

Prepared for:
Illinois Department of
Transportation, District 4
401 Main
Peoria, Illinois 61602

Structure Designer:
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Abbreviated Structure Geotechnical Report

F.A.P. Route 317 (US 150)
Section (15B)BR
Peoria County
Job No. P-94-018-13
Contract No. 68B46
PTB No. 169-028
US 150 (EB) over IL 29 (Adams Street)
Structure No. 072-0250
Existing Structure No. 072-0167

Submitted March 2017
Revised October 2017

Original Report Date: <u>3/24/2017</u>	Proposed SN: <u>072-0250</u>	Route: <u>US 150</u>
Revised Date: <u>10/12/2017</u>	Existing SN: <u>072-0167</u>	Section: <u>(15B)BR</u>
Geotechnical Engineer: <u>Robert Chantome</u>		County: <u>Peoria</u>
Structural Engineer: <u>EFK Moen</u>		Contract: <u>68B46</u>

Indicate the proposed structure type, substructure types, and foundation locations (attach plan and elevation drawing):

The proposed structure will be a 182'-5" long, two-span PPC I-beam bridge. The substructures will consist of integral abutments and a four column pier. According to information provided by the structure designer, the estimated vertical factored substructure loads are 2,050 kips at the west abutment, 3,960 kips at the pier and 1,820 kips at the east abutment. The TSL general plan and elevation drawing is attached.

The new structure is approximately 17 feet shorter and offset to the right (south) of the existing structure. The proposed abutments are located on the existing end slopes, in front of the existing abutments. The new pier is located in the median of IL 29 and partially overlaps an existing pier. The proposed bridge will be constructed in two stages. The right side will be constructed while maintaining traffic on the existing bridge. The left side will be constructed after removal of the existing structure.

Discuss the existing boring data, existing plans foundation information, new subsurface exploration and need for any additional exploration to be provided with SGR Technical Memo (attach all data and subsurface profile plot):

Several borings were drilled for design of the previous structures. Four of these borings, drilled in 1974 and 1992, are located near the proposed bridge. Two borings near the proposed west abutment were drilled through several feet of sand and sandy loam that was excavated to create the end slope of the current structure. Otherwise, these borings encountered subsurface conditions similar to those found in the recently drilled borings. The existing boring data is attached for information only and was not used in the geotechnical design of the proposed structure.

The existing four-span bridge is supported by approximately 40 ton allowable capacity concrete piles with estimated lengths from 39 to 58 feet. Estimated pile tips are at Elev. 447 for the west abutment and piers and Elev. 456 for the east abutment.

Five borings were drilled for the proposed structure, which was assumed to be a four-span bridge at that time. The borings were drilled by Wang Engineering during August and September 2016. Four of the borings were drilled into shale bedrock at Elev. 394.2 to 392.2. Boring SB-03 was terminated at Elev. 394.5 in dense sand.

Underground coal mine information available from ISGS indicates that the project area has not been undermined.

Provide the location and maximum height of any new soil fill or magnitude of footing bearing pressure. Estimate the amount and time of the expected settlement. Indicate if further testing, analysis, and/or ground improvement/treatment is necessary:

The proposed bridge approaches will require new fill in front of both existing end slopes and on the right side of the west approach. Maximum height of new fill is approximately 12 feet immediately behind the proposed abutment on the right side of the west approach and approximately 10 ft behind the proposed abutment on the left side of the east approach.

Soils beneath the proposed fill are loose to dense sand at the west approach and approximately 11 feet of stiff silty clay over loose to dense sand at the east approach. The cohesive soils at the east approach are likely compacted embankment fill placed for the existing structure. Consolidation-type settlement is estimated as 0.0 inch at the west approach and 0.3 inch at the east approach. This amount of settlement is insignificant, so no further analysis or treatment is required.

Identify any new cuts or fill slope angles and heights. Estimate the factor of safety against slope failure. Indicate if further testing, analysis or ground improvement/treatment is necessary:

The proposed construction will require the addition of approximately 5 to 8 feet of fill on the existing 1V:2H end slopes. The height of the end slopes from berm to toe will be approximately 15 feet, which closely matches the existing condition. Side slopes will be 1V:2H for approximately 5 feet height at the back of the dog-ear wingwalls, then warp into the existing 1V:10H or flatter side slopes.

The embankment will bear on medium dense to dense sands with heights and slopes matching the existing conditions. Because of these favorable conditions, the factor of safety against slope failure can be assumed to exceed 1.5 without analysis. No improvement or treatment is required.

Indicate at each substructure, the 100-year and 200-year total scour depths in the Hydraulics report, the non-granular scour depth reduction, the proposed ground surface, and the recommended foundation design scour elevations:

N/A

Determining the seismic soil site class, the seismic performance zone, the 0.2 and 1.0 second design spectral accelerations and indicate if that the soils are liquefiable:

The Seismic Site Class is D, the SPZ is 1. $S_{DS}=0.18g$. and $S_{D1}=0.11g$. IDOT does not require liquefaction analyses for sites in SPZ 1.

Confirm feasibility of the proposed foundation or wall type and provide design parameters. Attach a pile design table indicating feasible pile types, various nominal required bearings, factored resistances available and corresponding estimated lengths at locations where piles will be used. Provide factored bearing resistance and unit sliding resistance at various elevations and confirm no ground improvement/treatment is necessary where spread footings are proposed. Estimated top of rock elevations as well as preliminary factored unit side and tip resistance values shall be indicated when drilled shafts are proposed: A Pile Design Table including data for several pile types at each substructure is attached. Metal shell piles tipped in medium dense to dense sand are preferred for this structure. Steel H-piles are also feasible, but would be significantly longer than similar capacity metal shell piles.

Shoes are not required. A test pile should be specified at each abutment and at the pier for a total of three test piles.

Some of the concrete piles supporting the existing bridge are within the footprint of the proposed pier. New piles should be spaced to miss the existing piles.

The structure designer should evaluate the lateral resistance of the piles supporting the pier considering both soil and structure properties. Soil parameters for generating P-y curves with the LPILE computer program are provided in the attached table.

Calculate the estimated water surface elevation and determine the need for cofferdams (type 1 or 2), and seal coat:

N/A

Assess the need for sheeting or soil retention or temporary construction slope and provide recommendation for other construction concerns: Construction of the proposed abutments will require placement of several feet of fill on the existing end slopes. This can be completed to the finished berm elevation without impacting the existing structure. The backfill placed behind the first stage of the new abutments will need to be retained for a 9 feet height along the stage line to allow for construction of the second stage. If the backfill is GRANULAR BACKFILL FOR STRUCTURES, which is not typically compacted, TEMPORARY SHEET PILING is feasible.

The temporary sheet piling described above may be designed in accordance with IDOT Bridge Manual Design Guide 3.13.1.

Construction of the proposed pier will require an approximately 5 feet deep excavation within the IL 29 median. If it is desirable to minimize traffic lane closures and/or limit pavement repairs, a TEMPORARY SOIL RETENTION SYSTEM should be specified. A special design may be required to resolve conflicts with the piles supporting the existing bridge. Laid back slopes are also possible, but would need to be 1V:1.5H or flatter to satisfy OSHA requirements.

Pile Design Table

Location	Cutoff Elevation (ft)	Pile Type	Factored Resistance Available, R_F (kips)	Geotechnical Losses, R_{Sdd} (kips)	Nominal Required Bearing, R_N (kips)	Estimated Pile Length (ft)
West Abutment SB-03 / SB-04	505.4	MS 12"φ w/.179" wall	128	0	232	33
			140	0	254	36
		MS 12"φ w/.25" wall	128	0	232	33
			144	0	261	38
			146	0	265	43
			194	0	353	48
		MS 14"φ w/.25" wall	160	0	290	33
			178	0	324	38
			178	0	324	43
			227	0	413	47
		MS 14"φ w/.312" wall	160	0	290	33
			178	0	324	38
			178	0	324	43
			246	0	447	48
			282	0	513	53
		HP 10x42	91	0	166	68
			121	0	219	78
			184	0	335	89
		HP 12x53	109	0	198	68
			173	0	315	83
			230	0	418	89
		HP 12x63	112	0	204	68
			177	0	323	83
			273	0	497	92
		HP 14x73	107	0	195	63
			210	0	382	83
			318	0	578	92
		HP 14x89	110	0	200	63
			215	0	391	83
			350	0	636	93
361	0		657	108		
388	0		705	112		

Pile Design Table

Location	Cutoff Elevation (ft)	Pile Type	Factored Resistance Available, R_F (kips)	Geotechnical Losses, R_{Sdd} (kips)	Nominal Required Bearing, R_N (kips)	Estimated Pile Length (ft)
Pier 1 SB-05	485.2	MS 12"φ w/.179" wall	80	0	145	21
			117	0	213	25
			140	0	254	26
		MS 12"φ w/.25" wall	80	0	145	21
			117	0	213	25
			172	0	313	28
		MS 14"φ w/.25" wall	144	0	261	25
			227	0	413	29
			257	0	468	38
		MS 14"φ w/.312" wall	144	0	261	25
			217	0	395	28
			257	0	468	38
			282	0	513	40
		HP 10x42	81	0	147	58
			101	0	183	68
			118	0	215	73
			156	0	284	78
			163	0	297	88
			184	0	335	93
		HP 12x53	97	0	176	58
			123	0	224	68
			142	0	258	73
			187	0	340	78
			202	0	366	88
		HP 12x63	230	0	418	92
			99	0	180	58
			126	0	229	68
			146	0	265	73
			192	0	349	78
		HP 14x73	204	0	370	88
			273	0	497	95
			117	0	214	58
			149	0	271	68
			172	0	313	73
		HP 14x89	227	0	413	78
			246	0	446	88
			318	0	578	94
			120	0	218	58
			152	0	276	68
		HP 14x89	177	0	321	73
			233	0	423	78
			249	0	452	88
			307	0	558	93
			388	0	705	95

