

Project Number: 0411-08-1686
Project Name: Exelon (Victoria)

Test Type: SDSS Test Sta. No.: 10G File Name: Comp-Af
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.(lbf)=	No. Layers = 3.00
Sample No.: Comp-A	Compostite No.:			Pluviated:	Tamper Force (lbf)= 4.00	Drop (in.) = 12.00
Depth (ft): NA	Specimen No.: F			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
Loading Conditions:	☒ Static	☒ Strain Stress	☐ Creep Post Cyclic	☒ Const. Vol./Ht Drained	☒ Without - Water With - Bath
	☐ Dynamic	☐ Stress		☐ Cyclic (Hz) Rate: 0.1;	☐ Strain 1; Other:

Summary of Specimen Physical Properties										
Specific Gravity: $G_s = 2.659$ Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Total (pcf)	Dry (pcf)	Saturation (%)	LL PL	-200 %	Void Ratio, e
Condition: Initial	18.53	64.24	34.68	14.24	136.8	119.8	98.7	34	46.4	0.386
After to $\sigma'_{v,c}$	16.49	57.17	34.68	8.70	146.3	134.6	100.0	12	NA	0.233
Consol.: to $\sigma'_{vc,max}$	NA	NA	NA	NA	NA	NA	NA	22	NA	NA

Consolidation Stress Summary and Loading Summary										
Item	Unit	Max. Stress	Pre-Shear	Post Cyclic	☒ Static Strain Rate = 4.7 %/hr.					
Vert. Consol. Stress, $\sigma'_{v,c}$	(ksf)	NA	28.899	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	11.01	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, $\sigma'_{vc,y}$ =		NA (ksf)			

Weight Top Cap, etc., M_{tc} (lbf): 1.16	Data Normalization: ☒ Yes ☐ No Value: 28.899 (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.

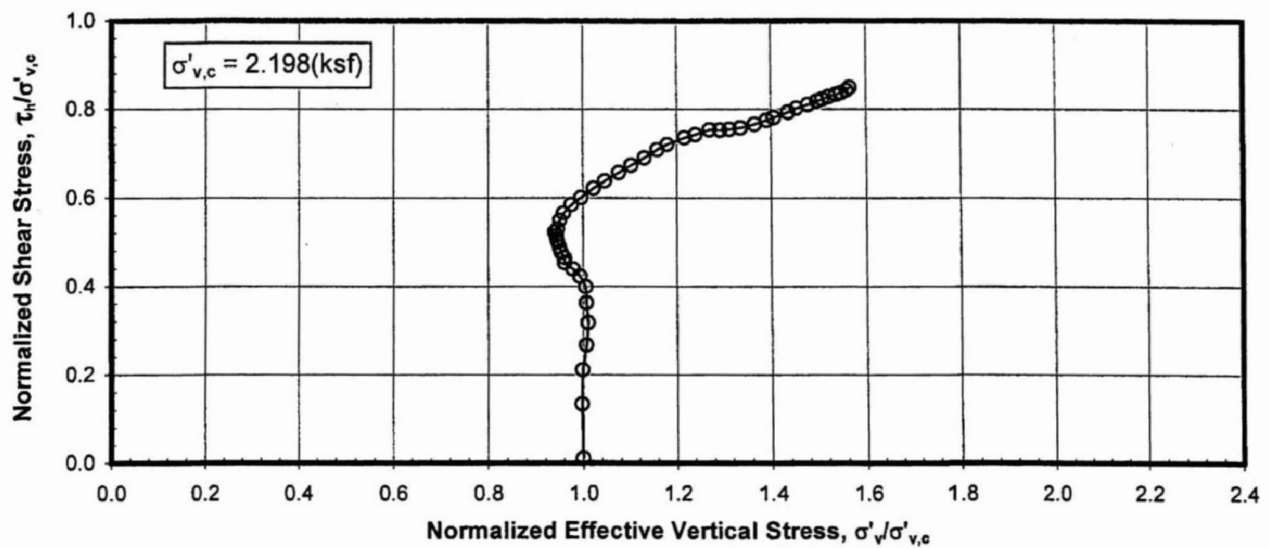
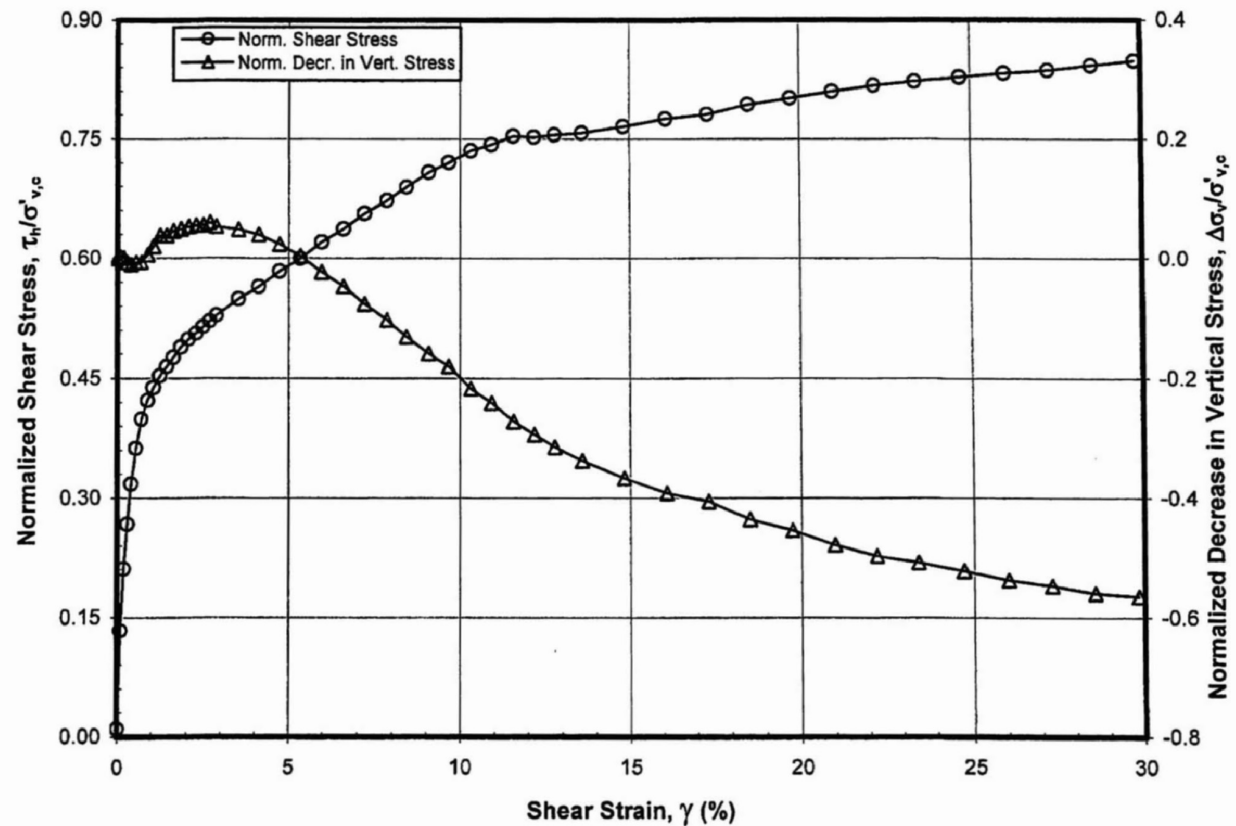
NA - Not Applicable

