
Technical Memorandum

To: Dan Manojlovski, P.E. AECOM
From: Mike Kothawala/Corina Farez
Date: June 6, 2016
Subject: 78-inch Storm Sewer, Contract 60X61
Between Peoria Street and Racine Avenue
Project: Circle Interchange Reconstruction
IDOT Job No. D-91-227-13, IDOT PTB 163, Item 01
Wang Project No. 1100-04-01

Wang Engineering, Inc. (Wang) submitted a Technical Memorandum dated October 9, 2014 addressing soil geotechnical parameters for the proposed 78-inch diameter storm sewer along the westbound I-290 between Peoria Street and Racine Avenue in Chicago, Illinois. The estimated soil parameters presented in our October 2014 Technical Memorandum were developed based on the available soil information from nearby structure borings. Since the publication of the October 2014 Technical Memorandum, additional investigations and in-situ tests to determine the shear strength of the very soft to medium stiff silty clay layer were performed along Walls 6 and 7 alignments that run parallel to the proposed 78-inch main drain alignment at 50 to 100 feet offset. The results of additional investigation along Wall 6 are presented in Wang's Technical Memorandum dated October 22, 2015. In May 2016, five new borings with vane shear testing (VST) were performed along the Wall 7 alignment. More notably, two new VST borings (Borings I-2-VST and I-4) were completed within a couple of feet of already installed 78-inch main drain near Wall 7.

At AECOM request, Wang updated the estimated soil parameters of October 2014 Technical Memorandum based on additional subsurface information. The estimated soil parameters shown in Table 1 were determined based on the average lower bound shear strength values from all borings drilled to date near the 78-inch main drain. Therefore, at several locations and depths, the shear strength might have locally higher or lower values than the values shown in Table 1. Since soil shear strength varies significantly along the main drain alignment, we strongly recommend to temporary support system designers to review the included boring logs and apply their judgement on assessing soil parameters for the type of analyses required for the design of their specific temporary support system.

Table 1: Estimated Soil Parameters for Design of Temporary Support
 78-inch Main Drain at WB I-290 Auxiliary Lane

Approximate Elevation Range, (feet)	Subsurface Soil Description	Unit Weight, pcf	Shear Strength, psf	Internal Friction Angle, degree
Existing Grade-577	Granular Fill	115	0	30
Existing Grade-577	Cohesive Fill	120	2000	0
577-574	Medium Stiff to Stiff Silty Clay to Silty Clay Loam	115	900	0
574-568	Very Soft to Soft Clay to Silty Clay	115	800	0
568-554	Very Soft to Soft Clay to Silty Clay	115	600	0
554-544	Very Soft to Soft Clay to Silty Clay	115	1200	0
544-538	Medium Stiff to Stiff Silty Clay	120	1500	0
538-528	Very Stiff Silty Clay to Silty Clay Loam	120	3000	0

Attachments:

Draft Boring Logs and Boring Location Plan along Wall 7, May 2016

Boring Logs and Boring Location Plan from Wang Technical Memorandum dated October 22, 2015

Boring Logs and Boring Location Plan from Wang Technical Memorandum Dated October 9, 2014



feet 200



**BORING LOCATION PLAN: CIRCLE INTERCHANGE RECONSTRUCTION
RETAINING WALL 7, SN 016-1726, COOK COUNTY, ILLINOIS**

SCALE: GRAPHICAL	EXHIBIT 3	DRAWN BY: C. Marin CHECKED BY: L.Iordache
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FOR AECOM	1100-04-01
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BORING LOG 07-I-1C

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 593.72 ft
 North: 1898166.53 ft
 East: 1169164.56 ft
 Station: 5241+07.51
 Offset: 69.66 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	593.2	CRUSHED STONE --drilled without sampling--															
	583.7	--hard drilling from 10 feet-- --possible cobbles-- Loose, brown SANDY GRAVEL, brick, concrete fragments --FILL--	10		1	4 3 2	NP	15			MEDIUM Vane --In-Situ Vane Shear, 22.3 feet-- --S _{u undis} = 518 psf-- --S _{u remold} = 309 psf-- --Sensitivity = 1.7--	25		2			
	581.0	Very soft to medium stiff, gray SILTY CLAY, trace gravel	15		2	2 2 2	0.66 B	25			MEDIUM Vane --In-Situ Vane Shear, 27.3 feet-- --S _{u undis} = 618 psf-- --S _{u remold} = 336 psf-- --Sensitivity = 1.8--	30		3			
		MEDIUM Vane --In-Situ Vane Shear, 17.3 feet-- --S _{u undis} = 936 psf-- --S _{u remold} = 545 psf-- --Sensitivity = 1.7--			1						MEDIUM Vane --In-Situ Vane Shear, 32.3 feet-- --S _{u undis} = 709 psf-- --S _{u remold} = 354 psf-- --Sensitivity = 2.0--	35		4			
											MEDIUM Vane --In-Situ Vane Shear, 36.8 feet-- --S _{u undis} = 963 psf-- --S _{u remold} = 391 psf-- --Sensitivity = 2.5--	40		5			
			20		1										0 0 1	0.33 B	27

GENERAL NOTES

Begin Drilling **05-20-2016** Complete Drilling **05-20-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **3.25" IDA HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **65.50 ft**
 At Completion of Drilling **10.00 ft**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 07-I-1C

WEI Job No.: 1100-04-01

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 Offset: 69.66 RT

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	533.2									533.2	Very dense, gray SILT; moist to saturated							
				○	4	1 2 2	0.67 N/6						⊗	12	26 46 50/5"		NP	19
			45	⊗	5	0 0 1	0.33 B	28				65	⊗	13	22 39 45		NP	17
				⊗	6	0 0 3	0.33 B	26					▽	14	16 21 29		NP	22
	545.7	Medium stiff, gray SILTY CLAY, trace gravel		⊗	7	0 3 6	0.98 B	18		525.7	Hard, gray SILTY CLAY LOAM, trace gravel		⊗	15	15 31 50/5"	9.18 S		11
	543.2	Hard, gray SILTY LOAM, some gravel; dry --hard drilling, 52.0 to 52.5 feet-- --possible cobbles--		⊗	8	8 50/4"	4.50 P	12					⊗	16	17 26 34	10.17 S		13
			55	○	9	9 15 20	5.80 N/6					75	⊗	17	13 24 27	4.51 S		11
	538.2	Hard, gray SILTY CLAY LOAM, trace gravel		⊗	10	7 13 21	5.25 B	17					⊗	17				
			60	⊗	11	20 38 50/4"	4.51 S	15				80	⊗	17				

GENERAL NOTES

Begin Drilling **05-20-2016** Complete Drilling **05-20-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **3.25" IDA HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **65.50 ft**
 At Completion of Drilling **10.00 ft**
 Time After Drilling **NA**
 Depth to Water **NA**

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BORING LOG 07-I-1C

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 Station: 5241+07.51
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	512.0	Very stiff, gray CLAY, trace gravel	85		18	12 20 19	3.03 B	22		491.7	--very hard, steady drilling-- --Possible BEDROCK--	105					
	507.0	Dense to very dense, gray coarse SAND to SANDY LOAM, trace gravel, some rock fragments; saturated	90		19	16 21 26	NP	12		488.2	--Install 110-foot long inclinometer (4'-8" stick out)-- --Bottom of inclinometer at 105.34'-- Boring terminated at 105.50 ft	110					
	503.2	Very dense, gray GRAVELLY SANDY LOAM; saturated --frequent chatter, 90.5 to 97.5 feet-- --possible cobbles--	95		20	70/6"	NP	15				115					
	496.2	Very dense, gray SILTY LOAM, trace gravel, rock fragments	100		21	75/5"	NP	7				120					

GENERAL NOTES

Begin Drilling **05-20-2016** Complete Drilling **05-20-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **3.25" IDA HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **65.50 ft**
 At Completion of Drilling \blacktriangledown **10.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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BORING LOG 07-I-2

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.19 ft
 North: 1898134.42 ft
 East: 1169164.94 ft
 Station: 5241+02.85
 Offset: 37.88 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	574.7	Brown and gray CLAY LOAM --construction site--															
		Very soft to soft, gray CLAY to SILTY CLAY, trace gravel	5		1	0 1 2	< 0.25 P	22				25		2	0 0 3	0.33 B	26
														3	0 0 2	0.49 B	27
		UU test (AASHTO T296): 0.71 tsf (@ 5 psi) 1.04 tsf (@ 10 psi)	10		1	P U S H	< 0.25 P	25				30		4	2 2 2	NR	
														5	0 0 0	0.41 B	26
			15		2	P U S H	< 0.25 P					35		6	0 0 3	0.49 B	20
														7	3 3 5	0.49 B	20
	540.4	Very stiff to hard, gray SILTY CLAY, trace gravel, silt lenses										40		8	8 11 16	3.94 B	15

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **05-16-2019** Complete Drilling **05-17-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 20', boring backfilled upon completion**

While Drilling ∇ **45.00 ft**
 At Completion of Drilling ∇ **11.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.19 ft
 North: 1898134.42 ft
 East: 1169164.94 ft
 Station: 5241+02.85
 Offset: 37.88 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	534.7	Very dense, gray SILT; moist to saturated			9	10 30 42	5.49 B	16		515.9	Very dense, gray SANDY LOAM; wet							
			45		10	16 28 38	NP	18				65		16	39 50/4"	NP		10
					11	23 28 32	NP	17		510.9	Very stiff, gray SILTY CLAY							
			50		12	26 36 50	NP	21				70		17	10 14 19	2.05 B		26
	526.2	Hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel, silt lenses			13	19 29 49	4.51 S	13		505.9	Dense, gray SILT; saturated							
			55		14	46 50/4"	7.79 S			503.7	Dense, gray SANDY GRAVEL; saturated			18	12 20 26	NP		15
											--constant chatter, 76.0 to 78.0 feet-- --possible cobbles--							
			60		15	16 28 50	7.46 B	12		499.2	Very dense, gray SILTY LOAM, trace dolostone fragments			19	80/4"	NP		10

GENERAL NOTES

Begin Drilling **05-16-2019** Complete Drilling **05-17-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 20', boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **45.00 ft**
 At Completion of Drilling \blacktriangledown **11.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 07-I-2

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.19 ft
 North: 1898134.42 ft
 East: 1169164.94 ft
 Station: 5241+02.85
 Offset: 37.88 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	494.2	--frequent chatter, possible cobbles--															
	492.2		85	X	20	62 38/2	NP	8									
		--very hard, steady drilling-- --possible BEDROCK-- --drilled without sampling, 85 to 93 feet--															
		--88 feet, bottom of inclinometer pipe--															
		--90 feet, total of inclinometer pipe--	90														
	484.2	Boring terminated at 93.00 ft															
			95														
			100														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **05-16-2019** Complete Drilling **05-17-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 20', boring backfilled upon completion**

While Drilling ∇ **45.00 ft**
 At Completion of Drilling \blacktriangledown **11.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



BORING LOG 07-I-2VST

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WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.01 ft
 North: 1898133.13 ft
 East: 1169174.92 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	576.8	GRAVELLY CLAY LOAM at surface															
		--drilled without sampling--															
	571.0	MEDIUM Vane --In-Situ Vane Shear, 8.3 feet-- -- $S_{u\ undis}$ = 582 psf-- -- $S_{u\ remold}$ = 373 psf-- --Sensitivity = 1.6--	8.3		1						MEDIUM Vane --In-Situ Vane Shear, 27.3 feet-- -- $S_{u\ undis}$ = 773 psf-- -- $S_{u\ remold}$ = 473 psf-- --Sensitivity = 1.6--	27.3		5			
		LARGE Vane --In-Situ Vane Shear, 12.3 feet-- -- $S_{u\ undis}$ = 695 psf-- -- $S_{u\ remold}$ = 368 psf-- --Sensitivity = 1.9--	12.3		2						MEDIUM Vane --In-Situ Vane Shear, 33.8 feet-- -- $S_{u\ undis}$ = 1291 psf-- -- $S_{u\ remold}$ = 936 psf-- --Sensitivity = 1.4--	33.8		6			
		LARGE Vane --In-Situ Vane Shear, 17.3 feet-- -- $S_{u\ undis}$ = 668 psf-- -- $S_{u\ remold}$ = 427 psf-- --Sensitivity = 1.6--	17.3		3						Boring terminated at 34.00 ft	34.00					

GENERAL NOTES

Begin Drilling **05-18-2016** Complete Drilling **05-18-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA; 0'-34' mud rotary, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **NA**
 At Completion of Drilling ∇ **NA**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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BORING LOG 07-I-3

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 593.25 ft
 North: 1898184.92 ft
 East: 1169030.03 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		36-inch thick CRUSHED STONE, some concrete rubble															
	590.2	Loose, brown fine SAND	5		1	4 2 2	NP	17				25		3	P C U S H	< 0.25 P	
	586.5	Very stiff, gray SILTY CLAY, trace gravel	10		2	3 5 6	2.46 B	22				30		4	P C U S H	< 0.25 P	
	581.5	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel	15		1	P U S H	< 0.25 P	29				35		5	P U S H	0.25 P	25
		UU test (AASHTO T296): 1.42 tsf @ 10 psi 1.92 tsf @ 20 psi															
		UU test (AASHTO T296): 1.19 tsf @ 10 psi															
			20		2	P U S S	0.25	23				40		3	0 0 0	0.33 B	22

