



BORING LOG NO. B-1		Page 1 of 1	
PROJECT: Contract Drilling for Proposed Ponds		CLIENT: Ruggles & Bohm, P.A. Wichita, KS	
SITE: SW of 37th Street North and Hoover Road Wichita, Kansas			
GRAPHIC LOG	LOCATION: See Exhibit A-2 Latitude: 37.7493° Longitude: -97.41644° Approximate Surface Elev: 1330.0 (FL) +/-	DEPTH (ft)	ELEVATION (ft)
17.0	0.5 Organic topsoil zone approximately 6" thick		1329.5
17.5	FAT CLAY (CH), with sand, gray-brown, medium stiff	16 3-3-4 N=7	1329.5
18.0	CLAYEY SAND (SC), fine grained, brown, loose	18 3-3-5 N=8	1327.5
18.5	CLAYEY SAND (SC), fine to coarse grained, gray-brown, loose	18 3-4-4 N=8	1322.5
19.0	SAND (SW-SC), with clay, fine to coarse grained, gray-brown, medium dense	18 4-6-12 N=18	1312.5
19.5	- becoming brown below 23'	18 3-4-6 N=10	1305.0
20.0			
20.5			
21.0			
21.5			
22.0			
22.5			
23.0			
23.5			
24.0			
24.5			
25.0			
Boring Terminated at 25 Feet			
Stratification lines are approximate. In-situ, the transition may be gradual.			
Hammer Type: Automatic SPT Hammer			
Advancement Method: Power Auger		Notes:	
Abandonment Method: Boring backfilled with bentonite chips upon completion.		See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.	
WATER LEVEL OBSERVATIONS		Boring Started: 4/21/2014 Boring Completed: 4/21/2014	
10' after boring		Drill Rig: D-120 Driller: SM	
8' after boring		Project No.: 01145058 Exhibit: A-3	
88 - Cave In Level			

BORING LOG NO. B-2		Page 1 of 1	
PROJECT: Contract Drilling for Proposed Ponds		CLIENT: Ruggles & Bohm, P.A. Wichita, KS	
SITE: SW of 37th Street North and Hoover Road Wichita, Kansas			
GRAPHIC LOG	LOCATION: See Exhibit A-2 Latitude: 37.7508° Longitude: -97.41506° Approximate Surface Elev: 1331.0 (FL) +/-	DEPTH (ft)	ELEVATION (ft)
17.0	0.5 Organic topsoil zone approximately 6" thick		1330.5
17.5	FAT CLAY (CH), trace sand, dark gray-brown, medium stiff	16 3-3-4 N=7	1330.5
18.0	SANDY LEAN TO FAT CLAY (CL/CH), brown to gray-brown, medium stiff	14 3-3-4 N=7	1328.5
18.5	CLAYEY SAND (SC), fine to coarse grained, light brown, loose	18 4-4-4 N=8	1324.5
19.0	- trace gravel, gray-brown below 13'	18 2-4-4 N=8	1324.5
19.5	- becoming very loose below 18'	18 1-1-1 N=2	1324.5
20.0		18 2-4-5 N=9	1324.5
20.5			
21.0			
21.5			
22.0			
22.5			
23.0			
23.5			
24.0			
24.5			
25.0			
Boring Terminated at 25 Feet			
Stratification lines are approximate. In-situ, the transition may be gradual.			
Hammer Type: Automatic SPT Hammer			
Advancement Method: Power Auger		Notes:	
Abandonment Method: Boring backfilled with bentonite chips upon completion.		See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.	
WATER LEVEL OBSERVATIONS		Boring Started: 4/21/2014 Boring Completed: 4/21/2014	
10' after boring		Drill Rig: D-120 Driller: SM	
8' after boring		Project No.: 01145058 Exhibit: A-4	
88 - Cave In Level			