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

Loading Summary						
	τ_h (ksf)	γ (%)	σ'_v (ksf)	τ_h / σ'_v	$\Delta \sigma'_v / \sigma'_{v,c}$	$c_u / \sigma'_{v,c}$
at Peak Shear Stress	7.647	15.55	18.105	0.422	0.373	0.265
at Maximum Strain	7.176	29.59	15.500	0.463	0.464	-

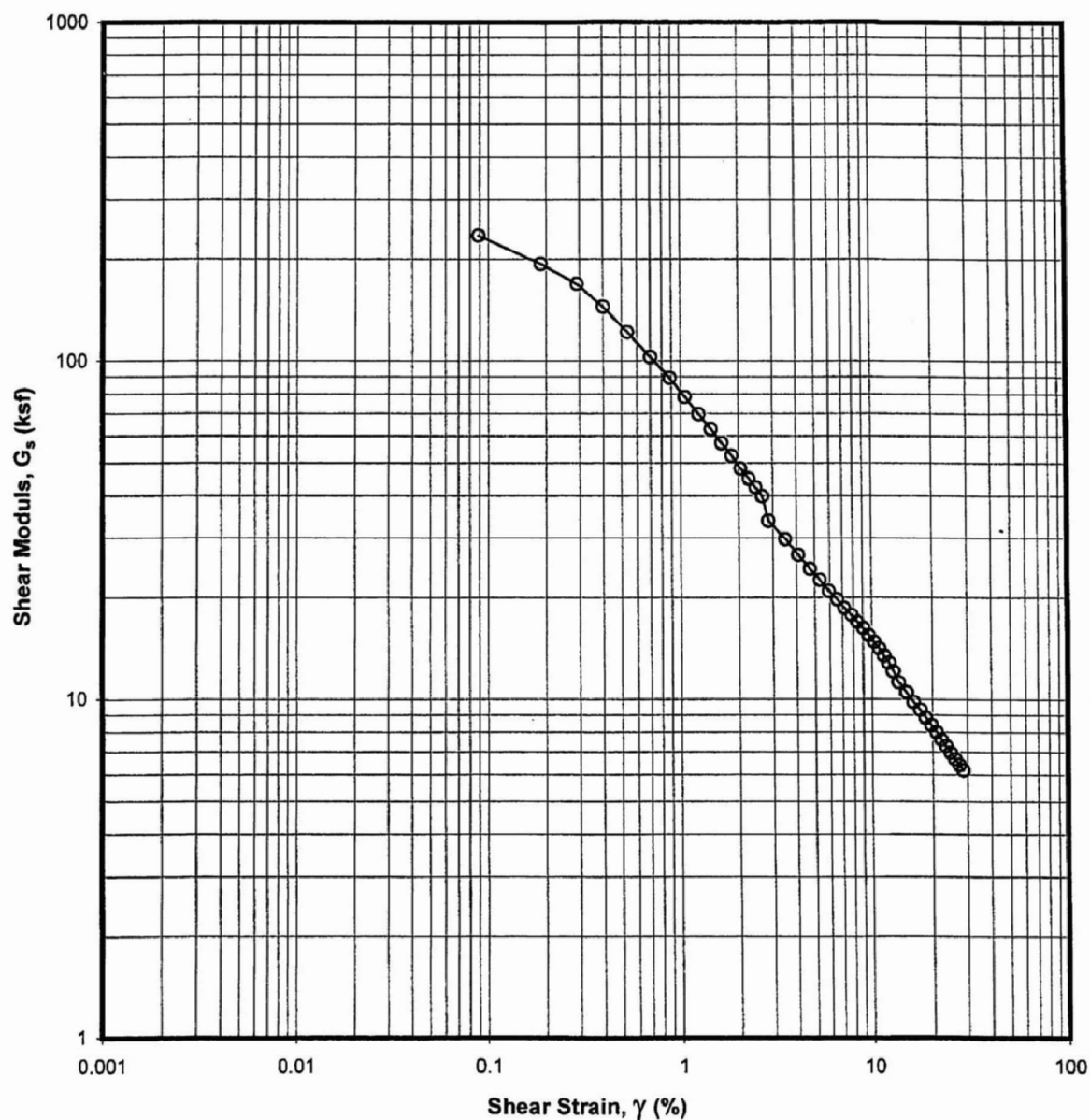
Boring No.: TP2319/TP2334 Sample No.: Comp-AF

