γ (%)	σ'_v (ksf)	τ_h / σ'_v -	$\Delta \sigma'_v / \sigma'_{v,c}$ -	$c_u / \sigma'_{v,c}$ -
at Peak Shear Stress	1.863	9.20	3.305	0.564	0.240	0.428
at Maximum Strain	1.597	29.00	3.011	0.531	0.308	-