Structure No. 072-0250

Pile Design Table

Location	Cutoff Elevation (ft)	Pile Type	Factored Resistance Available, R _F (kips)	Geotechnical Losses, R _{Sdd} (kips)	Nominal Required Bearing, R _N (kips)	Estimated Pile Length (ft)
East Abutment SB-07	501.9	MS 12"φ w/.179" wall	105	0	191	22
			129	0	235	29
			140	0	254	31
		MS 12"φ w/.25" wall	105	0	191	22
			129	0	235	29
			163	0	296	34
			164	0	299	39
			194	0	353	48
		MS 14"φ w/.25" wall	132	0	240	22
			161	0	293	29
			201	0	366	39
			227	0	413	46
		MS 14"φ w/.312" wall	132	0	240	22
			161	0	293	29
			201	0	366	39
			245	0	446	49
			282	0	513	52
		HP 10x42	110	0	199	84
			133	0	242	89
			136	0	247	99
			148	0	269	104
			184	0	335	108
		HP 12x53	125	0	227	69
			137	0	248	84
			166	0	303	99
			181	0	329	104
			230	0	418	108
		HP 12x63	127	0	232	69
			138	0	251	84
			168	0	306	99
			183	0	332	104
			273	0	497	110
		HP 14x73	151	0	275	69
			168	0	305	84
			201	0	366	99
			218	0	397	104
318	0		578	109		
HP 14x89	154	0	280	69		
	170	0	309	84		
	204	0	371	99		
	221	0	402	104		
	388	0	705	111		

Note: Where a range of values is shown, pile lengths and capacities may be interpolated between the values given.

Structure No. 101-0206
File Design Parameters

Pier 1 (Boring SB-05)

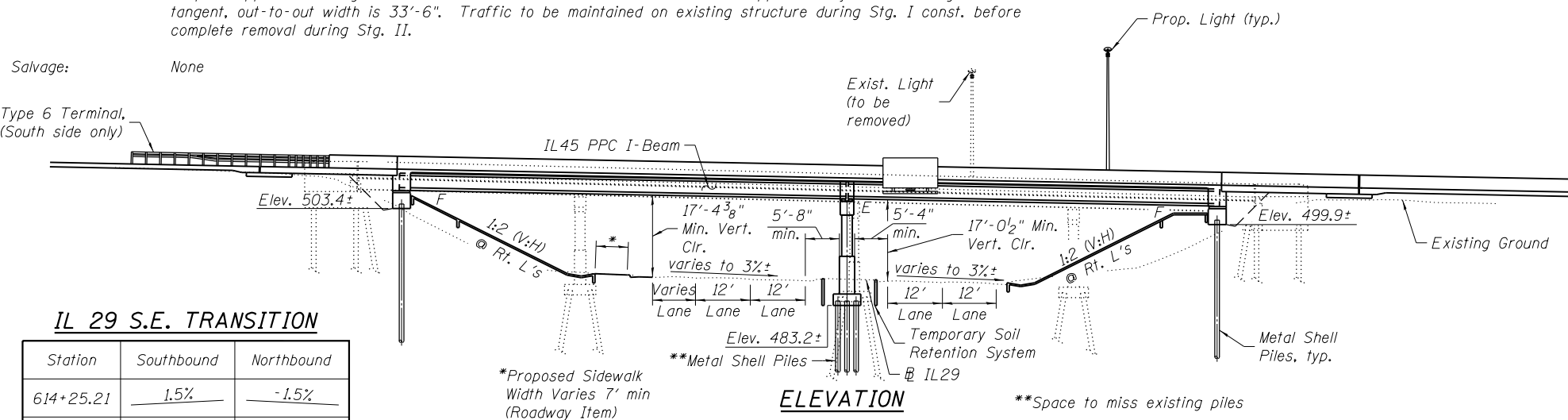
Elevation	LPILE Soil Type	γ (pcf)	c (psf)	ϕ (°)	q_u (psi)	RQD (%)	E_{mass} (psi)
483.2 - 477.4	Sand (Reese)	120		32			
477.4 - 462.9	Sand (Reese)	120		32			
462.9 - 416.2	Sand (Reese)	63		33			
416.2 - 392.4	Sand (Reese)	63		36			
392.4 - 379.9	Weak Rock (Reese)	68			900	100	1.0E+05

Benchmark: BM 2516 - Chiseled "□" cut on top of the westerly concrete barrier wall on the west abutment of westbound bridge of E War Memorial Drive over NE Adams Street (IL-29) at the exit ramp to NE Adams Street (IL-29), Peoria, IL. Elev. 511.94.

Existing Structure: S.N. 072-0167 built in 1995 25 FAP 317, Sec. (14HB)BR at Sta. 608+06.00. The structure is a composite, four span continuous wide flange steel beam bridge. Span lengths are 48'-0"-60'-0"-48'-0"-39'-0" with no skew. Substructure elements consist of open, concrete abutments supported by concrete piles and multi-column, reinforced concrete piers on pile supported footings. The back-to-back of abutments measurement is approximately 199'-7" along the local tangent, out-to-out width is 33'-6". Traffic to be maintained on existing structure during Stg. I const. before complete removal during Stg. II.

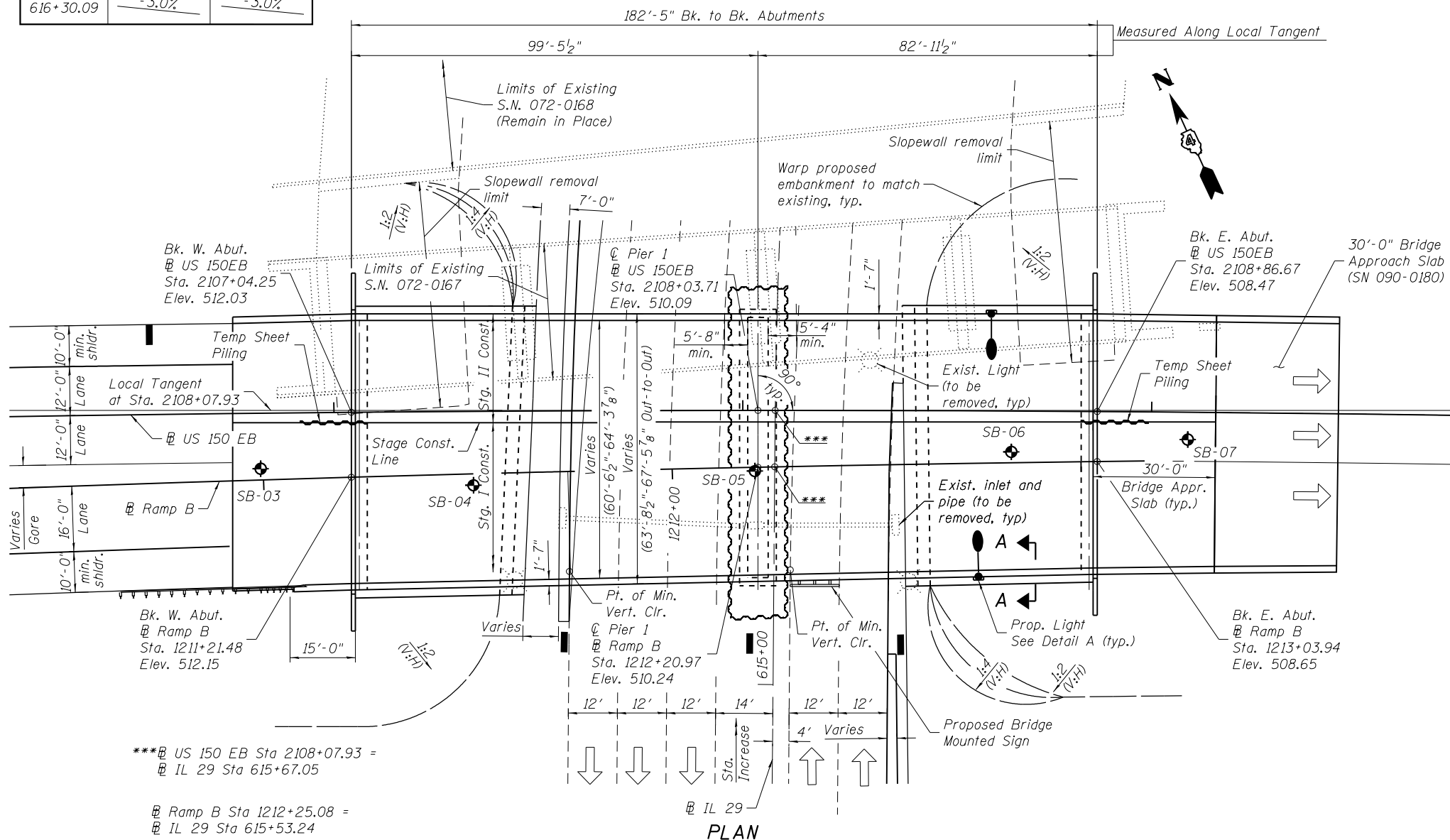
Salvage: None

Type 6 Terminal, (South side only)