GENERAL NOTES					WATER LEVEL DATA				
Begin Drilling	05-13-2016	Complete Drilling	05-13-2015		While Drilling	▽	60.00 ft		
Drilling Contractor	Wang Testing Services	Drill Rig	D-50 TMR		At Completion of Drilling	▼	66.00 ft		
Driller	R&M	Logger	F. Bozga	Checked by	DRAFT (CLM)	Time After Drilling	NA		
Drilling Method	3.25" IDA HSA, boring backfilled upon completion				Depth to Water	▽	NA		
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 Location: **Section 17, T39N, R14E of 3rd PM**

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 North: 1898184.92 ft
 East: 1169030.03 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	532.7									532.7	Very dense, gray SILT; moist							
					4	0 4 5	0.82 B	15						8	15 32 42		NP	21
			45											9	14 27 39		NP	21
					5	8 15 14	4.51 B			526.5	Hard, gray SILTY LOAM, trace gravel; dry			10	23 37 50/5	5.74 S		11
	544.2 544.1	GRAVELLY SAND; moist Hard, gray SILTY CLAY LOAM, trace gravel	50											11	11 17 23	6.23 B		15
			55		6	7 11 17	5.82 B	13		521.5	Hard, gray SILTY CLAY LOAM, trace gravel			12	12 19 24		NP	15
					7	60/6	NR			516.5	Dense, gray SILT; moist							
		--constant chatter, 58 to 60 feet-- --possible cobbles--	60															

GENERAL NOTES

Begin Drilling **05-13-2016** Complete Drilling **05-13-2015**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&M** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **3.25" IDA HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **60.00 ft**
 At Completion of Drilling ∇ **66.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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BORING LOG 07-I-3

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 Project: **Circle Interchange Reconstruction**
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 East: 1169030.03 ft
 Station: NA
 Offset: NA

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	511.5	Very stiff, gray CLAY															
			85		13	10 10 11	3.03 B	23									
	506.5	Medium dense, gray SILT; saturated															
			90		14	5 7 8	NP	27									
	501.5	Very dense, gray GRAVELLY SILTY LOAM; moist															
					15	45 50/4	NP	7									
	498.8 498.7	--very hard, steady drilling--	95														
	497.7	--WEATHERED BEDROCK-- --AUGER REFUSAL--			16		NR										
		Boring terminated at 95.50 ft				50/0											
			100														

GENERAL NOTES

Begin Drilling **05-13-2016** Complete Drilling **05-13-2015**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&M** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **3.25" IDA HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **60.00 ft**
 At Completion of Drilling \blacktriangledown **66.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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BORING LOG 07-I-3A

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 592.76 ft
 North: 1898184.75 ft
 East: 1169037.36 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	582.8										MEDIUM Vane --In-Situ Vane Shear, 21.8 feet-- -- $S_{u\ undis}$ = 854 psf-- -- $S_{u\ remold}$ = 809 psf-- --Sensitivity = 1.1--			3			
		--drilled without sampling to 10 feet--	5								MEDIUM Vane --In-Situ Vane Shear, 25.8 feet-- -- $S_{u\ undis}$ = 809 psf-- -- $S_{u\ remold}$ = 464 psf-- --Sensitivity = 1.7--	25		4			
											MEDIUM Vane --In-Situ Vane Shear, 30.8 feet-- -- $S_{u\ undis}$ = 627 psf-- -- $S_{u\ remold}$ = 336 psf-- --Sensitivity = 1.9--	30		5			
	577.8	MEDIUM Vane --In-Situ Vane Shear, 12.3 feet-- -- $S_{u\ undis}$ = 1918 psf-- -- $S_{u\ remold}$ = 700 psf-- --Sensitivity = 2.7--			1						MEDIUM Vane --In-Situ Vane Shear, 35.5 feet-- -- $S_{u\ undis}$ = 945 psf-- -- $S_{u\ remold}$ = 509 psf-- --Sensitivity = 1.9--						
			15								MEDIUM Vane --In-Situ Vane Shear, 16.8 feet-- -- $S_{u\ undis}$ = 582 psf-- -- $S_{u\ remold}$ = 209 psf-- --Sensitivity = 2.8--			2			
											MEDIUM Vane --In-Situ Vane Shear, 40.8 feet--	40		6			

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **05-22-2016** Complete Drilling **05-22-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 5', boring backfilled upon completion**

While Drilling **NA**
 At Completion of Drilling **8.00 ft**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 07-I-3A

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 592.76 ft
 North: 1898184.75 ft
 East: 1169037.36 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	549.8	-- $S_{u\ undis}$ = 700 psf-- -- $S_{u\ remold}$ = 382 psf-- --Sensitivity = 1.8-- MEDIUM Vane --In-Situ Vane Shear, 41.8 feet-- -- $S_{u\ undis}$ = 854 psf-- -- $S_{u\ remold}$ = 400 psf-- --Sensitivity = 2.1--	7	VS														
			8	VS														
		--drilled without sampling from 42 to 102 feet--	45									65						
											--constant chatter, 66 to 67 feet-- --possible cobbles--							
			50									70						
			55									75						
			60									80						

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling	05-22-2016	Complete Drilling	05-22-2016	While Drilling	∇ NA
Drilling Contractor	Wang Testing Services	Drill Rig	D-50 TMR	At Completion of Drilling	▼ 8.00 ft
Driller	R&R	Logger	F. Bozga	Time After Drilling	NA
Drilling Method	4.0" OD CFA, mud rotary from 5', boring backfilled upon completion			Depth to Water	▼ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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BORING LOG 07-I-3A

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 592.76 ft
 North: 1898184.75 ft
 East: 1169037.36 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
										490.8	--Install 105-foot long inclinometer (3'-4" stick out)-- --Bottom of inclinometer at 101.67'-- Boring terminated at 102.00 ft						
			85									105					
		--constant chatter, 91 to 98.5 feet-- --possible cobbles--	90									110					
			95									115					
	493.8	--very hard, steady drilling-- --possible BEDROCK--	100									120					

GENERAL NOTES

Begin Drilling **05-22-2016** Complete Drilling **05-22-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 5', boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **NA**
 At Completion of Drilling ∇ **8.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 07-I-4

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WEI Job No.: 1100-04-01
Client **AECOM**
Project **Circle Interchange Reconstruction**
Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
Elevation: 576.32 ft
North: 1898150.22 ft
East: 1169023.56 ft
Station: NA
Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)		
																		H	P
	573.1	CLAY LOAM --disturbed ground--									MEDIUM Vane --In-Situ Vane Shear, 22.3 feet-- --S _u undis = 882 psf-- --S _u remold = 454 psf-- --Sensitivity = 1.9--								
		Soft to medium stiff, brown and gray CLAY to SILTY CLAY, trace gravel	5	1	1	1 1 2	0.50 P	21		549.8		25	4	4					
		MEDIUM Vane --In-Situ Vane Shear, 6.8 feet-- --S _u undis = 1636 psf-- --S _u remold = 991 psf-- --Sensitivity = 1.7--			1						MEDIUM Vane --In-Situ Vane Shear, 27.3 feet-- --S _u undis = 1127 psf-- --S _u remold = 836 psf-- --Sensitivity = 1.3--			5					
			10		1	P U S H	0.75 P				Stiff to hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel			5					
		MEDIUM Vane --In-Situ Vane Shear, 12.3 feet-- --S _u undis = 900 psf-- --S _u remold = 682 psf-- --Sensitivity = 1.3--			2						--Mud Rotatory at 32'--			2	2 4 8	1.89 B	15		
			15		2	P U S H	0.50 P							3	5 14 20	4.84 B	17		
		MEDIUM Vane --In-Situ Vane Shear, 17.3 feet-- --S _u undis = 918 psf-- --S _u remold = 627 psf-- --Sensitivity = 1.5--			3									4	8 18 26	6.15 B	13		
			20		3	P U S	0.25			538.3	Very dense, gray SILT; moist to saturated			5	27 50/6"	NP	19		

GENERAL NOTES

Begin Drilling **05-18-2016** Complete Drilling **05-19-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 35', boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **39.50 ft**
 At Completion of Drilling **10.00 ft**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 07-I-4

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 576.32 ft
 North: 1898150.22 ft
 East: 1169023.56 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					6	30 50/6"	NP	21									
			45		7	27 45 50/4"	NP	23				65		13	13 20 30	5.74 S	10
					8	27 43 50/4"	NP	20		509.6	Dense to very dense, gray SILTY LOAM, trace gravel, dolostone fragments; saturated						
			50		9	24 37 50/5"	NP	22				70		14	9 10 23	NP	16
	525.8	Hard, gray SILTY CLAY LOAM, trace gravel, silt lenses			10	25 50/6"	9.35 S	11									
			55		11	45 50/6"	4.84 S	10				75		15	27 31 44	NP	22
											--constant chatter, 75.5 to 84 feet-- --possible cobbles--						
			60		12	8 20 37	7.13 B	15				80		16	37 50/4"	NP	14

GENERAL NOTES

Begin Drilling **05-18-2016** Complete Drilling **05-19-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 35', boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **39.50 ft**
 At Completion of Drilling \blacktriangledown **10.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 07-I-4

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 576.32 ft
 North: 1898150.22 ft
 East: 1169023.56 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	492.3	--constant chatter, 75.5 to 84 feet-- --possible cobbles--		○	17	70/5	NR										
		--very hard, steady drilling-- --possible BEDROCK--	85														
		--Bottom of inclinometer at 88'--															
	486.3	--Install 90' long inclinometer (2' stick out)--	90														
		Boring terminated at 90.00 ft															
			95														
			100														

GENERAL NOTES

Begin Drilling **05-18-2016** Complete Drilling **05-19-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 35', boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **39.50 ft**
 At Completion of Drilling \blacktriangledown **10.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



BORING LOG 07-I-5

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 594.28 ft
 North: 1898206.86 ft
 East: 1168873.17 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		CRUSHED CONCRETE --FILL--															
	591.8	Loose, dark brown GRAVELLY LOAM, trace brick fragments --FILL--	5		1	4 3 3	NR	17			LARGE Vane --In-Situ Vane Shear, 22.3 feet-- -- $S_{u\ undis}$ = 618 psf-- -- $S_{u\ remold}$ = 350 psf-- --Sensitivity = 1.8--			2			
	585.7	Very stiff, brown SILTY CLAY, trace gravel --disturbed sample--	10		2	1 2 4	3.00 P	22			LARGE Vane --In-Situ Vane Shear, 27.3 feet-- -- $S_{u\ undis}$ = 845 psf-- -- $S_{u\ remold}$ = 350 psf-- --Sensitivity = 2.4--			3			
	582.5	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel	15		1		< 0.25 P				MEDIUM Vane --In-Situ Vane Shear, 32.3 feet-- -- $S_{u\ undis}$ = 673 psf-- -- $S_{u\ remold}$ = 354 psf-- --Sensitivity = 1.9--			4			
		MEDIUM Vane --In-Situ Vane Shear, 17.3 feet-- -- $S_{u\ undis}$ = 518 psf-- -- $S_{u\ remold}$ = 173 psf-- --Sensitivity = 3.0--			1									5			
			20		2		< 0.25 P				MEDIUM Vane --In-Situ Vane Shear, 37.3 feet-- -- $S_{u\ undis}$ = 963 psf-- -- $S_{u\ remold}$ = 545 psf-- --Sensitivity = 1.8--			3			

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GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **05-23-2016** Complete Drilling **05-24-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 8.5', boring backfilled upon completion**

While Drilling ∇ **60.50 ft**
 At Completion of Drilling ∇ **10.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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BORING LOG 07-I-5

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 594.28 ft
 North: 1898206.86 ft
 East: 1168873.17 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
		MEDIUM Vane --In-Situ Vane Shear, 41.8 feet-- -- $S_{u\text{ undist}} = 791$ psf-- -- $S_{u\text{ remold}} = 391$ psf-- --Sensitivity = 2.0--			6	VS								11	30 50/6"	NP	21	
			45		4	0 0 0	0.33 B	28				65		12	28 42 50/4"	NP	20	
	548.8	Medium stiff, gray CLAY LOAM, trace gravel			5	2 5 5	0.74 B	19						13	23 39 50/4"	NP	21	
	544.8	Hard, gray SILTY CLAY, trace gravel	50		6	0 0 5	0.66 B	17		526.3	Hard, gray SILTY CLAY LOAM, trace gravel	70		14	33 50/5"	9.02 S	12	
					7	6 10 17	5.58 B	17										
			55		8	7 11 17	5.25 B	16				75		15	25 34 45	7.05 B	13	
	538.8	Very dense, gray SILT; moist to saturated			9	21 50/4"	NP	17		517.5	Very dense, gray very fine SAND; saturated							
					10	36 50/4"	NP	18				80		16	36 50/6"	NP	14	

