Illinois Department of Transportation

Abbreviated Structure Geotechnical Report

Original Report Date: 7/23/21	**Proposed SN:** 074-0088	**Route:**	Old Illinois 47
Revised Date: 1/6/22, 10/11/22	**Existing SN:** 074-0026	**Section:**	74-69BR
Geotechnical Engineer: Bill Kramer		**County:**	Piatt
Structural Engineer: Josue Ortiz-Varela		**Contract:**	70629

Indicate the proposed structure type, substructure types, and foundation locations (attach plan and elevation drawing): *The proposed two span plate girder bridge structure will have integral abutments located in front of the existing stub abutments to avoid pile interference with the existing piling with the exception the batter piles which will require piles to be spaced to miss the existing. The pier is proposed to be founded on a pile supported footing with a standard crash wall and column supporting the concrete cap. Steel H-piles are currently shown at each substructure. The overall bridge length is 270 feet (back to back) and the skew is only 30 seconds more than the existing structure.*

We recommend the Pile type be changed to Metal Shells (MS 14x0.312 Min.) be added after the TSL at all three substructures.

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): *S.N. 074-0026 was originally constructed in 1962 as part of F.A. Route 135 Section 74-69 HB-2, station 1286+39.70. The existing 4-span structure consists of 5-36" wide flange beams supporting a 7" reinforced concrete deck. The structure has an out-to-out deck width of 33'-8" and a back-to-back abutment length of 281'-0". The existing stub abutments and all piers are founded on footings supported by concrete piles. The existing structure is on a 23°15'20" left forward skew.*

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 bridge profile grade, width and length is not changing enough to require side or end slope changes so no new settlement is expected. No treatment or ground improvement is needed.*

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 bridge width and length is not changing enough to require side or end slope changes slope stability will remain as they have existed for decades. Thus, the slope stability factor of safety should be above the minimum 1.5 required by the geotechnical manual. No treatment or ground improvement is needed.*

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: *Not required due to the fact that the grade separated has no major flow of water in the vicinity of the foundations.*

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: *Liquefaction is not an issue at this location due to the predominate cohesive soils which are non-liquefiable. The seismic data required for the TSL plan is provided below:*

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.139
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.243
Soil Site Class = D

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: *The draft TSL developed shows Steel H-Piles. However, we recommend the pile type be changed to Metal Shells (min. 14"x0.312") at all three substructures. Any 14" and 16" metal shell pile works for the integral abutment requirements but the MS14"x0.312" is required to assure drivability given the relatively stiff soil profile ending in a clay till layer which will be a stopper layer for the MS piles while H-piles would need to go longer. Conical tips are also recommended to defend against pile driving damage. "W/conical tips" should be added to the TSL after "Metal Shells Piles (min. 14"x0.312")". The estimated pile lengths and capacities are as shown in the attachments.*

Test piles are recommended at the east abutment and at the pier.

Calculate the estimated water surface elevation and determine the need for cofferdams (type 1 or 2), and seal coat: *Not required due to the fact that the grade separated has no major flow of water in the vicinity of the foundations.*

Assess the need for sheeting or soil retention or temporary construction slope and provide recommendation for other construction concerns: *The structure will not need to be staged constructed, based on the current plan to close the road during construction. The pier is not close to the I-72 and thus, a temp 1:1 construction slopes can be used to complete the partial removal of the pier footing and construct the new footing*.

Benchmark 4907-1: Chiseled Square on top of the northeast wingwall of SN 074-0026, elevation 722.99

Existing Structure:
S.N. 074-0026 was originally constructed in 1962 as part of F.A. Route 135 Section 74-69 HB-2, station 1286+39.70. The existing 4-span structure consists of 5-36" wide flange beams supporting a 7" reinforced concrete deck. The structure has an out-to-out deck width of 33'-8" and a back-to-back abutment length of 281'-0". The existing stub abutments and all piers are supported by concrete footings and concrete piles. The existing structure is on a 23°15'20" left forward skew.
Existing structure is to be removed and replaced.

Proposed structure to be built under road closure.

No Salvage

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

DESIGN STRESSES

FIELD UNITS
f'c = 3,500 psi
f'c = 4,000 psi (Superstructure)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)
All structural steel shall be metalized

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.139g
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.243g
Soil Site Class = D

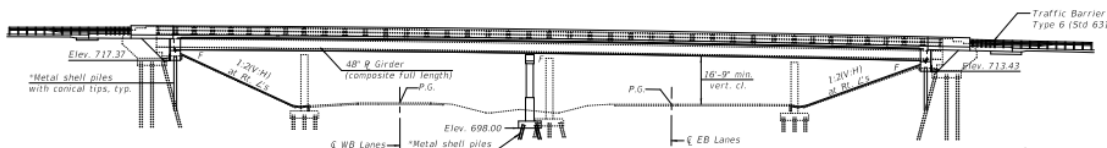
HIGHWAY CLASSIFICATION

F.A.S. Rte. 1532 (Old Rte 47)
Functional Class: Major Collector
ADT: 900 (2020); 1000 (2040)
ADTT: 46 (2020); 51 (2040)
DHV: 95 (2040)
Design Speed: 60 m.p.h.
Posted Speed: 55 m.p.h.
Two-Way Traffic
Directional Distribution: 55/45