IL 29 S.E. TRANSITION

Station	Southbound	Northbound
614+25.21	1.5%	-1.5%
616+30.09	-3.0%	-3.0%



PRINT DATE: 10/9/2017 14:48:43 PM \$FILE\$

CURVE DATA US150EB-1

P.I. Sta. = 2106+79.54
 $\Delta = 4^\circ 11' 58''$ (RT)
 $D = 0^\circ 29' 54''$
 $R = 11,500.00'$
 $T = 421.63'$
 $L = 842.88'$
 $E = 7.73'$
 $e = N.C.$
P.C. Sta. = 2102+57.91
P.T. Sta. = 2111+00.79

HIGHWAY CLASSIFICATION

FAP Route 317 (US 150 - EB)
Functional Class: Principal Arterial
ADT: 21,200 (2013); 21,300 (2040)
DHW: 1330 (2040)
ADTT: 212 (2013); 213 (2040)
Design Speed: 45 mph
Posted Speed: 45 mph
One-Way Traffic

FAP Route 64 (IL 29)
Functional Class: Principal Arterial
ADT: 18,500 (2013); 22,300 (2040)
DHW: 2350 (2040)
ADTT: 555 (2013); 669 (2040)
Design Speed: 35 mph
Posted Speed: 35 mph
Two-Way Traffic
Directional Distribution: 50/50

CURVE DATA IL29

P.I. Sta. = 616+84.11
 $\Delta = 9^\circ 25' 26''$ (RT)
 $D = 3^\circ 51' 28''$
 $R = 1485.17'$
 $T = 122.52'$
 $L = 244.49'$
 $E = 5.05'$
 $e = 3.0\%$
P.C. Sta. = 615+61.58
P.T. Sta. = 618+06.08

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 & 2016 Interims

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $f'_c = 4,000$ psi (Superstructure Concrete)
 $f_y = 60,000$ psi (Reinforcement)

PRECAST PRESTRESSED UNITS

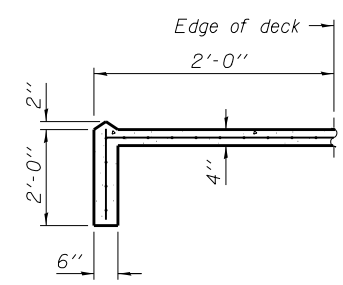
$f'_c = 8,500$ psi
 $f'_ci = 7,000$ psi
 $f_{pu} = 270,000$ psi (0.6" ϕ Low Lax Strands)
 $f_{pu} = 202,300$ psi (0.6" ϕ Low Lax Strands)

SEISMIC DATA

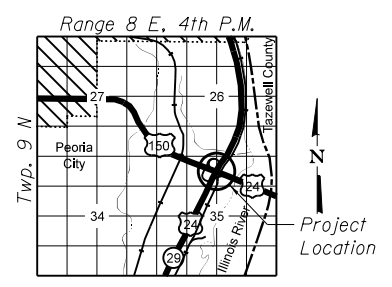
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.11g
Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.18g
Soil Site Class = D

CURVE DATA RAMPB-3

P.I. Sta. = 1211+15.90
 $\Delta = 1^\circ 59' 27''$ (RT)
 $D = 0^\circ 29' 55''$ (RT)
 $R = 11,492.25'$
 $T = 199.68'$
 $L = 399.32'$
 $E = 1.73'$
 $e = N.C.$
P.C. Sta. = 1209+16.22
P.T. Sta. = 1213+15.54



SECTION A-A



LOCATION SKETCH

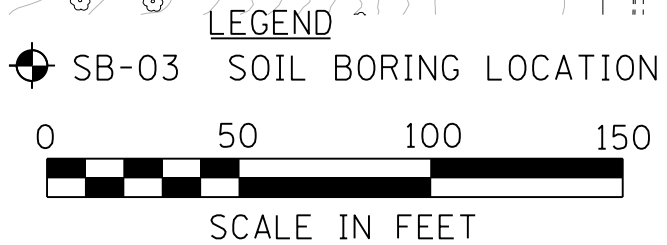
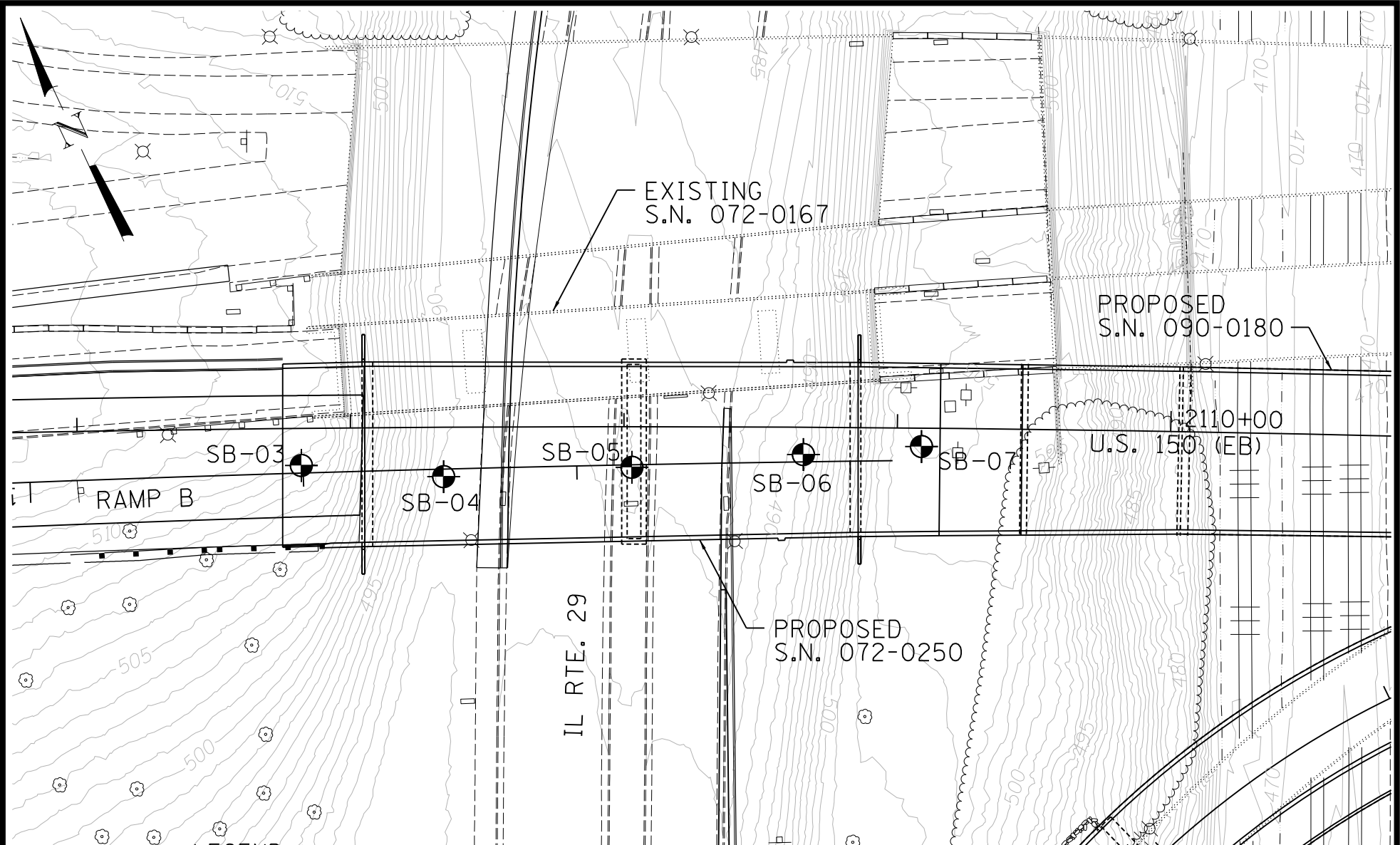
GENERAL PLAN & ELEVATION
US 150 (EB) OVER
IL 29 (ADAMS STREET)
F.A.P. RTE. 317 - SEC. (15B)BR
PEORIA COUNTY
STATION 2108+07.93
STRUCTURE NO. 072-0250

EFK Moen, LLC
Civil Engineering Design
303 Fountains Parkway, Suite 240
Fairview Heights, IL 62208
Phone 618-206-4250

USER NAME = ABenz	DESIGNED - CDL	REVISED -
DESIGNED - CDL	CHECKED - CTW	REVISED -
PLOT SCALE = @ 1/2" = 1'	DRAWN - JAA	REVISED -
PLOT DATE = 10/9/2017	DATE - 10/9/2017	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	(15B)BR	PEORIA		
				CONTRACT NO.
ILLINOIS FED. AID PROJECT				