GENERAL NOTES

Begin Drilling **05-23-2016** Complete Drilling **05-24-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 8.5', boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **60.50 ft**
 At Completion of Drilling ∇ **10.00 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 07-I-5

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 594.28 ft
 North: 1898206.86 ft
 East: 1168873.17 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	507.5	Very dense, gray SILT to SILTY LOAM, trace gravel, limestone fragments	85	✓	17	45 50/5"	NP	18		489.8	--constant chatter-- --possible cobbles--	85	✓	22	190/4"	NP	9
			90	✓	18	27 38 50/3"	NP	24		487.8	--slow and steady drilling, 104.5 to 106.5 feet-- --possible boulder--	90	✓	23	14 38 50/3"	4.92 S	15
		--constant chatter, 90 to 103.5 feet-- --possible cobbles--	95	○	19	190/4"	NR	10		483.8	--very hard, steady drilling-- --possible BEDROCK-- --Blind drilled-- --Install 115-foot long inclinometer (2'-7" stick out)-- --Bottom of inclinometer at 112.42'--	95	○	20	190/5"		
			100	✓	21	190/3"	NP	10		480.8	Boring terminated at 113.50 ft	100	✓				
		--constant chatter-- --possible cobbles--															

GENERAL NOTES

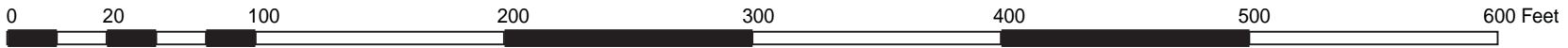
Begin Drilling **05-23-2016** Complete Drilling **05-24-2016**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **F. Bozga** Checked by **DRAFT (CLM)**
 Drilling Method **4.0" OD CFA, mud rotary from 8.5', boring backfilled upon completion**

WATER LEVEL DATA


While Drilling **60.50 ft**
 At Completion of Drilling **10.00 ft**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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LEGEND

 Sampling and Testing Location

FIELD TESTS LOCATIONS: CIRCLE INTERCHANGE, RETAINING WALL 06, SN 016-1725, D-91-259-13, CHICAGO, COOK COUNTY, ILLINOIS

SCALE: GRAPHIC	APPENDIX A	DRAWN BY: C. Marin CHECKED BY: C. Farez
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FOR AECOM	1100-04-01
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BORING LOG 1725-PMT-01

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 592.77 ft
 North: 1898132.33 ft
 East: 1170332.71 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	589.8	Medium dense, dark brown GRAVELLY LOAM, some construction debris --FILL--			1	1 3 13	NP	7						4	M T		
	585.5	Loose, brown, fine to medium SAND; dry to moist	5		2	3 3 5	NP	7						8	1 2 3	0.41 B	26
	585.5	Stiff to very stiff, brown and gray SILTY CLAY, trace gravel			3	3 3 4	NP	20						9	0 1 1	0.16 B	27
	578.0		10		4	3 5 6	3.69 B	25									
	578.0	--P ₀ = 0.8 tsf-- --P ₁ = 7.8 tsf-- --E _d = 63 tsf--			1	P M T								6	P M T		
	578.0				5	3 3 5	1.56 B	20						10	0 1 2	0.33 B	25
	578.0	--P ₀ = 0.8 tsf-- --P ₁ = 4.3 tsf-- --E _d = 40 tsf--			2	P M T								7	P M T		
	578.0	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			6	1 2 3	0.57 B	24						11	1 2 2	0.49 B	27
	578.0	--P ₀ = 1.3 tsf-- --P ₁ = 4.3 tsf-- --E _d = 44 tsf--			3	P M T								8	P M T		
	548.0				7	1 2 2	0.33 B	24						12	2 2 4	1.00 N/6	
	548.0	Stiff, gray SILTY CLAY, trace gravel			8	P M T											
	548.0	--P ₀ = 2.4 tsf-- --P ₁ = 7.5 tsf-- --E _d = 124 tsf--			12	2 2 4											
	548.0					P											

GENERAL NOTES

Begin Drilling **10-01-2015** Complete Drilling **10-01-2015**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-25 ATV**
 Driller **N&R** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **3.25" HSA to 13', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **Rotary wash**
 At Completion of Drilling **Mud at 5 ft**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 10/30/15



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BORING LOG 1725-PMT-01

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 592.77 ft
 North: 1898132.33 ft
 East: 1170332.71 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	539.8	--P ₀ = 2.3 tsf-- --P ₁ = 8.3 tsf-- --E _d = 104 tsf--		P	9	M											
				X	13	5	1.97	20									
		Boring terminated at 53.00 ft					B										
			55														
			60														
			65														
			70														
			75														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **10-01-2015** Complete Drilling **10-01-2015**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-25 ATV**
 Driller **N&R** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **3.25" HSA to 13', mud rotary thereafter, boring backfilled upon completion**

While Drilling ∇ **Rotary wash**
 At Completion of Drilling ∇ **Mud at 5 ft**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



BORING LOG 1725-VST-01

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 589.80 ft
 North: 1898133.08 ft
 East: 1170265.54 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	589.54	4-inch thick, dark brown SILTY LOAM --TOPSOIL--			1	6 5 4	NP	14			--No recovery--			3	P S C S H		NR
	586.8	Loose, brown SANDY LOAM, trace gravel --FILL-- --HARD DRILLING-- possible construction debris			2	3 4 9	6.40 B	20						4	P C S H	< 0.25 P	25
		Stiff to hard, brown to gray SILTY CLAY, trace gravel			3	3 4 6	3.61 B	23			--L _L (%)=35, P _L (%)=18-- T _x CU: C _u = 500 psf Φ = 12° C' = 200 psf Φ' = 26°			5	P C S H	< 0.25 P	25
		trace roots	10		4	3 4 5	2.38 B	17			--L _L (%)=35, P _L (%)=18-- T _x UU: S _u = 760 psf			5	P C S H	< 0.25 P	25
		--HARD DRILLING--			5	4 9 5	1.77 B	17						6	P C S H	0.25 P	
	574.8	Soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel	15		6	3 4 4	1.48 B	18			--Not extruded--			6	P C S H	0.25 P	
		--Not extruded--	20		2	P C S H	0.75 P				--Not extruded--			7	P C S H	0.25 P	
			25							542.3	Very stiff, gray SILTY CLAY LOAM, trace gravel	50					

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-30-2015** Complete Drilling **09-30-2015**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-25 ATV**
 Driller **N&R** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **3.25" HSA, boring backfilled upon completion**

While Drilling **22.50 ft**
 At Completion of Drilling **13.00 ft**
 Time After Drilling **24 hours**
 Depth to Water **18.00 ft**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 10/30/15



BORING LOG 1725-VST-01

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 589.80 ft
 North: 1898133.08 ft
 East: 1170265.54 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	538.3				7	60.0	2.25 P	21									
		Boring terminated at 51.50 ft															
			55														
			60														
			65														
			70														
			75														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-30-2015** Complete Drilling **09-30-2015**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-25 ATV**
 Driller **N&R** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **3.25" HSA, boring backfilled upon completion**

While Drilling ∇ **22.50 ft**
 At Completion of Drilling \blacktriangledown **13.00 ft**
 Time After Drilling **24 hours**
 Depth to Water ∇ **18.00 ft**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



BORING LOG 1725-VST-02

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 592.78 ft
 North: 1898132.35 ft
 East: 1170353.71 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Drilled without sampling									--In-Situ Vane Shear, 27.0 feet-- -- $S_{u\ undis}$ = 684 psf-- -- $S_{u\ remold}$ = 400 psf-- --Sensitivity = 1.7--			4	VS		
											--In-Situ Vane Shear, 29.0 feet-- -- $S_{u\ undis}$ = 578 psf-- -- $S_{u\ remold}$ = 322 psf-- --Sensitivity = 1.8--			5	VS		
											--In-Situ Vane Shear, 31.0 feet-- -- $S_{u\ undis}$ = 661 psf-- -- $S_{u\ remold}$ = 382 psf-- --Sensitivity = 1.7--			6	VS		
											--In-Situ Vane Shear, 33.0 feet-- -- $S_{u\ undis}$ = 615 psf-- -- $S_{u\ remold}$ = 322 psf-- --Sensitivity = 1.9--			7	VS		
											--In-Situ Vane Shear, 35.0 feet-- -- $S_{u\ undis}$ = 707 psf-- -- $S_{u\ remold}$ = 285 psf-- --Sensitivity = 2.5--			8	VS		
											--In-Situ Vane Shear, 37.0 feet-- -- $S_{u\ undis}$ = 615 psf-- -- $S_{u\ remold}$ = 349 psf-- --Sensitivity = 1.8--			9	VS		
											--In-Situ Vane Shear, 39.0 feet-- -- $S_{u\ undis}$ = 1157 psf-- -- $S_{u\ remold}$ = 589 psf-- --Sensitivity = 2.0--			10	VS		
		578.8 Gray CLAY to SILTY CLAY --In-Situ Vane Shear, 15.0 feet-- -- $S_{u\ undis}$ = 1955 psf--	15		1	VS					--In-Situ Vane Shear, 43.0 feet-- -- $S_{u\ undis}$ = 1028 psf-- -- $S_{u\ remold}$ = 662 psf-- --Sensitivity = 1.6--			11	VS		
		--In-Situ Vane Shear, 20.0 feet-- -- $S_{u\ undis}$ = 863 psf-- -- $S_{u\ remold}$ = 497 psf-- --Sensitivity = 1.7--	20		2	VS					--In-Situ Vane Shear, 46.0 feet-- -- $S_{u\ undis}$ = 1414 psf-- -- $S_{u\ remold}$ = 864 psf-- --Sensitivity = 1.6--			12	VS		
		--In-Situ Vane Shear, 25.0 feet-- -- $S_{u\ undis}$ = 780 psf-- -- $S_{u\ remold}$ = 460 psf-- --Sensitivity = 1.7--	25		3	VS				546.8 Boring terminated at 46.00 ft							

WANGENGINC 11000401.GPJ WANGENG.GDT 10/30/15

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **10-02-2015** Complete Drilling **10-02-2015**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-25 ATV**
 Driller **N&R** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" IDA HSA to 10', mud rotary thereafter, boring backfilled upon completion**

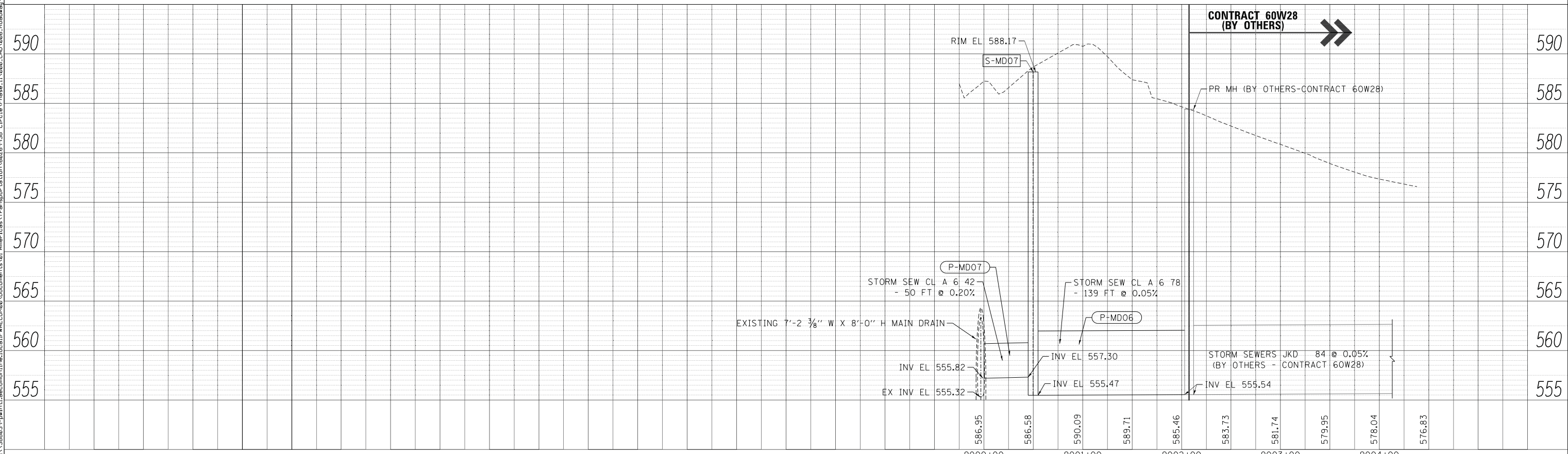
While Drilling **Rotary wash**
 At Completion of Drilling **Mud at 3 ft**
 Time After Drilling **NA**
 Depth to Water **NA**
 The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



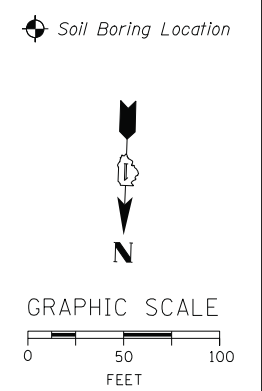
1145 N. Main Street
Lombard, IL 60148
www.wangeng.com

DATE	BY	SURVEYED	CHECKED
		PLOTTED	ALIGNED
		NOTE BOOK	CAD FILE NAME

DATE	BY	SURVEYED	CHECKED
		GRADES	STRUCTURE
		NOTE BOOK	NOT AT THIS OFFICE



- NOTE:**
- PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR MUST FIELD VERIFY HORIZONTAL AND VERTICAL POSITION OF ALL EXISTING UTILITIES.
 - ALL UTILITIES TO REMAIN MUST BE SUPPORTED AND PROTECTED DURING TRENCHING AND EXCAVATION FOR SEWER CONSTRUCTION. THE COST OF UTILITY PROTECTION IS INCIDENTAL TO THE CONTRACT.
 - THE CONSTRUCTION OF THE PROPOSED 78" STORM SEWER SHALL BE COORDINATED WITH THE NW FLYOVER CONTRACTOR (CONTRACT 60W28). THE SEWER PIPE JOINT BETWEEN THE CONTRACTS SHALL BE COORDINATED TO ENSURE PROPER CONNECTIONS.
 - THE CONTRACTOR SHALL PLUG THE PROPOSED PIPE AND THE COST OF INSTALLATION SHALL BE INCIDENTAL TO THE COST OF THE STORM SEWER.