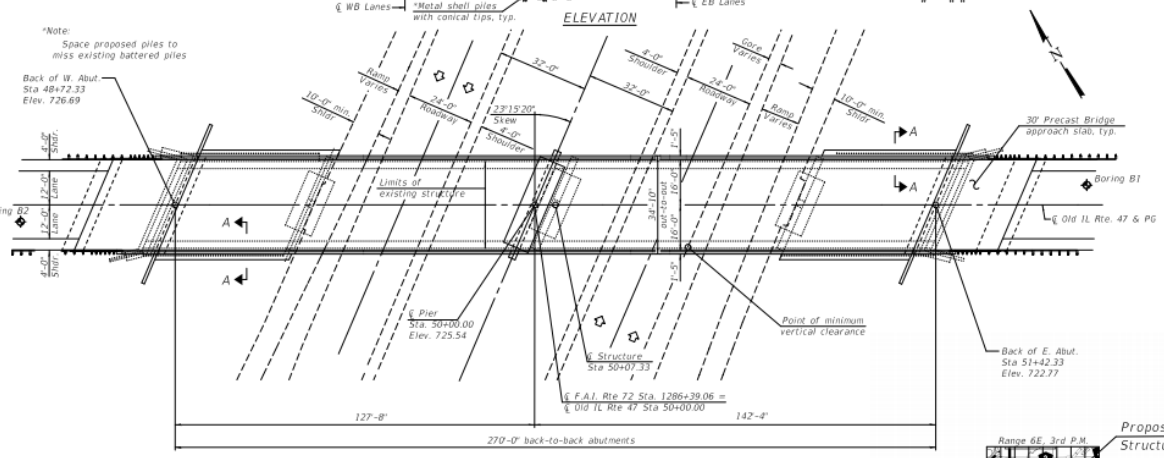
F.A.I. Rte. 72 (I-72)
Functional Class: Interstate
ADT: 15,500 (2020); 17,400 (2040)
ADTT: 3,054 (2020); 3,428 (2040)
DHV: 1,385 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
Two-Way Traffic
Directional Distribution: 55/45

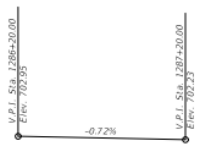
LOADING HL-93

Allow 50#/sq. ft. for Future Wearing Surface.

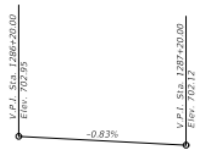


ELEVATION

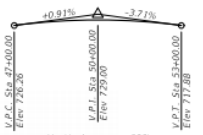




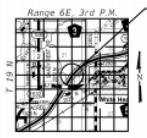
PROFILE GRADE
(Along ℄ W.B. Lanes - F.A.I. 72)



PROFILE GRADE
(Along ℄ E.B. Lanes - F.A.I. 72)



PROFILE GRADE
(Along ℄ Old IL. Rte 47)



LOCATION SKETCH

GENERAL PLAN & ELEVATION
OLD ILLINOIS RTE. 47
OVER F.A.I. RTE 72
F.A.S. RTE 1532 - SEC. 74-69BR
PIATT COUNTY
STATION 50+07.33
STRUCTURE NO. 074-0088

PLAN **APPROVED**
JANUARY 27, 2022
AS A BASIS FOR
PREPARATION OF DETAILED PLANS

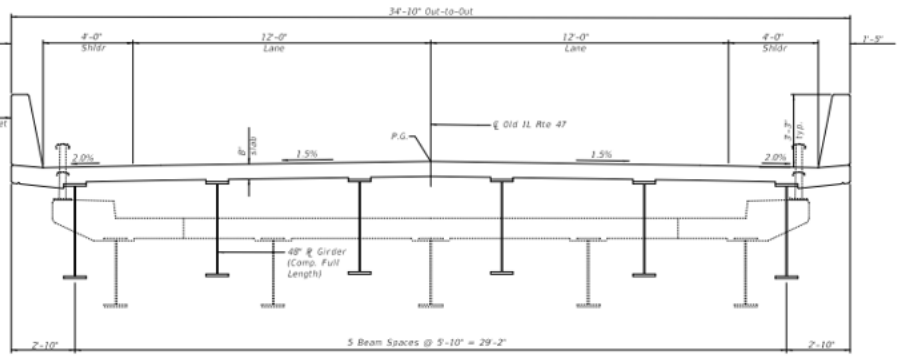
DESIGNED - JOSUE G. ORTEGA-VARELA
CHECKED - JUSTIN T. BELUE
DRAWN - GLENN W. STOVER
CHECKED - RICHARD J. CHAPUT