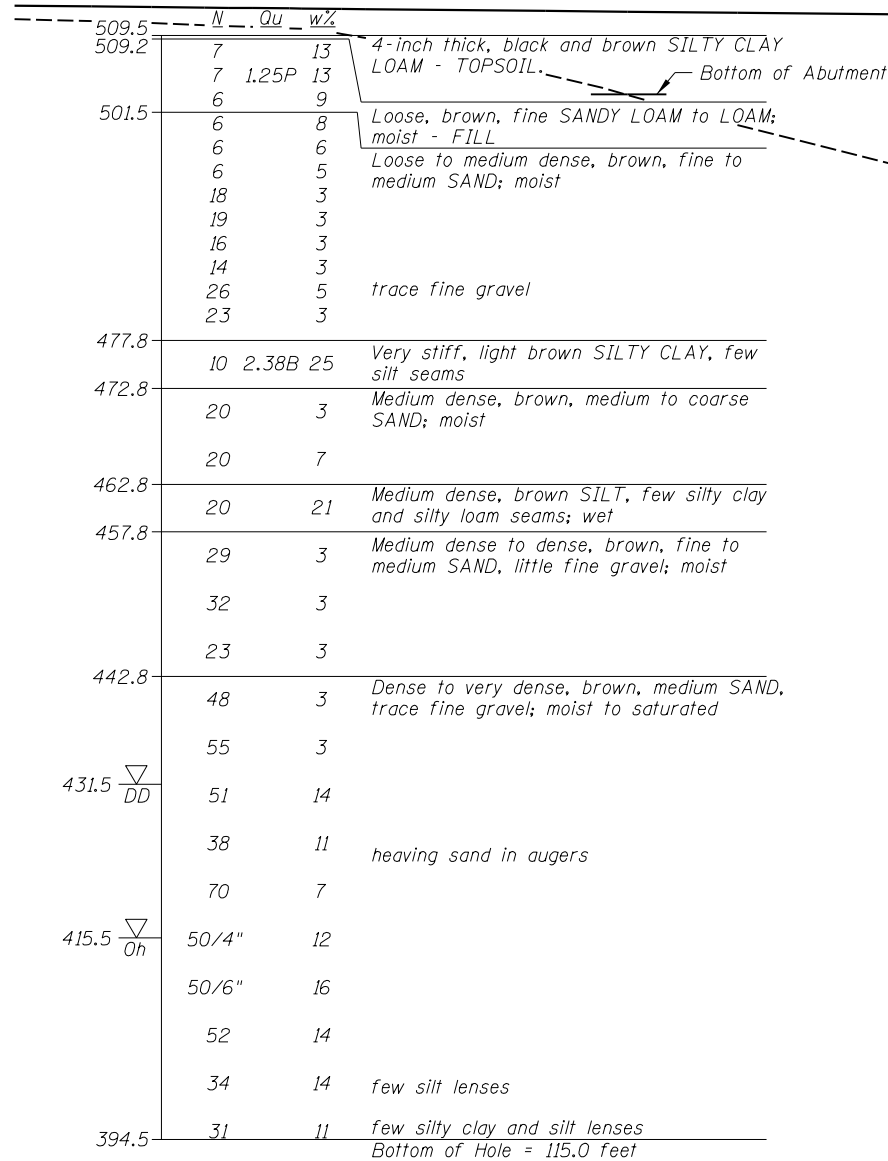
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BORING LOCATION PLAN

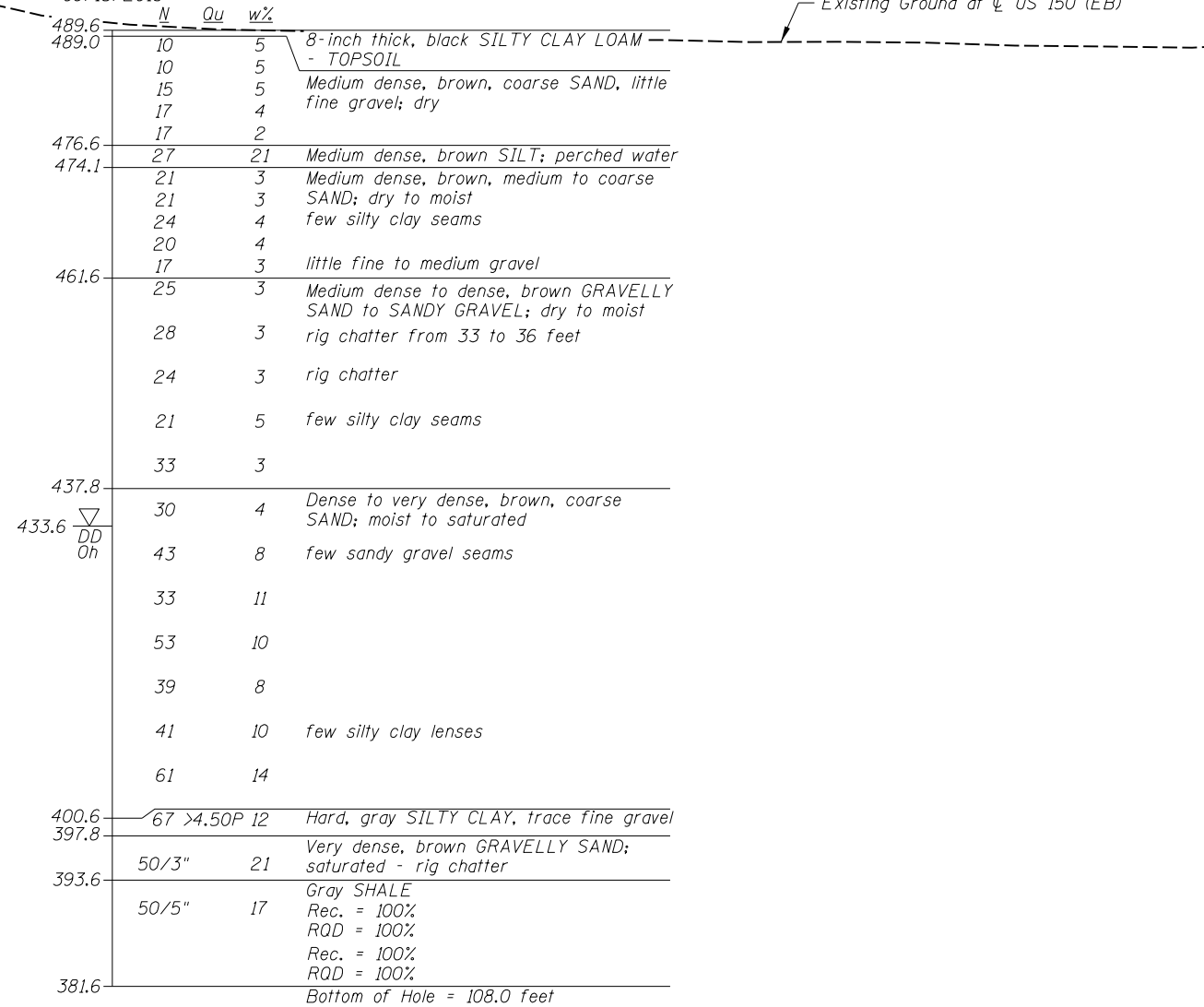
U.S. 150 OVER IL RTE. 29
S.N. 072-0250
PEORIA COUNTY, ILLINOIS

13H0106 10/11/17

SB-03
Sta. 2106+82, 14' RT
08/31/2016



SB-04
Sta. 2107+34, 18' RT
09/13/2016



LEGEND

- N Standard Penetration Test N (blows/ft)
- Qu Unconfined Strength (tsf)
- w% Natural Moisture Content (%)
- DD Water Surface Elevation Encountered in Boring
- 558.10 DD = during drilling
- Oh = at completion
- 24h = 24 hours after completion