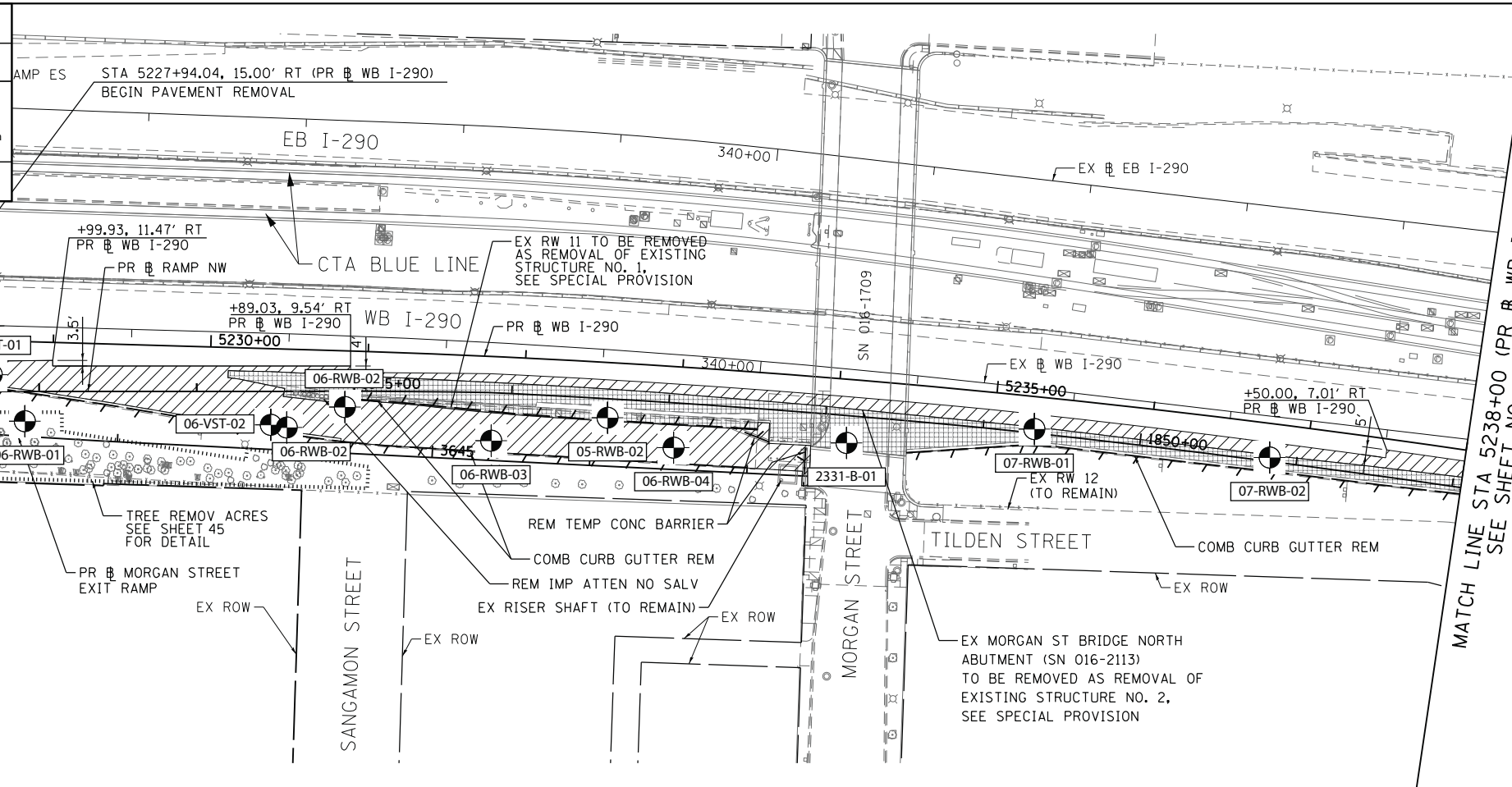
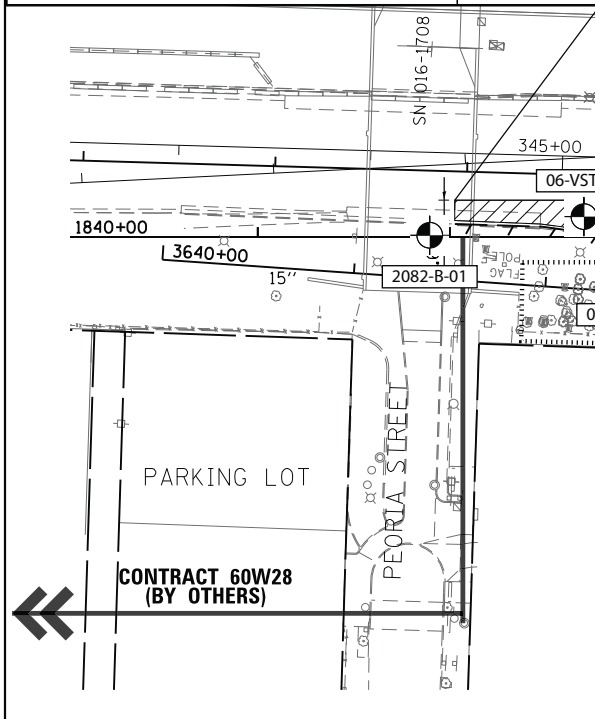
D160X61-sht-Drain-PlanPr-F-02
USER NAME = ChiuA
PLOT SCALE = 100.0000' / 1" / 11"
PLOT DATE = 10/7/2014

DESIGNED - AFC	REVISED -
DRAWN - AFC	REVISED -
CHECKED - DBM	REVISED -
DATE - 10/17/14	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE AND UTILITY PLAN AND PROFILE
78" MAIN DRAIN AT INFELD
SCALE: 1" = 50'
SHEET 1 OF 1 SHEETS
STA. 365+00 (EX) TO STA. 351+00 (EX)

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2013-077R	COOK	317	89
CONTRACT NO. 60X61				
ILLINOIS FED. AID PROJECT				

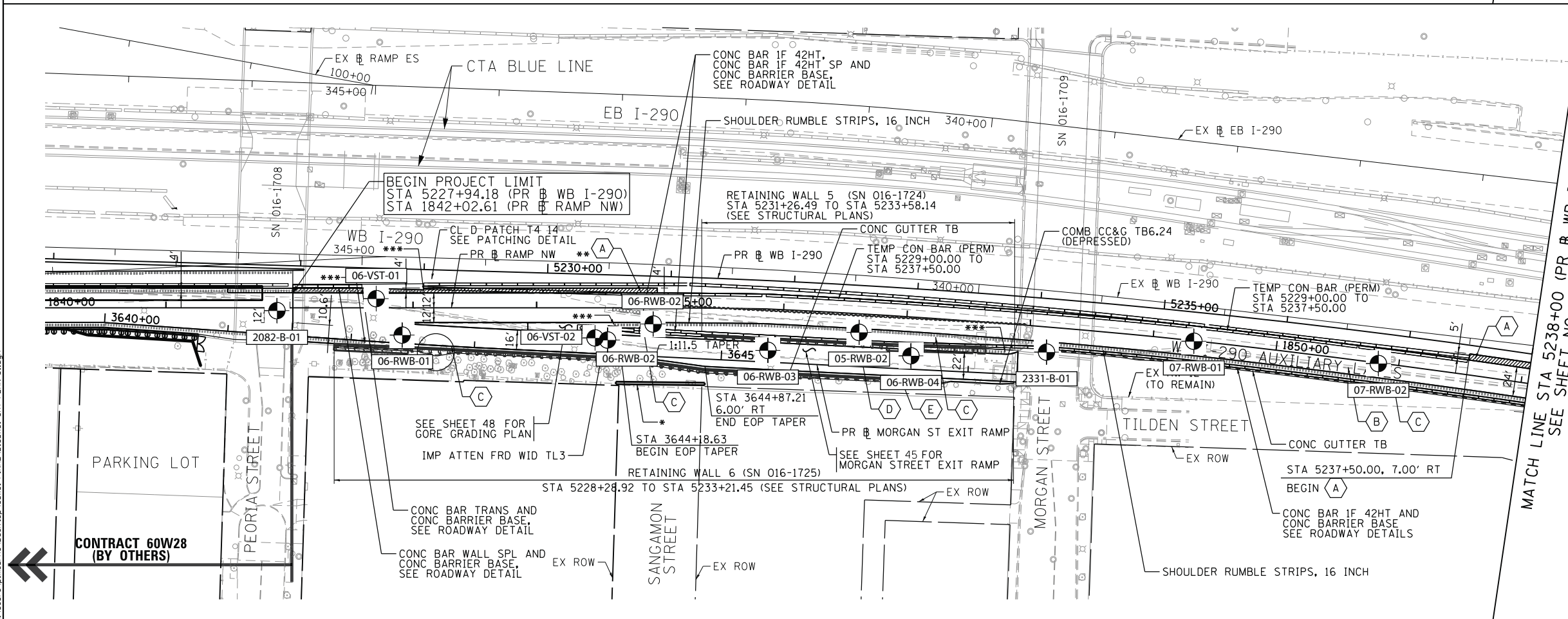


SCALE: 1"=50'

LEGEND

- PAVEMENT REMOVAL
- PAVED SHOULDER REMOVAL
- APPROACH SLAB REMOVAL
- LINEAR REMOVAL
- TREE REMOVAL, ACRES
- TREE REMOVAL
- SOIL BORING LOCATION

EXISTING



SCALE: 1"=50'

PROPOSED ROADWAY LEGEND

- TEMPORARY PAVEMENT SUB GRAN MAT B 4
- PCC PVT 11 JOINTED STAB SUBBASE HMA 4 AGG SUBGRADE IMPR 12
- PCC SHOULDERS 11 SUB GRAN MAT C 4 AGG SUBGRADE IMPR 12
- PCC PVT 9 JOINTED STAB SUBBASE HMA 4 AGG SUBGRADE IMPR 12
- PCC SHOULDERS 9 SUB GRAN MAT C 4 AGG SUBGRADE IMPR 12

PROPOSED

NOTE:

- SEE SHEET 44 FOR PR ROADWAY PROFILE

* PROPOSE NOISE ABATEMENT WALL STA 3644+15.72 TO STA 3644+87.66 (SEE STRUCTURAL PLANS)

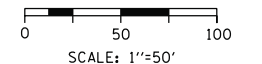
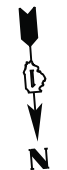
** TEMPORARY PAVEMENT AND SUB GRAN MAT B 4 STA 5229+00.00 TO STA 5230+89.03 SEE ROADWAY DETAIL FOR ADDITIONAL INFORMATION

*** PR RAMP NW STA 1844+62.70 BEGIN SHOULDER RUM STRIP 16 (RT SHOULDER)

STA 1843+08.58 END SHOULDER RUM STRIP 16 (RT SHOULDER)

PR MORGAN ST EXIT RAMP STA 3642+11.40 END SHOULDER RUM STRIP 16 (RT SHOULDER)

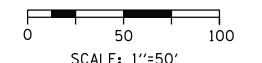
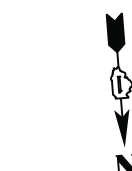
STA 3647+29.27 END SHOULDER RUM STRIP 16 (LT SHOULDER)



LEGEND

- PAVEMENT REMOVAL
- PAVED SHOULDER REMOVAL
- APPROACH SLAB REMOVAL
- LINEAR REMOVAL
- TREE REMOVAL, ACRES
- TREE REMOVAL
- SOIL BORING LOCATION

EXISTING



NOTE:

1. SEE SHEET 44 FOR PR ROADWAY PROFILE

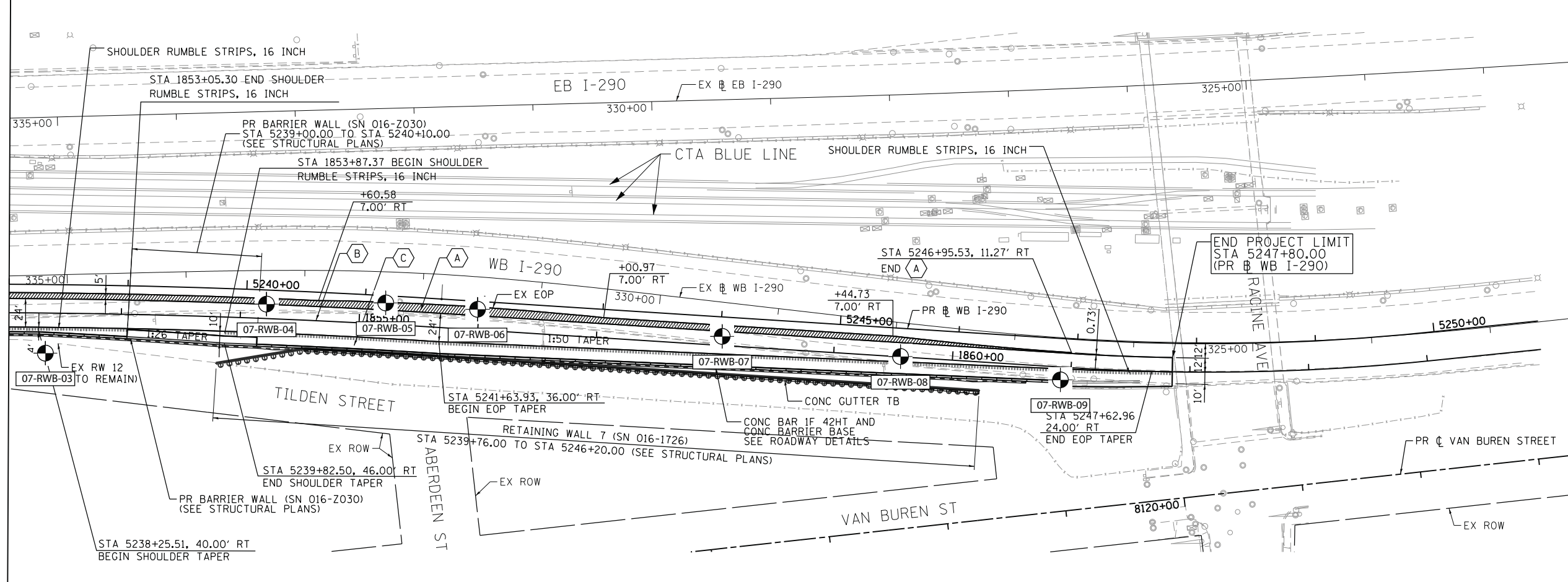
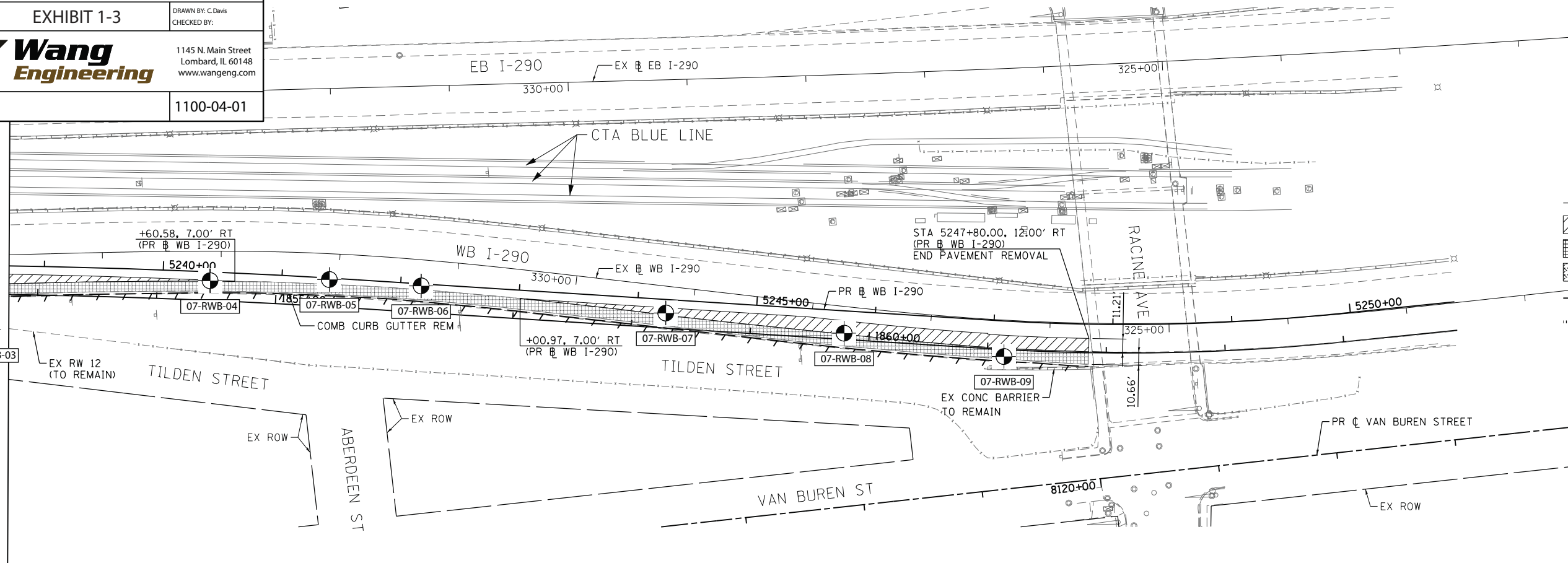
PROPOSED ROADWAY LEGEND

- TEMPORARY PAVEMENT SUB GRAN MAT B 4
- PCC PVT 11 JOINTED STAB SUBBASE HMA 4 AGG SUBGRADE IMPR 12
- PCC SHOULDERS 11 SUB GRAN MAT C 4 AGG SUBGRADE IMPR 12
- PCC PVT 9 JOINTED STAB SUBBASE HMA 4 AGG SUBGRADE IMPR 12
- PCC SHOULDERS 9 SUB GRAN MAT C 4 AGG SUBGRADE IMPR 12

PROPOSED

MATCH LINE STA 5238+00 (PR WB I-290) SEE SHEET NO. 42

MATCH LINE STA 5238+00 (PR WB I-290) SEE SHEET NO. 42





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BORING LOG 05-RWB-01

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 581.24 ft
 North: 1898082.68 ft
 East: 1170171.79 ft
 Station: 3644+44.36
 Offset: 28.1622 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	580.94	1-inch thick, ASPHALT															
	580.1	--PAVEMENT--															
	579.4	10-inch thick, CONCRETE			1	8 4 4	NP	13						11	0 0 1	0.25 P	26
		--PAVEMENT--															
		8-inch thick, white CRUSHED STONE															
		--BASE COURSE--															
		Stiff to very stiff, dark gray SILTY CLAY LOAM, trace gravel	5		2	4 13 13	1.64 B	24				30		12	0 2 2	0.41 B	28
	575.7	--FILL--															
		Very dense, black GRAVELLY SANDY LOAM			3	50/5"	NP	19									
	573.7	--FILL--															
		Stiff (1.25P), gray SILTY CLAY LOAM, trace gravel															
	572.5																
		Very soft to medium stiff, gray CLAY to SILTY CLAY	10		4	2 2 3	0.25 P	26				35		13	0 3 2	0.25 P	27
					5	0 0 1	0.25 P	23									
					6	0 0 3	0.25 P	21				40		14	2 4 5	0.90 B	20
					7	1 2 1	0.25 P	22		539.5							
					8	0 0 2	0.25 P	28				45		15	5 10 22	3.28 B	14
					9	0 0 2	0.25 P	26									
					10	0 0 1	0.25 P	24				50		16	6 11 14	3.85 B	18

GENERAL NOTES

Begin Drilling **04-14-2013** Complete Drilling **04-14-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **NA**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 10/9/14



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BORING LOG 05-RWB-01

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 581.24 ft
 North: 1898082.68 ft
 East: 1170171.79 ft
 Station: 3644+44.36
 Offset: 28.1622 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	524.5		55		17	6 8 11	3.20 B	25									
	519.5	Hard, gray SILTY LOAM, trace gravel and seams of fine sand --L _L (%)=24, P _L (%)=14-- --%Gravel=4.0-- --%Sand=26.3-- --%Silt=56.5--60 --%Clay=13.2-- --A-4 (4)--	60		18	23 40 50/5"	4.92 B	12									
	519.5	Very stiff to hard, gray SILTY CLAY LOAM, trace gravel	65		19	17 27 30	7.67 B	15									
	506.2	--L _L (%)=26, P _L (%)=14-- --%Gravel=1.5-- --%Sand=9.5-- --%Silt=68.0--70 --%Clay=21.0-- --A-6 (9)--	70		20	14 20 21	4.50 P	14									
	506.2		75		21	37 60/5"	2.21 S	10									
Boring terminated at 75.00 ft																	

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **04-14-2013** Complete Drilling **04-14-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion**

While Drilling **DRY**
 At Completion of Drilling **NA**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 10/9/14



BORING LOG 05-RWB-02

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WEI Job No.: 1100-04-01

Client **AECOM**
Project **Circle Interchange Reconstruction**
Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
Elevation: 591.20 ft
North: 1898084.11 ft
East: 1170005.07 ft
Station: 3646+11.05
Offset: 24.5537 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	590.94	4-inch thick ASPHALT															
	590.2	--PAVEMENT--			1	50/6"	NP	13						11	0 0 0	0.16 B	27
	588.7	8-inch thick CONCRETE --PAVEMENT--			2	14 19 20	NP	49				30		12	1 1 1	0.16 B	24
		Very dense, gray CRUSHED STONE			3	12 18 24	NP	36						13	1 1 1	0.16 B	26
		--BASE COURSE--			4	13 3 24	NP	32				35		14	0 1 1	0.33 B	25
		Medium dense to dense, dark brown and gray SAND to SANDY LOAM, some slag			5	50/3"	NP	29						15	0 1 1	0.33 B	28
		--FILL--			6	50/4"	NP	39				40		16	2 5 6	1.07 B	20
	580.7	Very dense, black and gray GRAVELLY SAND, some slag			7	1 1 2	0.57 B	37						8	0 0 0	0.16 B	23
		--FILL-- --HARD DRILLING--			9	0 0 0	0.16 B	23		544.5	Stiff to very stiff, gray SILTY CLAY, trace to little gravel			10	0 0 0	0.16 B	23
	575.7	Very soft to medium stiff, gray CLAY to SILTY CLAY			10	0 0 0	0.25 B	27				50		16	2 5 6	1.07 B	20

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **04-12-2013** Complete Drilling **04-13-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **P&N** Logger **R. Gorlagunta** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 15', mud rotary thereafter, boring**
backfilled upon completion

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **DRY**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 10/9/14



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BORING LOG 05-RWB-02

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 591.20 ft
 North: 1898084.11 ft
 East: 1170005.07 ft
 Station: 3646+11.05
 Offset: 24.5537 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
											--%Clay=13.9-- --A-4 (4)--							
			55	X	17	4 7 10	3.36 B	15			--L _L (%)=26, P _L (%)=15-- --%Gravel=2.5-- --%Sand=12.8-- --%Silt=67.2-- --%Clay=17.5-- --A-6 (7)--	80	X	22	9 19 29	NP	13	
										509.5	Hard, gray SILTY CLAY LOAM, trace gravel							
			60	X	18	4 7 8	3.20 B	20				85	X	23	18 20 50	4.84 B	14	
			65	X	19	4 4 10	2.05 S	20			502.5	Very dense, gray, fine SAND, some silt seams	90	X	24	26 39 50	NP	15
											--HARD DRILLING--							
	524.5	Dense to very dense, gray SILT to SILTY LOAM, trace gravel																
			70	X	20	11 28 29	NP	12			499.5	Very dense, gray GRAVELLY SAND	95	X	25	50/5"	NP	10
											--HARD DRILLING--							
		--L _L (%)=24, P _L (%)=14-- --%Gravel=6.4-- --%Sand=25.7-- --%Silt=54.0--																
											--AUGER REFUSAL--							
											Boring terminated at 98.60 ft	100		26	50/1"			

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GENERAL NOTES

Begin Drilling **04-12-2013** Complete Drilling **04-13-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **P&N** Logger **R. Gorlagunta** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 15', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **DRY**
 At Completion of Drilling **DRY**
 Time After Drilling **NA**
 Depth to Water **NA**
 The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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BORING LOG 06-RWB-01

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 583.99 ft
 North: 1898106.36 ft
 East: 1170373.84 ft
 Station: 3642+41.92
 Offset: 6.5897 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	583.1	11-inch thick, black SILTY CLAY LOAM, some grass			1	P C S C S H	2.00 P	10									
	581.7	Very stiff, brown and gray SILTY CLAY LOAM, little gravel			2	P C S C S H	3.50 P	17									
		Stiff to hard, brown and gray SILTY CLAY LOAM, trace gravel	5		3	P C S C S H	4.25 P	18									
					4	P C S C S H	2.50 P	16									
		2-inch thick SAND seam			5	P C S C S H	1.50 P	19									
	574.2	Very soft, gray CLAY to SILTY CLAY, trace gravel	10		6	P C S C S H	< 0.25 P	21									
	572.0	Boring terminated at 12.00 ft															