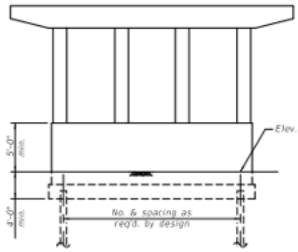
1/27/2022 - 2:38:33 PM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

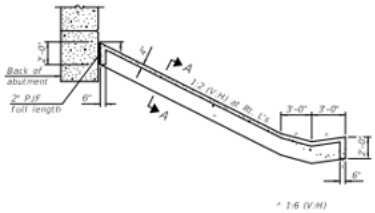
SHEET 1 OF 2 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1532	74-69BR	PIATT	2	1
		CONTRACT NO. 70629		
		FED. AID PROJECT		



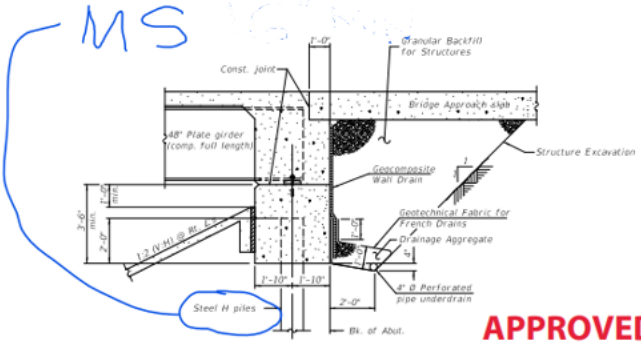


PIER SKETCH

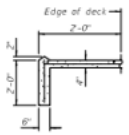


* 1:6 (V:H)

SECTION THRU CONCRETE SLOPEWALL



SECTION THRU INTEGRAL ABUTMENT
(Horiz. dim. @ Rt. E's)



SECTION A-A

APPROVED
JANUARY 27, 2022
AS A BASIS FOR
PREPARATION OF DETAILED PLANS

DETAILS
OLD ILLINOIS RTE 47 OVER F.A.I. RTE 72
F.A.S. RTE 1532 - SEC. 74-69BR
PIATT COUNTY
STATION 50+07.33
STRUCTURE NO. 074-0088

DESIGNED - JOSUE G. ORTEGA-VARELA
CHECKED - JUSTIN T. BELUE
DRAWN - GLENN W. STOVER
CHECKED - RICHARD J. CHAPUT

SDATES - STIMES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 2 OF 2 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1532	74-69BR	PIATT	2	2
		CONTRACT NO. 70629		
		FED. AID PROJECT		

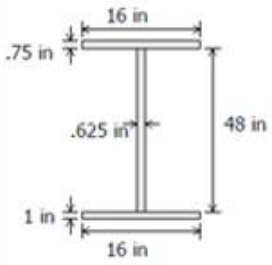
Summary: *(Estimated Total Loads at Bottom of Encasements)*

	Service I			Strength I		
	Super	Sub	Total	Super	Sub	Total
West Abutment	512.8	296.2	809.0	759.0	370.2	1,129.2
Pier	1,889.8	399.2	2,289.0	2,655.6	499.0	3,154.6
East Abutment	593.6	296.2	889.8	867.7	370.2	1,237.9

Positive Moment Region

Beam Section Properties

Plate Girder



Area =	58.0	in²
Yb =	23.3	in
Yt =	26.5	in
Ix =	22325	in⁴
Sb =	959	in³
St =	844	in³
rx =	19.6	in
Zx =	1038	in³
Iy =	598	in⁴
ry =	3.2	in

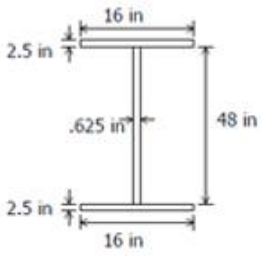
Section Weight

Beam * 1.15 0.227 k/ft

Negative Moment Region

Beam Section Properties

Plate Girder



Area =	110.0	in²
Yb =	26.5	in
Yt =	26.5	in
Ix =	56807	in⁴
Sb =	2144	in³
St =	2144	in³
rx =	22.7	in
Zx =	2380	in³
Iy =	1708	in⁴
ry =	3.9	in

Section Weight

Beam * 1.15 0.430 k/ft

Input Data and Parameter Calculations

Select Geographic Region

Conterminous 48 States

Guidelines Edition

2007 AASHTO Bridge Design Guidelines

Specify Site Location by Latitude-Longitude or Zip Code

(•) Latitude-Longitude : Recommended ( ) Zip Code

40.08313 -88.526

Latitude (50.0 to 24.6) Longitude (-125.0 to -65.0)