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	-0.009	28.899	0.000	-	-	0.000	1.000	0.000	-0.02
2.7	0.00	0.225	28.964	-0.065	4720.180	2963.455	0.008	1.002	-0.002	0.45
5.4	0.05	0.714	29.131	-0.233	1589.330	961.150	0.025	1.008	-0.008	1.40
8.1	0.10	1.103	29.095	-0.197	1113.172	571.482	0.038	1.007	-0.007	2.17
10.8	0.17	1.387	28.944	-0.046	839.398	401.788	0.048	1.002	-0.002	2.74
13.5	0.23	1.643	28.850	0.049	704.824	362.166	0.057	0.998	0.002	3.26
16.2	0.31	1.904	28.680	0.218	618.457	350.109	0.066	0.992	0.008	3.80
18.9	0.39	2.189	28.466	0.432	563.268	347.966	0.076	0.985	0.015	4.40
21.5	0.48	2.514	28.286	0.613	520.435	364.732	0.087	0.979	0.021	5.08
24.2	0.56	2.819	28.098	0.800	501.493	398.187	0.098	0.972	0.028	5.73
26.9	0.64	3.150	27.902	0.996	490.167	411.348	0.109	0.966	0.034	6.44
29.6	0.73	3.517	27.664	1.235	480.657	398.045	0.122	0.957	0.043	7.25
32.3	0.83	3.890	27.495	1.404	469.372	373.219	0.135	0.951	0.049	8.05
35.0	0.94	4.277	27.248	1.651	457.167	340.409	0.148	0.943	0.057	8.92
37.7	1.06	4.666	26.958	1.941	441.204	280.251	0.161	0.933	0.067	9.82
40.4	1.20	5.012	26.604	2.295	417.528	214.101	0.173	0.921	0.079	10.67
43.1	1.35	5.285	26.355	2.544	392.398	177.219	0.183	0.912	0.088	11.34
45.8	1.49	5.530	26.010	2.889	370.551	141.430	0.191	0.900	0.100	12.00
53.8	2.02	6.128	25.008	3.891	304.356	85.510	0.212	0.865	0.135	13.77
61.9	2.61	6.461	24.043	4.855	248.052	50.452	0.224	0.832	0.168	15.04
70.0	3.19	6.722	23.254	5.644	210.833	35.947	0.233	0.805	0.195	16.12
78.0	3.86	6.904	22.538	6.360	179.072	25.590	0.239	0.780	0.220	17.03
86.1	4.48	7.052	21.959	6.940	157.565	20.887	0.244	0.760	0.240	17.80
94.2	5.18	7.177	21.395	7.503	138.790	14.697	0.248	0.740	0.260	18.54
102.3	5.82	7.251	20.951	7.948	124.750	14.058	0.251	0.725	0.275	19.09
110.3	6.49	7.363	20.605	8.293	113.514	9.356	0.255	0.713	0.287	19.66
118.4	7.15	7.377	20.291	8.608	103.297	6.961	0.255	0.702	0.298	19.98
126.5	7.83	7.458	20.032	8.867	95.300	6.716	0.258	0.693	0.307	20.42
134.5	8.51	7.468	19.780	9.119	87.849	6.880	0.258	0.684	0.316	20.69
142.6	9.19	7.551	19.578	9.321	82.261	5.509	0.261	0.677	0.323	21.09
150.7	9.90	7.543	19.361	9.538	76.268	2.459	0.261	0.670	0.330	21.29
158.7	10.55	7.582	19.195	9.703	71.966	2.757	0.262	0.664	0.336	21.55
166.8	11.25	7.578	18.999	9.899	67.438	1.550	0.262	0.657	0.343	21.75
174.9	11.89	7.602	18.818	10.081	64.015	2.015	0.263	0.651	0.349	22.00
185.6	12.82	7.605	18.668	10.231	59.386	1.319	0.263	0.646	0.354	22.16
201.7	14.18	7.636	18.347	10.551	53.899	1.533	0.264	0.635	0.365	22.60
217.9	15.55	7.647	18.105	10.794	49.241	-0.419	0.265	0.627	0.373	22.90
234.0	16.91	7.625	17.889	11.010	45.148	-1.534	0.264	0.619	0.381	23.09
250.1	18.30	7.604	17.661	11.238	41.598	-1.987	0.263	0.611	0.389	23.30
266.3	19.69	7.569	17.436	11.463	38.490	-2.958	0.262	0.603	0.397	23.47
282.4	21.09	7.522	17.186	11.712	35.702	-3.358	0.260	0.595	0.405	23.64
298.5	22.49	7.475	16.868	12.031	33.273	-3.568	0.259	0.584	0.416	23.90
314.7	23.91	7.421	16.641	12.258	31.075	-4.112	0.257	0.576	0.424	24.04
330.8	25.34	7.358	16.364	12.534	29.077	-3.786	0.255	0.566	0.434	24.21
346.9	26.76	7.313	16.101	12.797	27.357	-4.399	0.253	0.557	0.443	24.43
363.0	28.18	7.233	15.797	13.101	25.699	-4.869	0.250	0.547	0.453	24.60
379.2	29.59	7.176	15.500	13.398	24.281	-4.104	0.248	0.536	0.464	24.84



STATIC DSS TEST
 K_o Consolidation - OCR = NA
Sample: Comp-AG - Depth: NA ft
Boring TP2319/TP2334
Exelon (Victoria)

KAW 7/16/08



STATIC DSS TEST
 K_0 Consolidation - OCR = NA
 Sample: Comp-AG - 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.: 10G File Name: Comp-Ag
 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: 2.659 ☒ 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	Composite No.:			Pluviated:	Tamper Force (lb) = 4.00	Drop (in.) = 12.00
Depth (ft): NA	Specimen No.: G			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	☐ Anisotropic at:	Inclined Stress Path, $K_{c,DSS}$	☐ Used Automated System
		CRS		90° Stress Path	Remarks:
Loading Conditions:	☒ Static	☒ Strain	☐ Creep	☒ Const. Vol./Ht	☒ Without - Water
	☐ 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 ($W_{a,1}$)	Bottom ($W_{a,2}$)	Sides ($W_{a,3}$)		Mass Moist Soil + Tare (g)	Mass Tare (g)		
Container No.	4112			4051	Mass Moist Soil, $M_{t,o}$ (g)	183.30	324.21	146.87
Mass Moist Soil + Cont. (g)	105.88			64.83	Mass Moist Soil, $M_{t,o}$ (g)	140.91	140.91	142.14
Mass Dry Soil + Container (g)	96.54			60.21	Excess Dry Soil (soil not included in final mass above)			
Mass Container (g)	30.07			29.75	Container No.			
WATER CONTENT (%)	14.05			15.17	Mass Dry Soil + Container (g)			
Avg. Initial WC, $W_{o,avg} (%)$	14.05			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 #	
$H_{s,t} (mm)$:	18.55	$A_{s,t} (cm^2)$:	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_t)	Diameter (D_o)	Remarks:	
1 18.560	1-T NA	For Free Standing or Reconstituted Spec.:	
2 18.580	2-M NA		
3 18.520	3-B NA		
4 18.550	1'-T NA		
5 18.530	2'-M NA		
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, $\gamma_{t,o} (lb/ft^3)$ =	136.76
Dry, $\gamma_{d,o} (lb/ft^3)$ =	119.91