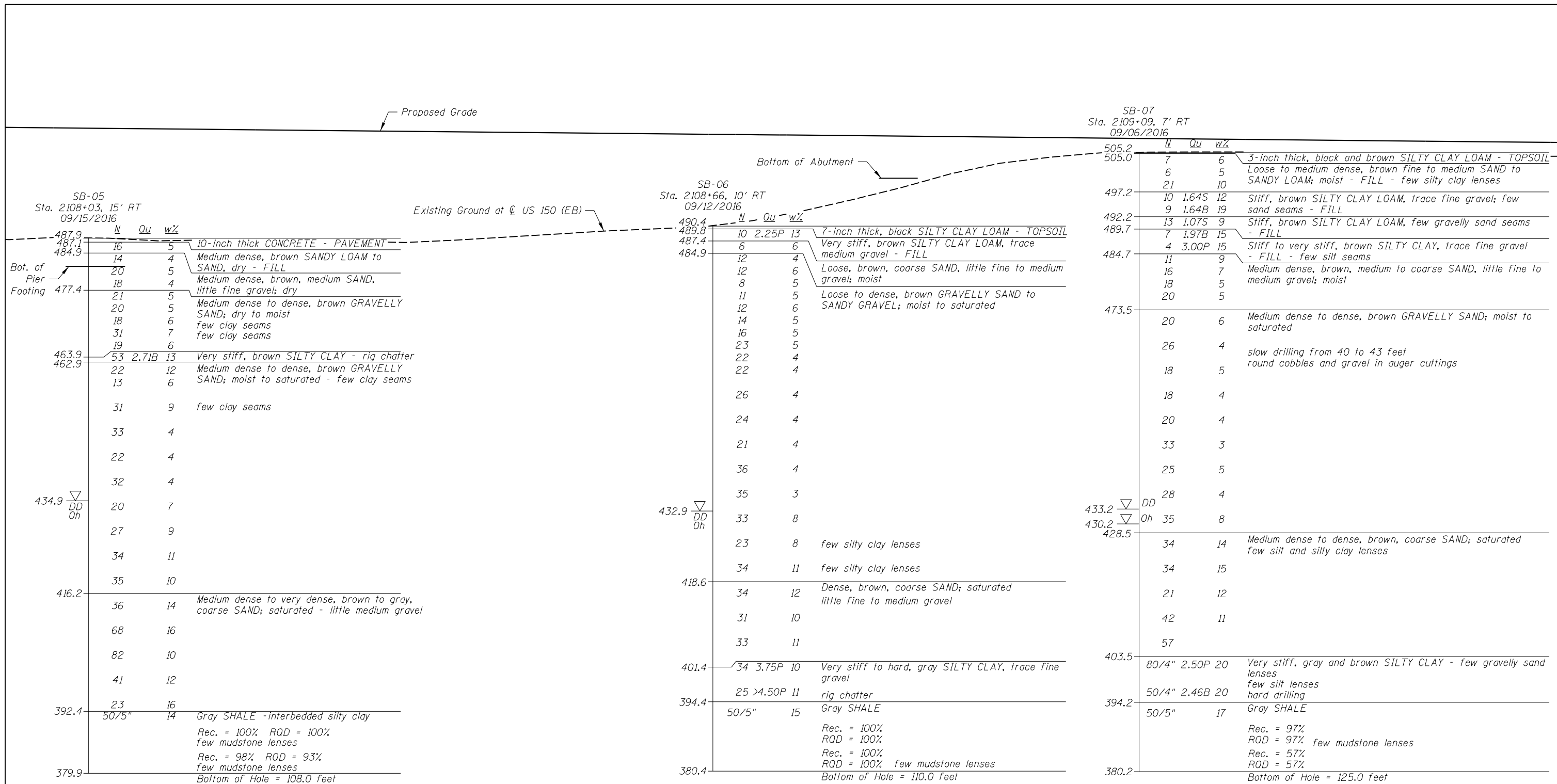
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	CHECKED - SLK	REVISED -
PLOT SCALE =	DRAWN - EJM	REVISED -
PLOT DATE = 10/11/2017	CHECKED - SLK	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SUBSURFACE DATA PROFILE
STRUCTURE NO. 072-0250**

SHEET NO. 1 OF 2

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	(15B) BR	PEORIA		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



LEGEND

- N Standard Penetration Test N (blows/ft)
- Qu Unconfined Strength (tsf)
- w% Natural Moisture Content (%)
- DD ∇ Water Surface Elevation Encountered in Boring
- 558.10 ∇ DD = during drilling
- Oh = at completion
- 24h = 24 hours after completion

	USER NAME = chan100843	DESIGNED - RGC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUBSURFACE DATA PROFILE STRUCTURE NO. 072-0250	F.A.P. RTE. = 317	SECTION = (15B) BR	COUNTY = PEORIA	TOTAL SHEETS =	SHEET NO. =	
	PLOT SCALE =	DRAWN - EJM	REVISED -			CONTRACT NO.					
	PLOT DATE = 10/11/2017	CHECKED - SLK	REVISED -			SHEET NO. 2 OF 2					



wangeng@wangeng.com
 1145 N Main Street
 Lombard, IL 60148
 Telephone: 630 953-9928
 Fax: 630 953-9938

BORING LOG SB-03

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
 Project **US 150 over Illinois River - McClugage**
 Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 509.51 ft
 North: 1477915.69 ft
 East: 2465978.88 ft
 Station: 2106+82
 Offset: 14' 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 (%)
	509.24	4-inch thick, black and brown SILTY CLAY LOAM --TOPSOIL-- Loose, brown, fine SANDY LOAM to LOAM; moist			1	4 3 4	NP	13			--trace fine gravel--			11	10 12 14	NP	5
		--FILL-- --RDR 2 to 3--	5		2	2 4 3	1.25 P	13				30		12	10 12 11	NP	3
					3	4 3 3	NP	9		477.8	Very stiff, light brown SILTY CLAY, few silt seams --RDR 3--						
	501.5	Loose to medium dense, brown, fine to medium SAND; moist --RDR 3--	10		4	3 3 3	NP	8				35		13	4 4 6	2.38 B	25
					5	2 3 3	NP	6		472.8	Medium dense, brown, medium to coarse SAND; moist --RDR 3--						
			15		6	2 2 4	NP	5				40		14	8 11 9	NP	3
					7	6 8 10	NP	3									
			20		8	7 9 10	NP	3				45		15	9 10 10	NP	7
					9	5 7 9	NP	3		462.8	Medium dense, brown SILT, few silty clay and silty loam seams; wet --RDR 3--						
			25		10	7 7 7	NP	3				50		16	10 8 12	NP	21

GENERAL NOTES

Begin Drilling **08-31-2006** Complete Drilling **08-31-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **78.00 ft**
 At Completion of Drilling ∇ **94.00 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.

WANGENGINC 4140901.GPJ WANGENG.GDT 11/9/16



BORING LOG SB-03

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 Lombard, IL 60148
 Telephone: 630 953-9928
 Fax: 630 953-9938

WEI Job No.: 414-09-01

Client: TYLin/Hanson
 Project: US 150 over Illinois River - McClugage
 Location: Peoria and Tazewell Counties, IL

Datum: NAVD 88
 Elevation: 509.51 ft
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 Station: 2106+82
 Offset: 14' 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 (%)
	457.8	Medium dense to dense, brown, fine to medium SAND, little fine gravel; moist															
		--RDR 3--	55	X	17	11 14 15	NP	3				80	X	22	14 22 29	NP	14
			60	X	18	9 15 17	NP	3				85	X	23	5 11 27	NP	11
			65	X	19	10 11 12	NP	3				90	X	24	15 27 43	NP	7
	442.8	Dense to very dense, brown, medium SAND, trace fine gravel; moist to saturated															
		--RDR 3--	70	X	20	15 20 28	NP	3				95	X	25	18 48 50/4"	NP	12
			75	X	21	17 21 34	NP	3				100	X	26	18 50/6"	NP	16

--heaving sand in augers--

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling 08-31-2006 Complete Drilling 08-31-2016
 Drilling Contractor Wang Testing Service Drill Rig D50 ATV [88%]
 Driller K&N Logger J. Foote Checked by J. Rowells
 Drilling Method 3.25" IDA HSA; boring backfilled upon completion

While Drilling 78.00 ft
 At Completion of Drilling 94.00 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 SB-03

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WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
 Project: **US 150 over Illinois River - McClugage**
 Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 509.51 ft
 North: 1477915.69 ft
 East: 2465978.88 ft
 Station: 2106+82
 Offset: 14' 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 (%)
	394.5		105		27	11 22 30	NP	14									
		--few silt lenses	110		28	9 16 18	NP	14									
		--few silty clay and silt lenses--	115		29	6 13 18	NP	11									
		Boring terminated at 115.00 ft															

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling: **08-31-2006** Complete Drilling: **08-31-2016**
 Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
 Driller: **K&N** Logger: **J. Foote** Checked by: **J. Rowells**
 Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

While Drilling: ∇ **78.00 ft**
 At Completion of Drilling: \blacktriangledown **94.00 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 SB-04

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WEI Job No.: 414-09-01

Client **TYLin/Hanson**
 Project **US 150 over Illinois River - McClugage**
 Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 489.59 ft
 North: 1477890.10 ft
 East: 2466024.36 ft
 Station: 2107+34
 Offset: 18' 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 (%)
	489.0	8-inch thick, black SILTY CLAY LOAM --TOPSOIL-- Medium dense, brown, coarse SAND, little fine gravel; dry --RDR 2 to 3--			1	5 5 5	NP	5									
			5		2	3 5 5	NP	5									
					3	5 7 8	NP	5									
			10		4	5 8 9	NP	4									
					5	6 7 10	NP	2									
	476.6	Medium dense, brown SILT; perched water --RDR 3--	15		6	5 12 15	NP	21									
	474.1	Medium dense, brown, medium to coarse SAND; dry to moist --RDR 3--			7	10 10 11	NP	3									
			20		8	8 10 11	NP	3									
		--few silty clay seams--			9	7 11 13	NP	4									
			25		10	8 10 10	NP	4									
										461.6	--little fine to medium gravel--			11	7 9 8	NP	3
											Medium dense to dense, brown GRAVELLY SAND to SANDY GRAVEL; dry to moist --RDR 3--30			12	9 10 15	NP	3
											--rig chatter from 33 to 36 feet--			13	8 13 15	NP	3
											--rig chatter--			14	12 12 12	NP	3
											--few silty clay seams--			15	9 11 10	NP	5
														16	12 14 19	NP	3

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-13-2016** Complete Drilling **09-13-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

While Drilling ∇ **56.00 ft**
 At Completion of Drilling ∇ **56.00 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 SB-04