Calculate Basic Design Parameters

Probability of Exceedance: 7% PE in 75 years

Calculate PGA, Ss, and S1 | Calculate As, SDs, and SD1

Calculate Response Spectra

Map Spectrum | Design Spectrum

View Spectra

Output Calculations and Ground Motion Maps

```
2007 AASHTO Bridge Design Guidelines
AASHTO Spectrum for 7% PE in 75 years
 Latitude    =   40.083130
 Longitude  = -088.526000
 Site Class B
 Data are based on a 0.05 deg grid spacing.
   Period      Sa
   (sec)       (g)
     0.0      0.065   PGA - Site Class B
     0.2      0.152   Ss   - Site Class B
     1.0      0.058   S1   - Site Class B


Conterminous 48 States
2007 AASHTO Bridge Design Guidelines
Spectral Response Accelerations SDs and SD1
 Latitude    =   40.083130
 Longitude  = -088.526000
 As = FpgaPGA, SDs = FaSs, and SD1 = FvS1
 Site Class D  -  Fpga =  1.60,  Fa =  1.60,  Fv =  2.40
 Data are based on a 0.05 deg grid spacing.
   Period      Sa
   (sec)       (g)
     0.0      0.104   As   - Site Class D
     0.2      0.243   SDs - Site Class D
     1.0      0.139   SD1 - Site Class D
```

Clear Output | View Maps

Illinois Department of Transportation

INTEGRAL ABUTMENT FEASIBILITY ANALYSIS

Modified 10/30/17

CLEAR ALL INPUT DATA | CLEAR ABUT. #1 SOIL DATA | CLEAR ABUT. #2 SOIL DATA | PRINT

GENERAL DATA

STRUCTURE NUMBER	074-0088		TOTAL STRUCTURE LENGTH	270.00	FT
STRUCTURE TYPE	MULTI-SPAN		NUMBER OF SPANS	2	
STRUCTURE SKEW	23.5	DEGREES	END SPAN LENGTH	147.00	FT
SUPER. DATA IN REFERENCE TO SUB. DATA	ABUT 1		ADJACENT INTERIOR SPAN LENGTH	0.01	FT

SUPERSTRUCTURE POSITIVE MOMENT REGION DATA (END OR MAIN SP			SUPERSTRUCTURE POSITIVE MOMENT REGION DATA (ADJACENT SP		
BEAM TYPE	PLATE GIRDER				
TOP FLANGE WIDTH	16.00	IN	TOP FLANGE WIDTH	16.00	IN
TOP FLANGE THICKNESS	0.75	IN	TOP FLANGE THICKNESS	2.50	IN
WEB DEPTH	48.00	IN	WEB DEPTH	48.00	IN
WEB THICKNESS	0.63	IN	WEB THICKNESS	0.63	IN
BOTTOM FLANGE WIDTH	16.00	IN	BOTTOM FLANGE WIDTH	16.00	IN
BOTTOM FLANGE THICKNESS	1.00	IN	BOTTOM FLANGE THICKNESS	2.50	IN
BEAM SPACING PERP. TO CL	5.83	FT	BEAM SPACING PERP. TO CL	5.83	FT
SLAB THICKNESS	8.00	IN	SLAB THICKNESS	8.00	IN
SLAB F'C	4.00	KSI	SLAB F'C	4.00	KSI

ABUTMENT #1 DATA			ABUTMENT #2 DATA		
ABUTMENT NAME	West		ABUTMENT NAME	East	
ABUTMENT REFERENCE BORING	2 SW hole		ABUTMENT REFERENCE BORING	1 NE HOLE	
BOTTOM OF ABUTMENT ELEVATION	717.37	FT	BOTTOM OF ABUTMENT ELEVATION	713.43	FT
ESTIMATED NUMBER OF PILES AT ABUT.	6		ESTIMATED NUMBER OF PILES AT ABUT.	6	
PILE SPACING PERP. TO CL	5.8	FT	PILE SPACING PERP. TO CL	5.8	FT

SOIL DATA FOR 10 FT BENEATH BOTTOM OF ABUTMENT #1

BOT. OF LAYER ELEV. (FT)	LAYER THICKNESS (FT)	UNCONFINED COMPRESSIVE STRENGTH (TSF)	N S.P.T. VALUE (BLOWS/12 IN.)	Q_u EQUIV. FOR N VALUE (TSF)
715.87	1.50	4.1		
713.37	2.50	1.9		
710.87	2.50	1.9		
707.37	3.50	1.9		