Specimen Lateral Confinement by:				
Wire Reinforced, Model:		Thickness (mm) =		
Stress Level	Dia. by PiTape (mm)	Area, $A_{c,n}$ (cm ²)	(in ²)	
	Meas.	Corr.		
0				
$\sigma'_{v,c}$				
$\sigma'_{v,max}$				
☒ Regular Membrane with Ring Set No. 9	ID, Rings (mm)			
Thickness (mm):	Top: 0.61	= 67.08		
☐ Single	Bottom: 0.65	Corr. for mem.		
☒ Double	Membr. Thick. = 0.32	= 66.450		
Area Ring with mem., $A_o (cm^2)$ =		34.68	; (in ²) = 5.375	
Mass Top Cap, etc., M_{tc} =		500.0 g,	1.10	lb
Data corr. for M_{tc} :	☒ Yes;	☐ No	Plattens with Pins:	☐ Yes; ☒ No

Other Remarks:

Trim./ Recon. By: DBN

Setup By: HC

Take Down By: HC

Date: 5/2/2008

Date: 5/2/2008

Date: 5/5/2008

Prelim. Calc. By: HC

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.: 10G File Name: Comp-Ag
 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-AG

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, $P_{w,n}$ (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	0.66 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., $W_{o,avg}$	Selct., $W_{o,s}$
W_o	<u>14.05</u>			<u>14.05</u>	<u>14.05</u>
S_o	<u>97.8</u>			<u>97.8</u>	<u>97.8</u>
Measured final mass of moist soil, $M_{t,at}$ (g)					<u>142.14</u>
Final mass of moist soil corrected for excess dry soil, $M_{t,at,c}$ (g)					<u>142.14</u>

Calculated Mass of Dry Soil (g)	
Initial Selected Water Content (%)	<u>14.05</u>
Initial, $M_{d,o}$	<u>123.55</u>
Final, $M_{d,at}$	<u>123.42</u>
Selected, M_d	<u>123.49</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>2.160</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>0.350</u>		
Total Equip. Comp., $\Sigma \Delta d_{af,c}$ (mm)	<u>0.000</u>		
Corr. Total Def. $\Delta H_{c,n}$ (mm)	<u>0.350</u>		
ΔV_n using A_o - spec. (cm ³)	<u>1.21</u>		
ΔV_n using $A_{c,n}$ - app. (cm ³)	<u>1.21</u>		
ΔV_n using burette meas. (cm ³)	<u>0.90</u>		
Selected ΔV_n (cm ³)	<u>1.21</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>1.21</u>	$\sim M_{L,o} - (M_{t,at,c} + \Delta V_L + \Delta V_{uL})$	
By Cal. Height & App. Area		ΔV_c (cm ³)	<u>-1.23</u>
ΔV_c (cm ³)	<u>1.21</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>1.21</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>13.41</u>
Back Cal. WC at Max. Stress, $W_{c,max,bc}$ (%)	<u>NA</u>

Consolidation	ΔV_c (cm ³) = <u>1.21</u>	ΔH_c (mm) = <u>0.350</u>	$\epsilon_{a,c}$ (%) = <u>1.89</u>	$\Delta V_{c,max}$ (cm ³) = <u>NA</u>
& Preshear	V_c (cm ³) = <u>63.12</u>	H_c (mm) = <u>18.200</u>	$\epsilon_{v,c}$ (%) = <u>1.87</u>	$\epsilon_{ac,max}$ (%) = <u>NA</u>
Conclusions	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	Volume	Area	Water Content	Total Unit Weight	Dry Unit Weight	Saturation	Void Ratio, e
Condition:	(mm)	(cm ³)	(cm ²)	(%)	(pcf)	(pcf)	(%)	
Initial (as trimmed)	<u>18.550</u>	<u>64.32</u>	<u>34.68</u>	<u>14.1</u>	<u>136.8</u>	<u>119.8</u>	<u>98.0</u>	<u>0.385</u>
After to $\sigma'_{v,c}$	<u>18.200</u>	<u>63.12</u>	<u>34.68</u>	<u>13.4</u>	<u>138.5</u>	<u>122.1</u>	<u>100.0</u>	<u>0.359</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. 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 = 1.5 min

Project Number: 0411-08-1686 Test Type: SDSS Test Sta. No.: 10G File Name: _Comp-Ag
 Project Name: Exelon (Victoria) Task No.: NA Test No.: NA Test Series for: NA