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **04-15-2013** Complete Drilling **04-15-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **Geoprobe**
 Driller **F&R** Logger **R. Gorlagunta** Checked by **C. Marin**
 Drilling Method **Jackhammer driven 1" IDA Geoprobe LB Sampler**

While Drilling ▽ **DRY**
 At Completion of Drilling ▼ **DRY**
 Time After Drilling **NA**
 Depth to Water ▼ **NA**

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BORING LOG 06-RWB-02

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 579.17 ft
 North: 1898097.14 ft
 East: 1170215.28 ft
 Station: 3644+00.68
 Offset: 14.2717 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	578.5	7.5-inch thick ASPHALT --PAVEMENT--															
	577.7	10-inch thick CONCRETE --PAVEMENT--															
	577.0	9-inch thick, gray CRUSHED STONE --BASE COURSE--			1	8 12 19	NP	11						11	0 1 2	0.49 B	25
	575.9	Dense, brown GRAVELLY SAND, trace slag and asphalt, brick fragments --FILL--			2	4 2 3	0.74 B	15				30		12	0 2 3	0.49 B	25
	573.7	Medium stiff, gray SILTY CLAY LOAM, trace gravel			3	1 2 2	0.16 B	25		547.4	Very stiff, gray SILTY CLAY, trace gravel						
		Very soft to soft, gray CLAY to SILTY CLAY, trace gravel			4	2 3 2	0.33 B	26				35		13	2 2 4	NA	
					5	0 0 1	0.08 B	29									
					6	0 1 2	0.16 B	27				40		14	7 11 12	2.38 B	22
					7	0 0 1	0.08 B	28		537.4	Dense, gray SILTY LOAM, trace gravel						
					8	0 0 2	0.16 B	27				45		15	11 15 21	NP	16
					9	0 1 1	0.08 B	25		532.4	Very stiff, gray SILTY CLAY LOAM, trace gravel						
					10	0 1 3	0.49 B	25				50		16	5 8 11	3.61 B	20

GENERAL NOTES

Begin Drilling **04-14-2013** Complete Drilling **04-15-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&J** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling ∇ **NA**
 At Completion of Drilling ∇ **NA**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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BORING LOG 06-RWB-02

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 579.17 ft
 North: 1898097.14 ft
 East: 1170215.28 ft
 Station: 3644+00.68
 Offset: 14.2717 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	527.4	Dense, gray SILT	55	X	17	7 15 20	NP	19			--HARD DRILLING-- --Possible Cobbles--	80	X	22	47 50/2"	NP	12
	522.4	Very dense, gray SILTY LOAM, trace gravel and rock fragments	60	X	18	23 29 42	5.74 S	12		496.2	--HARD DRILLING-- --Possible Cobbles-- --SAMPLER REFUSAL-- Boring terminated at 83.00 ft	85		23	50/0"	NR	
		--L _L (%)=26, P _L (%)=14-- --%Gravel=-1.8-- --%Sand=7.7-- --%Silt=74.8-- --%Clay=15.7-- --A-6 (9)--	65	X	19	12 21 29	7.46 B	15				90					
		--%Gravel=5.1-- --%Sand=24.4-- --%Silt=62.7-- --%Clay=7.8-- --A-4 (0)--	70	X	20	18 28 30	NP	13				95					
		--HARD DRILLING-- --Possible Cobbles--	75	X	21	70/4"	NP	14				100					

GENERAL NOTES

Begin Drilling **04-14-2013** Complete Drilling **04-15-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&J** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **NA**
 At Completion of Drilling **NA**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



BORING LOG 06-RWB-03

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WEI Job No.: 1100-04-01

Client **AECOM**
Project **Circle Interchange Reconstruction**
Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
Elevation: 0.00 ft
North: 1898100.64 ft
East: 1170077.33 ft
Station: 3645+38.58
Offset: 8.9694 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	-0.3	4-inch thick ASPHALT --PAVEMENT--															
	-1.3	11-inch thick CONCRETE --PAVEMENT--															
	-1.9	8-inch thick CRUSHED STONE --BASE COURSE--			1	8 0 0	NP							11	0 0 0	0.25 P	27
	-3.0	Brown SILTY LOAM --FILL--			2	2 2 3	0.98 B	19						12	0 0 2	0.25 P	27
	-5.5	Medium stiff, gray SILTY CLAY, trace gravel			3	1 1 1	0.41 B	26									
	-8.0	Soft, gray CLAY, trace gravel			4	0 0 1	< 0.25 P	34						13	0 0 0	0.25 P	27
	-10.5	Very soft, gray SILTY CLAY LOAM, trace gravel --L _L (%)=27, P _L (%)=14-- --%Gravel=4.4-- --%Sand=23.7-- --%Silt=51.2-- --%Clay=20.7-- --A-6 (7)--			5	0 1 1	0.25 P	26									
		Very soft to soft, gray CLAY to SILTY CLAY, trace gravel			6	0 0 0	0.25 P	26						14	0 2 3	0.25 P	26
					7	0 0 0	0.25 P	28									
					8	0 0 0	< 0.17 N/6							15	0 1 5	0.49 B	20
					9	0 0 0	0.25 P	28									
					10	0 1 1	0.33 N/6			-46.8	Very stiff to hard, gray SILTY CLAY LOAM, trace gravel			16	5 7 17	3.69 B	13

GENERAL NOTES

Begin Drilling **04-15-2013** Complete Drilling **04-16-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **DRY**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 06-RWB-03

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 0.00 ft
 North: 1898100.64 ft
 East: 1170077.33 ft
 Station: 3645+38.58
 Offset: 8.9694 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--L _L (%)=26, P _L (%)=14-- --%Gravel=5.1-- --%Sand=22.4-- --%Silt=50.0-- --%Clay=22.5-- --A-6 (6)--	55	X	17	7 12 13	3.94 B	15									
			60	X	18	7 10 15	3.94 B	23									
	-61.8	Hard, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel															
			65	X	19	22 36 52	5.25 B	12									
			70	X	20	18 26 35	4.67 B	17									
			75	X	21	14 21 25	4.84 B	25									
	-75.0	Boring terminated at 75.00 ft															

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **04-15-2013** Complete Drilling **04-16-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion**

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **DRY**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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BORING LOG 06-RWB-04

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 0.00 ft
 North: 1898100.56 ft
 East: 1169966.85 ft
 Station: 3646+49.05
 Offset: 7.6057 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	0.3	3-inch thick ASPHALT --PAVEMENT--															
	-1.3	12-inch thick CONCRETE --PAVEMENT--															
	-1.8	6-inch thick, gray CRUSHED STONE --BASE COURSE--															
	-2.8	Very dense, brown SANDY GRAVEL, trace slag --FILL--			1	15 50/3	NP	10						11	0 1 1	< 0.25 P	27
		Very dense, gray and blue SANDY LOAM, trace slag --FILL--			2	27 29 39	NP	36						12	0 0 1	0.08 B	26
		Medium stiff to stiff, gray SILTY CLAY LOAM, trace gravel			3	12 26 31	NP	56						13	0 1 2	0.16 B	28
	-8.0	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			4	2 2 2	1.07 B	23						14	0 0 0	0.08 B	28
					5	2 2 3	0.82 B	14						15	0 2 3	0.66 B	25
	-13.0				6	0 0 1	0.08 B	20						16	1 3 3	0.74 B	21
					7	0 0 2	0.16 B	23									
					8	0 0 1	0.08 B	25									
					9	0 0 2	0.08 B	27									
					10	0 1 1	0.16 B	27									

--L_L(%)=34, P_L(%)=16--
 --%Gravel=4.2--
 --%Sand=13.2--
 --%Silt=48.8--30
 --%Clay=33.8--
 --A-6 (14)--

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **04-15-2013** Complete Drilling **04-16-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&J** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 11', mud rotary thereafter, boring**
backfilled upon completion

While Drilling **NA**
 At Completion of Drilling **NA**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 06-RWB-04

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WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 0.00 ft
 North: 1898100.56 ft
 East: 1169966.85 ft
 Station: 3646+49.05
 Offset: 7.6057 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	-51.8	Very stiff, gray SILTY CLAY, trace gravel																
			55	X	17	1 4 9	2.05 B	23										
			60	X	18	5 6 10	2.95 B	19										
			65	○	19	10 11 10	3.50 N/6											
	-66.8	Hard, gray SILTY LOAM, trace gravel																
			70	X	20	11 14 18	5.17 B	13										
			75	X	21	15 25 35	7.05 B	13										
	-75.0	Boring terminated at 75.00 ft																

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **04-15-2013** Complete Drilling **04-16-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&J** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 11', mud rotary thereafter, boring backfilled upon completion**

While Drilling **NA**
 At Completion of Drilling **NA**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 06-VST-01

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NGVD
 Elevation: 577.16 ft
 North: 1898079.60 ft
 East: 1170397.33 ft
 Station: NA
 Offset: NA

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	576.76	6-inch thick ASPHALT --PAVEMENT--									--In-Situ Vane Shear, 25.5 feet-- -- $S_{u\ undis}$ = 1165.5 psf-- -- $S_{u\ remold}$ = 595.7 psf-- --Sensitivity = 1.96--			4			
	575.8	10-inch thick CONCRETE															
	573.7	Very dense, grayish brown SANDY GRAVEL, trace brick fragments			1	6 42 50	NP	8									
	572.7	--FILL-- Stiff, gray SILTY CLAY, trace gravel			2	9 5 3 2	1.50 P	19									
	572.7	--FILL-- Very soft, gray CLAY to SILTY CLAY, trace gravel			3	0 1 2 2	0.16 B	23									
					4	1 1 1	0.08 B	26									
		--In-Situ Vane Shear, 10.5 feet-- -- $S_{u\ undis}$ = 984.2 psf-- -- $S_{u\ remold}$ = 699.3 psf-- --Sensitivity = 1.41--	10		1												
		--In-Situ Vane Shear, 15.5 feet-- -- $S_{u\ undis}$ = 751.1 psf-- -- $S_{u\ remold}$ = 518 psf-- --Sensitivity = 1.45--	15		2												
		--In-Situ Vane Shear, 20.5 feet-- -- $S_{u\ undis}$ = 854.7 psf-- -- $S_{u\ remold}$ = 466.2 psf-- --Sensitivity = 1.83--	20		3												
			25														
	539.9	Very stiff, gray SILTY CLAY, trace gravel															
	538.2	Medium dense, gray SILTY LOAM, trace gravel			5	7 8 16	3.28 B	19									
	537.2	--DRY-- Boring terminated at 40.00 ft	40														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **08-18-2014** Complete Drilling **08-18-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&J** Logger **S. Woods** Checked by **C. Marin**
 Drilling Method **3.25" HSA, boring backfilled upon completion**

While Drilling ∇ **NA**
 At Completion of Drilling ∇ **NA**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

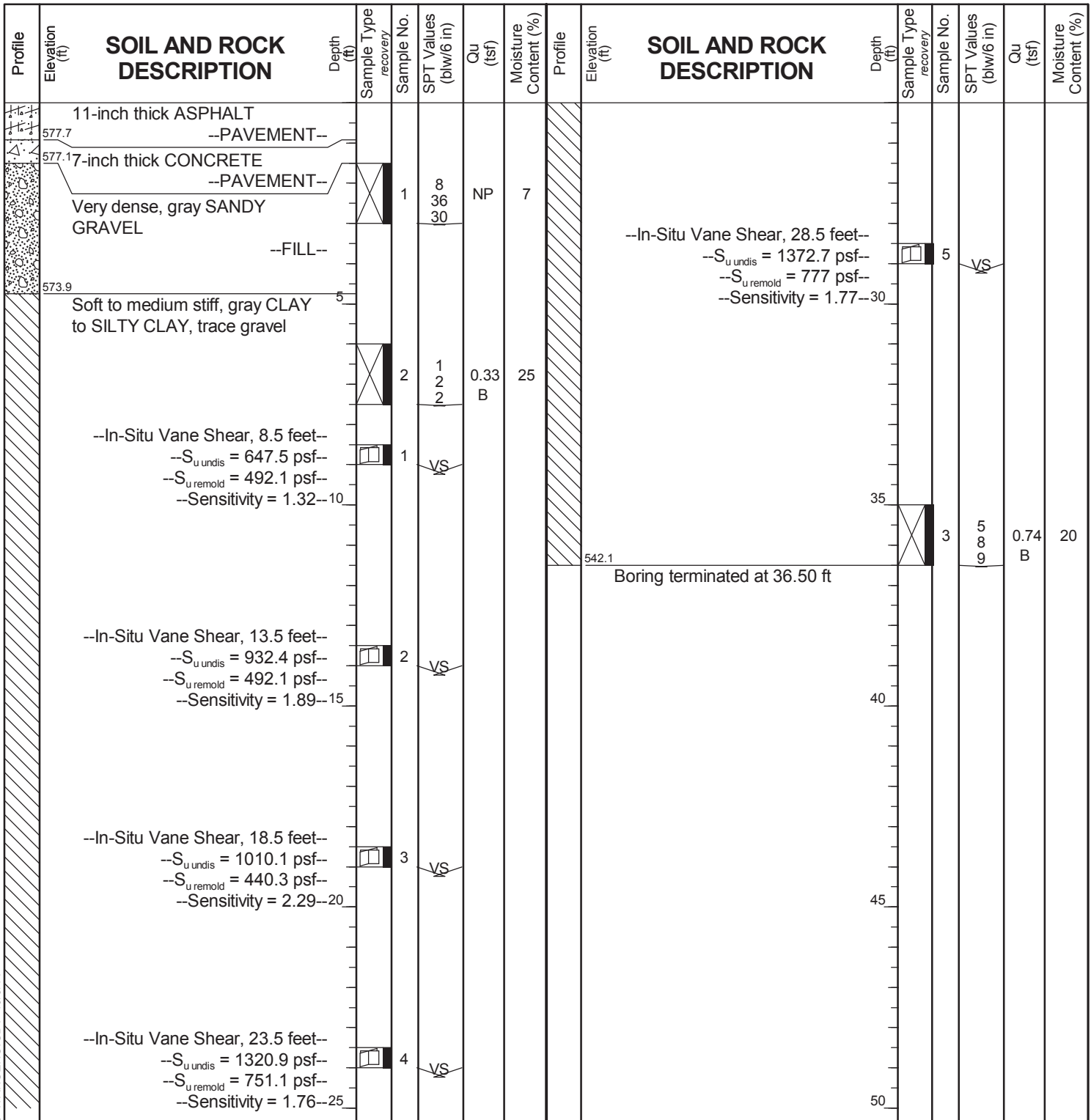
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WEI Job No.: 1100-04-01