10.00 FT - TOTAL DEPTH ENTERED

SOIL DATA FOR 10 FT BENEATH BOTTOM OF ABUTMENT #2

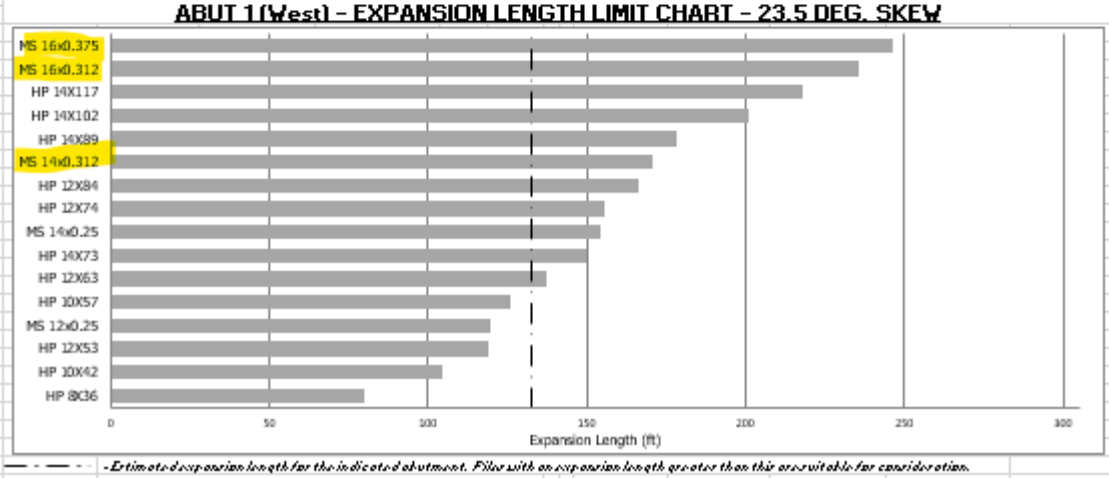
BOT. OF LAYER ELEV. (FT)	LAYER THICKNESS (FT)	UNCONFINED COMPRESSIVE STRENGTH (TSF)	N S.P.T. VALUE (BLOWS/12 IN.)	Q_u EQUIV. FOR N VALUE (TSF)
711.43	2.00	1.5		
708.93	2.50	2.2		
706.43	2.50	2.4		
703.43	3.00	2.40		

10.00 FT - TOTAL DEPTH ENTERED

WEIGHTED AVERAGE Q_u FOR ABUTMENT #1	~~2.44~~	TSF	WEIGHTED AVERAGE Q_u FOR ABUTMENT #2	~~2.42~~	TSF
PILE STIFFNESS MODIFIER FOR ABUTMENT #1			PILE STIFFNESS MODIFIER FOR ABUTMENT #2		
- 1/(1.45-[0.3*2.26])	1.29		- 1/(1.45-[0.3*2.17])	1.25	

DISTANCE TO CENTROID OF STIFFNESS FROM ABUTMENT #1 - [1.29*6*0+1.25*6*270]/[1.29*6+1.25*6]	132.76	FT
DISTANCE TO CENTROID OF STIFFNESS FROM ABUTMENT #2 - [1.25*6*0+1.29*6*270]/[1.25*6+1.29*6]	137.24	FT

ABUT 1 (West) – EXPANSION LENGTH LIMIT CHART – 23.5 DEG. SKEW



– – – – – Estimated expansion length for the indicated abutment. Piles with an expansion length greater than this are unsuitable for consideration. (Note: The same size pile should be used at both abutments.)

west abut	2 SW HOLE
Metal Shell 14"Φ w/.312" walls	

NOMINAL REQ'D BEARING (KIPS)	FACTORED RESISTANCE AVAILABLE (KIPS)	ESTIMATED PILE LENGTH (FT.)
39	22	4
62	34	7
79	43	10
115	63	12
126	69	15
134	73	17
136	75	20
152	84	22
166	91	26
187	103	28
204	112	31
226	124	33
245	135	36
282	155	41
324	178	44
326	179	45
329	181	46
332	182	47
334	184	48
476	262	49
515	283	54
523	288	59
570	314	64

west abut	2 SW HOLE
Metal Shell 16"Φ w/.375" or .312 walls	

NOMINAL REQ'D BEARING (KIPS)	FACTORED RESISTANCE AVAILABLE (KIPS)	ESTIMATED PILE LENGTH (FT.)
49	27	4
75	41	7
94	52	10
138	76	12
149	82	15
155	85	17
156	86	20
177	97	22
192	105	26
218	120	28
236	130	31
263	144	33
284	156	36
327	180	41
378	208	44
381	209	45
384	211	46
387	213	47
390	214	48
575	316	49
619	340	54
623	343	59
659	362	64
694	382	69
730	401	74
782	430	79

Note that the MS16"x0.312 is limited to a maximum nominal bearing of 654 kips

Pier	1962 B1
Metal Shell 14"Φ w/.312" walls	

NOMINAL REQ'D BEARING (KIPS)	FACTORED RESISTANCE AVAILABLE (KIPS)	ESTIMATED PILE LENGTH (FT.)
27	15	3
38	21	6
65	36	8
89	49	11
131	72	13
128	70	16
223	123	18
187	103	21
321	176	23
277	152	26
396	218	28
426	234	31
451	248	33
478	263	36
505	278	38
533	293	41
570	314	43