Tube	Field Extruded	Liner	X	Remolded	X	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) =	Drop (in.) =	12.00
Depth (ft):	NA	Specimen No.:	G			Kneading	X Undercompaction:	U _{ni} (%) =	Dia. (in.) = 1.40
Spec. Selection by X-ray:		Geomarine Sample					Ref. Effort = MOD	% Comp. = 95.0	± Opt. = +4

Type Consolidation:	X	K _o at:	X	Incremental CRS		Anisotropic at:		Inclined Stress Path, K _{c,DSS}		Used Automated System	
Loading Conditions:	X	Static		Dynamic		Strain Stress		Creep Post Cyclic		Const. Vol./Ht Drained	
		Without - Water		With - Bath		Cyclic (Hz)		Rate: 0.1;		Strain 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 (pcf)		Saturation (%)	LL PL	-200 %	Void Ratio, e
Condition:					Total	Dry		PI		
Initial	18.55	64.32	34.68	14.11	136.8	119.8	98.0	34	46.4	0.385
After to σ' _{v,c}	18.20	63.12	34.68	13.41	138.5	122.1	100.0	12	NA	0.359
Consol.: to σ' _{vc,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 = 4.8 %/hr.				
Vert. Consol. Stress, σ' _{vc}	(ksf)	NA	2.198	NA		Cyclic Rate (Hz):	0.1;	1;	Other =	
Induced OCR:	-	NA	NA	NA		During/End of Loading	Static	Cyclic		
Axial Strain during Consol., ε _{h,c}	%	NA	1.89	NA		Change in Height, ΔH _{L,n} (mm):	NA	NA		
Horiz. Consol. Stress, τ _{h,c}	(ksf)	NA	NA	NA		Change in Vol., ΔV _{L,n} (cm ³):	NA	NA		
Consol. Stress Ratio, τ _{h,c} / σ' _{vc}	-	NA	NA	NA		Post Cy. Displ. Reset to Null Pos.:	Yes;	No		
Shear Strain during Consol., ε _{h,c}	%	NA	NA	NA		Number of Loading Cycles, N =	NA			
Undr. Ambient Shear Stress, τ _{h,ua}	(ksf)	NA	NA	NA		±τ _h = NA (ksf)	±γ = NA %			
Undr. Ambient Shear Strain, ε _{h,ua}	%	NA	NA	NA		at end of cyclic loading, σ' _{vcy,r} =	NA (ksf)			

Weight Top Cap, etc., M _{tc} (lb):	1.10	Data Normalization:	X	Yes		No	Value: 2.198 (ksf)	
Data corr. for M _{tc} :	X	Yes;		No	Plattens with Pins:	Yes;	X	No
Wire Reinforced Membrane, Model:		Data corr. for Membr. strength	X	Pre-Shear Conditions		Post-Cyclic Conditions		
X Regular Membrane with Rings		Yes	X	No	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.