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
 Project: **US 150 over Illinois River - McClugage**
 Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 489.59 ft
 North: 1477890.10 ft
 East: 2466024.36 ft
 Station: 2107+34
 Offset: 18' 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 (%)
	437.8	Dense to very dense, brown, coarse SAND; moist to saturated --RDR 3--	55	X	17	14 15 15	NP	4			--few silty clay lenses--	80	X	22	10 19 22	NP	10
		--few sandy gravel seams--	60	X	18	11 18 25	NP	8				85	X	23	12 23 38	NP	14
			65	X	19	5 11 22	NP	11		400.6	Hard, gray SILTY CLAY, trace fine gravel --RDR 3--	90	X	24	16 30 37	4.50 P	12
			70	X	20	8 18 35	NP	10		397.8	Very dense, brown GRAVELLY SAND; saturated	95	X	25	50/5"	NP	21
			75	X	21	8 18 21	NP	8		393.6	Gray SHALE --rig chatter-- --RDR 4--	100	X	26	50/5"	NP	17
											Run 1: 98.0 to 103.0 feet RECOVERY= 100% RQD = 100%						

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling: **09-13-2016** Complete Drilling: **09-13-2016**
 Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
 Driller: **K&N** Logger: **J. Foote** Checked by: **J. Rowells**
 Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

While Drilling: **56.00 ft**
 At Completion of Drilling: **56.00 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 SB-04

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
 Project **US 150 over Illinois River - McClugage**
 Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 489.59 ft
 North: 1477890.10 ft
 East: 2466024.36 ft
 Station: 2107+34
 Offset: 18' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type <i>recovery</i>	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type <i>recovery</i>	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
					27													
		Run 2: 103.0 to 108.0 feet RECOVERY= 100% RQD = 100%																
			105															
					28													
	381.6	Boring terminated at 108.00 ft																
			110															
			115															
			120															
			125															

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-13-2016** Complete Drilling **09-13-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

While Drilling ▽ **56.00 ft**
 At Completion of Drilling ▼ **56.00 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 SB-05

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
 Project **US 150 over Illinois River - McClugage**
 Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 487.92 ft
 North: 1477864.26 ft
 East: 2466088.26 ft
 Station: 2108+03
 Offset: 15' 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 (%)
	487.1	10-inch thick CONCRETE --PAVEMENT--															
		Medium dense, brown SANDY LOAM to SAND; dry			1	6 6 10	NP	5			Medium dense to dense, brown GRAVELLY SAND; moist to saturated			11	11 10 12	NP	12
	484.9	--FILL-- --RDR 4--									--RDR 3-- --few clay seams--			12	12 9 4	NP	6
		Medium dense, brown, medium SAND, little fine gravel; dry			2	6 6 8	NP	4						12			
		--RDR 3--	5		3	6 9 11	NP	5						13	18 17 14	NP	9
			10		4	6 8 10	NP	4			--few clay seams--			13			
	477.4	Medium dense to dense, brown GRAVELLY SAND; dry to moist			5	8 9 12	NP	5						14	11 16 17	NP	4
		--RDR 3--			6	9 10 10	NP	5						14			
			15		7	10 8 10	NP	6			--few clay seams--			15	10 11 11	NP	4
		--few clay seams--			8	10 12 19	NP	7						15			
		--few clay seams--	20		9	9 9 10	NP	6						16	11 10 22	NP	4
					10	9 6 47	2.71 B	13						16			
	463.9	Very stiff, brown SILTY CLAY															
	462.9	--rig chatter--	25														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-14-2016** Complete Drilling **09-15-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

While Drilling ∇ **53.00 ft**
 At Completion of Drilling ∇ **53.00 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 SB-05

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WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
 Project: **US 150 over Illinois River - McClugage**
 Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 487.92 ft
 North: 1477864.26 ft
 East: 2466088.26 ft
 Station: 2108+03
 Offset: 15' 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 (%)
	416.2	Medium dense to very dense, brown to gray, coarse SAND; saturated --RDR 3-- --little medium gravel--	55		17	11 9 11	NP	7				80		22	16 32 36	NP	16
			60		18	7 13 14	NP	9				85		23	15 38 44	NP	10
			65		19	13 15 19	NP	11				90		24	10 17 24	NP	12
			70		20	7 15 20	NP	10				95		25	9 11 12	NP	16
			75		21	9 15 21	NP	14		392.4	Gray SHALE --RDR 3-- --interbedded silty clay-- Run 1: 98.0 to 103.0 feet RECOVERY= 100% RQD = 100% --few mudstone lenses-100			26	50/5"	NP	14

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GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-14-2016** Complete Drilling **09-15-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

While Drilling ∇ **53.00 ft**
 At Completion of Drilling ∇ **53.00 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 SB-05

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
 Project **US 150 over Illinois River - McClugage**
 Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 487.92 ft
 North: 1477864.26 ft
 East: 2466088.26 ft
 Station: 2108+03
 Offset: 15' 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 (%)
		Run 2: 103.0 to 108.0 feet RECOVERY= 98% RQD = 93% --few mudstone lenses	103.0		27												
			105		28												
	379.9	Boring terminated at 108.00 ft	108.0														
			110														
			115														
			120														
			125														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-14-2016** Complete Drilling **09-15-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

While Drilling ▽ **53.00 ft**
 At Completion of Drilling ▼ **53.00 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 SB-06

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
 Project: **US 150 over Illinois River - McClugage**
 Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 490.35 ft
 North: 1477842.20 ft
 East: 2466146.98 ft
 Station: 2108+66
 Offset: 10' 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 (%)
	489.8	7-inch thick, black SILTY CLAY LOAM --TOPSOIL-- Very stiff, brown SILTY CLAY LOAM, trace medium gravel			1	4 4 6	2.25 P	13						11	9 10 12	NP	4
	487.4	--FILL-- --RDR 2-- Loose, brown, coarse SAND, little fine to medium gravel; moist	5		2	3 4 2	NP	6				30		12	12 10 12	NP	4
	484.9	--RDR 2-- Loose to dense, brown GRAVELLY SAND to SANDY GRAVEL; moist to saturated --RDR 3--			3	6 6 6	NP	4						13	12 13 13	NP	4
			10		4	6 6 6	NP	6				35		13	12 13 13	NP	4
					5	4 4 4	NP	5						14	13 12 12	NP	4
			15		6	5 5 6	NP	5				40		14	13 12 12	NP	4
					7	5 6 6	NP	6						15	11 10 11	NP	4
			20		8	6 7 7	NP	5				45		15	11 10 11	NP	4
					9	7 8 8	NP	5						16	11 16 20	NP	4
			25		10	8 9 14	NP	5				50		16	11 16 20	NP	4

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-09-2016** Complete Drilling **09-12-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

While Drilling ∇ **57.50 ft**
 At Completion of Drilling ∇ **57.50 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 SB-06

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
 Project: **US 150 over Illinois River - McClugage**
 Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 490.35 ft
 North: 1477842.20 ft
 East: 2466146.98 ft
 Station: 2108+66
 Offset: 10' 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 (%)
			55	X	17	14 15 20	NP	3				80	X	22	11 15 16	NP	10
			60	X	18	11 14 19	NP	8				85	X	23	9 13 20	NP	11
		--few silty clay lenses--	65	X	19	28 10 13	NP	8		401.4	Very stiff to hard, gray SILTY CLAY, trace fine gravel --RDR 3--	90	X	24	10 10 24	3.75 P	10
		--few silty clay lenses--	70	X	20	11 15 19	NP	11				95	X	25	9 11 14	4.50 P	11
	418.6	Dense, brown, coarse SAND; saturated --RDR 3-- --little fine to medium gravel--	75	X	21	12 17 17	NP	12		394.4	Gray SHALE --rig chatter-- --RDR 3--	100	X	26	50/5"	NP	15

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-09-2016** Complete Drilling **09-12-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

While Drilling ∇ **57.50 ft**
 At Completion of Drilling ∇ **57.50 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 SB-06

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
 Project: **US 150 over Illinois River - McClugage**
 Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 490.35 ft
 North: 1477842.20 ft
 East: 2466146.98 ft
 Station: 2108+66
 Offset: 10' 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 (%)
380.4		Run 1: 100.0 to 105.0 feet RECOVERY= 100% RQD = 100%	27														
		Run 2: 105.0 to 110.0 feet RECOVERY= 100% RQD = 100%	105														
		--few mudstone lenses--	28														
	380.4	Boring terminated at 110.00 ft	110														
			115														
			120														
			125														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-09-2016** Complete Drilling **09-12-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

While Drilling ∇ **57.50 ft**
 At Completion of Drilling ∇ **57.50 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 SB-07

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WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
 Project: **US 150 over Illinois River - McClugage**
 Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 505.23 ft
 North: 1477826.66 ft
 East: 2466187.53 ft
 Station: 2109+09
 Offset: 7' 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 (%)
	595.03	3-inch thick, black and brown SILTY CLAY LOAM --TOPSOIL-- Loose to medium dense, brown fine to medium SAND to SANDY LOAM; moist			1	5 4 3	NP	6						11	8 9 9	NP	5
		--FILL-- --RDR 2 to 3--	5		2	2 3 3	NP	5				30		12	8 10 10	NP	5
		--few silty clay lenses--			3	8 10 11	NP	10		473.5	Medium dense to dense, brown GRAVELLY SAND; moist to saturated						
	497.2	Stiff, brown SILTY CLAY LOAM, trace fine gravel; few sand seams --FILL-- --RDR 3--10			4	5 4 6	1.64 S	12			--RDR 3--			13	9 11 9	NP	6
					5	3 4 5	1.64 B	19									
	492.2	Stiff, brown SILTY CLAY LOAM, few gravelly sand seams --FILL-- --RDR 3--15			6	5 5 8	1.07 S	9						14	15 16 10	NP	4
	489.7	Stiff to very stiff, brown SILTY CLAY, trace fine gravel --FILL-- --RDR 3--			7	4 3 4	1.97 B	15			--slow drilling from 40 to 43 feet-- --round cobble and gravel in auger cuttings--						
		--few silt seams--			8	1 2 2	3.00 P	15						15	7 8 10	NP	5
	484.7	Medium dense, brown, medium to coarse SAND, little fine to medium gravel; moist --RDR 3--			9	3 5 6	NP	9									
					10	8 8 8	NP	7						16	6 9 9	NP	4

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **09-02-2016** Complete Drilling **09-06-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

While Drilling ∇ **72.00 ft**
 At Completion of Drilling ∇ **75.00 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.