Pier	1962 B1
Metal Shell 16"Φ w/.375" or .312 walls	

NOMINAL REQ'D BEARING (KIPS)	FACTORED RESISTANCE AVAILABLE (KIPS)	ESTIMATED PILE LENGTH (FT.)
33	18	3
45	25	6
79	43	8
107	59	11
159	87	13
149	82	16
271	149	18
222	122	21
392	216	23
332	183	26
484	266	28
519	285	31
549	302	33
580	319	36
611	336	38
644	354	41
677	373	43
712	392	46
782	430	48

Note that the MS16"x0.312 is limited to a maximum nominal bearing of 654 kips

east abut	1 NE HOLE	
Metal Shell 14"Φ w/.312" walls		
NOMINAL REQ'D BEARING (KIPS)	***FACTORED RESISTANCE AVAILABLE (KIPS)***	***ESTIMATED PILE LENGTH (FT.)***
37	20	4
57	31	7
78	43	9
105	58	12
122	67	14
143	78	17
160	88	19
174	96	22
176	97	24
195	107	27
208	114	29
238	131	32
279	154	34
299	164	39
314	173	44
370	204	49
406	223	54
456	251	56
483	266	66
570	314	71

east abut	1 NE HOLE	
Metal Shell 16"Φ w/.375" or .312 walls		
NOMINAL REQ'D BEARING (KIPS)	***FACTORED RESISTANCE AVAILABLE (KIPS)***	***ESTIMATED PILE LENGTH (FT.)***
46	25	4
70	38	7
94	51	9
126	70	12
145	80	14
168	92	17
187	103	19
203	111	22
202	111	24
226	124	27
240	132	29
277	153	32
328	180	34
344	189	39
360	198	44
432	237	49
468	258	54
532	293	56
562	309	66
570	314	71
699	384	76
782	430	81

Note that the MS16”x0.312 is limited to a maximum nominal bearing of 654 kips

Illinois Department of Transportation

Division of Highways
IL DEPARTMENT OF TRANSPORTATION

SOIL BORING LOG

Date 7/27/21

ROUTE FAI 72 DESCRIPTION OLD 47 OVER I-72 LOGGED BY DDB

SECTION 74-69BR LOCATION NE 1/4, SEC. 28, TWP. 19N, RNG. 6E, 3rd PM., GPS:

COUNTY PIATT DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO. 074-0088
Station 1286+39.7

BORING NO. 1 NE HOLE
Station 51+99
Offset 6.00ft LT
Ground Surface Elev. 719.7 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 669.7 ft
Upon Completion ft
After Hrs. ft

DEPTH (ft)	SPT N (/12")	UCS Qu (tsf)	MOIST (%)	Material
				CONCRETE
				718.70 AGGREGATE BASE
718.20				BLACK TOPSOIL
	9			
-5	3 3		NS	
713.70				GRAY MOTTLED CLAY
	1			
	2 4	1.5 P	26.8	
	1			
-10	3 4	2.18 B	19.3	
	2			
	4 6	2.42 B	19.4	
705.70	2			
	3 8	2.42 B	20.9	BLACK CLAY EMBANKMENT
-15				
	3			
	5 7	3.15 B	19.2	
	5			
-20	5 6		NS	
				BLACK CLAY EMBANKMENT *(continued)*
	4			
	5 7	2.67 B	21.9	
	3			
-25	4 5	2.42 B	24.6	
693.70	5			GRAY SANDY CLAY TILL
	4 4	2.0 P	17.0	
	2			
689.70 -30	2 3	0.73 B	14.6	STIFF BROWN CLAY TILL
	2			
	1 4	1.70 B	14.2	
686.20	0			BROWN SILTY CLAY LOAM
-35	4 4	1.5 P	18.8	
683.70	4			STIFF GRAY CLAY TILL
	6 9	2.91 B	10.5	
	7			
-40	8 11	4.61 B	8.3	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING 074-0088.GPJ IL_DOT.GDT 7/29/21

Illinois Department of Transportation
Division of Highways
IL DEPARTMENT OF TRANSPORTATION

SOIL BORING LOG

Date 7/27/21

ROUTE FAI 72 DESCRIPTION OLD 47 OVER I-72 LOGGED BY DDB

SECTION 74-69BR LOCATION NE 1/4, SEC. 28, TWP. 19N, RNG. 6E, 3rd PM., GPS:

COUNTY PIATT DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO. 074-0088
Station 1286+39.7

BORING NO. 1 NE HOLE
Station 51+99
Offset 6.00ft LT
Ground Surface Elev. 719.7 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 669.7 ft
Upon Completion ft
After Hrs. ft

DEPTH (ft)	SPT N (/12")	UCS Qu (tsf)	MOIST (%)	Material
				STIFF GRAY CLAY TILL *(continued)*
675.70	12			
	12	1.21	15.5	MOTTLED CLAY TILL
-45	14	B		
671.70				
	10			GRAY SANDY CLAY TILL
	19	0.48	15.0	
▼-50	12	S		
667.70				
	4			STIFF GRAY CLAY TILL
	7	4.36	1.9	
-55	11	B		
	4			
	6	2.42	12.5	
659.70 -60	11	B		