Client: AECOM
 Project: Circle Interchange Reconstruction
 Location: Section 17, T39N, R14E of 3rd PM

Datum: NGVD
 Elevation: 578.62 ft
 North: 1898096.47 ft
 East: 1170221.79 ft
 Station: NA
 Offset: NA



GENERAL NOTES

Begin Drilling	08-17-2014	Complete Drilling	08-17-2014
Drilling Contractor	Wang Testing Services	Drill Rig	CME-55 TMR
Driller	R&J	Logger	S. Woods
Checked by	C. Marin		
Drilling Method	3.25" HSA, boring backfilled upon completion		

WATER LEVEL DATA

While Drilling	▽	NA
At Completion of Drilling	▼	NA
Time After Drilling	NA	
Depth to Water	▽	NA

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WANGENGINC 11000401.GPJ WANGENG.GDT 10/9/14



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BORING LOG 07-RWB-01

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.56 ft
 North: 1898072.80 ft
 East: 1169733.92 ft
 Station: 5235+27.24
 Offset: 25.5497' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	576.9	8-inch thick ASPHALT															
	576.4	--PAVEMENT--															
		6-inch thick CRUSHED STONE			1	10 9 8	NP	4						11	0 0 0	0.25 B	26
		--AGGREGATE BASE--															
	574.6	Medium dense, gray GRAVELLY SAND															
		--FILL--															
		Very soft to soft, gray CLAY to SILTY CLAY, trace gravel	5		2	2 1 2	0.25 B	25				30		12	1 2 2	0.25 B	25
					3	1 1 1	0.08 B	27		545.8	SAND						
											--Saturated--						
					4	1 1 1	0.16 B	26		544.3	Medium stiff, gray CLAY, trace gravel			13	3 3 5	0.90 B	19
			10														
					5	0 0 0	0.16 B	27		540.6	Very stiff to hard, gray SILTY CLAY, trace gravel						
			15		6	0 0 0	0.16 B	26						14	5 8 10	3.53 B	13
					7	0 0 0	0.16 B	25									
			20		8	0 0 0	0.08 B	26						15	5 8 9	4.51 B	14
					9	1 2 2	0.08 B	26		530.6	Stiff, gray CLAY						
			25		10	0 0 0	0.25 B	26						16	3 5 5	1.72 B	23

GENERAL NOTES

Begin Drilling **10-28-2013** Complete Drilling **10-28-2013**
 Drilling Contractor **GSG** Drill Rig **D-50 TMR**
 Driller **J&J** Logger **C. Davis** Checked by **M. Snider**
 Drilling Method **3.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **32.00 ft**
 At Completion of Drilling **12.00 ft**
 Time After Drilling **NA**
 Depth to Water **NA**

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BORING LOG 07-RWB-01

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Client **AECOM**
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 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
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 Station: 5235+27.24
 Offset: 25.5497' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	525.6	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel															
			55		17	10 20 29	8.17 N/6	13									
			60		18	17 26 42	9.02 S	13									
			65		19	13 16 18	5.74 S	19									
		--HARD DRILLING-- --Cobbles--															
	510.6	Very dense, gray GRAVELLY SILT --Saturated--															
	507.5	--AUGER REFUSAL, 70.1 feet--70															
		Boring terminated at 70.10 ft															
			75														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **10-28-2013** Complete Drilling **10-28-2013**
 Drilling Contractor **GSG** Drill Rig **D-50 TMR**
 Driller **J&J** Logger **C. Davis** Checked by **M. Snider**
 Drilling Method **3.25" HSA, boring backfilled upon completion**

While Drilling ▽ **32.00 ft**
 At Completion of Drilling ▼ **12.00 ft**
 Time After Drilling **NA**
 Depth to Water ▼ **NA**

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BORING LOG 07-RWB-09

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.22 ft
 North: 1898216.45 ft
 East: 1168586.56 ft
 Station: 5246+87.39
 Offset: 37.5121' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	576.7	6-inch thick dark brown SILTY LOAM --TOPSOIL-- Loose, brown SILTY LOAM, little gravel --FILL--			1	3 3 5	NP	20						11	0 2 1	0.49 B	29
	573.7	Medium stiff, gray SILTY CLAY LOAM, trace gravel	5		2	2 3 3	0.82 B	20				30		12	2 2 4	0.33 B	18
	571.7	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			3	1 1 2	0.18 B	27						13	1 3 5	0.57 B	20
			10		4	0 1 1	0.16 B	27				35		13	1 3 5	0.57 B	20
					5	0 1 1	0.08 B	26		540.2	Very dense, gray SILT --wet--			14	15 27 30	NP	19
			15		6	0 1 1	0.16 B	27				40		14	15 27 30	NP	19
					7	0 1 1	0.18 B	26		535.2	Dense, gray, fine SAND --wet--			15	13 17 24	NP	21
			20		8	0 0 2	0.41 B	26				45		15	13 17 24	NP	21
					9	0 1 2	0.18 B	26		530.2	Hard, gray SILTY LOAM, trace gravel			16	24 34 36	8.20 S	12
			25		10	0 0 2	0.49 B	26				50		16	24 34 36	8.20 S	12

GENERAL NOTES

Begin Drilling **03-25-2014** Complete Drilling **03-25-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&N** Logger **M de los Reyes** Checked by **M. Snider**
 Drilling Method **2.25" SSA to 12.5', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **DRY**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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BORING LOG 07-RWB-09

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.22 ft
 North: 1898216.45 ft
 East: 1168586.56 ft
 Station: 5246+87.39
 Offset: 37.5121' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	520.2	--L _L (%)=24, P _L (%)=16-- --% Gravel = 7.0%-- --% Sand = 24.7%-- --% Silt = 54.2%-- --% Clay = 14.0%-- --A-4 (3)--	55	X	17	19 25 28	5.74 S	12				80	X	22	45 50/3	NP	11	
	520.2	Very dense, gray GRAVELLY SAND	60	X	18	50/2	NP	8				85	X	23		NP	10	
	515.2	Very dense, gray SANDY LOAM --wet-- --% Gravel = 0.3%-- --% Sand = 72.7%-- --% Silt = 25.9%-- --% Clay = 1.1%-- --A-2-4 (0)--	65	X	19	25 45 49	NP	17				90						
	505.2	Very dense, gray SILT to SILTY LOAM, trace gravel	70	X	20	20 40 40	NP	17				95						
	505.2		75	X	21	20 45 50/3	NP	22				100						
	491.7									491.7	--HARD DRILLING-- --cobble-- --AUGER REFUSAL, 86.7 feet-- Boring terminated at 87.00 ft							
	490.5									490.5								

GENERAL NOTES

Begin Drilling **03-25-2014** Complete Drilling **03-25-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&N** Logger **M de los Reyes** Checked by **M. Snider**
 Drilling Method **2.25" SSA to 12.5', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **DRY**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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BORING LOG 1705-B-09

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WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 590.56 ft
 North: 1898117.48 ft
 East: 1171416.28 ft
 Station: 1832+48.55
 Offset: 6.3708 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	589.7	10-inch thick, dark brown LOAM --TOPSOIL--															
		Medium dense, brown and gray, SILTY LOAM, trace roots and gravel			1	6 13 10	NP	10						11	0 2 1	0.25 B	24
	587.6	--FILL--															
		Medium dense, brown, medium SAND			2	10 9 6	NP	14				30		12	0 0 2	0.25 P	25
	585.1		5														
		Medium to very stiff, gray SILTY CLAY, trace gravel			3	2 3 4	2.38 B	20									
			10		4	2 1 3	0.74 B	22				35		13	0 1 2	0.16 B	29
	580.1																
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			5	3 1 3	0.25 B	22									
			15		6	0 0 3	0.33 B	18				40		14	1 2 3	0.25 B	25
					7	0 0 2	0.25 B	26									
			20		8	0 0 2	0.41 B	21				45		15	1 2 4	0.66 B	25
					9	1 2 2	0.33 B	23									
					10	0 2 2	0.25 B	23				50		16	2 3 4	0.33 B	29

GENERAL NOTES

Begin Drilling **07-29-2013** Complete Drilling **07-29-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&J** Logger **A. Tomaras** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling ∇ **NA**
 At Completion of Drilling ∇ **NA**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	533.8	Very stiff, gray SILTY CLAY, trace gravel	55	X	17	7 10 13	1.50 P	20		513.8	Hard, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel	80	X	22	17 27 28	9.43 S	14
	528.8	Hard, gray CLAY, trace gravel	60	X	18	6 7 14	3.69 B	15			--L _L (%)=22, P _L (%)=15-- --%Gravel=2.8-- --%Sand=9.6--85 --%Silt=70.0-- --%Clay=17.6-- --A-4 (4)--	80	X	23	20 42 50/4	7.30 S	13
	523.8	Hard, gray SILTY CLAY LOAM, trace gravel and sand lenses	65	X	19	7 10 12	4.10 B	23			--HARD DRILLING-- --Possible Cobbles--	90	X	24	60/6	4.50 P	8
	518.8	Medium dense, gray SILTY LOAM	70	X	20	23 25 23	4.51 S	10				95	X	25	50/6	4.50 P	12
	493.8	Very dense, gray SILT	75	X	21	9 10 10	NP	21				100	X	26	39 40 50/3	NP	21

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **07-29-2013** Complete Drilling **07-29-2013**
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backfilled upon completion

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 At Completion of Drilling **NA**
 Time After Drilling **NA**
 Depth to Water **NA**

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		--%Gravel=0.0-- --%Sand=0.7-- --%Silt=84.1-- --%Clay=15.2-- --A-4 (0)--	405	X	27	24 34 50/3	NP	20									
	482.3	Very dense, GRAVEL / WEATHERED DOLOSTONE BEDROCK	110	o	28	50/2											
	479.6	--HARD DRILLING-- --ROTARY BIT REFUSAL-- Boring terminated at 111.00 ft	111														

GENERAL NOTES

Begin Drilling **07-29-2013** Complete Drilling **07-29-2013**
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BORING LOG 1705-B-10

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 588.29 ft
 North: 1898131.01 ft
 East: 1171315.43 ft
 Station: 1833+49.70
 Offset: 2.5590 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	587.3	12-inch thick, dark brown LOAM --TOPSOIL--									--L _L (%)=35, P _L (%)=17-- --%Gravel=2.9-- --%Sand=13.3-- --%Silt=49.9-- --%Clay=33.9-- --A-6 (14)--						
	584.3	Medium dense, brown LOAM, trace gravel, crushed stone, and brick fragments --FILL--			1	4 10 7	NP	10			--In-Situ Vane Shear, 28.0 feet-- --S _{u undis} = 699.3 psf-- --S _{u remold} = 414.9 psf-- --Sensitivity = 1.69--			11	1 1 2	0.08 B	26
	582.8	Medium dense, brown SAND --FILL--			2	6 9 5	NP	8						12	0 2 2	0.08 B	22
	580.3	Very stiff, gray SILTY CLAY, trace gravel			3	3 3 3	3.50 P	16									
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			4	3 2 3	0.41 B	22						13	0 0 1	0.16 B	25
					5	1 2 3	0.49 B	19			--In-Situ Vane Shear, 35.5 feet-- --S _{u undis} = 880.6 psf-- --S _{u remold} = 518.0 psf-- --Sensitivity = 1.70--			14	0 3 3	0.57 B	23
		--In-Situ Vane Shear, 13.0 feet-- --S _{u undis} = 1061.9 psf-- --S _{u remold} = 543.9 psf-- --Sensitivity = 1.95--			6	2 2 3	0.41 B	20						15	2 2 4	0.33 B	19
					7	0 2 1	0.33 B	25			--In-Situ Vane Shear, 40.5 feet-- --S _{u undis} = 1809.5 psf-- --S _{u remold} = 1137.4 psf-- --Sensitivity = 1.59--			16	5 8 14	2.79 B	19
		--In-Situ Vane Shear, 18.0 feet-- --S _{u undis} = 1191.4 psf-- --S _{u remold} = 543.9 psf-- --Sensitivity = 2.19--			8	1 2 2	0.41 B	22						15	2 2 4	0.33 B	19
					9	0 0 1	0.16 B	22		541.5	Very stiff, gray SILTY CLAY, trace gravel			16	5 8 14	2.79 B	19
		--In-Situ Vane Shear, 23.0 feet-- --S _{u undis} = 802.9 psf-- --S _{u remold} = 414.4 psf-- --Sensitivity = 1.94--			10	0 2 1	0.25 B	24						16	5 8 14	2.79 B	19