WANGENGINC 4140901.GPJ WANGENG.GDT 11/9/16



BORING LOG SB-07

wangeng@wangeng.com
 1145 N Main Street
 Lombard, IL 60148
 Telephone: 630 953-9928
 Fax: 630 953-9938

WEI Job No.: 414-09-01

Client: TYLin/Hanson
 Project: US 150 over Illinois River - McClugage
 Location: Peoria and Tazewell Counties, IL

Datum: NAVD 88
 Elevation: 505.23 ft
 North: 1477826.66 ft
 East: 2466187.53 ft
 Station: 2109+09
 Offset: 7' 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 (%)
										428.5	Medium dense to dense, brown, coarse SAND; saturated --RDR 3-- --few silt and silty clay lenses--						
			55	X	17	9 9 11	NP	4				80	X	22	12 15 19	NP	14
			60	X	18	10 14 19	NP	3				85	X	23	13 17 17	NP	15
			65	X	19	10 12 13	NP	5				90	X	24	9 8 13	NP	12
			70	X	20	12 13 15	NP	4				95	X	25	14 19 23	NP	11
			75	X	21	13 16 19	NP	8				100	○	26	9 18 39	NR	

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling 09-02-2016 Complete Drilling 09-06-2016
 Drilling Contractor Wang Testing Service Drill Rig D50 ATV [88%]
 Driller K&N Logger J. Foote Checked by J. Rowells
 Drilling Method 3.25" IDA HSA; boring backfilled upon completion

While Drilling 72.00 ft
 At Completion of Drilling 75.00 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.

WANGENGINC 4140901.GPJ WANGENG.GDT 11/9/16



BORING LOG SB-07

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 Telephone: 630 953-9928
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WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
 Project: **US 150 over Illinois River - McClugage**
 Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
 Elevation: 505.23 ft
 North: 1477826.66 ft
 East: 2466187.53 ft
 Station: 2109+09
 Offset: 7' 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 (%)
	403.5	Very stiff, gray and brown SILTY CLAY --RDR 3-- --few gravelly sand lenses--	105	X	27	48 80/4"	2.50 P	20									
		--few silt lenses--	110	X	28	13 30 50/4"	2.46 B	20									
	394.2	Gray SHALE --hard drilling-- --RDR 4--	115	X	29	50/5"	NP	17									
		Run 1: 115.0 to 120.0 feet RECOVERY= 97% RQD = 97%	120														
		--few mudstone lenses--	125														
	380.2	Run 2: 120.0 to 125.0 feet RECOVERY= 57% RQD = 57%															
		Boring terminated at 125.00 ft															

WANGENGINC 4140901.GPJ WANGENG.GDT 11/9/16

GENERAL NOTES

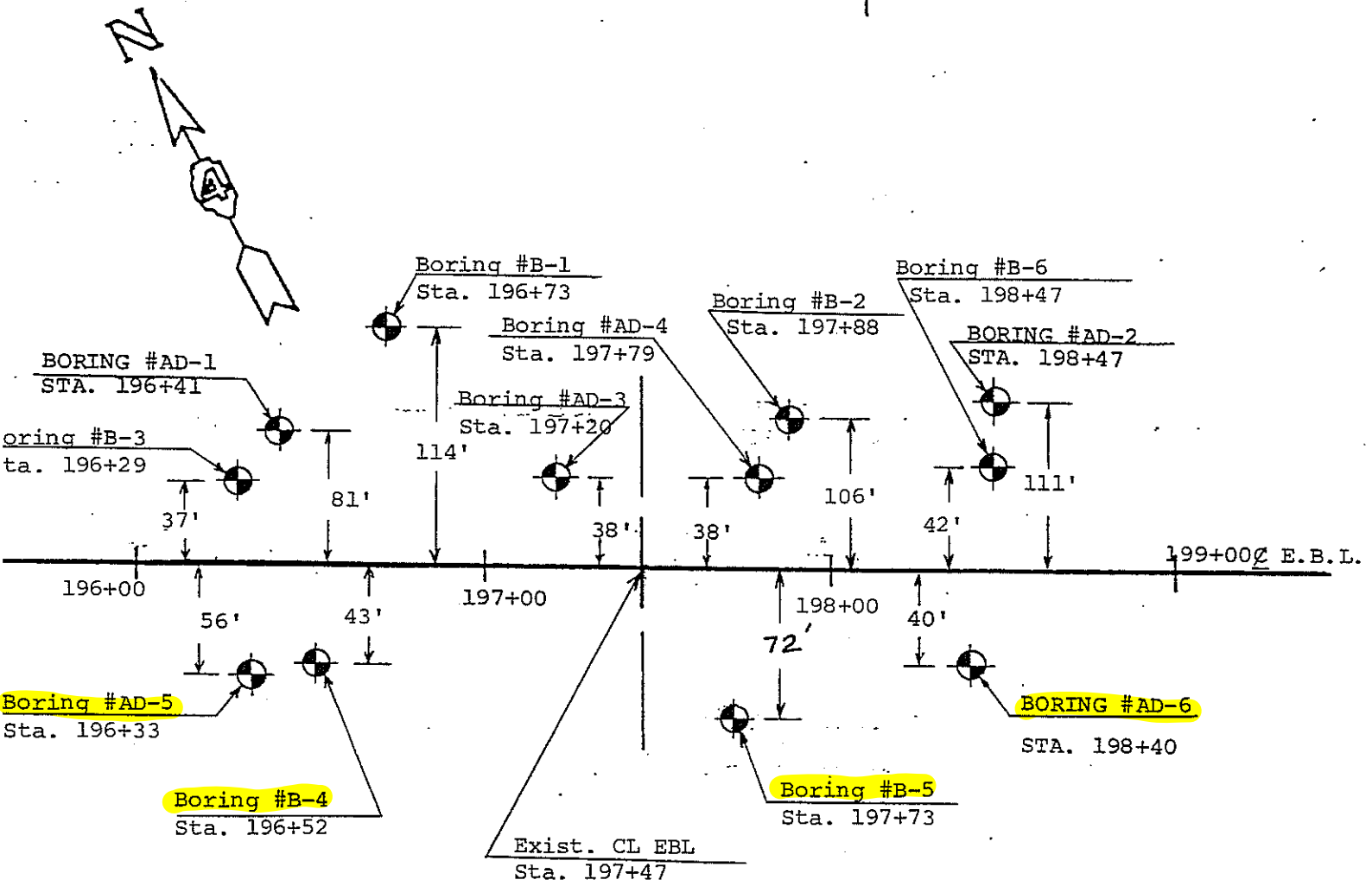
WATER LEVEL DATA

Begin Drilling **09-02-2016** Complete Drilling **09-06-2016**
 Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
 Driller **K&N** Logger **J. Foote** Checked by **J. Rowells**
 Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

While Drilling ∇ **72.00 ft**
 At Completion of Drilling ∇ **75.00 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 LOCATION SKETCH



ROUTE: FA 317 (US 150)

SECTION: (14HB)BR, BR-1

COUNTY: Peoria

~~R.D.~~ War Memorial Drive (US 150)
 Over Adams St. (Il 29)
 Exist. S.N. 072-0038

Existing Boring Logs for B-4, B-5, AD-5, AD-6 are included for information only.