DEPTH (ft)	SPT N (/12")	UCS Qu (tsf)	MOIST (%)	Material
				GRAY FINE SAND
	0			
	0	0	19.9	
-65	0	P		
652.70				
	7			STIFF GRAY CLAY TILL
	10	5.33	11.6	
649.70 -70	16	B		
				End of Boring
-75				
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
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SOIL BORING 074-0088.GPJ IL_DOT.GDT 7/29/21

Illinois Department of Transportation

Division of Highways
IL DEPARTMENT OF TRANSPORTATION

SOIL BORING LOG

Date 7/28/21

ROUTE FAI 72 DESCRIPTION OLD 47 OVER I-72 LOGGED BY DDB

SECTION 74-69BR LOCATION NE 1/4, SEC. 28, TWP. 19N, RNG. 6E, 3rd PM., GPS:

COUNTY PIATT DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO. 074-0088
Station 1286+39.7

BORING NO. 2 SW HOLE
Station 48+13
Offset 7.00ft RT
Ground Surface Elev. 725.9 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 670.9 ft
Upon Completion ft
After Hrs. ft

DEPTH (ft)	SPT N (/12")	UCS Qu (tsf)	MOIST (%)
CONCRETE 724.90			
AGGREGATE BASE 724.40			
MOTTLED CLAY			
721.90	2		
STIFF MOTTLED CLAY EMBANKMENT (MOSTLY GRAY)	1	0.97	22.6
-5	2	B	
	4		
	4	3.64	16.5
	6	S	
	3		
	4	4.12	25.3
715.90 -10	6	B	
MOTTLED EMBANKMENT (MOSTLY BROWN)			
	2		
	4	1.94	20.4
	5	B	
	4		
	4	1.94	19.9
-15	6	S	
709.90			
BROWN SANDY CLAY EMBANKMENT	4		
	4	1.94	13.5
	8	B	
707.90			
BROWN STIFF CLAY EMBANKMENT	4		
	4	3.64	23.8
-20	8	B	
705.40			
GRAY CLAY EMBANKMENT	3		
	4	2.42	29.4
	5	B	
702.90			
BROWN MOTTLED CLAY	3		
	3	1.45	25.1
-25	5	B	
699.90			
SOFT BROWN SANDY CLAY	1		
	1	0.48	19.9
	1	B	
697.90			
BROWN MOTTLED CLAY	3		
	4	1.45	13.9
-30	7	B	
	5		
	6	0	20.4
	9	P	
	4		
691.40	5	1.94	11.4
GRAY CLAY TILL -35	7	B	
	3		
	5	1.94	10.5
	7	B	
	0		
	4	2.42	11.6
-40	5	B	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
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SOIL BORING 074-0088.GPJ IL_DOT.GDT 7/29/21

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ROUTE FAI 72 DESCRIPTION OLD 47 OVER I-72 LOGGED BY DDB

SECTION 74-69BR LOCATION NE 1/4, SEC. 28, TWP. 19N, RNG. 6E, 3rd PM., GPS:

COUNTY PIATT DRILLING METHOD HSA HAMMER TYPE AUTO

STRUCT. NO. 074-0088
Station 1286+39.7

BORING NO. 2 SW HOLE
Station 48+13
Offset 7.00ft RT
Ground Surface Elev. 725.9 ft