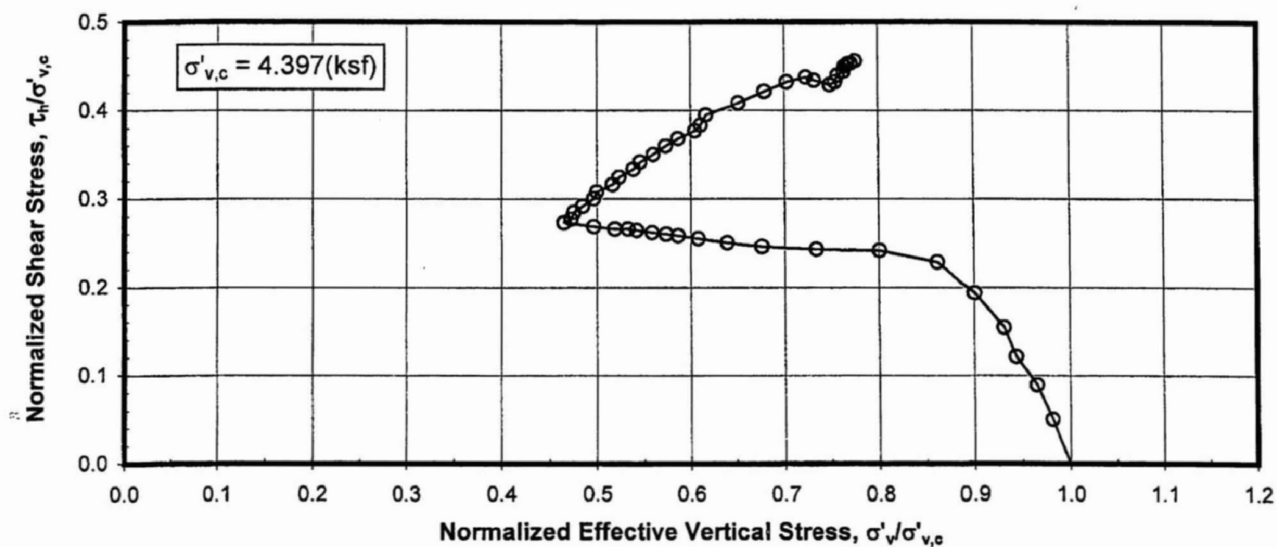
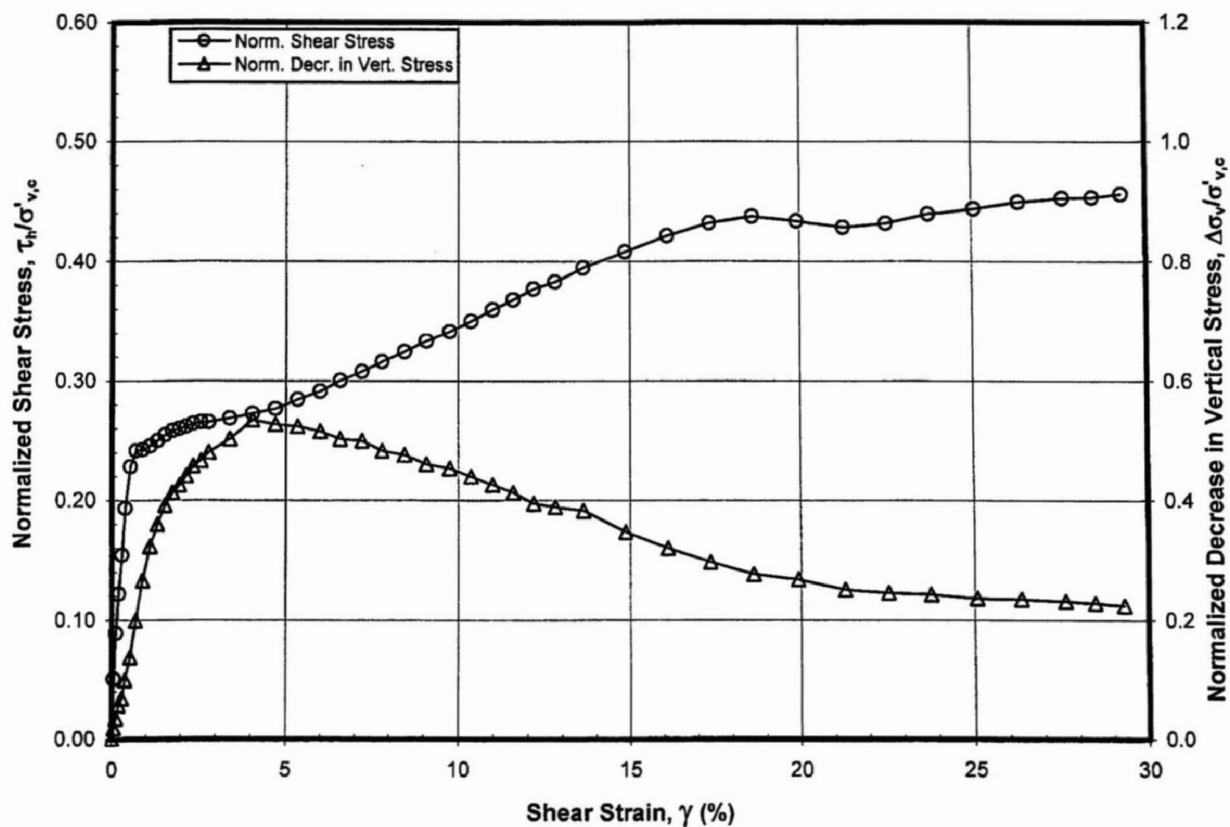
NA - Not Applicable

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	1.864	29.83	3.440	0.542	-0.565	0.848
at Maximum Strain	1.864	29.83	3.440	0.542	-0.565	-