Project P9410185
 Route FA 317 (US150)
 Sec. (14HB)BR.BR-1
 County Peoria

Boring No. B-4 Sta 196+52 O/S 43' RT CL(150)	El.	N	Qu t/sf	W %		El.	N	Qu t/sf	W %
Brown SAND & GRAVEL	-45				Brown SAND	-70			
		6							
		9							
		9		3					
		6					8		
		9					15		
		7		3			16		4
	-50					-75			
		9			Free H2O ▼		9		
		9					12		
		12		3			20		13
	-55					-80			
		9					2		
		17					7		
blow count on a rock		14		2			15		17
	-60					-85			
		9							
		11			420.4		6		
		8		4	Brown SAND w/ trace of GRAVEL		15		
	-65					-90	23		14
	440.4								
Brown SAND		16					7		
		22					18		
		15		3			25		14
	-70					-95			

Project P9410185
 Route FA 317 (US150)
 Sec. (14HB)BR.BR-1
 County Peoria

Boring No. B-4	El.	N	Qu t/sf	W %		El.	N	Qu t/sf	W %
Sta 196+52									
O/S 43' RT CL(150)									
Brown	-95				* Hole collapsed	120			
SAND w/					@ 459.4				
trace of GRAVEL									
	410.4								
Brown		4							
SAND & GRAVEL		7							
		17		14					
	100					125			
		7							
		19							
		26		16					
	105					130			
		5							
		24							
		30		13					
	110					135			
		5		18					
	394.4	25							
Gray		75@4"		13					
SHALE	115					140			
		100@6"							
	388.9			11					
End of Boring	120					145			

PROJECT P9410185 BRIDGE US. 150 WAR MEMORIAL Date 04/14/92
 OVER IL. 29 ADAMS STREET
 ROUTE FA 317 (US150) Exist S.N. 072-0038. Prop. Bored By D. Reents
EB 072-0167, WB 072-0168
 SEC. (14HB)BR.BR-1 STA. 197+47 Checked By B. Irwin

COUNTY Peoria

Boring No. B-5
 Sta 197+73
O/S 72' RT CL EB

	El.	N	Qu t/sf	W %	Surf Wat El. <u>N/A</u>		El.	N	Qu t/sf	W %
					Grndwater El. at Compl <u>*</u>	At 24 Hrs <u>XX</u>				
<u>Ground Surface</u>	<u>490.2</u>	<u>0</u>								
Brown SAND										
		3								
		2						8		
		3		9			<u>-25</u>	9		
								6		6
<u>486.2</u>										
Brown SAND w/ trace of GRAVEL		2								
	<u>-5</u>	2						7		
		2		4				9		
								6		5
		2								
		3						7		
		1		4			<u>-30</u>	7		
								7		4
thin CLAY LOAM seam @ 10'		3								
	<u>-10</u>	4						7		
		5		5				8		
<u>478.7</u>								10		5
Brown SAND & GRAVEL		3								
		6						6		
		7		3			<u>-35</u>	6		
								8		5
		6								
	<u>-15</u>	4						3		
		5		5				5		
								7		6
		5								
		4						6		
		4		5			<u>-40</u>	9		
								12		5
		6								
	<u>-20</u>	6								
		6		4						
		5								
		7						7		
							<u>-45</u>	7		

N-Std Pentr Test: 2" OD Sampler,
 140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

Project P9410185
 Route FA 317 (US150)
 Sec. (14HB)BR.BR-1
 County Peoria

Sh. 2 of 3

Boring No. B-5 Sta 197+73 O/S 72 RT CL(150)	El.	N	Qu t/sf	W %		El.	N	Qu t/sf	W %
Brown SAND & GRAVEL	-45	12		4	Brown SAND & GRAVEL	-70	12		13
		7					8		
	-50	10				-75	11		
		16		4			14		11
		12			v. thin CLAY		6		
	-55	12			seam @ 80'	-80	8		
		14		3			16		15
		6					20		
	-60	8				-85	16		
blow count on a rock		35		4			14		14
Free H2O ▼	426.2					401.2			
Brown SAND & GRAVEL	-65	5			Brown SAND w/ trace of GRAVEL	-90	12		
		10					15		
		11		13			19		14
						396.2			
		5			Brown SAND & GRAVEL	-95	4		
	-70	10					6		

Project P9410185
 Route FA 317 (US150)
 Sec. (14HB)BR.BR-1
 County Peoria

Boring No. B-5 Sta 197+73 O/S 72' RT CL(150)	El.	N	Qu t/sf	W %		El.	N	Qu t/sf	W %
Brown SAND & GRAVEL	-95	8		10		120			
	392.2								
Gray SHALE									
		52							
	100	100@3"		12		125			
		25							
	387.2	100@3"		12					
End of Boring * Hole collapsed @ 480.2									
	105					130			
	110					135			
	115					140			
	120					145			

PROJECT P9410185 BRIDGE US. 150 WAR MEMORIAL Date 12/31/74
 OVER IL. 29 ADAMS STREET
 ROUTE EA 317 (US150) Exist. S.N. 072-0038 Prop. Bored By Raymond Internat'l
 EB 072-0167, WB 072-0168
 SEC. (14HB)BR.BR-1 STA. 197+47 Checked By B. Irwin

COUNTY <u>Peoria</u>		Surf Wat El. <u>NONE</u>				Grndwater El. <u>at Compl XX</u>				
Boring No. <u>AD-5</u>		El.	N	Qu t/sf	W %	At 24 Hrs <u>XX</u>	El.	N	Qu t/sf	W %
Sta <u>196+33</u>										
O/S <u>56 RT CL EB</u>										
<u>Ground Surface 508.0</u>		<u>0</u>								
<u>Brown</u>										
<u>SAND w/ GRAVEL</u>										
			<u>11</u>		<u>2</u>					
							<u>-25</u>	<u>38</u>		<u>9</u>
		<u>-5</u>	<u>14</u>		<u>5</u>					
							<u>480.5</u>			
			<u>16</u>		<u>9</u>					
	<u>500.0</u>						<u>-30</u>	<u>31</u>		<u>17</u>
<u>Reddish Brown</u>										
<u>SAND w/</u>										
<u>trace of GRAVEL</u>										
		<u>-10</u>	<u>7</u>		<u>9</u>		<u>476.0</u>			
							<u>-35</u>	<u>18</u>		<u>36</u>
							<u>472.0</u>			
		<u>-15</u>	<u>6</u>		<u>24</u>					
	<u>491.0</u>									
<u>Brown</u>										
<u>SAND w/</u>										
<u>trace of GRAVEL</u>										
							<u>-40</u>	<u>10</u>	<u>3.2</u>	<u>31</u>
							<u>467.5</u>			
		<u>-20</u>	<u>20</u>		<u>16</u>					
	<u>487.5</u>									
<u>SAND w/ GRAVEL &</u>										
<u>trace of SILT</u>										
							<u>-45</u>	<u>41</u>		<u>11</u>

N-Std Pentr Test: 2" OD Sampler, 140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

Project P9410185
 Route FA 317 (US150)
 Sec. (14HB)BR,ER-1
 County Peoria

Boring No. <u>AD-5</u>									
Sta <u>196+33</u>									
O/S <u>56' RT CL EB</u>	El.	N	Qu t/sf	W %		El.	N	Qu t/sf	W %
Brown	<u>-45</u>					<u>-70</u>			
SAND w/ GRAVEL	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	<u>-50</u>	<u>60</u>		<u>10</u>		<u>-75</u>			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	<u>-55</u>	<u>48</u>		<u>7</u>		<u>-80</u>			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	<u>448.0</u>	<u>-60</u>	<u>38</u>		<u>7</u>	<u>-85</u>			
End of Boring	—					—			
XX=not taken	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	<u>-65</u>					<u>-90</u>			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	<u>-70</u>					<u>-95</u>			

PROJECT P9410185 BRIDGE US. 150 WAR MEMORIAL Date 12/31/74
 OVER IL. 29 ADAMS STREET
 ROUTE EA 317 (US150) Exist. S.N. 072-0038, Prop. Bored By Raymond Internat'l
 EB 072-0167, WB 072-0168
 SEC. (14HB)BR.BR-1 STA. 197+47 Checked By E. Irwin

COUNTY <u>Peoria</u>		Surf Wat El. <u>NONE</u>				Grndwater El. <u>at Compl XX</u>						
Boring No. <u>AD-6</u>		El.	N	Qu t/sf	W %	At <u>24</u> Hrs <u>XX</u>		El.	N	Qu t/sf	W %	
Sta <u>198+40</u>												
O/S <u>40 RT CL EB</u>												
<u>Ground Surface 504.6</u>		<u>0</u>										
SAND w/ GRAVEL & COBBLES												
	<u>501.6</u>							<u>-25</u>	<u>16</u>		<u>8</u>	
Brown SAND w/ some GRAVEL												
	<u>496.6</u>	<u>-5</u>	<u>22</u>		<u>11</u>							
Gray & Black SAND w/ GRAVEL & trace of SILT												
	<u>468.6</u>	<u>-10</u>	<u>21</u>	<u>4.5</u>	<u>11</u>			<u>-30</u>	<u>19</u>		<u>10</u>	
								<u>-35</u>	<u>28</u>		<u>6</u>	
SAND w/ GRAVEL												
	<u>468.6</u>	<u>-15</u>	<u>12</u>	<u>2.3</u>	<u>15</u>							
Brown SANDY SILT w/ some GRAVEL												
	<u>488.1</u>							<u>-40</u>	<u>36</u>		<u>5</u>	
		<u>-20</u>	<u>5</u>	<u>1.6</u>	<u>15</u>							
SAND w/ GRAVEL & trace of SILT												
	<u>483.1</u>							<u>-45</u>	<u>34</u>		<u>4</u>	
N-Std Pentr Test: 2" OD Sampler, 140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear K-Estimated P-Penetrometer)												

Project P9410185
 Route EA 317 (US150)
 Sec. (14HB)BR.BR-1
 County Peoria

Boring No. AD-6	El.	N	Qu t/sf	W %		El.	N	Qu t/sf	W %
Sta 198+40									
O/S 40' RT CL EB									
SAND w/ GRAVEL	-45					-70			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	-50	23		8		-75			
	—					—			
453.6	—					—			
SAND w/ GRAVEL & trace of LIMESTONE fragments	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	-55	50		3		-80			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
444.6	-60	30		9		-85			
End of Boring XX=not taken	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	-65					-90			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	—					—			
	-70					-95			