BORING LOG NO. B-3		Page 1 of 1	
PROJECT: Contract Drilling for Proposed Ponds		CLIENT: Ruggles & Bohm, P.A. Wichita, KS	
SITE: SW of 37th Street North and Hoover Road Wichita, Kansas			
GRAPHIC LOG	LOCATION: See Exhibit A-2 Latitude: 37.75008° Longitude: -97.41369° Approximate Surface Elev: 1330.0 (FL) +/-	DEPTH (ft)	ELEVATION (ft)
17.0	0.5 Organic topsoil zone approximately 6" thick		1329.5
17.5	FAT CLAY (CH), with sand, gray-brown, stiff	14 3-4-6 N=10	1329.5
18.0	SANDY LEAN TO FAT CLAY (CL/CH), gray-brown to brown, stiff	16 2-4-5 N=9	1327.5
18.5	CLAYEY SAND (SC), fine to coarse grained, gray-brown, medium dense	18 4-6-6 N=12	1324.5
19.0	- trace gravel, loose below 13'	18 1-3-4 N=7	1324.5
19.5		18 2-2-4 N=6	1324.5
20.0		18 3-6-7 N=13	1324.5
20.5			
21.0			
21.5			
22.0			
22.5			
23.0			
23.5			
24.0			
24.5			
25.0			
Boring Terminated at 25 Feet			
Stratification lines are approximate. In-situ, the transition may be gradual.			
Hammer Type: Automatic SPT Hammer			
Advancement Method: Power Auger		Notes:	
Abandonment Method: Boring backfilled with bentonite chips upon completion.		See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.	
WATER LEVEL OBSERVATIONS		Boring Started: 4/21/2014 Boring Completed: 4/21/2014	
10' after boring		Drill Rig: D-120 Driller: SM	
8' after boring		Project No.: 01145058 Exhibit: A-5	
88 - Cave In Level			

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

			(HP) Hand Penetrometer
			(T) Torvane
			(B/T) Standard Penetration Test (blows per foot)
			(PID) Photo-Ionization Detector
			(OVA) Organic Vapor Analyzer

WATER LEVEL OBSERVATIONS

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations may occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; they are principally described as gravels, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

RELATIVE DENSITY OF COARSE-GRAINED SOILS		CONSISTENCY OF FINE-GRAINED SOILS	
(More than 50% retained on No. 200 sieve.)		(50% or more passing the No. 200 sieve.)	
Density determined by Standard Penetration Resistance		Consistency determined by laboratory shear strength testing, field vial-manual procedures or standard penetration resistance	
Very Loose	0 - 3	Very Soft	less than 500
Loose	4 - 9	Soft	500 to 1,000
Medium Dense	10 - 29	Medium-Stiff	1,000 to 2,000
Dense	30 - 50	Stiff	2,000 to 4,000
Very Dense	> 50	Very Stiff	4,000 to 8,000
		Hard	> 8,000

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Terms of other constituents	Percent of Dry Weight	Major Component of Sample	Particle Size
Trace	< 15	Boulders	Over 12 in. (300 mm)
With Modifier	15 - 29	Cobbles	12 in. to 3 in. (300mm to 75mm)
	> 30	Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
		Sand	#4 to #200 sieve (4.75mm to 0.075mm)
		Silt or clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Terms of other constituents	Percent of Dry Weight	Term	Plasticity Index
Trace	< 5	Non-plastic	0
With Modifier	5 - 12	Low	1 - 10
	> 12	Medium	11 - 30
		High	> 30