GENERAL NOTES

Begin Drilling **07-30-2013** Complete Drilling **08-01-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&J** Logger **A. Tomaras** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **DRY**
 At Completion of Drilling **NA**
 Time After Drilling **NA**
 Depth to Water **NA**

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BORING LOG 1705-B-10

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WEI Job No.: 1100-04-01

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 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
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 Offset: 2.5590 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	533.8				17	8 12 17	4.84 B	14									
		Medium dense, gray, medium SAND	55									80		22	18 22 25	8.94 S	13
	531.5																
		Hard, gray SILTY CLAY, trace gravel and fine sand lenses															
			60		18	6 10 20	4.02 B	19		504.0		85		23	37 37 50/5	4.35 S	13
			65		18	5 12 30	4.18 B	19			--HARD DRILLING (5 min/0.5')-- --Possible Cobbles--			24	50/2	NP	11
	521.5																
		Stiff, gray, laminated layers of CLAY and SILT									--HARD DRILLING-- --Possible Cobbles--						
			70		20	5 4 6	1.31 B	27				95		25	50/6	NP	11
	516.5																
		Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel															
			75		21	10 14 31	9.51 S	12		492.0		100		26	20 26 40	NP	17

GENERAL NOTES

Begin Drilling **07-30-2013** Complete Drilling **08-01-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&J** Logger **A. Tomaras** Checked by **C. Marin**
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backfilled upon completion

WATER LEVEL DATA

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **NA**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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Client **AECOM**
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 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
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 Offset: 2.5590 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	486.5	Very dense, gray GRAVELLY SAND, trace cobbles --HARD DRILLING-- --Possible Cobbles--	105		27	50/2	NR										
	481.3	Strong, poor to fair rock quality, light gray, fresh, vertical and horizontal joints, joint breaks with little to no infill, horizontal stylolites, slightly vuggy DOLOSTONE --Run 1 - RECOVERY= 97.5%-- --RQD(top 5ft)=73%-- --RQD(10ft)=50%--	110						ROCK								
	471.3	Boring terminated at 117.00 ft	120														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **07-30-2013** Complete Drilling **08-01-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **CME-55 TMR**
 Driller **R&J** Logger **A. Tomaras** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion**

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **NA**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



BORING LOG 1714-B-02

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 1145 N Main Street
 Lombard, Illinois 60148
 Telephone: 630-953-9928
 Fax: 630-953-9938

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 582.53 ft
 North: 1898095.52 ft
 East: 1171244.20 ft
 Station: 1404+96.98
 Offset: 1.3189 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	582.24	1/2-inch thick ASPHALT --PAVEMENT--															
	581.5																
	581.08	1/8-inch thick CONCRETE --PAVEMENT--															
		6-inch thick CRUSHED STONE --BASE COURSE--			1	6 5 6	3.77 B	16						11	0 0 2	0.08 B	28
		Very stiff, brown and gray SILTY CLAY LOAM, trace gravel --FILL--			2	3 4 5	2.62 B	20						12	0 1 2	0.08 B	26
	577.0	Medium stiff to stiff, gray SILTY LOAM, trace gravel --L _L (%)=24, P _L (%)=15-- --%Gravel=14.0-- --%Sand=28.0-- --%Silt=45.7-- --%Clay=12.4--			3	2 3 4	1.64 B	18									
					4	3 4 4	0.98 B	19						13	0 0 2	0.25 B	25
	572.0	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace to some gravel			5	0 2 2	0.57 B	24									
					6	1 1 2	0.25 B	22						14	2 2 3	0.33 B	36
					7	1 1 2	< 0.25 P	23									
					8	1 1 2	0.49 B	25						15	2 4 6	0.98 B	22
					9	0 0 1	0.33 B	25									
					10	0 0 0	0.16 B	24		535.8	Very stiff, gray SILTY CLAY, trace gravel			16	5 8 12	3.94 B	15

GENERAL NOTES

Begin Drilling **10-08-2013** Complete Drilling **10-08-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **D. Kolpacki** Checked by **C. Marin**
 Drilling Method **3.25" HSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **DRY**
 At Completion of Drilling **NA**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 10/9/14



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BORING LOG 1714-B-02

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 582.53 ft
 North: 1898095.52 ft
 East: 1171244.20 ft
 Station: 1404+96.98
 Offset: 1.3189 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	530.8	Very stiff, gray CLAY																
			55	X	17	4 9 14	2.95 B	21				80	X	22	54/6			9
		--L _L (%)=35, P _L (%)=17-- --%Gravel=2.9-- --%Sand=11.2-- --%Silt=47.7-- --%Clay=38.2-- --A-6 (15)--	60	X	18	6 8 12	2.46 B	24				85	X	23	69/6			14
	520.8	Medium dense, gray SILT																
			65	X	19	8 7 6	NP	22				90	X	24	31 45 36			18
		--%Gravel=1.9-- --%Sand=6.8-- --%Silt=83.8-- --%Clay=7.4-- --A-4 (0)--																
	515.8	Hard, gray SILTY CLAY LOAM, trace gravel																
		--L _L (%)=31, P _L (%)=17-- --%Gravel=3.5-- --%Sand=14.1-- --%Silt=55.7-- --%Clay=26.7-- --A-6 (10)--	70	X	20	13 21 33	10.25 B	16				95	X	25	50/5			14
										486.5	--HARD DRILLING-- --WEATHERED BEDROCK--							
										484.5								
	508.5	Very dense, gray SILT to SILTY LOAM, trace gravel									Strong, white and light gray, rock quality, horizontally bedded DOLOSTONE, beds up to 18 inch, joint spacing up to 18 inch, 100							
			75	X	21	11 17 50	NP	16										

GENERAL NOTES

Begin Drilling **10-08-2013** Complete Drilling **10-08-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **D. Kolpacki** Checked by **C. Marin**
 Drilling Method **3.25" HSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **DRY**
 At Completion of Drilling **NA**
 Time After Drilling **NA**
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG 1714-B-02

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 582.53 ft
 North: 1898095.52 ft
 East: 1171244.20 ft
 Station: 1404+96.98
 Offset: 1.3189 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	474.5	joints with less than 0.2 inch or no infilling, vuggy and cherty, with stylolitic surfaces. --Run 1 - RECOVERY= 93%-- --RQD= 86%--	105		1												
		Boring terminated at 108.00 ft	110														
			115														
			120														
			125														

GENERAL NOTES

Begin Drilling **10-08-2013** Complete Drilling **10-08-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&R** Logger **D. Kolpacki** Checked by **C. Marin**
 Drilling Method **3.25" HSA to 10', mud rotary thereafter, boring**
 **backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **DRY**
 At Completion of Drilling ▼ **NA**
 Time After Drilling **NA**
 Depth to Water ▼ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



BORING LOG 2082-B-01

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WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 595.02 ft
 North: 1898094.24 ft
 East: 1170474.14 ft
 Station: 3705+04.48
 Offset: 8.9443 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	594.74	1/2-inch thick ASPHALT --PAVEMENT--															
	593.7	12-inch thick CONCRETE --PAVEMENT--															
	593.2	6-inch thick CRUSHED STONE --BASE COURSE--															
		Loose to dense, brown, black and gray medium to coarse SAND, trace to little gravel, slag, brick fragments															
		--FILL--															
			1		1	11 18 15	NP	17						11	0 0 1	0.25 P	28
			2		2	9 17 14	NP	18						12	0 0 0	< 0.25 P	29
			3		3	4 3 3	NP	27									
			4		4	17 6 6	NP	47						13	0 0 0	0.33 B	27
			5		5	3 3 5	NP	48									
			6		6	4 3 4	NP	63						14	0 1 2	0.33 B	26
			7		7	7 2 2	NP	76		553.0							
			8		8	2 1 2	0.49 B	17			Medium stiff to stiff, gray SILTY CLAY, trace gravel			15	1 3 5	0.82 B	24
			9		9	0 0 2	0.41 B	28									
			10		10	0 0 0	0.33 B	28						16	2 4 3	1.17 N/6	
	577.0	Very soft to soft, gray CLAY to SILTY CLAY, trace gravel	20														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **03-14-2013** Complete Drilling **03-14-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **DRY**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 595.02 ft
 North: 1898094.24 ft
 East: 1170474.14 ft
 Station: 3705+04.48
 Offset: 8.9443 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
											--%Silt=56.6-- --%Clay=13.5-- --A-6 (5)--							
	538.0	Hard, gray SILTY LOAM, trace gravel	55	X	17	2 4 6	1.56 B	18				80	X	22	14 21 33	5.90 B	16	
	533.0	Medium stiff to very stiff, gray SILTY CLAY LOAM, trace to little gravel	60	X	18	9 20 25	7.13 B	14				85	X	23	50/4"	4.50 P	21	
	533.0	Medium stiff to very stiff, gray SILTY CLAY LOAM, trace to little gravel	65	X	19	6 9 15	3.28 B	19				90	X	24	33 37 42	4.92 B	11	
	523.0	Hard, gray SILTY LOAM, trace to little gravel	70	X	20	5 9 19	0.90 B	28		503.0	Dense, gray GRAVELLY SILTY LOAM	95	X	25	50/5"	NP	18	
	523.0	Hard, gray SILTY LOAM, trace to little gravel		X	21	31 40 42	5.74 B	13		496.5	--AUGER REFUSAL-- Boring terminated at 98.50 ft	100						

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **03-14-2013** Complete Drilling **03-14-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-50 TMR**
 Driller **R&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion**

While Drilling **DRY**
 At Completion of Drilling **DRY**
 Time After Drilling **NA**
 Depth to Water **NA**

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BORING LOG COMM-HUT-CCTV

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Circle Interchange Reconstruction**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 589.57 ft
 North: 1898191.07 ft
 East: 1171393.69 ft
 Station: 5218+68.15
 Offset: 116.7249 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	589.25	2.5-inch thick dark brown SILTY LOAM --TOPSOIL-- Very stiff to hard, brown CLAY LOAM, trace gravel --FILL--			1	4 12 17	4.50 P	14						11	1 1 1	0.16 B	26
			5		2	5 7 7	3.94 B	14				30		12	1 2 2	0.16 B	27
					3	9 11 10	7.38 B	17									
	581.6	Medium stiff, gray SILTY CLAY, trace gravel			4	3 4 4	0.82 B	19						13	1 2 3	0.83 N/6	
	579.1	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			5	1 2 3	0.49 B	21		552.8	Very stiff, gray SILTY CLAY LOAM, some gravel						
			15		6	1 2 4	0.41 B	22				40		14	4 6 8	2.00 P	14
					7	2 3 5	0.74 B	25		547.8	Soft, gray CLAY, trace gravel						
			20		8	1 3 3	0.82 B	19				45		15	2 6 8	0.25 P	26
					9	1 2 2	0.33 B	26		542.8	Stiff to hard, gray SILTY CLAY to SILTY CLAY LOAM, trace to little gravel						
			25		10	1 2 2	0.16 B	24				50		16	4 5 7	1.23 B	24

GENERAL NOTES

Begin Drilling **11-08-2013** Complete Drilling **11-08-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-25 ATV**
 Driller **P&N** Logger **D. Kolpacki** Checked by _____
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **DRY**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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BORING LOG COMM-HUT-CCTV

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Circle Interchange Reconstruction**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 589.57 ft
 North: 1898191.07 ft
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 Station: 5218+68.15
 Offset: 116.7249 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	529.6		55		17	9 12 15	4.64 B	14									
			60		18	7 11 19	5.00 N/6	23									
		Boring terminated at 60.00 ft															

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **11-08-2013** Complete Drilling **11-08-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig **D-25 ATV**
 Driller **P&N** Logger **D. Kolpacki** Checked by
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring**
 **backfilled upon completion**

While Drilling ▽ **DRY**
 At Completion of Drilling ▼ **DRY**
 Time After Drilling **NA**
 Depth to Water ▼ **NA**

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