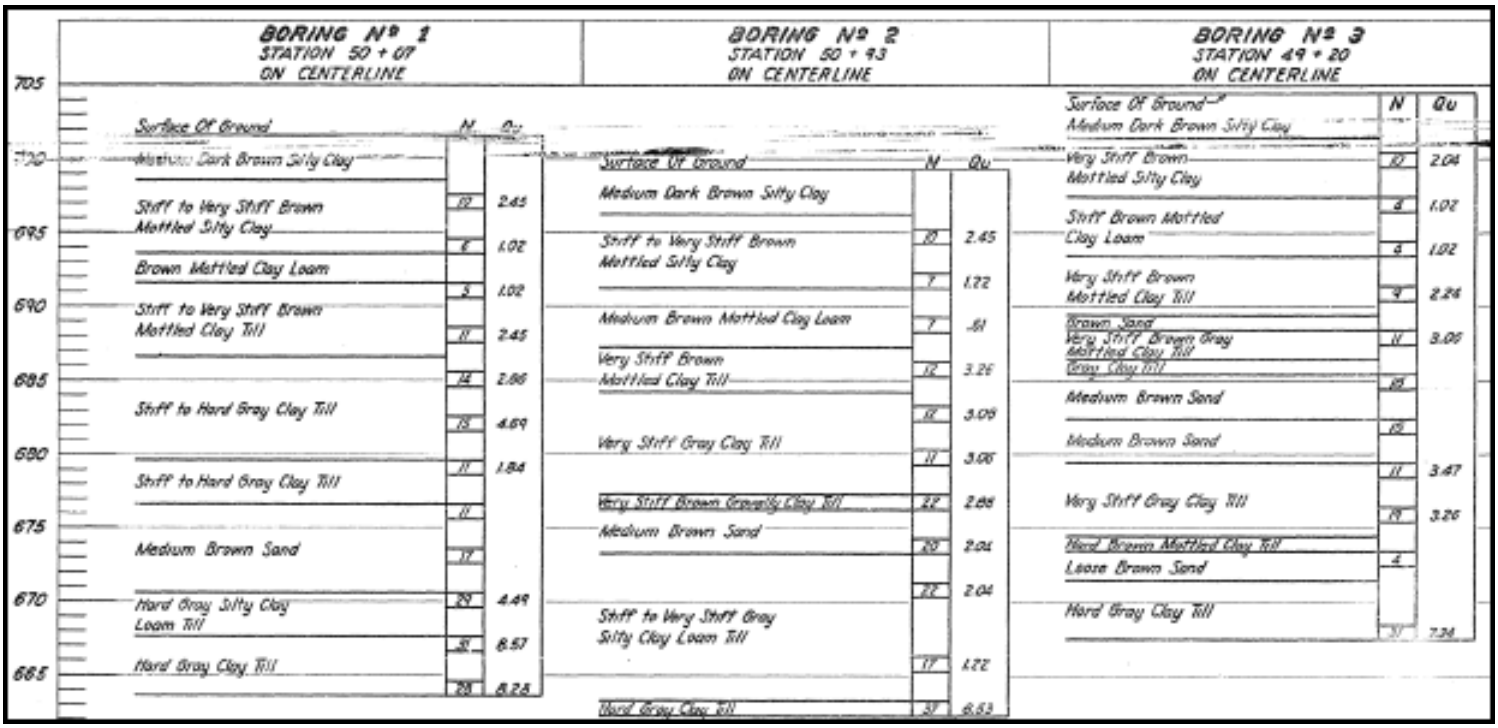
Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 670.9 ft
Upon Completion ft
After Hrs. ft

DEPTH (ft)	SPT N (/12")	UCS Qu (tsf)	MOIST (%)	Material
				GRAY CLAY TILL *(continued)*
	5			
-45	6 9	2.42 B	10.2	
	5			
675.90 -50	8 9	2.42 S	10.0	
				COARSE SAND
	1			
-55	1 6		12.3	
	15			
665.90 -60	24 30		NS	
				FINE SAND
664.40				
				COARSE SAND
661.90	12			
660.90 -65	11 26		12.7	GRAY CLAY TILL
				COARSE SAND
659.40				
				GRAY CLAY TILL
	12			
655.90 -70	8 15	4.85 B	12.9	
-75				End of Boring
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING 074-0088.GPJ IL_DOT.GDT 7/29/21


BORING Nº 1
STATION 50 + 07
ON CENTERLINE
BORING Nº 2
STATION 50 + 93
ON CENTERLINE
BORING Nº 3
STATION 49 + 20
ON CENTERLINE
705
700
695
690
685
680
675
670
665
Surface Of Ground
Medium Dark Brown Silty Clay
Stiff to Very Stiff Brown Mottled Silty Clay
Brown Mottled Clay Loam
Stiff to Very Stiff Brown Mottled Clay Till
Stiff to Hard Gray Clay Till
Stiff to Hard Gray Clay Till
Medium Brown Sand
Hard Gray Silty Clay Loam Till
Hard Gray Clay Till
N
Qu
12 2.45
6 1.02
5 1.02
11 2.45
14 2.86
18 4.69
11 1.84
11
17
29 4.49
32 6.57
28 6.25
Surface Of Ground
Medium Dark Brown Silty Clay
Stiff to Very Stiff Brown Mottled Silty Clay
Medium Brown Mottled Clay Loam
Very Stiff Brown Mottled Clay Till
Very Stiff Gray Clay Till
Very Stiff Brown Gravelly Clay Till
Medium Brown Sand
Stiff to Very Stiff Gray Silty Clay Loam Till
Hard Gray Clay Till
N
Qu
10 2.45
7 1.72
7 .61
12 3.26
12 3.09
11 3.06
22 2.88
10 2.04
22 2.04
17 1.72
31 6.63
Surface Of Ground
Medium Dark Brown Silty Clay
Very Stiff Brown Mottled Silty Clay
Stiff Brown Mottled Clay Loam
Very Stiff Brown Mottled Clay Till
Brown Sand
Very Stiff Brown Gray Mottled Clay Till
Gray Clay Till
Medium Brown Sand
Medium Brown Sand
Very Stiff Gray Clay Till
Hard Brown Mottled Clay Till
Loose Brown Sand
Hard Gray Clay Till
N
Qu
10 2.04
6 1.02
6 1.02
9 2.24
11 3.09
18
19
11 3.47
19 3.26
4
31 7.34