GRAIN SIZE TERMINOLOGY

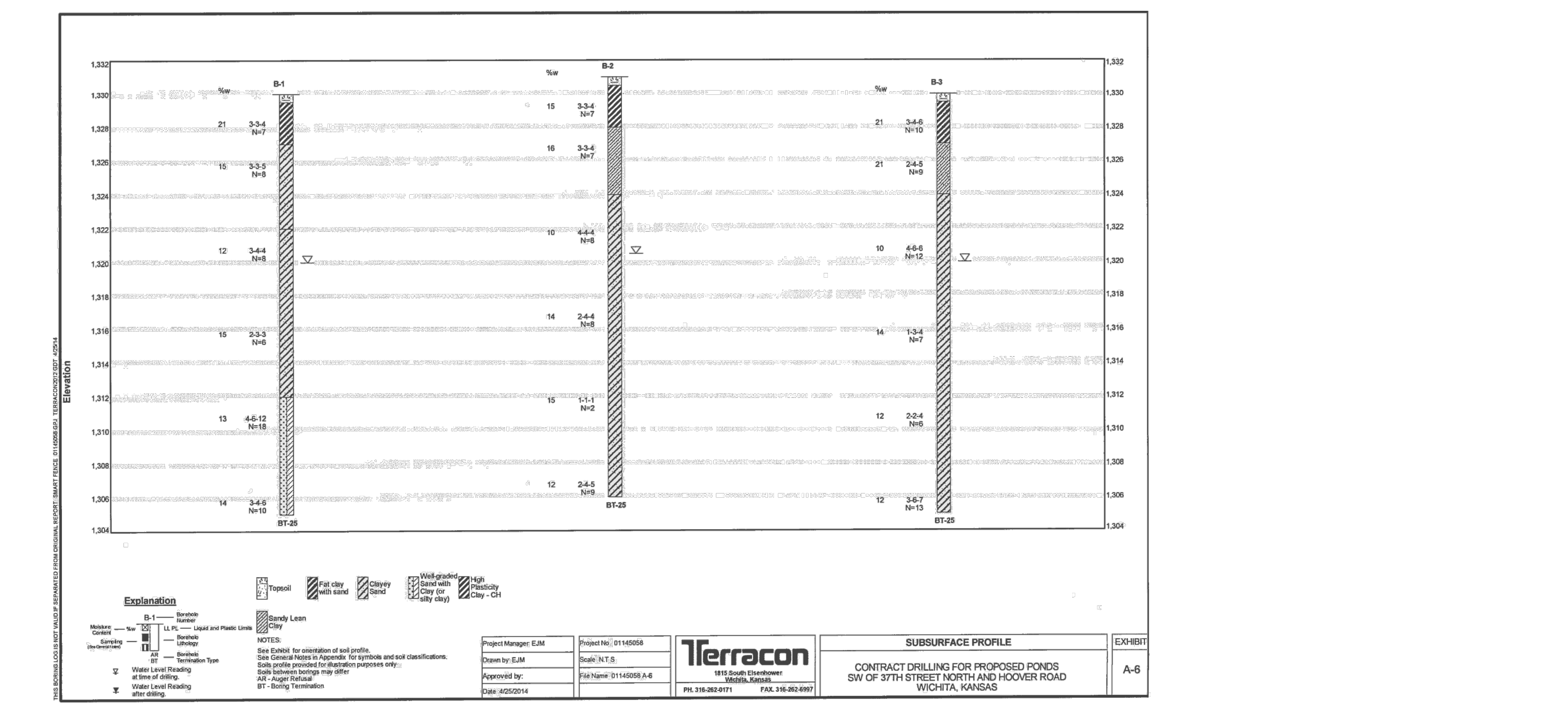
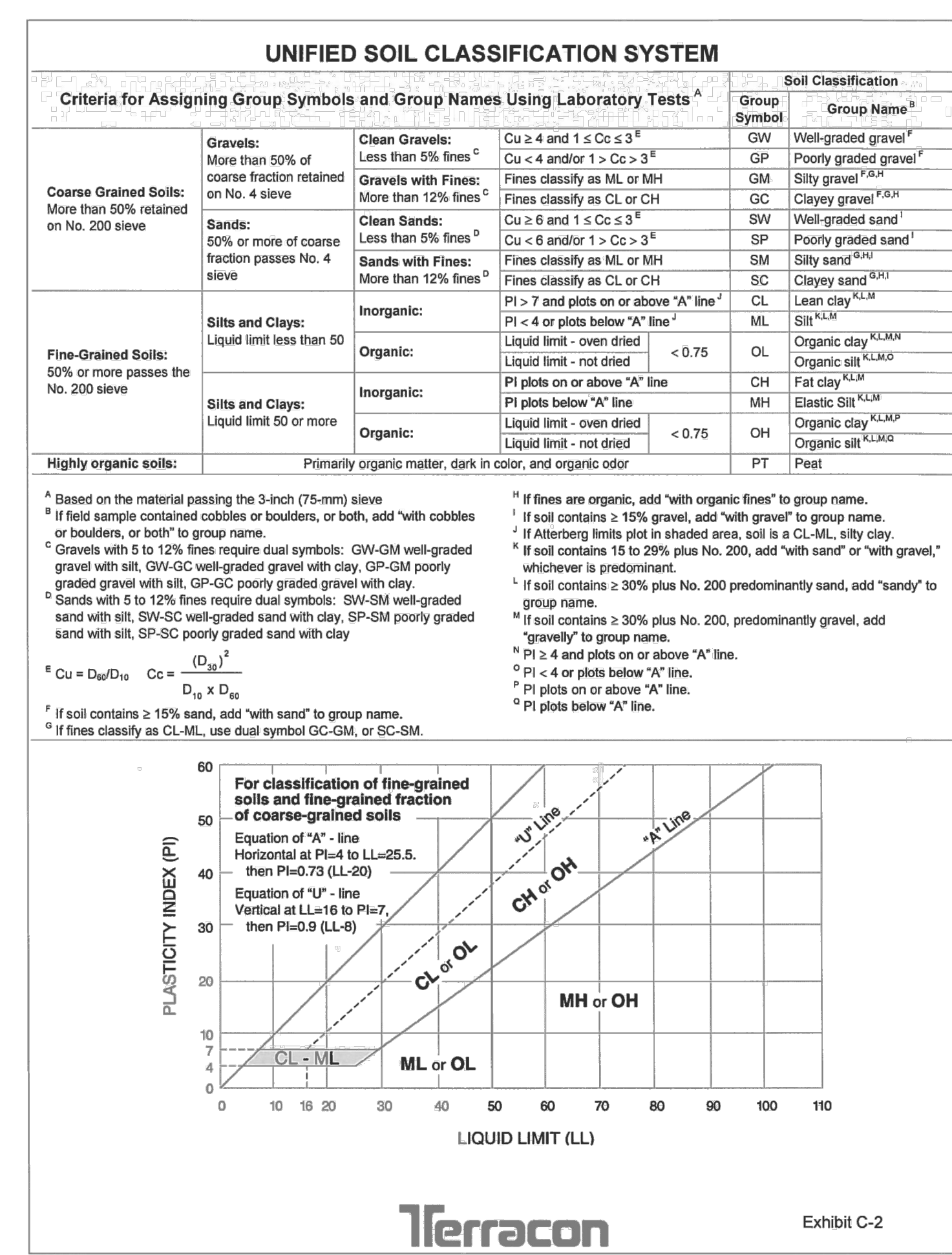
Over 12 in. (300 mm)
12 in. to 3 in. (300mm to 75mm)
3 in. to #4 sieve (75mm to 4.75 mm)
#4 to #200 sieve (4.75mm to 0.075mm)
Passing #200 sieve (0.075mm)

PLASTICITY DESCRIPTION

0
1 - 10
11 - 30
> 30

Terracon
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Project No.: 01145058
Exhibit: C-1



SIENA LAKES ADDITION PHASE 1 SOIL REPORT

RUGGLES & BOHM

ENGINEERING | SURVEYING | LANDSCAPE ARCHITECTURE | GOVERNMENT

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PROJECT NUMBER: 468-84971
DRAWING FILE: 4350E Storm Sewer Details [SOIL REPORT]

DATE: 11-3-2015
DESIGN: E.J.G.
DRAWN: D.S.
REVIEW: 9-30-2015
SHEET: 18 OF 37

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