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

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	0.022	2.198	0.000	-	-	0.010	1.000	0.000	0.57
2.5	0.09	0.293	2.193	0.005	305.246	238.340	0.133	0.998	0.002	7.61
5.0	0.19	0.463	2.195	0.002	234.636	145.421	0.211	0.999	0.001	11.91
7.5	0.29	0.587	2.213	-0.015	193.726	110.506	0.267	1.007	-0.007	14.85
10.1	0.40	0.698	2.221	-0.024	168.621	87.208	0.317	1.011	-0.011	17.44
12.6	0.54	0.796	2.213	-0.015	144.542	60.462	0.362	1.007	-0.007	19.78
15.1	0.70	0.876	2.211	-0.014	121.565	38.252	0.399	1.006	-0.006	21.62
17.6	0.88	0.928	2.184	0.013	102.439	24.393	0.422	0.994	0.006	23.02
20.1	1.06	0.963	2.153	0.045	89.021	18.915	0.438	0.980	0.020	24.10
22.7	1.24	0.996	2.114	0.084	78.303	14.970	0.453	0.962	0.038	25.22
25.2	1.44	1.020	2.113	0.085	69.382	12.903	0.464	0.961	0.039	25.77
27.7	1.63	1.046	2.097	0.101	62.749	13.403	0.476	0.954	0.046	26.50
30.2	1.84	1.074	2.089	0.108	57.202	12.019	0.489	0.951	0.049	27.20
32.7	2.05	1.096	2.081	0.117	52.346	8.741	0.499	0.947	0.053	27.78
35.2	2.27	1.111	2.077	0.121	48.011	8.053	0.506	0.945	0.055	28.15
37.8	2.47	1.130	2.076	0.122	44.853	8.687	0.514	0.945	0.055	28.55
40.3	2.67	1.146	2.067	0.131	42.165	8.179	0.521	0.940	0.060	29.00
42.8	2.86	1.162	2.081	0.116	39.800	7.461	0.529	0.947	0.053	29.17
50.3	3.52	1.206	2.091	0.106	33.677	6.359	0.549	0.952	0.048	29.97
57.9	4.11	1.241	2.110	0.088	29.690	6.307	0.565	0.960	0.040	30.46
65.4	4.73	1.283	2.146	0.052	26.647	6.233	0.584	0.976	0.024	30.86
72.9	5.35	1.318	2.190	0.008	24.255	6.532	0.600	0.996	0.004	31.05
80.5	5.97	1.364	2.248	-0.050	22.480	6.501	0.621	1.023	-0.023	31.25
88.0	6.60	1.400	2.301	-0.103	20.874	6.314	0.637	1.047	-0.047	31.32
95.6	7.21	1.442	2.365	-0.168	19.705	6.278	0.656	1.076	-0.076	31.36
103.1	7.85	1.478	2.423	-0.226	18.552	6.028	0.673	1.103	-0.103	31.38
110.7	8.43	1.515	2.486	-0.288	17.715	6.329	0.689	1.131	-0.131	31.36
118.2	9.08	1.556	2.548	-0.350	16.896	5.464	0.708	1.159	-0.159	31.41
125.7	9.67	1.583	2.595	-0.397	16.152	4.790	0.720	1.181	-0.181	31.39
133.3	10.33	1.616	2.675	-0.478	15.435	3.850	0.735	1.217	-0.217	31.13
140.8	10.93	1.632	2.729	-0.531	14.742	3.260	0.743	1.242	-0.242	30.89
148.4	11.56	1.656	2.796	-0.599	14.136	1.698	0.754	1.272	-0.272	30.64
155.9	12.18	1.654	2.845	-0.647	13.403	0.288	0.753	1.294	-0.294	30.18
163.4	12.79	1.660	2.890	-0.692	12.811	0.818	0.755	1.315	-0.315	29.87
173.5	13.59	1.666	2.940	-0.742	12.094	1.065	0.758	1.338	-0.338	29.53
188.6	14.83	1.683	3.004	-0.806	11.203	1.541	0.766	1.367	-0.367	29.26
203.7	16.09	1.704	3.059	-0.861	10.453	1.311	0.775	1.392	-0.392	29.12
218.7	17.33	1.716	3.090	-0.892	9.775	1.623	0.781	1.406	-0.406	29.04
233.8	18.52	1.743	3.156	-0.958	9.294	1.934	0.793	1.436	-0.436	28.92
248.9	19.74	1.762	3.195	-0.997	8.817	1.500	0.802	1.454	-0.454	28.88
264.0	20.97	1.780	3.249	-1.051	8.384	1.421	0.810	1.478	-0.478	28.71
279.0	22.21	1.797	3.291	-1.093	7.995	1.098	0.818	1.497	-0.497	28.64
294.1	23.45	1.807	3.315	-1.118	7.613	0.889	0.822	1.509	-0.509	28.59
309.2	24.71	1.820	3.346	-1.148	7.276	0.922	0.828	1.522	-0.522	28.54
324.3	26.00	1.831	3.380	-1.182	6.958	0.711	0.833	1.538	-0.538	28.44
339.4	27.28	1.838	3.401	-1.203	6.658	0.812	0.836	1.548	-0.548	28.39
354.4	28.55	1.851	3.427	-1.230	6.408	1.038	0.842	1.559	-0.559	28.38
369.5	29.83	1.864	3.440	-1.242	6.177	1.021	0.848	1.565	-0.565	28.46



STATIC DSS TEST

K_o Consolidation - OCR = NA

Sample: Comp-AH - Depth: NA ft

Boring TP2319/TP2334

Exelon (Victoria)

KAW 7/16/08